This document is the 2009-2014 Coosa County Multi-Jurisdictional Hazard Mitigation Plan. The local mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding.

For disasters declared after November 1, 2004, a local government must have a mitigation plan approved in accordance with 44CFR Part 201.6 (Disaster Mitigation Act of 2000) in order to receive Hazard Mitigation Grant project grants.

To fulfill part 201.6 (4) (iii) of the Disaster Mitigation Act of 2000, (continuing citizen participation requirement) this document is made available to the public for review and comment. This document must be updated every 5 years.

Comments on this document may be made in writing and submitted to:

Coosa County Emergency Management Agency
ATTN: EMA Director
P. O. Box 10
Rockford, AL 35136

Introduction

The Coosa County Hazard Mitigation Plan was created to protect the health, safety and economic interests of residents of the County, by reducing the impacts of natural hazards through hazard mitigation planning, awareness and implementation. Hazard mitigation is any action taken to permanently eliminate or reduce the long-term risk to human life and property from natural and technological hazards. It is an essential element of emergency management along with preparedness, response and recovery. This plan serves as the foundation for hazard mitigation activities within the county. Implementation of the plan's recommendations will reduce injuries, loss of life, and destruction of property due to natural and technological hazards. The plan provides a path toward continuous, proactive reduction of vulnerability to the most frequent hazards that result in repetitive and often severe social, economic and physical damage. The ideal end-state is total integration of hazard mitigation activities, programs, capabilities and actions into normal, day-to-day governmental functions and management practices. How successful this mitigation effort may be depends upon the dedication and interest displayed by governments, volunteer groups and political entities responsible for its implementation.

Staff of the East Alabama Regional Planning and Development Commission (EARPDC) prepared this document with assistance from many local, state and federal agencies, including: the Coosa County Emergency Management Agency, the State of Alabama Emergency Management Agency, the State Hazard Mitigation Grant Program Officer, Jacksonville State University, the National Oceanic and Atmospheric Administration (NOAA), the Federal Emergency Management Agency (FEMA), the United States Army Corps of Engineers (COE), and the United States Geological Survey (USGS). These entities participated by providing information and/or actively participating in planning sessions.

This plan was developed under the authority of the Disaster Mitigation Act of 2000 (DMA 2000), Interim Final Rule 44 CFR Parts 201 and 206. The rule was published February 26, 2002. The interim final rule provides the criteria for development and approval of State as well as local plans required by the legislation.

In September of 2005 the Alabama Association of Regional Councils applied to the Alabama Emergency Management Agency on behalf of the Coosa County Emergency Management Agency for funding to update the Hazard Mitigation Plan. That funding request was approved in December 2006. The update of this plan has been funded through the Hazard Mitigation Grant Planning Fund from funds received related to Hurricane Katrina (FEMA 1605-DR).

Why Mitigate?

Natural hazards exist with or without the presence of humans and the development we produce. *Natural disasters* occur only when the developed environment happens to be in the way of a natural event and human lives are affected. Mitigation is an ongoing process that attempts to lesson the impact of natural disasters by identifying and planning for the occurrence of natural hazards.

Natural disasters are cyclical. The interval between them may vary, but not their ultimate inevitability. Communities must incorporate the expectation of future disasters into their planning and environmental consciousness. While the disasters are recurrent, the pattern of recovering and rebuilding in the same place and manner that caused the developed areas to be vulnerable in the first place need not be. Effective mitigation breaks this cycle.

The benefits of implementing hazard mitigation are plenty. The following list illustrates some of the more obvious:

- Saving lives and reducing injuries;
- Preventing or reducing property damage;
- Minimizing agricultural losses;
- Reducing economic losses;
- Protecting infrastructure from damage;
- Maintaining critical facilities in working order;
- Minimizing social dislocation and stress;
- Protecting mental health;
- Limiting legal liability of public officials;
- Fostering cooperation between community public and private entities; and,
- Providing a positive template for post-disaster government action.

Hazard Mitigation Measures

The bedrock of all mitigation activities is a need to focus on planning for future uncertain but plausible natural events. Coosa County and the incorporated areas it contains may choose from a suite of measures to lessen the potential impact of its natural hazards. Local communities usually have the responsibility of choosing which measure is best for their circumstances. Representatives of interested groups within the community that either could be impacted by a potential disaster or would be required by law to play a role should a disaster occur agree in principal to undertake steps to lessen the shock of a prospective disaster.

The physical damage from a natural disaster is typically structural, but the methods used to decrease the chances of such damage in the future need not be. A person can group mitigation measures into two large categories, non-structural and structural. A community selects mitigation measures from within these broad categories depending

upon its legal, political, institutional, fiscal and technical capabilities both before and after a disaster. Communities make plans in the relative calm of normal community life; however, disasters have a tendency to introduce the unforeseen. That is why mitigation is an ongoing process. It takes place in relative calm while incorporating the lessons of previous catastrophes.

NON-STRUCTURAL MITIGATION ACTIVITIES

Non-structural choices are those that do not rely primarily on the construction of some type of structure to provide for mitigation in the face of a predictable future disaster. For instance, the development and use of vulnerable land such as floodplains or potentially unstable slopes might be limited through planning, land acquisition, regulation or a combination of all three. Building, zoning, planning and / or code enforcement officials usually administer these activities.

Non-structural choices are often the least costly option for local governments. Another attraction of these choices is that they can help the local government accomplish its goal of protecting the public health and welfare despite not having the power to dictate activities to local private property owners. Most owners welcome the opportunity to reduce their risk once they become aware that they have exposure. Incentives can be all owners need to act.
The following is a partial listing of useful non-structural mitigation methods:

Comprehensive planning allowing for growth while protecting the community;
Enacting zoning that will best protect the community's assets;
Preserving open space providing buffer zones of protection;
Developing and enforcing building codes;
Managing storm water for both quantity and quality;
Maintaining and improving existing community drainage systems;
Relocating to less hazardous places;
Acquiring vulnerable buildings or parcels for relocation or conversion to a more impact resistance use;
Maintaining adequate hazard insurance;
Taking positive measures during a hazardous event to minimize its effect such as:
- warning the members of the community;
- protecting critical facilities;
- having a tested emergency response plan in place;
- evacuation.

Establishing an ongoing effort to inform the community of the hazards and what each person can do to decrease their risk. Typically, communities do this by:
- publishing flood maps and data;
- publishing maps of potentially unstable slopes;
- publishing maps of soils unsuitable for different purposes;
- stocking the public library with resources from private and public sources;
- disclosing hazard potential information in real estate transactions;
- providing technical assistance;

establishing public outreach projects;
providing hazard education programs to all community constituencies.

Considering the protection already afforded by natural resources and maintaining that through:

wetlands protection;
open space set-asides;
using Best Management Practices;
using sediment and erosion control measures.

STRUCTURAL MITIGATION MEASURES

Structural measures are just as the name implies. They are physical constructs typically designed by engineers to lessen the impact of a potential disaster of a particular size. Essentially, things are built to keep natural hazards out, or to keep them reigned in, or to let them pass by while causing the minimal amount of damage, or to strengthen existing buildings to withstand greater assaults. A partial list of structural mitigation techniques would include:

Modifying stream channels so they can produce and accommodate faster flows;
Building levees or floodwalls to keep streams within their banks;
Building reservoirs to store excess water until they safely release it downstream;
Building stream diversion structures to direct floodwaters away from communities;
Building storm sewers to help drain the community as quickly as possible;
Retrofitting existing structures to withstand greater pressure from seismic waves or high winds

Specific mitigation measures cannot be applied blindly to any situation. Community leaders may elect to construct several combinations from a palette of choices.

The Natural Hazards Center, located at the University of Colorado, Boulder, Colorado, USA, is a national and international clearinghouse for information on natural hazards and how human behavior changes because of hazards and disasters. The center's prime goal is to increase communication among hazard/disaster researchers and those individuals, agencies, and organizations actively working to reduce disaster damage and suffering.

With funds contributed by the National Science Foundation, the Natural Hazards Center Quick Response Program enables social scientists to travel to the site of a disaster soon after it occurs to gain valuable information concerning immediate impact and response. The findings of these studies cover a broad range of disasters - both natural and human-caused - in diverse settings affecting all types of human communities.

COOSA COUNTY OVERVIEW

Coosa County was created by the Alabama legislature on 1832 Dec. 18, from lands included in the Creek Indian Treaty of Cusseta, 1832 Mar. 24. It was named for the Coosa River, which forms its western boundary. The word "Coosa" is believed to mean "cane-brake" in the Alibama-Kossati Indian dialect. Coosa County lies in the east-central part of the state. It is bordered by Shelby, Talladega, Clay, Tallapoosa, Elmore, and Chilton counties. A site on Albert Crumpler's plantation on Hatchemalega Creek was chosen as the county seat and given the name Lexington. In 1835 the name was changed to Rockford. Other towns and communities include Equality, Nixburg, and Goodwater.

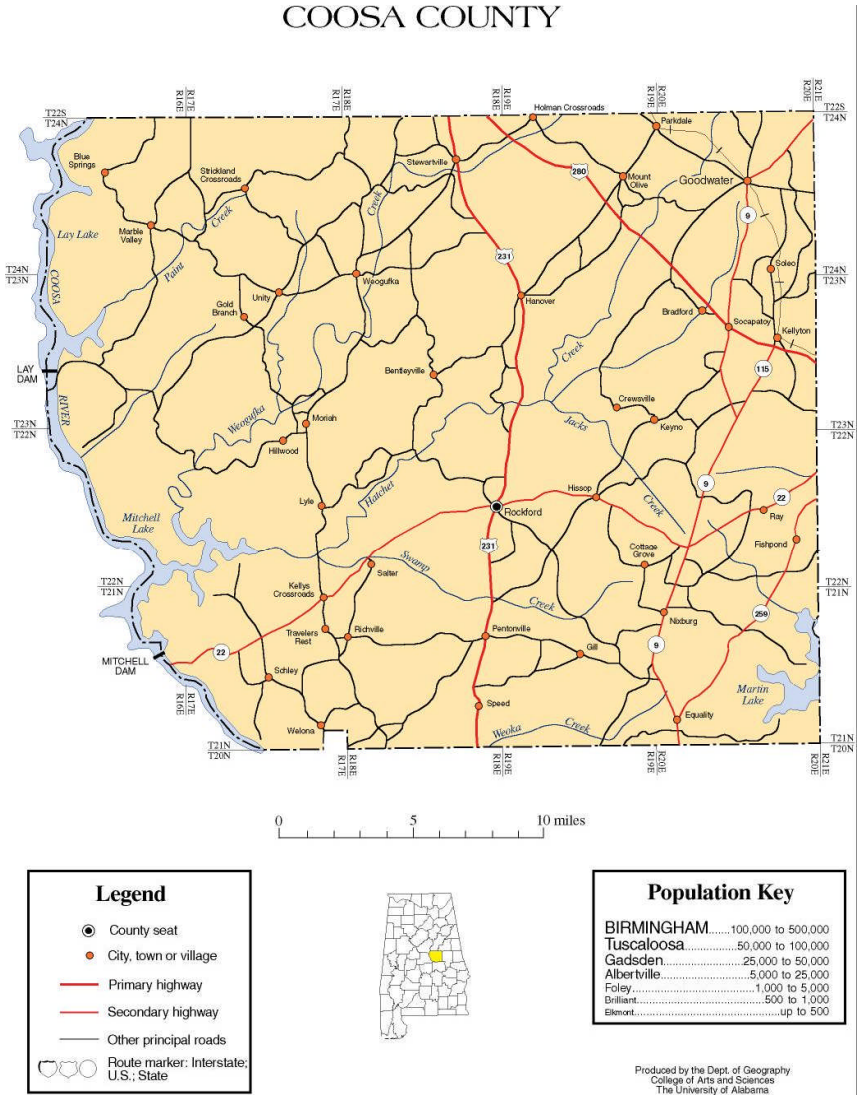
The town of Goodwater is Coosa County's largest, but the county seat is in Rockford, 26 miles north of Wetumpka. Originally named Pondalassa by settlers, the town's name was later changed to Rockford.

According to the U.S. Census Bureau, the County has a total area of 666 square miles. Of these miles, 652 square miles are land and 14 square miles are water surface. Water surface makes up approximately 2.09% of the surface area.

HYDROLOGY

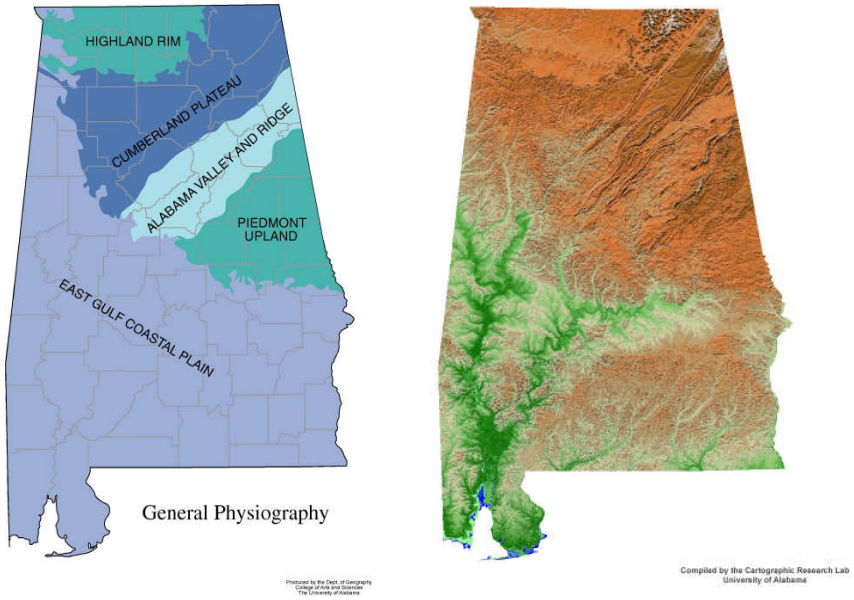
Two watersheds, the Lower Coosa and Middle Tallapoosa, drain Coosa County. The Tallapoosa River flows in the southeastern portion of the County. The Coosa River borders the entire Western portion of the County. In Coosa County the general movement of ground water is south and west. As the principal cause of water level fluctuations in Coosa County is seasonal (related directly to precipitation), the lowest annual water level is in the fall (during a period pf low precipitation) and the highest water level is in late winter or early spring (during a period of high precipitation).

Most wells in the county range form 100 to 250 feet in depth, with the static water level usually being form 15 to 25 feet. Shallow wells of less than 50 feet total depth are generally ample for limited domestic use. Water is generally of good quality and is suitable for many uses.



PHYSIOGRAPHY

Coosa County is situated on the western end of the piedmont plateau. Rockford, the county seat is approximately 40 miles from Montgomery. The surface of the northwestern two thirds of the county consist of parallel ridges and valleys extending in a northeast-southwest direction; the other third has an undulating surface relief, with step slopes bordering stream courses.

