

WASHINGTON COUNTY, ALABAMA



NATURAL HAZARDS MITIGATION PLAN

June 2010¹

Prepared in the year 2004
under the direction of the:

Washington County Hazard Mitigation Planning Committee

Revised in the year 2010 by the:

Washington County Emergency Management Agency

¹ Cover sheet date of upgrade

Washington County, Alabama Natural Hazards Mitigation Plan

This document was originally funded in part in 2004, through a planning grant awarded by the Alabama Emergency Management Agency to the Washington County Emergency Management Agency to fulfill the natural hazards mitigation planning requirements of the Disaster Mitigation Act of 2000. The original plan was prepared under the direction of the Washington County Hazard Mitigation Planning Committee by Lehe Planning, LLC. This plan has been revised as necessary to reflect the current status within Washington County. Any revisions will be designated by appropriate footnotes. For additional information, please contact the EMA office.

Stewart Jackson, Director¹
Washington County EMA
P.O. Box 146
Chatom, Alabama 36518
Phone: (251) 847-2668
E-mail: sjackson@millry.net

Note: This Plan is presented in its' original, basic configuration to identify the activities regarding development. Revisions are primarily changes or additions needed to reflect current data. Any revisions will be designated by appropriate footnotes.

¹ Stewart Jackson replaced Deborah Nichols as EMA Director (2006)

ACKNOWLEDGMENTS

Washington County Hazard Mitigation Planning Committee²

- Stewart Jackson - EMA Director
- Charles Singleton- Probate Judge
- Alan Bailey-County Commission
- Carl Simpson-County Commission
- Herman Williams -- County commission
- William Beasley-County Commission
- Kesler Weaver- County commission
- Richard Stringer-County Sheriff
- Pat Creel-Millry Police Chief
- Roy Chapman-Millry Mayor
- Daryl Singleton-County Fire Association President
- Gary Sullivan-Millry Fire Chief
- Mike Ready-McIntosh Police Chief
- Robert Davidson-McIntosh Fire Chief
- Carol Daugherty-McIntosh Mayor
- Harold Crouch-Chatom Mayor
- Brent Callahan-Chatom Police Chief
- Ben Jones-Chatom Fire Chief
- Robby Davidson-McIntosh Rescue
- Terry Allen-Alabama Forestry Commission

Washington County Emergency Management Agency

Stewart Jackson, Director

² Current Washington County Hazard Mitigation Planning Committee membership

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⁹ Dates revised to reflect current data

Chapter 1

Background and Purposes of the Plan

1.1 About the Plan

The Washington County, Alabama, Natural Hazards Mitigation Plan is a multi-jurisdictional guide for all communities that have participated in the preparation of this plan through the Hazard Mitigation Planning Committee (HMPC). The jurisdictions that participated in the development of this plan include Washington County and the Towns of Chatom, Millry and McIntosh. It fulfills the requirements of the Federal Disaster Mitigation Act of 2000 (DMA 2000) as administered by the Alabama Emergency Management Agency (AEMA) and the Federal Emergency Management Agency (FEMA) Region IV.

This plan complies with all of the eligibility requirements for FEMA grant assistance to participating localities, including the Hazard Mitigation Grant Program (HMGP), the National Flood Insurance Program's Community Rating System (CRS), the Flood Mitigation Assistance Program (FMA), and other Federal funding programs.

The planning process began in June 2003 with the appointment of the Hazard Mitigation Planning Committee by the Local Emergency Planning Committee of the Washington County Emergency Management Agency (EMA).

1.2 Scope

The scope of the Washington County, Alabama, Natural Hazards Mitigation Plan is the unincorporated and incorporated areas within the county. The plan addresses all natural hazards deemed to threaten property and persons within Washington County. Both short- and long-term hazard mitigation strategies are addressed, implementation tasks assigned, and funding alternatives identified.

In addition to this chapter, the plan contains the following elements:

1. A profile of the county's geography, history, physical features, and socioeconomic characteristics (Chapter 2. County Profile).
2. A description of the planning process that opens participation to all local governments, the public, academia, businesses, non-profit agencies, and regional, state and federal governments (Chapter 3. Planning Process).
3. A general assessment of the county's past and predicted future exposure to natural hazards and the risks that it faces, including impacts on buildings, critical facilities and infrastructure, and loss estimates (Chapter 4. Risk Assessment).

4. An assessment of local governments' capabilities to implement hazard mitigation measures, and the goals, objectives, policies and action items intended to effectively mitigate the county's natural hazard risks (Chapter 5. Mitigation Strategies).
5. The short-range (5-year) mitigation action programs for each participating jurisdiction (Chapter 6. Community Mitigation Action Programs).
6. Procedures for maintaining an active and effective long-range hazard mitigation planning and implementation program (Chapter 7. Plan Maintenance).
7. ¹A list of the Resolutions from the municipalities in Washington County that acknowledge and accept the revisions reflected in the current Plan version. (Chapter 8. Appendix Listing).

1.3 Authority

Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended), Title 44 CFR, as amended by Section 102 of the Disaster Mitigation Act of 2000, provides the framework for state and local governments to evaluate and mitigate all natural hazards as a condition for receiving Federal disaster assistance. A major requirement of the law is the development of a local natural hazard mitigation plan.

1.4 Funding

In December 2002, the AEMA awarded a planning grant to the Washington County EMA for preparing this plan and updating the county's Emergency Operation Plan. The grant provided 100% funding from FEMA through the AEMA. In 2010, this Plan was reviewed and modified as necessary, carried out by WCEMA at no cost other than printing supplied.

1.5 Purposes

Hazard mitigation is any action taken to permanently reduce or eliminate long-term risk to people and their property from the effects of hazards. These natural hazards can be of any type - tornadoes, floods, hurricanes, severe storms, winter freezes, droughts, landslides, or dam failures – resulting from natural disaster crises. Communities within the county can take steps to prepare and implement mitigation measures for almost any type of hazard that may threaten its citizens, businesses and institutions.

Hazard mitigation plans can identify a range of structural approaches to lower the costs of future disasters by meeting the unique needs of the community. For example, structural mitigation projects for flooding could involve modifying a stream channel to

¹ Added element No. 7

increase the conveyance of floodwaters or retarding the flow rate by the construction of detention facilities.

Mitigation strategies can also involve non-structural initiatives, such as educational programs to inform the community about the risks the public and its property face in order to encourage them to purchase insurance or retrofit their homes. Non-structural programs can also include developing and enforcing regulations to prevent construction in natural hazard areas, or to ensure that development that does occur will be resistant to the natural hazards threatening the area.

Mitigation programs and projects serve to lessen a community's vulnerability to the hardships and costs of most disasters. The implementation of mitigation programs is a key component to achieving a sustainable community, one in which the economic and social needs of people, businesses, and institutions coexist with natural environmental constraints and are protected from the disruptions and impacts of emergencies and disasters. Hazard mitigation planning must be closely coordinated with a community's overall planning and development efforts. The most effective way for a community to initiate this objective is through a comprehensive local mitigation planning program. Comprehensive planning can provide Washington County citizens a safe, healthy and prosperous place to live and work.

The purpose of the Washington County, Alabama, Natural Hazards Mitigation Plan is to develop a unified approach among its local governments for dealing with identified natural hazards and natural hazard management problems. This plan serves as a guide for local governments in their ongoing efforts to reduce vulnerability to the impacts produced by natural hazards.

Further, the plan seeks to accomplish the following additional purposes:

- Establish an ongoing natural hazard mitigation planning program;
- Identify and assess the natural hazards that pose a threat to life and property;
- Evaluate additional mitigation measures that should be undertaken; and,
- Outline procedures for monitoring the implementation of mitigation strategies.

This plan provides guidance for local mitigation activities over the next five-year planning cycle. It encourages activities that are most effective and appropriate for mitigating the effects of all known natural hazards.

Chapter 2 County Profile

Note: This chapter is shown in the Plans' original, basic configuration to identify the activities regarding development. Revisions are primarily changes or additions needed to reflect current data. Any revisions will be designated by appropriate footnotes.

2.1 Geographic Setting and History

Washington County, population 18,097 (Census 2000), is located in rural southwest Alabama as shown on Map 2-1. Containing approximately 1,081 square miles, it is not a part of any surrounding metropolitan area. The county is bordered on the north by Choctaw County, on the east by Clarke County, on the south by Mobile County, and on the west by the State of Mississippi. It was created on June 4, 1800 by proclamation of Governor Winthrop Sargent of the Mississippi Territory, and named in honor of General George Washington. Its original boundaries were the Chattahoochee River to the east, the Pearl River to the west, the 32nd parallel to the north and the 31st parallel to the south, containing 26,400 square miles. The county was later divided into 16 Mississippi counties and 29 Alabama counties. Early county seats included McIntosh's Bluff, Wakefield and St. Stephens. The county seat is now located at Chatom. The county has, in decreasing order of population, the towns of Chatom (1,193), Millry (615) and McIntosh (244).



Map 2-1. Location Map, Washington County

2.2 Government

County government is in the form of a representative five-member commission presided over by the probate judge. All of the municipalities have a mayor/city council form of government.

2.3 Demographics

Census 2000 tabulated Washington County's total population at 18,097 persons. Chatom, the county seat, is the largest municipality with a population of 1,193. The populations of all three municipalities and a population distribution map are depicted in

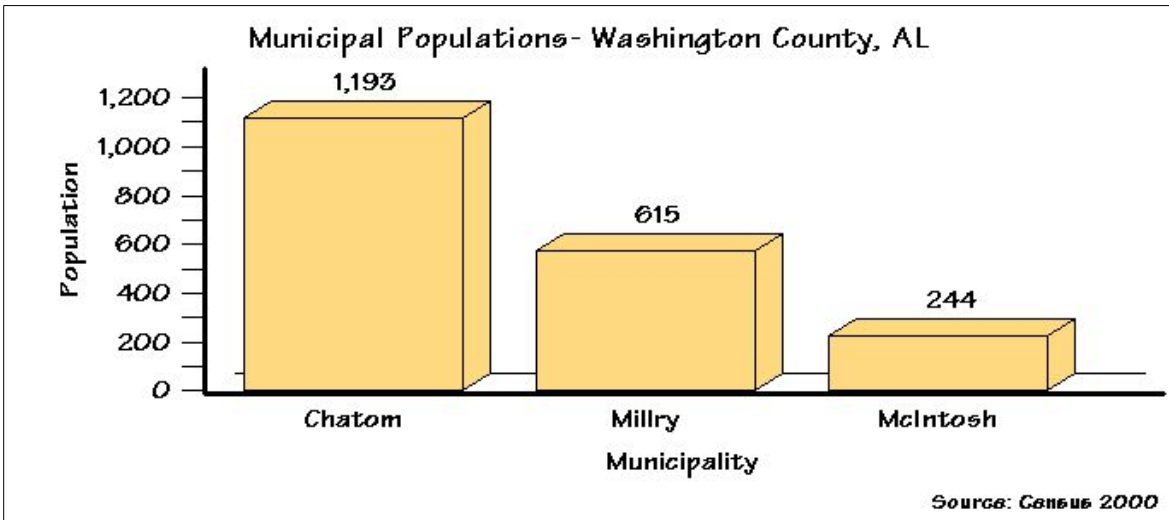
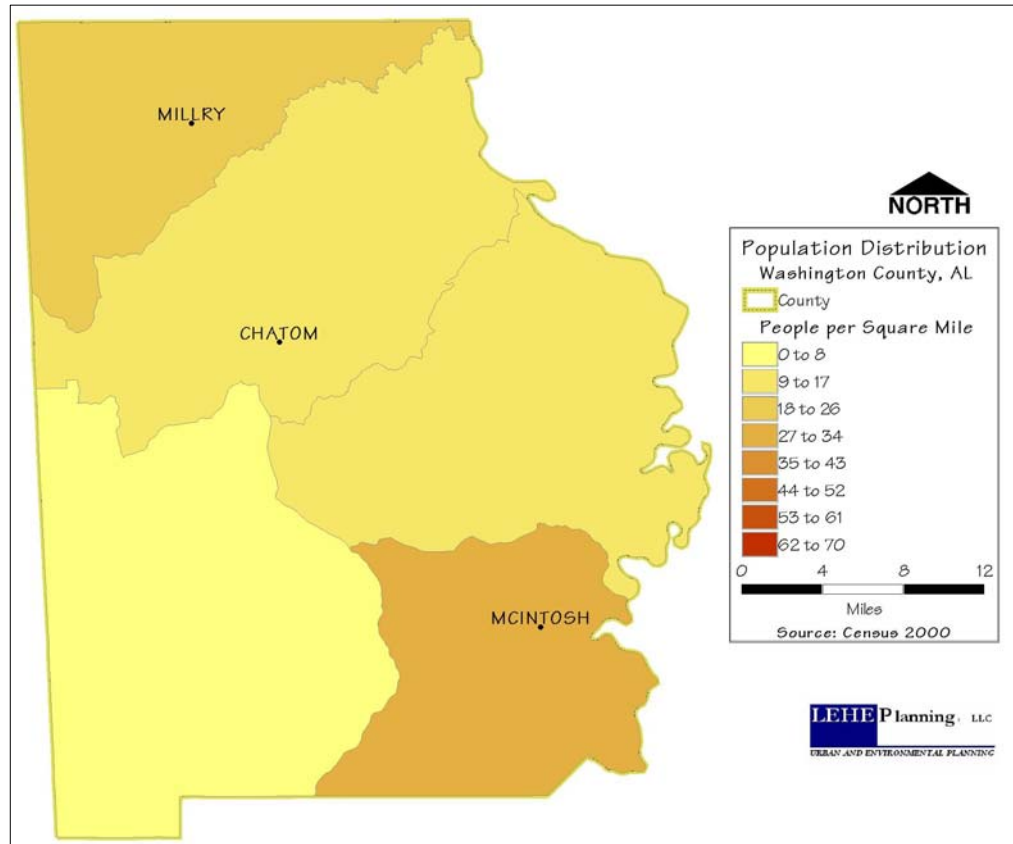


Chart 2-1 and Map 2-2, respectively.

Chart 2-1. Municipal Populations, Washington County



Map 2-2. Population Distribution, Washington County

General demographic information for Washington County is shown in Table 2-1. According to Census 2000, the county's population is 49% female and 51% male. The single largest age group is the 35 to 44 year olds, comprising 14.6% of the population. The median age is 34.9 years. Whites make up 87.1% of the population, while African Americans comprise 26.9%. There are 6,705 total households with an average size of 2.69. Approximately 82.5% of the total housing units are occupied, and of these, 88.1% are owner occupied.

Table 2-1. General Demographic Characteristics, Washington County, Alabama

Subject	Number	Percent
TOTAL POPULATION	18,097	100.0
SEX AND AGE		
Male	8,869	49.0
Female	9,228	51.0
Under 5 years	1,308	7.2
5 to 9 years	1,499	8.3
10 to 14 years	1,478	8.2
15 to 19 years	1,451	8.0
20 to 24 years	1,010	5.6
25 to 34 years	2,323	12.8
35 to 44 years	2,640	14.6
45 to 54 years	2,400	13.3
55 to 59 years	976	5.4
60 to 64 years	766	4.2
65 to 74 years	1,268	7.0
75 to 84 years	713	3.9
85 years and over	265	1.5
Median age (years)	34.9	N/A
RACE		
One race	17,939	99.1
White	11,759	65.0
Black or African American	4,867	26.9
Other	1,363	8.1
Two or more races	158	0.9
HOUSEHOLDS		
Total households	6,705	100.0
Average household size	2.69	N/A
HOUSING OCCUPANCY		
Total housing units	8,123	100.0
Occupied housing units	6,705	82.5
Vacant housing units	1,418	17.5
HOUSING TENURE		
Occupied housing units	6,705	100.0
Owner-occupied housing units	5,905	88.1
Renter-occupied housing units	800	11.9

Source: General Demographic Characteristics, Census 2000

2.4 Economy

General economic information for Washington County is shown in Table 2-2. According to Census 2000, the majority of the employed civilian labor force work in production, transportation and material moving occupations (28.7%), followed by management/professional (19.6%) and sales/office (18.3%) occupations. Manufacturing (27.6%) followed by educational,

health and social services (16.3%) are the major industries. Approximately fifteen percent of families (14.8%) are classified as living below poverty level.

Table 2-2. General Economic Characteristics, Washington County, Alabama

Subject	Number	Percent
EMPLOYMENT STATUS		
Population 16 years and over	13,497	100.0
In labor force	7,356	54.5
Civilian labor force	7,341	54.4
Employed	6,778	50.2
Unemployed	563	4.2
Percent of civilian labor force	N/A	7.7
Armed Forces	15	0.1
Not in labor force	6,141	45.5
OCCUPATION		
Management, professional, and related occupations	1,331	19.6
Service occupations	847	12.5
Sales and office occupations	1,243	18.3
Farming, fishing, and forestry occupations	234	3.5
Construction, extraction, and maintenance occupations	1,176	17.4
Production, transportation, and material moving occupations	1,947	28.7
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	500	7.4
Construction	787	11.6
Manufacturing	1,868	27.6
Wholesale trade	135	2.0
Retail trade	759	11.2
Transportation and warehousing, and utilities	475	7.0
Information	72	1.1
Finance, insurance, real estate, and rental and leasing	177	2.6
Professional, scientific, management, administrative, waste management	188	2.8
Educational, health and social services	1,102	16.3
Arts, entertainment, recreation, accommodation and food services	214	3.2
Other services (except public administration)	200	3.0
Public administration	301	4.4
POVERTY STATUS IN 1999 (below poverty level)		
Families	750	N/A
Percent below poverty level	N/A	14.8

Source: *General Economic Characteristics, Census 2000*

BASF Chemicals followed by Power South Cooperative and the Olin Corporation are the largest employers in Washington County. Table 2-3 lists the seven largest employers.

Table 2-3. Largest Employers, Washington County¹

Company	Location	Product/Service	# of Employees
BASF Chemicals, Inc. **	McIntosh	Chemicals/Brighteners	926
Power South Electric Cooperative **	McIntosh & Leroy	Utility	300
Olin Corporation	McIntosh	Chlorine/Caustic Chem.	300
Huntsman Corporation, Inc.	McIntosh	Polymers Production	200
Brown and Root, Inc.	McIntosh	Construction Company	120
Capstone Bank, Inc.	Chatom	Banking Services	100
First Community Bank **	Millry & Chatom	Banking Services	100

Source: Economic Development Office

2.5 Climate

Washington County's climate is typical of most Gulf Coast States. Annual precipitation is fairly heavy. Summers are long and hot with moist tropical air from the Gulf of Mexico dominating the area. Afternoon thunderstorms during the summer are common. Winters are generally moderate. Winter weather is the product of successive cold fronts moving across the area bringing heavy rains and cold temperatures which generally moderate in a couple of days. Tropical storms or hurricanes occasionally move across the county producing heavy rains and damaging winds. Table 2-4 provides general weather observations.

Table 2-4. Weather Observations, Washington County

Item	Observation
Average Winter Temperature	50.3 degrees
Average Winter Minimum Temperature	37 degrees
Lowest Temperature (January 12, 1982)	1 degree
Average Summer Temperature	79.7 degrees
Average Summer Maximum Temperature	91.8 degrees
Highest Temperature (July 24, 1954)	107 degrees
Total Annual Precipitation	57 inches
Heaviest One-Day Rainfall (September 29, 1988)	10.30 inches
Number of Days With Thunderstorms	60
Average Seasonal Snowfall	0.5 inches
Heaviest Snowfall	8.2 inches
Prevailing Wind	South
Highest Average Wind speed	9 mph

Source: Southeast Regional Climate Center

¹ Changes note by **

2.6 Physical Features

Washington County is located in the East Gulf Coastal Plain Section of the Coastal Plain physiographic province. Topography is primarily hilly to gently rolling. The lowest elevations are found along the flood plain of the Tombigbee River. Scott Mountain, located in the west-central portion of the state, is the highest point at 553 feet above sea level.

