Marengo County, Alabama

Multi-Jurisdictional Natural Hazards Mitigation Plan

March 2015

Freddie L. Armstead, Commissioner District 1
Dan England, Commissioner District 2
John Crawford, Jr., Commissioner District 3
Calvin Martin, Commissioner District 4
Michael Thompson, Commissioner District 5

Kevin McKinney, Executive Director
Marengo County Emergency Management Agency and E911

Marengo County, Alabama

Unicorporated Marengo County

Town of Dayton

City of Demopolis

Town of Faunsdale

City of Linden

Town of Myrtlewood

Town of Providence

Town of Sweetwater

Town of Thomaston

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List of Acronyms

AEMA ..... Alabama Emergency Management Agency

FEMA..... Federal Emergency Management Agency

HMGP ..... Hazard Mitigation Grant Program

NCDC ..... National Climate Data Center

NFIP..... National Flood Insurance Program

NWS ..... National Weather Service

PDM ..... Pre-Disaster Mitigation

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1. Background and Purposes of the Plan

   a. About the Plan - On October 30, 2000, the United States Congress passed the Disaster Mitigation Action Act of 2000. This act requires a local jurisdiction to develop and adopt hazard mitigation plans in order to receive federal funding from the Hazard Mitigation Program (HMGP) or the Pre-Disaster Mitigation Program (PDM). Hazard Mitigation is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. Mitigation activities may be implemented prior to, during, or after an incident. However, it has been demonstrated that hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs.

      The Marengo County Multi-Jurisdictional Natural Hazards Mitigation Plan is an update to the previously approved plan which was approved by FEMA in 2010. In 2012 , the Marengo County Commission was awarded a HMGP grant (1971-713) to update the previously-approved plan so that Marengo County will meet the eligibility requirements for PDM and HMGP funding.

   b. Scope – The Marengo County Multi-Jurisdictional Natural Hazards Mitigation Plan includes numerous entities located within Marengo County Alabama. These entities include both incorporated and unincorporated areas along with rural water authorities and the Marengo County Board of Education, City Board of Education, City of Demopolis Board of Education. The plan update followed the guidance provided by the Federal Emergency Management Agency (FEMA) entitled Local Mitigation Plan Review Guide (October 1, 2011). This document will contain all of the required elements in order to be eligible for federal funding.

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

   d. Funding – On December 14, 2013, FEMA awarded an HMGP (1971-713) grant to the Alabama Emergency Management Agency (AEMA) for $30,000.00 with a federal share (75%) of $7,500. Donation of staff time from the local community was used as the required match for the grant.

   e. Purposes - Hazard mitigation is any action taken to permanently reduce or eliminate long- term risks to people and their property from the effects of hazards. Natural hazards come in many forms: tornadoes, floods, hurricanes, severe storms, winter freezes, droughts, landslides, or dam failures resulting from natural disaster crises. Communities can take steps to prepare and implement mitigation techniques for almost any type of hazard that may threaten its citizens, businesses and institutions. Hazard mitigation planning helps to 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 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 homeowners of their vulnerability to natural disasters 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 hazard areas, or to ensure that development that does occur will be resistant to the hazards threatening the area.

Mitigation programs and projects serve to lessen a community's vulnerability to the hardships and costs of 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, as presented here. Comprehensive planning can provide Marengo County citizens a safe, healthy and prosperous place in which to live and work.

The purpose of the Marengo County Multi-Jurisdictional Hazard Mitigation Plan is to develop a unified approach among its local governments for dealing with identified hazards and 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:

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

f. What has been updated in this section - 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 natural hazards. The first section of the plan gives a basic overview of the need and purpose of a Hazard Mitigation Plan.

2. County Profile

a. *Geographic setting and history – Marengo County is located in rural western* Alabama. According to the 2010 U.S. Census, the County's population was 21,027. The County contains approximately 983 square miles and is bordered on the north by Sumter County, Greene and Hale Counties, on the east by Perry, Dallas, and Wilcox Counties, on the south by Clarke County, and on the west by Choctaw County. Marengo County was created by the Alabama

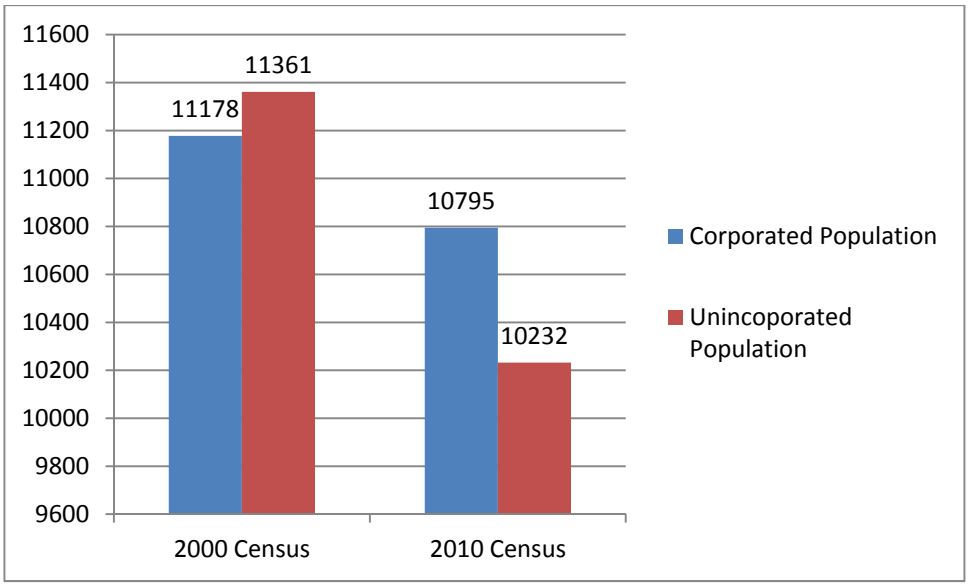
Territorial legislature on February 6, 1818, from land acquired from the Choctaw Indians by the Treaty of Fort St. Stephens on October 24, 1816. The county also contains, in decreasing order of population, the City of Demopolis (2010 U.S. Census population 7,483), Towns of Linden (2010 U.S. Census population 2,125, Thomaston (2010 U.S. Census population 417, Town of Sweet Water (2010 U.S. Census population 258), Town of Providence (U.S. Census population 223), Town of Myrtlewood (U.S. Census population 130), Town of Faunsdale (U.S. Census population 98), and Town of Dayton (2010 U.S. Census population 52).

Map 1. Location Map of Marengo County, Alabama

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

c. Demographics - The total population of Marengo County, Alabama is 21,027 according to the 2010 Census. This amount decreased slightly from the 2000 Census. Chart 1 depicts the total population of the Marengo County in using data from 2000 and 2010 United States Census. Chart 1 also includes the population of unincorporated areas in Marengo County.

Chart 1. Population of Marengo County and Unincorporated Areas in 2000 and 2010. Source: U.S. Census Data www.census.gov



There are 8 municipalities located in Marengo County. Chart 2 depicts the 2000 and 2010 Census data for the population of each of the municipalities.

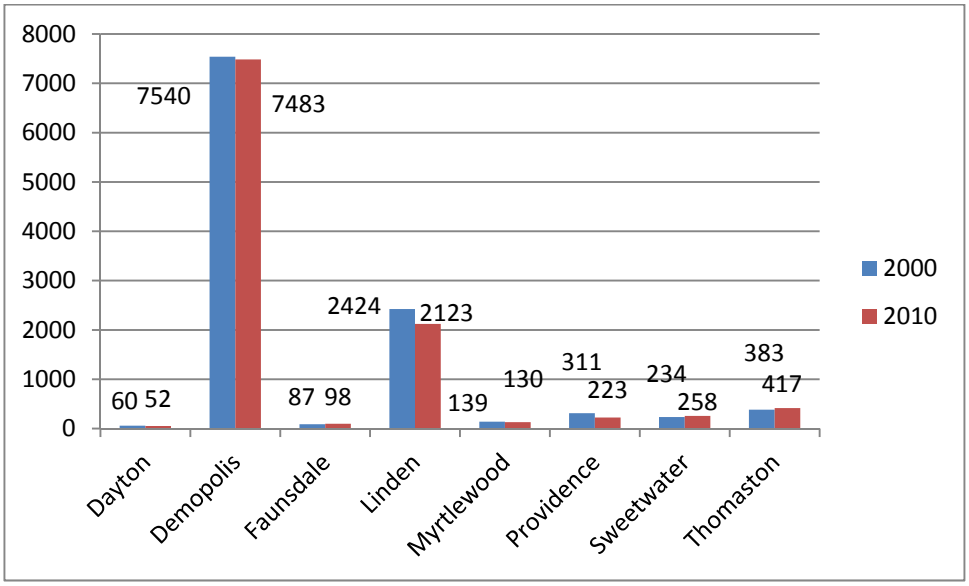


Chart 2. Population Marengo County Incorporated Areas in 2000 and 2010. Source: U.S. Census Data www.census.gov

Chart 3 depicts the racial characteristics of Marengo County. The population is made of 46% White population, 51% African American, and the other 43% is made of other races including Asian, American Indian, Alaska Native, Native Hawaiian, Pacific Islander or other.

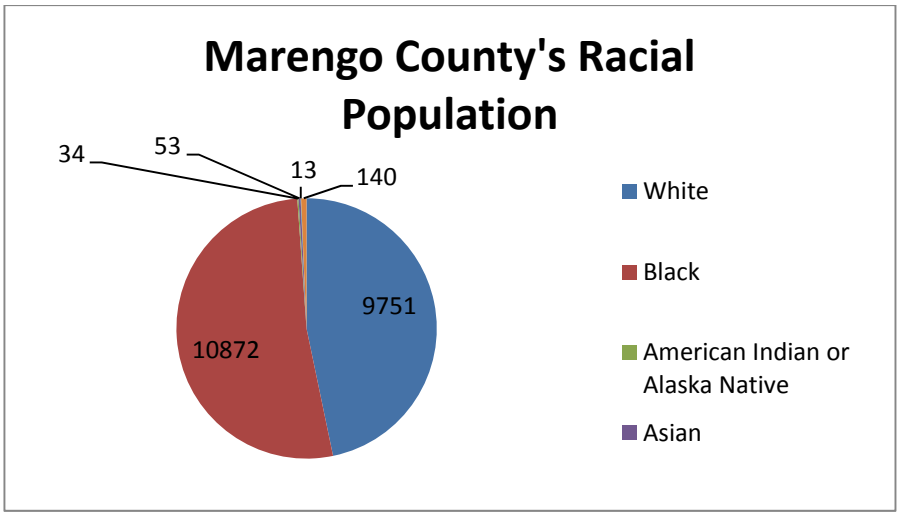
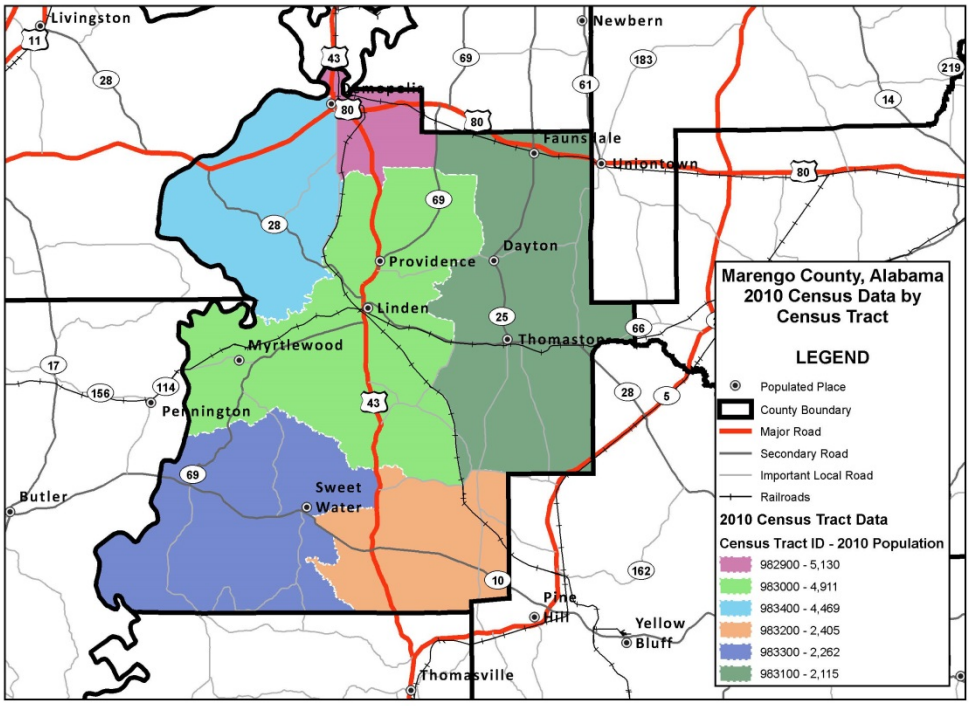


Chart 3. 2010 Marengo County Race Data. Source: U.S. Census Data www.census.gov

The population of the county is concentrated into six principal Census Tracts. The densest population of Marengo County in the northern area surrounding Demopolis and Linden. The area of Marengo County with the lowest density is located the eastern and southern sections.



Map 2. 2010 Population by Census Tract in Marengo County, Alabama

d. Economy – According to the 2010 U.S. Census, 49% of Marengo County's population lives in unincorporated areas. This has remained relatively unchanged since the 2000 Census. The percentage of the population that has finished high school (83.7%) or better is higher than both the state average (82.1%). Marengo County also has below average median and per capita incomes. The median annual income in Marengo County is $35,079, lower than the state median income ($40,474). A significantly higher percentage of individuals and families live below the poverty line (24.0%) when compared to the state average (14.7%). Table 1 summarizes economic data of Marengo County using data from the U.S. Census.

Population	21,027
Male	9,913
Female	11,114
Median Age	41.8
Total Households	8,464
Total Housing Units	10,215

Population 3 years and over enrolled in school	3,302
Percent High school graduate or better	39.3%
Percent Bachelors' degree or higher	6.3%
Median Annual Household Income	$35,079.00
Per capita income	$18,201
Families below the poverty level	19.5%
Individual below the poverty level	24%

Table 1. Summary of economic data for Marengo County. Source: U.S. Census

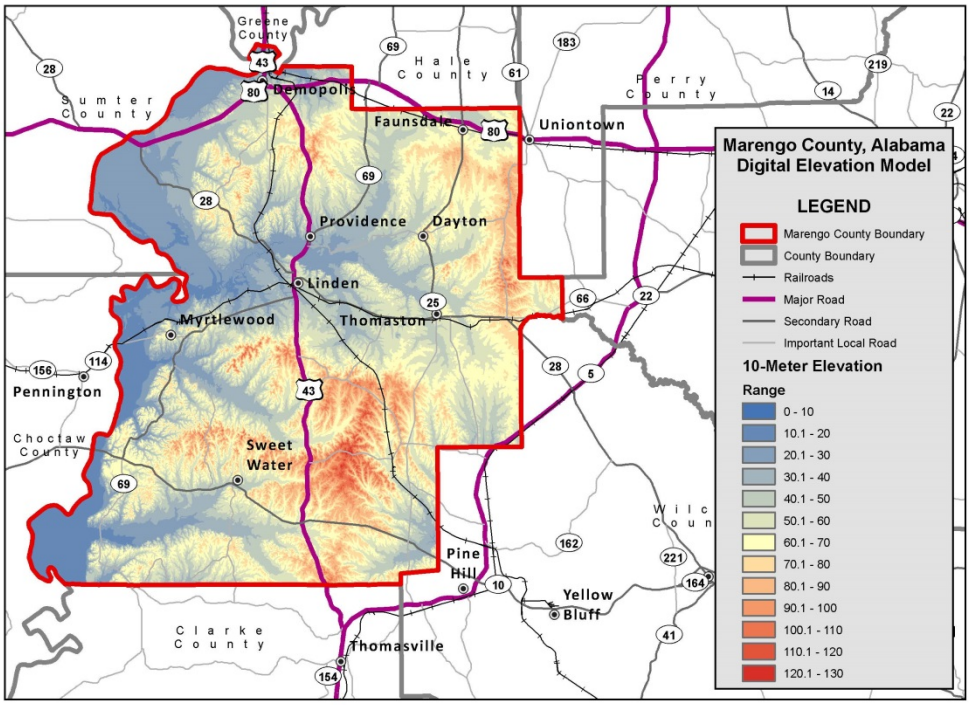
The economy in Marengo County has been hard hit by the recession in the late 2000's. The largest employer is Rock Tenn located west of Demopolis and Georgia Pacific Located in adjacent Choctaw County.

e. Climate - Marengo County has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short. Cold waves are rare and generally moderate in 1 or 2 days. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Severe local storms, including tornadoes, strike occasionally in or near the area. They are of short
duration and cause variable and spotty damage. Every few years, in summer or autumn, a tropical depression or a remnant of a hurricane that has moved inland causes extremely heavy rains for 1 to 3 days. In winter, the average temperature is 47 degrees F and the average daily minimum temperature is 35 degrees. The lowest temperature on record, which occurred on January 22, 1985, is -1 degree. In summer, the average temperature is 79 degrees and the average daily maximum temperature is 90 degrees. The highest recorded temperature, which occurred on June 26, 1930, is 108 degrees.

The total annual precipitation is about 55.5 inches. Of this, 28.7 inches, or 52 percent, usually falls in April through October. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through October is less than 15 inches. The heaviest 1-day rainfall during the period of record was 9.2 inches on December 10, 1961. Thunderstorms occur on about 59 days each year, and most occur in July. The average seasonal snowfall is about 0.4 inch. The greatest snow depth at any one time during the period of record was 4 inches. On the average, no days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year. The average relative humidity in

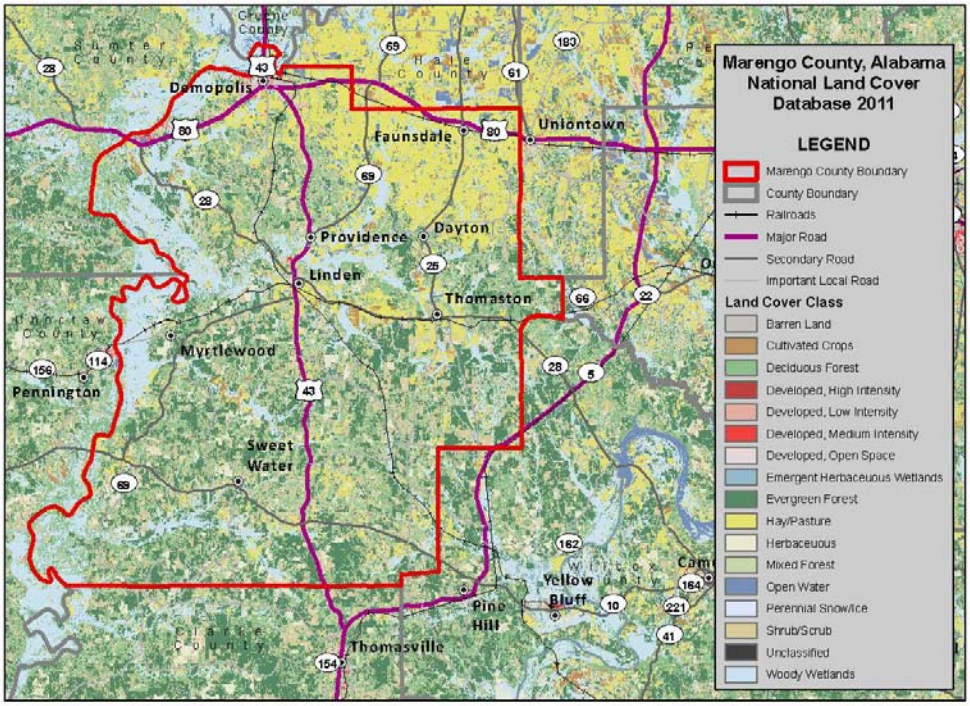
midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 89 percent. The sun shines 67 percent of the time possible in summer and 50 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 7.8 miles per hour, in March.

f. Physical features - Marengo County lies within the Coastal Plain province and includes parts of five distinct physiographic regions—the Blackland Prairie, the Chunnennuggee Hills, the Flatwoods, the Southern Red Hills, and the river terraces and flood plains (13). The Blackland Prairie makes up about 120,000 acres of the northern part of the county. It is used mostly for pasture, hay, and cultivated crops and for the production of catfish. The landscape is mostly nearly level to moderately sloping, and it has little relief. Elevation ranges from 120 to 210 feet. The soils range from shallow to very deep, and they developed in materials weathered from soft limestone (chalk) and clayey sediments. The soils are dominantly clayey. They range from very strongly acid to moderately alkaline and from well drained to poorly drained. The Chunnennuggee Hills occupy about 55,000 acres between the Blackland Prairie and the Flatwoods regions of Marengo County. Most areas are used for woodland. The landscape is highly dissected, hilly topography that has a maximum relief of about 100 feet. Elevation ranges from about 180 to 330 feet. The soils are deep to very deep, and they developed in unconsolidated loamy, sandy, and clayey sediments. They range in texture from sandy to clayey and are acid in reaction. Most of the soils in the uplands are well drained or moderately well drained. The Flatwoods occupies about 82,000 acres of Marengo County. It forms a narrow belt extending across the central part of the county in an east-west direction from Myrtlewood to the Wilcox County line. Most areas are used for woodland. A small acreage is used for pasture, hay, and cultivated crops. The landscape is mostly nearly level to moderately sloping, and it has little relief. The elevation ranges from 140 to 220 feet. The soils are deep, and they developed in unconsolidated clayey sediments and shale. They are clayey and are acid in reaction. Most of the soils are somewhat poorly drained or poorly drained. The Southern Red Hills occupies about 180,000 acres in the southern part of the county. Most areas are wooded. A small acreage is used for pasture and hay. The landscape ranges from broad, nearly level poorly drained. The soils on flood plains and low terraces are subject to flooding.



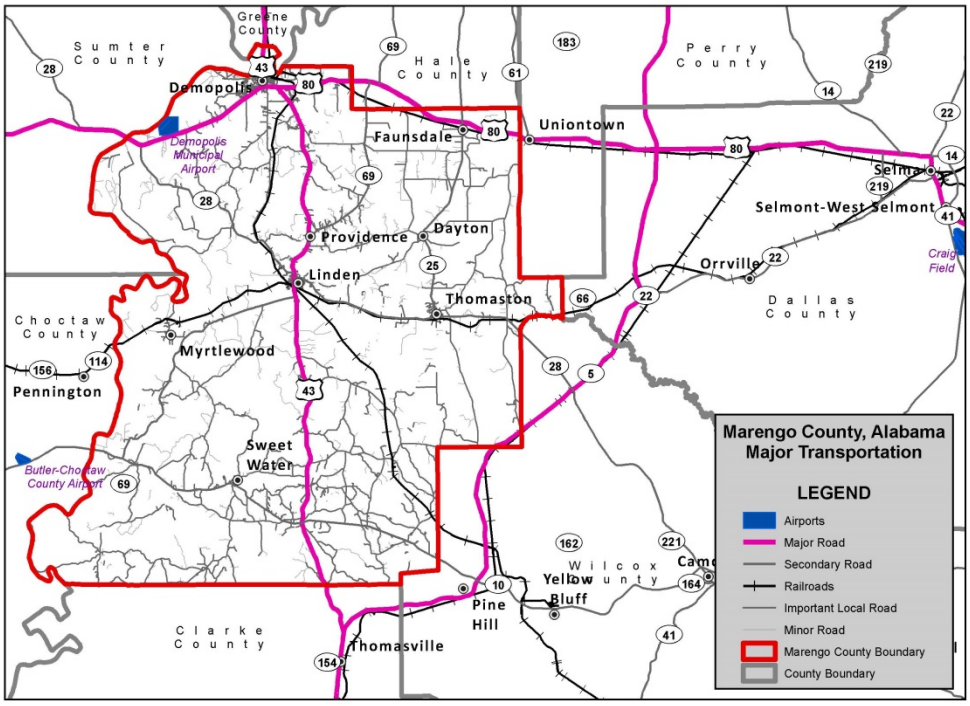
Map 3. Marengo County Digital Elevation Model

Agriculture and forest products have sustained the economy of the county over recorded history. Textile manufacturing and a few other small industries have also been in the county. Where cotton was once king, the main agricultural enterprises are now beef cattle and hog production. Significant growth has also occurred in the pond-raised catfish and bait-fish industry. Timber is produced on about 87 percent of the land area in the county. It provides raw material for local sawmills and for pulp and paper producers. Woodland also provides habitat for wild game, such as wild turkey, white-tailed deer, and feral hogs. This game attracts hunters from across the Nation. Loblolly pine has largely replaced longleaf pine and shortleaf pine, which were harvested by the early settlers.



Map 4. National Land Cover Database for Marengo County. 2005.

g. Transportation - Over the past 150 years, the major mode of transportation in Marengo County shifted from horse and wagon through steamboat and railroad to automobile. Each shift brought readjustment to the settlement patterns and economy of the county. Today, the major highways serving the county are U.S. 80; which dissects the northern portion of the County from west to east, US 43 which dissects the County from north to south, Alabama Highway 10, Alabama Highway 28, and Alabama Highway 66, which passes from Thomaston to Linden. Numerous hard-surface county roads provide access throughout the county. Marengo County is presently served by several railroads which provide freight services between all the Counties industries. A municipal airport near Demopolis serves small, private and commercial aircraft. The Tombigbee River has been a major avenue of transportation throughout the history of the county. It is navigable throughout its length in Marengo County and connects the Tennessee River system to ports on the Gulf of Mexico and other inland water systems. Port facilities are available nearby at Demopolis.