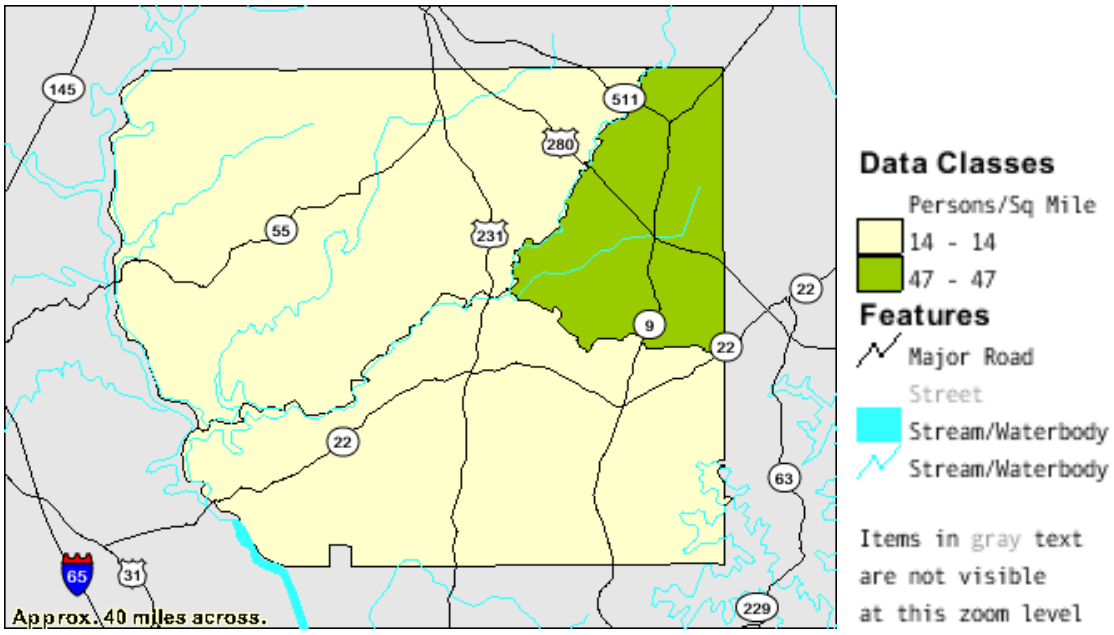


POPULATION

There are three incorporated towns in Coosa County, Goodwater, Kellyton and Rockford. The town of Kellyton incorporated in 2002. The following table depicts selected demographic characteristics for the County and its incorporated municipalities:

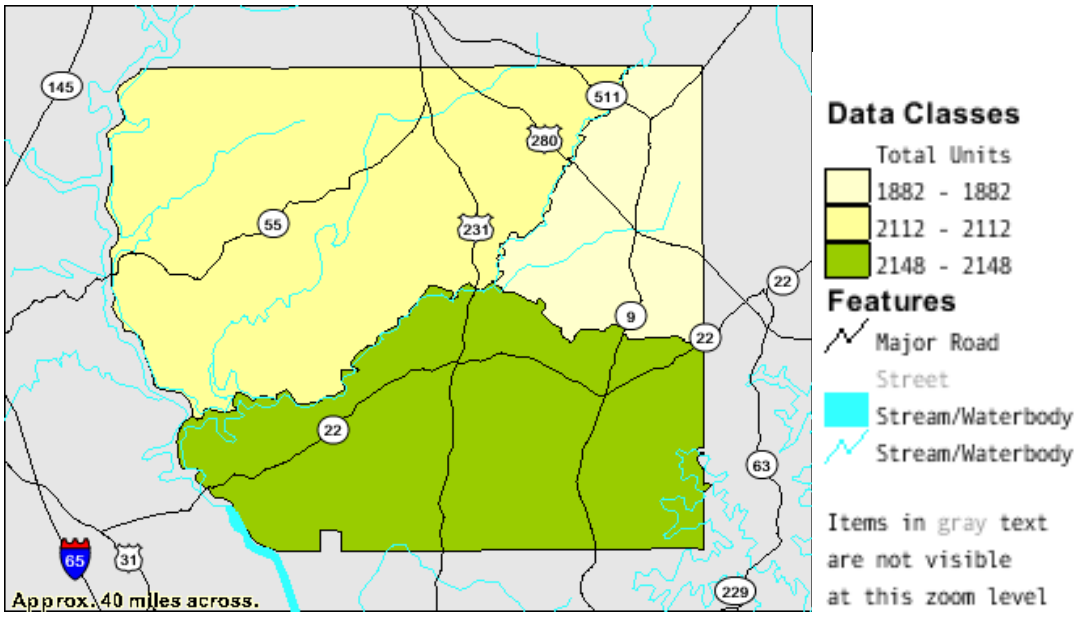
Jurisdiction	Population	Over Age 65	Under Age 18	Total Housing Units	Occupied Housing Units	Unemployed	Median Household Income	Percent of population below poverty level
Coosa County	10,141	1,761		5,189	3,872	369	$29,873	14.9%
Kellyton	320	(Other Census Data unavailable at this time.)						
Goodwater	1,633	290	465	727	621	75	$22,188	23.3%
Rockford	428	87	116	226	189	3	$20,000	24.5%

According to the U. S. Census, the population in Coosa County has increased by 13% from 1990 to 2000. The 2000 U.S. Census revealed a total county population of 12,202 composed of 5,970 females and 6,232 males. The racial composition in the county is 7,802 (63.9%) White or Caucasian, 4,172 (34.2%) are Black or African American. The remaining 1.9% is composed of Native American, Asian, Native Hawaiian and Other Pacific Islander. Nine tenths of one percent of the population claims two or more races.



HOUSING

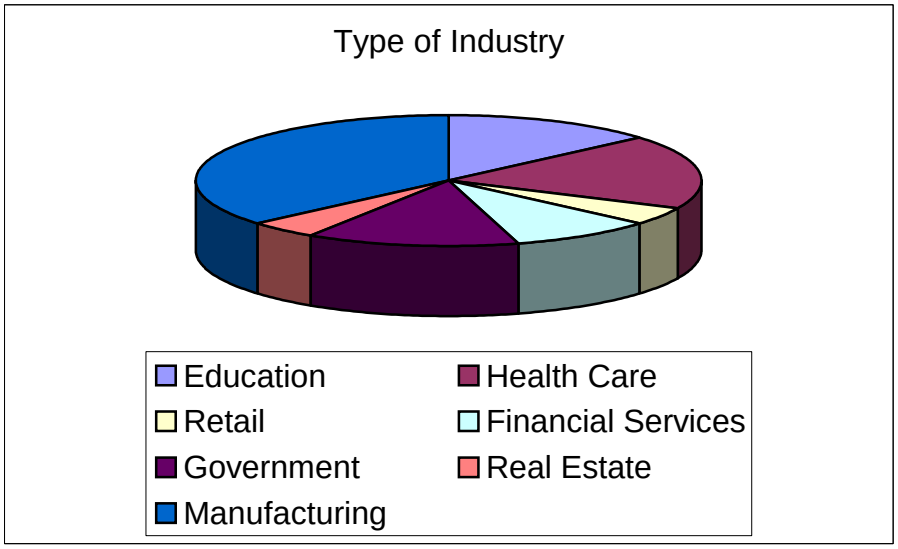
According to the U.S. Census 2000, there are 6,142 housing units in Coosa County. Of these units, 4,682 are occupied. Of the occupied housing, 3,970 units are owner-occupied, leaving 718 units renter occupied. The housing stock consists of 3,924 single unit detached homes, 191 units that are attached to either another housing unit or a structure of some sort. There are 2,020 mobile home units in the county use as primary residences. The following map shows the distribution of housing in Coosa County.



ECONOMY

For the purpose of this plan, an analysis of the local economy will draw a picture of the areas ability to cope, and if necessary, recover from potential damage caused by hazards. The stronger and more diverse an economy is, the more sustainable it will be during a substantially hazardous event.

The following table depicts the proportions of industry located within the county:



The median household income for the state of Alabama is $34,135.00. The U.S. Census reports the median household income for Coosa County is $29,873.00. The Per Capita Income for the State is $18,189.00, while in Coosa County it is $14,875.00. According to the U. S. Census there are approximately 369 unemployed persons in Coosa County. Approximately 410 families are living at or below the poverty level.

The following table displays employment and poverty information for the County and municipalities. This information was obtained from the 2000 Census:

Municipality	Families Below Poverty Level	Individuals Below Poverty Level	Unemployed Individuals	Employed Individuals
Unincorporated Coosa County	291	1,289	291	4,137
Goodwater	91	367	75	561
Kellyton	Data unavailable at this time			
Rockford	28	104	3	143

The FY 2004 HUD Adjusted Income data places low to moderate-income levels for the county at 42.56% of the population countywide.

GOVERNMENT

Coosa County is governed by a five-member County Commission. The Commission has rotating Chairmanship. Each commissioner is elected to serve a term of four years. It is the responsibility of the County Commission to oversee the County government, budget, County ordinances and resolutions (local laws), zoning and business regulation in the unincorporated areas and setting policies for the operation of County government. The municipalities within the County are each governed by a Mayor and City Council.

WATER

There are five water distribution systems that provide a safe reliable source of drinking water to the residents of Coosa County. Collectively, these systems serve approximately 17,095 households. The table below summarizes the supply, storage and treatment capacities of the water systems in Coosa County:

SYSTEM NAME	RESIDENTIAL HOUSEHOLDS SERVED	RESIDENTIAL PERSONS SERVED	SUPPLY CAPACITY (GPD)	STORAGE CAPACITY (GPD)	TREATMENT CAPACITY (GPD)
Kellyton Water System	612	Unknown	**	500,000	**
Ray Community Water and FPA	455	1,300	**	100,000	**
Stewartville Water Authority	1,470	5,000	576,000	350,000	576,000
Goodwater Water Works and Sewer Board	853	1,840	500,000	400,000	500,000
Rockford Water Works	605	1,000	500,000	150,000	140,000

** Purchase treated water

SEWER

Sewage disposal within the County is accomplished by septic tank. The municipalities of Rockford and Goodwater maintain sewer systems. The table below describes these systems:

TREATMENT FACILITY INVENTORY

Water Works and Sewer Board of Goodwater
- Baker Creek Activated Sludge……. 10 Acres
- Extended Aeration Plant ……. 150,000 GPD

Rockford Water, Sewer and Gas Board
- Aeration Plant …… 37,500 GPD

Total municipal treatment capacity……. 187,000 GPD

POWER

Alabama Power provides electrical service throughout the Town of Rockford. Central Alabama Rural Electrical Co-Op supplies power for the remainder of the County.

INFORMATION/COMMUNICATION

TELEPHONE - Bellsouth provides the majority of local home telephone service for Coosa County. Many of the residents use wireless service rather than having a hardwired home telephone. This trend is becoming more popular. The largest wireless service providers for the area are CellularOne, Cingular (a subsidiary of Bellsouth) and Nextel. Bellsouth and the listed wireless companies also offer Internet services.

Bellsouth also provides long distance service for Goodwater. Other long distance providers in the county are Century Tel and Altel, providing service to approximately 1,400 subscribers.

NEWSPAPERS – Local newspaper service is provided by the Coosa County News, published in Rockford by Coosa Communications.

RADIO – There are no local radio providers in Coosa County. Radio signals are received from stations located in surrounding counties.

TELEVISION – There are no local television service providers in Coosa County. Television signals are received from stations located in surrounding counties.

911 – Coosa County currently does not have a 911-call center. Service is provided from Tallapoosa County.

POLICE – Policing services are provided by the Coosa County Sheriff's Department for the unincorporated areas of the County. The towns of Rockford and Goodwater maintain their own police departments. Kellyton is currently served by the County Sheriffs Department.

FIRE – There are 10 fire departments within the Counties borders. Three are municipal; Goodwater, Kellyton and Rockford. The remaining 7 are volunteer fire departments located throughout the unincorporated areas of the County.

PLANNNG PROCESS

Funding from the Alabama Emergency Management Agency made the update of this plan possible. During a meeting of the Alabama Association of Regional Councils All Hazards Task Force, it was pointed out by AEMA staff that some plans lacked consistency and cohesiveness. These were plans that were created during the initial plan development effort of DMA 2000. The Councils inquired about the availability of funds for plan updates. The AEMA informed the RPC's that HMGP funds were available for Mitigation Plan updates.

With this information, staff of the East Alabama Regional Planning and Development Commission (EARPDC) met with the Coosa County EMA Director, County Commission and Mayors of each municipality. The information of planning fund availability was shared and the entities were asked if they were interested in participating in a planning activity which would update the existing Hazard Mitigation Plan. All jurisdictions agreed to participate. With the County's permission, the Alabama Association of Regional Councils prepared and submitted a Hazard Mitigation Planning Grant application.

Upon approval of the planning grant, the EARPDC notified the EMA Director that the application had been approved and the plan update process could begin. The EARPDC verified the names of the members of the Hazard Mitigation Planning Committee. There were several changes since the original plan development. Notifications were then sent out for the first Mitigation Planning meeting. The members of the Hazard Mitigation Planning Committee represent all jurisdictions in the County, as well as the County School System. The members of the Planning Committee for this update to the Plan are:

Coosa County EMA Director
Coosa County Administrator
Coosa County Engineer
Coosa County School System Superintendent of Education
Coosa County Sheriff
Goodwater Street Superintendent
Goodwater Mayor
Goodwater Assistant Fire Chief
Kellyton Mayor
Rockford Street Superintendent
Rockford Mayor

At the initial Plan update meeting, held on March 15, 2007 the attendees reviewed the existing plan. Staff of the EARPDC presented attendees with the Scope of Work that had been submitted in the funding application. The committee reviewed the Scope of Work and approved the proposed work to be done. (consisting of up updating the hazard history and preparing information for the committee to analyze for the vulnerability analysis), the Mitigation Strategy section (which would consist of a review of the goals and determination of their validity and identification of new strategies to be included in the plan if warranted), and the Plan Maintenance section (which would be reviewed to see if

it could be simplified). It was also determined that since the project would include jurisdiction specific information that the committee need not meet for all planning issues. The Committee approved the individual jurisdiction work to be done by the EARPDC. For those committee members that were unable to attend due to scheduling conflicts, notes of the meeting were sent to them, followed up by telephone conversation, e-mail and fax for input and feedback on the proposed program work.

In order to update the risk, hazard history information had to be collected. This was done by researching databases and speaking with local residents and officials in each jurisdiction. Staff of the EARPDC as well as many local jurisdictional staff and citizens contributed to the research efforts. Once an updated hazard history was compiled, the information was translated into an updated risk and vulnerability analysis. Based on that new information, the committee convened and evaluated the existing goals and strategy. Upon review of the goals, all were satisfied that the existing goals were still applicable. There were no changes to the goals. However, items were added to the Mitigation Strategy section.

The plan maintenance section was reviewed by individual jurisdictions and all were in agreement that the section could be simplified. The need for this arose from discussion that as part of the maintenance, items would be added to and deleted from the plan. These additions could occur during an emergency or disaster declaration and time would be of the essence. Many opportunities could be missed if the plans could not be amended almost immediately.

The planning committee reviewed the definition of *plan participation* that was developed in the original plan. It was determined that this definition was still valid. The jurisdictions that met this participation requirement are:

Coosa County (Continuing Participant)
Goodwater (New – entered NFIP 3/25/2008)
Kellyton (Continuing Participant)
Rockford (Continuing Participant)

In order to update the risk, hazard history information had to be collected. This was done by researching databases and speaking with local residents and officials in each jurisdiction. Staff of the EARPDC as well as many local jurisdictional staff and citizens contributed to the research efforts. Once an updated hazard history was compiled, the information was translated into an updated risk and vulnerability analysis. This was done during a meeting of the Hazard Mitigation Planning Committee on May 8, 2008. The Committee Members reviewed the hazard history and through discussion and completion of worksheets the vulnerability analysis was updated.

Based on that new information, the committee convened on January 22, 2009 and evaluated the existing goals and strategy. Items were added to the Mitigation Strategy section by individual jurisdictions. Each municipality reviewed its existing Mitigation Strategy and provided information on the status of previously identified projects.

The plan maintenance section was reviewed by individual jurisdictions and all were in agreement that the section could be simplified. The need for this arose from discussion that as part of the maintenance, items would be added and deleted from the plan. These additions could occur during an emergency or disaster declaration and time would be of the essence. Many opportunities could be missed if the plans could not be amended almost immediately.

Citizen Participation

Public notices were continually posted in each town hall and the County Commission bulletin board. These notices contained information regarding the plan's development and encouraged citizen comments.

Throughout the update process, staff of the EARPDC spoke at Senior Citizens Centers during their congregate meals to provide information and solicit feedback on the plan and its updates. Staff members also used council meetings as an avenue to engage the public in participating in the planning process.