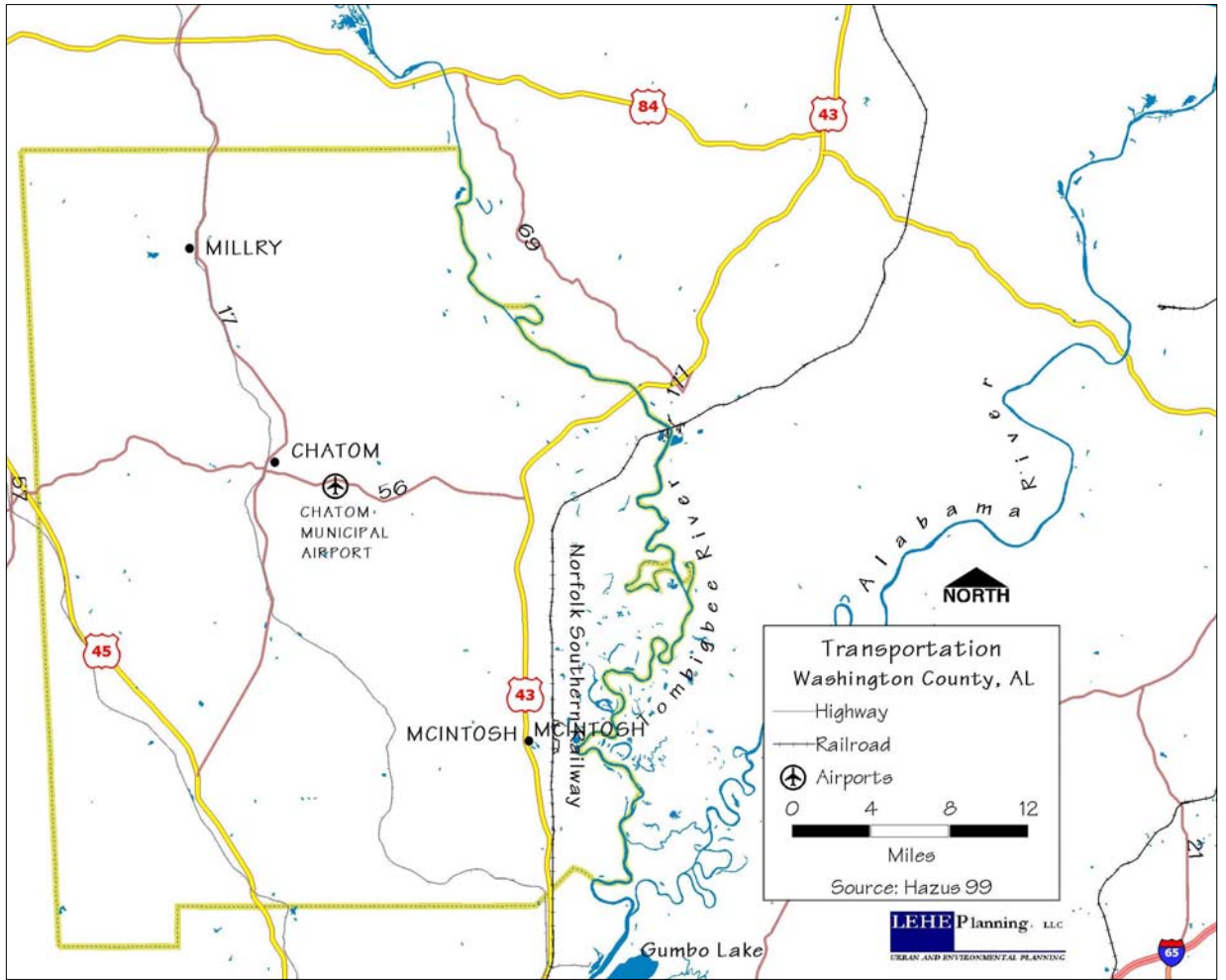
The northern and southwestern portions of the county lie in the Chalk Hills of the East Gulf Coastal Plain. This region is characterized by parallel ridges and hills oriented in a northwest to southeast direction. South of the ridges and hills the topography is much more level and gives rise to prairies where little erosion occurred. In areas where erosion was more active, "lime hills" form.

The Lime Hills region of the Gulf Coastal Plain extends from the northwestern corner of the county to the community of St. Stephens and the river. The belt of lime hills is approximately four to five miles across and is some of the best farming land in the area. This region contains an area of soils including black "shell prairie" and red loams and a mixture of clays and sands that are unlike any other soils found in the county.

2.7 Transportation

As shown on Map 2-4, Washington County is served by two U.S. Highways: 45 and 43; and two State Highways: 17 and 56. The Norfolk Southern Railroad runs along the eastern part of the county. The Tombigbee River, which is also the eastern boundary of the county, is a major commercial waterway. It is part of the Tennessee-Tombigbee Waterway system, which connects the Tennessee River and Ohio Valley to the Gulf of Mexico. There is one commercial airport with an elevation of 165 ft. above sea level, and a runway length of 4,000 ft,² located east of Chatom, that accommodates private and commercial aircraft.

² Added airport elevation and runway length



Map 2-4. Transportation System, Washington County

2.8 Utilities and Communications

Electricity. Electric power is provided by Clarke-Washington Electric Company, Alabama Power of McIntosh, and Power South Electric Cooperative.³

Gas. Natural gas is provided by Conoco-Phillips, South Alabama Gas, Bay Gas and Clarke-Mobile Gas.

Water. Water service is provided by Chatom Utilities, Deer Park-Vinegar Bend and FPA, Frankville Water and FPA, Fruitdale Water System, Hobson Water System , Leroy Water and FPA, McIntosh, Millry Water Works, St. Stephens Water System, Tibbie Water and FPA, Wagerville Water System, Inc., and Washington County Water and FPA.

Sanitary Sewer. Chatom and Millry Utilities provide sanitary sewer service. The Town of McIntosh operates on septic tanks, but has plans to change to a new treatment facility in the near future.

Electronic Communications. Electronic communications are provided by BellSouth and Millry Communications.

Print. The *Washington County News* and *The South Alabamian*⁴ are the local newspapers and are distributed weekly.

³ Removed Black Warrior power supplier

⁴ Added *The South Alabamian* newspaper

Chapter 3 The Planning Process

Note: This chapter is shown in the Plans' original, basic configuration to identify the activities regarding development. Revisions are primarily changes or additions needed to reflect current data. Any revisions will be designated by appropriate footnotes.

3.1 A Multi-Jurisdictional Planning Process;

Plan Development Program Involving the Initial Committee¹

a. The Hazard Mitigation Planning Committee (HMPC) represents all incorporated cities and towns – Chatom, Millry, McIntosh - and all unincorporated communities and areas of Washington County. The Committee seeks a coordinated and active mitigation planning process among all jurisdictions with their full participation in plan development and implementation. This integrated planning process combines the risks, issues, goals, and mitigation measures of each community into a consolidated plan whereby all jurisdictions have equal opportunity for participation and full representation in the planning process. This process, therefore, satisfies the requirements of CFR Section 201.6(a)(3) of the DMA 2000 in which “multi-jurisdictional plans may be accepted, as appropriate, as long as each jurisdiction has participated in the process.”

b. All jurisdictions fully participated in all committee meetings, committee assignments and exercises, public meetings, and other planning activities completed during the drafting phase of this Plan. In addition to Committee representation, each jurisdiction conducted an independent public hearing to receive public comments prior to final action by each governing body to adopt the plan. The minimum level of Committee participation for each jurisdiction was achieved by one or more representatives that were actively involved in one or more planning activities conducted in the drafting phase of the plan. Authorized representatives for any given jurisdiction are shown in Table 3-1.

3.1.1 Revision to the Planning Process:²

Each incorporated town – Chatom, Millry and McIntosh, was contacted in regard to the revision of the Washington County Natural Hazards Mitigation Plan. Agreement to the revision process was indicated by the acceptance of Resolutions adopting the revised Plan.

3.2 Hazard Mitigation Planning Committee

A special planning committee – the Washington County Hazard Mitigation Planning Committee – comprised of representatives from all the jurisdictions and other organizations in Washington County concerned with natural disasters, guided the development of this natural hazards mitigation plan. The members of the current Planning Committee and the organizations or jurisdictions they represent are shown in Table 3-1.

¹ Paragraphs “a” and “b” depict the original Program Development

² Added 3.1.1 current revision process

Table 3-1. Hazard Mitigation Planning Committee Members³

Name	Agency	Representing
Stewart Jackson*	Washington County-Emergency Management Agency	Washington County and Municipalities
Charles Singleton*	Washington County-Probate Judge	Washington County and Municipalities
Kesler Weaver *	Washington County-Commission	Washington County and Municipalities
Allen Bailey	Washington County-Commission	Washington County and Municipalities
William Beasley	Washington County-Commission	Washington County and Municipalities
Richard Stringer*	Washington County-Sheriff's Department	Washington County and Municipalities
Pat Creel*	Police Chief – Millry PD	Town of Millry
Mayor Pete Dearmon*	Town of Millry-Office of the Mayor	Town of Millry
Richard Johnston*	Washington County-Fire Association	Washington County and Municipalities
Charlie Carpenter*	Town of Millry-Fire	Town of Millry
Mike Ready*	Town of McIntosh-PD	Town of McIntosh
Robert Davidson*	Town of McIntosh-Fire	Town of McIntosh
Mayor Carol Daugherty	Town of McIntosh-Office of the Mayor	Town of McIntosh
Mayor Harold Crouch	Town of Chatom-Office of the Mayor	Town of Chatom
Brent Callahan*	Police Chief – Chatom PD	Town of Chatom
Ben Jones*	Town of Chatom-Fire	Town of Chatom
Carl Simpson*	Washington County-Commission	Washington County and Municipalities
Herman Williams*	Washington County-Commission	Washington County and Municipalities
Andrew Daugherty	Town of McIntosh-Rescue	Town of McIntosh
Terry Allen	Alabama Forestry Commission	Washington County and Municipalities

An asterisk (*) denotes change in personnel due to elections and attrition

Initial members were recommended by the Director of the Washington County EMA, and then appointed by the Local Emergency Planning Committee. Any citizen may contact the EMA for possible appointment to the committee. The staff of the Washington County

³ Revised to current membership (2010)

EMA serves the committee in a support role as facilitator with the participating municipalities and the County Commission. Unincorporated areas were represented by the EMA staff, the Fire Association and County Commission.

The Committee adopted the following mission statement at its first meeting:
The mission of the Washington County Hazard Mitigation Planning Committee is to oversee and establish a comprehensive natural hazard mitigation planning process that:

- *Engages public participation and support;*
- *Facilitates Federal, state, regional and local agencies' coordination;*
- *Constantly monitors and evaluates the potential risks of natural hazards to life and property;*
- *Actively mobilizes all available community resources and measures to mitigate the threats of natural hazards; and,*
- *Results in programmed actions with specific results.*

The committee held meetings in July and December 2003 during the plan drafting process. Documentation of these meetings in the form of sign-in sheets and meeting agendas are on file in the EMA office. The committee's tasks were facilitated by a website, mitigationplan.org, specifically designed to assist in the planning process. The website listed the dates and times of all committee meetings and public meetings and displayed sections of the draft plan as they were completed. The Committee members unable to attend a meeting received agendas and completed Committee assignments presented via fax, email, post or telephone, or personal meetings with the EMA.

Over the course of the committee meetings, each Committee member was asked to participate in five different exercises designed by the Committee's consultant to solicit input into the planning process by each member. (Section 5.2 in Chapter 5 presents complete descriptions of the exercises and their application in the planning process). Representatives from all jurisdictions completed all of the exercises. In *Committee Exercise #1 - Mission/Vision Statements* the members created a mission statement for the Committee and a vision statement for a disaster-resistant community. *Committee Exercise #2 - Hazard Identification* was used to identify the natural hazards members believe were possible risks/threats to their jurisdiction and rank those natural hazards according to those risks/threats. *Committee Exercise #3 - Hazard Profiles* required members to provide information on natural hazards that occurred in their jurisdiction. *Committee Exercise #4 - Capabilities Assessment for Hazard Mitigation* surveyed members to identify regulatory tools, i.e. codes, ordinances; what their personnel resources are, i.e. city engineer; and what financial resources are available, i.e. CDBG, taxes, within their jurisdictions. *Committee Exercise #5 - Alternative Mitigation Measures* asked the participants to describe the most critical natural hazard issues and opportunities and make recommendations for mitigation measures and projects. The information provided from the members' participation in Committee meetings and in Committee exercises form the basis for this Plan. Results of all exercises are maintained in the EMA offices.

3.3 Public Involvement (actions of the initial Planning Committee)

The planning committee solicited public input into the mitigation plan through public meetings, the local news media, and an internet website. Residents were encouraged to provide input through their representative on the Committee from each jurisdiction. They were also invited to attend meetings and provide their comments and concerns. Documentation of these events is on file in the EMA office.

To obtain input into this plan, a public meeting was held on August 26 from 6:00 until 8:00 pm on the first floor of the Washington County Courthouse. Though the meeting was advertised in the local paper, it was not well attended. Comments from the meeting are on file in the EMA Office.

A public hearing to receive comments was held by each jurisdiction prior to adopting this Plan by resolution, as required by State law. All jurisdictions approved the adopting resolutions by unanimous vote of the governing bodies. The original resolutions and public hearing minutes are kept on file at the EMA offices.

3.4 Interagency and Intergovernmental Coordination

The committee members recommended which organizations and agencies in the area were to be contacted in regard to the plan. The notice on the following page was sent via e-mail or fax to agencies having an interest in the hazard mitigation plan.

The following agencies were chosen based on their relation to hazard mitigation; their interest in those areas affected by natural hazards i.e. businesses; and the impact natural hazards in Washington County could have on surrounding counties. The National Weather Service provided data on natural hazard events and the Alabama Forestry Commission had representative on the Committee. There was no input from the other agencies listed.

Federal Agencies

- National Weather Service – Mobile Office
- Natural Resources Conservation Service – Alabama District
- U.S. Army Corps of Engineers – Mobile District

State Agencies

- Alabama Emergency Management Agency (AEMA)
- Alabama Department of Economic and Community Affairs (ADECA)
- Alabama Department of Environmental Management (ADEM)
- Alabama Department of Transportation (ALDOT)
- Alabama Forestry Commission - Washington County Office
- Geological Survey of Alabama
- Alabama Health Department

Businesses, Academia, Non-Profits & Regional Agencies

- Alabama Tombigbee Regional Planning Commission

- Washington County Economic Development Office
- American Red Cross –Washington County Chapter⁴
- County Sheriff's Office

Adjacent Counties

- Mobile County, Alabama
- Choctaw County, Alabama
- Clarke County, Alabama
- Wayne County, Mississippi⁵
- Green County, Mississippi⁵
- Baldwin County, Alabama

3.5 Participating Jurisdictions

All jurisdictions within Washington County have participated in the planning process by direct representation on the planning committee and have adopted the final plan by formal resolution. All members were required to participate. Individuals whose schedule did not permit their presence at the meetings received the questionnaires through the mail or via fax. They replied by fax, email, postal mail or phone if they were unable to attend the meeting. These jurisdictions include the municipalities of Chatom, Millry, McIntosh and the Washington County Commission. The unincorporated areas of the county were represented by the County Commission, fire association, and EMA staff members. All municipalities participated through one or more the following means:

- Responding to questionnaires and committee exercises,
- Attending one or more committee meetings,
- Attending public meetings,
- Reviewing draft plan sections,
- Offering comments on the draft plan, and/or
- Adopting the plan through formal resolution (Prior to adoption, the municipalities reviewed the resolution and conducted a public hearing on it).

Furthermore, in the State of Alabama the county government, by law, represents all municipalities within the county. This obligation provides a measure of additional representation to the municipalities.

3.5.1⁶ All of the original jurisdictions noted in the 2004 version in Washington County have continued to participate in the Plan through this update in 2010.

⁴ Washington County now has a chapter of the ARC

⁵ Mississippi neighboring counties are now included

⁶Noted continued participation of jurisdictions

3.6 Integration With Existing Plans

This document is now incorporated into the 2009 Washington County Emergency Operations Plan⁷ administered through the Emergency Management Agency office. No comprehensive or capital improvement plans are currently in effect for the county, but the requirements of this mitigation plan should also be integrated into any revisions of existing comprehensive plans and/or future planning documents at the appropriate time. Specific measures for plan integration are included in the Community Mitigation Action Programs for each jurisdiction (see Chapter 6).

The information in this plan was derived from input from the committee members and the agencies listed in section 3.3, National Flood Insurance Program office, and various public and private websites as noted throughout the study. The websites included NOAA, University of Alabama, USGS, US Census, FEMA and the Department of Natural Resources.

Integrated into this Plan is information from the following plans, studies, and reports, among other resources:

- Alabama Data Center demographic and economic reports
- NOAA and NWS records
- FEMA and local disasters reports
- Flood Insurance Studies and Flood Insurance Rate Maps

3.7 Professional Planning Guidance

The 2004 edition of this plan was prepared under the direction of the Hazard Mitigation Planning Committee with the guidance and support of a professional planner - James E. Lehe, AICP, Manager Lehe Planning, LLC., Urban and Environmental Planning, of Homewood, Alabama.

This current 2010 edition was developed using the 2004 edition as a model and basic information source. Revisions and updates to this plan were made as necessary by the Washington County EMA office.

⁷ Washington Co. EOP latest revision, dated 2009

Chapter 4 Risk Assessment

Note: This chapter is shown in the Plans' original, basic configuration to identify the activities regarding development. Revisions are primarily changes or additions needed to reflect current data. Any revisions will be designated by appropriate footnotes.

4.1 The Risk Assessment Process

This risk assessment identifies all known natural hazards affecting Washington County. It provides information on the history and extents of natural hazards, evaluates the possible effects, identifies vulnerable populations and assets (buildings, critical facilities, and essential infrastructure), and estimates potential losses that might occur. The risk assessment process identifies the most critical problems and issues that require mitigation actions.

4.2 Identification of Natural Hazards

The original Planning Committee completed *Committee Exercise #2 - Hazard Identification* in which they reviewed a list of all potential natural hazards and identified those that might occur in their jurisdiction. Next, members ranked the risk or probability of the natural hazard occurring and the threat of damage that might be incurred should the event take place. The results are presented in Table 4-1.

Table 4-1. Natural Hazard Identification/Risk Assessment Exercise

Hazard	Exp.*	Risk**	Threat***	Comments¹
Tornadoes	Yes	Severe	Severe	Typically proceeded by NWS and NOAA warnings
Severe Storms	Yes	Severe	Severe	Typically proceeded by NWS and NOAA warnings
Floods	Yes	Moderate	Minimal	Long range rainfall predictions provide planning time
Winter Storms/ Freezes	Yes	Moderate	Slight	NWS provides ample warning
Hurricanes	Yes	Very Severe	Very Severe	NWS Mobile provides early warning several days in advance
Droughts/Heat Waves	Yes	Severe	Moderate	Can be strenuous on the elderly.
Wildfires	Yes	Very Severe	Minimal	State and WC Forestry & VFD's respond
Dam/Levee Failures	Yes	Severe	Minimal	Washington County is located downstream from the Coffeerville Lock and Dam in Clarke Co. Water would enter Washington County within 30 minutes after failure.
Landslides	Yes	Minimal	Minimal	
Earthquakes	Yes	Minimal	Minimal	Washington Co. is in Bahamas Fracture Seismic Zone
Tsunami	N/A	N/A	N/A	

***Exp.** Exposure to hazards.

****Risk** is the probability of the natural hazard event occurring within the county.

*****Threat** is the impact of the natural hazard on property damage, injury and loss of life should the event occur.

¹ Added supporting information to Comments

4.3 Significant Natural Hazard Events

In *Committee Exercise #3 - Hazard Profiles*, the Committee profiled past natural hazards. All jurisdictions responded to the exercise and their findings are incorporated throughout this chapter. Numerous other sources have been utilized to profile significant natural hazards, including: the Storm Events Database of the National Climatic Data Center (NCDC); FEMA Region IV –Presidential Declarations; the National Weather Service; the Washington County EMA; the Alabama Geologic Survey and the HMPC Members. The Storm Events Database may be queried at the following link:
<http://www4.ncdc.noaa.gov/cgiwin/wwcgi.dll?wwevent~storms>.

Washington County has been included in a total of 8 federal disaster declarations from 1973 to date. Seven of these declarations are listed in the Table 4-2 from FEMA, Region IV. However, all of these events did not necessarily occur within the boundaries of Washington County. When major damage from a natural disaster occurs, FEMA, as a matter of practice, includes a "buffer" area of adjoining counties in the event it is later determined the damage was more widespread. Specific instances of this practice are discussed as they are encountered in the following natural hazard profiles.