Map 5. Major Transportation in Marengo County, Alabama. Source: U.S. Tiger Data 2010.

h. Utilities - Electric power is provided by the Alabama Power Company and Black Warrior Power Company. Water service is provided by the City of Demopolis, the South Marengo County Water Authority, Town of Thomaston, City of Linden, Tow of Myrtlewood Water System, and the Town of Faunsdale. There are centralized sanitary sewer service offered in the City of Demopolis and the City of Linden.

i. What has been updated in this section – Updated data was used to update the County profile. These data sets include 2010 Census, current land use maps, and recent economic data provide by Marengo County Chamber of Commerce.

3. Planning Process

CFR Title 44 201.6 (c) (1) requires the Local Hazard Mitigation Plan must include: "Documentation of the planning process used to develop the plan including how it was prepared, who was involved in the process, and how the public was involved". In order to facilitate this process, the Marengo County Commission hired a consultant to facilitate the plan update process. From April 2014 through March 2015, the Marengo County Hazard Mitigation Committee held two meetings. Agendas and sign in sheets from those meetings are on file in the Marengo County EMA office. Committee members unable to attend a meeting received agendas and Committee assignments via fax, email, telephone or personal meetings with the planning team.

a. Hazard Mitigation Planning Committee – In April 2014, under the leadership of the Marengo County Emergency Management Director (Kevin McKinney), the Hazard Mitigation Planning Committee was re-assembled. Since the original plan was developed in 2010, many of the elected officials have such left office or changed jobs. As such, it was determined to sponsor a Kick-Off meeting which would invite elected officials, EMA officials, and volunteer fire fighters, police officers, elected officials, school representatives, industry representative, interested citizens, and others. This meeting was held on April 8, 2014 and invited representatives from numerous public and private agencies throughout Marengo County. Table 2 lists the agencies invited to the Marengo County Hazard Mitigation Kickoff Meeting. Titles of each agency were identified. A database of potential stakeholders was developed and an invitation postcard was mailed to each person.

	Name of Organization Invited to Hazard Mitigation Kickoff Meeting on April 8, 2014
1	Alabama Cooperative Extension Service, Director
2	Alabama Department of Environmental Management, State Director
3	Alabama Emergency Management Agency, Division C Coordinator
4	Alabama Forestry Commission, County Director
5	Alabama National Guard, Recruiting Sergeant
6	Alabama Power Corporation, County Manager
7	Alabama-Tombigbee Regional Planning Commission, Director
8	American Red Cross, Local Government Liason
9	Choctaw County Commission, EMA Director
10	City of Linden, Public Works Director
11	Sumter County Commission, EMA Director
12	Clarke County Commission, EMA Director
13	Mississippi Emergency Management Agency, Director
14	Town of Providence, Mayor
15	Federal Emergency Management Agency, all contacts from database
16	Town of Dayton, Mayor

17	Marengo County Chamber of Commerce, Director
18	Marengo County Board of Education, Superintendent
19	Choctaw County Commission, County EMA Director
20	Town of Faunsdale, Mayor and Town Clerk
21	Wilcox County Emergency Management Agency, EMA Director
22	Marengo County Health Department, County Director
23	Town of Myrtlewood, Mayor
24	Town of Sweet Water, Mayor
25	Marengo County Sherriff's Office, Sherriff
26	Marengo County Volunteer Fire Departments, Chiefs
27	The Demopolis Times, Editor
28	Black Warrior Power Company, County Supervisor
29	The Marengo County Democrat Reporter, Editor
30	Marengo County Water Authority, Manger
31	Demopolis Water and Sewer Authority, Manager
32	US Army Corps of Engineers, Dam Wildlife Area Manager
33	US Fish and Wildlife Service, Field Supervisor
34	Bryan Whitfield Hospital, CEO
35	Marengo County Fire and Rescue, Deputy Chief

Table 2 – list of entities invited to attend HMGP Meeting

There were over 30 attendees to at the Kickoff meeting representing numerous of the entities invited above. The Hazard Mitigation Planning Committee (HMPC) was formed. The committee's adopted mission statement is:

'To oversee and establish comprehensive hazard mitigation planning process that:

1. Engages public participation and support;
2. Facilitates Federal, state, regional and local coordinator
3. Constantly monitors and evaluates the potential risks of hazards to life and property;
4. Actively mobilizes all available community resources and measures to mitigate the threats of hazards; and
5. Results in programmed actions with specific results.'

At this meeting, the topics included an introduction to mitigation planning, a review of the 2010 plan, and preview of the plan update process. Each member was given a summary of the 2010 plan and asked to write down any changes to their jurisdiction's capabilities since 2010. Also, an inventory of critical infrastructure was conducted at this meeting along with identifying participants and agencies that weren't represented at the meeting. These specific participants were contacted and were asked to participate in the HMPC at the next meeting. Representatives from each of the participating jurisdictions were invited and/or represented

at each of the meetings. The jurisdiction that were represented at the meeting include the Sweetwater Volunteer Fire Department (representing both the Town of Sweetwater and Volunteer Fire Department), Brian Whitfield hospital in Demopolis, the Old Spring Hill Volunteer Fire Department, the Marengo County Sherriff's Department, the Marengo County Department of Public Health, City of Demopolis, City of Demopolis Police Department, City of Demopolis Fire Department, City of Linden, Alabama Forestry Commission, Town of Myrtlewood, Town of Thomaston, Marengo County Commission and Town of Faunsdale.

The Town of Dayton and Town of Providence did not participate. These towns are have a very small population and do not have active mayors or councils. The Marengo County EMA director maintains a good relationship with the community will contact them in regarding any emergency services.

The attendees were handed out a stakeholder survey that contained the following three questions:

1. Who should be involved in this process and is not at the kickoff meeting? The Update to the Marengo County Hazard Mitigation Plan should include all aspects- i.e. public agencies, private businesses, and non-profit organizations. Please include contact information if available.

2. What in your opinion are the vulnerable areas of Marengo County to a hazard? In other words, what should be protected?

    a. Building Stock
    b. Critical Facilities
    c. Transportation Systems
    d. Lifeline Utility Systems
    e. Communication Systems
    f. High Potential Loss Facility
    g. Hazardous Material Facility
    h. Economic Elements
    i. Historical, Environmental, and Cultural Resource Areas

3. In light of the tornadoes in April, what types of actions are necessary to improve Marengo County's response to hazard events?
    a. Prevention
    b. Property Protection
    c. Public Education and Awareness
    d. Natural Resource Protection

e. Structural Projects – Safe Rooms, Drainage Projects, Culverts, etc...

These responses were tabulated on a spreadsheet. A second meeting was held on April 2, 2015. At this meeting, the committee addressed the findings of the previous exercises and the planning team described in detail the different hazards and how their risks vary throughout Marengo County and its communities. Man-made hazards were introduced during this meeting and the committee was given a man-made hazard risk assessment exercise to fill out and return to EMA. The Risk Assessment questions are included below.

1. How concerned are you with the following disasters that will affect Marengo County?

Hurricane/Tropical Storm	1	2	3	4	5
Flood	1	2	3	4	5
Severe Weather	1	2	3	4	5
Tornadoes	1	2	3	4	5
Wildfires	1	2	3	4	5
Drought/Heat Waves	1	2	3	4	5
Winter Storm/Freeze	1	2	3	4	5
Levee Dam Failures	1	2	3	4	5
Landslides	1	2	3	4	5
Manmade Hazards	1	2	3	4	5
Other: _____	1	2	3	4	5

2. In the past 10 years, have you or your family experienced a natural disasters such as a hurricane/tropical storm, flood, tornadoes, wildfires, drought/heat wave, winter storm freezes, levee dam failure, landslide, or other?
   □ Yes □ No (If no skip to question 4.)

3. If yes, which disasters have your or your family experienced?

   □ Hurricane/Tropical Storm
   □ Severe Weather
   □ Wildfires
   □ Winter Storm/Freezes
   □ Landslides
   □ Other: _____
   □Flood
   □Tornadoes
   □ Drought/Heat Waves
   □ Levee/ Dam Failures
   □ Manmade Hazards

4. Please prioritize the likelihood of the following disasters impacting you in the next 5 years (1 – most likely – 10 – almost never)

a. Hurricane/Tropical Storm _____
b. Flood _____
c. Severe Weather _____
d. Tornadoes _____
e. Wildfires _____
f. Drought/Heat Waves _____
g. Winter Storm/Freezes _____
h. Levee Dam Failures _____
i. Landslides _____
j. Manmade Hazards _____
k. Other: _____ _____

The results from this exercise were tallied and used in the risk assessment.

The final public meeting was held on April 2, 2015 and presented the results from the risk assessment along with mitigation strategies for each participating jurisdiction. All representatives who attended the meetings were participants on committee. The consultant developed the meeting agendas following guidance provided by the Local Mitigation Plan Review Guide date October 1, 2011. The consultant developed the draft plan and it was reviewed the EMA Director (Kevin McKinney) along with other planning consultants. All meeting attendees were involved in the plan development process. Please find a detailed description below of the jurisdictions that are new, continuing, or no longer participating in the Hazard Mitigation planning process. Each chapter of the plan was reviewed and updated by the Marengo County Multi-Hazard Mitigation committee.

New Participating Jurisdictions

None.

Continuing Jurisdictions

1. Marengo County Commission
2. City of Demopolis
3. Town of Faunsdale
4. City of Linden
5. Town of Myrtlewood
6. Town of Sweet Water
7. Town of Thomaston

Jurisdictions that are no longer participating

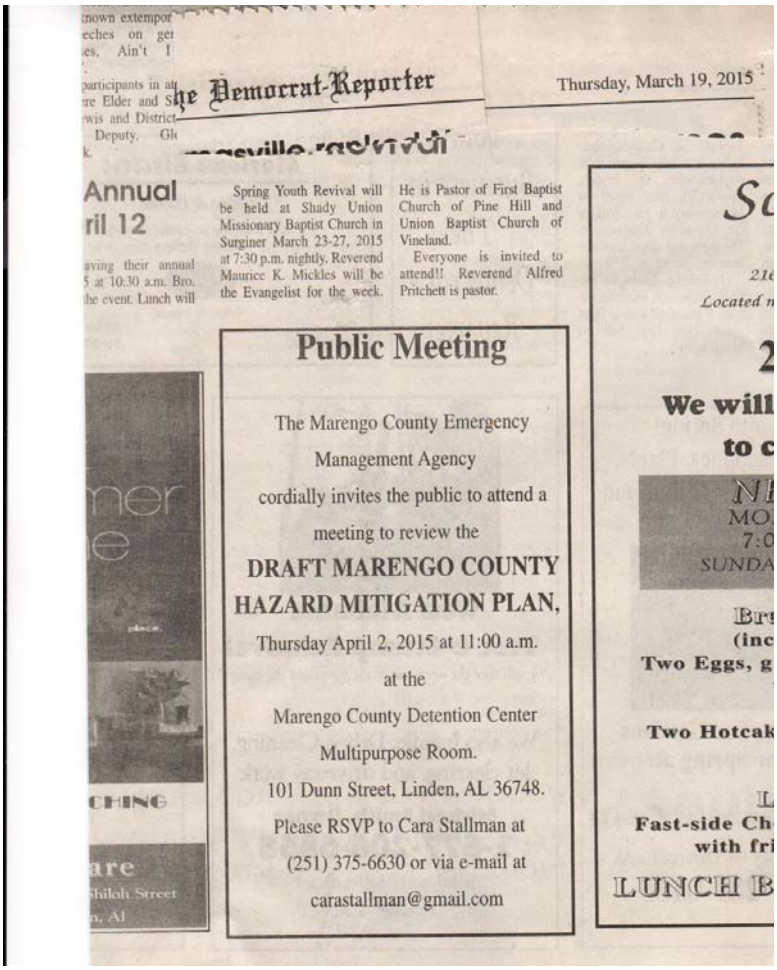
1. Town of Dayton

2. Town of Providence
   Please note the EMA Director will maintain contact with these entities as the process moves forward.

Entities Notified of the Update, but Chose Not to Participate

	Name of Organization Invited to Hazard Mitigation Kickoff Meeting on April 8, 2014
1	Alabama Cooperative Extension Service
2	Alabama Department of Environmental Management
3	Alabama National Guard
4	Alabama Power Corporation
5	Alabama Southern Community College
6	Alabama-Tombigbee Regional Planning Commission
7	American Red Cross
8	Sumter County Commission
9	Clarke County Commission
10	Mississippi Emergency Management Agency
11	Federal Emergency Management Agency
12	Choctaw County Commission
13	Marengo County Health Department
14	The Demopolis Times
15	Black Warrior Power Company
16	The Marengo County Democrat Reporter
17	Marengo County Water Authority
18	US Army Corps of Engineers, Mobile District
19	US Fish and Wildlife Service
20	Town of Dayton
21	Town of Providence

b. Public Involvement - The public was involved in every step of Marengo County's Hazard Mitigation Planning process. The HMPC solicited public input into the mitigation plan through public meetings the local news media, and social media. For each meeting, notices were posted in courthouse and City Halls throughout Marengo County. An ad was published in the Democrat Reporter on March 19 and 26 2015 advertising the Public meeting held on April 2, 2015. The public was invited to the meeting and did not attend.



Thursday, March 19, 2015

Spring Youth Revival will be held at Shady Union Missionary Baptist Church in Surginer March 23-27, 2015 at 7:30 p.m. nightly. Reverend Maurice K. Mickles will be the Evangelist for the week. He is Pastor of First Baptist Church of Pine Hill and Union Baptist Church of Vineland.

Everyone is invited to attend!! Reverend Alfred Pritchett is pastor.

Public Meeting

The Marengo County Emergency Management Agency cordially invites the public to attend a meeting to review the

DRAFT MARENGO COUNTY HAZARD MITIGATION PLAN,

Thursday April 2, 2015 at 11:00 a.m.
at the
Marengo County Detention Center
Multipurpose Room.
101 Dunn Street, Linden, AL 36748.
Please RSVP to Cara Stallman at
(251) 375-6630 or via e-mail at
carastallman@gmail.com

Figure 1. Advertisements published in Democrat Reporter in March 2015.

The Democrat-Reporter

Thursday, March 26, 2014

deceased having been granted to Joy Hamilton Nored, Lee Denver Hamilton and Nathan Kelso Hamilton, Jr., Co-Personal Representatives, on the 12th day of March, 2015, by the Honorable Laurie Shoultz Hall, Judge of Probate Court of Marengo County, Alabama, notice is hereby given that all persons having claims against said estate are hereby required to present same within the time allowed by law or the same will be barred.

This 12th day of March, 2015.

Laurie Shoultz Hall, Judge of Probate Marengo County, Alabama

Robert M. Ritchey, Esq.
Sarah S. Johnston, Esq.
Gilpin Givhan, PC

Representative

3-19-4tc

IN RE: THE ESTATE OF: DAVID W. GLOVER, DECEASED. Case Number: 15-003

Notice to Creditors

TAKE NOTICE that Letters of Testamentary having been granted to Glenda Glover Executrix of the Estate of David W. Glover, deceased, on the 6th day of March, 2015, by the Honorable Laurie S. Hall, Judge of Probate.

NOTICE IS HEREBY GIVEN that all persons having claims against the said Estate are hereby required to present the same within the time allowed by law or the same will be barred.

Glenda Glover,

East, described as commencing at the intersection of the West right-of-way of Marengo County Highway #1 and the North line of the Section, and proceed Southeastwardly along the West right-of-way for 845 feet to the POINT OF BEGINNING; thence continue along the West right-of-way in a Southeastwardly direction for 420 feet to a point; thence Southwestwardly 210 feet; thence Northwestwardly parallel to the West right-of-way of Marengo County Highway #1 for 535 feet; thence East 250 feet, more or less, to the POINT OF BEGINNING, and being a lot or parcel of land of approximately 2.3 acres in the Northwest 1/4 of Section 22, Township 17 North, Range 3 East, Marengo County, Alabama.

Reference: Marengo County

equipment or other pe
erty located upon or
nection with the abov
real property.

Deed Reference:
2010, Pages 676 et se

The proceeds of s
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indebtedness to R
BANKING COMP
charges and exper
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provided in said rea
gage to ROBERT
ING COMPANY.

DONE this the
March, 2015

ROBERTSON
COMPANY

Woodford W.
Attorney

Post Office Dra

Public Meeting

The Marengo County Emergency Management Agency cordially invites the public to attend a meeting to review the

DRAFT MARENGO COUNTY HAZARD MITIGATION PLAN,

Thursday April 2, 2015 at 11:00 a.m.

at the

Marengo County Detention Center Multipurpose Room.

101 Dunn Street, Linden, AL 36748.

Please RSVP to Cara Stallman at (251) 375-6630 or via e-mail at carastallman@gmail.com

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Figure 1. Advertisements published in Democrat Reporter in March 2015.

Last, prior to adopting the plan, each jurisdiction will hold a public hearing at each of their Commission and Council meeting. These meetings will be held after Marengo County receives its approval letter from FEMA.

c. Interagency and intergovernmental coordination – As stated in the part a above, numerous federal, state, regional and local agencies were invited to the kickoff meeting. Participation was encouraged through mailings, e-mail and follow-up phone calls. In sum, there were over 25 agencies represented through the planning process either directly or indirectly.

d. Participating jurisdictions - All jurisdictions within Marengo County have participated in the planning process by direct representation on the planning committee or through informal review. Each entity has committed to adopting the final plan by formal resolution. These jurisdictions include the municipalities of Demopolis, Linden, Myrtlewood, Sweet Water, and Thomaston. Dayton and Providence did not participate. (see attached table).

e. Integration with existing plans - This document will be incorporated into the Marengo County Emergency Operations Plan administered through the Emergency Management Agency office. Numerous other plans were identified throughout the planning process however, no plans have regulatory jurisdiction over any area countywide throughout Marengo County. For example, there are no building codes enforced in Marengo County nor any comprehensive or zoning plans. However, there are many plans that indirectly coordinate with the Marengo County Hazard Mitigation Plan. These plans were checked to make sure any of the proposed policies in the Marengo County Hazard Mitigation Plan does not conflict with these existing plans. These plans include:

- Marengo County Emergency Operations Plan
- U.S. 2010 Census
- Alabama State Data Center Population Projections 2000-2025
- NOAA and NWS records: past occurrence data
- Flood Insurance Rate Maps
- Forest Statistics for Alabama
- State of Alabama State Hazard Mitigation Plan
- Geological Hazards Information for the Geological Survey of Alabama
- Marengo County Soil Survey

f. What has been updated in this section - This section contains a variety of organizational and basic information that deals with the update process. This information had to be revised in order to document the update process. The Marengo County Commission reviewed this section and made all revisions. The revised areas include an Outlined Natural Hazards Steering Committee's involvement in update process, Outlined public involvement process in plan update, Updated Interagency and Intergovernmental Coordination Section, Updated participated jurisdictions, and updated reports and information sources that were consulted.

Jurisdiction	Representative	Title	Agency
Town of Sweetwater	Wilson R. Davis	Mayor	Town of Sweetwater
City of Demopolis	Mike Grayson	Mayor	City of Demopolis
Town of Faundsale	George Kelley	Mayor	Town of Faundsale
Town of Linden	Charles B. Moore, Jr.	Mayor	Town of Linden
Town of Myrtlewood	Jane Vick	Mayor	Town of Myrtlewood
Town of Thomaston	Jeff Laduron	Mayor	Town of Thomaston
Unincorporated Marengo County	Kevin McKinney	EMA/E911 Director	Marengo County Commission

4. Risk Assessment

a. Risk Assessment Process - This risk assessment identifies all natural hazards affecting Marengo County. It provides information on the history and extent of 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.

b. Identification of Risks - In the initial phase of the planning process, the HMPC identified potential natural hazards that could impact Marengo County. The HMPC decided to use the most of the same hazards included in the 2010 approved Hazard Mitigation Plan. There were a few hazards omitted from the 2010 plan by the HMPC as they do not pose a realistic threat to Marengo County. The omitted hazards include: Avalanche (no large snow events in Marengo County), Coastal Erosion (Marengo County is not located on the coast), Expansive Soils (although exists, there is no past history of damage in Marengo County), Land Subsidence (usually occurs in areas with carbonate substrate which isn't located in Marengo County), Tsunamis (not near ocean), and Volcanoes (no active geological activity). Each of these risks were evaluated by the HMPC and ranked based on previous experience with the hazard and probability or risk of impact by the event. This assessment resulted in the hurricanes/tropical storms and tornadoes to be the largest perceived likelihood of threat in the next 5 years. Table 3 below includes a list of each of the hazards assessed, and the percentage of HMPC members experience with the hazard and the perceived risk of the hazard in the future.

	Type of Hazard Impacting Marengo County	**HMPC Experience**	**HMPC perceived risk**
1	Hurricanes/Tropical Storms	85%	85%
2	Flood	80%	80%
3	Severe Storms	50%	71%
4	Tornadoes	25%	60%
5	Wildfire	10%	50%
6	Drought Heat Waves	10%	48%
7	Winter storms/Freezes	10%	39%
8	Levee/Dam Failures	0%	5%
9	Landslides	0%	0%
10	Earthquakes	0%	0%
11	Manmade Hazards (e.g. Oil Spills)	10%	80%

Table 3. Assessment of Perceived Risk of from Hazards

c. Federally-declared disasters - Marengo County has been included in a total of 11 federal disaster declarations from 1973 to date. Table 4 summarized the federal disaster declarations that have taken place in Marengo County since the 1970's.

	Disaster Number	**Type**	**Date of Declaration**
1	369	Tornado	4/5/1973
2	458	Flood	3/14/1975
3	3045	Drought	8/16/1977
4	3074	Flood	3/17/1979
5	578	Flood	4/18/1979
6	598	Hurricane Frederik	9/13/1979
7	861	Severe Storms	4/7/1990
8	1466	Severe Storms, Tornadoes and Flooding	5/12/2003
9	3096	Snow Storm	3/15/1993
10	1185	Severe Storm	7/25/1997
11	1250	Hurricane Georges	10/13/1998
12	1549	Hurricane Ivan	9/15/2004
13	193	Hurricane Dennis	7/10/2005
13	1605	Hurricane Katrina	8/25/2005
14	1971	Tornadoes	4/15/2011 and 4/29/2011

Table 4. Summary of Federal Disasters in Marengo County, Alabama

d. Hurricane/Tropical Storm

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. Coastal Alabama borders a part of the northern Gulf of Mexico that has a high incidence of hurricanes causing wind and water damage in Marengo County.

Though the center of Marengo County is located approximately 150 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 5 lists the major hurricanes/tropical storms that have

impacted Marengo County and Southwest Alabama over the 20 years. Damage estimates are for the entire region can be high per capital.

Hurricane Dennis made landfall on July 10, 2005 at the Santa Rosa Sound in Florida, approximately 25 miles from the Florida-Alabama state line, at this time, Alabama had already received significant rainfall from Tropical Storm Arlene and Hurricane Cindy. Because coastal Alabama was on the western side of the eye of Dennis, it was spared the worst of the storm surge; however, as much as 10 inches of rain fell in some areas causing flash flooding in inland Alabama counties, including Marengo County.

Hurricane Katrina made landfall along the Louisiana-Mississippi border on August 29, 2005, approximately 80 miles east of the Mississippi-Alabama border. Because Alabama was on the eastern side of the system, it experienced a significant storm surge (higher than in Ivan just the year before). Storm surge throughout coastal Mobile and Baldwin Counties ranged from 9-14 feet. AS Katrina moved inland, it dropped huge amounts of rain throughout causing significant flash flooding in Alabama counties, including Marengo County.

Location	Date	Type	Mag	Dth	Inj	PrD	CrD
Marengo County	07/21/1997	Hurricane Danny	N/A	0	0	25.0M	1.0M
Marengo County	09/25/1998	Hurricane Georges	N/A	1	0	174.2 M	5.0M
Marengo County	09/13/2004	Hurricane typhoon Ivan	N/A	0	0	2.5B	25.0 M
Marengo County	07/09/2005	Hurricane typhoon Dennis	N/A	0	0	120.0 M	100K
Marengo County	8/27/2005	Hurricane typhoon Dennis	N/A	0	0	0	0

Table 5: Major hurricanes/tropical storms that have impacted Marengo County and Southwest Alabama over the 20 years. Souce: NCDB database.

Community Impacts - Risks associated with coastal storms include storm tide, inland flooding, water force, wind velocity and coastal erosion. A tropical storm can also produce numerous thunderstorms and tornadoes. Marengo County is susceptible to the effects of coastal storms. Since Marengo County is inland, the primary risk is the impact of high winds, the formation of tornadoes and flooding. Ten percent of deaths in the United States associated with hurricanes are due to the tornadoes.

Impact means the consequence or effects of the hazard on people, structures, facilities, systems, capabilities, or activities. The impact of a tropical storm/hurricane can be damage to structures, facilities, utility lines from falling debris, lack of power for extended period of time, no access to remote areas due to downed trees and blocked roads, and emergencies services can be suspended, damage to infrastructure from wind (i.e. roof damage), and road damage due to localized flooding from heavy rain events. This damage can happen in each jurisdiction located within Marengo County.

Location and Extent - All areas in Marengco County vulnerable to impacts from Hurricanes and Tropical Storms. Extent is the strength or magnitude of the hazard. Extent of a hurricane can be described using the Saffir-Simpson Scale.