Public hearings have been held in the Towns of Rockford and Kellyton. The Town of Kellyton held a public hearing on February 1, 2010 and subsequently adopted the Plan following that hearing. This was done in conjunction with a regularly scheduled town council meeting. The Town of Rockford held a public hearing on February 16, 2010 and adopted the Plan following that public hearing. Again, this meeting was held in conjunction with a regularly scheduled town council meeting. There were no citizen comments or input at either of these meetings.

Interagency Coordination

In order to solicit input and feedback from neighboring jurisdictions and other interested parties a copy of the draft plan was sent to the following entities requesting a review of the document under development:

Talladega County Chapter of the American Red Cross
Jacksonville State University Institute for Emergency Preparedness
Alabama Department of Economic and Community Affairs
National Weather Service – Birmingham Office

No comments have been received thus far.

Additionally, the planning project was explained during several East Alabama Regional Planning and Development Commission board meetings. Members of the board were informed of the various plans in development and offered the opportunity to review and participate in planning efforts. No additional planning coordination was received.

Review and Incorporation of Existing Plans and Studies

There are no current existing plans or studies from which to incorporate information into this document.

For future planning efforts, each municipality and the county were asked to provide any information on planning efforts to the County EMA Director as they occur. Through this exchange of information, the plans that may be developed in the future will ensure that mitigation is made one aspect of those plans.

HAZARD IDENTIFICATION

Natural hazards that affect Coosa County and the municipalities that lie within its boundaries were identified by conducting background studies through the Birmingham Weather Service, NOAA's Climactic Data Center, and the Coosa County EMA. Additionally, inquiries were made to local community leaders about past events and effects. Local residents were interviewed regarding their experiences and opinions of hazards with the county. Another source used to identify hazards that can affect the County was previous disaster declarations from FEMA that included the County. The following table identifies the FEMA Disaster Declarations that Coosa County has been included in since 1974:

Disaster Number	Disaster Type	Declaration Date	Declaration Type
3045	Drought	07/20/1977	PA-AB
3074	Flood	03/17/1979	PA-AB
578	Flood	04/18/1979	IA, DH, DUA IFG
856	Severe Storms	02/22/1990	IA, PA-ABCDEFG, DH, DUA, IFG
861	Severe Storms	03/23/1990	IA, PA-ABCDEFG, DH, DUA, IFG
3096	Snow	03/15/1993	PA-AB
1034	Severe Storms	07/08/1994	IA, PA-ABCDEFG, DH, DUA, IFG
1070	Hurricane Opal	10/12/1995	IA, PA-ABCDEFG, DH, DUA, IFG
1208	Severe Storm	03/17/1998	IA, PA-ABCDEFG, DH, DUA, IFG
1466	Flood	05/12/2003	IA, PA-ABCDEFG, CC, DH. DUA, IFG
1549	Hurricane Ivan	9/15/2004	IA
1593	Hurricane Dennis	7/10/2005	PA
3237	Hurricane Katrina	9/15/2005	PA-B

Declaration Type:

	DH= Disaster Housing
DUA= Disaster Unemployment Assistance	IA= Individual Assistance
IFG= Individual & Family Grant	PA= Public Assistance
PA-A= Debris Removal	PA-B= Protective Measures
PA-C= Roads & Bridges	PA-D= Water Control Facilities
PA-E= Public Buildings	PA-F= Public Utilities
PA-G= Recreational or Other	IHP= Individuals & Households

Information obtained through these avenues was presented to the Mitigation Planning Committee and through discussion of this information and the existing Hazard Identification there were no new hazards to incorporated into the Plan. Also, after discussion, the priority of hazards for this planning document remains the same. The committee prioritized hazards that affect the County and municipalities by the frequency of the hazard and the associated costs.

Based on the hazard history and insurance information the Mitigation Subcommittee identified and prioritized the following hazards in Coosa County:

Tornadoes
Severe Storms
Flooding
Winter Storms

Other hazards that threaten the County less frequently were also identified due to the disruption of daily activities of government and society are:

Hurricanes
Droughts

HAZARD PROFILE

TORNADOES

Description

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

Tornado damage severity is measured by the Fujita Tornado Scale, which assigns a numerical value of 0 to 5 based on wind speeds, as shown in the following table. Most tornadoes last less than thirty minutes, but can exist for more than an hour. The path of a tornado can range from a few hundred feet to miles, and tornado widths may range from tens of yards to more than a quarter of a mile.

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

Since the original development of this Plan, the National Weather Service has implemented the Enhanced Fujita Scale for rating tornadoes. The EF Scale will continue

to rate tornadoes on a scale from zero to five, but ranges in wind speed will be more accurate with the improved rating scale. Limitations of the original F Scale may have led to inconsistent ratings, including possible overestimates of associated wind speeds. The EF Scale incorporates more damage indicators and degrees of damage than the original F Scale, allowing more detailed analysis and better correlation between damage and wind speed. The original F Scale historical data base will not change. An F5 tornado rated years ago is still an F5, but the wind speed associated with the tornado may have been somewhat less than previously estimated. A correlation between the original F Scale and the EF Scale has been developed. This makes it possible to express ratings in terms of one scale to the other, preserving the historical database.

Enhanced F Scale for Tornado Damage
An update to the original F-scale by a team of meteorologists and wind engineers, implemented in the U.S. on 1 February 2007.

FUJITA SCALE			DERIVED EF SCALE		OPERATIONAL EF SCALE	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85	0	65-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165
4	208-260	210-261	4	168-199	4	166-200
5	261-318	262-317	5	200-234	5	Over 200

*** IMPORTANT NOTE ABOUT ENHANCED F-SCALE WINDS: The Enhanced F-scale still is a set of wind estimates (not measurements) based on damage. Its uses three-second gusts estimated at the point of damage based on a judgment of 8 levels of damage to the 28 indicators listed below. These estimates vary with height and exposure. Important: The 3 second gust is not the same wind as in standard surface observations. Standard measurements are taken by weather stations in open exposures, using a directly measured, "one minute mile" speed.

History

Twelve tornadoes were reported in Coosa County from December 1961 through July 31, 2009. There is no portion of the county that is not vulnerable to tornadoes. All tornadic events were measured utilizing the Fujita Scale.

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 COOSA	12/11/1961	2100	Tornado	F2	0	0	25K	0
2 COOSA	11/17/1968	1245	Tornado	F3	0	0	2.5M	0

3 COOSA	04/18/1978	1715	Tornado	F2	0	0	25K	0
4 COOSA	01/03/1982	1633	Tornado	F2	0	0	250K	0
5 Eclectic	03/18/1996	06:55 PM	Tornado	F1	0	0	0	0
6 Stewartsville	11/07/1996	06:20 PM	Tornado	F1	0	2	650K	20K
7 Marble Vly	04/03/2000	01:23 PM	Tornado	F0	0	0	5K	0K
8 Rockford	11/24/2004	06:24 AM	Tornado	F2	0	0	100K	0
9 Equality	11/28/2005	07:44 PM	Tornado	F1	0	0	16K	0
10 Marble Vly	02/06/2008	06:25 AM	Tornado	F2	0	0	115K	0K
11 Socapatoy	02/17/2008	13:42 PM	Tornado	F1	0	0	100K	0K
12 Wetona	08/24/2008	13:12 PM	Tornado	F0	0	0	0K	0K
TOTALS:					0	2	3.786M	20K

Location

Tornadic events appear to occur randomly. Each municipality and the County itself are all equally at risk for tornadic activity.

Extent

The impact of tornadoes primarily depends upon their occurrence in developed areas. The County and municipalities have no record of experiencing an F5 tornado, but that is not to say it would not happen. Damages from such an event would likely cause destruction of structures, loss to agriculture and livestock, interruption in power and other utility services and casualties. The following text describes the extent of some of the more damaging events.

January 3, 1982 – A F2 tornado touched down at 4:33 PM in Coosa County. The majority of damaged resulted from high winds, downed trees, and power lines. Several homes and businesses throughout the County sustained damage associated with the tornado.

November 7, 1996 – A small tornado began about 3.5 miles southwest of Stewartville in north central Coosa County and moved northeastward through Stewartville downing trees and damaging houses, businesses, and mobile homes. The total tornado track was estimated to be about 4 miles in length; however, the tornado track began in a wooded area south of County Road 70 where no roads existed. The tornado path was about 200 yards wide at it's widest. The tornado track ended on the northeast side of Stewartville just after crossing US 231. Two people were reported injured but none of the injuries were reported as serious. At least 11 homes were damaged, several mobile homes were damaged including two that were destroyed, and at least one business on US 231 sustained heavy damage.

Although the event dated November 17 1968 lists $2.5 million in damages, this event has no details associated with it in NOAA's database. Research indicates that this was in fact 2 tornadoes on that day, an F2 and F1. These events occurred at 11:30 and 12:45. A total of 26 injuries were reported. No amount of dollar damages have been recorded.

Probability

It is impossible to determine the exact probability of tornadic activity, however, given the long reporting period that data had been recorded for tornadoes, it is reasonable to assume that the average annual occurrence of tornadoes in the County will remain constant with information previously presented. The Hazard Mitigation Planning Committee ranked probability of occurrence by the number of events over a specified time frame. The following table represents the scale of probability:

Probability Ranking	Percent chance of occurrence in any year
Low	0% - 33%
Moderate	34% - 66%
High	67% - 100%

12 events out of a 48-year reporting period averages to 25% probability annually, which is considered low probability of occurrence.

SEVERE STORMS

Description

Severe storms are widely underrated in the damage, injury and death they can cause. Not only are dangerous winds associated with these storms, but lightning strikes and the potential for flooding rains often occur in these storms.

Wind damage from severe thunderstorms can rival that of tornadic activity. Often times the experts have to refer to damage patterns to discern tornadic wind damage from that of straight-line winds. Dangerous lighting occurs in these storms. As lightning goes through the atmosphere, it can generate temperatures up to 54,000 degrees Fahrenheit. This intense heating generates shockwaves which turn into sound waves, thus generating thunder.

Warm, humid conditions encourage thunderstorms as the warm, wet air updrafts into the storm. As warm, moisture rich air rises it forms cumulus nimbus clouds, thunderstorm clouds, usually with a flattened top or an anvil shape, reaching to 40,000 feet or more. If this air is unstable, the conditions are then there to cause hail, damaging winds and possibly tornadoes.

History

Severe storms, unlike other hazards that can affect the county have more than one component – wind, lightning, hail and potential flooding and possible tornadoes. Flooding will be addressed separately as it can occur independently of severe storms. Tornadoes will also be address separately because they can be of such magnitude and destructive potential. The following tables describe the history of severe storms throughout the county in terms of thunderstorm winds and hail.

Thunderstorm Winds

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 COOSA	06/11/1968	1850	Tstm Wind	0 kts.	0	0	0	0
2 COOSA	12/29/1973	2000	Tstm Wind	0 kts.	0	0	0	0
3 COOSA	11/10/1984	1605	Tstm Wind	0 kts.	0	0	0	0
4 COOSA	04/05/1985	1815	Tstm Wind	0 kts.	0	0	0	0
5 COOSA	03/20/1989	1955	Tstm Wind	0 kts.	0	0	0	0
6 COOSA	04/04/1989	1300	Tstm Wind	0 kts.	0	0	0	0
7 COOSA	04/04/1989	1315	Tstm Wind	0 kts.	0	0	0	0
8 COOSA	11/15/1989	1610	Tstm Wind	0 kts.	0	0	0	0
9 COOSA	02/10/1990	0330	Tstm Wind	0 kts.	0	0	0	0
10 COOSA	02/16/1990	0305	Tstm Wind	0 kts.	0	4	0	0
11 COOSA	02/16/1990	0750	Tstm Wind	0 kts.	0	0	0	0
12 COOSA	08/19/1990	1525	Tstm Wind	0 kts.	0	0	0	0
13 COOSA	04/28/1991	1305	Tstm Wind	0 kts.	0	0	0	0
14 COOSA	04/28/1991	1310	Tstm Wind	0 kts.	0	0	0	0
15 COOSA	05/05/1991	1407	Tstm Wind	0 kts.	0	0	0	0
16 COOSA	06/18/1992	2007	Tstm Wind	0 kts.	0	0	0	0
17 COOSA	11/22/1992	0820	Tstm Wind	0 kts.	0	0	0	0
18 COOSA	03/24/1994	0000	Tstm Wind	0 kts.	0	0	500K	0
19 Stuartville	07/26/1995	1550	Tstm Wind	0 kts.	0	0	3K	0
20 ALZ001>050	10/04/1995	1200	Hurricane Opal/high Winds	N/A	2	0	0.1B	10.0M
21 Rockford	01/24/1997	08:00 AM	Tstm Wind	50 kts.	0	0	7K	0K
22 Rockford	05/03/1997	05:30 AM	Tstm Wind	50 kts.	0	0	8K	0K

23 Rockford	06/15/1998	09:00 PM	Tstm Wind	55 kts.	0	3	40K	0K
24 Countywide	02/27/1999	08:10 PM	Tstm Wind	55 kts.	0	0	8K	0K
25 Stewartsville	07/24/1999	05:15 PM	Tstm Wind	50 kts.	0	0	3K	0K
26 Kellyton	02/13/2000	10:20 PM	Tstm Wind	55 kts.	0	0	10K	0K
27 Rockford	07/20/2000	05:45 PM	Tstm Wind	55 kts.	0	0	3K	0K
28 Rockford	08/10/2000	07:39 PM	Tstm Wind	50 kts.	0	0	0K	0K
29 Countywide	07/05/2001	03:15 PM	Tstm Wind	55 kts.	0	0	2K	0K
30 Nixburg	08/20/2002	03:58 PM	Tstm Wind	50 kts.	0	0	3K	0K
31 Weogufka	03/05/2003	08:10 PM	Tstm Wind	55 kts.	0	0	2K	0K
32 Rockford	04/25/2003	02:27 PM	Tstm Wind	60 kts.	0	0	8K	0K
33 Rockford	05/02/2003	05:22 PM	Tstm Wind	50 kts.	0	0	4K	0K
34 Kellyton	05/31/2004	04:49 AM	Tstm Wind	50 kts.	0	0	4K	0
35 ALZ021 - 036 - 045 - 047	09/07/2004	12:15 AM	Strong Wind	33 kts.	0	0	4K	0
36 ALZ027 - 036 - 041 - 043>044	04/12/2005	01:30 AM	Strong Wind	40 kts.	0	0	5K	0
37 Rockford	11/28/2005	12:18 PM	Tstm Wind	50 kts.	0	0	1K	0
38 Rockford	08/30/2006	05:18 PM	Tstm Wind	50 kts.	0	0	2K	0
39 Kellyton	10/23/2007	01:30 AM	Tstm Wind	50 kts.	0	0	4K	0K
40 Rockford	04/04/2008	14:50 PM	Tstm Wind	50 kts.	0	0	2K	0K
41 Salter	06/09/2008	18:35 PM	Tstm Wind	50 kts.	0	0	1K	0K
42 Weogufka	07/22/2008	16:15 PM	Tstm Wind	50 kts.	0	0	2K	0K
43 ALZ018 - 027 - 036 - 037	04/13/2009	02:00 AM	Strong Wind	35 kts.	0	0	50K	0K
44 Marble Vly	05/03/2009	13:47 PM	Tstm Wind	50 kts.	0	0	2K	0K
45 Hissop	07/05/2009	17:04 PM	Tstm Wind	56 kts.	0	0	5K	0K
TOTALS:					2	7	100.683M	10.000M

Hail

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 COOSA	04/25/1988	1445	Hail	0.75 in.	0	0	0	0
2 COOSA	05/09/1988	2215	Hail	1.75 in.	0	0	0	0
3 COOSA	04/01/1990	1530	Hail	0.75 in.	0	0	0	0