Table 4-2. Summary of Federally-Declared Disasters, 2004-Present, Washington County ²

Disaster No.	Disaster Type	Date	Declaration Type*
1549	Hurricane Ivan	15-Sep-04	IA, PA-ABCDEFGF, DH, DU, DUA, IFG
1593	Hurricane Dennis	10-Jul-05	IA, PA-ABCDEFGF, DH, DU, DUA, IFG
1605	Hurricane Katrina	29-Aug-05	IA, PA-ABCDEFGF, DH, DU, DUA, IFG
1687	Severe Storm & Tornadoes	3-Mar-07	IA, PA-AC,
1789	Hurricane Gustav	10-Sep-08	IA, PA-ABCDEFGF, DU, IFG
1797	Hurricane Ike	26-Sep-08	PA-AB
1835	Flooding	28-Apr-09	PA-C
* Declaration Type Key			
IA – Individual assistance		A – Debris removal	
PA – Public assistance		B – Protective measures	
DH – Disaster housing		C – Roads and bridges	
CC – Crisis counseling		D – Water control facilities	
DFA – Direct federal assistance		E – Public buildings	
DUA – Disaster unemployment assistance		F – Public utilities	
HM – Hazard mitigation		G – Recreational or other	
IFG – Individual and family grant		SA – Stafford Act	
SBA – Small Business Administration		403C – Department of Defense	

² Revised to include only events since 2004.

4.4 Hurricanes

Hazard Description. A “tropical cyclone” is a generic term for a cyclonic, low pressure system over tropical or sub-tropical waters. Tropical cyclones with maximum sustained winds of less than 39 mph are called tropical depressions. A tropical storm is a cyclone with maximum sustained winds greater than 39 mph but less than 74 mph, and a tropical storm with winds that have reached a constant speed of 74 miles per hour or more is a hurricane.

Hazard Profile. Although the center of Washington County is located approximately 60 miles from the Gulf of Mexico, hurricanes and tropical storms sometimes bring high winds and heavy rains to the area as they move north. Table 4-3 lists the major hurricanes/tropical storms that have impacted Washington County and Southwest Alabama over the last eight years. Damage estimates are for the entire region.

The planning committee reported damage in the county from Hurricanes Erin, Opal and Georges. All three caused flash flooding of low-lying areas and damage to trees and power lines. By far the worst of these as reported by the committee was Hurricane Frederick in 1979 causing a considerable amount of damage in the county.

Event	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
IVAN	09/13/2004	09:00 PM	Hurricane	N/A	0	0	2.5B	25.0M
ARLENE	06/10/2005	03:00 AM	Tropical Storm	N/A	0	0	1.5M	0
CINDY	07/05/2005	03:00 AM	Tropical Storm	N/A	0	0	300K	0
DENNIS	07/10/05	n/a	Hurricane	N/A	0	0	Unkn	0
KATRINA	08/27/2005	03:00 PM	Hurricane	N/A	0	0	1.0B	0
GUSTAV	09/10/08	n/a	Hurricane	N/A	0	0	Unkn	0
TOTALS:					0	0	3.502B	25.000M

Source: NOAA; <http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms>

Community Impacts. Risks associated with coastal storms include storm tide, inland flooding, water force, wind velocity and coastal erosion. A tropical storm is capable of producing straight line winds⁴, numerous thunderstorms and tornadoes.

Because of its proximity to the Gulf Coast, Washington County is susceptible to the effects of hurricanes and tropical storms. The primary risks are damaging straight-line winds, formation of tornadoes and flooding. Ten percent of deaths in the United States that are associated with hurricanes are due to tornadoes.

³ Revised to include only events since 2004.

⁴ Added straight line winds

Location and Extents. Hurricanes and tropical storms have a multi-county impact. All of Washington County is susceptible.

Probability of Future Occurrences. Based on limited historical information from the Storm Events Database, a hurricane or tropical storm impacts the county every two or three years. Average annual damages for Washington County are unavailable due to the fact that county by county damage estimates are not available. Although one can extract data and probability of occurrence from historical information, the risk of a hurricane or tropical storm and the location of damage are random.

Alabama Hurricane Impact Zones. Coastal counties of Baldwin and Mobile comprise Zone 1, with the highest potential for impact from hurricanes. Washington County is located in Zone 2, adjacent to and north of Mobile County. However, a small portion of southern Washington County does include Zone 1⁵. There is a major probability of damaging inland straight line winds and resultant tornados. Flooding in low areas, primarily in the southeastern portions of the county is highly possible. Critical impact from evacuees from the south is likely.

4.5 Wildfires

Hazard Description. There are four categories of wildfires that are experienced throughout the United States:

- wild land fires, including brush fires,
- interface or intermix fires,
- firestorms,
- prescribed fires and prescribed natural fires.

The two primary categories generally experienced in Washington County are wild land fires and interface or intermix. Wild land fires are fueled exclusively by natural vegetation. Interface or intermix fires are fueled by both vegetation and the built up environment.

Three factors have a direct impact on wildfire formation: topography, fuel, and weather. Topography can have a powerful influence on wildfire behavior. Slope, canyons, gulches, and hollows can greatly increase the rate of spread.

Hazard Profile. Table 4-4 shows the number of fires responded to and suppressed by the Washington County forester's office and volunteer fire departments from 2003 to June, 2010. Some yearly data had been deleted from the database and was not available (N/A).

⁵ Added notation to include southern part of the county in Zone 1.

TABLE 4-4. Wildfires in Washington County

Year	No. Fires	Acres Burned
2003	49	694
2004	N/A*	N/A*
2005	N/A*	N/A*
2006	N/A*	N/A*
2007	N/A*	N/A*
2008	170	N/A*
2009	55	N/A*
2010	70 (thru 6/15)	

Source: Alabama Forestry Commission, Washington County Office

* Data not available from Forestry⁶

Community Impacts. Wildfires can cause considerable damage and loss of life especially in areas where there is an interface between wild land and urban development. Washington County has multiple fuel sources and is prone to drought and thunderstorms; therefore, wildfires are a significant risk.

Many of the volunteer fire departments in Washington County respond to more fires than just the wildfires listed in Table 4-4. Furthermore, the volunteer fire departments usually have limited manpower resources that are stretched during periods when numerous fires occur.

Location and Extents. Primarily the wooded rural areas of the county are susceptible to wildfires.

Probability of Future Occurrences. Based on historical information, Washington County can expect an average of 114.4 significant wildfires that damage or destroy an average of 1720.5 acres per year. Although one can extract data and probability of occurrence from historical information, the risk of a wild fire occurring and the location of damage appear to be random.

4.6 Severe Thunderstorms

Hazard Description. A severe thunderstorm is a storm containing damaging winds of at least 58 miles per hour or hail that measures a minimum of three-fourths of an inch in diameter. Most all severe thunderstorms contain intense lightning. Another by-product of severe thunderstorms is straight-line winds or downburst winds. These winds can be strong and concentrated. Falling rain and sinking air create strong winds. They can reach speeds of 125 mph.

⁶ Local Forestry office did not have this information.

Hazard Profile. The Storm Events Database contains 85 reports of damage from severe thunderstorms, 9 from lightning and 60 from hail in Washington County since 1957. These storms have caused a total of \$4.826 million in property damage and \$25,000 in crop damage. A listing of these events is presented in Tables 4-5, 4-6, and 4-7. Some thunderstorms listed occurred on the same day as they traveled across the county.

Table 4-5. Thunderstorm and High Wind events since 2005, Washington County⁷

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Yarbo	04/30/2005	04:35 AM	Thunderstorm Wind	50 kts.	0	0	15K	0
Yarbo	07/30/2006	05:50 PM	Thunderstorm Wind	50 kts.	0	0	8K	0
Millry	08/15/2006	06:00 PM	Thunderstorm Wind	50 kts.	0	0	8K	0
Yarbo	04/14/2007	11:10 AM	Thunderstorm Wind	78 kts.	0	0	500K	0K
Chatom	12/20/2007	11:25 AM	Thunderstorm Wind	50 kts.	0	0	12K	0K
Vinegar Bend	01/31/2008	17:10 PM	Thunderstorm Wind	50 kts.	0	0	15K	0K
Chatom	01/31/2008	17:25 PM	Thunderstorm Wind	50 kts.	0	0	12K	0K
Silas	04/11/2008	16:18 PM	Thunderstorm Wind	50 kts.	0	0	10K	0K
Fruitdale	08/12/2008	16:17 PM	Thunderstorm Wind	50 kts.	0	0	12K	0K
Topton	02/18/2009	19:15 PM	Thunderstorm Wind	50 kts.	0	0	15K	0K
Millry	05/03/2009	12:10 PM	Thunderstorm Wind	52 kts.	0	0	10K	0K
TOTALS:					0	0	617K	0

Table 4-6. Lightning Events Since 2004, Washington County⁸

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Chatom	02/06/2004	05:45 AM	Lightning	N/A	0	0	50K	0
Millry	04/22/2005	06:45 PM	Lightning	N/A	0	0	25K	0
TOTALS:					0	0	75K	0

⁷ Revised to include only events since 2005

⁸ Revised to include only events since 2004.

Table 4-7. Hail Events Since 2005, Washington County⁹

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Fruitdale	03/22/2005	09:50 AM	Hail	0.75 in.	0	0	0	0
Tibbie	03/22/2005	10:00 AM	Hail	0.75 in.	0	0	0	0
Malcolm	06/15/2005	06:50 PM	Hail	0.75 in.	0	0	0	0
Hawthorn	05/08/2006	08:10 PM	Hail	0.88 in.	0	0	0	0
Millry	05/09/2006	04:00 PM	Hail	1.00 in.	0	0	0	0
Leroy	05/09/2006	04:55 PM	Hail	1.00 in.	0	0	0	0
Topton	02/18/2009	19:15 PM	Hail	2.00 in.	0	0	0	0
TOTALS:					0	0	0	0

Community Impacts. In addition to tornadoes, flooding, and straight-line winds, thunderstorms can cause considerable damage from lightning. Both lightning and high winds can cause loss of life and considerable property damage. Since 1975, severe thunderstorms were involved in 327 or more, federal disaster declarations for the State of Alabama. The power of lightning's electrical charge and intense heat can electrocute on contact, split trees, ignite fires, and cause electrical failures.

Location and Extents. Precise locations of severe thunderstorm events are not available. The NWS maintains location data at the county level. In some cases, a general description of location within the county may be found at the NOAA web site: <http://www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms>.

Probability of Future Occurrences. The probability of a severe thunderstorm occurring depends on certain atmospheric and climatic conditions. Based on the number of damage-causing severe storms since 1957 contained in the Storm Events Database, Washington County can expect approximately 1.6 instances of lightning-, straight-line wind- or hail-induced damage per year. Average annual damages from severe thunderstorm events are estimated at \$105,456. Although we can extract data and probability of occurrence from historical information, the risk of a thunderstorm occurring and the location of damage appear to be a random event.

4.7 Tornadoes

Hazard Description. A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. It is spawned by a thunderstorm or hurricane and produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly.

⁹ Revised to include only events since 2004.

Tornado season is generally March through August, although tornadoes can occur at any time of year. They tend to occur in the afternoons and evenings. Over 80 percent of all tornadoes strike between noon and midnight.

Hazard Profile. Table 4-8 lists the most recent tornado events for Washington County contained in the Storm Events Database for which there are reported damages. The earliest damage-causing event on record occurred in 1969; the most recent in 2009. Tornado magnitudes are measured on the Fujita Scale, shown in Table 4-9.

According to the database, a total of 17 tornado events have caused no deaths and no injuries but approximately \$404,000 in property damage in the county since 1969. The worst tornado to strike the county was a F2 in March 1984. Although it caused no deaths or injuries, it resulted in \$250,000 in damages and cut a path of destruction 80 yards wide and 2 miles long, beginning at LAT/LON 31°31'N / 88°03'W and ending at an unknown location.

Table 4-8. Tornadoes Since 2004, Washington County¹⁰

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Leroy	07/06/2005	05:20 AM	Tornado	F0	0	0	15K	0
Jordan	11/15/2006	05:44 AM	Tornado	F1	0	0	750K	0K
Mc Intosh	01/10/2009	17:05 PM	Tornado	F1	0	0	2.5M	0K
TOTALS:					0	0	3.265M	0

Community Impacts. The damage from a tornado is a result of the high wind velocity and wind-blown debris. Tornado winds can approach speeds as high as 300 miles per hour, travel distances over 100 miles and reach heights over 60,000 feet above ground. The potential damage resulting from a tornado is directly correlated to the strength of the particular tornado and is quantified utilizing the Fujita Tornado Scale, shown in Table 4-9.

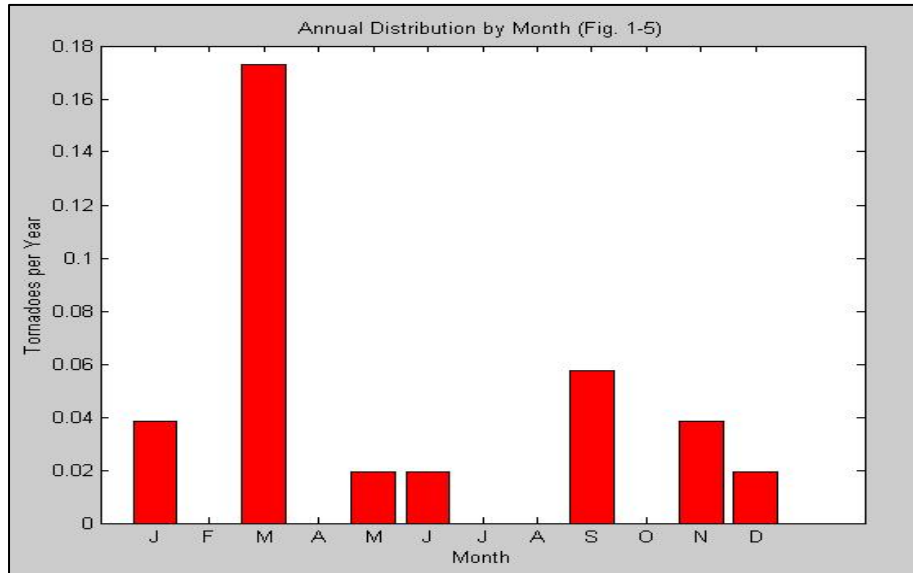
¹⁰ Revised to include only events since 2004.

Table 4-9. Fujita Tornado Damage Scale

Scale	Wind Estimate (mph)	Typical Damage
F0	< 73	<u>Light damage.</u> Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
F1	73-112	<u>Moderate damage.</u> Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
F2	113-157	<u>Considerable damage.</u> Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
F3	158-206	<u>Severe damage.</u> Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
F4	207-260	<u>Devastating damage.</u> Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
F5	261-318	<u>Incredible damage.</u> Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yds); trees debarked; incredible phenomena will occur.

Source: <http://www.spc.noaa.gov/faq/tornado/f-scale.html>

Charts 4-1 and 4-2 depict the characteristics of tornadoes since 1950 within a 20-mile radius of the center of Washington County. (Source: VorTek, LLC. SATT 3.0 Site Assessment of Tornado Threat software)



**Chart 4-1.
Annual Distribution by Month**

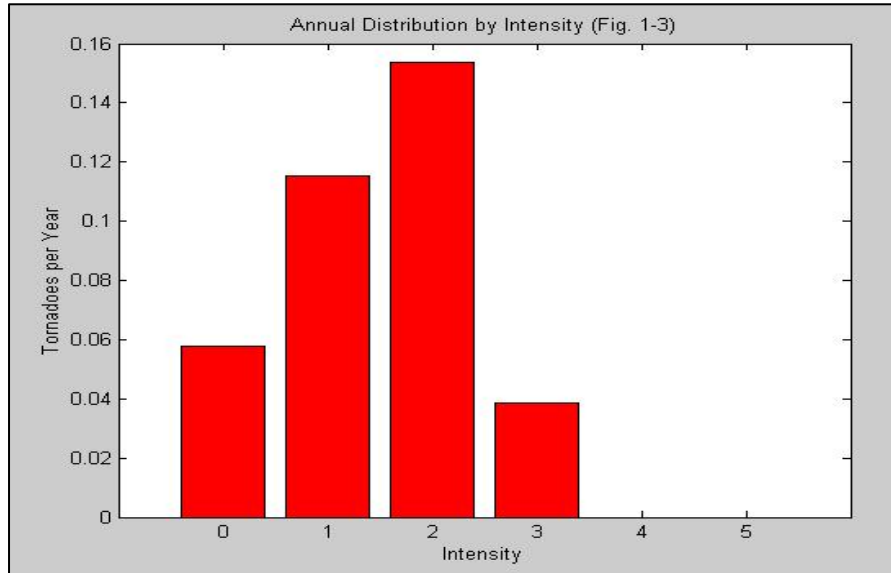
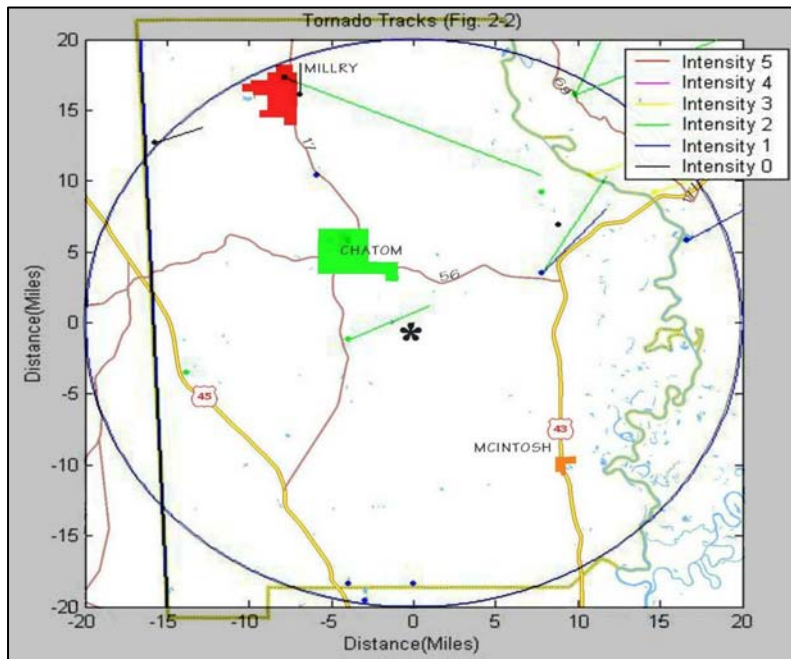


Chart 4-2
Annual distribution by Intensity

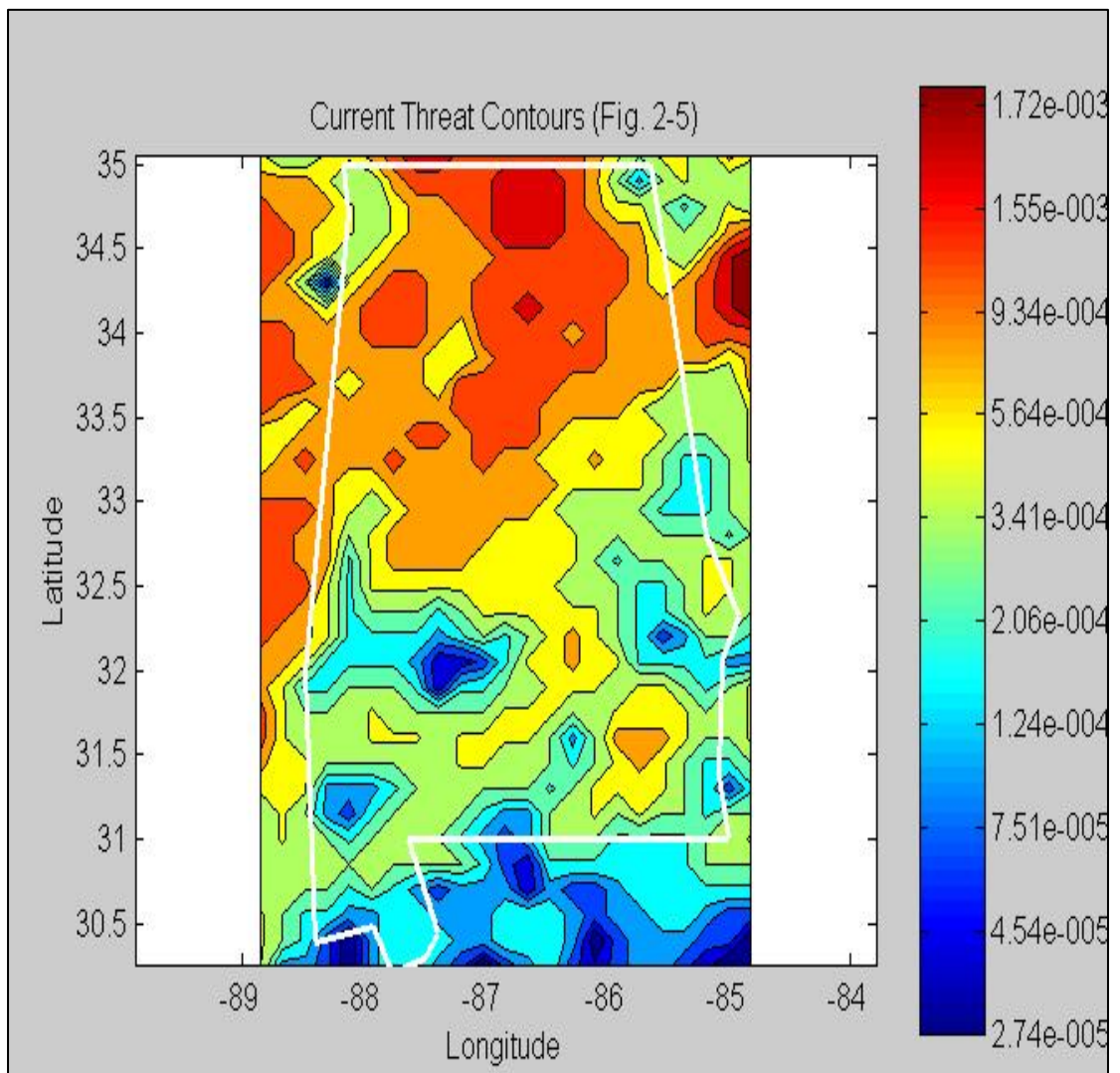
Location and Extents. Paths of tornadoes within a 20-mile radius of the center of Washington County since 1950 are shown on Map 4-1. The entire county is equally susceptible to damage from tornadoes.