- Category One (Sustained winds 74-95 mph, 64-82 kt, or 119-153 km/hr). Very dangerous winds will produce some damage

- Category Two (Sustained winds 96-110 mph, 83-95 kt, or 154-177 km/hr). Extremely dangerous winds will cause extensive damage

- Category Three (Sustained winds 111-130 mph, 96-113 kt, or 178-209 km/hr).Devastating damage will occur

- Category Four (Sustained winds 131-155 mph, 114-135 kt, or 210-249 km/hr). Catastrophic damage will occur

- Category Five (Sustained winds greater than 155 mph, greater than 135 kt, or greater than 249 km/hr).Catastrophic damage will occur.

The extent for this hazard is a Category 5 hurricane leading to catastrophic damage, sustained winds, greater than 155mph, heavy flood and wind damage, loss of life, injuries, temporary loss of utilities, and timber loss.

Probability of Future Occurrences - Marengo County is highly susceptible to hurricanes and tropical storms. Based on historical data, Marengo County can expect a hurricane once every two years, or 50% of the time. Another analysis was conducted by the Atlantic Oceanographic and Meteorological Laboratory. The organization analyzed hurricane activity from 1944-1999. This study resulted in a map showing probabilities of a strike that will affect the during the hurricane season. Figure 2 depicts the results of this analysis.

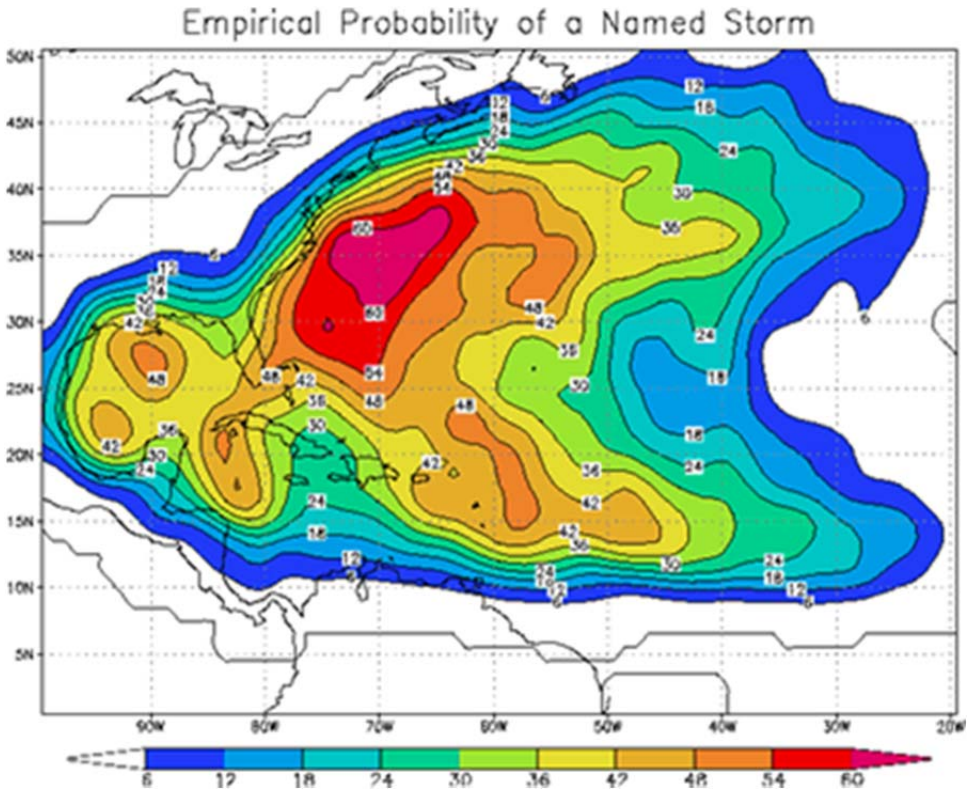


Figure 2. Empirical Probability of a Named Storm – note Marengo County is noted as having a 36% chance of being hit by a Named Storm. http://www.aoml.noaa.gov/hrd/tcfaq/G12.html

e. Flood

Hazard description - Flooding is the accumulation of water within a water body (e.g., stream, river, lake, or reservoir) and the overflow of excess water onto adjacent floodplains. Floodplains are usually lowlands adjacent to water bodies that are subject to recurring floods. Marengo County is a slight risk to moderate risk of flooding. Flooding in large rivers usually results from large-scale weather systems that generate prolonged rainfall over wide areas. Small rivers and streams are susceptible to flooding from more localized weather systems that cause intense rainfall over small areas.

"Flash flood" is a term widely used by flood experts and the general population. However, there is no single definition and method to distinguish flash flooding from riverine and other floods. For the purpose of this plan, we will define flash flooding as flooding that occurs due to localized drainage and is outside the boundaries of the FIRM floodplain.

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

Hazard History - Since 1996, there have been several major flooding events in Marengo County according to the National Climate Data Center. Table 6 lists each of these events. The NCDC Storm Events Database provides the following details on a flood event in 1996: 'Rainfall of up to eight inches caused many roads in the northwest part of the county to be closed. The storm that caused the heavy rains remained almost stationary over Marengo County for most of the morning then slowly moved southeast during the afternoon. Most of the roads that had to be closed were dirt roads. The roads remained closed into the early evening hours, associated with a hurricanes or tropical storms. Table 6 includes a list of the 13 recent flooding events in Marengo County (Source: NCDC database).

Location	County/Zone	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:							0	0	179.00K	5.00K
COUNTYWIDE	MARENGO CO.	01/07/1998	09:30	CST	Flash Flood		0	0	30.00K	5.00K
COUNTYWIDE	MARENGO CO.	03/03/2001	02:30	CST	Flash Flood		0	0	10.00K	0.00K
COUNTYWIDE	MARENGO CO.	04/07/2003	07:00	CST	Flash Flood		0	0	50.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	05/10/2003	10:00	CST	Flood		0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	05/20/2003	18:00	CST	Flood		0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	04/01/2005	00:00	CST	Flood		0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	04/06/2005	00:00	CST	Flood		0	0	0.00K	0.00K
DEMOPOLIS	MARENGO CO.	06/08/2005	21:30	CST	Flash Flood		0	0	3.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	06/12/2005	06:45	CST	Flood		0	0	0.00K	0.00K
COUNTYWIDE	MARENGO CO.	07/10/2005	19:30	CST	Flash Flood		0	0	6.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	07/11/2005	00:00	CST	Flood		0	0	5.00K	0.00K
FAUNSDALE	MARENGO CO.	03/09/2011	05:30	CST-6	Flash Flood		0	0	75.00K	0.00K
DAYTON	MARENGO CO.	07/11/2013	05:45	CST-6	Flash Flood		0	0	0.00K	0.00K

Table 6: Flooding events in Marengo County, Alabama. Sourch: www.ncdc.gov

Community Impact - Flooding caused by rainfall occurs to some extent almost every year in almost every part of Marengo County. Flooding occurs most frequently between November and April, with a peak from February through April. Alabama received more annual rainfall than any other state, creating a high potential for riverine and flash flooding in Marengo County. 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 arc 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 FIRMs. FIRMs 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.

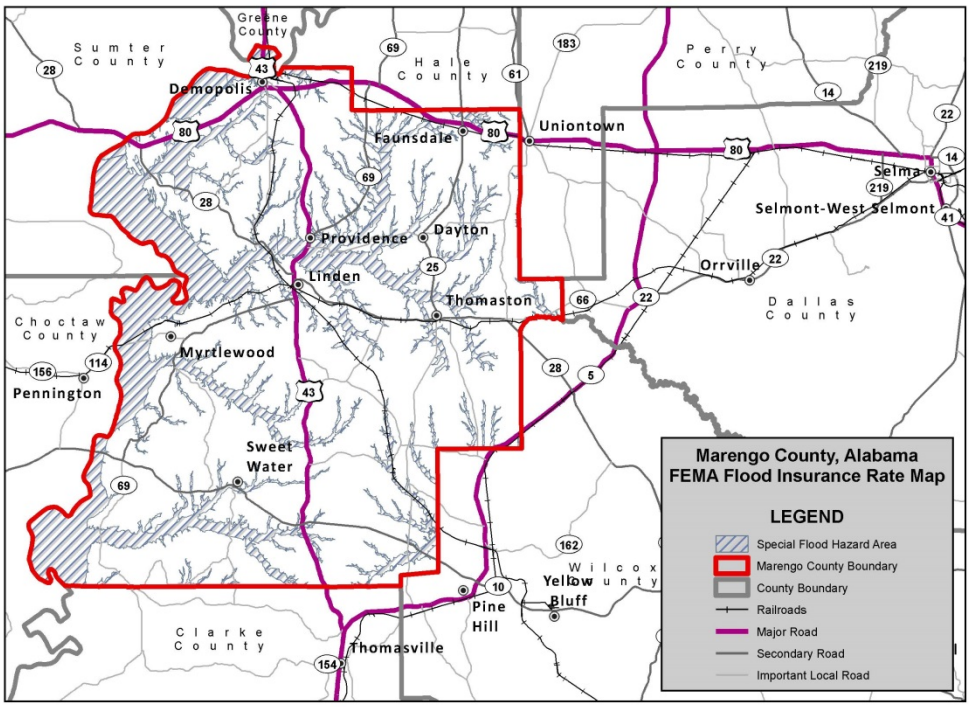
The risks associated with flash flooding are the same as riverine flooding. One clear distinction is the element of surprise. Flash flooding, as the name implies, occurs quickly and without much warning. In riverine flooding, the time and height of the crest can be accurately predicted, and warnings can be issued several hours in advance. The National Flood Insurance Program's Flood Insurance Rate Maps (FIRMs) for the county were consulted to determine if there was a flood risk. The risks associated with flash flooding are the same as riverine flooding. There are no repetitive loss properties in Marengo County.

Impact means the consequence or effects of the hazard on people, structures, facilities, systems, capabilities, or activities. The impact of flooding can be damage to houses and buildings from rising water, lack of access to remote areas due to downed trees and blocked roads, and emergencies services can be suspended. This damage can happen in each jurisdiction located within Marengo County.

Location and Extent - Most flooding occurs within the Tombigbee River floodplain, which runs along the western boundary of the County. Further, the Town of Providence is largely within a FEMA-designated flood zone. Faunsdale, Myrtlewood, Dayton, Sweetwater, Linden and Thomaston have little or no flood areas. Approximately 15% of the City of Demopolis is located in flood-prone areas and the Town of Providence is almost entirely located within a flood zone. There are very little populated areas located within a flood zone in unincorporated Marengo County.

Marengo County has experienced some flood damages, however due to the rural nature of County, flooding is not a major problem. Most flooding is of flash type, along streams and tributaries. Flooding and heavy rain both have also been known to cause major road damage. Floodwaters that cover the surface of the road often result in the base of the road washing away and surface asphalt cracking or failing. Failure of the roads can lead to utility damages. As shown by the flood in 1998, Marengo County is susceptible to major damage from flooding. 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 location of flood-prone areas are located within the 100-year

floodplain as determined by the FEMA flood maps. The date of the most recent published FIRM maps is September 3, 2010. Map 6 is a map of the most recent 100-year floodplain data.



Map 6. Marengo County Special Flood Hazard Area (100-year floodplain)

Extent – The extent of flood in Marengo County is measured by intensity and volume of rainfall in conjunction with the height at the Demopolis Lock and Dam. The extent of a flodd is up to 7-8 feet of water leading to road closures, property damage, injury and loss of life.

Probability of Future Occurrences - Marengo County experienced 13 flash flood and flood events over a 16 year period. This results in a probability of a flooding event once every 1-2 years. Based on the flood events since 1996 contained in the Storm Events Database, Marengo County may expect about 0.6 flash or riverine floods per year. Average annual damages are estimated at $4,300. Although we can extract data and probability of occurrence from historical information, they do not necessarily predict future occurrences.

f. Severe Storms

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. All severe thunderstorms contain intense lightning and straight-line or downburst winds that can be extremely strong and concentrated. Falling rain and sinking air create these winds that can reach speeds as high as 125 mph.

Hazard History – The storm events database contains listing of storms with hail, thunderstorm wind, and lighting. Since 1950 there have been numerous reports of these types of storms. Table 7, Table 8 and Table 9 include summaries of these events in Marengo County.

Since 1973, there have been over 62 hail events resulting in over $1.32 million damage to crops and property.

Location	County/Zone	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:							0	0	124.00K	4.00K
MARENGO CO.	MARENGO CO.	05/25/1973	16:20	CST	Hail	1.75 in.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	04/18/1978	14:00	CST	Hail	4.00 in.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	06/07/1981	14:15	CST	Hail	1.75 in.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	05/18/1986	15:12	CST	Hail	0.75 in.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	08/20/1986	18:24	CST	Hail	0.88 in.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	04/23/1988	11:00	CST	Hail	0.75 in.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	11/04/1988	18:25	CST	Hail	0.75 in.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	04/04/1989	13:00	CST	Hail	1.75 in.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	04/04/1989	14:00	CST	Hail	0.75 in.	0	0	0.00K	0.00K
Linden	MARENGO CO.	07/09/1995	12:00	CST	Hail	0.75 in.	0	0	0.00K	0.00K
LINDEN	MARENGO CO.	02/19/1996	15:10	CST	Hail	in.	0	0	0.00K	0.00K
SWEET WATER	MARENGO CO.	01/07/1998	07:20	CST	Hail	0.75 in.	0	0	0.00K	0.00K
SWEET WATER	MARENGO	05/03/1998	13:25	CST	Hail	1.75	0	0	10.00K	4.00K

	CO.					in.				
THOMASTON	MARENGO CO.	05/03/1998	14:30	CST	Hail	0.75 in.	0	0	0.00K	0.00K
SWEET WATER	MARENGO CO.	06/16/1998	14:01	CST	Hail	0.75 in.	0	0	0.00K	0.00K
MYRTLEWOOD	MARENGO CO.	04/24/1999	15:45	CST	Hail	0.75 in.	0	0	0.00K	0.00K
DIXONS MILLS	MARENGO CO.	04/02/2000	15:52	CST	Hail	1.75 in.	0	0	0.00K	0.00K
DEMOPOLIS	MARENGO CO.	04/03/2000	11:55	CST	Hail	0.75 in.	0	0	0.00K	0.00K
MYRTLEWOOD	MARENGO CO.	06/22/2000	11:15	CST	Hail	1.00 in.	0	0	0.00K	0.00K
MYRTLEWOOD	MARENGO CO.	04/04/2001	06:00	CST	Hail	0.75 in.	0	0	0.00K	0.00K
SWEET WATER	MARENGO CO.	05/27/2001	18:25	CST	Hail	1.25 in.	0	0	0.00K	0.00K
JEFFERSON	MARENGO CO.	11/24/2001	11:58	CST	Hail	1.00 in.	0	0	0.00K	0.00K
LINDEN	MARENGO CO.	08/03/2002	15:33	CST	Hail	0.75 in.	0	0	0.00K	0.00K
DEMOPOLIS	MARENGO CO.	03/14/2003	18:50	CST	Hail	0.75 in.	0	0	0.00K	0.00K
FAUNSDALE	MARENGO CO.	04/25/2003	14:52	CST	Hail	0.75 in.	0	0	0.00K	0.00K
DIXONS MILLS	MARENGO CO.	04/25/2003	16:22	CST	Hail	1.75 in.	0	0	26.00K	0.00K
SWEET WATER	MARENGO CO.	05/02/2003	15:00	CST	Hail	0.75 in.	0	0	0.00K	0.00K
FAUNSDALE	MARENGO CO.	05/02/2003	15:35	CST	Hail	2.00 in.	0	0	75.00K	0.00K
SWEET WATER	MARENGO CO.	05/03/2003	07:05	CST	Hail	1.00 in.	0	0	0.00K	0.00K
DEMOPOLIS	MARENGO CO.	07/21/2003	17:05	CST	Hail	0.75 in.	0	0	0.00K	0.00K
DEMOPOLIS MUNI ARPT	MARENGO CO.	10/19/2004	14:04	CST	Hail	0.88 in.	0	0	0.00K	0.00K
MYRTLEWOOD	MARENGO CO.	10/19/2004	16:44	CST	Hail	0.75 in.	0	0	0.00K	0.00K
DIXONS MILLS	MARENGO	02/22/2005	18:20	CST	Hail	2.00	0	0	8.00K	0.00K

	CO.					in.				
SWEET WATER	MARENGO CO.	03/26/2005	19:11	CST	Hail	0.75 in.	0	0	0.00K	0.00K
THOMASTON	MARENGO CO.	03/30/2005	21:58	CST	Hail	0.75 in.	0	0	0.00K	0.00K
SWEET WATER	MARENGO CO.	03/31/2005	03:42	CST	Hail	0.75 in.	0	0	0.00K	0.00K
DAYTON	MARENGO CO.	04/21/2005	18:53	CST	Hail	1.00 in.	0	0	1.00K	0.00K
FAUNSDALE	MARENGO CO.	04/21/2005	19:38	CST	Hail	0.75 in.	0	0	1.00K	0.00K
LINDEN	MARENGO CO.	04/21/2005	21:08	CST	Hail	0.88 in.	0	0	1.00K	0.00K
JEFFERSON	MARENGO CO.	04/22/2005	17:20	CST	Hail	1.75 in.	0	0	2.00K	0.00K
LINDEN	MARENGO CO.	05/09/2006	14:35	CST	Hail	1.00 in.	0	0	0.00K	0.00K
LINDEN	MARENGO CO.	05/10/2006	13:45	CST	Hail	0.75 in.	0	0	0.00K	0.00K
LASCA	MARENGO CO.	03/01/2007	11:35	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
DEMOPOLIS	MARENGO CO.	04/11/2007	13:40	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
DEMOPOLIS	MARENGO CO.	04/11/2007	13:55	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
FAUNSDALE	MARENGO CO.	02/18/2009	16:33	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
LINDEN	MARENGO CO.	02/18/2009	17:49	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
DEMOPOLIS	MARENGO CO.	02/27/2009	18:21	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
ALLENVILLE	MARENGO CO.	02/27/2009	18:28	CST-6	Hail	2.75 in.	0	0	0.00K	0.00K
DEMOPOLIS MUNI ARPT	MARENGO CO.	05/21/2010	13:50	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
DEMOPOLIS	MARENGO CO.	05/21/2010	14:00	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
LINDEN	MARENGO CO.	05/21/2010	14:30	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
JEFFERSON	MARENGO	10/24/2010	18:43	CST-	Hail	1.00	0	0	0.00K	0.00K

	CO.			6		in.				
LINDEN	MARENGO CO.	10/24/2010	18:45	CST-6	Hail	2.75 in.	0	0	0.00K	0.00K
LINDEN	MARENGO CO.	04/11/2011	18:43	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
MYRTLEWOOD	MARENGO CO.	04/15/2011	16:00	CST-6	Hail	4.25 in.	0	0	0.00K	0.00K
MYRTLEWOOD	MARENGO CO.	04/15/2011	16:17	CST-6	Hail	2.75 in.	0	0	0.00K	0.00K
HALF ACRE	MARENGO CO.	04/15/2011	16:17	CST-6	Hail	2.50 in.	0	0	0.00K	0.00K
SWEET WATER	MARENGO CO.	06/10/2011	16:41	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
LEVY	MARENGO CO.	03/23/2013	19:38	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
MYRTLEWOOD	MARENGO CO.	04/06/2014	16:14	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
OCTAGON	MARENGO CO.	07/02/2014	16:35	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
Totals:							0	0	124.00K	4.00K

Table 7. Hail storms in Marengo County, Alabama (source: NCDC Database)

MARENGO CO.	MARENGO CO.	03/06/1967	15:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	08/01/1967	16:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	08/24/1968	13:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	06/21/1969	21:15	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	03/25/1971	14:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	05/08/1973	04:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	03/21/1974	01:20	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	02/12/1984	16:20	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO	05/03/1984	11:07	CST	Thunderstorm	0	0	0	0.00K	0.00K

	CO.				Wind	kts.				
MARENGO CO.	MARENGO CO.	04/05/1985	16:45	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	02/04/1986	17:55	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	11/04/1988	18:08	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	04/05/1989	17:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	02/10/1990	02:05	CST	Thunderstorm Wind	65 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	05/12/1990	18:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	06/22/1990	17:55	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	08/20/1990	18:20	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	03/29/1991	07:25	CST	Thunderstorm Wind	0 kts.	0	1	0.00K	0.00K
MARENGO CO.	MARENGO CO.	03/18/1992	17:00	PST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	08/27/1992	07:00	PST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MARENGO CO.	MARENGO CO.	11/21/1992	16:40	PST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Demopolis	MARENGO CO.	03/09/1994	13:00	CST	Thunderstorm Wind	0 kts.	0	0	50.00K	0.00K
Sweetwater	MARENGO CO.	01/06/1995	13:15	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Jefferson	MARENGO CO.	01/06/1995	13:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Providence	MARENGO CO.	03/07/1995	14:40	CST	Thunderstorm Wind	0 kts.	0	0	18.00K	0.00K
MARENGO CO.	MARENGO CO.	04/20/1995	23:45	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Jefferson	MARENGO CO.	04/20/1995	23:45	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Demopolis	MARENGO CO.	05/15/1995	18:10	CST	Thunderstorm Wind	0 kts.	0	0	5.00K	0.00K
MARENGO CO.	MARENGO	05/15/1995	18:55	CST	Thunderstorm	0	0	0	8.00K	0.00K

	CO.				Wind	kts.				
Demopolis	MARENGO CO.	05/18/1995	17:44	CST	Thunderstorm Wind	0 kts.	0	0	0.20K	0.00K
Myrtlewood	MARENGO CO.	07/09/1995	11:40	CST	Thunderstorm Wind	0 kts.	0	0	5.00K	0.00K
Sweetwater	MARENGO CO.	07/09/1995	12:00	CST	Thunderstorm Wind	0 kts.	0	0	4.00K	0.00K
LINDEN	MARENGO CO.	04/22/1996	23:45	CST	Thunderstorm Wind	50 kts.	0	0	10.00K	0.00K
THOMASTON	MARENGO CO.	02/21/1997	08:35	CST	Thunderstorm Wind	55 kts.	0	0	15.00K	0.00K
DEMOPOLIS	MARENGO CO.	04/22/1997	13:20	CST	Thunderstorm Wind	50 kts.	0	0	5.00K	0.00K
SWEET WATER	MARENGO CO.	04/22/1997	16:15	CST	Thunderstorm Wind	50 kts.	0	0	5.00K	0.00K
SWEET WATER	MARENGO CO.	01/07/1998	07:20	CST	Thunderstorm Wind	50 kts.	0	0	3.00K	0.00K
LINDEN	MARENGO CO.	06/05/1998	14:15	CST	Thunderstorm Wind	50 kts.	0	0	5.00K	0.00K
DEMOPOLIS	MARENGO CO.	06/15/1998	18:55	CST	Thunderstorm Wind	50 kts.	0	0	10.00K	0.00K
DIXONS MILLS	MARENGO CO.	04/15/1999	01:00	CST	Thunderstorm Wind	55 kts.	0	0	2.00K	0.00K
SWEET WATER	MARENGO CO.	06/24/1999	01:45	CST	Thunderstorm Wind	50 kts.	0	0	3.00K	0.00K
COUNTYWIDE	MARENGO CO.	07/07/1999	17:00	CST	Thunderstorm Wind	50 kts.	0	0	20.00K	0.00K
DIXONS MILLS	MARENGO CO.	03/19/2000	14:30	CST	Thunderstorm Wind	55 kts. E	0	0	5.00K	0.00K
DIXONS MILLS	MARENGO CO.	04/02/2000	15:52	CST	Thunderstorm Wind	60 kts. E	0	0	20.00K	0.00K
DEMOPOLIS	MARENGO CO.	07/20/2000	14:45	CST	Thunderstorm Wind	55 kts. E	0	0	0.00K	0.00K
DEMOPOLIS	MARENGO CO.	07/20/2000	14:55	CST	Thunderstorm Wind	60 kts. E	0	2	10.00K	0.00K
THOMASTON	MARENGO	12/16/2000	13:15	CST	Thunderstorm	50	0	0	8.00K	0.00K

	CO.				Wind	kts. E				
LINDEN	MARENGO CO.	01/29/2001	15:40	CST	Thunderstorm Wind	55 kts. E	0	0	3.00K	0.00K
SWEET WATER	MARENGO CO.	02/25/2001	01:15	CST	Thunderstorm Wind	75 kts. E	0	0	15.00K	0.00K
SWEET WATER	MARENGO CO.	05/27/2001	18:25	CST	Thunderstorm Wind	55 kts. E	0	0	15.00K	0.00K
SHILOH	MARENGO CO.	05/27/2001	18:40	CST	Thunderstorm Wind	50 kts. E	0	0	3.00K	0.00K
PUTNAM	MARENGO CO.	08/17/2001	19:46	CST	Thunderstorm Wind	50 kts. E	0	0	2.00K	0.00K
SWEET WATER	MARENGO CO.	08/25/2002	13:45	CST	Thunderstorm Wind	50 kts. E	0	0	3.00K	0.00K
FAUNSDALE	MARENGO CO.	02/15/2003	20:53	CST	Thunderstorm Wind	50 kts. EG	0	0	9.00K	0.00K
FAUNSDALE	MARENGO CO.	04/07/2003	02:30	CST	Thunderstorm Wind	50 kts. EG	0	0	6.00K	0.00K
DEMOPOLIS	MARENGO CO.	04/07/2003	05:00	CST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
SWEET WATER	MARENGO CO.	05/03/2003	07:05	CST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
DEMOPOLIS	MARENGO CO.	07/21/2003	17:05	CST	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
JEFFERSON	MARENGO CO.	07/21/2003	17:40	CST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
DEMOPOLIS	MARENGO CO.	01/13/2005	10:20	CST	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
DEMOPOLIS	MARENGO CO.	03/07/2005	18:05	CST	Thunderstorm Wind	52 kts.	0	0	0.00K	0.00K

						MG				
MYRTLEWOOD	MARENGO CO.	04/30/2005	03:35	CST	Thunderstorm Wind	55 kts. EG	0	0	4.00K	0.00K
LINDEN	MARENGO CO.	04/30/2005	04:26	CST	Thunderstorm Wind	52 kts. EG	0	0	4.00K	0.00K
COUNTYWIDE	MARENGO CO.	05/20/2005	14:50	CST	Thunderstorm Wind	54 kts. EG	0	0	23.00K	0.00K
JEFFERSON	MARENGO CO.	05/20/2005	18:35	CST	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
COUNTYWIDE	MARENGO CO.	05/29/2005	14:25	CST	Thunderstorm Wind	55 kts. EG	0	0	50.00K	0.00K
DEMOPOLIS	MARENGO CO.	05/29/2006	14:30	CST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
SWEET WATER	MARENGO CO.	08/05/2006	16:05	CST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
LINDEN	MARENGO CO.	08/15/2006	15:30	CST	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
SWEET WATER	MARENGO CO.	08/21/2006	16:14	CST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
FAUNSDALE	MARENGO CO.	11/30/2006	21:52	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
DEMOPOLIS	MARENGO CO.	04/11/2007	13:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
LINDEN	MARENGO CO.	07/10/2007	16:47	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
SHORTLEAF	MARENGO CO.	06/17/2008	14:00	CST-6	Thunderstorm Wind	40 kts. EG	0	0	2.00K	0.00K
LINDEN	MARENGO CO.	06/28/2008	17:43	CST-6	Thunderstorm Wind	39 kts. EG	0	0	0.50K	0.00K

LINDEN	MARENGO CO.	05/03/2009	12:11	CST-6	Thunderstorm Wind	60 kts. EG	0	1	50.00K	0.00K
JEFFERSON	MARENGO CO.	10/09/2009	13:53	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
SHORTLEAF	MARENGO CO.	04/24/2010	10:05	CST-6	Thunderstorm Wind	62 kts. MG	0	0	5.00K	0.00K
LEVY	MARENGO CO.	04/04/2011	19:05	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
SWEET WATER	MARENGO CO.	04/04/2011	19:05	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
LINDEN	MARENGO CO.	08/18/2012	17:07	CST-6	Thunderstorm Wind	70 kts. EG	0	0	0.00K	0.00K
SHORTLEAF	MARENGO CO.	03/23/2013	18:13	CST-6	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
SHORTLEAF	MARENGO CO.	06/17/2013	12:36	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALLENVILLE	MARENGO CO.	06/17/2013	12:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
DEMOPOLIS	MARENGO CO.	07/23/2013	13:30	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
HUGO	MARENGO CO.	04/06/2014	16:28	CST-6	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
JEFFERSON	MARENGO CO.	07/02/2014	16:25	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
SPOCARI	MARENGO CO.	10/13/2014	13:18	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Totals:							0	4	468.70K	0.00K

Table 8. High wind events from thunderstorms in Marengo County, Alabama (source: NCDC Database)

Since 1994, there have been 2 major events resulting in damage from lightning. These damages have resulted in over 150,000 in damage to property. Table 9 lists the events as described in the NGDC database.