4 COOSA	05/21/1990	1125	Hail	0.75 in.	0	0	0	0
5 COOSA	04/27/1991	1815	Hail	0.75 in.	0	0	0	0
6 Goodwater	03/18/1996	07:04 PM	Hail	0.75 in.	0	0	10K	10K
7 Rockford	01/08/1997	09:45 AM	Hail	0.75 in.	0	0	3K	0K
8 Stewartsville	02/16/1998	12:30 PM	Hail	0.75 in.	0	0	0K	0K
9 Weogufka	02/17/1998	04:00 AM	Hail	1.00 in.	0	0	2K	0K
10 Rockford	03/20/1998	12:25 AM	Hail	1.00 in.	0	0	0K	0K
11 Goodwater	01/21/1999	04:12 PM	Hail	0.75 in.	0	0	0K	0K
12 Rockford	05/13/1999	12:15 PM	Hail	1.75 in.	0	0	5K	0K
13 Equality	05/11/2001	02:00 PM	Hail	1.00 in.	0	0	0K	0K
14 Weogufka	05/27/2001	04:00 PM	Hail	0.75 in.	0	0	0K	0K
15 Weogufka	07/31/2002	05:30 PM	Hail	1.00 in.	0	0	0K	0K
16 Nixburg	08/20/2002	03:58 PM	Hail	0.75 in.	0	0	0K	0K
17 Rockford	05/02/2003	05:22 PM	Hail	0.75 in.	0	0	0K	0K
18 Goodwater	05/02/2003	07:11 PM	Hail	0.75 in.	0	0	0K	0K
19 Stewartsville	05/16/2003	04:55 PM	Hail	1.25 in.	0	0	3K	0K
20 Stewartsville	02/21/2005	09:24 PM	Hail	0.75 in.	0	0	0	0
21 Hanover	03/22/2005	11:51 PM	Hail	0.75 in.	0	0	0	0
22 Goodwater	04/22/2005	01:30 PM	Hail	0.75 in.	0	0	1K	0
23 Equality	04/22/2005	02:21 PM	Hail	0.75 in.	0	0	1K	0
24 Weogufka	05/20/2005	12:15 PM	Hail	0.75 in.	0	0	0	0
25 Weogufka	12/04/2005	02:28 PM	Hail	1.00 in.	0	0	0	0
26 Kellyton	12/28/2005	01:54 PM	Hail	0.88 in.	0	0	0	0
27 Equality	12/28/2005	12:59 PM	Hail	0.88 in.	0	0	0	0
28 Goodwater	04/19/2006	06:38 PM	Hail	1.00 in.	0	0	0	0
29 Kellyton	04/19/2006	06:40 PM	Hail	1.00 in.	0	0	0	0
30 Rockford	04/19/2006	07:54 PM	Hail	1.00 in.	0	0	0	0
31 Goodwater	05/13/2006	06:40 PM	Hail	0.75 in.	0	0	0	0
32 Rockford	06/22/2006	02:27 PM	Hail	0.88 in.	0	0	0	0
33 Nixburg	04/11/2007	16:00 PM	Hail	1.75 in.	0	0	0K	0K
34 Lake Mitchell	04/11/2007	18:15 PM	Hail	0.88 in.	0	0	0K	0K
35 Lake Mitchell	02/17/2008	13:20 PM	Hail	0.75 in.	0	0	0K	0K

36 Hanover	02/17/2008	13:30 PM	Hail	1.50 in.	0	0	0K	0K
37 Goodwater	02/17/2008	13:45 PM	Hail	1.50 in.	0	0	0K	0K
38 Cottage Grove	04/04/2008	15:45 PM	Hail	0.75 in.	0	0	0K	0K
39 Goodwater	04/10/2009	17:20 PM	Hail	0.75 in.	0	0	0K	0K
40 Salter	04/10/2009	17:27 PM	Hail	1.00 in.	0	0	0K	0K
41 Nixburg	04/10/2009	17:45 PM	Hail	1.75 in.	0	0	20K	0K
TOTALS:					0	0	45K	10K

Location

The entire county is susceptible to damage from severe thunderstorms. Storms can range from small isolated storm cells that do much damage, to large far reaching minor storms that do only minimal damage. It is truly the "luck of the draw" when and where the storms appear.

Extent

In addition to winds from severe storms, hail and lightning also provide an impact on the area. Large hail, though rare can cause injury or loss of life. Normally hail is damaging to automobiles, crops and trees. Livestock left out in the open without shelter can also suffer damage and loss. Both lightning and high winds can cause loss of life and considerable property damage. The power of lightning's electrical charge and intense heat can electrocute on contact, split trees, ignite fires and cause electrical failures. The following text describes the extent of some of the more damaging events.

24 March 1994 - A house fire in the Rockford area was attributed to lightning.

15 June 1988 - Trees and power lines were down in the Richland community. Three people received minor injuries when a tree fell on their car as they were driving along SR 22.

13 February 2000 - Several trees were blown down near the intersection of CR 50 and Church Street.

3 May 2009 - Several trees were blown down in the northwest portion of Coosa County.

Probability

The probability of a severe storm occurring in Coosa County is based on the previous occurrences of storms. The numbers of hail events were not calculated into the equation as these typically occur within the severe storm. With the history of storms that have occurred within the County the probability of a severe storm occurring any time in any year is high. These storms do have a seasonal pattern to them. The springtime months

(April, May and June) are the peak for severe storm (and tornadic) activity, with another rise in activity in late November or December. There is a high probability of this event occurring in the County. Over the past 41 years, 45 severe storms have been recorded throughout the County. This indicates a 100% (high) chance in any year of a severe storm.

Flooding

Description

After spring rains, heavy thunderstorms, or winter snow thaws most communities throughout the United States experience some kind of flooding. Floods have proven to be the most common and widespread natural disasters—except fire. Floods can be slow or fast rising, but generally develop over a period of days. Floodwaters move very rapidly and can destroy natural and man-made structures in its path. Walls of moving floodwater can reach heights up to 20 feet and carry large debris as cargo.

Flooding is the accumulation of water within a water body (e.g., stream, river, lake, or reservoir) and the overflow of excess water onto adjacent floodplains. Floodplains are usually lowlands adjacent to water bodies that are subject to recurring floods. Floods are natural events that are considered hazards only when people and property are affected.

The most common kind of flooding event is riverine flooding, also known as overbank flooding. The amount of water in the floodplains is a function of the size and topography of the contributing watershed, the climate, and land use characteristics. In steep valleys, flooding is usually rapid and deep, but of short duration, while flooding in flat areas is typically slow, relatively shallow, and may last for long periods of time.

Flash floods involve a rapid rise in water level, high velocity, and large amounts of debris, which can lead to significant damage that includes the tearing out of trees, undermining of buildings and bridges, and scouring new channels. The intensity of flash flooding is a function of the intensity of 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.

Local drainage floods may occur outside of recognized drainage channels or delineated floodplains for a variety of reasons, including concentrated local precipitation, a lack of infiltration, inadequate facilities for drainage and storm water conveyance, 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.

The Flood Insurance Rate Map (FIRM) for Coosa County signifies areas of 100-year and 500-year flood zones. These areas are designated as Special Flood Hazard Areas (SFHA).

History

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
1. Countywide	01/07/1998	9:30 AM	Flash Flood	N/A	0	0	25K	5K
TOTALS:					**0**	**0**	**25K**	**5K**

Coosa County has experienced one recorded Flash Flood event from January 1, 1980 to the July 31, 2009. Property damage has totaled $25,000 during this period. Crop damage has totaled $5,000 during the same period. The only flooding event listed occurred on January 7, 1998.

Location

Coosa County is bordered on the west by the Coosa River. The main tributaries that pose flooding hazards are Hatchet Creek, Weogufka Creek and Shelton Creek. The Coosa River also floods periodically backing up McSwain and Noname branches. Mitchell Lake and Dam and Lay Lake and Dam are located on the Coosa and serve as flood control devices as well as hydroelectric generators. These dams are owned and operated by Alabama Power Company.

Coosa County:
Foshee Road - This road experiences flooding in most heavy rains.
County Road 16: - Bridge experiences flooding in most heavy rains. Flagging or barricades by highway department occurs on a regular basis.

Rockford:
Main Street (Alabama Highway 21) – This road is the main thoroughfare through town. The downtown area experiences flooding during heavy rains. The road has been repaved so many times it has built up above the curbs and water flows outside of the drainage structure.

Goodwater:
County Road 64 – A creek located under this road is notorious for flooding.
Brownsville Road #7 (County Road 7) – This road experiences repeated flooding.
Woodlands Drive - There is a 60 inch pipe located under the roadway that in the past has been dammed up by beavers. The Town is constantly battling the creatures. Despite repeated attempts to eradicate the vermin, they keep returning. The Town has spent over $17,000 in one incident where the beavers had the water backed up so high that the iron in the concrete bridge rusted. This caused the break of water and gas lines when the bridge failed.

Kellyton: No reported flooding issues.

Extent

There are areas in Coosa County that are subject to periodic inundation. This can result in loss of life, property damage, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures of flood protection and relief, and impairment of the tax base. All of these situations adversely affect the public health, safety, and general welfare.

Probability

Flood probability and magnitude are highly location-specific. Truly accurate determinations of flood probability and magnitude require site-specific engineering studies and data gathering that is beyond the scope of this hazard profile. Countywide, floods are rated as a low hazard for the county and its municipalities.

The Hazard Mitigation Planning Committee ranked probability of occurrence by the number of events over a specified time frame. The following table represents the scale of probability:

Probability Ranking	Percent chance of occurrence in any year
Low	0% - 33%
Moderate	34% - 66%
High	67% - 100%

Jurisdiction	Number of Events	Time Frame	Annual Probability of Flooding Event per Jurisdiction
Coosa County	1	11 years	1%
Goodwater	1	11 years	1%
Kellyton	1	11 years	1%
Rockford	1	11 years	1%

Winter Storms

Description

Winter Storms can vary from cold temperatures accompanied by freezing precipitation to blizzards. Coosa County is not accustomed to snow, ice, and freezing temperatures and lacks the equipment such as snowplows to respond to such events. Winter Storms negatively affect local agriculture, transportation systems, schools, businesses, and utilities. During a winter storm event many of the structures in the county suffer from power outages due to accumulation of ice on power poles or lack proper heating systems rendering the structure too cold to inhabit. Temperatures below freezing also kill tender vegetation such as flowering plants and crops.

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 ALZ001>038	01/06/1996	08:00 PM	Winter Storm	N/A	0	0	380K	38K
2 ALZ028>029 - 035>038 - 040>049	12/18/1996	02:00 PM	Winter Storm	N/A	0	0	240K	320K
3 ALZ005 - 007 - 014>017 - 024>027 - 033>037 - 041 - 043	01/28/2000	12:00 AM	Winter Storm	N/A	0	0	227K	0K
4 ALZ021 - 024 - 027>029 - 031>043 - 047	01/19/2008	06:00 AM	Heavy Snow	N/A	0	0	0K	0K
5 ALZ021 - 024 - 027>029 - 031>043 - 047	01/19/2008	06:00 AM	Winter Weather	N/A	0	0	0K	0K
TOTALS:					0	0	847K	358K

Location

The entire County is equally at risk for winter storms.

Extent

Coosa County has experienced many effects from winter storms such as frozen utilities (which resulted in power outages and busted water lines), icy and impassable roads and lost revenues from closed business and damaged crops. Casualties can be expected due to power outages and people being isolated with no heat sources. The most significant events occurred on January 6, 1996 and December 18, 1996. The following text describes the extent of some of the more intense storms experienced in the past.

6 January 1996 - A winter storm brought a mixture of freezing rain, sleet, and snow to the northern two-thirds of Alabama. Precipitation began as freezing rain and sleet but quickly changed to snow. The precipitation coated roads and caused serious travel problems across the northern sections of the state that lasted into Monday morning (the 8th). Some higher elevations of the northeast corner of Alabama had travel problems into Tuesday. Amounts were generally light with the highest snowfall reported at Huntsville International Airport with 2 inches. Most other locations across North Alabama reported one-quarter of an inch to an inch and a half.

18 December 1996 - A snow storm that began in the early afternoon hours across the central sections of the state dumped 1 to 3 inches of snow on parts of the state. It was over by early evening. Schools and businesses let out early on the 18th across much of the area affected. A few roads became slick but there were no major travel problems reported. The snow remained on the ground in some areas for about two days. Here is a list of snowfall totals by county: Autauga 2-3" Bullock 1" Chambers 2" Chilton 1" Clay 2" Coosa 2.5" Dallas < 1" Elmore 2" Lee 2" Lowndes 2" Macon 1-2" Montgomery 2-3" Pike < 1" Randolph 2-3" Russell 1-2" Tallapoosa 2"

Probability

Information obtained from the National Climatic Data Center was used to determine the frequency and probability of winter storm events for Coosa County.

The Hazard Mitigation Planning Committee ranked probability of occurrence by the number of events over a specified time frame. The following table represents the scale of probability:

Probability Ranking	Percent chance of occurrence in any year
Low	0% - 33%
Moderate	34% - 66%
High	67% - 100%

Coosa County and the municipalities within its borders have a moderate (39%) probability of occurrence for this type of event.

HURRICANES

Description

A hurricane is a type of tropical cyclone, which is a generic term for a low-pressure system that generally forms in the tropics. The cyclone is accompanied by thunderstorms and, in the Northern Hemisphere, a counterclockwise circulation of winds near the earth's surface. However, winds are not the only hazard that hurricanes present, hurricanes also produce storm surges, tornadoes, and inland flooding. Fresh water floods have accounted for more than half (59%) of U.S. tropical cyclones deaths over the past 30 years. These floods are why 63% of U.S. tropical cyclones deaths during that period occurred in inland counties.

Hurricane Category Chart

Category	Winds	Surge	Central Pressure
1 - Minimal	74 - 95 mph or 64 - 82 kts	4 - 5 feet	greater than 980 mb or 28.94 in
2 - Moderate	96 - 110 mph or 83 - 95 kts	6 - 8 feet	965 - 979 mb or 28.50 - 28.91 in
3 - Extensive	111 - 130 mph or 96 - 113 kts	9 - 12 feet	945 - 964 mb or 27.91 - 28.47 in
4 - Extreme	131 - 155 mph or 114 - 135 kts	13 - 18 feet	920 - 944 mb or 27.17 - 27.88 in
5 - Catastrophic	greater than 155 mph or 135 kts	greater than 18 feet	less than 920 mb or 27.17 in

Though the center of Coosa County is located approximately 250 miles from the Gulf of Mexico, hurricanes and tropical storms have brought high winds and heavy rains to the area as they move north.

History

History teaches that hurricane disasters have occurred in the past and will again in the future. A lack of hurricane education and planning are common threads among all major hurricane disasters. When it comes to hurricanes, wind speeds do not tell the whole story. Hurricanes produce storm surges, tornadoes, and often the most deadly of all - inland flooding. Freshwater floods accounted for more than half (59%) of U.S. tropical cyclone deaths over the past 30 years. These floods are why 63% of U.S. tropical cyclone deaths during that period occurred in inland counties.