Map 4-1. Tornado Paths in Washington County Since 1950

Probability of Future Occurrences. Map 4-2 depicts the relative probability of tornado occurrences, based on historical data since 1950. Washington County has a relatively moderate probability of risk. The potential for hurricanes and the number of thunderstorms Washington County experiences per year increases the likelihood of tornadoes.

Based on the information available from the Storm Events Database, it appears the county may expect a damage-causing tornado once every 2 years. Average annual damages are estimated at \$12,242. Although we can extract data and probability of occurrence from historical information, the risk of a tornado occurring and the location of damage appear to be a random event.



Source: VorTek, LLC, generated by SATT 3.0 tornado threat assessment software.

Map 4-2. Tornado Threat Probabilities

4.8 Droughts/Heat Waves

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

0 DROUGHT event(s) were reported in **Washington County, Alabama** between 01/01/1950 and 11/30/2009.¹¹

Hazard Profile. Washington County experienced drought conditions during 1999 and 2000. A heat wave occurred in July 2000. The Storm Events Database reports that in Chatom the temperature was 100 degrees or higher nine days during the month. The highest temperature recorded during this period was 106 degrees. Although no damage estimates are available, several wildfires were reported and some crops were affected.

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

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

¹¹ Ref: NOAA web site: <http://www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevents~storms>

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

Table 4-10. Heat Index/Heat Disorders

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

Source: National Weather Service, 1997

Extreme heat often brings about drought. Risks associated with drought include, effects to the water supply, impact on agriculture, increase in wildfires, negative impact on hydroelectric power and other activities dependent upon water such as recreation and navigation.

Location and Extents. Droughts and heat waves have a county-wide impact.

Probability of Future Occurrences. Due to a lack of data, average annual occurrences and damage estimates cannot be made. Washington County falls in an area that may experience humid, short droughts and extreme summer heat. Though historically not a major problem, the region is susceptible to extreme drought conditions.

4.9 Winter Storms/Freezes

Hazard Description. Winter storms and blizzards originate as mid-latitude depressions or cyclonic weather systems, sometimes following the meandering path of the jet stream. A blizzard combines heavy snowfall, high winds, extreme cold, and ice storms. The origins of the weather patterns that cause severe winter storms are primarily from four sources in the continental United States. Winter storms in the southeastern region are usually a result of Canadian and Arctic cold fronts from the north and mid-western states combining with tropical cyclonic weather systems in the Gulf of Mexico.

Hazard Profile. Washington County infrequently experiences winter storms and extreme cold periods. Crop damage has occurred from these events. On average the county receives less than a half an inch of snow annually. The largest snowfall event recorded for the County was in 1964 at 8.2 inches. Table 4-11 lists events dating from 2000 according to the Storm Events Database. A snowstorm in March 2003 affected the entire state of Alabama but was not listed in the database for Washington County. The planning committee reported widespread power outages for up to two weeks in some areas, trees downed and houses damaged. The National Weather Service recorded the Town of Chatom with 5 inches of snow.

Table 4-11. Winter Storm Events Since 2008¹²

Location	Date	Time	Type	Mag	Deaths	Injuries	Property Damage	Crop Damage
N. Washington Co, Southwest AL	19-Jan-08	3:00 am	Winter Storm	N/A	0	0	0	0
All – Wash. Co.	11-Dec-08	12:00 am	Winter Storm	N/A	0	0	0	0
All – Wash. Co	02/11/2010	11:00 pm	Winter Snow Stm	n/a	0	0	0	0

Community Impacts. Risks associated with winter storms are a direct correlation to the strength of the storm and the region’s ability to handle a storm. The risks include loss of life due to cold and disruption of transportation routes, loss of electricity for extended periods, and impact on agriculture.

Location and Extents. The entire county is equally at risk for winter storms and freezes.

Probability of Future Occurrences. Due to a lack of data, average annual occurrences and damage estimates cannot be made. However, although Washington County does not have a considerable risk of a winter storm occurring, it has a high threat of a winter storm adversely affecting the area. This is a direct result to the area’s ability to handle a severe winter storm. Although they are rare, Washington County is susceptible to winter storms.

¹² Revised to indicate those events since 2008

4.10 Dam/Levee Failures

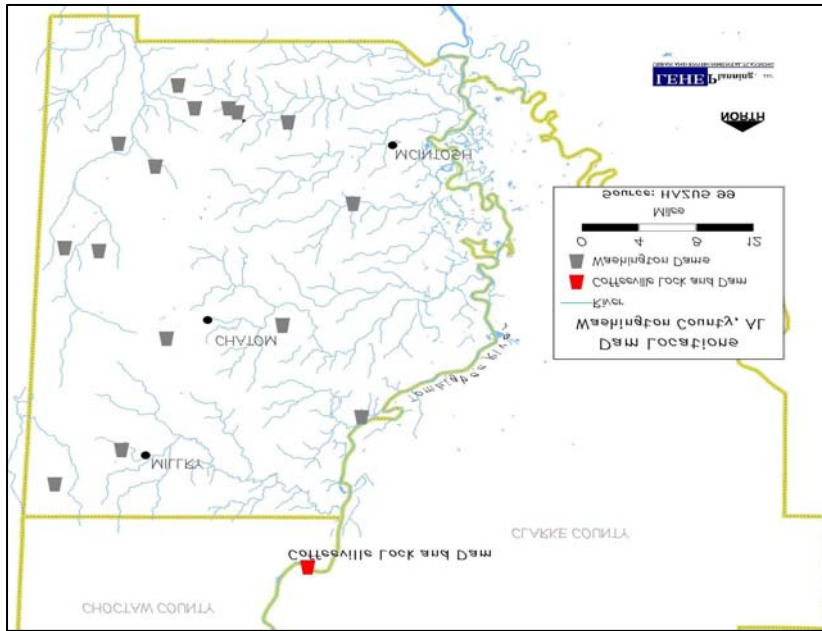
Hazard Description. Dam failures are potentially the worst flood events. A dam failure is usually the result of neglect, poor design, or structural damage caused by a major event such as an earthquake.

Hazard Profile. No dam/levee failure events have ever been reported in Washington County.

Community Impacts. When a dam fails, a large quantity of water is suddenly released downstream, destroying anything in its path.

Location and Extents. Map 4-3 below depicts the locations of dams in Washington County. According to HAZUS there are 15 identified dams in the county. None of the dams have a “high” hazard classification. This classification is not an indication of the quality of the dam’s construction, but an indication of the urban development directly downstream of the dam and whether or not failure would result in serious economic loss. The Coffeerville Lock and Dam, located just upstream of Washington County in Choctaw County, does have a "high" hazard classification. The planning committee noted that failure of this dam could have potentially damaging effects in Washington County.

Probability of Future Occurrences. The risks associated with dam–levee failure are the same as those flooding risks. Risks to Washington County are minimal.



Map 4-3. Locations of Dams in Washington County

4.11 Floods

Hazard Description. Flooding is defined as the accumulation of water within a water body and the overflow of excess water onto adjacent floodplain lands. The floodplain is the land adjoining the channel, river, stream, ocean, lake, or other water body that is susceptible to flooding.

The risks associated with flash flooding are the same as riverine flooding. One clear distinction is the element of surprise. Flash flooding, as the name implies, occurs quickly and without much warning. In riverine flooding, the time and height of the crest can be accurately predicted, and warnings can be issued several hours in advance.

Hazard Profile. The list of federally declared disasters, input from the planning committee, and the Storm Events Database were utilized to profile the history of flood events in Washington County. Most flooding occurs along the Tombigbee River, along the eastern border of the county. Other rivers and creeks in the county include the Santa Bogue Creek, Lewis Creek, Bilbo Creek, Bates Creek, the Escatawpa River and their tributaries.

The Storm Events Database contains damage-causing flood events from 1995. Since that time, 8 different flood events have resulted in \$68 thousand in property damages. There is no record of repetitive losses to properties within the county, other than those many county dirt roads in the rural areas that experience occasional high water levels¹³. A summary of flood events is shown in Table 4-12.

Table 4-12. Flood Events Since 2005, Washington County

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 North Portion	03/31/2005	08:30 AM	Flash Flood	N/A	0	0	0	0
2 Countywide	07/06/2005	05:00 AM	Flash Flood	N/A	0	0	0	0
3 Countywide	08/29/2005	09:00 AM	Flash Flood	N/A	0	0	0	0
4 Yellow Pine	10/22/2007	22:00 PM	Flash Flood	N/A	0	0	0K	0K
5 Millry	04/11/2008	18:00 PM	Flash Flood	N/A	0	0	0K	0K
6 Copeland Co.	04/18/2008	21:00 PM	Flash Flood	N/A	0	0	0K	0K
7 Escatawpa	09/01/2008	15:30 PM	Flash Flood	N/A	0	0	4K	0K
8 Mc Intosh	03/27/2009	01:53 AM	Flash Flood	N/A	0	0	0K	0K
TOTALS:					0	0	4K	0

Source: NOAA; <http://www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms>

¹³ Added reference to repetitive losses

Community Impacts. Floods are capable of undermining buildings and bridges, eroding shorelines and riverbanks, tearing out trees, washing out access routes, and causing loss of life and injuries. Floods occur in all 50 states and FEMA estimates that 9 million households and \$390 billion in property are at risk from flooding.

The measurement used to determine the limits of the floodplain was developed with the enactment of the National Flood Insurance Act of 1968 (NFIP). Under the NFIP it was determined that the base standard was the 100-year or “base flood”. This means that the limits of the flood plain are set by the limits of a rain event that has a 1% annual chance of occurrence. There are established techniques for determining the base flood limits. These techniques have been used to develop Flood Insurance Rate Maps or FIRM. FIRM’s illustrate elevation of the base flood and the 500-year event (0.2% annual chance of occurrence) in areas where a model has been developed.

Location and Extents. The Flood Insurance Rate Maps (FIRM) for Washington County are available for review at the EMA office or the county engineers’ office.¹⁴ The primary flooding problems occur along the Tombigbee River in the extreme eastern portion of the county. The Town of Millry has often experienced flooding from local watercourses. Approximately 40% of Millry’s downtown area is in the Special Flood Zone A for the Santa Bogue Creek. However, there has been little loss since the area is sparsely occupied. This is because the possibility of flooding is well known, and the probability of damage is well understood.¹⁵

During 1998, Hurricane Georges caused such heavy rainfall in the county that flooding washed out many of the county roads. In other areas of the county secondary road were washed and bridges undermined by the water. Some schools in the county closed for two days following the flooding.

Probability of Future Occurrences. Based on the flood events since 1995 contained in the Storm Events Database, Washington County may expect about 1.3 flash or riverine floods per year. Average annual damages are estimated at \$11,330. Although we can extract data and probability of occurrence from historical information, they do not necessarily predict future occurrences.

4.12 Landslides

Hazard Description. A “landslide” is the downward and outward movement of slope-forming materials acting under the force of gravity. The term covers a broad category of events, including mudflows, mudslides, debris flows, rock falls, rockslides, debris avalanches, debris slides and earth flows. Landslides may consist of natural rock, soil, artificial fill, or combinations of these materials. Landslides are classified by type of movement, including; slides, flows, lateral spreads, falls and topples.

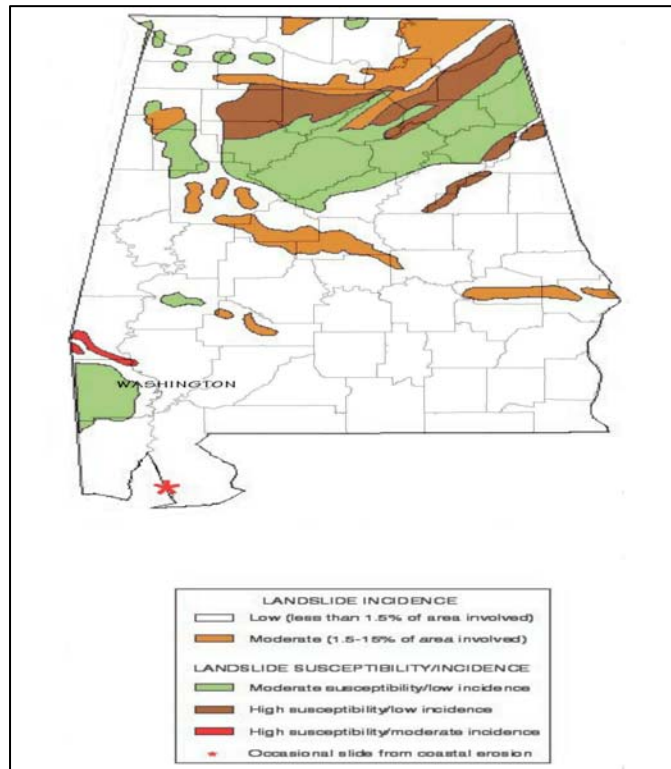
¹⁴ Added the county engineer as source for FIRM.

¹⁵ Added information regarding flooding in Millry.

Hazard Profile. No instances of landslides in Washington County were reported by the planning committee or revealed by an Internet search.

Community Impacts. The effects of landslides are often misrepresented as being the result of the landslide's trigger event, such as a flood, earthquake, volcanic eruption, hurricane, or coastal storm. The impact from a landslide can include loss of life, damage to buildings, lost productivity, disruption in utilities and transportation systems, and reduced property values. According to FEMA, 25 to 50 people die annually from landslides in the United States.

Location and Extents. Although no records exist of landslide events in Washington County, the county lies in an area of moderate susceptibility/low incidence, according to the Geological Survey of Alabama. This area is depicted on Map 4-4. The lack of landslide incidences in the county might be attributable to the lack of major development in this area.



Map 4-4. Landslide Hazard Areas, State of Alabama

Probability of Future Occurrences. The probability of future occurrences of landslides in Washington County is slight. However, any major construction project in this area should take into account landslide possibilities.

4.13 Earthquakes

Hazard Description. An earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface.

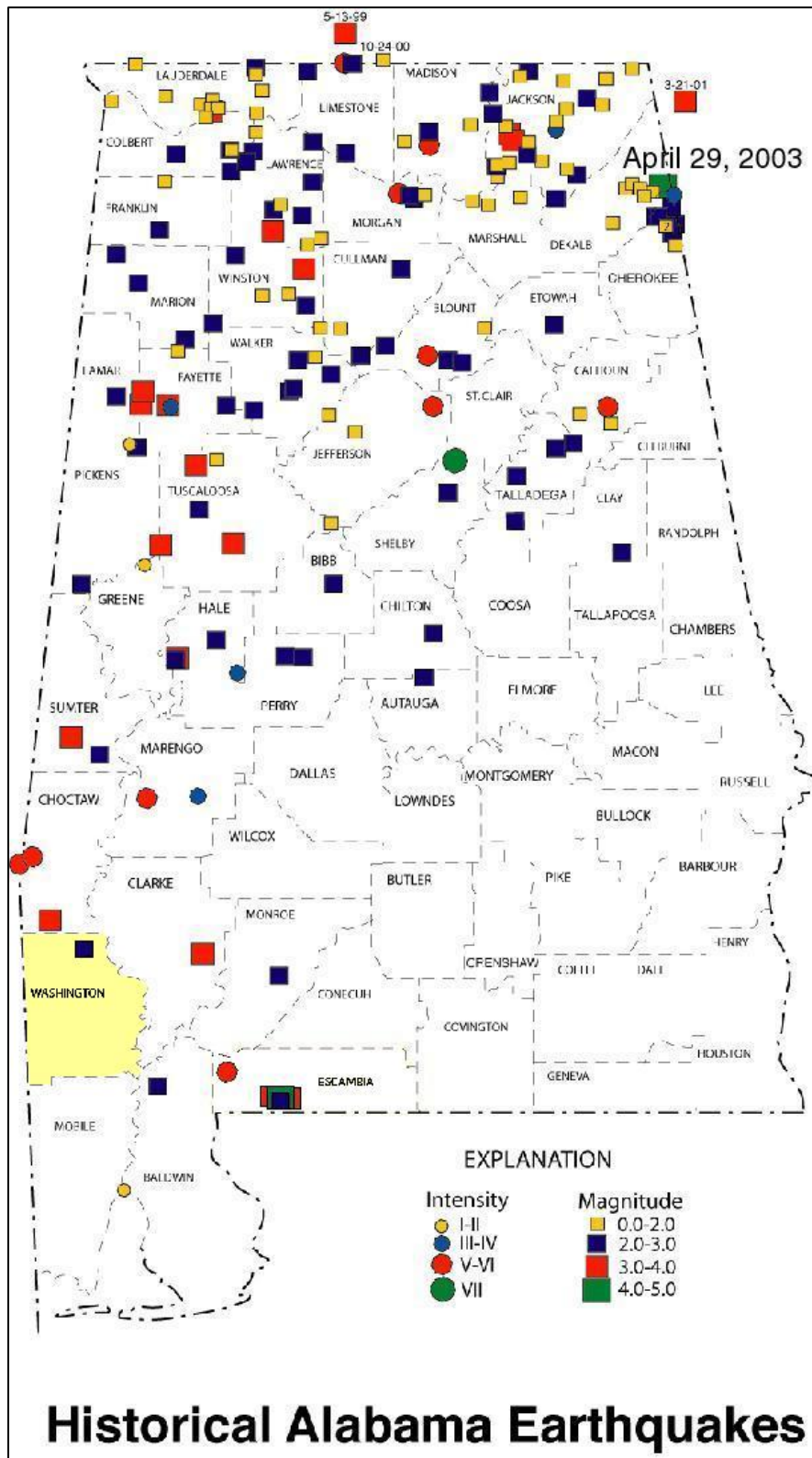
Hazard Profile. According to the Alabama Geological Survey, one earthquake has occurred in Washington County. A magnitude 1.8 quake occurred on May 22, 1997 near the Town of Millry. Residents did not feel the earthquake and no major damage resulted. Map 4-5 depicts earthquakes that have occurred in the state since 1916.

Community Impacts. The USGS has developed a methodology for identifying an area's vulnerability to the occurrence of an earthquake. Areas are identified by their relative seismic risk. Washington County is located in an area with a peak acceleration between 2% and 3% with 10% probability of exceedance in 50 years. This is an area of slight risk as illustrated in Map 4-6.