Totals:						0	1	150.00K	0.00K
DEMOPOLIS	MARENGO CO.	07/09/2003	20:45	CST	Lightning	0	0	150.00K	0.00K
LINDEN	MARENGO CO.	06/23/2004	14:15	CST	Lightning	0	1	0.00K	0.00K
Totals:						0	1	150.00K	0.00K

Table 9. Lightning events in Marengo County since 1994 (source: NCDC Database)

Community Impact - Since 1975 Marengo County has experienced 168 severe thunderstorms. Large hail, though very rare, can cause injury or loss of life. Normally it only causes damage to automobiles, trees and crops. Both lightning and high winds frequently cause loss of life and considerable property damage. The power of lightning's electrical charge and intense heat can electrocute on contact, split trees, ignite fires, and cause electrical failures.

Impact means the consequence or effects of the hazard on people, structures, facilities, systems, capabilities, or activities. The impact of severe storms can be damage to houses and buildings from wind, lack of access to remote areas due to downed trees and blocked roads, and emergencies services can be suspended. Utility lines can be damaged causing a lack of power. This damage can happen in each jurisdiction located within Marengo County.

Location and Extent – All of Marengo County is vulnerable to severe storms with strong winds, hail and/or lightning. Thunderstorms are classified by NOAA as Single cell, multi cell, Severe, and Supercell. A “severe thunderstorm” is by definition winds in excess of 50 knots (about 55 MPH) and/or hail .75 inches (some say 1 inch) in diameter, inches of rain. So if they define what a severe thunderstorm is, then that would be the “at least” extent. Winds up to 250 mph (Wind Zone IV), Hail up to H10 on TORRO Scale (melon size), Large hail, wind damage, property damage, crop loss, death, and injury.

Probability of Future Occurrences: The historical occurrence and expected future occurrences of these events has led the county to rank severe storms as a high risk. The probability of a

severe thunderstorm occurring depends on certain atmospheric and climatic conditions. Based on the number of damage- causing severe storms since 1994 contained in the Storm Events Database, Marengo County can expect approximately four instances of lightning-, straight-line wind- or hail-induced damage per year. Average annual damages from severe storm events are estimated at $108,000. 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.

g. 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. 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. The National Weather Service defines a tornado as, "A violently rotating column of air in contact with the ground and extending from the base of a thunderstorm.

Hazard History – There have been several tornados that have occurred in Marengo County. The earliest damage-causing event on record occurred in 1956 and the most recent occurred in 2011. Tornado magnitudes are measured on the enhanced Fujita Scale. Figure 3 is a depiction of the original and enhanced Fujita scale.

ORIGINAL FUJITA SCALE		ENHANCED FUJITA SCALE	
F5	261-318 mph	EF5	+200 mph
F4	207-260 mph	EF4	166-200 mph
F3	158-206 mph	EF3	136-165 mph
F2	113-157 mph	EF2	111-135 mph
F1	73-112 mph	EF1	86-110 mph
F0	<73 mph	EF0	65-85 mph

Figure 3. Original and Enhance Fujita Scale for U.S. tornadoes. Source: FEMA

Table 10 includes a list of all the tornadoes greater than F0 that have occurred in Marengo County since 1961. There are 22 events that have caused damage to property and/or crops.

Location	County/Zone	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:							1	12	26.736M	0.00K
MARENGO CO.	MARENGO CO.	02/20/1961	18:00	CST	Tornado	F1	0	2	25.00K	0.00K
MARENGO CO.	MARENGO CO.	01/04/1972	03:15	CST	Tornado	F2	0	0	250.00K	0.00K
MARENGO CO.	MARENGO CO.	05/07/1973	13:40	CST	Tornado	F1	0	0	25.00K	0.00K
MARENGO CO.	MARENGO CO.	01/10/1975	14:45	CST	Tornado	F1	0	0	2.50K	0.00K
MARENGO CO.	MARENGO CO.	03/12/1976	20:27	CST	Tornado	F2	0	1	250.00K	0.00K
MARENGO CO.	MARENGO CO.	11/27/1983	13:00	CST	Tornado	F1	0	0	25.00K	0.00K
MARENGO CO.	MARENGO CO.	02/02/1988	18:00	CST	Tornado	F1	0	0	25.00K	0.00K
MARENGO CO.	MARENGO CO.	05/24/1988	17:00	CST	Tornado	F1	0	0	0.00K	0.00K
DIXONS MILLS	MARENGO CO.	01/09/2000	23:05	CST	Tornado	F1	0	0	500.00K	0.00K
DIXONS MILLS	MARENGO CO.	10/13/2001	12:35	CST	Tornado	F1	0	0	40.00K	0.00K
MYRTLEWOOD	MARENGO CO.	11/24/2001	12:56	CST	Tornado	F0	0	0	4.00K	0.00K
LINDEN	MARENGO CO.	02/15/2003	20:36	CST	Tornado	F1	0	0	90.00K	0.00K
MYRTLEWOOD	MARENGO CO.	05/07/2003	16:31	CST	Tornado	F0	0	0	1.00K	0.00K
THOMASTON	MARENGO CO.	11/24/2004	04:10	CST	Tornado	F2	0	2	135.00K	0.00K
THOMASTON	MARENGO CO.	11/24/2004	04:43	CST	Tornado	F0	0	0	10.00K	0.00K
LINDEN	MARENGO CO.	05/10/2006	13:44	CST	Tornado	F1	0	0	24.00K	0.00K

SHORTLEAF	MARENGO CO.	11/30/2006	21:19	CST-6	Tornado	F1	0	0	500.00K	0.00K
MARENGO	MARENGO CO.	01/10/2008	13:08	CST-6	Tornado	EF0	0	0	100.00K	0.00K
DEMOPOLIS	MARENGO CO.	01/10/2008	16:08	CST-6	Funnel Cloud		0	0	0.00K	0.00K
DEMOPOLIS	MARENGO CO.	04/24/2010	10:19	CST-6	Tornado	EF1	0	0	110.00K	0.00K
NANAFALIA	MARENGO CO.	04/15/2011	11:10	CST-6	Tornado	EF1	0	0	0.00K	0.00K
NANAFALIA	MARENGO CO.	04/15/2011	16:04	CST-6	Tornado	EF3	1	4	3.990M	0.00K
ANOPIA	MARENGO CO.	04/15/2011	16:19	CST-6	Tornado	EF2	0	0	1.020M	0.00K
LINDEN MUNI ARPT	MARENGO CO.	04/15/2011	16:35	CST-6	Tornado	EF2	0	0	1.830M	0.00K
NANAFALIA	MARENGO CO.	04/15/2011	17:38	CST-6	Tornado	EF2	0	0	3.480M	0.00K
MYRTLEWOOD	MARENGO CO.	04/27/2011	18:54	CST-6	Tornado	EF2	0	3	14.000M	0.00K
SHORTLEAF	MARENGO CO.	11/16/2011	07:32	CST-6	Tornado	EF0	0	0	300.00K	0.00K
EXMOOR	MARENGO CO.	12/25/2012	15:15	CST-6	Tornado	EF1	0	0	0.00K	0.00K
SPOCARI	MARENGO CO.	12/25/2012	17:50	CST-6	Tornado	EF1	0	0	0.00K	0.00K
Totals:							1	12	26.736M	0.00K

Table 10. Tornadoes in Marengo County, Alabama. (source: NCDC Database)

According to the database, a total of 22 tornado events have caused 1 deaths, 12 injuries and approximately $23.76 million in property damage in the county since 1956. The worst tornado to strike the county was an EF3 in April 2011 that caused 1 death 4 injuries and $17.4 million in damages. The tornado crossed into western Marengo County south of Old Locke 3 Rd and continued to cause significant tree damage as it tracked northeastward. The tornado crossed AL Hwy 28 south of Pin Hook and US Hwy 43 north of Chickasaw State Park. The tornado continued northeast through the Faunsdale area where it significantly damaged or destroyed several outbuildings and homes. At least 3 injuries occurred along Nash Rd. The tornado crossed US Hwy 80 and into Perry County north of CR 26.

There was also a EF2 to hit the same year on April 15, 2011. National Weather Service meteorologists surveyed the damage near Nanafalia. Winds were estimated at 100 mph. There were several eyewitness accounts of the tree and minor roof damage, where several hardwood trees were uprooted and many softwoods were snapped off. The tornado damage path was 4.21 miles long and was 60 yards wide at its widest point. This tornado started in Choctaw County Alabama, south southwest of Butler. It was on the ground for almost 5 miles before it crossed into Marengo County. The damage in Marengo County was mainly to trees. Therefore, the total tornado damage path was 9.18 miles long. The tornado was 200 yards wide at its widest point in Marengo County. The highest damage rating was an EF-1 in both counties.

A tornado touched down in Marengo County just west of County Road 90 in a rural setting. The tornado moved northeast and snapped or uprooted dozens of trees. As the tornado crossed State Highway 69 just south of Myrtlewood, it strengthened to an EF-3 rating, with maximum winds of 150 mph. Several dozen mobile homes were heavily damage or destroyed, resulting in 1 fatality. In the community of Hilltop, several more mobile homes were destroyed, resulting in 4 injuries. The tornado continued to move northeast where it snapped and uprooted many more trees. It lifted after it crossed State Highway 28, northwest of Linden. The tornado had a slight left turn to its path.

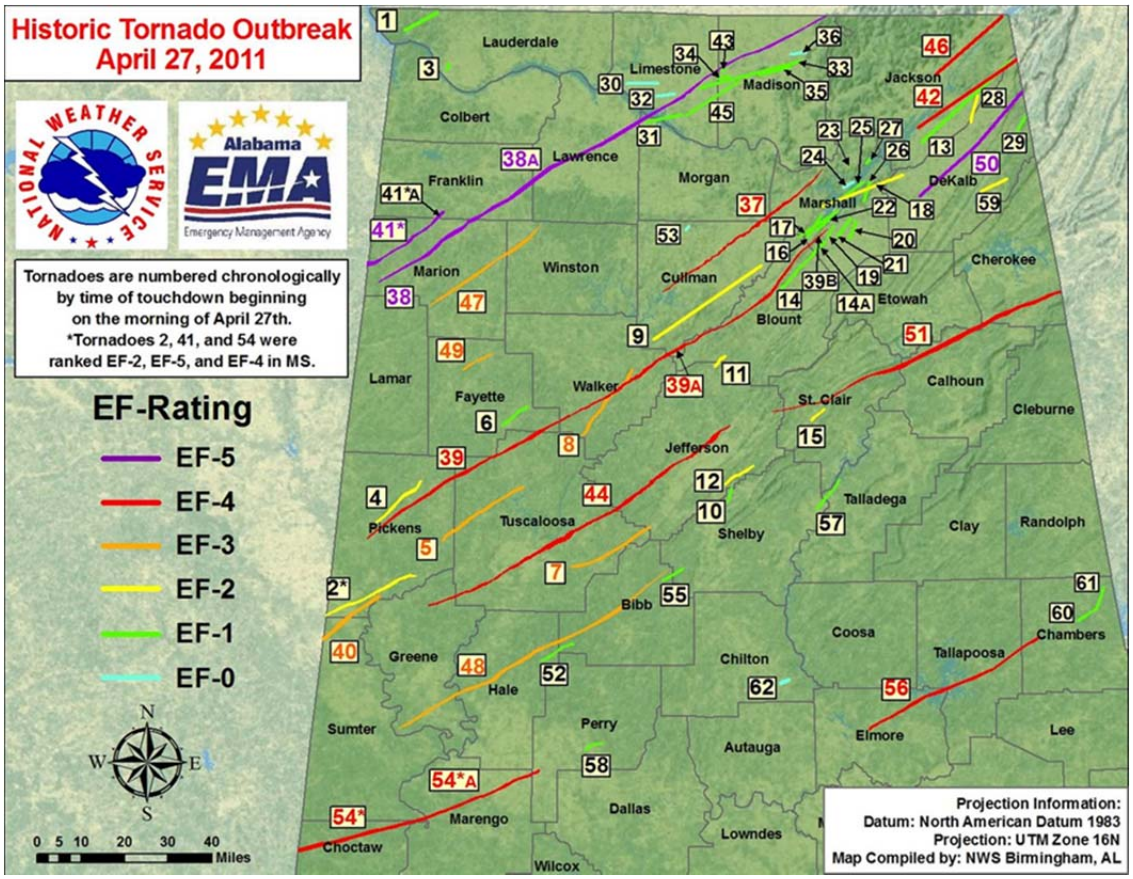


Figure 4. Historical Tornado Tracks in Marengo County

Community Impact - 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.

Impact means the consequence or effects of the hazard on people, structures, facilities, systems, capabilities, or activities. The impact of tornadoes can be damage to houses and buildings from wind, lack of access to remote areas due to downed trees and blocked roads, and emergencies services can be suspended. Utility lines can be damaged causing a lack of power. This damage can happen in each jurisdiction located within Marengo County.

Location and Extent - Paths of tornadoes within a 20-mile radius of the center of Marengo County since 1950 have originated in the west and moved toward the east. The entire county is equally susceptible to damage from tornadoes. According to the National Weather Service, Marengo County's extent is an EF3. The Enhanced Fujita Scale is referenced above and it could include extensive property damage possible, death, and injury.

Probability of Future Occurrences - The occurrence of tornadoes cannot be predicted, but past occurrences and basic weather patterns can be used to identify areas that are more

susceptible. Based on the information available from the Storm Events Database, it appears the county may expect a damage-causing tornado once every 5.5 years. A death- or injury-causing tornado has occurred, on average, once every 18 and 3.5 years, respectively. Average annual damages are estimated at $74,000 per year. 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. Figure 6 shows the number of tornadoes that have occurred per one thousand square miles. Marengo County falls within the one to five tornadoes per one thousand square miles range.

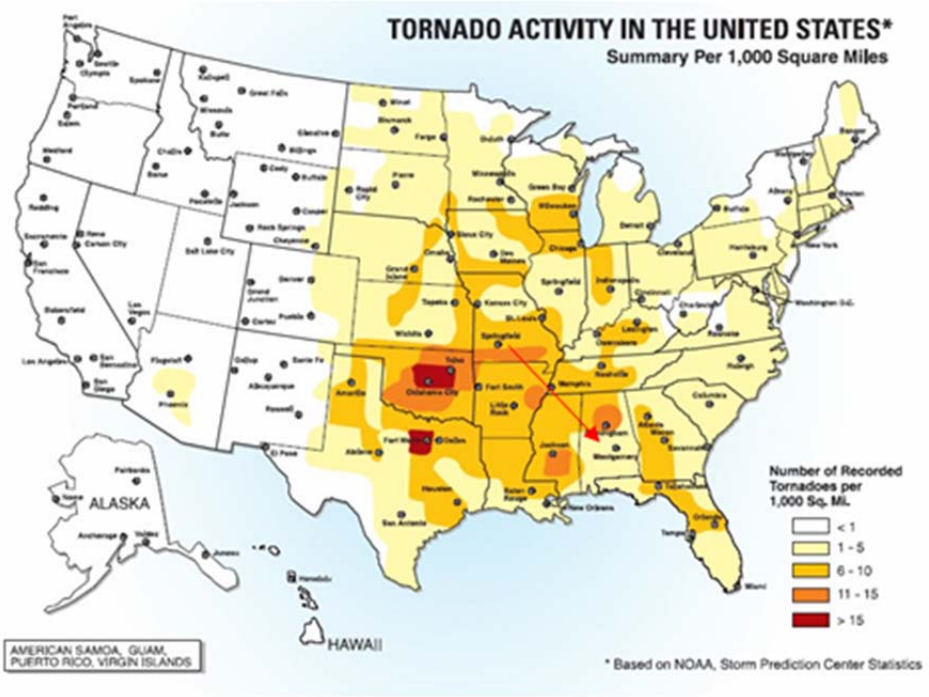


Figure 5. Tornadoes per 1,000 square miles. Source: http://www.fema.gov/pdf/library/2ismsec1.pdf

The United States Wind Zone map (Figure 7) shows how intense and frequent strong winds occur across the United States. Marengo County is located in Wind Zone II, which has a design wind speed of 200 miles per hour. Design wind speed is the wind speed that homes should be constructed to withstand. Locations within this zone have had the medium intensity and frequency of tornadoes and strong winds. Due to the county's historical occurrences, climate, and location the committee considers tornadoes a high risk hazard.

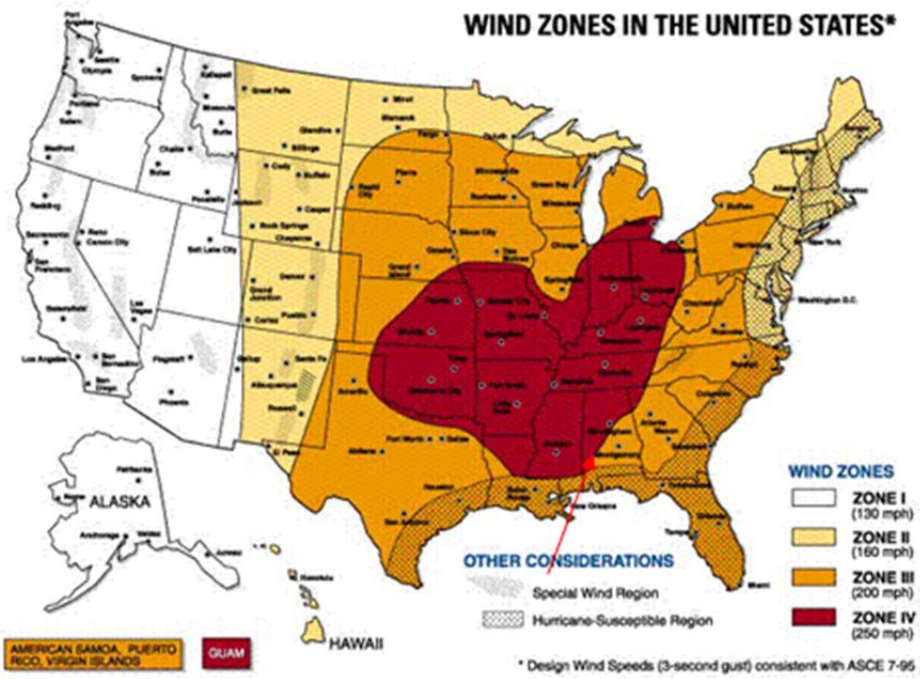


Figure 6. Wind Zones in the United States – Note Marengo County is in Zone III.
Source: Federal Emergency Management Agency:
http://www.fema.gov/graphics/fima/tsfsm01.gif

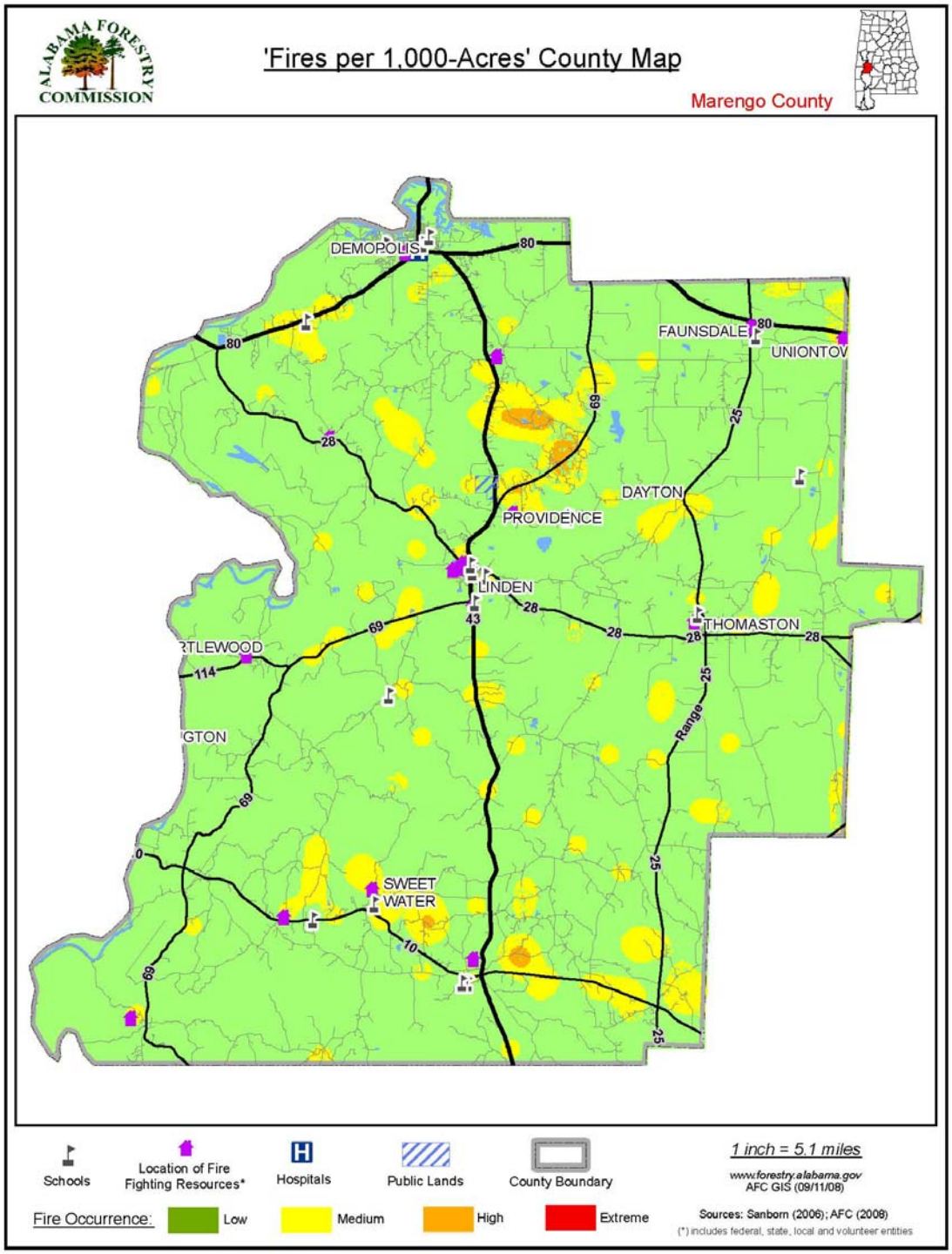
Extent – Tornado Intensity is measured using the Fujita-Pearson Scale of Torndo Intensity .