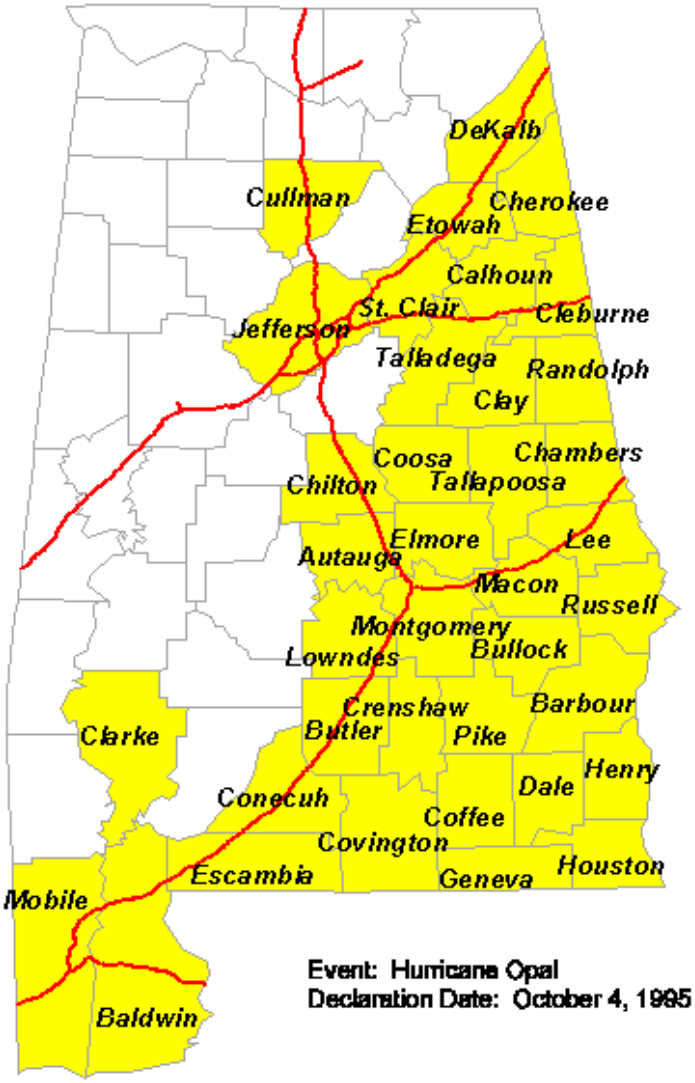
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 ALZ001>050	10/04/1995	1200	Hurricane Opal/high Winds	N/A	2	0	0.1B	10.0M
2 ALZ036	09/13/2004	1200	Tropical Storm (Ivan)	N/A	0	0	0	0
3 ALZ036	07/10/2005	04:00 PM	Tropical Storm (Dennis)	N/A	0	0	80K	0
4 ALZ011>015 - 017>050	08/29/2005	04:00 PM	Tropical Storm (Katrina)	N/A	0	8	34.9M	0
TOTALS:					2	8	134.970M	10.000M

Location

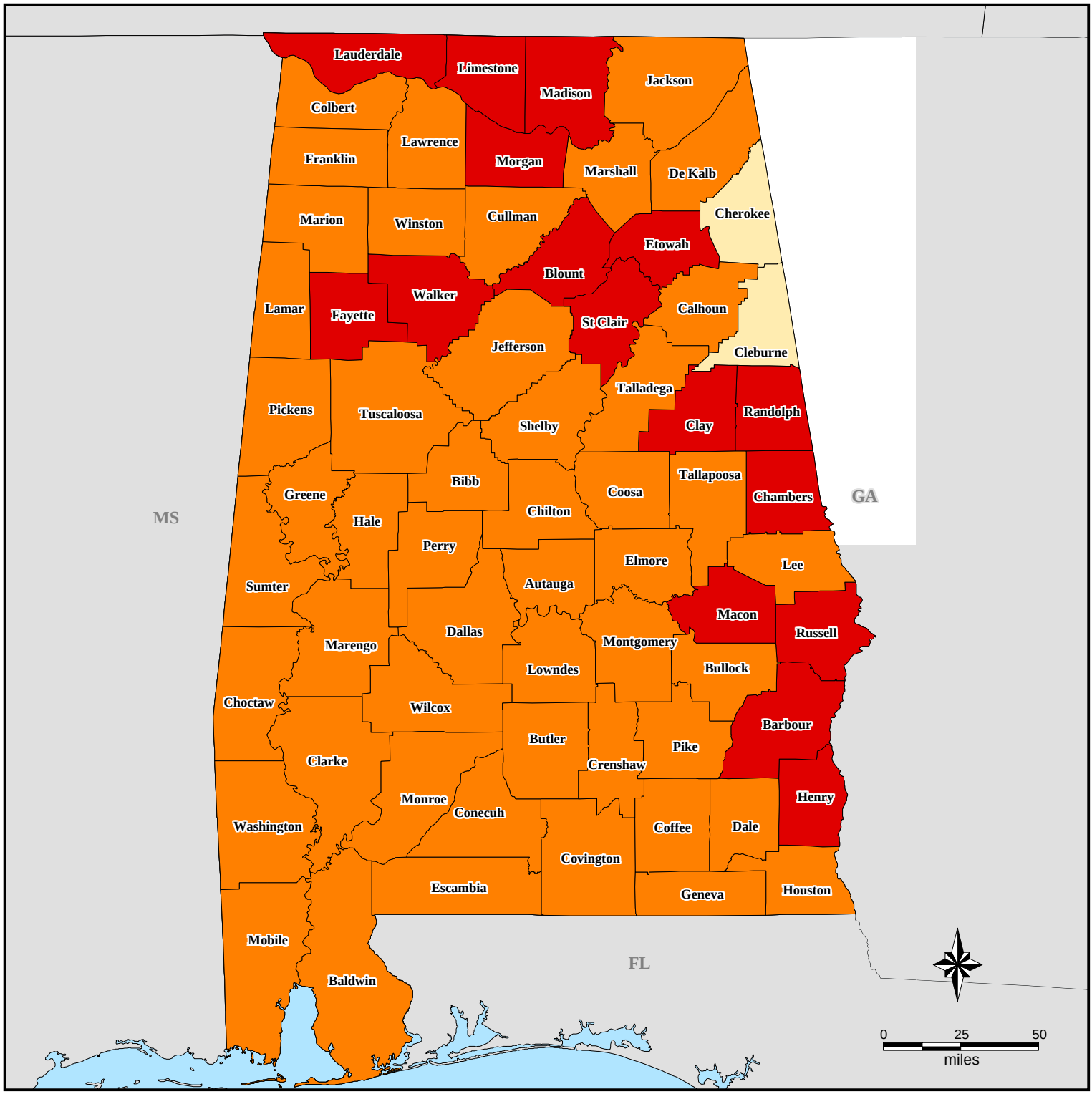
Generally, by the time a storm approaches Coosa County, it has been downgraded to a Tropical Storm. The entire County suffers the effects, with the developed areas resulting in more damages.

The following maps indicate the previous disaster declarations for the State of Alabama that have included Coosa County: Hurricane Opal in 1995, Hurricane Ivan in 2004 and Hurricanes Dennis and Katrina in 2005.

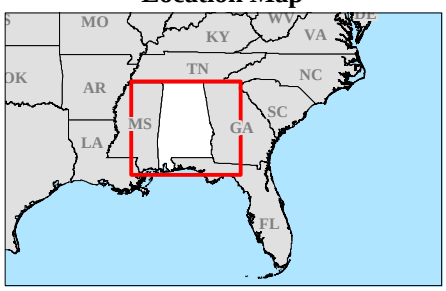
Hurricane Opal, 1995



FEMA-1549-DR, Alabama
Disaster Declaration as of 12/03/2004



Location Map



Legend

Designated Counties
(All counties are eligible for Hazard Mitigation)

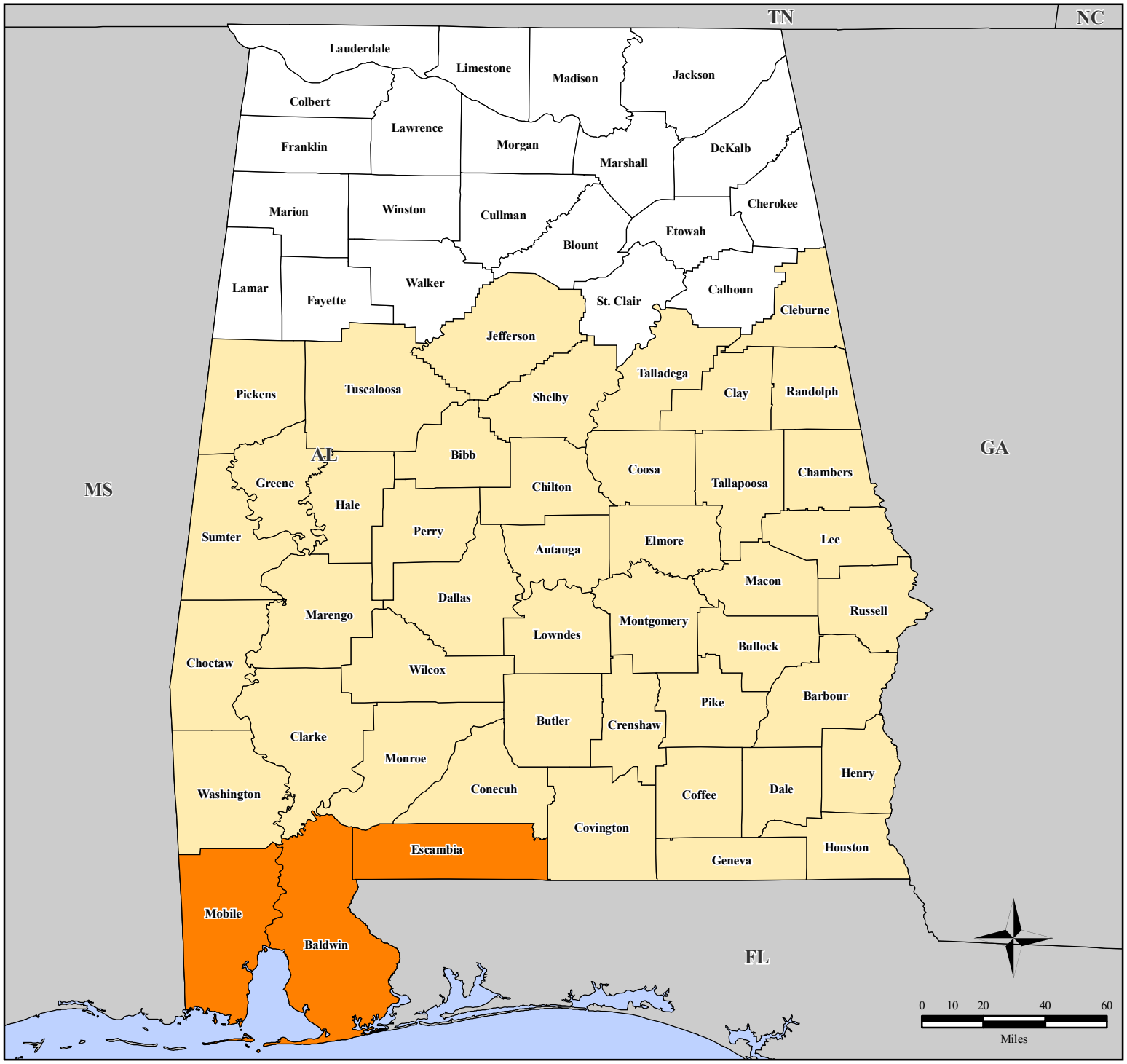
- Individual Assistance
- Individual & Public Assistance
- Public Assistance

FEMA

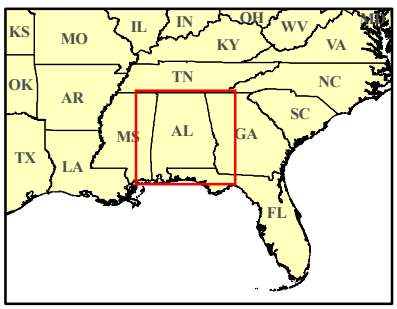
ITS Mapping and Analysis Center
Washington, DC
12/03/2004 -- 15:29:28 EST

j:\2004\disaster\dr_1549_al\dec_1549.wor

FEMA-1593-DR, Alabama
Disaster Declaration as of 08/04/2005



Location Map



Legend

Designated Counties

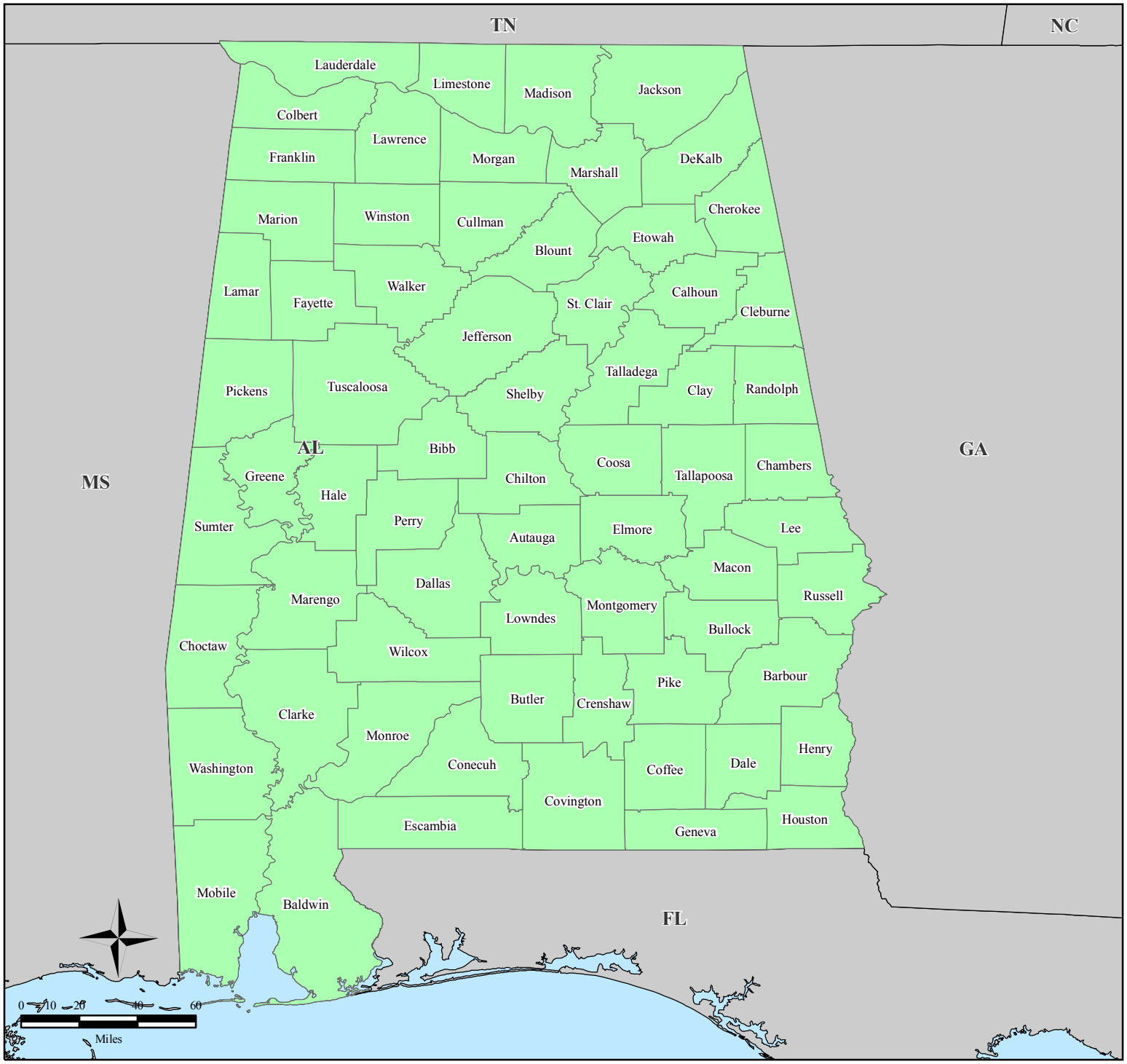
- No Designation
- Individual and Public Assistance
- Public Assistance

FEMA

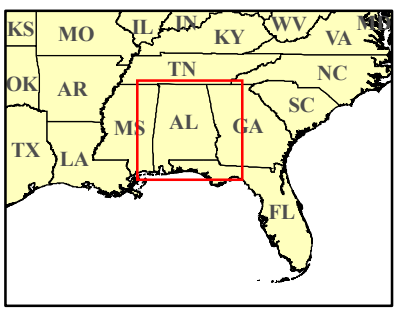
ITS Mapping and Analysis Center
Washington, DC
08/05/05 -- 09:15:00 EDT

MapID cfd71c21db1

FEMA-3237-EM, Alabama
Emergency Declaration as of 09/10/2005



Location Map



Legend

Designated Counties

Public Assistance (Category B)

FEMA

ITS Mapping and Analysis Center
Washington, DC
09/12/05 -- 09:12:00 EDT

MapID c774868e5b9

Extent

Due to its location, approximately 250 miles from the nearest coastline, Coosa County would experience secondary effects from hurricanes and tropical storms consisting of strong winds, heavy rain and tornadic activity spawned from the dying hurricane. Street flooding, property damage and damage to buildings can be the extent expected with these types of events. Frequently, power outages accompany these storms when they reach the area. In a "worst case" scenario, the effects of Hurricane Opal would exist compounded with widespread flooding. The following text describes the damages and effects incurred from the previously mentioned storms.