In accordance with FEMA guidelines, an area with 3% or greater probability of exceedance in 50 years should be further assessed for vulnerability. In the case of Washington County the risk is slight and falls short of the 3% threshold.

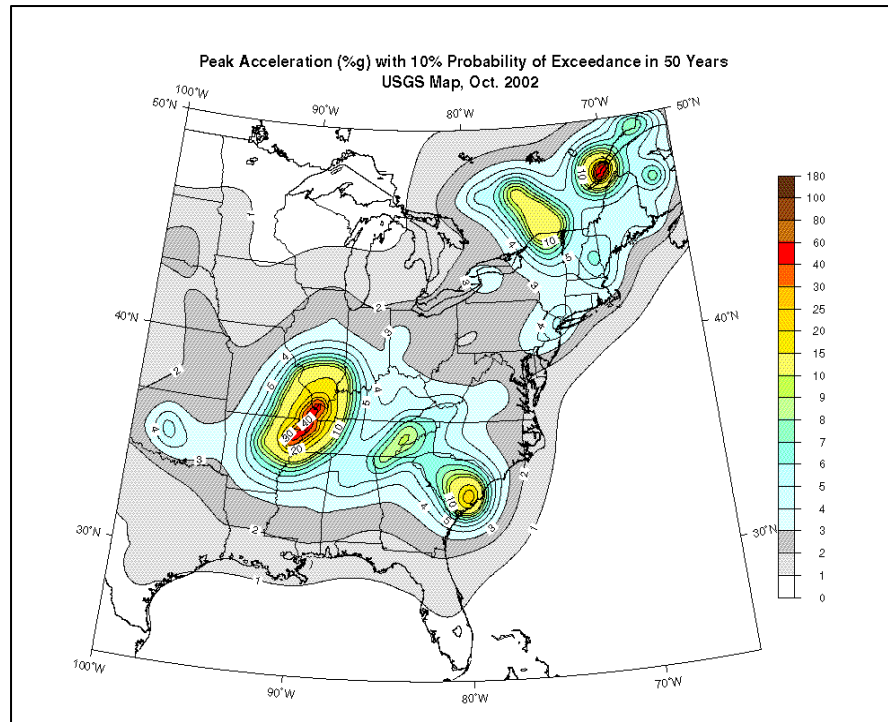
Location and Extents. Although the risk of a significant earthquake occurring in Washington County is small, the impact of a large regional earthquake could be significant. The entire county is equally at risk.

Probability of Future Occurrences. Although insufficient data exists to predict the future probability of an earthquake occurring in Washington County, the risk of a significant, damage-causing earthquake in the county is very small.



(Source: Geological Survey of Alabama)

Map 4-5. Alabama Earthquakes



Map 4-6. Earthquake Hazard Areas

4.14 Vulnerability Assessment: Identification of Assets

This section assesses vulnerability of types and numbers of existing buildings and critical facilities (including infrastructure) located within each identified hazard area. The only identified hazard, which is area specific within the county, is flooding. Consequently, all buildings and critical facilities are exposed to all remaining hazards.

The building counts and values are taken from the HAZUS 99 databases as shown in Tables 4-13 and 4-14. These are not current counts, but data availability is limited. Dollar values are not adjusted to current values.

Designation of a facility as critical is based on the HAZUS definitions, as follows:

- **Essential Facilities.** These facilities are critical to the health and welfare of the entire county population and are essential following hazard events, including emergency response facilities (police, fire, and emergency management), medical care facilities (hospitals and other care facilities), schools, and shelters for evacuation.
- **Lifeline Utility Systems.** These facilities are essential lifelines that include potable water, wastewater, natural gas, electric, and communications systems. HAZUS data is not available for this county.
- **Transportation Systems.** These facilities include highways, bridges, railways, and waterways.

- High Potential Loss Facilities. These facilities include military installations and high potential loss dams.
- Hazardous Materials Facilities. These facilities may pose a threat if disrupted by natural hazards and include hazardous industrial chemicals, explosives, flammables, toxins, and radioactive materials.

Building Assets.

The county has over 6000 buildings valued at over \$650 million. All of the buildings are at risk for natural hazards damages.

Table 4-13. Total County Building Inventory

Number of Buildings by Type							
Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Total
6,519	100	32	4	50	16	11	6,732

Source: HAZUS 99 & Hazard Committee

**Table 4-14. Value of Buildings in County
(\$ Building Value in \$1,000's)**

Value by Type of Building							
Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Total
458,988	101,700	29,453	594	4,050	12,000	11,671	659,168

Source: HAZUS 99 & Hazard Committee

Critical Facilities

The maps on the following pages show the distribution of critical facilities throughout the county. Utility and shelter data is not available through HAZUS and is consequently not mapped. Most facilities are concentrated within the urbanized portion of the county. No known facilities located in the county are dedicated to communication and are therefore not mapped.

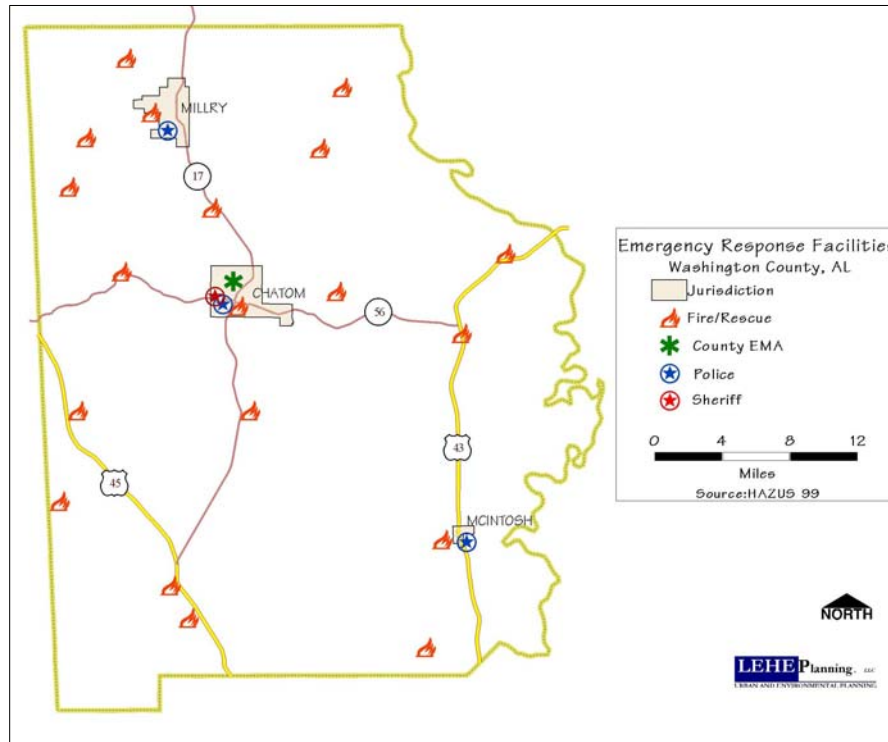
Map 4-7 shows the locations of the emergency facilities located in the County from the HAZUS99. The County has an emergency response system of fire, police and the EMA located in the Town of Chatom. The facilities shown are those provided from the HAZUS99 database and may not be representative of all stations in the county.

Washington County has three medical facilities, shown on Map 4-8. Washington County Hospital, located in Chatom, is both a Medical Clinic and Hospital Facility with over 50 beds, classifying it as medium in size according to HAZUS99. Also located in the county are the Mobile Mental Health Facility and the

Southwest Alabama Medical Facility in McIntosh. Millry had a local clinic, but is no longer in service. The Department of Public Health is located in Chatom.

Washington County has a large concentration of schools in the towns of Chatom and McIntosh. Some schools are also located in more rural areas of the county. The school locations are shown on Map 4-9. The location of the schools are an important resource for the public as they are often used as shelters during times of disasters. Within Washington County, six schools are available for use as a shelter as shown on Map 4-10.

Hazardous material facilities contain substances that can pose significant hazards because of their toxicity, radioactivity, flammability, explosiveness and/or reactivity. Significant casualties and/or property damage could occur from a single hazardous materials release induced by a flood, earthquake or other unforeseen hazard. Map 4-11 depicts that location of hazardous sites in 1999. A current listing of hazardous materials and their locations are available at the EMA.



Map 4-7. Emergency Response Facilities

Medical Care Facility	Location
Washington County Hospital	14600 St Stephens Ave., Chatom AL
Washington County Nursing Home	14600 St Stephens Ave., Chatom AL
Southwest Alabama Health Services	Hwy. 43, McIntosh AL

Chart 4-8. Medical Care Facilities
(replaces Map 4-8¹⁶)

Washington County School	Location
Millry Elementary and High School	1 Wildcat Rd., Millry Al.
Chatom Elementary	592 Ray Coaker hwy., Chatom Al.
Washington County High School	21 School St., Chatom Al.
Fruitdale High School	13077 County Rd. 1, Fruitdale Al.
Leroy High School	Hwy. 43. Leroy Al.
McIntosh Elementary School	Hwy. 43, McIntosh Al.
McIntosh High School	7010 Hwy 43, McIntosh Al.
Washington County Career Tech School	16478 St. Stephens Ave., Chatom Al.

Chart 4-9. Schools in Washington County
(replaces Map 4-9)¹⁷

¹⁶ Converted Map 4-8 to Chart 4-8

¹⁷ Converted Map 4-9 to Chart 4-9

AGENCY	LOCATION	PRODUCT
Millry Mill Co.	Millry, AL 36558	Forest Products
Quantum Resources Management LLC	3204 Hwy. 56 W, Chatom AL 36518	Industrial Chemicals, Petroleum Products
Cray Valley USA, LLC (formerly Sartomer Co.)	16150 Jordan Street, Hwy. 17 S Chatom AL, 36518	Resins, Industrial Chemicals
Power South Energy Co-op Charles R. Loman Plant	Carson Road, P. O. Box 10 Leroy AL 36548	Electrical Power Generation
<u>McINTOSH INDUSTRIAL PARK</u>		
BASF Chemicals	Industrial Road, McIntosh AL 36553	Industrial Chemicals
OLIN Chlor-Alkali Products	1638 Industrial Road McIntosh AL 36553	Industrial Chemicals
Praxair	1636 Industrial Road McIntosh AL 36553	Industrial Pressure Gasses
Linde Gas	1379 Ciba Road McIntosh AL 36553	Industrial Gas Storage
Huntsman	555 Huntsman Road, P.O.Box 500, McIntosh AL 36553	Resins, Industrial Chemicals
Bay Gas	787 Industrial Road McIntosh AL 36553	Industrial Gas Storage
Alabama Power Co Wash. Co. Cogeneration	Industrial Road McIntosh AL 36553	Electrical Power Generation

Chart 4-11. Hazardous Material Sites (2009)¹⁸
(Replaces Map 4-11)¹⁹

4.15 Vulnerability Assessment: Impacts on Population, Buildings, Critical Facilities; Estimated Losses

Tables 4-15, 4-16 and 4-17 depict populations and buildings in Washington County that are vulnerable to each natural hazard. It is estimated that the entire population is vulnerable to tornadoes, drought, hail, wildfire, lightning, hurricanes, thunderstorms, winter storms, and earthquakes. It is estimated that 1% of the population and buildings are vulnerable to flooding and an undetermined amount are susceptible to dam failure and landslides.

¹⁸ Chart revised to reflect current industrial sites

¹⁹ Converted Map 4--11 to Chart 4-11

Impact on Population.

Table 4-15. Population Vulnerable to Natural Hazards

Hazard	Population	Households
Flood	180	67
Tornado	18,097	6,705
Drought	18,097	6,705
Hail	18,097	6,705
Wildfire	18,097	6,705
Lightning	18,097	6,705
Hurricane	18,097	6,705
Thunderstorm	18,097	6,705
Winter storm	18,097	6,705
Earthquake	18,097	6,705
Landslide	undetermined	undetermined
Dam Failure	undetermined	undetermined

Source: Census 2000 (Flood estimates based on 1% of total)

Impact on Buildings.

Table 4-16. Number of Buildings Exposed to Natural Hazards

Hazard	Type of Building							Total
	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	
Flood	65	1	0	0	0	0	0	67
Tornado	6,519	100	32	4	50	16	11	6,732
Drought	6,519	100	32	4	50	16	11	6,732
Hail	6,519	100	32	4	50	16	11	6,732
Wildfire	6,519	100	32	4	50	16	11	6,732
Lightning	6,519	100	32	4	50	16	11	6,732
Hurricane	6,519	100	32	4	50	16	11	6,732
Thunderstorm	6,519	100	32	4	50	16	11	6,732
Winter storm	6,519	100	32	4	50	16	11	6,732
Earthquake	6,519	100	32	4	50	16	11	6,732

Source: HAZUS 99 & Hazard Committee (Flood estimates based on 1% of total)

Table 4-17. Value of Buildings Exposed to Natural Hazards
 (\$ Building Value in \$1,000's)

Hazard	Type of Building							Total
	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	
Flood	\$4,589	\$1,017	\$294	\$5	\$470	\$120	\$116	\$6,591
Tornado	\$458,988	\$101,700	\$29,453	\$594	\$47,050	\$12,000	\$11,671	\$659,168
Drought	\$458,988	\$101,700	\$29,453	\$594	\$47,050	\$12,000	\$11,671	\$659,168
Hail	\$458,988	\$101,700	\$29,453	\$594	\$47,050	\$12,000	\$11,671	\$659,168
Wildfire	\$458,988	\$101,700	\$29,453	\$594	\$47,050	\$12,000	\$11,671	\$659,168
Lightning	\$458,988	\$101,700	\$29,453	\$594	\$47,050	\$12,000	\$11,671	\$659,168
Hurricane	\$458,988	\$101,700	\$29,453	\$594	\$47,050	\$12,000	\$11,671	\$659,168
Thunderstorm	\$458,988	\$101,700	\$29,453	\$594	\$47,050	\$12,000	\$11,671	\$659,168
Winter storm	\$458,988	\$101,700	\$29,453	\$594	\$47,050	\$12,000	\$11,671	\$659,168

Source: HAZUS 99 & Hazard Committee (Flood estimates based on 1% of total)

Estimated Losses. Table 4-18 provides general estimates of property damage that might result from each of the identified hazards. These figures are derived from the data provided by the NCDC database. These are very gross estimates of property damages and should only be interpreted as indicators of the degree of damage possible. More accurate methods are available to assess damages, particularly the Corps of Engineers Flood Damage Assessment (HEC-FDA) model, FEMA's Benefit-Cost Modules, and the HAZUS loss estimation software. As a follow up to this plan, the County intends to conduct more detailed loss estimates, applying the latest version of HAZUS-MH for multi-hazard assessments.

Table 4-18. Annual Property Damage Estimates

Hazard	Low	Expected	High
Tornado	\$0	\$12,242	\$250,000
Severe Thunderstorm	\$0	\$606,000	\$1.5 Million
Flood	\$0	\$30,000	\$11,330
Winter Storm/Freeze	\$0	N/A	N/A
Hurricane	\$0	N/A	N/A
Drought/Heat Wave	\$0	N/A	N/A
Wildfire	\$0	N/A	N/A
Dam/Levee Failure	\$0	N/A	N/A
Landslide	\$0	N/A	N/A
Earthquake	\$0	N/A	N/A

Source: NOAA Property Damage Estimates at <http://www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms>

4.16 Vulnerability Assessment: Analysis of Development Trends

As shown in Table 4-19, Washington County's population increased by 8.4 percent, or 1,402 persons, between 1990 and 2000. Millry's population decreased by 21.3 percent, while Chatom and McIntosh grew slightly. Table 4-20 shows the change in population by jurisdiction in the county. Most of the growth occurred in unincorporated areas of Washington County. An industrial park has been created in the extreme southeast part of the county near McIntosh. A new Community Center and lakeside recreational facility was created in Chatom. Washington County's population is projected to increase 11.2 percent, or 2,026 persons, between 2000 and 2025. New developments in Washington County are minimal. Map 4-12 illustrates the land use in the county from 1999.

Table 4-19. Historical and Projected Population Growth Trends, 1980-2025

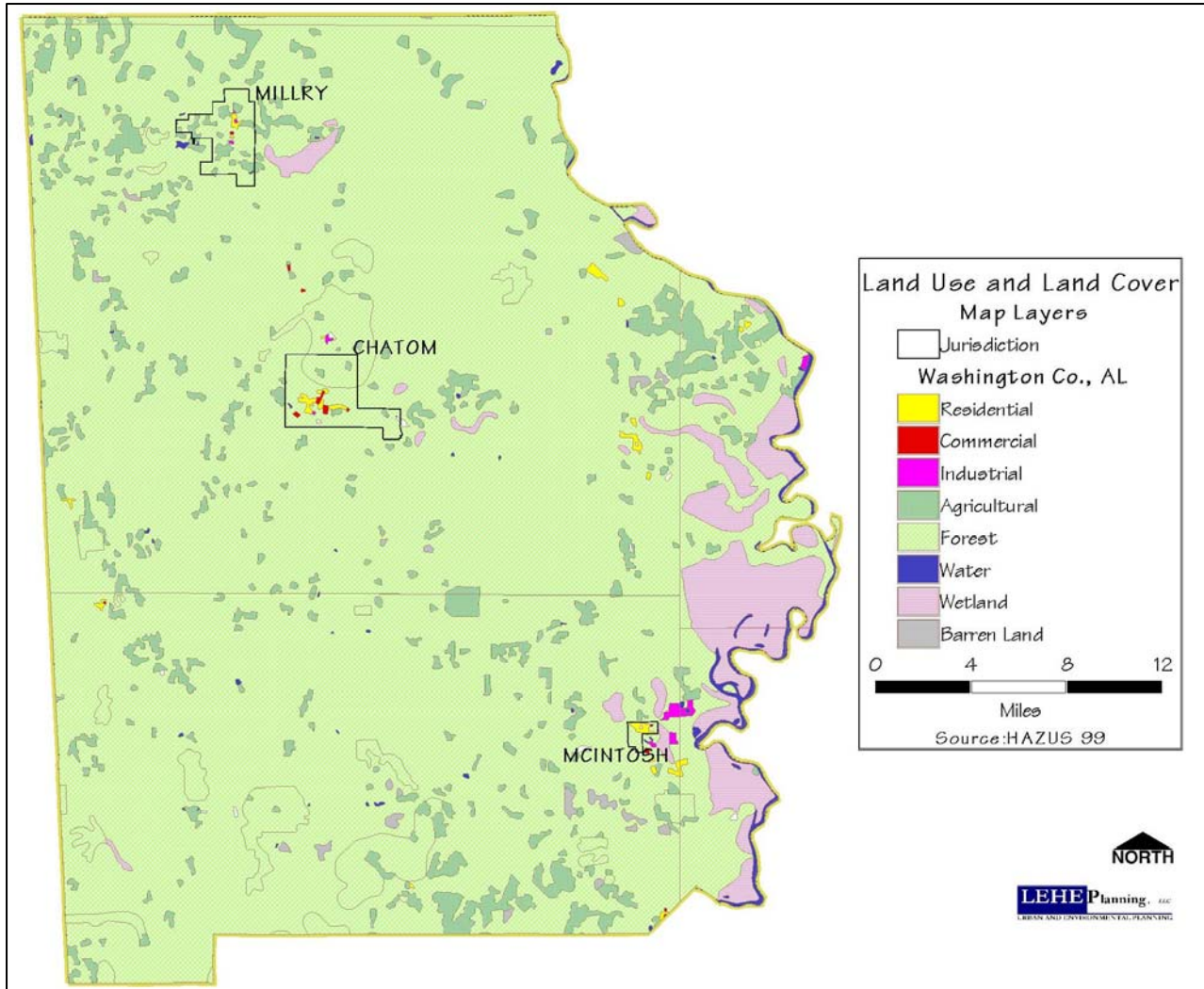
	Washington County	State of Alabama
	Historical	
1980 Population	16,821	3,893,888
1990 Population	16,694	4,047,587
Percent Change 1980-1990	-0.8	3.8
Number Change 1980-1990	-127	146,699
2000 Population	18,097	4,447,100
Percent Change 1990-2000	8.4	10.1
Number Change 1990-2000	1,403	406,513
	Projected	
2005 Population	18,655	4,644,503
2015 Population	19,524	5,028,045
2025 Population	20,123	5,385,997
Percent Change 2000-2025	11.2%	21.1
Number Change 2000-2025	2,026	938,897

Source: Alabama State Data Center, The University of Alabama

Table 4-20. Population Growth Trends by Jurisdiction

Jurisdiction	1990	2000	Change	Percent change
Washington Co.	16,694	18,097	1,403	8.4%
Chatom	1,155	1,193	38	3.3%
Millry	781	615	-166	-21.3%
McIntosh	250	244	-6	-2.4%

Source: Census 2000, March 2001



Map 4-12. Land Use and Land Cover, Washington County 1999

4.17 Multi-Jurisdictional Risk Assessment

In Table 4-21 the jurisdictions are ranked in terms of risk of natural hazards. All jurisdictions are equally at risk for tornadoes, severe thunderstorms, earthquakes, wildfires, extreme cold, winter storms, drought and extreme heat. The jurisdictions have varying degrees of risk pertaining to flooding and landslides. The risk associated with each of these hazards depends upon topography, geology and density of development.