F0	40-72 mph	Gale tornado -- Light damage. Some damage to chimneys; break branches off trees; push over shallow-rooted trees; damage sign boa
F1	73-112 mph	Moderate tornado -- Moderate damage. The lower limit is the beginning of hurricane wind speed; peel surface off roofs; mobile hom pushed off foundations or overturned; moving autos pushed off the roads.
F2	113-157 mph	Significant tornado -- Considerable damage. Roofs torn off frame houses; mobile homes demolished; pushed over; large trees snapp uprooted; light-object missiles generated.
F3	158-206 mph	Severe tornado -- Severe damage. 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 mph	Devastating tornado -- Devastating damage. Well-constructed houses leveled; structures with weak foundations blown off some dist cars thrown and large missiles generated.
F5	261-318 mph	Incredible tornado -- Incredible damage. Strong frame houses lifted off foundations and carried considerable distance to disintegrate automobile sized missiles fly through the air in excess of 100 meters(109 yards); trees debarked; incredible phenomena will occur.
F6 - F12	319 mph - MACH 1 the speed of sound	The maximum wind speeds of tornadoes are not expected to reach the F6 wind speeds.

h. Wildfire

Hazard Description - There are four categories of wildfires that are experienced throughout the United States including: wildland fires, interface or intermix fires, firestorms, prescribed fires and prescribed natural fires. The primary categories of fires in Marengo County are wildland fires. Wildland fires are fueled exclusively by natural vegetation. The frequency and severity of wildfires is dependent on weather and on human activity. Nearly all wildfires in Marengo County are human caused (only a very small percent are caused by lightning), with arson and careless debris burning being the major causes of wildfires. If not promptly controlled, wildfires may grow into an emergency or disaster. Even small fires can threaten lives, damage forest resources, and destroy structures.

Hazard History – According the NCDC database, there has been no significant fire in Marengo County. From 10/1/2008 to 9/30/2011, there were 150 reported fires for a total of 1054 acres burned. Map 7 depicts fire occurrence for every 1000 acres. This map depicts areas of low, medium, high and extreme fire location. There have been extreme fires in several locations throughout Marengo County, but overall the majority of the county's area has been low to medium fire occurrence.



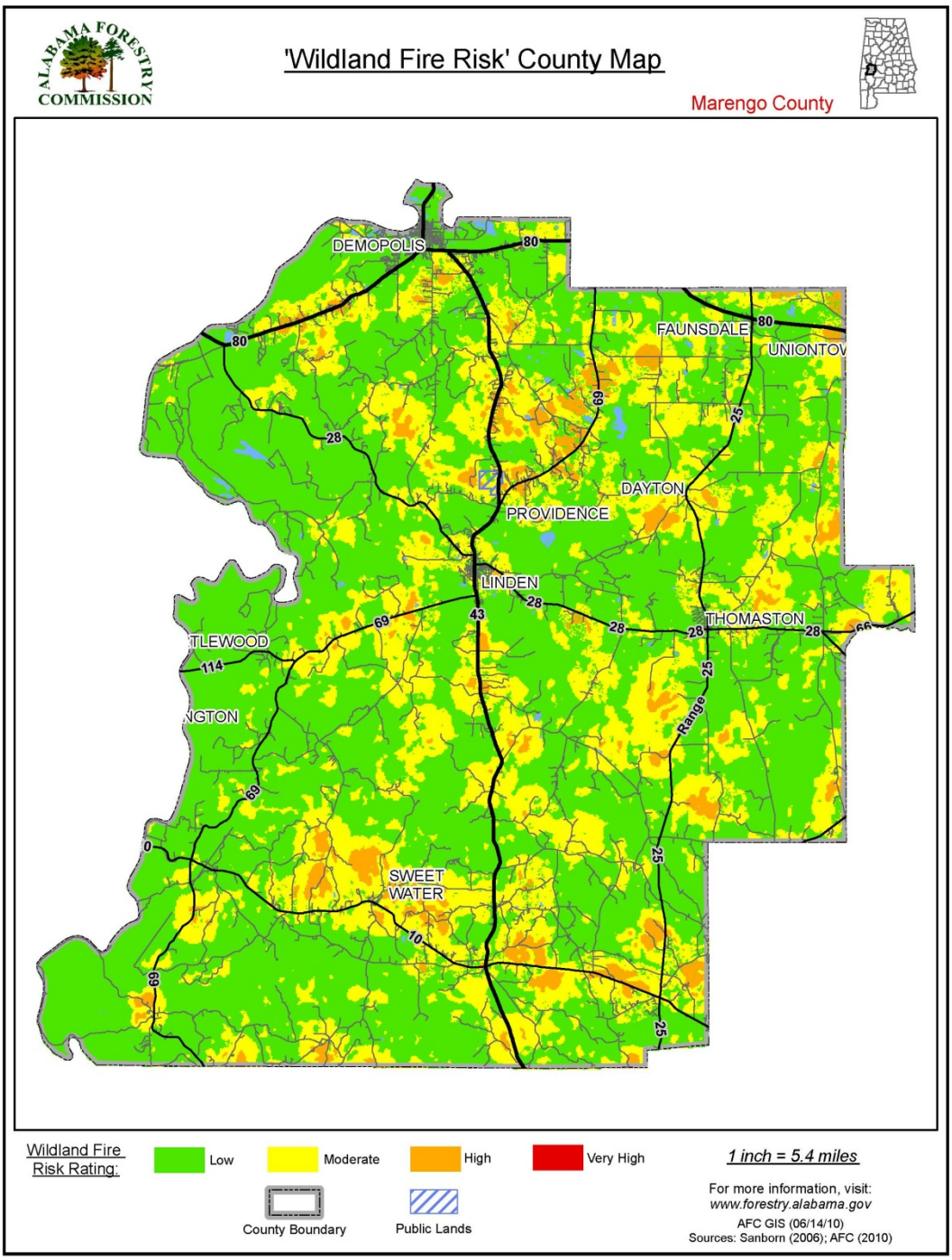
Map 7. Fires per 1000 acres in Marengo County, Alabama (source: Alabama Forestry Commission)

Community Impact - Wildfires can cause considerable damage and loss of life especially in areas where there is an interface between wild land and urban development. Marengo County has multiple fuel sources and is prone to drought and thunderstorms; therefore, wildfires are a significant risk. Furthermore, rural fire departments are almost exclusively made up of volunteers and usually have limited resources that are stretched during periods when numerous fires occur.

Impact means the consequence or effects of the hazard on people, structures, facilities, systems, capabilities, or activities. The impact of severe storms can be damage to houses and buildings from wind, lack of access to remote areas due to downed trees and blocked roads, and emergencies services can be suspended. Utility lines can be damaged causing a lack of power. This damage can happen in each jurisdiction located within Marengo County.

Location and Extent – Wildland fires can occur anywhere in Marengo County, however the risk is higher in rural forested areas. Extent of wildfire is measured by acres burned.

Probability of Future Occurrences: Based on historical information, Marengo County can expect an average of 50 significant wildfires per year that damage or destroy an average of 21.08 acres per event. 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.



Map 8 - Marengo County Fire Risk – Source Alabama Forestry Commission

i. Drought/Heat Waves

Hazard Description – Extreme summer heat is the combination of very high temperatures and exceptionally humid conditions. If such conditions persist for an extended period of time, it is called a heat wave. Heat stress can be indexed by combing the effects of temperature and humidity. Temperatures that hove 10 degrees or more above the average high temperature for the region and last for several weeks are defined as extreme heat. Humid or muggy conditions occur when a "dome" of high atmospheric pressure traps hazy, damp air near the ground. The combined 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 ad drought is very dangerous to human life and the environment.

Hazard History - There have been 6 major extreme heat events since 1996 and 18 droughts in Marengo County according to the National Climate Data Center database.

Totals:							0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	02/23/1996	08:00	CST	Heat		0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	07/01/2000	00:01	CST	Heat		0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	08/08/2007	12:00	CST-6	Heat		0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	07/01/2012	12:00	CST-6	Heat		0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	07/04/2012	12:00	CST-6	Heat		0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	08/01/2012	12:00	CST-6	Heat		0	0	0.00K	0.00K
Totals:							0	0	0.00K	0.00K

Table 11. Excessive Heat events in Marengo County, Alabama. (source: NCDC Database)

Totals:							0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	07/11/2006	07:00	CST	Drought		0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	03/27/2007	06:00	CST-6	Drought		0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K

MARENGO (ZONE)	MARENGO (ZONE)	05/01/2007	00:00	CST-6	Drought	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	06/01/2007	00:00	CST-6	Drought	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	07/01/2007	00:00	CST-6	Drought	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	08/01/2007	00:00	CST-6	Drought	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	09/01/2007	00:00	CST-6	Drought	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	10/01/2007	00:00	CST-6	Drought	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	11/01/2007	00:00	CST-6	Drought	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	12/01/2007	00:00	CST-6	Drought	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	01/01/2008	00:00	CST-6	Drought	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	02/01/2008	00:00	CST-6	Drought	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	03/01/2008	00:00	CST-6	Drought	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	04/01/2008	00:00	CST-6	Drought	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	10/12/2010	00:00	CST-6	Drought	0	0	0.00K	0.00K
Totals:						0	0	0.00K	0.00K

Community Impact – 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 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 suffe1ing 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 arc unaccustomed to heat. Similar to heat exhaustion it is thought to be a result of a mild imbalance of t1uids and electrolytes.

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 on water such as recreation and navigation. According to the U.S. Drought Monitor effective July 2, 2013, Marengo County is currently under a moderate drought condition.

Impact means the consequence or effects of the hazard on people, structures, facilities, systems, capabilities, or activities. The impact of drought can be damage to houses and buildings located in the rural areas of the County. Further, damage timber and crops can be impacted by severe droughts, causing an economic hazard to the county's economy.

Return to U.S. Drought Monitor Return to Region

The data cutoff for Drought Monitor maps is Tuesday at 7 a.m. Eastern Time. The maps, which are based on analysis of the data, are released each a.m. Eastern Time.

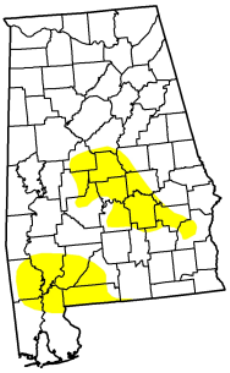
U.S. Drought Monitor

July 2, 2013
Valid 7 a.m. EST

Alabama

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	82.34	17.66	0.00	0.00	0.00	0.00
Last Week (06/25/2013 map)	77.70	22.30	0.00	0.00	0.00	0.00
3 Months Ago (04/02/2013 map)	94.22	5.78	0.00	0.00	0.00	0.00
Start of Calendar Year (01/01/2013 map)	40.07	59.93	33.67	19.47	9.81	0.00
Start of Water Year (09/25/2012 map)	71.58	28.42	19.42	15.36	8.69	0.00
One Year Ago (06/26/2012 map)	11.31	88.69	46.73	20.59	13.78	1.08



Intensity:

D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu

Released Wednesday, July 3, 2013
Matthew Rosencrans, NOAA/NWS/NCEP/Climate Prediction Center

Figure 7 – U.S. Drought Monitor – July 2, 2013 Source: www.droughmonitor.unl.edu

Location and extent –All of Marengo County and its jurisdictions are vulnerable to impacts from droughts. Extent of droughts are measured by Palmer Drought Severity Index and the Keetch-Byram Drought Index (KBDI). The extent includes temperatures above 100°,D4 drought, crop loss, public health concern, and wildfire susceptibility.

Probability of Future Occurrences – Due to a lack of data, average annual occurrences and damage estimates cannot be made. Historically these events do not pose severe risk as the residents in these areas are well-adapted to heat and dry conditions. There have been 3 events in the past 11 years, resulting in a probability of 27% these events can occur on annual basis. There is not a summary of impact of costs as not data was collected during previous events, however losses are expected to be minimal.

j. Winter Storms/Freezes

Hazard Description – Winter storms vary in size and strength and include heavy snowstorms, blizzards, freezing rain, sleet, ice storms and blowing and drifting snow conditions. Extremely cold temperatures accompanied by strong winds can results in wind chills then cause bodily

injury such as frostbite and death. Severe winter and ice storms can cause unusually heavy rain or snowfall, high wind, extreme cold and ice storms throughout Marengo County. 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 arc primarily from four sources in the continental United States. Winter storms in the southeast 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 History – According to the NCDC database, there have been three Winter Storm events since 2000.

Totals:						0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	12/21/2000	05:00	CST	Winter Storm	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	01/01/2001	03:00	CST	Winter Storm	0	0	0.00K	0.00K
MARENGO (ZONE)	MARENGO (ZONE)	01/28/2014	06:35	CST-6	Winter Storm	0	0	0.00K	0.00K
Totals:						0	0	0.00K	0.00K

Table 13. Winter Storm events in Marengo County, Alabama. (source: NCDC Database)

Community Impact: 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.

Impact means the consequence or effects of the hazard on people, structures, facilities, systems, capabilities, or activities. The impact of freezes can be damage water and plumbing infrastructure. Further, it can risk the viability of agricultural activities in Marengo County.

Location and Extent - All of Marengo County and its jurisdictions are susceptible to a winter storms or freezes. Extent of winter storms is measured. Between 6-12 inches of snow leading to tree damage, utility damage, property damage, death and serious injury.

Probability of Future Occurrences - Due to a lack of data, average annual occurrences and damage estimates cannot be made. However, Marengo County does not have a considerable

risk of a winter storm occurring and 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, Marengo County is susceptible to winter storms.

k. Levee/Dam Failures

Hazard Description – A dam is barriers constructed across a water course in order to store, control, or divert water. Dams are usually constructed of earth, rock, concrete, or mine tailings. The water impounded behind a dam is referred to as the reservoir and is measured in acre-feet, with one-afoot being the volume of water that covers one acre of land to a depth of one foot. Due to topography, even a small dam may have a reservoir containing many acre-feet of water. A dam failure is the collapse, breach or other failure of a dame that causes downstream flooding. Dam failures may result from natural events, human-caused events, or a combination thereof. Due to the lack of advance warning, failures resulting from natural events, such as hurricanes, earthquakes, or landslides, may be particularly severe. Prolonged rainfall that produces flooding is the most common cause of dame failure, according to FEMA.

Dam failures usually occur when the spillway capacity if inadequate and water overtops the dam or when internal erosion through the dam foundation occurs (also known as piping). If internal erosion or overtopping cause a full structural breach, a high-velocity, debris laden wall of water is released and rushed downstream, damaging or destroying whatever is in its path.

Hazard History – No dam/levee failure events have ever been reported in Marengo County.

Community Impact – When a dam fails, a large quantity of water is suddenly released downstream, destroying anything in its path. The area impacted by the water emitted by dame failure would encounter the same risks as those in a flood zone during periods of flooding. The area directly affected by the water released during a dam failure is not county wide.

Impact means the consequence or effects of the hazard on people, structures, facilities, systems, capabilities, or activities. The impact of levee dam can be rapid flooding of low lying area. This hazard would most likely impact Dempolis as is is directly downstearm from a dam in the Tombigbee River. However, any residence or building constructed down or levee could be impacted anywhere in Marengo County.
Dam Failure

The National Inventory of Dams lists twenty-five dams as being located in Marengo County. This number differs from the number in the previous plan, due to the fact that not all of the

previously identified dams meet the National Inventory of Dams criteria. The NID consists of dams meeting at least one of the following criteria: 1) High hazard classification - loss of one human life is likely if the dam fails, 2) Significant hazard classification - possible loss of human life and likely significant property or environmental destruction, 3) Equal or exceed 25 feet in height and exceed 15 acre-feet in storage, 4) Equal or exceed 50 acre-feet storage and exceed 6 feet in height.

The table below gives the number of dams classified in each potential downstream hazard category. One dam is classified as having high hazard potential; meaning their failure or misoperation would probably result in the loss of human life. Six dams are listed in the significant risk category meaning their failure or misoperation would probably not result in the loss of life, but would result in economic loss, environmental damage, and disruption of lifeline facilities. The remaining eighteen dams in the county are listed as at low risk meaning that their failure or misoperation would not result in the loss of life and only low economic or environmental damage.

The Demopolis Lock and Dam located in Marengo is a high-risk dam operated by the Corps of Engineers. The failure of this dam could potentially affect the City of Demopolis water supply and damage infrastructure within Maregno County. The Corps of Engineers have operating procedures and plans to monitor and prevent this from occurring. At this time the Natural Hazards Steering Committee feels that although dam failure is a hazard, it will be classified as low risk. This decision
was made due to the extensive planning the Corps of Engineers has undertaken at the Demopolis Lock &Dam and the sparse populations around the significant risk dams.

Location and Extents. Extent of Dam safety is measured by using the National Inventory of Dams (NID) includes a Hazard Potential Rating: Low, Significant or High. Demopolis Dam failure would cause extensive damage, loss of life, crop loss, and environmental damages.

National Inventory of Dams Risk Categories: Marengo County

Hazard Categories	Number of Dams
High	1
Significant	6
Low	18
Total	25

Probability of Future Occurrences - The risks associated with dam-levee failure are the same as those risks associated with flooding. Risks to Marengo County are minimal. The probability of future occurrences cannot be characterized on a countywide basis because of the lack of information available.

l. Landslides

Hazard Description - A "landslide" is the downward and outward movement of slopes. The terms refers various 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. 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.

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

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

Hazard History - No instances of landslides were reported by the planning committee or revealed by an Internet search.

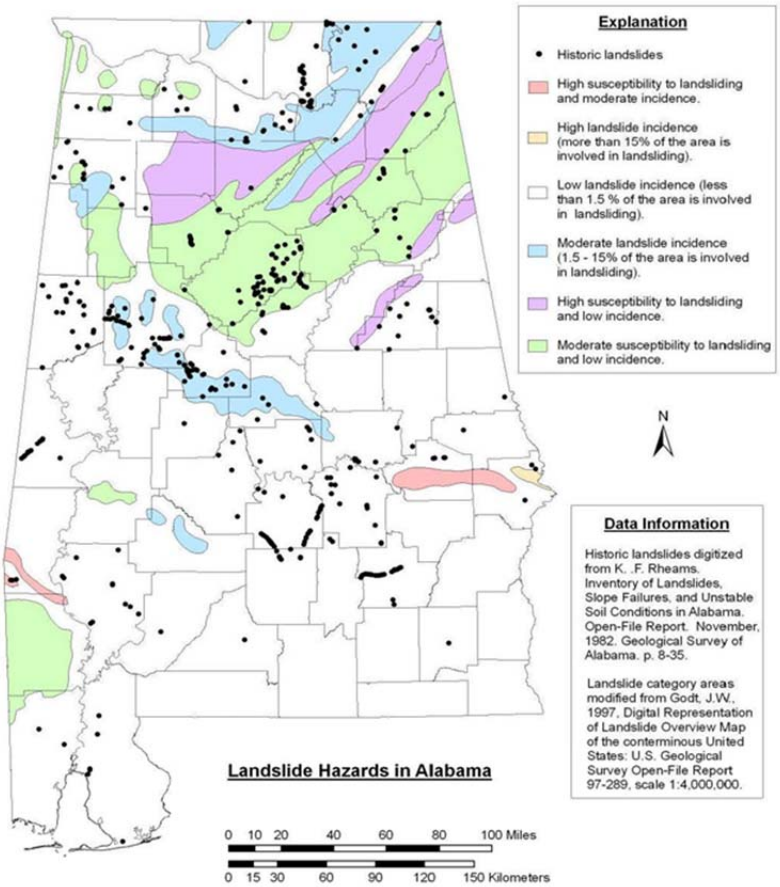
Community Impact - The effects of landslides are often misrepresented as being the result of the landslide's trigger event, such as a flood, earthquake, volcanic eruption, hurricane, or coastal storm. The impact from a landslide can include loss of life, damage to buildings, lost productivity, disruption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

Impact means the consequence or effects of the hazard on people, structures, facilities, systems, capabilities, or activities. The impact of a landslide can crush a home or bulding. Further, roads can be impassible.

Location and Extent – Only one recorded landslide event has occurred in Marengo County. The northern area of the county lies in an area of moderate incidence, according to the Geological Survey of Alabama. This area is depicted on Map 10. The lack of landslide

incidences in the county may be attributable to the lack of major development in this area. A landslide extent in Marengo County is measured 10,000 cubic yards of earth moved.

Probability of Future Occurrences: The probability of future occurrences of landslides in Marengo County is extremely slight everywhere.



Map 10 – Statewide Landslide Incidence in and Susceptibility by County. Source: Geological Survey of Alabama

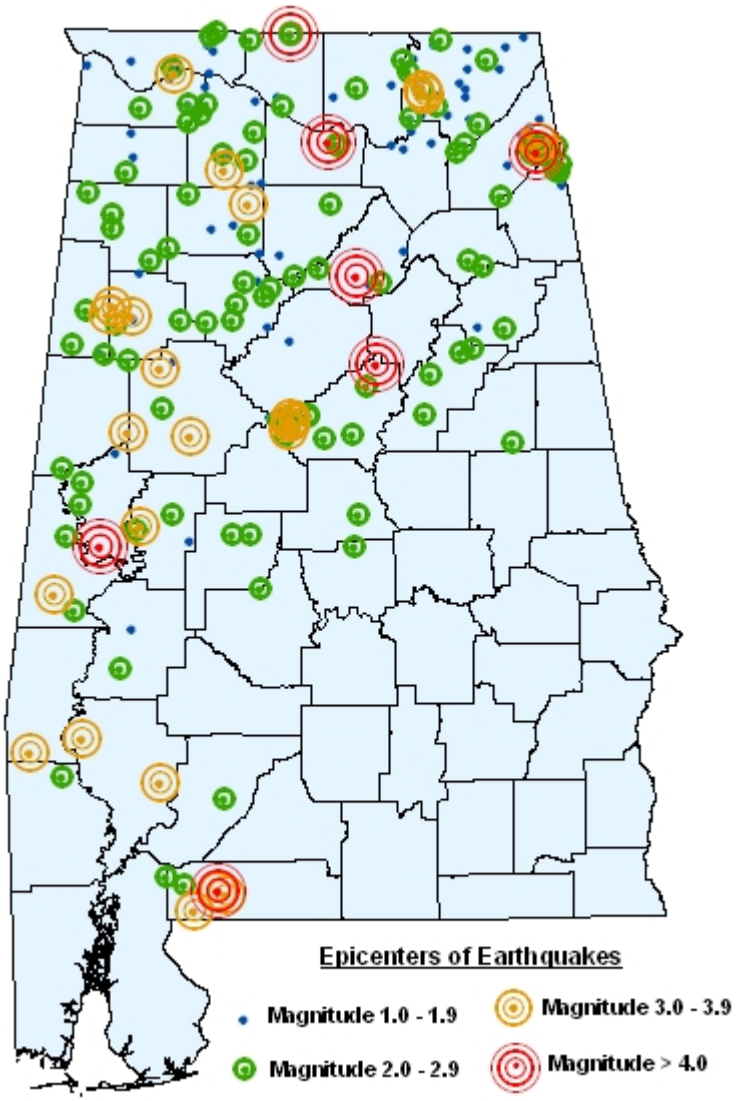
m. Earthquakes

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. An earthquake is "… a sudden motion or trembling caused by an abrupt release of accumulated strain in the tectonic plates that comprise the earth's crust". These rigid plates, known as tectonic plates, are some 5—60 miles in thickness and move slowly and continuously over the earth's interior. The plates meet along their edges were they move away, past or under each other at rates varying form less

than a fraction of an inch up to five inches per year. While this sounds small, at a rate of two inches per year, a distance of 20 miles would be covered in approximately one million years.

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

Hazard History – The is only one recorded incident of an earthquake in Marengo County. Map 11 depicts historical earthquake occurences in Marengo County.



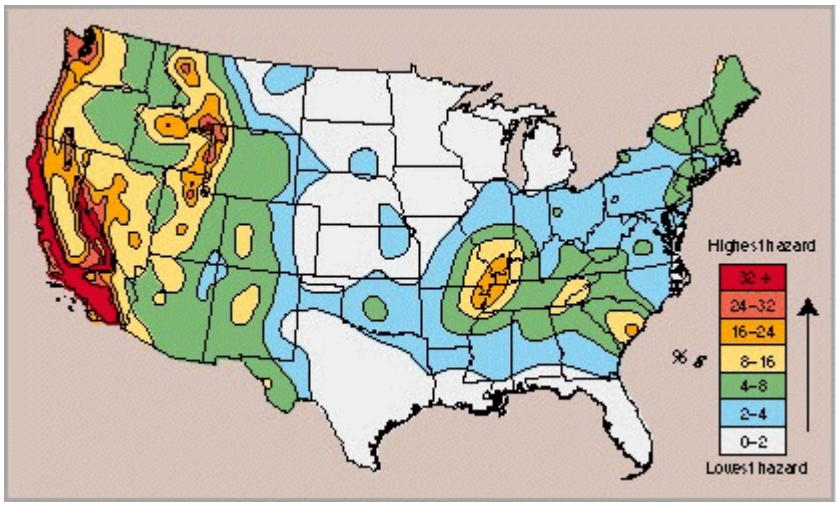
Map 11 – Historical Incidence of Earthquakes in Marengo County, Alabama Source: Geological Survey of Alabama

Community Impact - 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. Marengo County is located in an area with a probability of exceedence between 2% and 3% in 50 years. This is an area of slight risk as illustrated in Map 4-8.

Impact means the consequence or effects of the hazard on people, structures, facilities, systems, capabilities, or activities. The impact of earthquakes can be damage to buildings and homes. All jurisdictions are susceptible to damage from earthquakes.