> October 4, 1995 - Hurricane Opal moved ashore in the Florida Panhandle then moved north-northeast across the state of Alabama. Damage was extensive and no county in the state was spared some effect of the storm. Damage was the greatest in the eastern counties with damage decreasing from east-to-west across the state. Damage also decreased as you went north in the state. Damage varied with many trees, signs, and power lines downed. At the worst, 2.6 million people in Alabama were without electricity, some for over a week. The center of the storm entered the state near the Covington / Escambia County line on the Florida border. It moved north-northeast with the center moving just west of the city of Montgomery, near the City of Talladega, and near Fort Payne before exiting the state near the northeast tip. Primary damage came from strong wind, which toppled trees and power lines and damaged signs. Mobile homes were damage both by falling trees and by strong wind. Wind speeds varied across the state. Heavy rain also caused creeks and streams to swell however, there were very few reports of water flooding buildings. Water damage occurred to structures in many locations where wind or falling trees damaged roofs. Damage figures are estimates from information obtained from the American Red Cross, Alabama Emergency Management Agency, and newspaper articles, which estimate total property damage for the state at $100 million and crop damage at $10 million.
>
> September 16, 2004 – Tropical Storm Ivan - Several trees were knocked down countywide due to Ivan. Minimal damages were reported.
>
> July 10, 2005 – Tropical Storm Dennis - Numerous trees and power lines were blown down across Coosa County. Many customers were without power for several hours.
>
> August 29, 2005 - The remnants of Hurricane Katrina moved northward along the Alabama/Mississippi state line. Katrina was still a strong tropical storm as the center passed just west of North Alabama during the evening hours of August 29th. Most of North Alabama experienced tropical storm force wind gusts for several hours with a few wind gusts as high as 60 mph being reported. While structural damage was very limited, a few homes did receive minor roof damage due to the loss of a few shingles. Numerous trees and power lines were blown

down across the entire area and thousands of people lost power. Katrina moved relatively quickly to the north and thus rainfall was limited. Rainfall amounts were around four to five inches near the Alabama/Mississippi line but tapered off significantly farther to the east with locations near the Alabama/Georgia line only seeing a half inch or less.

Probability

Twenty-six hurricanes have affected the State of Alabama since 1926, which translates into an annual probability of 31% that a hurricane would affect the State. Coosa County lies approximately 250 miles from the nearest coast. The severity of the storm would define the probability of the County feeling the effects of the storm. Hurricane Katrina had minimal impact on the County, while Hurricane Opal left the County and its municipalities crippled for days due to the infrastructure impact (power outage).

The Hazard Mitigation Planning Committee ranked probability of occurrence by the number of events over a specified time frame. The following table represents the scale of probability:

Probability Ranking	Percent Chance of Occurrence in any Year
Low	0-% - 33%
Moderate	34% - 66%
High	67% - 100%

Coosa County has a low probability of occurrence for this type of event.

The year 2005 was an unusually active year for hurricane activity. The State of Alabama was issued two Presidential Disaster Declarations for two out of 27 named storms. The following maps represent hurricane tracks for the past ten years. The maps indicate that by the time storms reach Coosa County they are significantly weakened from hurricane status.

NATIONAL HURRICANE CENTER

ATLANTIC • CARIBBEAN • GULF OF MEXICO • HURRICANE TRACK CHART

1999			
NUMBER	TYPE	NAME	DATE
1	T	ARLENE	11–18 Jun.
2	H	BRET	18–25 Aug.
3	H	CINDY	19–31 Aug.
4	H	DENNIS	24 Aug.–07 Sep.
5	T	EMILY	24–28 Aug.
6	H	FLOYD	07–17 Sep.
7	H	GERT	11–23 Sep.
8	T	HARVEY	19–22 Sep.
9	H	IRENE	13–19 Oct.
10	H	JOSE	17–25 Oct.
11	T	KATRINA	28 Oct.–01 Nov.
12	H	LENNY	13–23 Nov.

120° 115° 110° 105° 100° 95° 90° 85° 80° 75° 70° 65° 60° 55° 50° 45° 40° 35° 30° 25° 20° 15° 10° 5° West 0° East 5°

45° 40° 35° 30° 25° 20° 15° 10° 5° 0° North South

95° 90° 85° 80° 75° 70° 65° 60° 55° 50° 45° 40° 35° 30° 25°

Lambert Conformal Conic
true at 20° and 40° North

Hurricane (H)
Tropical Storm (T)
Tropical Dep.
+++ Extratropical

• Position at 0000 UTC
21 Position/date at 1200 UTC
3 Tropical Cyclone Number
ppp Minimum Pressure (mb)

NATIONAL HURRICANE CENTER

ATLANTIC • CARIBBEAN • GULF OF MEXICO • HURRICANE TRACK CHART

2000

NUMBER	TYPE	NAME	DATE
1	H	ALBERTO	03–23 Aug.
2	T	BERYL	13–15 Aug.
3	T	CHRIS	17–19 Aug.
4	H	DEBBY	19–24 Aug.
5	T	ERNESTO	01–03 Sep.
6	H	FLORENCE	10–17 Sep.
7	H	GORDON	14–18 Sep.
8	T	HELENE	15–25 Sep.
9	H	ISAAC	21 Sep.–01 Oct.
10	H	JOYCE	25 Sep.–02 Oct.
11	H	KEITH	28 Sep.–06 Oct.
12	T	LESLIE	04–07 Oct.
13	H	MICHAEL	15–19 Oct.
14	T	NADINE	19–21 Oct.
15	ST	–	25–29 Oct.

Hurricane (H)
Tropical Storm (T)
Tropical Dep.
Extratropical
Tropical Wave
Subtropical Depression
Subtropical Storm (ST)
Position at 0000 UTC
Position/date at 1200 UTC
Tropical Cyclone Number
ppp Minimum Pressure (mb)

Lambert Conformal Conic
true at 20° and 40° North

NATIONAL HURRICANE CENTER

ATLANTIC • CARIBBEAN • GULF OF MEXICO • HURRICANE TRACK CHART

2001

NUMBER	TYPE	NAME	DATE
1	T	ALLISON	05–17 Jun.
2	T	BARRY	02–07 Aug.
3	T	CHANTAL	14–22 Aug.
4	T	DEAN	22–28 Aug.
5	H	ERIN	01–15 Sep.
6	H	FELIX	07–18 Sep.
7	H	GABRIELLE	11–19 Sep.
8	H	HUMBERTO	21–27 Sep.
9	H	IRIS	04–09 Oct.
10	T	JERRY	06–08 Oct.
11	H	KAREN	12–15 Oct.
12	T	LORENZO	27–31 Oct.
13	H	MICHELLE	29 Oct.–05 Nov.
14	H	NOEL	04–06 Nov.
15	H	OLGA	24 Nov.–04 Dec.

Hurricane (H)
Tropical Storm (T)
Tropical Dep.
Extratropical
Tropical Wave
Subtropical Depression
Subtropical Storm (ST)
Low
Position at 0000 UTC
Position/date at 1200 UTC
Tropical Cyclone Number

Lambert Conformal Conic
true at 20° and 40° North

120° 115° 110° 105° 100° 95° 90° 85° 80° 75° 70° 65° 60° 55° 50° 45° 40° 35° 30° 25° 20° 15° 10° 5° West 0° East 5°

45° 40° 35° 30° 25° 20° 15° 10° 5° North 0° South

95° 90° 85° 80° 75° 70° 65° 60° 55° 50° 45° 40° 35° 30° 25°

NATIONAL HURRICANE CENTER

ATLANTIC • CARIBBEAN • GULF OF MEXICO • HURRICANE TRACK CHART

NUMBER	TYPE	2002 NAME	DATE
1	T	ARTHUR	14 – 16 Jul.
2	T	BERTHA	04 – 09 Aug.
3	T	CRISTOBAL	05 – 08 Aug.
4	T	DOLLY	29 Aug. – 04 Sep.
5	T	EDOUARD	01 – 06 Sep.
6	T	FAY	05 – 08 Sep.
7	H	GUSTAV	08 – 12 Sep.
8	T	HANNA	12 – 15 Sep.
9	H	ISIDORE	14 – 27 Sep.
10	T	JOSEPHINE	17 – 19 Sep.
11	H	KYLE	20 Sep. – 12 Oct.
12	H	LILI	21 Sep. – 04 Oct.

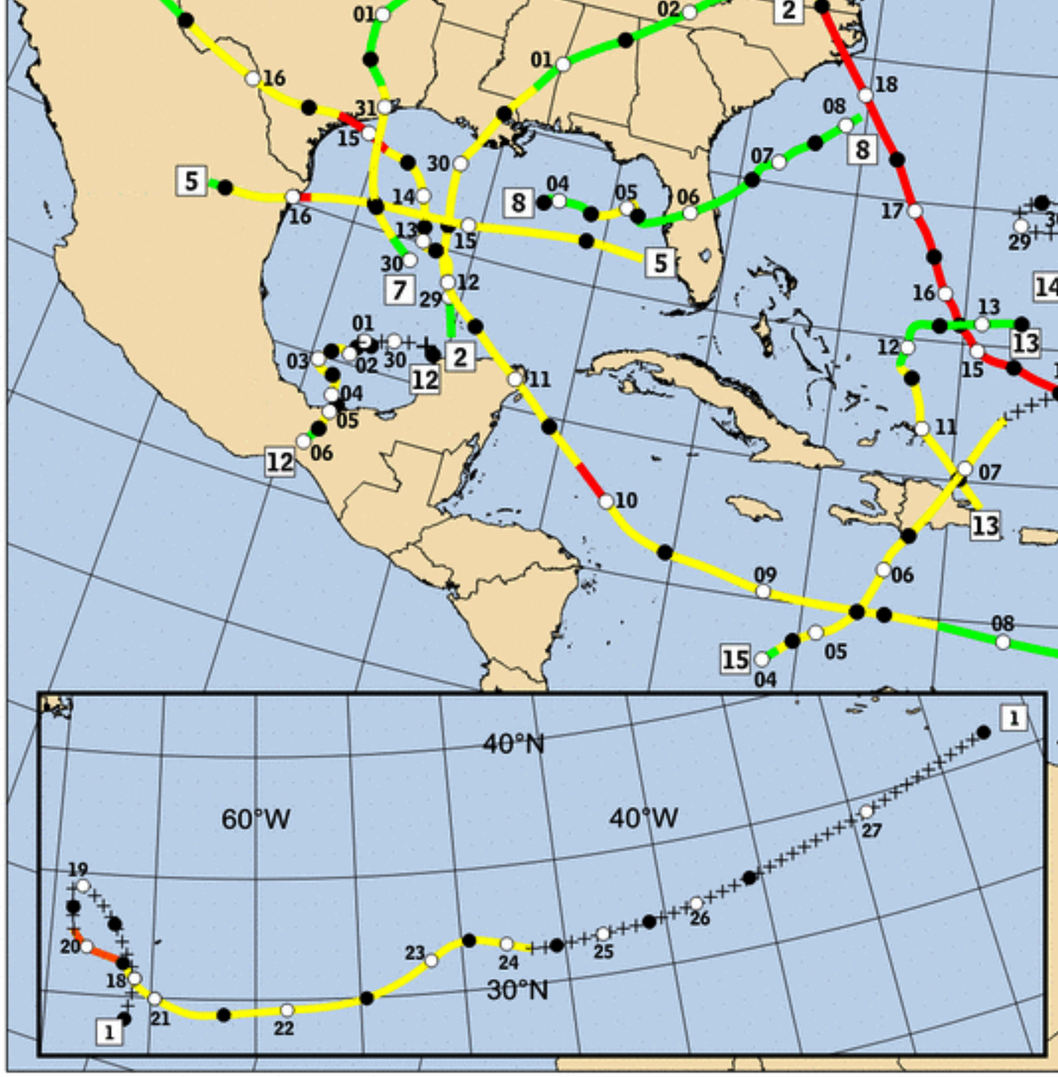
Hurricane (H)
Tropical Storm (T)
Tropical Dep.
+++ Extratropical
Tropical Wave/Dissipating
Subtropical Depression
Subtropical Storm (ST)
~~~ Low
Position at 0000 UTC
Position/date at 1200 UTC
3 Tropical Cyclone Number

Lambert Conformal Conic
true at 20° and 40° North
~~~

NATIONAL HURRICANE CENTER

ATLANTIC • CARIBBEAN • GULF OF MEXICO • HURRICANE TRACK CHART

NUMBER	TYPE	2003 NAME	DATE
1	T	ANA	20 – 24 Apr.
2	T	BILL	29 Jun. – 02 Jul.
3	H	CLAUDETTE	08 – 17 Jul.
4	H	DANNY	16 – 21 Jul.
5	H	ERIKA	14 – 17 Aug.
6	H	FABIAN	27 Aug. – 08 Sep.
7	T	GRACE	30 Aug. – 02 Sep.
8	T	HENRI	03 – 08 Sep.
9	H	ISABEL	06 – 19 Sep.
10	H	JUAN	24 – 29 Sep.
11	H	KATE	26 Sep. – 07 Oct.
12	T	LARRY	01 – 06 Oct.
13	T	MINDY	10 – 14 Oct.
14	T	NICHOLAS	13 – 23 Oct.
15	T	ODETTE	04 – 07 Dec.
16	T	PETER	07 – 11 Dec.



Lambert Conformal Conic
true at 20° and 40° North

Hurricane (H)
Tropical Storm (T)
Tropical Dep.
Extratropical
Tropical Wave/Dissipating
Subtropical Depression
Subtropical Storm (ST)
Low
Position at 0000 UTC
21 Position/date at 1200 UTC
3 Tropical Cyclone Number

NATIONAL HURRICANE CENTER

ATLANTIC • CARIBBEAN • GULF OF MEXICO • HURRICANE TRACK CHART

2004

NUMBER	TYPE	NAME	DATE
1	H	ALEX	31Jul.–6 Aug.
2	T	BONNIE	3–13 Aug.
3	H	CHARLEY	9–14 Aug.
4	H	DANIELLE	13–21 Aug.
5	T	EARL	13–15 Aug.
6	H	FRANCES	25 Aug.–8 Sep.
7	H	GASTON	27 Aug.–1 Sep.
8	T	HERMINE	27–31 Aug.
9	H	IVAN	2–24 Sep.
10	H	JEANNE	13–28 Sep.
11	H	KARL	16–24 Sep.
12	H	LISA	19 Sep.–3 Oct.
13	T	MATTHEW	8–10 Oct.
14	ST	NICOLE	10–11 Oct.
15	T	OTTO	29 Nov.–3 Dec.