Table 4-21. Multi-Jurisdictional Risk Assessment

Jurisdiction	Washington County	Chatom	Millry	McIntosh
Hurricane	1	1	1	1
Wildfire	2	2	2	2
Severe Thunderstorm	3	3	3	3
Tornado	4	4	4	4
Drought/Heat Waves	5	5	5	5
Dam Failure	6	6	6	6
Flood	7	7	7	7
Winter Storm/Freezes	8	8	8	8
Landslide	9	9	9	9
Earthquake	10	10	10	10

Rating: 1 most severe, 10 least severe
HMPC Exercise Two

Chapter 5 Mitigation Strategies

Note: This chapter is shown in the Plans' original, basic configuration to identify the activities regarding development. Revisions are primarily changes or additions needed to reflect current data. Any revisions will be designated by appropriate footnotes.

5.1 Purpose of the Mitigation Strategies

The mitigation strategies presented in this chapter provide a long-range blueprint for all participating communities within Washington County to consolidate their resources and efforts to cooperatively reduce the potential losses identified in the risk assessment. This chapter presents a shared vision and comprehensive, long-range plan of goals, objectives, and available mitigation measures for all participants in the planning process. Those short-range mitigation measures supported by each community over the next five-year planning cycle are presented in Chapter 6 - Community Action Programs.

5.2 Steps in Developing the Strategies

At its organizational meeting, the Hazard Mitigation Planning Committee (HMPC) adopted a mission statement and a shared vision for disaster resistance among all communities within the county. These statements were prepared with *Committee Exercise #1 - Mission/Vision Statements*. Refer to Section 3.2, Hazard Mitigation Planning Committee, for the Mission Statement. Section 5.6 presents the Vision Statement for the committee.

At subsequent committee meetings, each jurisdiction completed risk and capabilities assessments. *Committee Exercise #2 - Hazard Identification* was used to generally identify the natural hazard threats to each community and the probability or risks of future occurrences. More detailed research and analyses of the risks supplemented the committee exercise, and the committee reviewed the results. The next exercise, *Committee Exercise #3 - Hazard Profiles*, compiled the records of past natural hazard events. This exercise was completed through evaluation of available data, such as local damage reports, news accounts, and FEMA disaster declaration records, as well as committee members' recollections of past events. *Committee Exercise #4 - Capabilities Assessment for Hazard Mitigation* was completed by each jurisdiction to determine existing capabilities to implement mitigation measures. The committee representatives examined the regulatory tools, staff resources, possible funding, and other capabilities of each jurisdiction.

The "Issues and Opportunities" – major problems and opportunities facing each community's mitigation efforts – were derived from the risk and capability assessments, committee discussions, public participation, and interagency coordination activities. The statements of issues and opportunities form the basis for determining appropriate mitigation measures for each community, given their particular risks and capabilities.

Committee Exercise #5 - Alternative Mitigation Measures, was used by the committee to select among the broad range of alternatives that might be available to each community. Through this exercise, goals were established for high-risk natural hazards and each of the six categories of mitigation activities. Mitigation program objectives define achievable targets that are consistent with goals. The committee evaluated the alternative mitigation measures that would advance the goal and selected the preferred measures that would best address each issue. The committee also identified the most critical natural hazard issues in each jurisdiction and recommended mitigation projects for potential FEMA funding.

Finally, the committee completed the Mitigation Action Program that schedules the implementation of mitigation measures. The action program for each participating community assigns implementation responsibility, sets a timeline, identifies funding needs, and establishes the priority for implementation (See chapter 6). Figure 5.1 illustrates the process and components that led to the Mitigation Strategies and Mitigation Action Program.

The HMPC sought participation from the public and coordinated its efforts with other agencies. This was accomplished through open committee meetings, access to the project website (<http://mitigationplan.org/>), surveys, public meetings, media announcements and public hearings prior to the plan's adoption.

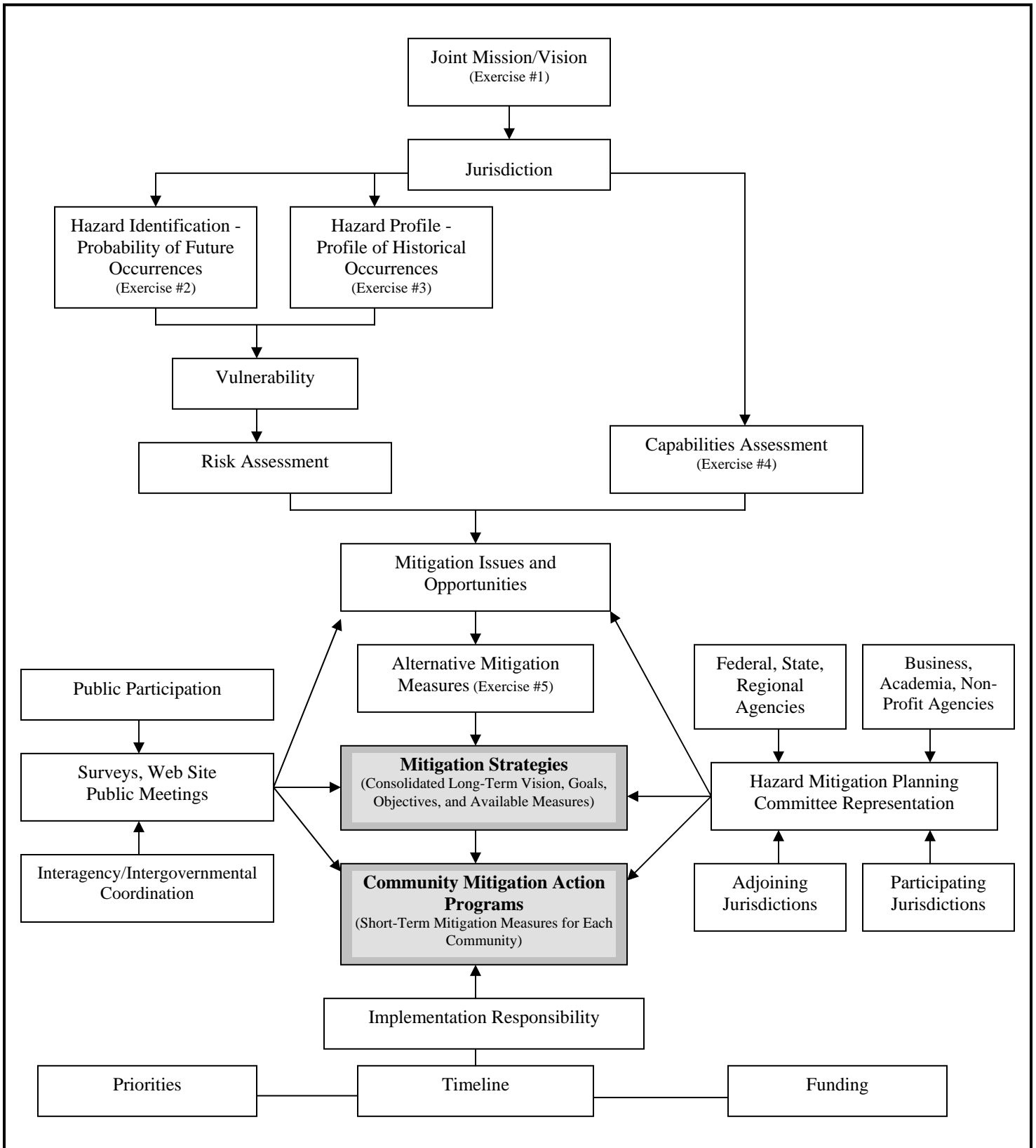


Figure 5-1. Steps in the Development of the Mitigation Strategies and Action Programs

5.3 The Planning Approach

The planning approach presented here follows the six categories of a comprehensive hazard mitigation program. These program categories have been developed by FEMA for managing a successful mitigation program and are used as guidelines for identifying and selecting among alternative mitigation measures.

1. **Prevention.** Adopting and administering ordinances, regulations, and programs that manage the development of land and buildings to minimize risks of loss due to natural hazards.
2. **Property Protection.** Protecting structures and their occupants and contents from the damaging effects of natural hazard occurrences, including retrofitting existing structures to increase their resistance to damage and exposure of occupants to harm; relocating vulnerable structures and occupants from natural hazard locations; and conversion of developed land to permanent open space through acquisition and demolition of existing structures.
3. **Public Education and Outreach.** Educating and informing the public about the risks of natural hazards and the techniques available to reduce threats to life and property.
4. **Natural Resources Protection.** Preserving and restoring the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.
5. **Emergency Services.** Responding to and recovering from a natural hazard disaster.
6. **Structural Projects.** Engineering structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of a natural hazard on a community.

5.4 Mitigation Issues and Opportunities

The mitigation measures of this plan respond to the issues and opportunities listed in this section. These statements summarize the principal natural hazard issues and mitigation opportunities and are based upon the findings of the risk assessment and capability assessment, participation by members of the HMPC at committee meetings and through planning exercises, the results of the public survey, public participation at community meetings, and coordination among interested agencies.

Prevention

- Tornadoes, severe thunderstorms, wildfires, and hurricanes are the most threatening hazards to Washington County communities.
- None of the Washington County municipalities practice comprehensive planning.

- The county expects its population to increase out to year 2025.
- A large number of areas depicted on the Flood Insurance Rate Maps are designated “Approximate” zones where no detailed studies and flood elevation data exist.
- Unincorporated Washington County, Town of Chatom, and the Town of Millry are the only jurisdictions that participate in the NFIP.
- The Town of McIntosh does not have any special flood hazard areas identified, but does experience occasional flooding.¹

Property Protection

- Standard homeowner and business insurance policies do not cover flood damages.
- Many older homes and buildings located in floodplains are not protected from flooding. Note: The Town of Chatom does not permit any building in the floodplain.²

Public Education and Outreach

- Real estate agents and property owners have a continuing need for flood map information.
- The public is generally unaware of risks associated with hazards and the mitigation measures available for property protection.
- Local libraries are available to serve as repositories for information on hazards and methods of protection.
- Technical assistance materials are available through FEMA to assist property owners on alternative property protection measures.
- School environmental education programs provide excellent opportunities for public education on hazard mitigation alternatives.
- A multitude of public outreach opportunities and resources are available.
- Public information activities are among the least expensive mitigation measures but often the most effective.

¹ Added note that McIntosh does experience local flooding

²Town of Chatom adopted a Resolution to prohibit building permits in the A Zone floodplain.

Natural Resources Protection

- Stream and riverbanks and riparian zones help manage floods and filter runoff.
- Accidental or intentional dumping of household and commercial items, such as household garbage, tires, shopping carts, and landscape debris, can obstruct flows.
- Storm-damaged trees - resulting from hurricanes, tornadoes, severe thunderstorms, and wind storms - can clog streets and access routes during periods of disaster response, obstruct the natural discharge of flood waters, disrupt utility services, increase debris removal, damage property, and increase disaster recovery costs.

Emergency Services

- Weather radios in homes and businesses provide inexpensive means for advance warning.
- In February 2003, all businesses and homes within a 3-mile radius of McIntosh received a chemical/weather radio.
- In 2004, all employees that live in the county (274) and work at CIBA Specialties (now BASF) received chemical/weather radios.
- In 2008, all schools in Washington County were included in an alerting system³.
- The local Emergency Management Agency office is currently seeking an emergency warning program that can cover the entire county, and be instantly activated.⁴

Structural Projects

- Regular maintenance of streams and drainage ways is critical to their effective operation for storm water discharge.

5.5 Existing Natural Hazard Mitigation Activities

This plan expands upon and improves existing local mitigation activities as described in this section.

³ WCBCE adopted "School Messenger" (Reliance Communications, Inc.) as primary notification system.

⁴ ALERT-FM is being studied as a supplier for a county-wide notification system.

National Flood Insurance Program Participation

At this writing, the unincorporated Washington County, the Town of Chatom, and the Town of Millry⁵ are regular members of the National Flood Insurance Program (NFIP), along with also a member of the NFIP, as noted Table 5-1.

Table 5-1. NFIP Participants, Washington County

Community Name	Date of Entry to NFIP
Washington County (Unincorporated Areas)	08/01/1987
Town of Chatom	09-01-2007
Town of Millry ⁵	09-2006

The Town of Millry has had special flood hazard areas identified.

The Town of McIntosh does not participate nor does it have special flood hazard areas identified.

Existing Capabilities

In response to *Committee Exercise #4, Capability Assessment for Mitigation Plan Implementation*, jurisdictions noted regulatory tools, staff/personnel resources, and available funding sources. The results are maintained in the EMA office, and a summary of regulatory tools is presented in Table 5-2.

Table 5-2. Plans and Regulations by Jurisdiction

Jurisdiction	Comprehensive Plan¹	Capital Improvement Plan²	Zoning Ordinance	Building Codes	Flood Plain Regulations
Washington County	-	-	-	-	X
Town of Chatom	-	-	X	X	X
Town of Millry	-	-	-	-	X
Town of McIntosh	-	-	X	X	-

Notes:

1. A *Comprehensive Plan* is a current and active plan for managing existing and future growth and development throughout the jurisdiction.
2. A *Capital Improvement Plan* is a five- to six-year plan for capital facilities improvements tied directly to the comprehensive plan.

⁵ Added Town of Millry to NFIP

5.6 Vision Statement

A Vision for Disaster Resistance

Washington County, its communities⁶ and municipalities envision active resistance to the threats of nature to human life and property through publicly supported mitigation measures with proven results. The communities within Washington County commit to reduce the exposure and risk of natural hazards by activating all available resources through cooperative intergovernmental and private sector initiatives and augmenting public knowledge and awareness.

5.7 Comprehensive Mitigation Strategies

This section presents the long-term strategies for mitigation of natural hazards. Each locality within Washington County derives its five-year mitigation action program (see Chapter 6 - Community Mitigation Action Programs) from the program goals, objectives and available long-term mitigation measures presented here.

1 Goal for Prevention. Manage the development of land and buildings to minimize risks of loss due to natural hazards.

1.1 Flood Plain Management Regulations. Effectively administer and enforce local floodplain management regulations.

Mitigation Measures:

1.1.1 The Town of Chatom and the Town of Millry have been established as regular members of the NFIP.⁷

1.1.2 Train County Engineer/Flood Plain Manager through programs offered through the State Flood Plain Manager.

1.1.3 Maintain a library of technical assistance and guidance materials to support the County Engineer/Flood Plain Manager.

1.2 Building and Technical Codes. Review local codes for effectiveness of standards to protect buildings and infrastructure from hazard damages.

⁶ Added "communities"

⁷ Added the Town of Millry as a participant in the NFIP

Mitigation Measure:

1.2.1 Promote good construction practices and proper code enforcement to eliminate most structural problems during natural hazard events.

Note: Both the Town of Chatom and McIntosh have adopted the Southern Building Codes as their standard of construction.⁸

1.3 Community Shelters and Safe Rooms. Ensure the protection of communities from tornadoes and severe storms.

Mitigation Measures:

1.3.1 Encourage the construction of safe rooms within new public buildings, such as schools, libraries, community centers, and other public buildings where feasible.

1.3.2 Retrofit public schools with community shelters.

1.3.3 Encourage the construction of safe rooms in new and existing construction.

1.3.4 Distribute FEMA Publication 320 - Taking Shelter From the Storm: Building a Safe Room in Your House – to local homebuilders.⁹

1.4 Detailed Plans and Targeted Studies. Conduct special studies, as needed, to identify hazard risks and mitigation measures.

Mitigation Measure:

1.4.1 Seek a countywide update of all FIRMs in digital format, with an emphasis on detailed studies of developed and developing areas with elevations provided and floodways delineated.

2 Goal for Property Protection. Protect structures and their occupants and contents from the damaging effects of natural hazards.

⁸ SBC adopted by resolution for Chatom & McIntosh

⁹ 1.3.4 Added

- 2.1 Building Retrofits. Encourage retrofitting of older homes constructed before the enactment of flood plain regulations (pre-FIRM buildings) to safeguard against damages.

Mitigation Measure:

- 2.1.1 *Seek funding sources, such as Community Development Block Grant funds, to assist low income home owners with building retrofits to protect against flood damage.*

- 2.2 Insurance. Maintain insurance riders for flood damages.

Mitigation Measure:

- 2.2.1 *Promote the purchase of flood insurance coverage by property owners and renters in high-risk flooding areas.*

- 3 Goal for Public Education and Outreach.** Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.

- 3.1 Map Information. Increase public access to FIRM information.

Mitigation Measure:

- 3.1.1 *Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.*

Note: Current FIRM maps (9/29/2006) are available at Washington County Engineer's office and at the Chatom Town Hall.¹⁰

- 3.2 Outreach Projects. Conduct regular public events to inform the public of hazards and mitigation measures.

Mitigation Measure:

- 3.2.1 *Promote mitigation and severe weather awareness, through an annual severe weather awareness event.*

¹⁰ FIRM information source added.

3.2.2 *Weather awareness handouts are distributed throughout the county at various time of the year, furnished by ALEMA and NOAA.¹¹*

3.3 Library. Use local library resources to educate the public on hazard risks and mitigation alternatives.

Mitigation Measure:

3.3.1 *Obtain free publications from FEMA, NWS, USGS, and other federal and state agencies and deposit these materials with local libraries.*

3.3.2 *Weather awareness handouts furnished by ALEMA and NOAA are placed in the local libraries and school classrooms throughout the year.¹²*

3.4 Environmental Education. Use school resources for public education on hazards and mitigation measures.

Mitigation Measure:

3.4.1 *Distribute hazard mitigation brochures to area schools for distribution to students.*

¹¹ 3.2.2 Added

¹² 3.3.2 Added.

- 4 Goal for Natural Resources Protection.** Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.

- 4.1 Urban Forestry Programs. Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.

Mitigation Measure:

- 4.1.1 *Seek technical assistance through the Alabama Cooperative Extension System and/or the Alabama Forestry Commission with Best Management Practices (BMPs) for channel and drainage system maintenance.*

- 5 Goal for Emergency Services.** Improve the efficiency, timing, and effectiveness of response and recovery efforts for natural hazard disasters.

- 5.1 Disaster Warning. Improve public warning systems.

Mitigation Measure:

- 5.1.1 *Remove any reference to the county's outdated and disabled siren system to prevent establishment a dependency on the system.¹³*

- 5.1.2 *Seek alternative warning methods of impending disasters, such as cell and telephone messages, text messaging, and commercially available internet programs.¹⁴*

- 5.2 Weather Radios. Improve public access to weather alerts.

Mitigation Measures:

- 5.2.1 *Support efforts to obtain and distribute warning devices to low-income households, especially in rural areas.*

- 5.2.2 *Promote the use of weather radios in households, schools and businesses.*

¹³ 5.1.1 Modified

¹⁴ 5.1.2 Added

5.2.3 *Provide instructions and programming assistance to the owners of the newer model weather radios, to minimize excessive “chatter” from areas distant to our locale.¹⁵*

6 Goal for Structural Projects. Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.

6.1 Drainage System Maintenance. Improve maintenance programs for streams and drainage ways.

Mitigation Measure:

6.1.1 *Prepare and implement standard operating procedures for drainage system maintenance.*

¹⁵ 5.2.3 Added

Chapter 6

Community Mitigation Action Programs

Note: This chapter is shown in the Plans' original, basic configuration to identify the activities regarding development. Revisions are primarily changes or additions needed to reflect current data. Any revisions will be designated by appropriate footnotes.