Location and Extent - All of Marengo County is susceptible to an earthquake. Earthquakes are measured using the Richter scale. The extent of a serious earthquake would be stong earthquake resulting in death and property damage.

Probability of Future Occurrences - The risk of a significant, damage causing earthquake in the Marengo County is very small.



Map 12 – Probability of Incidences of Earthquakes.
Source: United States Geological Survey

n. Vulnerability Assessment and 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 databases. 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.
- 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.

i. Building Assets – Marengo County has over 5400 buildings valued at over $600 million. All of the buildings are at risk for natural hazards damages.

Number of Buildings by Type							
Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Total
4450	200	40	647	29	16	18	5400
Source: Marengo County Revenue Commission							

Value by Type of Building							
Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Total
$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00	$91,162,877.00
Source: FEMA HAZUS and Marengo County Revenue Commission							

ii. Critical Facilities – The Hazard Mitigation Planning Committee updated this list of critical facilities in Marengo County included in the 2010 Hazard Mitigation Plan. The groups of critical facilities include communication facilities, emergency response facilities, hazardous material sites, medical care facilities, and schools. Maps of each

of these facilities are depicted in Maps 13-17. The Marengo County Hazard Mitigation Steering Committee identified critical facilities in the following six categories:

i. A critical facility is critical to the health and welfare of the entire jurisdiction. They become essential in the event of a natural disaster. These facilities include police stations, fire stations, schools, and hospitals.
ii. Critical facilities are lifelines that provide the jurisdiction with necessities such as potable water.
iii. Critical facilities include the transportation corridors necessary to keep the jurisdiction connected.
iv. Critical facilities include those facilities that house persons with special needs (jails, nursing homes). They may also include locations where large groups often meet.
v. Critical facilities include locations with hazardous materials. These materials may pose a threat to health and safety if disrupted.
vi. Critical facilities include those in which potential losses, both human and economic, are high.

The list of Marengo County Critical Facilities was updated from the previous plan and information and costs were provided by each jurisdiction. If a critical facility was removed, it is no longer considered a facility at risk in Marengo County.

Marengo County Commission – Critical Facilities

Facility	Location	Estimated Cost
Marengo County High School	Dixons Mills	$20,000,000
Surginer VFD	Surginer	$500,000
Jefferson VFD	Jefferson	$500,000
Dixons Mills VFD	Dixon Mills	$500,000
Old Spring Hill VFD	Spring Hill	$500,000
Putnam VFD	Putman	$500,000
Courthouse	Linden	$15,000,000
Jail	Linden	$10,000,000
Annex	Linden	$4,000,000
Armory	Linden	$1,000,000
E911	Linden	$500,000
County Shop/Engineers Office	Linden	$500,000
2560		
2010 Pierce Class A tanker/pumper		$250,000
1020 gallon tank		
SCBAs		
Generator and Lighting		
JAWs of Life		
Foam equipped		
2563		
1989 Ford Big Red 5800 Tanker		$160,000
1400 gallon		
SCBAs		
2564		
1982 Tas Ford Class /Tanker-Pumper		$150,000
5800 Darley Pumper		
1500 gallon tank		
Backup Woods and grass		
SCBAs		
2565		
1982 Pierce Class A Pumper		$180,000
1000 gallon		
SCBAs		
Foam equiped		
32 buckets of 6% AFFF foam in station		
Aqueous Film Foaming		

Buckeye Part # 50130		
2566		
Brushfire truck with skid tank and pump		$60,000
4-wheel drive diesel		
200 gallon skid tank and pump system		
2567 Command Vehicle		
2003 Ford Expediton		$30,000
2 SCBAs		
First aid traumer kit		
Portable Medical oxygen system		
Front VHF and UHF radios		
Rear Command Center with VHF UHF Radios		
2570		
Emergency Paramedic Equipment Rescue Truck		$100,000
fully equipted		
Oxygen System		
2-Jaws of Life Systems		
spine boards		
stokes stretcher		
Stair stretcher		
2571		
1998 Chevrolet Rescue Truck		$50,000
#2 Paramedic Equipment Rescue Truck		
Boats		
Four 14 ft Boats - 1700		$6800
2-trailers		$1000
three outboard motors		$10,000
Off road vehicles or ATV		
Four Wheelers		
#1 Yanaha Moto 4		$7000
#2 Artic Cat		$7000

Portable Generators		
#1. Sears small genator 3000 watt red ribbon on it		$1200
#2. Coleman Powermat- 6250 wattage		$1200
#3. Colman Powermate- 6250 wattage		$1200
#4. Coleman Powermate -5000 Extended Run wattage		$1200
Lighting		
Power Saws		
#1. Husqvarno 55cc 3.9 hp 20 in bar		$600
#2. Husqvarno 55cc 3.9 hp 20 in bar		$600
#3. Husqvarno 55cc 3.9 hp 20 in bar		$600
#4. Husqvarno 55cc 3.9 hp 20 in bar		
#5. Ole Blue Homelite SXL 20 in bar		$400
Target Steel Cutting saw		$600
Axes		
Wedges		
Station # 1 Linden, Alabama		$80,000
Station # 2 Providence, Alabama		$150,000
Total		$ 1,249,400

Town of Dayton Critical Facilities

Facility	Location	Estimated Replacement Cost
Dayton Town Hall	Dayton	$150,000

City of Demopolis Critical Facilities – Fire Department

City of Demopolis Fire and Rescue Critical Facility Costs **Facility**	**Estimated Value**	**Replacement Cost**
Fire Station-1		
Ladder-1 (1996) Engine-1 (1992) Battalion-1 (2011) w/equip Car-2 (2003) Chevrolet P/U (1999)	$ 480,000.00	$ 850,000.00
	$ 160,000.00	$ 400,000.00
	$ 50,000.00	$ 65,000.00
	$ 15,000.00	$ 35,000.00
	$ 10,000.00	$ 25,000.00
Headquarters structure		$ 1,500,000.00
		$ 2,875,000.00
Fire Station-2		
Engine-2 (2003)	$ 326,000.00	$ 450,000.00
Mass Casualty trailer w/equip (2005)	$ 88,447.00	$ 150,000.00
fire boat	?	$ 10,000.00
Station-2 structure	?	$ 1,000,000.00
4/28/2014		**$ 1,610,000.00**
Fire Station-3		

Engine-3 (2008)	$ 425,000.00	$ 450,000.00
Haz-Mat F250 truck (2006) w/equip	$ 99,283.00	$ 200,000.00
Haz-Mat trailer W equip (1997)FL-70	$ 90,215.00	$ 280,000.00
Repeater & tower (2008)	$ 40,000.00	$ 80,000.00
Station-3 structure	$ 800,000.00	$ 1,500,000.00
		$ 2,510,000.00

Demopolis Public Works Department

Facility	Location	Estimated Replacement Cost
Tractor—w/hydraulic boom cutter	Demopolis	$100,000
Tymco Sweeper	Demopolis	$120,000
Forklift	Demopolis	$30,000
Tractor	Demopolis	$20,000
Tractor	Demopolis	$40,000
Rhino Cutter	Demopolis	$25,000
Tractor Ford	Demopolis	$40,000
Tractor	Demopolis	$40,000
Portable mobile welder	Demopolis	$4,000
Backhoe	Demopolis	$175,000
Self Dumping Trailers (2)	Demopolis	$8,000
Mowers (3)	Demopolis	$25,000
Gator	Demopolis	$8,000
Portable Pressure washers	Demopolis	$10,000
16’ Trailers (4)	Demopolis	$15,000
Assorted Equipment—tamper-concrete mixer-Tar wagon----- Portable trash vacuum-Flail mower-air compressors	Demopolis	$30,000
Motorgrader	Demopolis	$90,000
Office building	Demopolis	$100,000
Shop with Equipment	Demopolis	$200,000
Dump Truck	Demopolis	$50,000
Pickup Truck (17)	Demopolis	$500,000
Cover Sheds	Demopolis	$200,00
Sign Shop	Demopolis	$400,000

Demopolis Library Inventory

Facility	Location	Estimated Replacement Cost
Collections		$849,685.00
Data Systems/Technology		$88,748.75
Desks		$7,800.00
Furnishings		$35,912.50
Misc. Furnishings		$35,149.75
Office Machines		$20,523.75
Shelving		$60,091.37
Tables		$32,852.56
Art		$5,000.00
Circulation Desks		$20,000.00
Outside Railing		$3,000.00
Awnings		$5,000.00
Building		$2,000,000.00

Town of Faunsdale Critical Facilities

Facility	Estimated Cost
Town Hall	$300,000
Water Tank and Pump	$750,000
Old Town Hall	$75,000
Senior Citizens Center	$250,000
Fire Department	$500,000

City of Linden Critical Facilities

Facility	Estimated Cost
Airplane Hangar	$19,800
City Hall	$325,000
Control Pit and Equipment CR 44	$45,000
Dayton Deep well	$480,000
Fire Department	$520,000
Industrial Park	$110,000
Maintenance Shop	$350,000
Police Department	$185,000
Pumping Station – Highway 43 North	$45,000
Scott Park	$250,000
Sewer Pumping Station – Sammie Drive	$30,000
Sewer Pumping Station – Anderson Cr.	$30,000

Sewer Pumping Station – Frisco Street	$30,000
Sewer Pumping Station – Williams Street	$30,000
Street Department Equipment	$200,000
Utility Department Equipment	$450,000
Water Tank – CR 1	$370,000
Water Tank – Dayton	$425,000
Water Tank – East Coates	$350,000
Water Valve – CR 44 and Highway 43	$8,400
Linden Elementary	$1,188,486
Linden High	$3,406,736
G.P. Austin	$2,394,638
Marengo Technology Center	$3,256,214
Marengo Alternative School	$15,000,000
Marengo Academy	$12,500,000
Marengo County Nursing Home	$50,000,000
City of Linden Fire Department – Generator	$8,500
City of Linden Closed in Trailer	$12,000
Backhoe – City Shop	$54,000
Zero Turn Mower	$7,500
Tractor and Cutter	$42,000
Backhoe	$58,000
Sewer Camera	$9,700
Utilities Zero Turn Mower	$7,500

Town of Myrtlewood Critical Facilities

Facility	Estimated Cost
Myrtlewood Community Center	$400,000
Myrtlewood VFD	$500,000
Town Hall and Water Department	$150,000
Water Tank #1	$150,000
Water Tank #2	$200,000
Water Tank #4	$250,000
Water Tank #4	$150,000
Well #1	$50,000
Well #2	$50,000
Well #3	$350,000

Town of Providence Critical Facilities

Facility	Estimated Cost
Town Hall	$150,000

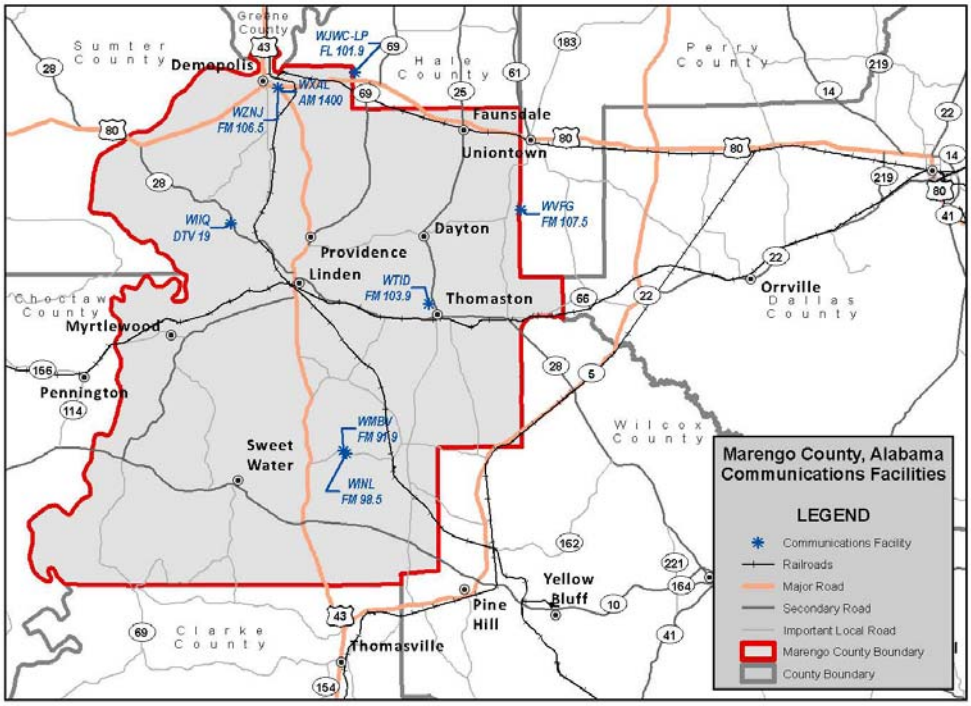
Town of Sweet Water Critical Facilities

Facility	Estimated Cost
Town Hall	$250,000
Water Tank	$110,000
Sweet Water VFD Station #1	$150,000
Sweet Water VFD Station #2	$150,000
Sweet Water Recreation Park	$250,000
Old Doctor's office	$20,000
Town Rental House	$45,000
Sweet Water Country Shed	$10,000
Pump House and water pump	$23,000
Sweet Water High School	$20,000,000
South Marengo Fire and Rescue	$400,000

Town of Thomaston Critical Facilities

Facility	**Estimated Cost**
City Shop	$375,000
Town Hall	$355,000
Well #3	$267,000
50K Elevated Water Tower	$339,000
250K Water Tank	$470,000
South Marengo Booster Pump	$150,000
Police/Fire Department	$523,000
Post Office	$330,000
Civic Center/Cafeteria	$100,000
Total	**$2,909,000**

Map 13 – Marengo County Communication Facilities



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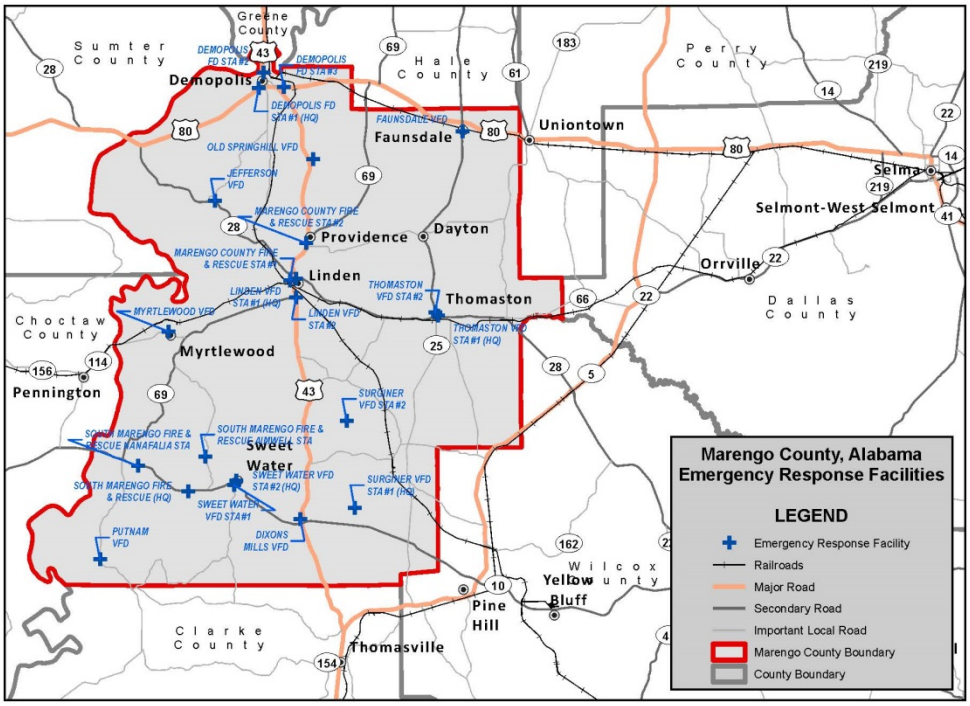
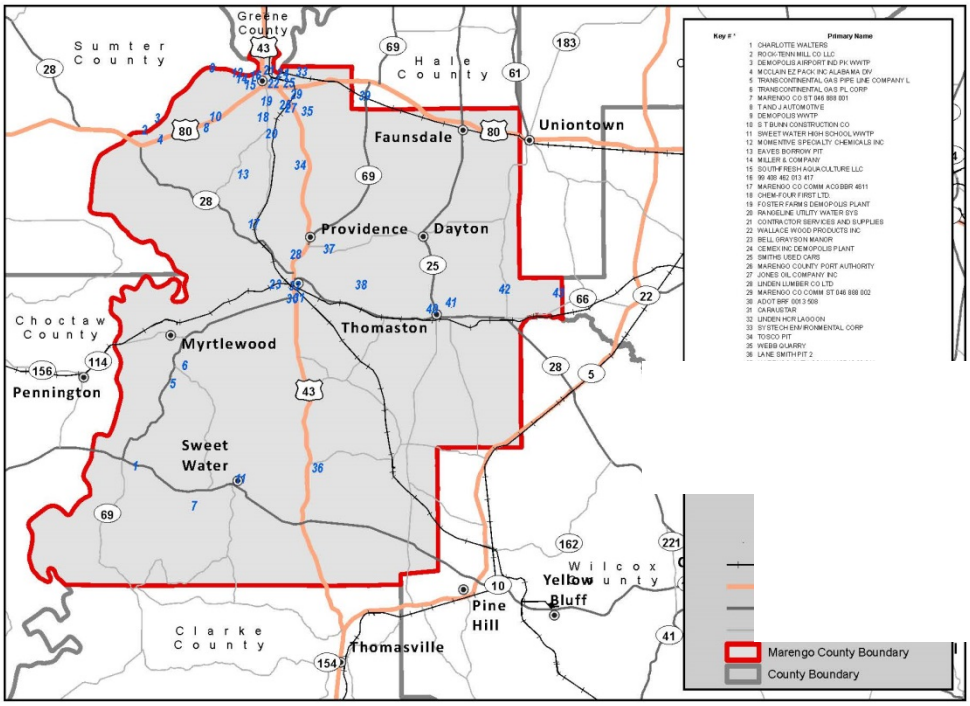
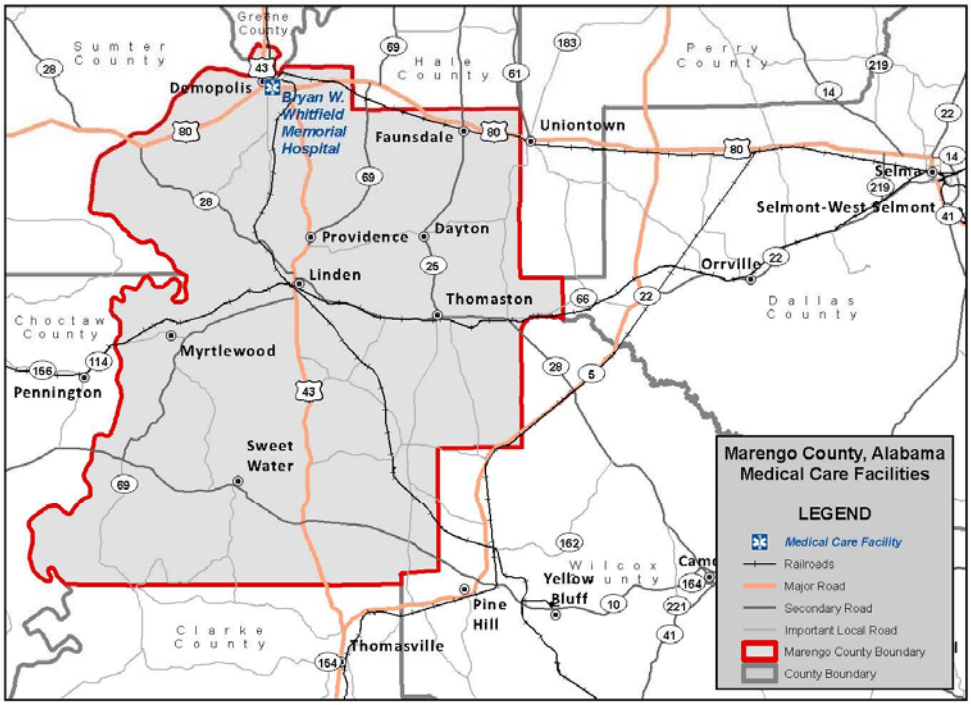
Map 14 – Marengo County Emergency Facilities



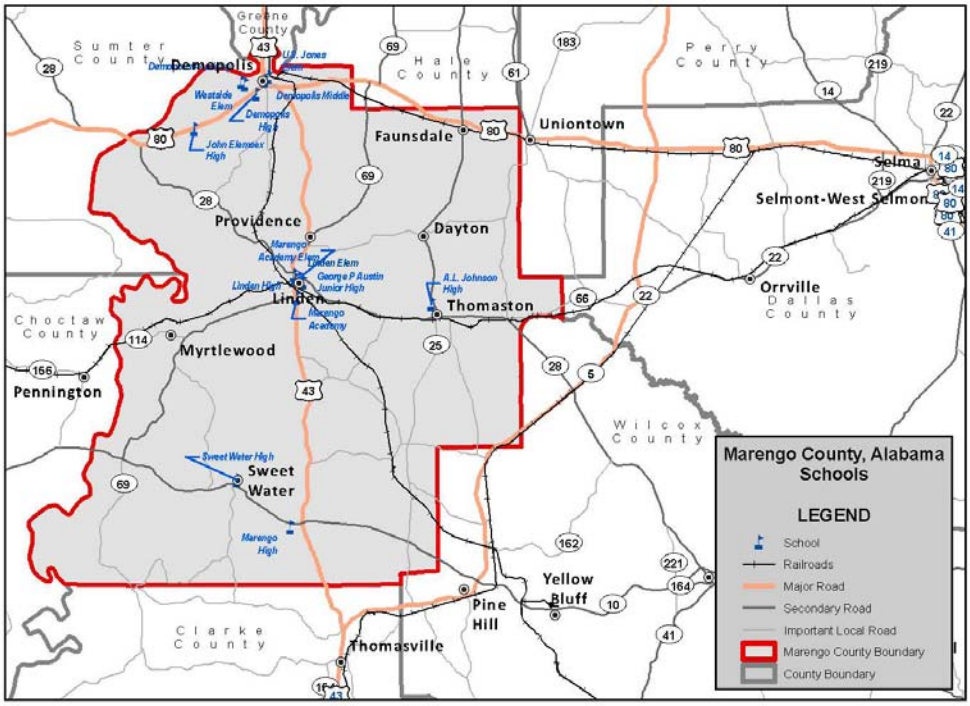
Map 15 – Marengo County Hazardous Materials



Map 16 – Marengo County Medical Facilities



Map 17 – Marengo County Schools



vii. Estimated Losses by Hazard – Table 13 list the population of each jurisdiction and the estimated number of people vulnerable to the hazard for each jurisdiction in Marengo County. Note it is estimated that 5% of the land area is in a flood zone in Marengo County. Therefore, it is assumed 5% of the population is vulnerable to flooding. Table 14 analyzes the number of building exposed to each hazard type and Table 15 lists the amount of Cost of property exposed to hazards. The methodology used to determine the value used data from the HAZUS database along the property assessments made available from the Marengo County Revenue Commission. Table 16 lists the number future buildings and Table 16 lists the value of future structures.

There are several entities in Marengo County that participate in the National Flood Insurance Program (NFIP) including unincorporated Marengo County, City of Demopolis, City of Linden, and Town of Providence. The other jurisdictions (Town of Dayton, Town of Faunsdale, Town of Myrtlewood, Town of Thomaston, and Town of Sweet Water are exempt). According to FEMA's Policy Statistics updated 12/31/2014, there have been 102 policies issued since 1980 for both all active entities in Marengo County. The value of all the policies written in-force is $13,325,100 for Marengo County.

	Unincorporated Marengo County	Dayt on	Demopolis	Faunsdale	Linden	Myrtlewood	Providence	Sweet Water	Thomaston
Hurricane/Tropic al Storm	10232	52	7483	98	2123	130	220	258	417
Flood	511	3	374	5	106	7	11	13	21
Severe Storm	10232	52	7483	98	2123	130	220	258	417
Tornadoes	10232	52	7483	98	2123	130	220	258	417
Wildfire	10232	52	7483	98	2123	130	220	258	417
Drought/Heat Waves	10232	52	7483	98	2123	130	220	258	417
Winter Storms/Freezes	10232	52	7483	98	2123	130	220	258	417
Levee/Dam Failures	10232	52	7483	98	2123	130	220	258	417
Landslides	10232	52	7483	98	2123	130	220	258	417
Earthquakes	10232	52	7483	98	2123	130	220	258	417

Table 13. Population vulnerable to hazards in Marengo County, Alabama

Number of Buildings Exposed to Hazards							
	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education
Hurricane/Tropical Storm	9087	127	78	14	38	14	15
Flood	454	6	4	1	2	1	1
Severe Storm	9087	127	78	14	38	14	15
Tornadoes	9087	127	78	14	38	14	15
Wildfire	9087	127	78	14	38	14	15
Drought/Heat Waves	9087	127	78	14	38	14	15
Winter Storms/Freezes	9087	127	78	14	38	14	15
Levee/Dam Failures	9087	127	78	14	38	14	15
Landslides	9087	127	78	14	38	14	15
Earthquakes	9087	127	78	14	38	14	15

Table 14. Number of building exposed to hazards in Marengo County, Alabama. Source HAZUS database and Marengo County Commission.