Hurricane (H)
Tropical Storm (T)
Tropical Dep.
Extratropical
Wave/Low
Subtropical Depression
Subtropical Storm (ST)

Position at 0000 UTC
21 Position/date at 1200 UTC
[3] Tropical Cyclone Number

Lambert Conformal Conic
true at 20° and 40° North

NATIONAL HURRICANE CENTER

ATLANTIC · CARIBBEAN · GULF OF MEXICO · HURRICANE TRACK CHART

2005			
NUMBER	TYPE	NAME	DATE
1	T	ARLENE	8 Jun.-13 Jun.
2	T	BRET	28 Jun.-30 Jun.
3	H	CINDY	3 Jul.-7 Jul.
4	H	DENNIS	4 Jul.-13 Jul.
5	H	EMILY	11 Jul.-21 Jul.
6	T	FRANKLIN	21 Jul.- 29 Jul.
7	T	GERT	23 Jul.-25 Jul.
8	T	HARVEY	2 Aug.-8 Aug.
9	H	IRENE	4 Aug.-18 Aug.
10	T	JOSE	22 Aug.-23 Aug.
11	H	KATRINA	23 Aug.-30 Aug.
12	T	LEE	28 Aug.-2 Sep.
13	H	MARIA	1 Sep.-10 Sep.

NUMBER	TYPE	NAME	DATE
14	H	NATE	5 Sep.-10 Sep.
15	H	OPHELIA	6 Sep.-17 Sep.
16	H	PHILIPPE	17 Sep.-23 Sep.
17	H	RITA	18 Sep.-26 Sep.
18	H	STAN	1 Oct.-5 Oct.
19	ST	UNNAMED	4 Oct.-5 Oct.
20	T	TAMMY	5 Oct.-6 Oct.
21	H	VINCE	8 Oct.-11 Oct.
22	H	WILMA	15 Oct.-25 Oct.
23	T	ALPHA	22 Oct.-24 Oct.
24	H	BETA	26 Oct.-31 Oct.
25	T	GAMMA	14 Nov.-21 Nov.
26	T	DELTA	22 Nov.-28 Nov.
27	H	EPSILON	29 Nov.-8 Dec.
28	T	ZETA	30 Dec.-6 Jan. 2006

- Hurricane (H)
- Tropical Storm (T)
- Tropical Dep.
- +++ Extratropical
- Wave/Low
- Subtropical Depression
- Subtropical Storm (ST)
- ● Position at 0000 UTC
- ○21 Position/date at 1200 UTC
- [5] Tropical Cyclone Number

Lambert Conformal Conic
true at 20°and 40°North

EJG
052306

NATIONAL HURRICANE CENTER

ATLANTIC • CARIBBEAN • GULF OF MEXICO • HURRICANE TRACK CHART

Hurricane (H)
Tropical Storm (T)
Tropical Dep.
+++ Extratropical
Wave/Low
● Position at 0000 UTC
○21 Position/date at 1200 UTC
5 Tropical Cyclone Number

Lambert Conformal Conic
true at 20° and 40° North

2006

NUMBER	TYPE	NAME	DATE
1	T	ALBERTO	10 Jun.-14 Jun.
2	T	UNNAMED	17 Jul.-18 Jul.
3	T	BERYL	18 Jul.-21 Jul.
4	T	CHRIS	1 Aug.-4 Aug.
5	T	DEBBY	21 Aug.-26 Aug.
6	H	ERNESTO	24 Aug.-1 Sep.
7	H	FLORENCE	3 Sep.-12 Sep.
8	H	GORDON	10 Sep.-20 Sep.
9	H	HELENE	12 Sep.-24 Sep.
10	H	ISAAC	27 Sep.-2 Oct.

NATIONAL HURRICANE CENTER

ATLANTIC • CARIBBEAN • GULF OF MEXICO • HURRICANE TRACK CHART

2007

NUMBER	TYPE	NAME	DATE
1	ST	ANDREA	MAY 9-11
2	T	BARRY	JUN 1-2
3	T	CHANTAL	JUL 31-AUG 1
4	H	DEAN	AUG 13-23
5	T	ERIN	AUG 15-17
6	H	FELIX	AUG 31-SEP 5
7	T	GABRIELLE	SEP 8-11
8	T	INGRID	SEP 12-17
9	H	HUMBERTO	SEP 12-14
10	T	JERRY	SEP 23-24
11	H	KAREN	SEP 25-29
12	H	LORENZO	SEP 25-28
13	T	MELISSA	SEP 28-30
14	H	NOEL	OCT 28-NOV 2
15	T	OLGA	DEC 11-12

Hurricane (H)
Tropical Storm (T)
Tropical Depression
+-+-+ Extratropical
Wave/Low
Subtropical Depression
Subtropical Storm (ST)
● Position at 0000 UTC
○21 Position/date at 1200 UTC
[5] Tropical Cyclone Number

Lambert Conformal Conic
true at 20° and 40° North

U.S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART

2008

NUMBER	TYPE	NAME	DATE
1	T	ARTHUR	MAY 31-JUN 1
2	MH	BERTHA	JUL 3-20
3	T	CRISTOBAL	JUL 19-23
4	H	DOLLY	JUL 20-25
5	T	EDOUARD	AUG 3-6
6	T	FAY	AUG 15-26
7	MH	GUSTAV	AUG 25-SEP 4
8	H	HANNA	AUG 28-SEP 7
9	MH	IKE	SEP 1-14
10	T	JOSEPHINE	SEP 2-6
11	H	KYLE	SEP 25-29
12	T	LAURA	SEP 29-OCT 1
13	T	MARCO	OCT 6-7
14	T	NANA	OCT 12-14
15	MH	OMAR	OCT 13-18
16	MH	PALOMA	NOV 5-9

Major Hurricane
Hurricane
Tropical Storm
Tropical Depression
Subtropical Storm
Subtropical Depression
Wave/Low
Extratropical
Position at 0000 UTC
dd Position/date at 1200 UTC
5 Tropical Cyclone Number

N

LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500

Drought

Drought is a normal part of virtually every climate on the planet, including areas of both high and low normal rainfall. Drought is the result of a natural decline in the expected precipitation over an extended period of time typically one or more seasons in length. The severity of drought can be aggravated by other climatic factors, such as prolonged high winds and low relative humidity.

A droughts severity depends on numerous factors, including duration, and geographic extent as well as regional water supply demands by humans and vegetation. Due to its multi-dimensional 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 if 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 on drought contingency or mitigation planning by many governments.

Droughts are difficult to predict since they are based on slowly accumulating effects. Coosa County has experienced a few periods of drought in the past. There is no indication that this will change in the future. Droughts are cyclical in nature and will continue to afflict the area.

History

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 ALZ011>015 - 021>025 - 027>038 - 041 - 043	07/18/2006	07:00 AM	Drought	N/A	0	0	0	0
2 ALZ011>015 - 017>050	08/01/2006	12:00 AM	Drought	N/A	0	0	0	0
3 ALZ011>015 - 017>050	09/01/2006	12:00 AM	Drought	N/A	0	0	0	0
4 ALZ036>038 - 040>045 - 047	05/22/2007	06:00 AM	Drought	N/A	0	0	0K	0K
5 ALZ011>015 - 017>045 - 047	06/01/2007	00:00 AM	Drought	N/A	0	0	0K	0K
6 ALZ011 - 013>015 - 017>021 - 023>029 - 032>038 - 040>045 - 047	04/01/2008	00:00 AM	Drought	N/A	0	0	0K	0K
7 ALZ011 - 013>015 - 017>021 - 023>029 - 032>038 - 040>045 - 047	05/01/2008	00:00 AM	Drought	N/A	0	0	0K	0K
8 ALZ017>021 - 024>029 - 036>038 - 043 - 045 - 047	06/01/2008	00:00 AM	Drought	N/A	0	0	0K	0K
9 ALZ017>021 - 024>029 - 036>038 - 043 -	07/01/2008	00:00 AM	Drought	N/A	0	0	0K	0K

045 - 047>048 - 050								
10 ALZ011 - 013>015 - 017>019 - 021 - 023>029 - 034>038 - 043 - 045>048 - 050	08/01/2008	00:00 AM	Drought	N/A	0	0	0K	0K
TOTALS:					0	0	0	0

Location

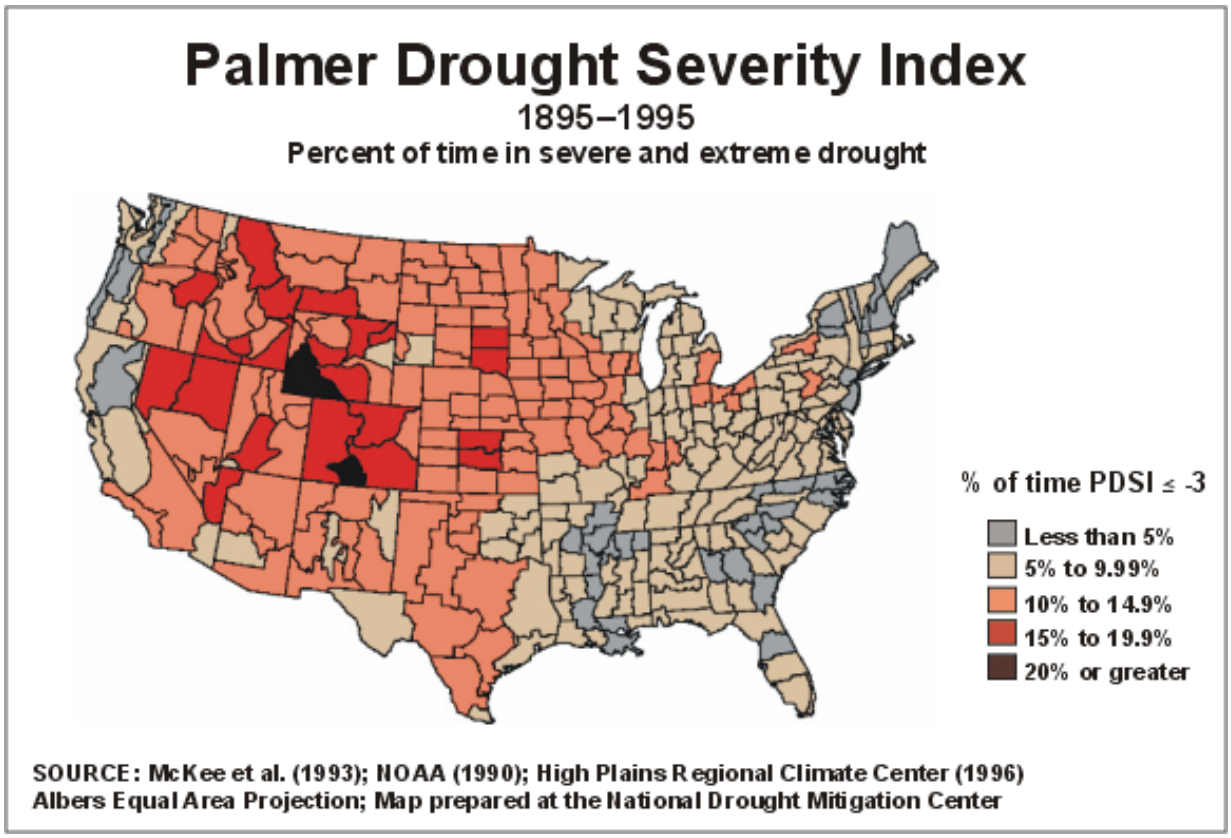
Drought is a widespread event. The precipitation that falls during rain events has a far reaching pathway that will affect many avenues of water resources such as crop irrigation, refilling lakes and ponds from runoff, ground water storage from seepage into the ground and stream and river flows. There are no areas of the County that are not susceptible to drought effects. All areas are equally at risk. Droughts are not small scale isolated events; they affect the entire county.

Extent

Drought impacts are wide-reaching and may be economic, environmental, and/or societal. The most significant impacts associated with drought in Coosa County are those related to agriculture. Also, a lack of significant rainfall can cause soil to compact and not absorb water well, potentially making an area more susceptible to flooding. Water supply for human consumption and activities are a major concern during periods of prolonged drought. Drought impacts increase with the length of a drought.

Probability

The probability of a drought in the County is considered low. Although the county has recently experienced drought conditions over the past two years, the long term probability of drought is considered low. The Hazard Mitigation Planning Committee reviewed the drought history from NCDC, along with discussion of previous events the committee members could recall and also by consulting the Palmer Drought Severity Index 1895-1995. Coosa County experienced severe and extreme drought 5-9.99 percent of the time during that 100-year period.


Palmer Drought Severity Index
1895–1995
Percent of time in severe and extreme drought
% of time PDSI ≤ -3
Less than 5%
5% to 9.99%
10% to 14.9%
15% to 19.9%
20% or greater
SOURCE: McKee et al. (1993); NOAA (1990); High Plains Regional Climate Center (1996)
Albers Equal Area Projection; Map prepared at the National Drought Mitigation Center

VULNERABILITY ASSESSMENT OVERVIEW

With the exception flooding, all areas within the County and its municipalities are susceptible to effects from all identified hazards. Information from municipalities indicates that most flooding occurs in roadways due to inadequate drainage and culvert sizes. That's not to say flooding is not financial burden, there are several dollars and man hours invested in repairing roadways and placing protective measures (such as rip rap and barricades) along banks and hazard areas to minimize damage and the dangers of flood waters. However, when flooding does occur, it is not of the magnitude that disrupts services and daily operations of the County and municipality. So far, flooding events experienced have been short lived and isolated. Citizens are able to go about everyday activities within hours.

The impacts of each identified hazard on the County and its municipalities can vary greatly with the intensity of the hazard. With the exception of flooding, all areas of the county are equally at risk for all other hazards that were profiled in this document.

POPULATION DISTRIBUTION

The following table describes the distribution of population in Coosa County and its municipalities:

JURISDICTION	CENSUS 2007 POPULATION ESTIMATE
Coosa County	8,615
Goodwater	1,438
Kellyton	310
Rockford	377

TOTAL POPULATION EXPOSED TO HAZARDS

	Tornado	Severe Storm	Drought	Hurricane	Winter Storm	Flood+
Coosa County	8,615	8,615	8,615	8,615	8,615	86
Goodwater	1,438	1,438	1,438	1,438	1,438	14
Kellyton	310	310	310	310	310	3
Rockford	377	377	377	377	377	4

+ Based on 1% of the population

The impacts of each identified hazard on the County and its municipalities can vary greatly with the intensity of the hazard. The following table illustrates estimated financial impacts for the County and municipalities per type of event. The estimates are based on an average of losses and damages reported over a 15-year time frame.

ESTIMATED FINANCIAL LOSS PER TYPE OF EVENT

	Tornado	Severe Storm	Drought	Hurricane	Winter Storm	Flood
Coosa County	$27,2727	$336,909	Insufficient Data	$94,741	$279,222	$6,250
Goodwater	<$1	$17,000	Insufficient Data	$94,741	$279,222	$6,205
Kellyton	<$1	$6,000	Insufficient Data	$94,741	$279,222	$6,250
Rockford	$100,000	$100,000	Insufficient Data	$94,741	$279,222	$6,250

A less that $1 loss rating does not mean that the event will not incur damages in the jurisdiction. Merely that historical record indicates that there have been no recorded events of this type for that jurisdiction.

The following table summarizes the amounts that are used to calculate losses when using FEMA's Cost Benefit module for computing losses when applying to the Hazard Mitigation Grant Program. This information is useful as it can serve as a guide for communities to familiarize themselves with what kind of information will be required when applying for the Hazard Mitigation Grant Program, as well as what types of recordkeeping initiatives to put in place regarding damages and disasters.