6.1 Purpose of the Community Mitigation Action Programs.

This chapter presents the five-year mitigation action programs for each participating community and a listing of proposed priority projects to be considered for funding over the five-year planning cycle by FEMA grant programs. The mitigation action program of each jurisdiction assigns priority for implementation of each measure, lead responsibility for implementation, and the time frame for implementation. For each mitigation measure, the program goal, program objectives, hazard(s) addressed, and the possible funding sources for all measures are also noted in the tables. The overall intent of these mitigation action programs and priority projects is to reduce the effects of each hazard, with a special emphasis on new and existing buildings and infrastructure. The key to abbreviations used in the tables may be found at the end of this chapter.

6.2 Prioritization of Mitigation Actions

The Hazard Mitigation Planning Committee established the process described in this section to guide its selection and prioritization of available mitigation measures to be included within each community's mitigation action program.

Plan consistency

In selecting among available mitigation measures, the Planning Committee evaluated the consistency of each available mitigation measure with the long-term mitigation strategy - the vision, goals, and objectives presented in this plan. Each of the prioritized measures are intended to advance the shared vision, goals, and objectives and respond to the issues and opportunities set forth in this plan by all of the participating localities. Further, the Committee has determined that all of the mitigation measures selected for each jurisdiction's community action program are fully consistent with established community goals and plans currently in force and with comments and concerns presented through public participation and interagency coordination efforts of this planning process.

Prioritization criteria

The Planning Committee prioritized the available mitigation measures and projects according to the following principal criteria:

1. Economic Considerations.
 - a. *Availability of funds.* Will the measure require Federal or other outside funding sources? Are local funds available? Can in-kind services reduce local obligations? What is the projected availability of required funds during the timeframe for implementation? Where funding is not apparently available, should the project still be considered but at a lower priority?
 - b. *Benefits to be derived from the proposed measure.* Will the measure likely reduce dollar losses from property damages in the event of a hazard? To what degree?
 - c. *Costs.* Are the costs reasonable in relation to the likely benefits? Do economic benefits to the community outweigh estimated project costs? What cost reduction alternatives might be available?
 - d. *Economic feasibility.* Have the costs and benefits of the preferred measure been compared against other alternatives? What is the economic impact of the no-action alternative? Is this the most economically effective solution?
 - e. *Impact on local economy.* Will the proposed measure improve local economic activities? What impact might the measure have on the tax base?
 - f. *Economic development goals.* Will the proposal advance the overall economic goals and objectives of the community?
2. Social Considerations.
 - a. *Environmental justice.* Will the proposed measure be socially equitable to minority, disadvantaged, and special needs populations, such as the elderly and handicapped?
 - b. *Neighborhood impact.* Will the measure disrupt established neighborhoods or improve quality of life for affected neighborhoods?
 - c. *Community support.* Is the measure consistent with community values? Will the affected community support the measure?
 - d. *Impact on social and cultural resources.* Does the measure adversely affect valued local resources or enhance those resources?

3. Environmental Considerations.

- a. *National Environmental Policy Act (NEPA).* Will the measure be consistent with Federal NEPA criteria? How will the measure affect environmental resources, such as land, water, air, wildlife, vegetation, historic properties, archaeological sites, etc.? Can potentially adverse impacts be sufficiently mitigated through reasonable methods?
- b. *State and local environmental regulations.* Will the measure be in compliance with State and local environmental laws, such as flood plain management regulations, water quality standards, and wetlands protection criteria?
- c. *Environmental conservation goals.* Will the proposal advance the overall environmental goals and objectives of the community?

4. Administrative, Legal, and Political Considerations.

- a. *Staffing.* Does the jurisdiction have adequate staff resources and expertise to implement the measure? Will additional staff, training, or consultants be necessary? Can local funds support staffing demands? Will the measure overburden existing staff loads?
- b. *Maintenance.* Does the jurisdiction have the capabilities to maintain the proposed project once it is completed? Are staff, funds, and facilities available for long-term project maintenance?
- c. *Timing.* Can the measure be implemented in a timely manner? Are the timeframes for implementation reasonable?
- d. *Legal authority.* Does the jurisdiction have the legal authority to implement the measure? What are the legal consequences of taking action to implement the measure as opposed to an alternative action or taking no action? Will new legislation be required?
- e. *Political support.* Does the local governing body support the proposed measure? Does the public support the measure? Do stakeholders support the measure? What advocates might facilitate implementation of the proposal?

5. Technical Considerations.

Technical feasibility. Is the proposal technically possible? Are there technical issues that remain? Does the measure effectively solve the problem or create new problems? Are there secondary impacts that might be considered? Have professional experts been consulted?

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 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.

6.3 Available Mitigation Measures.

The Mitigation Action Program tables for each community reference “Mitigation Measures” by number to the comprehensive mitigation strategies contained in section 5.9 of chapter 5. All of the available mitigation measures presented in chapter 5 are again listed in this section for ease of reference. Each Community Mitigation Action Program lists only those mitigation measures endorsed by that particular jurisdiction.

Table 6-1: Mitigation Measures

Mitigation Measure #	Goal	Program Objective	Mitigation Measure	Status¹
1.1.1	Prevention	Flood Plain Management Regulations	<i>Continue the Town of Chatom and the Town of Millry² as regular members of the NFIP.</i>	<i>Completed</i>
1.1.2	Prevention	Flood Plain Management Regulations	<i>Train County Engineer/Flood Plain Manager through programs offered through the State Flood Plain Manager. Note: County Engineer & EMA met w/State FIRM personnel to review proposed digitized map program.³</i>	<i>In process</i>
1.1.3	Prevention	Flood Plain Management Regulations	<i>Maintain a library of technical assistance and guidance materials to support the County Engineer/Flood Plain Manager.</i>	<i>On-going</i>
1.2.1	Prevention	Building and Technical Codes	<i>Promote good construction practices and proper code enforcement to eliminate most structural problems during natural hazard events.</i>	<i>Not yet enacted in Washington Co. Only the Towns of Chatom and McIntosh have adopted codes that will aid in problem elimination.</i>
1.3.1	Prevention	Community Shelters and Safe Rooms	<i>Encourage the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.</i>	<i>On-going study</i>
1.3.2	Prevention	Community Shelters and Safe Rooms	<i>Retrofit public schools with community shelters.</i>	<i>Schools have been evaluated as possible post-event shelters .</i>

¹ Added Status column

² Added Town of Millry to NFIP

³ Nov. 17, 2010 – Met with ADECA, Office of Water Resources, to review key scope objectives for the FEMA Map Maintenance Program.

Mitigation Measure #	Goal	Program Objective	Mitigation Measure	Status¹
1.3.3	Prevention	Community Shelters and Safe Rooms	<i>Encourage the construction of safe rooms in new and existing construction.</i>	<i>On-going</i>
1.3.4	Prevention	Community Shelters and Safe Rooms	<i>Distribute FEMA Publication 320 - <u>Taking Shelter From the Storm: Building a Safe Room in Your House</u> – to local homebuilders and homeowners</i>	<i>Publications posted at WC Library; builders are aware of the need.</i>
1.4.1	Prevention	Detailed Plans and Targeted Studies	<i>Seek a countywide update of all FIRMs in digital format, with an emphasis on detailed studies of developed and developing areas with elevations provided and floodways delineated.</i>	<i>Waiting for distribution of FIRM's in digital format.</i>
2.1.1	Property Protection	Building Retrofits	<i>Seek funding sources, such as Community Development Block Grant funds, to assist low income home owners with building retrofits to protect against flood damage.</i>	<i>Deferred</i>
2.2.1	Property Protection	Insurance	<i>Promote the purchase of flood insurance coverage by property owners and renters in high-risk flooding areas.</i>	<i>Insurance agencies have been contacted making flood insurance available to anyone that desires Coverage.</i>
3.1.1	Public Education and Outreach	Map Information	<i>Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.</i>	<i>Complete: FIRM information in both the EMA office and the County Engineer's office.</i>
3.2.1	Public Education and Outreach	Outreach Projects	<i>Promote mitigation and severe weather awareness, through an annual severe weather awareness event.</i>	<i>All-hazards bulletins distributed to Co offices and to the general public.</i>
3.3.1	Public Education and Outreach	Library	<i>Obtain free publications from FEMA, NWS, USGS, and other federal and state agencies and deposit these materials with local libraries.</i>	<i>On-going</i>

Mitigation Measure #	Goal	Program Objective	Mitigation Measure	Status¹
3.4.1	Public Education and Outreach	Environmental Education	<i>Distribute hazard mitigation brochures to area schools for distribution to students.</i>	<i>Completed insofar as brochures were available.</i>
4.1.1	Natural Resources Protection	Urban Forestry Programs	<i>Seek technical assistance through the Alabama Cooperative Extension System and/or the Alabama Forestry Commission with Best Management Practices (BMPs) for channel and drainage system maintenance.</i>	<i>Co. Engineer to Evaluate</i>
5.1.1	Emergency Services	Disaster Warning	<i>Upgrade the County's alerting system by adopting ALERT-FM as the method of choice</i>	<i>In work</i>
5.1.1.a ⁴	Emergency Services	Disaster Warning	<i>Promote acceptability and operability of the new alerting system.</i>	<i>In work</i>
5.2.1	Emergency Services	Weather Radios	<i>Support efforts to distribute weather radios to low-income households.⁵</i>	<i>On-going</i>
5.2.2	Emergency Services	Weather Radios	<i>Promote the use of weather radios in households and businesses.</i>	<i>Continual promotions</i>
6.1.1	Structural Projects	Drainage System Maintenance	<i>Prepare and implement standard operating procedures for drainage system maintenance.</i>	<i>County Engineer's responsibility</i>

⁴ Added 5.1.1.a

⁵ Removed reference to siren coverage

6.3 Mitigation Action Programs.

(See key to abbreviations at end of chapter).

Table 6-2. Washington County Mitigation Action Program

Note: *Mitigation Measures shown in italics are countywide actions that apply to all jurisdictions and are coordinated through the EMA.*

WASHINGTON COUNTY MITIGATION ACTION PROGRAM							
Mitigation Measure #	Goal	Program Objective	Priority	Lead Responsibility	Hazard(s)	Timeline	Possible Funding Source
1.1.2	Prevention	Flood Plain Management Regulations	High	<i>Commission Chair</i>	FL	<i>Ongoing</i>	EXIST
1.1.3	Prevention	Flood Plain Management Regulations	High	CE	FL	<i>Ongoing</i>	EXIST
<i>1.3.1</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>High</i>	<i>Mayors, Commission Chair</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>TBD</i>
<i>1.3.2</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>Low</i>	<i>Mayors, Commission Chair, School Board</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>TBD</i>
<i>1.3.3</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>High</i>	<i>EMA / ARC</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>TBD</i>
<i>1.3.4</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>High</i>	<i>EMA / ARC</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>EXIST</i>
<i>1.4.1</i>	<i>Prevention</i>	<i>Detailed Plans and Targeted Studies</i>	<i>Low</i>	<i>CE</i>	<i>FL</i>	<i>After 2008</i>	<i>FEMA Map Modernization Program (Countywide)</i>
<i>2.1.1</i>	<i>Property Protection</i>	<i>Building Retrofits</i>	<i>Low</i>	<i>CE/FPM, EMA</i>	<i>FL</i>	<i>After 2008</i>	<i>CDBG, FEMA</i>

WASHINGTON COUNTY MITIGATION ACTION PROGRAM							
Mitigation Measure #	Goal	Program Objective	Priority	Lead Responsibility	Hazard(s)	Timeline	Possible Funding Source
2.2.1	Property Protection	Insurance	High	CE/FPM, EMA	FL	Ongoing	EXIST
3.1.1	Public Education and Outreach	Map Information	Low	CE/FPM, EMA	FL	Ongoing	EXIST
3.2.1	Public Education and Outreach	Outreach Projects	High	EMA / ARC	ALL	Ongoing	TBD
3.3.1 ¹	Public Education and Outreach	Library	High	EMA / ARC	ALL	Ongoing	EXIST
3.4.1	Public Education and Outreach	Environmental Education	High	EMA	ALL	Ongoing	EXIST
4.1.1	Natural Resources Protection	Urban Forestry Programs	Low	CE	ALL	After 2008	TBD
5.1.1 ²	Emergency Services	Disaster Warning	High	EMA	ALL	Ongoing	TBD
5.2.1 ³	Emergency Services	Weather Radios	High	EMA	ALL	Ongoing	TBD
5.2.2	Emergency Services	Weather Radios	High	EMA	ALL	Ongoing	TBD
6.1.1	Structural Projects	Drainage System Maintenance	Low	Mayors, County Commission, CE	FL	After 2008	EXIST

¹ Revised: now “ongoing”

² Revised Disaster Warning; 2007 to Ongoing; Funding Source TBD

³ Revised Weather Radios; Funding Source TBD

Table 6-3. Chatom Mitigation Action Program

Note: *Mitigation Measures shown in italics are countywide actions that apply to all jurisdictions and are coordinated through the EMA.*

CHATOM MITIGATION ACTION PROGRAM							
Mitigation Measure #	Goal	Program Objective	Priority	Lead Responsibility	Hazard(s)	Timeline	Possible Funding Source
1.1.1 ⁴	Prevention	Flood Plain Management Regulations	High	Mayor	FL	<i>Ongoing</i>	EXIST
1.1.2	Prevention	Flood Plain Management Regulations	High	CE/FPM, BO	FL	<i>Ongoing</i>	EXIST
1.1.3	Prevention	Flood Plain Management Regulations	High	CE/FPM, BO	FL	<i>Ongoing</i>	EXIST
1.2.1	Prevention	Building and Technical Codes	High	BO	ALL	<i>Ongoing</i>	EXIST
<i>1.3.1</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>High</i>	<i>Mayors, Commission Chair</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>TBD</i>
<i>1.3.2</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>Low</i>	<i>Mayors, Commission Chair, School Board</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>TBD</i>
<i>1.3.3</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>High</i>	<i>EMA / ARC</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>TBD</i>
<i>1.3.4</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>High</i>	<i>EMA / ARC</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>EXIST</i>
<i>1.4.1⁵</i>	<i>Prevention</i>	<i>Detailed Plans and Targeted Studies</i>	<i>Low</i>	<i>CE/FPM</i>	<i>FL</i>	<i>Ongoing</i>	<i>FEMA Map Modernization Program (Countywide)</i>
<i>2.1.1⁶</i>	<i>Property Protection</i>	<i>Building Retrofits</i>	<i>Low</i>	<i>CE/FPM, EMA</i>	<i>FL</i>	<i>Ongoing</i>	<i>CDBG, FEMA</i>

⁴ Revised: now “ongoing”

⁵ Revised: now “ongoing”

⁶ Revised: now “ongoing”

CHATOM MITIGATION ACTION PROGRAM							
Mitigation Measure #	Goal	Program Objective	Priority	Lead Responsibility	Hazard(s)	Timeline	Possible Funding Source
2.2.1	Property Protection	Insurance	High	CE/FPM, EMA	FL	Ongoing	EXIST
3.1.1	Public Education and Outreach	Map Information	Low	CE/FPM, EMA	FL	Ongoing	EXIST
3.2.1	<i>Public Education and Outreach</i>	<i>Outreach Projects</i>	<i>High</i>	<i>EMA / ARC</i>	<i>ALL</i>	<i>Ongoing</i>	<i>TBD</i>
3.3.1 ⁷	<i>Public Education and Outreach</i>	<i>Library</i>	<i>High</i>	<i>EMA / ARC</i>	<i>ALL</i>	<i>Ongoing</i>	<i>EXIST</i>
3.4.1	<i>Public Education and Outreach</i>	<i>Environmental Education</i>	<i>High</i>	<i>EMA</i>	<i>ALL</i>	<i>Ongoing</i>	<i>EXIST</i>
4.1.1	<i>Natural Resources Protection</i>	<i>Urban Forestry Programs</i>	<i>Low</i>	<i>CE</i>	<i>ALL</i>	<i>Ongoing</i>	<i>TBD</i>
5.1.1 ⁸	<i>Emergency Services</i>	<i>Disaster Warning</i>	<i>High</i>	<i>EMA</i>	<i>ALL</i>	<i>2011</i>	<i>TBD, ALEMA</i>
5.2.1	<i>Emergency Services</i>	<i>Weather Radios</i>	<i>High</i>	<i>EMA</i>	<i>ALL</i>	<i>Ongoing</i>	<i>TBD</i>
6.1.1 ⁹	<i>Structural Projects</i>	<i>Drainage System Maintenance</i>	<i>Low</i>	<i>Mayors,</i>	<i>FL</i>	<i>Ongoing</i>	<i>EXIST</i>

⁷ Revised: now “ongoing”;

⁸ 2007 now is 2011; funding source is both to be determined and ALEMA grant

⁹ Revised: now “ongoing”

Table 6-4. McIntosh Mitigation Action Program

Note: *Mitigation Measures shown in italics are countywide actions that apply to all jurisdictions and are coordinated through the EMA.*

MCINTOSH MITIGATION ACTION PROGRAM							
Mitigation Measure #	Goal	Program Objective	Priority	Lead Responsibility	Hazard(s)	Timeline	Possible Funding Source
1.2.1	Prevention	Building and Technical Codes	High	BO	ALL	Ongoing	EXIST
<i>1.3.1</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>High</i>	<i>Mayors, Commission Chair</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>TBD</i>
<i>1.3.2</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>Low</i>	<i>Mayors, Commission Chair, School Board</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>TBD</i>
<i>1.3.3</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>High</i>	<i>EMA / ARC</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>TBD</i>
<i>1.3.4</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>High</i>	<i>EMA / ARC</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>EXIST</i>
<i>1.4.1¹</i>	<i>Prevention</i>	<i>Detailed Plans and Targeted Studies</i>	<i>Low</i>	<i>CE/FPM</i>	<i>FL</i>	<i>Ongoing</i>	<i>FEMA Map Modernization Program (Countywide)</i>
<i>2.1.1²</i>	<i>Property Protection</i>	<i>Building Retrofits</i>	<i>Low</i>	<i>CE/FPM, EMA</i>	<i>FL</i>	<i>Ongoing</i>	<i>CDBG, FEMA</i>
<i>3.2.1</i>	<i>Public Education and Outreach</i>	<i>Outreach Projects</i>	<i>High</i>	<i>EMA / ARC</i>	<i>ALL</i>	<i>Ongoing</i>	<i>TBD</i>

¹ Revised: now “ongoing”

² Revised: now “ongoing”

MCINTOSH MITIGATION ACTION PROGRAM							
Mitigation Measure #	Goal	Program Objective	Priority	Lead Responsibility	Hazard(s)	Timeline	Possible Funding Source
3.3.1 ³	<i>Public Education and Outreach</i>	<i>Library</i>	<i>High</i>	<i>EMA / ARC</i>	<i>ALL</i>	<i>Ongoing₄</i>	<i>EXIST</i>
3.4.1	<i>Public Education and Outreach</i>	<i>Environmental Education</i>	<i>High</i>	<i>EMA</i>	<i>ALL</i>	<i>Ongoing</i>	<i>EXIST</i>
4.1.1	<i>Natural Resources Protection</i>	<i>Urban Forestry Programs</i>	<i>Low</i>	<i>CE</i>	<i>ALL</i>	<i>Ongoing₄</i>	<i>TBD</i>
5.1.1	<i>Emergency Services</i>	<i>Disaster Warning</i>	<i>High</i>	<i>EMA</i>	<i>ALL</i>	<i>2011</i>	<i>State Grant</i>
5.2.1	<i>Emergency Services</i>	<i>Weather Radios</i>	<i>High</i>	<i>EMA</i>	<i>ALL</i>	<i>Ongoing</i>	<i>Exist</i>
5.2.2	<i>Emergency Services</i>	<i>Weather Radios</i>	<i>High</i>	<i>EMA</i>	<i>ALL</i>	<i>Ongoing</i>	<i>TBD</i>
6.1.1	<i>Structural Projects</i>	<i>Drainage System Maintenance</i>	<i>Low</i>	<i>Mayors, County Commission, CE</i>	<i>FL</i>	<i>Ongoing</i>	<i>EXIST</i>