Value of Property Exposed to Hazards							
	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education
Hurricane/Tropical Storm	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Flood	$3,925,600.00	$227,538.70	$171,282.80	$49,237.70	$162,937.25	$9,260.05	$12,287.35
Severe Storm	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Tornadoes	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Wildfire	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Drought/Heat Waves	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Winter Storms/Freezes	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Levee/Dam Failures	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Landslides	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Earthquakes	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00

Table 15 – Value of Property exposed to Hazards in Marengo County, Alabama (source HAZUS and Marengo County Commission							
	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education
Hurricane/Tropical Storm	4450	200	40	647	29	16	18
Flood	454	6	4	1	2	1	1
Severe Storm	4450	200	40	647	29	16	18
Tornadoes	4450	200	40	647	29	16	18
Wildfire	4450	200	40	647	29	16	18
Drought/Heat Waves	4450	200	40	647	29	16	18
Winter Storms/Freezes	4450	200	40	647	29	16	18
Levee/Dam Failures	4450	200	40	647	29	16	18
Landslides	4450	200	40	647	29	16	18
Earthquakes	4450	200	40	647	29	16	18

Table 16: Vulnerability of the types and number of future buildings, infrastructure, and critical facilities located in Hazard Areas (Note – this analysis assumes a 0% growth rate)

Value of Property Exposed to Hazards – Future Buildings							
	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education
Hurricane/Tropical Storm	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00

Flood	$3,925,600.00	$227,538.70	$171,282.80	$49,237.70	$162,937.25	$9,260.05	$12,287.35
Severe Storm	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Tornadoes	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Wildfire	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Drought/Heat Waves	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Winter Storms/Freezes	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Levee/Dam Failures	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Landslides	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00
Earthquakes	$78,512,000.00	$4,550,774.00	$3,425,656.00	$984,754.00	$3,258,745.00	$185,201.00	$245,747.00

Table 17 – Value of Future Property exposed to Hazards in Marengo County, Alabama (source HAZUS and Marengo County Commission

viii. Analysis of Development Trends – Development Trends, particularly population shifts and land use changes created by major economic development expansion and infrastructure improvements of countywide significance, are important considerations to effective mitigation planning. These trends must be continually monitored and analyzed to keep abreast of changing vulnerabilities of jurisdictions and the natural hazards. As growth and development patterns change over time, the risk to property damage and lives also change. This section examines the project growth trend and other impacts of countywide significance that are expected to affect the location and extent of natural hazard vulnerability overtime.

Marengo County is mostly rural with minor areas of development in Demopolis and Linden. This area has experienced very little growth over the past 20 years. There has been negative growth of industries and jobs. Marengo County's population decreased 1.5% during the decade 1990-2000. Only the Town of Thomaston showed positive growth in population. Little population change in the county is forecast out to year 2025. New residential developments in Marengo County are minimal. However, growth and development could accelerate with the possible expansion of industry along the Alabama Tombigbee River. U.S. 80 runs through the northern extent of Marengo County and serves as a major east-west transportation route. In recent history, county initiatives have encouraged the growth of small businesses within Marengo County.

ix. Risk Assessment by Jurisdiction – Table 16 lists each jurisdiction in Marengo County ranked in terms of risk of natural hazards (1= highest risk, 1O=lowest risk). All jurisdictions are equally at risk for tornadoes, severe storms, earthquakes, wildfires, extreme cold, winter storms, drought and extreme heat. The jurisdictions have varying degrees of risk pertaining to flooding and landslides.

Unincorporated Marengo County is most at risk for flooding and is the only jurisdiction with special flood hazard areas mapped. The risk associated with each of these hazards depends upon topography, geology and density of development.

	Unincorporated Marengo County	Dayton	Demopolis	Faunsdale	Linden	Myrtlewood	Providence	Sweet Water	Thomaston
Hurricane/Tropical Storm	1	1	1	1	1	1	1	1	1
Flood	2	2	2	2	2	2	2	2	2
Severe Storm	3	3	3	3	3	3	3	3	3
Tornadoes	4	4	4	4	4	4	4	4	4
Wildfire	5	5	5	5	5	5	5	5	5
Drought/Heat Waves	6	6	6	6	6	6	6	6	6
Winter Storms/Freezes	7	7	7	7	7	7	7	7	7
Levee/Dam Failures	8	8	8	8	8	8	8	8	8
Landslides	9	9	9	9	9	9	9	9	9
Earthquakes	10	10	10	10	10	10	10	10	10

Table 18 Multi-Jurisdictional Risk Assessment

- What has changed in the Plan Update – the Risk Assessment used more available data available since 2010.

5. Mitigation Strategies

a. Purpose of Mitigation Goals Strategies - These mitigation strategies provide a blueprint for each participating jurisdiction to reduce the potential losses identified in the risk assessment through a comprehensive plan of goals, objectives, and policies. It guides the communities that have participated in its preparation through the Hazard Mitigation Planning Committee (HMPC). These communities have adopted this plan and committed their resources to achieve its goals.

In unincorporated Marengo County, the Marengo County Emergency Management Agency was established via a resolution. The AEMA was established through Section 4 of the Alabama Emergency Management Act of 1955 (Public Law 31-9), Act 47, June 1955. Section 10, Alabama Law, 1955 Act No. 47, directs the establishment of local organization for emergency management in accordance with the state emergency management plan and programs. The local organizations have the responsibility for coordinating the disaster preparedness, mitigation, response and recovery efforts of local government. Under this legislation, each county is required to have an emergency management organization, either individual or jointly. Appropriate ordinance and/or resolution are required to establish each local organization and must provide for the organization, powers, duties, divisions, services and staff of the agency.

One of the most significant state enabling statutes related to hazard mitigation can be found in the Title 11, Chapter 52, Planning, Zoning, and Subdivision of the Code of Alabama. Section 11-52 et seq is the state planning enabling legislation for municipalities only. First enacted in 1935, the statue provides municipalities broad powers for comprehensive planning, capital improvements programming and the regulation of land use, development, and conservation of land areas through zoning ordinance and subdivision regulations. It permits municipalities to create planning commission to oversee planning and land use controls, and Boards of Adjustments to hear appeals. It is the basis for floodplain management regulations within all municipalities and provides additional powers to control the location and types of development activities that might be affected by other natural hazards, including landslides and land subsidence.

Unincorporated areas of the counties in Alabama are severely restricted by the lack of a state planning enabling statute. Only three counties statewide – Baldwin, Jefferson and parts of Shelby County – are permitted to establish zoning ordinance by special acts adopted by Title 11, Chapter 24 of the Code of Alabama. County commissions are permitted to regulate the subdivision of land and the construction of streets and utilities with the advice of an advisory board. Municipalities may enforce subdivision regulations with its police jurisdiction which can

extend two miles beyond the municipal boundaries within unincorporated areas of a county. Code of Alabama, Title 11, Chapter 19 Sections 11-19-1 through 11-19-24, entitled the Comprehensive Land Use Management Act was enacted to prevent economic and human loss in flood-prone areas and permit counties to manage floodplain development within unincorporated areas. This act provides the established county commissions the authority to create a comprehensive land-use management program floodplain management, in accordance the NFIP criteria. As a result, unincorporated communities are eligible for flood insurance through the NFIP. This program helps mitigate damages cause by floods by controlling land use and development and improve the long-range management of flood prone areas. The statue authorizes each county commission to adopt floodplain management ordinance for unincorporated areas. County Planning Commissions are granted broad authority to control development in flood prone zone by adopting ordinances and Flood Insurance Rate Maps that delineate the various flood zones controlled by the adopted ordinances. Each county must appoint and administrator of the program and provide for a Board of Adjustment to hear appeals to the ordinance requirements.

Marengo County has its subdivision authority and the authority to develop a Flood Hazard Prevention ordinance. The municipal Jurisdictions in Marengo County (City of Demopolis, Sweet Water, Linden, Providence, Thomaston, Dayton, Faunsdale, and Myrtlewood), have authority to pass ordinances to implement the Hazard Mitigation Plans. However, are Dayton and Providence have a very small population and therefore, look to the leadership and authority leadership of the Marengo County EMA to assist with the implementation of the strategies.

b. Identification and Analysis of Mitigation Measures - The Hazard Mitigation Planning Committee guided the preparation of these strategies. The Committee first reviewed the risk assessment to determine the most critical hazard threats to each jurisdiction (see Chapter 4. Risk Assessment). Next, the Committee and each jurisdiction reviewed existing authorities, policies, programs, and resources through an exercise to rate the capabilities of each jurisdiction to implement mitigation measures. These authorities and resources include local legislation for subdivisions (for counties), ability to pass ordinances (municipalities), the floodplain prevention ordinance, and resources for planning made available by the Alabama Tombigbee Regional Planning Commission. Finally, the HMPC analyzed a broad range of available mitigation measures. On this basis, the Committee evaluated the ability of each jurisdiction to expand on and improve these tools. The Committee recommends those measures that might best respond to the vulnerability concerns within the existing and potential capabilities of each jurisdiction.

c. Types of Mitigation Activities – 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 here 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 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 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 hazard on a community.

d. Existing Hazard Mitigation Activities –This plan expands on and improves existing mitigation activities. To date, unincorporated Marengo County, City of Demopolis, City of Linden, Town of Thomaston and Town of Providence are the only jurisdictions that participate in the National Flood Insurance Program (NFIP) as shown in Table 17. The Town of Dayton, Faunsdale, Myrtlewood, and Sweet Water are exempt as there is no/minimal flood zones located within their municipal boundaries.

	Number of Policies	Total Inforce Coverage	Total Inforce Premium
Demopolis	57	$ 7,699,300.00	$ 48,964.00
Linden	3	$ 215,000.00	$ 1,201.00
Marengo County	34	$ 4,251,800.00	$ 21,240.00

Providence	8	$	1,159,000.00	$	6,334.00
Total	102	$	13,325,100.00	$	77,739.00

The Marengo County Emergency Management Agency was established via a resolution of the Marengo County Commission. The AEMA was established through Section 4 of the Alabama Emergency Management Act of 1955 (Public Law 31-9), Act 47, June 1955. Section 10, Alabama Law, 1955 Act No. 47, directs the establishment of local organization for emergency management in accordance with the state emergency management plan and programs. The local organizations have the responsibility for coordinating the disaster preparedness, mitigation, response and recovery efforts of local government. Under this legislation, each county is required to have an emergency management organization, either individual or jointly. Appropriate ordinance and/or resolution are required to establish each local organization and must provide for the organization, powers, duties, divisions, services and staff of the agency.

One of the most significant state enabling statutes related to hazard mitigation can be found in the Title 11, Chapter 52, Planning, Zoning, and Subdivision of the Code of Alabama. Section 11-52 et seq is the state planning enabling legislation for municipalities only. First enacted in 1935, the statue provides municipalities broad powers for comprehensive planning, capital improvements programming and the regulation of land use, development, and conservation of land areas through zoning ordinance and subdivision regulations. It permits municipalities to create planning commission to oversee planning and land use controls, and Boards of Adjustments to hear appeals. It is the basis for floodplain management regulations within all municipalities and provides additional powers to control the location and types of development activities that might be affected by other natural hazards, including landslides and land subsidence.

Unincorporated areas of the counties in Alabama are severely restricted by the lack of a state planning enabling statute. Only three counties statewide – Baldwin, Jefferson, Lee and parts of Shelby County – are permitted to establish zoning ordinance by special acts adopted by Title 11, Chapter 24 of the Code of Alabama. County commissions are permitted to regulate the subdivision of land and the construction of streets and utilities with the advice of an advisory board. Municipalities may enforce subdivision regulations with its police jurisdiction which can extend two miles beyond the municipal boundaries within unincorporated areas of a county. Code of Alabama, Title 11, Chapter 19 Sections 11-19-1 through 11-19-24, entitled the Comprehensive Land Use Management Act was enacted to prevent economic and human loss in flood-prone areas and permit counties to manage floodplain development within unincorporated areas. This act provides the established county commissions the authority to create a comprehensive land-use management program floodplain management, in accordance the NFIP criteria. As a result, unincorporated communities are eligible for flood

insurance through the NFIP. This program helps mitigate damages cause by floods by controlling land use and development and improve the long-range management of flood prone areas. The statue authorizes each county commission to adopt floodplain management ordinance for unincorporated areas. County Planning Commissions are granted broad authority to control development in flood prone zone by adopting ordinances and Flood Insurance Rate Maps that delineate the various flood zones controlled by the adopted ordinances. Each county must appoint and administrator of the program and provide for a Board of Adjustment to hear appeals to the ordinance requirements.

e. Mitigation Issues and Opportunities – The policies of this plan respond to the mitigation issues and opportunities presented in this section. These are derived from the findings of the risk assessment and capability assessment and discussions with members of the HMPC.

Prevention

- Tornadoes, severe storms and hurricanes are the most threatening hazards to Marengo County communities.
- No Marengo County municipalities practice comprehensive planning, except for Myrtlewood and Demopolis.
- The county expects a slight population increase of 1.1% 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 Marengo County, City of Demopolis, City of Linden, Town of Providence, and Town of Thomaston are the only jurisdictions that participate in the NFIP.
- The municipalities of Dayton, Faunsdale, Myrtlewood, Sweet Water and are exempt because they don't have any significant 100-year floodplain located with their municipal limits.

Property Protection

- Standard homeowner and business insurance policies do not cover flood damages.
- Many older homes and buildings located in flood plains are not protected from flooding.

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.

Natural Resources Protection

- Stream and river banks and riparian zones help manage floods and filter runoff.
- Accidental or intentional dumping of household and commercial, 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 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

1. Weather radios in homes and businesses provide inexpensive means for advance warning.
2. Further, an extensive outdoor siren system should be installed in Marengo County due the high frequency and intensity of tornadoes.

Structural Projects

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

f. Mitigation Policies Plan

This section presents the long-term, comprehensive plan for mitigation of natural hazards. Each of these mitigation actions will be carried out by the Marengo County Emergency Management in coordination with local, state, federal, and other agencies. Priority mitigation projects carried over into the action program should only be implemented if the benefits are maximized and outweigh the associated costs of the proposed projects. The goals of this mitigation policies plan apply to all jurisdictions within the county. The communities' long-range vision for disaster resistance and the mission of the HMPC are restated here for reference.

Over the last 5 years, Marengo County has had success in implementing actions form the 2010 plan. Some of the actions have been completed; however most are processes and have not yet been completed. Also, some mitigation measures have been deleted from the plan as they

were determined by the Hazard Mitigation Planning Committee to be no longer relevant or current or have been completed.

The Marengo County Hazard Mitigation Planning Committee (HMPC) used recently FEMA-approved plans from adjacent Monroe County and Choctaw County in the development of its mitigation strategies. The HMPC used these strategies as they felt they were most-recently approved by FEMA. Further, the mitigation strategies that were adopted are more robust and comprehensive than the 2010 plan mitigation strategies. Marengo County is rural county located in southwest Alabama and is very comparable to size, population and land use as Monroe and Choctaw Counties. As a result, mitigation strategies were shared.

Completed Mitigation Strategies from 2010 Plan

- None

Mitigation Strategies deleted from 2010 Plan:

- There were no mitigation strategies deleted from the 2010 Approved Plan. Updated strategies were re-ordered by project objective. The HMPC feels these updated strategies will better serve the needs of the community. See table below demonstrating and examples of how mitigation strategies updated from the 2010 to 2015 Plan.

Example Mitigation Strategy in 2010 Plan	Example Mitigation Strategy in 2015 Plan
Continue to clear debris form roads and drainage ways (page 124 from 2010 Plan)	Mitigation Strategy 35: Continue to clear debris from roads and drainage ways
Continue to Enforce the County's Flood Damage Prevention Ordinance (Page 124 from the 2010 Plan)	Mitigation Strategy 2: Effectively administer and enforce local floodplain management regulations
Improve drainage infrastructure throughout the County (Page 125 from the 2010 Plan)	Mitigation Strategy 34: Implement drainage improvement in watersheds throughout Marengo County

The following tables are a listing of new and/or continued mitigation measures adopted for each jurisdiction. Please note, all mitigations strategies from the 2010 plan have been merged into the list of strategies for the 2015 Plan. The HMPC ranked each Hazard Measures looking weighing community need, project feasibility, and availability of matching funds, if required. The measures were ranked with High, Low, and Medium Priority.

i. Mitigation Measures for Unincorporated Marengo County (New and Continued from 2010 Plan)

Mitigation Measure Number	Program Objective	Hazards Addressed	Mitigation Measure	Funding Resources	Priority	Responsible Department	Existing Potential Resources	Timeframe
Goal: Maintain a comprehensive database of hazard locations, socio economic data, infrastructure, and critical facilities inventories								
1	Prevention	All	Maintain a centralized countywide natural hazards and risk assessment database in GIS that is accessible to all personnel including flood zones, geohazards, major drainage structures, dams/levees; tornado tracks,	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	Virtual Alabama, GIS Data, HMGP	5 years
Goal: Manage the development of land and buildings to minimize the risks of loss due to natural hazards								
2	Prevention	Flood	Effectively administer and enforce local floodplain management regulations	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	FEMA flood maps, HMGP, ADECA	2 years
3	Prevention	Flood	Train local floodplain managers through programs offered at the State and Federal level.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	1 year
4	Prevention	All	The participating community has	HMGP grants, General Fund,	High	Marengo County EMA	HMGP and ADECA	Ongoing

			adopted and enforces floodplain management ordinances that meet or exceed the minimum requirements of the NFIP. These requirements are intended to prevent loss of life and property and reduce taxpayer costs for disaster relief, as well as minimize economic and social hardships that result from flooding.	other grant funding		and		
5	Prevention	All	Maintain a library of technical assistance and guidance materials for local floodplain managers and use Marengo County EMA website for implementation	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	1 year
6	Prevention	All	Promote adoption of uniform flood hazard prevention ordinance among all of the NFIP	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	1 year

			communities in Marengo County.					
7	Prevention	All	Acquire GIS software for marinating risk assessment data	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	5 years
8	Prevention	All	Prepare and adopt a comprehensive plan	HMGP grants, General Fund, other grant funding	Low	Marengo County EMA	HMGP and ADECA	10 years
9	Prevention	All	Require the construction of Safe Rooms in new public buildings, such as new schools, libraries, community centers and other public buildings when feasible	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
10	Prevention	All	Construct free-standing public Safe Rooms in existing vulnerable locations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP ADECA	5 years
11	Prevention	All	Apply for funding to update/revise mitigation plan when needed	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	5 years
12	Prevention	All	Conduct special studies as needed to identify hazard risks and mitigation	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	10 years

			measures					
Goal: Protect structures and their occupants and contents from damaging effects of natural hazards								
13	Property Protection	All	Encourage retrofits of older homes constructed before the enactment of floodplain regulations	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years
14	Property Protection	All	Maintain insurance riders on existing properties	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
15	Property Protection	All	Provide back-up power for critical facilities and fire stations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
16	Property Protection	All	Promote good construction practices and proper code enforcement to eliminate most structural problems during natural hazard events	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years
17	Property Protection	All	Encourage the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years

			public buildings where feasible.					
18	Property Protection	All	Retrofit public schools and critical facilities with community Safe Rooms.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
19	Property Protection	All	Increase access to Flood Insurance Rate Maps.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Completed
20	Property Protection	All	Promote the purchase of flood insurance coverage by property owners and renters in high-risk flooding areas.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
21	Property Protection	All	Continue to send law enforcement and fire personnel to emergency response training	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	Ongoing
22	Property Protection	Fire	Install water infrastructure and Fire hydrants in rural areas	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
23	Property Protection	All	Encourage the construction of safe rooms in new and existing construction.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
Goal: Education and inform the public about the risk of hazards and the techniques available to reduce threats to life and property.								

24	Public Education and Outreach	All	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
25	Public Education and Outreach	All	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	1 year
26	Public Education and Outreach	All	Conduct regular public meetings of hazards and mitigation measures	HMGP grants, General Fund, other grant	Low	All jurisdictions	HMGP	1 year
Goal: Preserve and restore the beneficial functions of natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.								
27	Natural Resource Protection	All	Maintain a healthy forest that can help mitigation the damaging impacts of flooding, erosion, landslides, and wild	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	5 years

			fires within urban and rural areas					
28	Natural Resource Protection	All	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.	HMGP grants, General Fund, other grant	Medium	All jurisdictions	HMGP	10 years
29	Natural Resource Protection	All	Enact and enforce dumping regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years
30	Natural Resource Protection	All	Enact and enforce erosion and sedimentation control regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	1 year
31	Natural Resource Protection	All	Seek technical assistance through the Alabama Cooperative Extension System with Best Management Practices (BMP) for channel and drainage system maintenance.	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	10 years
32	Natural Resource	All	Encourage land acquisition programs	HMGP grants, General Fund,	High	All jurisdictions	HMGP	5 years

	Protection		to acquire habitat throughout Marengo County	other grant				
Goal: Apply engineered structural modifications to natural systems and public infrastructure to reduce potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable								
33	Structural Projects	All	Improve maintenance programs for streams and drainage ways.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
34	Structural Projects	All	Implement drainage improvement in watersheds throughout Marengo County	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
35	Structural Projects	All	Continue to clear debris from roads and drainage ways	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years
36	Structural Projects	All	Continue to improve and maintain county road system	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
37	Structural Projects	All	Prepare and implement standard operation procedures for drainage system maintenance	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years
Goal: Improve the Efficiency, timing, and effectiveness of response and recovery for natural hazard disasters								
38	Emergency	All	Improve public	HMGP grants,	High	All	HMGP	1 year

	Services		warning systems	General Fund, other grant funding		jurisdictions		
39	Emergency Services	All	Improve public access to weather alerts	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
40	Emergency Services	All	Use social media to provide information about the public about dangerous weather	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
41	Emergency Services	All	Purchase emergency generators for post-disaster mitigation as needed. In particular for the Volunteer Fire Departments, schools, critical facilities Marengo County Courthouse, and all water and sewer facilities throughout Marengo County.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
42	Emergency Services	All	Install an automated weather monitoring system that transmit data to the County EMA and the NWS, including all-weather stations, precipitation	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years

			gauges, wind gauges, and temperature gauges					
43	Emergency Services	All	Promote the use of weather radios in households and businesses. Purchase radios and distribute to the public.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
44	Emergency Services	All	Upgrade Critical Communication Infrastructure	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
45	Emergency Services	All	Continue to offer shelter to individuals and families affected by natural hazards. This includes opening public building buildings during times of extreme heat.	Local funding only	High	All jurisdictions	HMGP	10 years
46	Emergency Services	All	Contact utilities in the event of natural hazard so they can inspect their infrastructure for damage	Local funding only	High	All jurisdictions	HGMP	10 years
47	Emergency Services	All	Encourage jurisdictions to commit matches for grants dealing with	Local funding only	High	All jurisdictions	HMGP	10 years

			mitigation					
48	Emergency Services	All	See weatherization funding for low income residents	CDBG	Medium	All jurisdictions	HMGP	5 years
49	Emergency Services	All	Continue to maintain an inventory of critical facilities and contact information	ALL	Medium	All jurisdictions	HMGP	5 years
50	Emergency Services	ALL	Research procedures for keeping historical storm data with location, magnitude, and loss value for each event.	All	Low	All jurisdictions	HMGP	

ii. Town of Dayton Mitigation Measures (New and Continued from 2010 Plan)

Mitigation Measure Number	Program Objective	Hazards Addressed	Mitigation Measure	Funding Resources	Priority	Responsible Department	Existing Potential Resources	Timeframe
Goal: Maintain a comprehensive database of hazard locations, socio economic data, infrastructure, and critical facilities inventories								
1	Prevention	All	Maintain a centralized countywide natural hazards and risk assessment database in GIS that is accessible to all personnel including flood zones, geohazards, major drainage structures, dams/levees; tornado tracks,	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	Virtual Alabama, GIS Data, HMGP	5 years
Goal: Manage the development of land and buildings to minimize the risks of loss due to natural hazards								
2	Prevention	Flood	Join the National Flood Insurance Program	Local funds	Low	Town of Dayton	FEMA flood maps, HMGP, ADECA	10 years
3	Prevention	Flood	Train local floodplain managers through programs offered at the State and Federal level.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	1 year
4	Prevention	All	N/A Dayton is exempt.	HMGP grants, General Fund,	High	Marengo County EMA	HMGP and ADECA	Ongoing

				other grant funding				
5	Prevention	All	Maintain a library of technical assistance and guidance materials for local floodplain managers and use Marengo County EMA website for implementation	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	1 year
6	Prevention	All	Promote adoption of uniform flood hazard prevention ordinance among all of the NFIP communities in Marengo County.	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	1 year
7	Prevention	All	Acquire GIS software for marinating risk assessment data	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	5 years
8	Prevention	All	Prepare and adopt a comprehensive plan	HMGP grants, General Fund, other grant funding	Low	Marengo County EMA	HMGP and ADECA	10 years
9	Prevention	All	Require the construction of Safe Rooms in new public buildings, such as new schools, libraries, community centers and other public	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year

			buildings when feasible					
10	Prevention	All	Construct free-standing public Safe Rooms in existing vulnerable locations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP ADECA	5 years
11	Prevention	All	Apply for funding to update/revise mitigation plan when needed	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	5 years
12	Prevention	All	Conduct special studies as needed to identify hazard risks and mitigation measures	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	10 years
Goal: Protect structures and their occupants and contents from damaging effects of natural hazards								
13	Property Protection	All	Encourage retrofits of older homes constructed before the enactment of floodplain regulations	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years
14	Property Protection	All	Maintain insurance riders on existing properties	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
15	Property Protection	All	Provide back-up power for critical facilities and fire stations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
16	Property	All	Promote good	HMGP grants,	Medium	All	HMGP	2 years