Summary of Costs Associated with Elements Lost	
Displacement Time (Residential)	Occupants of flood damaged buildings are displaced for 30 days if building damages equal 10% of building replacement cost. Occupants are displaced for an additional 8 days for each percentage point that building damages exceed 10%, up to a maximum of 365 days total.
Displacement Time (Personal)	Damages consisting of lost time have a value of $21.16 per person per hour.
Functional Downtime	Each day of functional downtime for police, fire and patient care facilities costs society 10 times their daily budget.
Emergency Shelter	Providing emergency shelter has a value equal to 10 times the federal per diem rate for that place. The maximum per diem rate for Birmingham Alabama is $138 per day (FY 2009).
Electrical Service	Losing electrical service costs society $188.00 per resident per day.
Water Service	Losing all water service costs $103 per day per resident.
Potable Water Service	Loss of potable water only costs $43 per day per resident.
Firefighting Service	Loss of water for firefighting services has an associated loss of $17.50 per resident per day.
Waste Water Treatment	Treatment losses are calculated at $33.50 per resident per day.
Roads	Loss for road use is calculated at $32.23 per vehicle per hour of delay plus the Federal personal vehicle rate for each vehicle mile travel of detour. For FY 2009 the Federal Personal Vehicle Rate is $0.55 per mile.

All of the buildings in the county are vulnerable to most natural hazards that affect the County. The Coosa County Tax Assessors office estimates the following value of buildings within the County and its municipalities:

Coosa County Building Values by Type							
(x $1,000)							
Residential	Commercial	Industrial	Agricultural	Religious/Non-Profit	Governmental	Utilities	County Total
193,215	49,763	15,426	5,097	12,285	30,858	86,861	393,504,000
Source: Coosa County Tax Assessors Office							

The values were reviewed with the Couonty and verified as still valid during the 2009 plan update. The following table summarizes the types of structures that are located throughout the county that are vulnerable to the identified hazards.

Types of structures vulnerable to hazards						
	Tornado	Severe Storm	Hurricane/ Tropical Storm	Winter Storm	Flood+	Drought
Residential	6,142	6,142	6,142	6,142	62	6,142
Agricultural	4	4	4	4	1	4
Utilities	2	2	2	2	1	2
Manufacturing	9	9	9	9	1	9
Wholesale Trade	6	6	6	6	1	6
Retail Trade	19	19	19	19	2	19
Warehousing	5	5	5	5	1	5
Finance and Insurance	3	3	3	3	1	3
Real Estate	7	7	7	7	1	7
Professional	5	5	5	5	1	5
Waste Management and Remediation	6	6	6	6	1	6
Educational	2	2	2	2	1	2
Health Care	9	9	9	9	1	9
Food Services	3	3	3	3	1	3
Other	18	18	18	18	2	18

MITIGATION STRATEGY

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

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

A review of these goals was performed by the Mitigation Planning Committee for the 2009 Plan Update and the members were in agreement that these goals are still applicable. No revisions were made.

Existing Mitigation Activities

One of the existing ongoing activities in Coosa County is participation in the National Flood Insurance Program. The following table describes the municipalities and their level of participation in the NFIP.

National Flood Insurance Participants		
Jurisdiction Name	Date of Entry to NFIP	CRS Rating
Coosa County	8/15/1984	10
Goodwater	3/25/2008	10
Kellyton	Not mapped	N/A
Rockford	Not mapped	N/A

As of May 2009, according to records from the Alabama State Flood Plain Manager with the Office of Water Resources, there have been no repetitive loss claims in Coosa County or the NFIP participating communities.

Continued compliance with the NFIP will be maintained through the most cost effective measures. Coosa County and its municipalities are primarily rural areas with limited resources. Through analysis of measures that could be taken to continue compliance with the NFIP, the following were found to be the most reasonable for the County and its municipalities:

Maintain enforcement of the NFIP ordinance.

Improve maintenance of County and municipal storm water drainage facilities.
Provide technical, zoning and policy information regarding flood hazards to developers, interested parties and the general public.

The County has applied for, and successfully received funding for outdoor warning sirens for severe weather.

Cost-benefit review

Priority mitigation projects will only be implemented if the benefits are maximized and outweigh the associated costs of the proposed projects. The Hazard Mitigation Planning 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 to be derived. For example, a project to acquire properties within the flood plain would provide the following benefits: (1) the project eliminates flood damages to of acquired properties, (2) the project reduces flood response costs, (3) the project reduces flood insurance claims, and (4) the project could increase the Community Rating System (CRS) rating. A more detailed benefit-cost analysis will be required for each priority project 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, project implementation will be subject to the availability of FEMA grants and other sources of funds from year-to-year.

As with the development of the original plan, the planning committee reviewed various mitigation activities that could address the hazards identified and prioritized in the hazard analysis. Those that were deemed practical and cost beneficial were included in this document.

Project Prioritization

Projects were prioritized based on the following:

The project addresses identified hazards.
The project is within the economic scope of the municipality wishing to implement it.
The project will not cause hardships for an adjacent community or interfere with another community's mitigation actions.

All of the participating municipalities are small towns and rural areas with very limited resources. These municipalities prioritized projects by analyzing the immediate benefit that would be recognized by their implementation. When possible, municipalities prioritized their projects based on immediate benefit in addition to looking at overall economic development issues and goals. The Committee prioritized (or ranked) the

hazards and based on the finding that flooding and high winds (from thunderstorms and/or tornadoes) are the most costly and recurring hazards, the following list addresses the most crucial mitigation needs. Individual municipalities and the County have their own project lists.

MITIGATION ACTION ITEMS

The following action items have been prioritized by the mitigation committee and municipal leaders as items that are needed collectively throughout the county and municipalities. These items address existing as well as future buildings and infrastructure.

Identification of flood hazard areas in communities that do not have Flood Studies or Flood Insurance Rate Maps (Kellyton and Rockford).
Estimated Cost: Unknown at this time
Estimated Time Frame: 5 years
Implementing Party: County EMA and municipal leaders
2009-the Towns have reviewed this project and have continued interest in its completion. Budgetary restraints have prevented this from being implemented thus far.

Installation of outdoor alert and warning system.
Estimated Cost: $14,000.00 per unit
Estimated Time Frame: 10 years
Implementing Party: County EMA and municipal leaders
Several sirens have been installed throughout the most populated areas. However, complete coverage has not bee achieved.

Acquisition of repetitive flood loss properties.
Estimated Cost: Unknown at this time
Estimated Time Frame: 5 years
Implementing Party: County EMA and municipal leaders
This item has been removed as there have been no repetitive loss properties to date.

Construct safe rooms within new public buildings, such as new schools, libraries, and community centers where feasible.
Estimated Cost: Unknown at this time
Estimated Time Frame: As needed
Implementing Party: County EMA and municipal leaders
2009-the Towns have reviewed this project and have continued interest in its completion.

COOSA COUNTY

Foshee Road – Flooding of road in most heavy rains

Replace a series of three (3) pipes, (5', 5', 6') with a concrete culvert. Without hydraulic review, it is estimated that this culvert would need to be a CD 10 x 8.

Estimated Time Frame: 5 years

Estimated Cost: $85,000.00
Implementing Party: County Commission and Engineer
Funding Sources: CDBG, ALDot, DoT, HMGP, PDM
2009-the County has reviewed this project and has continued interest in its completion. Budgetary restraints have prevented this from being implemented thus far.

Coosa County Road No. 16 – Flooding of roadway in most heavy rains. Flagging or barricades by highway department on regular basis.
Replace a 50-foot long structure with a new concrete bridge structure.
Estimated Time Frame: 5 years
Estimated Cost: $150,000.00
Implementing Party: County Commission and Engineer
Funding Sources: CDBG, ALDot, DoT, HMGP, PDM
2009-the County has reviewed this project and has continued interest in its completion. Budgetary restraints have prevented this from being implemented thus far.

Investigate the feasibility of retrofitting the Coosa County Courthouse to withstand winds of 200 MPH (the recommended wind rating based on wind zones in the southeast).
Estimated Time Frame: 3 Years
Estimated Cost: Unknown cost at this time.
Responsible Party: Coosa County Commission and EMA Director/County Engineer
Funding Source: HMGP, PDM
2009-the County has reviewed this project and has continued interest in its completion. Budgetary restraints have prevented this from being implemented thus far.

GOODWATER

Community wide – Construct a storm shelter for community wide use.
Estimated Time Frame: 5 Years
Estimated Cost: $75,000.00
Responsible Party: City Council
Funding Source: HMGP, PDM, CDBG
2009-the Town has reviewed this project and has continued interest in its completion. Budgetary restraints have prevented this from being implemented thus far.

Community wide – Installation of 4 severe weather-warning sirens to cover the city and police jurisdiction.
Estimated Time Frame: 2 Years
Estimated Cost: $56,000.00 (4 sirens at $14,000 each including installation)
Responsible Party: City Council
Funding Source: HMGP, PDM, CDBG
2009-the Town has received two sirens. There is interest in acquiring two more.

County Road 64 – Areas of this road within City limits experiences repeated flooding. Existing drainage pipe requires enlargement.
Estimated Time Frame: 5 years

Estimated Cost: Unknown at this time.
Responsible Party: Town of Goodwater
Funding Sources: CDBG, HMGP, FMA, PDM, City Funds
2009- This is a new project

Brownville Road (County Road 7) - Areas of this road within City limits experiences repeated flooding. Existing drainage pipe requires enlargement.
Estimated Time Frame: 5 years
Estimated Cost: Unknown at this time.
Responsible Party: Town of Goodwater
Funding Sources: CDBG, HMGP, FMA, PDM, City Funds
2009- This is a new project

Woodlands Drive – This road is susceptible to flooding. The flooding is exacerbated by beavers building dams in the pipe under the road which serves as a drainage canal. The town proposes to enlarge the pipe as well as institute a beaver eradication program.
Estimated Time Frame: 5 years
Estimated Cost: Unknown at this time.
Responsible Party: Town of Goodwater
Funding Sources: CDBG, HMGP, FMA, PDM, City Funds
2009- This is a new project

KELLYTON

Community wide – Construct a storm shelter for community wide use.
Estimated Time Frame: 3 Years
Estimated Cost: $45,000.00
Responsible Party: City Council
Funding Source: HMGP, PDM, CDBG
2009-the Town has reviewed this project and has continued interest in its completion. Budgetary restraints have prevented this from being implemented thus far.

ROCKFORD

There is an area along State Highway 231 and 22 that floods constantly. Drainpipes require replacement. Floodwaters run down School Street. Since these are State Highways, negotiations with the Alabama Department of Transportation need to be initiated to take steps in eliminating this hazard to the community.
Estimated Time Frame: 5 Years
Estimated Cost: $125,000.00
Responsible Party: City Council and Utilities Director
Funding Source: HMGP, PDM, CDBG, DoT, ALDoT
2009-the Town has reviewed this project and has continued interest in its completion. Budgetary restraints have prevented this from being implemented thus far.

Community wide – Construct a storm shelter for community wide use.
Estimated Time Frame: 5 Years
Estimated Cost: $50,000.00
Responsible Party: City Council
Funding Source: HMGP, PDM, CDBG
2009-the Town has reviewed this project and has continued interest in its completion. Budgetary restraints have prevented this from being implemented thus far.

Purchase a backup generator for Rockford Water Authority. At this time if the power supply is interrupted for the water authority the water supply for the community is limited to 30 hours. The purchase of a backup generator will ensure to operation of this critical facility for residents as well as emergency services.
Estimated Cost: $25,000.00
Estimated Time Frame: 3 Years
Responsible Party: Rockford Water Authority
Funding Source: HMGP, PDM
2009- This is a new project

PLAN MAINTENANCE

The Plan Maintenance Procedures were reviewed by the Hazard Mitigation Planning Committee and through discussion and reflection of past disaster declarations, it was determined that changes should be made regarding the verbiage of incorporation of action items into the planning document between plan updates. Specifically, this change involves replacing the meeting requirement for immediate need project inclusion with a consultation requirement.

Monitoring, Evaluating and Updating the Plan

Municipal employees that serve on the Hazard Mitigation Planning Committee will be responsible for monitoring the status of their own mitigation measures. The municipalities will report on an annual basis to the EMA Director with an update of the status of the implementation items, specifically which items have been completed, are in progress or are no longer considered a viable action. Regular plan maintenance and monitoring will be the responsibility of each individual municipality. The following are the positions with this responsibility:

Coosa County – EMA Director and County Commissioners
Goodwater – Mayor and Street Superintendent
Kellyton – Water Department Manager
Rockford – Mayor and Public Works Director

The plan will undergo a comprehensive review every five years by the Coosa County EMA, Hazard Mitigation Committee, municipalities involved and citizens. This will allow for evaluation of the effectiveness of the plan and allow for any review and revision of the hazard vulnerability, risk factors, and mitigation strategies. It will be the responsibility of the Coosa County EMA Director to notify Mitigation Planning Committee members, municipalities and the public of the plan review. Following each disaster declaration the plan will be reviewed to add any necessary changes or updates. At the first semiannual LEPC meeting during the year, municipalities will have the ability to add any additional mitigation strategies by proposing the strategies to the LEPC. It is realized that some amendments or revisions may occur during emergencies or disasters and therefore, timeliness will be essential. It is for this reason that the committee has deemed it not necessary to hold a meeting but rather, have consultation with other committee members for plan updates and revisions. These consultations, especially during times of emergency or disaster declarations, can take place via telephone, e-mail or in writing, or in person. The entire Committee need not be consulted for this amendment however; at a minimum those consulted will consist of:

The Chief Elected Official of the Municipality wishing to amend the Plan
A member of the EMA Staff
A member of the Coosa County Commission or the County Administrator

Additionally, if changes are made that affect only one jurisdiction, the changes to the Plan need only be readopted by the affected jurisdiction.

In determining whether to recommend approval or denial of a Plan amendment request, the following factors will be considered:

1. There were errors or omissions made in the identification of issues or needs during the preparation of the Plan;
2. New issues or needs have been identified that were not adequately addressed in the Plan;
3. There has been a change in information, data or assumptions from those on which the Plan was based.

Incorporation into Existing Planning Mechanisms

This document will be incorporated into the Coosa County Emergency Operations Plan administered through the EMA office. This plan will also be adopted as an amendment to all local comprehensive plans in localities that have an adopted plan in place (Currently the City of Roanoke is the only entity within the County that has participated in Comprehensive Planning and is anticipating adoption of their Comprehensive Plan under development within the next six months).

Hazard Mitigation Planning Committee Members involved in existing planning mechanisms will be responsible for integrating appropriate elements of the Hazard Mitigation Plan into those planning efforts. During the planning process for new, amended, revised, or updated local planning documents, the local party responsible for the planning document will provide a copy of the hazard mitigation plan to each respective advisory committee member or departmental staff person. The local planning entity will recommend the advisory committee members or departmental staff person to ensure that all goals and strategies of new, amended, revised and updated local planning documents are consistent with the hazard mitigation plan and will not contribute to an increase in the local jurisdiction's vulnerability to the impacts of natural hazards.

Plans to which this provision may apply include, but are not limited to:

Comprehensive plan
Capital Improvements Plan
Transportation Plan

and other local planning documents, when appropriate.

County government is very limited in scope and authority in the State of Alabama and does not have the manpower, authority or fiscal capabilities to guide and control development within the unincorporated areas of the County. There are no mandatory State imposed planning requirements in Alabama for counties or municipalities. A municipal government may participate in planning (Zoning, Comprehensive Planning and Capitol Improvements Plans) on a voluntary basis.

Continued Public Involvement

The existing public involvement process has served the County and municipalities well in the past and the Hazard Mitigation Planning Committee has determined no changes are necessary in the way that continued public participation will be obtained.

The EMA Director will have the obligation of notifying the public and stakeholders of the annual plan review which can be incorporated in the public announcement for the LEPC meetings. Written comments on the plan will be accepted by the Coosa County EMA at any time. The plan will be available to the public via the Coosa County EMA. Copies of the completed, formally adopted plan will be maintained at each municipality, located at the governmental administrative offices. The Coosa County Commission will maintain a copy at the Commission Offices and at the Coosa County EMA Directors Office. This document is also available to the public through the East Alabama Planning Commissions website, www.earpdc.org where instructions for written comments are available.