³ Revised: now “ongoing”

Table 6-5. Millry Mitigation Action Program

Note: *Mitigation Measures shown in italics are countywide actions that apply to all jurisdictions and are coordinated through the EMA.*

MILLRY MITIGATION ACTION PROGRAM							
Mitigation Measure #	Goal	Program Objective	Priority	Lead Responsibility	Hazard(s)	Timeline	Possible Funding Source
1.1.1	Prevention	Flood Plain Management Regulations	High	Mayor	FL	2006	EXIST
<i>1.3.1</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>High</i>	<i>Mayors, Commission Chair</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>TBD</i>
<i>1.3.2</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>Low</i>	<i>Mayors, Commission Chair, School Board</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>TBD</i>
<i>1.3.3</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>High</i>	<i>EMA / ARC</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>TBD</i>
<i>1.3.4</i>	<i>Prevention</i>	<i>Community Shelters and Safe Rooms</i>	<i>High</i>	<i>EMA / ARC</i>	<i>TO, SS, HU</i>	<i>Ongoing</i>	<i>EXIST</i>
<i>1.4.1</i>	<i>Prevention</i>	<i>Detailed Plans and Targeted Studies</i>	<i>Low</i>	<i>CE/FPM</i>	<i>FL</i>	<i>After 2008</i>	<i>FEMA Map Modernization Program (Countywide)</i>
<i>2.1.1</i>	<i>Property Protection</i>	<i>Building Retrofits</i>	<i>Low</i>	<i>CE/FPM, EMA</i>	<i>FL</i>	<i>After 2008</i>	<i>CDBG, FEMA</i>
<i>3.2.1</i>	<i>Public Education and Outreach</i>	<i>Outreach Projects</i>	<i>High</i>	<i>EMA / ARC</i>	<i>ALL</i>	<i>Ongoing</i>	<i>TBD</i>
<i>3.3.1</i>	<i>Public Education and Outreach</i>	<i>Library</i>	<i>High</i>	<i>EMA / ARC</i>	<i>ALL</i>	<i>2005</i>	<i>EXIST</i>

MILLRY MITIGATION ACTION PROGRAM							
Mitigation Measure #	Goal	Program Objective	Priority	Lead Responsibility	Hazard(s)	Timeline	Possible Funding Source
<i>3.4.1</i>	<i>Public Education and Outreach</i>	<i>Environmental Education</i>	<i>High</i>	<i>EMA</i>	<i>ALL</i>	<i>Ongoing</i>	<i>EXIST</i>
<i>4.1.1</i>	<i>Natural Resources Protection</i>	<i>Urban Forestry Programs</i>	<i>Low</i>	<i>CE</i>	<i>ALL</i>	<i>After 2008</i>	<i>TBD</i>
<i>5.1.1⁴</i>	<i>Emergency Services</i>	<i>Disaster Warning</i>	<i>High</i>	<i>EMA</i>	<i>ALL</i>	<i>Ongoing</i>	<i>Exist</i>
<i>5.2.1⁵</i>	<i>Emergency Services</i>	<i>Weather Radios</i>	<i>High</i>	<i>EMA</i>	<i>ALL</i>	<i>Ongoing</i>	<i>Exist</i>
<i>5.2.2</i>	<i>Emergency Services</i>	<i>Weather Radios</i>	<i>High</i>	<i>EMA</i>	<i>ALL</i>	<i>Ongoing</i>	<i>TBD</i>
<i>6.1.1</i>	<i>Structural Projects</i>	<i>Drainage System Maintenance</i>	<i>Low</i>	<i>Mayors, County Commission, CE</i>	<i>FL</i>	<i>After 2008</i>	<i>EXIST</i>

⁴ revised: now “ongoing”; revised funding source to “exist”

⁵ revised funding source to “exist”

Table 6-6. Priority Projects for FEMA Funding

Mitigation Measure #	Project Description	Hazard(s) Addressed	Jurisdiction(s)	Responsibility	Funding
1.4.1	Seek a countywide update of all FIRMs in digital format, with an emphasis on detailed studies of developed and developing areas with elevations provided and floodways delineated.	FL	Washington County, Chatom, Millry and McIntosh ⁶	CE	FEMA Map Modernization Program (Countywide)
2.1.1	Seek funding sources, such as Community Development Block Grant funds, to assist low income home owners with building retrofits to protect against flood damage.	FL	Washington County, Chatom, Millry and McIntosh ⁶	CE/FPM, EMA	CDBG, FEMA
5.1.1	Upgrade the County's alerting system	All	ALL	EMA	AEMA/FEMA (Countywide)

⁶ Added McIntosh

Mitigation Measure #	Project Description	Hazard(s) Addressed	Jurisdiction(s)	Responsibility	Funding
5.2.1 ⁷	<p>Support the Alabama Skywarn Foundation's efforts to distribute weather radios to low-income households, especially in rural areas outside of siren coverage areas.</p> <p><i>In February 2003, all businesses and homes within a 3-mile radius of McIntosh are scheduled to receive a chemical/weather radio.</i></p> <p><i>Also, in 2004 all county employees (274) at BASF (then CIBA Specialties) received alerting radios.</i></p>	All	ALL	EMA	TBD

⁷ Accomplished distribution of alert capability in McIntosh; funding to be determined

Key to Abbreviations Used in Tables 6-2 through 6-6

Hazards

<i>ALL</i>	All hazards
<i>DF</i>	Dam Failure
<i>DH</i>	Drought/Heat Wave/Extreme Heat
<i>EQ</i>	Earthquake
<i>FL</i>	Flood
<i>HU</i>	Hurricane
<i>L</i>	Landslide
<i>LS</i>	Land Subsidence/Sinkhole
<i>SS</i>	Severe Storm
<i>TO</i>	Tornado
<i>WC</i>	Winter Storm/Extreme Cold
<i>WF</i>	Wildfire

Responsible Party

<i>EMA</i>	Washington County EMA
<i>CE/FPM</i>	Washington County Engineer/Local Flood Plain Manager
<i>BO</i>	Local Building Official
<i>TBD</i>	Responsible Party To Be Determined
<i>ARC</i>	American Red Cross, Washington Co. Chapter

Timeline

<i>20xx</i>	Target Year for Implementation
<i>TBD</i>	Timeline To Be Determined

Funding

<i>FEMA</i>	FEMA Hazard Mitigation Grant/Pre-Disaster Mitigation Grant Programs
<i>CDBG</i>	HUD Community Development Block Grant Program
<i>EXIST</i>	Existing Local Funds
<i>AEMA</i>	Alabama Emergency Management Agency
<i>TBD</i>	Funding To Be Determined

Chapter 7 Plan Maintenance

Note: This chapter is shown in the Plans' original, basic configuration to identify the activities regarding development. Revisions are primarily changes or additions needed to reflect current data. Any revisions will be designated by appropriate footnotes.

7.1 The Planning Cycle

This chapter presents a continuous cycle for monitoring, evaluating and updating the plan; the process for incorporating mitigation strategies into other, ongoing planning activities; and methods for continuing public involvement. Continual plan maintenance ensures an active and relevant hazard mitigation planning process.

7.2 Plan Maintenance Procedures

The Hazard Mitigation Planning Committee (HMPC) will oversee plan maintenance during the five-year framework of the Action Plan. The Washington County EMA staff will continue to serve as the committee's facilitator, responsible for holding meetings as often as needed, assigning specific tasks necessary to monitor and update the plan to committee members, and serving as the committee's liaison with those assigned implementation responsibilities in the Action Plan. The facilitator will also serve as the committee's liaison with participating municipalities and the Washington County Commission. Any resident may request appointment to the committee through the EMA office or a committee member. New members may be nominated by any committee member and then approved by the committee.

After the initial plan is finalized and adopted, the committee will meet once per year to perform the following activities:

- Evaluate the effectiveness of previously-implemented mitigation actions;
- Explain why any actions are not completed or behind schedule;
- Address changing land use patterns and new developments; and,
- Identify any changes in risk assessment and/or risk vulnerability.

The facilitator will schedule the annual meeting at a time and location convenient to all committee members. All annual meetings will be advertised in the local newspaper and open to the public.

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

At the end of the five-year cycle of the Action Program, the committee will oversee a major update to the plan that follows the Federal planning criteria in effect at the time of the update. The updated plan will again be submitted to the AEMA and FEMA for approval.

7.3 Implementation Through Existing Programs

This plan is adopted as a part of the Washington County Emergency Operations Plan, which is administered through the EMA office. If any of the jurisdictions develop future plans that pertain to items that may have an affect on natural hazard planning, this findings of this plan would likewise need to be incorporated into that community's plan.

7.4 Continued Public Involvement

A critical part of maintaining an effective and relevant natural hazards mitigation plan is ongoing public review and comment. Consequently, the HMPC is dedicated to direct involvement of its citizens in providing feedback and comments on the plan throughout the five-year implementation cycle.

To this end, a copy of the plan will be available either as a hard copy or on CD media¹ for viewing at all appropriate agencies throughout the county; including, at a minimum, the Washington County EMA Office, the office of the Washington County Commission, the offices of the mayors, and the main public library. After adoption, a public information notice in the local newspaper will inform the public that the plan may be viewed at these locations.

Public meetings will be held when significant modifications to the plan are required or when otherwise deemed necessary by the HMPC. The public will be able to express their concerns, ideas and opinions about the plan at the meetings. At a minimum, public hearings will be held during the drafting stage of the five-year plan update and to present the final plan to the public before adoption.

¹ Added availability to have a copy on a CD

7.5 **Ongoing Planning Needs**

This Washington County, Alabama, Natural Hazards Mitigation Plan establishes a new planning program for the county and its participating municipalities. However, planning does not end with the adoption of this initial plan. This planning program is a continuous process of profiling new natural hazard events; assessing vulnerabilities as new information arises and conditions change; monitoring changing assets and affected populations; and keeping current on evolving mitigation measures.

Moreover, the hazard profiles, vulnerability assessments, population characteristics, and inventories of critical facilities of this current plan were based on "best available data." "Best available data" is data that is readily available within the very brief plan development time period. This plan recognizes the limitations of such an approach to risk assessment and strategic planning. Improvements to the "best available data" can be made to better assess the risks and target mitigation strategies that best respond to the natural hazard issues within the county.

Therefore, it is the intent of the HMPC to establish an ongoing planning program, one that will strengthen the risk assessment process as better and more complete information is developed and revise the mitigation strategies as more effective measures might evolve.

Chapter 8 Appendix Listing

Resolutions - Washington County Municipalities

1. Town of Chatom, adopted July 19, 2010
2. Town of McIntosh, adopted September 14, 2010
3. Town of Millry, adopted July 12, 2010
4. Washington County, adopted July 12, 2010

***NOTE: Above noted resolutions are on file in the
Washington County EMA office***

A RESOLUTION CONTINUING AND CONCURRING WITH THE PREVIOUS ADOPTION OF THE WASHINGTON COUNTY, ALABAMA, NATURAL HAZARDS MITIGATION PLAN, DATED JUNE 30, 2004, IN FULFILLMENT OF THE PLANNING CRITERIA OF THE FEDERAL DISASTER MITIGATION ACT OF 2000

WHEREAS, The Federal Disaster Mitigation Act of 2000 (DMA 2000), as administered by the Alabama Emergency Management Agency (AEMA) and the Federal Emergency Management Agency (FEMA) provides Federal assistance to local governments to alleviate suffering and damage from disasters, and broadens existing relief programs to encourage disaster preparedness plans and programs, coordination and responsiveness, insurance coverage, and hazard mitigation measures; and,

WHEREAS, as a condition for qualifying for certain Federal disaster assistance programs in the future, DMA 2000 requires the development and adoption of a local natural hazards mitigation plan; and,

WHEREAS, the AEMA had awarded a planning grant to the Washington County Emergency Management Agency; and,

WHEREAS, the Washington County, Alabama, Natural Hazards Mitigation Plan has been prepared in accordance with DMA 2000 requirements under the direction of the Washington County Hazards Mitigation Planning Committee which represents all of the jurisdictions within Washington County; and,

WHEREAS, said mitigation plan addresses all natural hazards deemed to threaten property and persons within the unincorporated and incorporated areas of Washington County; and,

WHEREAS, the Washington County, Alabama, Natural Hazards Mitigation Plan has been revised and upgraded as of June 10, 2010, as prescribed by FEMA regulations for local governments at 44 C.F.R §201.3(d)(1) and (2) and §201.6(a) that require LMP's be updated and resubmitted to FEMA for approval every five (5) years; and,

WHEREAS, said FEMA regulations have been met as prescribed,

NOW THEREFORE, BE IT RESOLVED that the current revisions and upgrades to the original Washington County, Alabama, Natural Hazards Mitigation Plan, dated June 30, 2004, is hereby adopted and immediately made effective.

ADOPTED this the 19th day of July, 2010

JURISDICTION NAME CHATOM

APPROVED: Harold L. Crutch

ITS: Mayor

ATTEST: Sharon Sheffield-Mott

ITS: Clerk

A RESOLUTION CONTINUING AND CONCURRING WITH THE PREVIOUS ADOPTION OF THE WASHINGTON COUNTY, ALABAMA, NATURAL HAZARDS MITIGATION PLAN, DATED JUNE 30, 2004, IN FULFILLMENT OF THE PLANNING CRITERIA OF THE FEDERAL DISASTER MITIGATION ACT OF 2000

WHEREAS, The Federal Disaster Mitigation Act of 2000 (DMA 2000), as administered by the Alabama Emergency Management Agency (AEMA) and the Federal Emergency Management Agency (FEMA) provides Federal assistance to local governments to alleviate suffering and damage from disasters, and broadens existing relief programs to encourage disaster preparedness plans and programs, coordination and responsiveness, insurance coverage, and hazard mitigation measures; and,

WHEREAS, as a condition for qualifying for certain Federal disaster assistance programs in the future, DMA 2000 requires the development and adoption of a local natural hazards mitigation plan; and,

WHEREAS, the AEMA had awarded a planning grant to the Washington County Emergency Management Agency; and,

WHEREAS, the Washington County, Alabama, Natural Hazards Mitigation Plan has been prepared in accordance with DMA 2000 requirements under the direction of the Washington County Hazards Mitigation Planning Committee which represents all of the jurisdictions within Washington County; and,

WHEREAS, said mitigation plan addresses all natural hazards deemed to threaten property and persons within the unincorporated and incorporated areas of Washington County; and,

WHEREAS, the Washington County, Alabama, Natural Hazards Mitigation Plan has been revised and upgraded as of June 10, 2010, as prescribed by FEMA regulations for local governments at 44 C.F.R §201.3(d)(1) and (2) and §201.6(a) that require LMP's be updated and resubmitted to FEMA for approval every five (5) years; and,

WHEREAS, said FEMA regulations have been met as prescribed,

NOW THEREFORE, BE IT RESOLVED that the current revisions and upgrades to the original Washington County, Alabama, Natural Hazards Mitigation Plan, dated June 30, 2004, is hereby adopted and immediately made effective.

ADOPTED this the 14th day of September, 2010

JURISDICTION NAME Town of McIntosh

APPROVED: *Carol Dougherty*

ITS: *Mayer*

ATTEST: *Ramona Pass*

ITS: *Town Clerk*

ORDINANCE NO. 2010-01

BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF MILLRY, ALABAMA, AS FOLLOWS:

AN ORDINANCE ADOPTING THE WASHINGTON COUNTY, ALABAMA, NATURAL HAZARDS MITIGATION PLAN, DATED June 30, 2004, IN FULFILLMENT OF THE PLANNING CRITERIA OF THE FEDERAL DISASTER MITIGATION ACT OF 2000.

WHEREAS, The Federal Disaster Mitigation Act of 2000(DMA 2000), as administered by the Alabama Emergency Management Agency (AEMA) and the Federal Emergency Federal Emergency Management Agency (FEMA) provides Federal assistance to local governments to alleviate suffering and damage from disasters, and broadens existing relief programs to encourage disaster preparedness plans and programs, coordination and responsiveness, insurance coverage, and hazard mitigation measures; and,

WHEREAS, as a condition for qualifying for certain Federal disaster assistance programs in the future, DMA 2000 requires the development and adoption of a local natural hazards mitigation plan; and,

WHEREAS, the Washington County, Alabama, Natural Hazards Mitigation Plan has been prepared in accordance with DMA 2000 requirements under the direction of the Washington County Hazards Mitigation Planning Committee which represents all of the jurisdictions within Washington County; and

WHEREAS, said mitigation plan addresses all natural hazards deemed to threaten property and persons within the unincorporated and incorporated areas of Washington County; and

WHEREAS, the Washington County, Alabama, Natural Hazards Mitigation Plan has been revised and upgraded as of June 10, 2010, as prescribed by FEMA regulations for local governments at 44 C.F.R. §201.3(d)(1) and (2) and §201.6(a) that requires LMP's be updated and resubmitted to FEMA for approval every five (5) years; and

WHEREAS, said FEMA regulations have been met as prescribed,

NOW THEREFORE, BE IT RESOLVED that the current revisions and

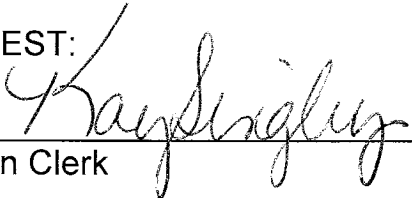
upgrades to the original Washington County, Alabama Natural Hazards Mitigation Plan, dated June 30, 2004, is hereby adopted and immediately made effective.

ADOPTED AND APPROVED THIS THE 12th DAY OF July, 2010.



ROY CHAPMAN, Mayor

ATTEST:


Town Clerk

STATE OF ALABAMA

WASHINGTON COUNTY

I, the undersigned, Clerk of the Town of Millry, Alabama, do hereby certify that the above and foregoing ordinance was properly advertised and duly adopted by the Town Council of the Town of Millry, Alabama.


Town Clerk

A RESOLUTION CONTINUING AND CONCURRING WITH THE PREVIOUS ADOPTION OF THE WASHINGTON COUNTY, ALABAMA, NATURAL HAZARDS MITIGATION PLAN, DATED JUNE 30, 2004, IN FULFILLMENT OF THE PLANNING CRITERIA OF THE FEDERAL DISASTER MITIGATION ACT OF 2000

WHEREAS, The Federal Disaster Mitigation Act of 2000 (DMA 2000), as administered by the Alabama Emergency Management Agency (AEMA) and the Federal Emergency Management Agency (FEMA) provides Federal assistance to local governments to alleviate suffering and damage from disasters, and broadens existing relief programs to encourage disaster preparedness plans and programs, coordination and responsiveness, insurance coverage, and hazard mitigation measures; and,

WHEREAS, as a condition for qualifying for certain Federal disaster assistance programs in the future, DMA 2000 requires the development and adoption of a local natural hazards mitigation plan; and,

WHEREAS, the AEMA had awarded a planning grant to the Washington County Emergency Management Agency; and,

WHEREAS, the Washington County, Alabama, Natural Hazards Mitigation Plan has been prepared in accordance with DMA 2000 requirements under the direction of the Washington County Hazards Mitigation Planning Committee which represents all of the jurisdictions within Washington County; and,

WHEREAS, said mitigation plan addresses all natural hazards deemed to threaten property and persons within the unincorporated and incorporated areas of Washington County; and,

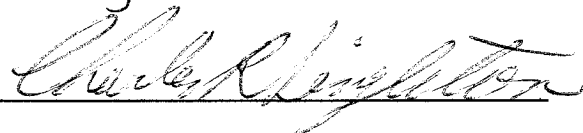
WHEREAS, the Washington County, Alabama, Natural Hazards Mitigation Plan has been revised and upgraded as of June 10, 2010, as prescribed by FEMA regulations for local governments at 44 C.F.R §201.3(d)(1) and (2) and §201.6(a) that require LMP's be updated and resubmitted to FEMA for approval every five (5) years; and,

WHEREAS, said FEMA regulations have been met as prescribed,

NOW THEREFORE, BE IT RESOLVED that the current revisions and upgrades to the original Washington County, Alabama, Natural Hazards Mitigation Plan, dated June 30, 2004, is hereby adopted and immediately made effective.

ADOPTED this the 12th day of July, 2010

JURISDICTION NAME Washington County Commission

APPROVED: 

ITS: Chairman

ATTEST: Wanya Kirkwood

ITS: Administrator