	Protection		construction practices and proper code enforcement to eliminate most structural problems during natural hazard events	General Fund, other grant funding		jurisdictions		
17	Property Protection	All	Encourage the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
18	Property Protection	All	Retrofit public schools with community Safe Rooms.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
19	Property Protection	All	Increase access to Flood Insurance Rate Maps.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Completed
20	Property Protection	All	Promote the purchase of flood insurance coverage by property owners and renters in high-risk flooding areas.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
21	Property	All	Continue to send law	HMGP grants,	Low	All	HMGP	Ongoing

	Protection		enforcement and fire personnel to emergency response training	General Fund, other grant funding		jurisdictions		
22	Property Protection	Fire	Install water infrastructure and Fire hydrants in rural areas	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
23	Property Protection	All	Encourage the construction of safe rooms in new and existing construction.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
Goal: Education and inform the public about the risk of hazards and the techniques available to reduce threats to life and property.								
24	Public Education and Outreach	All	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
25	Public Education and Outreach	All	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	1 year

			announcements.					
26	Public Education and Outreach	All	Conduct regular public meetings of hazards and mitigation measures	HMGP grants, General Fund, other grant	Low	All jurisdictions	HMGP	1 year
Goal: Preserve and restore the beneficial functions of natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.								
27	Natural Resource Protection	All	Maintain a healthy forest that can help mitigation the damaging impacts of flooding, erosion, landslides, and wild fires within urban and rural areas	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	5 years
28	Natural Resource Protection	All	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.	HMGP grants, General Fund, other grant	Medium	All jurisdictions	HMGP	10 years
20	Natural Resource Protection	All	Enact and enforce dumping regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years

30	Natural Resource Protection	All	Enact and enforce erosion and sedimentation control regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	1 year
31	Natural Resource Protection	All	Seek technical assistance through hthe Alabama Cooperative Extension System with Best Management Practices (BMP) for channel and drainage system maintenance.	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	10 years
32	Natural Resource Protection	All	Encourage land acquisition programs to acquire habitat throughout Marengo County	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	5 years
Goal: Apply engineered structural modifications to natural systems and public infrastructure to reduce potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable								
33	Structural Projects	All	Improve maintenance programs for streams and drainage ways	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
34	Structural Projects	All	Implement drainage improvement in watersheds throughout Marengo County	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
35	Structural	All	Continue to clear	HMGP grants,	High	All	HMGP	10 years

	Projects		debris from roads and drainage ways	General Fund, other grant funding		jurisdictions		
36	Structural Projects	All	Continue to improve and maintain county road system	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
37	Structural Projects	All	Prepare and implement standard operation procedures for drainage system maintenance	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years
Goal: Improve the Efficiency, timing, and effectiveness of response and recovery for natural hazard disasters								
38	Emergency Services	All	Improve public warning systems	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
39	Emergency Services	All	Improve public access to weather alerts	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
40	Emergency Services	All	Use social media to provide information about the public about dangerous weather	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
41	Emergency Services	All	Purchase emergency generators for post-disaster mitigation as needed. In particular	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years

			for the Volunteer Fire Departments, Marengo County Courthouse, and all water and sewer facilities throughout Marengo County.					
42	Emergency Services	All	Install an automated weather monitoring system that transmit data to the County EMA and the NWS, including all-weather stations, precipitation gauges, wind gauges, and temperature gauges	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years
43	Emergency Services	All	Promote the use of weather radios in households and businesses.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
44	Emergency Services All	All	Upgrade Critical Communication Infrastructure	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years

iii. City of Demopolis Mitigation Measures (New and Continued from 2010 Plan)

Mitigation Measure Number	Program Objective	Hazards Addressed	Mitigation Measure	Funding Resources	Priority	Responsible Department	Existing Potential Resources	Timeframe
Goal: Maintain a comprehensive database of hazard locations, socio economic data, infrastructure, and critical facilities inventories								
1	Prevention	All	Maintain a centralized countywide natural hazards and risk assessment database in GIS that is accessible to all personnel including flood zones, geohazards, major drainage structures, dams/levees; tornado tracks,	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	Virtual Alabama, GIS Data, HMGP	5 years
Goal: Manage the development of land and buildings to minimize the risks of loss due to natural hazards								
2	Prevention	Flood	Effectively administer and enforce local floodplain management, zoning ordinances, subdivision regulations, and	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	FEMA flood maps, HMGP, ADECA	2 years

			International Building Code regulations					
3	Prevention	Flood	Train local floodplain managers through programs offered at the State and Federal level.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	1 year
4	Prevention	All	The participating community has adopted and enforces floodplain management ordinances that meet or exceed the minimum requirements of the NFIP. These requirements are intended to prevent loss of life and property and reduce taxpayer costs for disaster relief, as well as minimize economic and social hardships that result from flooding.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	Ongoing
5	Prevention	All	Maintain a library of technical assistance and guidance	HMGP grants, General Fund, other grant	Medium	Marengo County EMA	HMGP and ADECA	1 year

			materials for local floodplain managers and use Marengo County EMA website for implementation	funding				
6	Prevention	All	Promote adoption of uniform flood hazard prevention ordinance among all of the NFIP communities in Marengo County.	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	1 year
7	Prevention	All	Acquire GIS software for marinating risk assessment data	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	5 years
8	Prevention	All	Update outdated comprehensive plan form early 2000s	HMGP grants, General Fund, other grant funding	Low	Marengo County EMA	HMGP and ADECA	10 years
9	Prevention	All	Require the construction of Safe Rooms in new public buildings, such as new schools, libraries, community centers and other public buildings when feasible	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
10	Prevention	All	Construct free-standing public Safe Rooms in existing	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP ADECA	5 years

			vulnerable locations	funding				
11	Prevention	All	Apply for funding to update/revise mitigation plan when needed	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	5 years
12	Prevention	All	Conduct special studies as needed to identify hazard risks and mitigation measures	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	10 years
Goal: Protect structures and their occupants and contents from damaging effects of natural hazards								
13	Property Protection	All	Encourage retrofits of older homes constructed before the enactment of floodplain regulations	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years
14	Property Protection	All	Maintain insurance riders on existing properties	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
15	Property Protection	All	Provide back-up power for critical facilities and fire stations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
16	Property Protection	All	Promote good construction practices and proper code enforcement to eliminate most structural problems	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years

			during natural hazard events					
17	Property Protection	All	Encourage the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
18	Property Protection	All	Retrofit public schools with community Safe Rooms.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
19	Property Protection	All	Increase access to Flood Insurance Rate Maps.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Completed
20	Property Protection	All	Promote the purchase of flood insurance coverage by property owners and renters in high-risk flooding areas.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
21	Property Protection	All	Continue to send law enforcement and fire personnel to emergency response training	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	Ongoing
22	Property	Fire	Install water	HMGP grants,	High	All	HMGP	5 years

	Protection		infrastructure and Fire hydrants in rural areas	General Fund, other grant funding		jurisdictions		
23	Property Protection	All	Encourage the construction of safe rooms in new and existing construction.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
24	Public Education and Outreach	All	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
25	Public Education and Outreach	All	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	1 year
26	Public Education and Outreach	All	Conduct regular public meetings of hazards and mitigation measures	HMGP grants, General Fund, other grant	Low	All jurisdictions	HMGP	1 year
Goal: Preserve and restore the beneficial functions of natural environment to promote sustainable community development that balances the constraints of								

nature with the social and economic demands of the community.								
27	Natural Resource Protection	All	Maintain a healthy forest that can help mitigation the damaging impacts of flooding, erosion, landslides, and wild fires within urban and rural areas	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	5 years
28	Natural Resource Protection	All	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.	HMGP grants, General Fund, other grant	Medium	All jurisdictions	HMGP	10 years
20	Natural Resource Protection	All	Enact and enforce dumping regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years
30	Natural Resource Protection	All	Enact and enforce erosion and sedimentation control regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	1 year
31	Natural Resource Protection	All	Seek technical assistance through hthe Alabama	HMGP grants, General Fund, other grant	Low	All jurisdictions	HMGP	10 years

			Cooperative Extension System with Best Management Practices (BMP) for channel and drainage system maintenance.	funding				
32	Natural Resource Protection	All	Encourage land acquisition programs to acquire habitat throughout Marengo County	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	5 years
Goal: Apply engineered structural modifications to natural systems and public infrastructure to reduce potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable								
33	Structural Projects	All	Improve maintenance programs for streams and drainage ways. These areas include but are not limited to the drainage Area along Whitfield Canal, drainage in the West portion of the City, and drainage areas in the southeast area of the City.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
34	Structural Projects	All	Implement drainage improvement in watersheds throughout Demopolis.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years

35	Structural Projects	All	Continue to clear debris from roads and drainage ways	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years
36	Structural Projects	All	Continue to improve and maintain county road system	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
37	Structural Projects	All	Prepare and implement standard operation procedures for drainage system maintenance	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years
Goal: Improve the Efficiency, timing, and effectiveness of response and recovery for natural hazard disasters								
38	Emergency Services	All	Improve public warning systems	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
39	Emergency Services	All	Improve public access to weather alerts	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
40	Emergency Services	All	Use social media to provide information about the public about dangerous weather	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
41	Emergency Services	All	Purchase emergency generators for post-disaster mitigation as	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	5 years

			needed. In particular for the Volunteer Fire Departments, Marengo County Courthouse, and all water and sewer facilities throughout Marengo County.	funding				
42	Emergency Services	All	Install an automated weather monitoring system that transmit data to the County EMA and the NWS, including all-weather stations, precipitation gauges, wind gauges, and temperature gauges	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years
43	Emergency Services	All	Promote the use of weather radios in households and businesses.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
44	Emergency Services All	All	Upgrade Critical Communication Infrastructure	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years

iv. Town of Faunsdale Mitigation Measures (New and Continued from 2010 Plan)

Mitigation Measure Number	Program Objective	Hazards Addressed	Mitigation Measure	Funding Resources	Priority	Responsible Department	Existing Potential Resources	Timeframe
Goal: Maintain a comprehensive database of hazard locations, socio economic data, infrastructure, and critical facilities inventories								
1	Prevention	All	Maintain a centralized countywide natural hazards and risk assessment database in GIS that is accessible to all personnel including flood zones, geohazards, major drainage structures, dams/levees; tornado tracks,	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	Virtual Alabama, GIS Data, HMGP	2 years
Goal: Manage the development of land and buildings to minimize the risks of loss due to natural hazards								
2	Prevention	Flood	Provide information to the public about flooding safety.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	FEMA flood maps, HMGP, ADECA	Ongoing
3	Prevention	Flood	Train local floodplain managers through programs offered at the State and Federal level.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	1 year
4	Prevention	All	N/A exempt	HMGP grants, General Fund, other grant	High	Marengo County EMA	HMGP and ADECA	1 year

				funding				
5	Prevention	All	Maintain a library of technical assistance and guidance materials for local floodplain managers and use Marengo County EMA website for implementation	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	5 years
6	Prevention	All	Promote adoption of uniform flood hazard prevention ordinance among all of the NFIP communities in Marengo County.	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	10 years
7	Prevention	All	Acquire GIS software for marinating risk assessment data	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	1 year
8	Prevention	All	Prepare and adopt a comprehensive plan	HMGP grants, General Fund, other grant funding	Low	Marengo County EMA	HMGP and ADECA	5 years
9	Prevention	All	Require the construction of Safe Rooms in new public buildings, such as new schools, libraries, community centers and other public buildings when	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years

			feasible					
10	Prevention	All	Construct free-standing public Safe Rooms in existing vulnerable locations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP ADECA	10 years
11	Prevention	All	Apply for funding to update/revise mitigation plan when needed	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	
12	Prevention	All	Conduct special studies as needed to identify hazard risks and mitigation measures	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years
Goal: Protect structures and their occupants and contents from damaging effects of natural hazards								
13	Property Protection	All	Encourage retrofits of older homes constructed before the enactment of floodplain regulations	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years
14	Property Protection	All	Maintain insurance riders on existing properties	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
15	Property Protection	All	Provide back-up power for critical facilities and fire stations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
16	Property Protection	All	Promote good construction practices	HMGP grants, General Fund,	Medium	All jurisdictions	HMGP	2 years

			and proper code enforcement to eliminate most structural problems during natural hazard events	other grant funding				
17	Property Protection	All	Encourage the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Completed
18	Property Protection	All	Retrofit public schools with community Safe Rooms.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
19	Property Protection	All	Increase access to Flood Insurance Rate Maps.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
20	Property Protection	All	Promote the purchase of flood insurance coverage by property owners and renters in high-risk flooding areas.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	5 years
21	Property Protection	All	Continue to send law enforcement	HMGP grants, General Fund,	Low	All jurisdictions	HMGP	5 years

			and fire personnel to emergency response training	other grant funding				
22	Property Protection	Fire	Install water infrastructure and Fire hydrants in rural areas	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	
23	Property Protection	All	Encourage the construction of safe rooms in new and existing construction.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	
Goal: Education and inform the public about the risk of hazards and the techniques available to reduce threats to life and property.								
24	Public Education and Outreach	All	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	1 year
25	Public Education and Outreach	All	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	

26	Public Education and Outreach	All	Conduct regular public meetings of hazards and mitigation measures	HMGP grants, General Fund, other grant	Low	All jurisdictions	HMGP	5 years
Goal: Preserve and restore the beneficial functions of natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.								
27	Natural Resource Protection	All	Maintain a healthy forest that can help mitigation the damaging impacts of flooding, erosion, landslides, and wild fires within urban and rural areas	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	5 years
28	Natural Resource Protection	All	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.	HMGP grants, General Fund, other grant	Medium	All jurisdictions	HMGP	1 year
20	Natural Resource Protection	All	Enact and enforce dumping regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	10 years
30	Natural	All	Enact and enforce	HMGP grants,	Low	All	HMGP	5 years

	Resource Protection		erosion and sedimentation control regulations	General Fund, other grant funding		jurisdictions		
31	Natural Resource Protection	All	Seek technical assistance through hthe Alabama Cooperative Extension System with Best Management Practices (BMP) for channel and drainage system maintenance.	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	
32	Natural Resource Protection	All	Encourage land acquisition programs to acquire habitat throughout the Town of Faunsdale.	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	
Goal: Apply engineered structural modifications to natural systems and public infrastructure to reduce potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable								
33	Structural Projects	All	Improve maintenance programs for streams and drainage ways	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years
34	Structural Projects	All	Implement drainage improvement in watersheds throughout Marengo County	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
35	Structural Projects	All	Continue to clear debris from roads and	HMGP grants, General Fund,	High	All jurisdictions	HMGP	5 years

			drainage ways	other grant funding				
36	Structural Projects	All	Continue to improve and maintain county road system	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	
37	Structural Projects	All	Prepare and implement standard operation procedures for drainage system maintenance	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	1 year
Goal: Improve the Efficiency, timing, and effectiveness of response and recovery for natural hazard disasters								
38	Emergency Services	All	Improve public warning systems	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
39	Emergency Services	All	Improve public access to weather alerts	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
40	Emergency Services	All	Use social media to provide information about the public about dangerous weather	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years
41	Emergency Services	All	Purchase emergency generators for post-disaster mitigation as needed. In particular for the Volunteer Fire	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years

			Departments, Marengo County Courthouse, and all water and sewer facilities throughout Marengo County.					
42	Emergency Services	All	Install an automated weather monitoring system that transmit data to the County EMA and the NWS, including all-weather stations, precipitation gauges, wind gauges, and temperature gauges	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
43	Emergency Services	All	Promote the use of weather radios in households and businesses.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
44	Emergency Services All	All	Upgrade Critical Communication Infrastructure	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing

v. City of Linden (New and Continued from 2010 Plan)

Mitigation Measure Number	Program Objective	Hazards Addressed	Mitigation Measure	Funding Resources	Priority	Responsible Department	Existing Potential Resources	Timeframe
Goal: Maintain a comprehensive database of hazard locations, socio economic data, infrastructure, and critical facilities inventories								
1	Prevention	All	Maintain a centralized countywide natural hazards and risk assessment database in GIS that is accessible to all personnel including flood zones, geohazards, major drainage structures, dams/levees; tornado tracks,	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	Virtual Alabama, GIS Data, HMGP	5 years
Goal: Manage the development of land and buildings to minimize the risks of loss due to natural hazards								
2	Prevention	Flood	Effectively administer and enforce local floodplain management regulations along with enforcement of International Building Codes, zoning ordinance and subdivision regulations.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	FEMA flood maps, HMGP, ADECA	2 years
3	Prevention	Flood	Train local floodplain	HMGP grants,	High	Marengo	HMGP and	1 year

			managers through programs offered at the State and Federal level.	General Fund, other grant funding		County EMA	ADECA	
4	Prevention	All	The participating community has adopted and enforces floodplain management ordinances that meet or exceed the minimum requirements of the NFIP. These requirements are intended to prevent loss of life and property and reduce taxpayer costs for disaster relief, as well as minimize economic and social hardships that result from flooding.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	Ongoing
5	Prevention	All	Maintain a library of technical assistance and guidance materials for local floodplain managers and use Marengo	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	1 year

			County EMA website for implementation					
6	Prevention	All	Promote adoption of uniform flood hazard prevention ordinance among all of the NFIP communities in the City of Linden.	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	1 year
7	Prevention	All	Acquire GIS software for marinating risk assessment data	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	5 years
8	Prevention	All	Prepare and adopt a comprehensive plan	HMGP grants, General Fund, other grant funding	Low	Marengo County EMA	HMGP and ADECA	10 years
9	Prevention	All	Require the construction of Safe Rooms in new public buildings, such as new schools, libraries, community centers and other public buildings when feasible	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
10	Prevention	All	Construct free-standing public Safe Rooms in existing vulnerable locations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP ADECA	5 years

11	Prevention	All	Apply for funding to update/revise mitigation plan when needed	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	5 years
12	Prevention	All	Conduct special studies as needed to identify hazard risks and mitigation measures	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	10 years
Goal: Protect structures and their occupants and contents from damaging effects of natural hazards								
13	Property Protection	All	Encourage retrofits of older homes constructed before the enactment of floodplain regulations	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years
14	Property Protection	All	Maintain insurance riders on existing properties	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
15	Property Protection	All	Provide back-up power for critical facilities and fire stations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
16	Property Protection	All	Promote good construction practices and proper code enforcement to eliminate most structural problems during natural hazard	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years

			events					
17	Property Protection	All	Encourage the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
18	Property Protection	All	Retrofit public schools with community Safe Rooms.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
19	Property Protection	All	Increase access to Flood Insurance Rate Maps.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Completed
20	Property Protection	All	Promote the purchase of flood insurance coverage by property owners and renters in high-risk flooding areas.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
21	Property Protection	All	Continue to send law enforcement and fire personnel to emergency response training	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	Ongoing
22	Property Protection	Fire	Install water infrastructure and Fire	HMGP grants, General Fund,	High	All jurisdictions	HMGP	5 years

			hydrants in rural areas	other grant funding				
23	Property Protection	All	Encourage the construction of safe rooms in new and existing construction.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
Goal: Education and inform the public about the risk of hazards and the techniques available to reduce threats to life and property.								
24	Public Education and Outreach	All	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
25	Public Education and Outreach	All	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	1 year
26	Public Education and Outreach	All	Conduct regular public meetings of hazards and mitigation measures	HMGP grants, General Fund, other grant	Low	All jurisdictions	HMGP	1 year
Goal: Preserve and restore the beneficial functions of natural environment to								

promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.								
27	Natural Resource Protection	All	Maintain a healthy forest that can help mitigation the damaging impacts of flooding, erosion, landslides, and wild fires within urban and rural areas	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	5 years
28	Natural Resource Protection	All	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.	HMGP grants, General Fund, other grant	Medium	All jurisdictions	HMGP	10 years
20	Natural Resource Protection	All	Enact and enforce dumping regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years
30	Natural Resource Protection	All	Enact and enforce erosion and sedimentation control regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	1 year
31	Natural Resource	All	Seek technical assistance through	HMGP grants, General Fund,	Low	All jurisdictions	HMGP	10 years

	Protection		hthe Alabama Cooperative Extension System with Best Management Practices (BMP) for channel and drainage system maintenance.	other grant funding				
32	Natural Resource Protection	All	Encourage land acquisition programs to acquire habitat throughout Marengo County	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	5 years
Goal: Apply engineered structural modifications to natural systems and public infrastructure to reduce potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable								
33	Structural Projects	All	Improve maintenance programs for streams and drainage ways.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
34	Structural Projects	All	Implement drainage improvement in watersheds throughout the City of Linden including but not limited to Drainage in the MLK area, Drainage at South Maine Street and 5th Avenue, and drainage to address flash flooding.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years

35	Structural Projects	All	Continue to clear debris from roads and drainage ways	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years
36	Structural Projects	All	Continue to improve and maintain county road system	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
37	Structural Projects	All	Prepare and implement standard operation procedures for drainage system maintenance	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years
Goal: Improve the Efficiency, timing, and effectiveness of response and recovery for natural hazard disasters								
38	Emergency Services	All	Improve public warning systems	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
39	Emergency Services	All	Improve public access to weather alerts	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
40	Emergency Services	All	Use social media to provide information about the public about dangerous weather	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
41	Emergency Services	All	Purchase emergency generators for post-disaster mitigation as	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	5 years

			needed. In particular for the Volunteer Fire Departments, Marengo County Courthouse, Police Stations, and all water and sewer facilities throughout Marengo County.	funding				
42	Emergency Services	All	Install an automated weather monitoring system that transmit data to the County EMA and the NWS, including all-weather stations, precipitation gauges, wind gauges, and temperature gauges	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years
43	Emergency Services	All	Promote the use of weather radios in households and businesses.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
44	Emergency Services All	All	Upgrade Critical Communication Infrastructure	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years

vi. Town of Myrtlewood Mitigation Measures (New and Continued from 2010 Plan)

Mitigation Measure Number	Program Objective	Hazards Addressed	Mitigation Measure	Funding Resources	Priority	Responsible Department	Existing Potential Resources	Timeframe
Goal: Maintain a comprehensive database of hazard locations, socio economic data, infrastructure, and critical facilities inventories								
1	Prevention	All	Maintain a centralized countywide natural hazards and risk assessment database in GIS that is accessible to all personnel including flood zones, geohazards, major drainage structures, dams/levees; tornado tracks,	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	Virtual Alabama, GIS Data, HMGP	Ongoing
Goal: Manage the development of land and buildings to minimize the risks of loss due to natural hazards								
2	Prevention	Flood	Provide information to the public about flooding safety.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	FEMA flood maps, HMGP, ADECA	Ongoing
3	Prevention	Flood	Train local floodplain managers through programs offered at the State and Federal level.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	Ongoing
4	Prevention	All	The participating community has adopted	HMGP grants, General Fund, other grant	High	Marengo County EMA	HMGP and ADECA	Ongoing

			and enforces floodplain management ordinances that meet or exceed the minimum requirements of the NFIP. These requirements are intended to prevent loss of life and property and reduce taxpayer costs for disaster relief, as well as minimize economic and social hardships that result from flooding.	funding				
5	Prevention	All	Maintain a library of technical assistance and guidance materials for local floodplain managers and use Marengo County EMA website for implementation	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	Ongoing
6	Prevention	All	Promote adoption of uniform flood hazard prevention ordinance among all of the NFIP communities in	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	Ongoing

			Marengo County.					
7	Prevention	All	Acquire GIS software for marinating risk assessment data	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	Ongoing
8	Prevention	All	Prepare and adopt a comprehensive plan	HMGP grants, General Fund, other grant funding	Low	Marengo County EMA	HMGP and ADECA	Ongoing
9	Prevention	All	Require the construction of Safe Rooms in new public buildings, such as new schools, libraries, community centers and other public buildings when feasible	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
10	Prevention	All	Construct free-standing public Safe Rooms in existing vulnerable locations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP ADECA	Ongoing
11	Prevention	All	Apply for funding to update/revise mitigation plan when needed	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
12	Prevention	All	Conduct special studies as needed to identify hazard risks and mitigation measures	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing

Goal: Protect structures and their occupants and contents from damaging effects of natural hazards								
13	Property Protection	All	Encourage retrofits of older homes constructed before the enactment of floodplain regulations	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
14	Property Protection	All	Maintain insurance riders on existing properties	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
15	Property Protection	All	Provide back-up power for critical facilities and fire stations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
16	Property Protection	All	Promote good construction practices and proper code enforcement to eliminate most structural problems during natural hazard events	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
17	Property Protection	All	Encourage the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing

			feasible.					
18	Property Protection	All	Retrofit public schools with community Safe Rooms.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
19	Property Protection	All	Increase access to Flood Insurance Rate Maps.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
20	Property Protection	All	Promote the purchase of flood insurance coverage by property owners and renters in high-risk flooding areas.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
21	Property Protection	All	Continue to send law enforcement and fire personnel to emergency response training	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	Ongoing
22	Property Protection	Fire	Install water infrastructure and Fire hydrants in rural areas	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
23	Property Protection	All	Encourage the construction of safe rooms in new and existing construction.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
Mitigation Measure Number	Program Objective	Hazards Addressed	Mitigation Measure	Funding Resources	Priority	All jurisdictions	HMGP	Ongoing

Goal: Education and inform the public about the risk of hazards and the techniques available to reduce threats to life and property.								
24	Public Education and Outreach	All	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
25	Public Education and Outreach	All	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
26	Public Education and Outreach	All	Conduct regular public meetings of hazards and mitigation measures	HMGP grants, General Fund, other grant	Low	All jurisdictions	HMGP	Ongoing
Goal: Preserve and restore the beneficial functions of natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.								
27	Natural Resource Protection	All	Maintain a healthy forest that can help mitigation the damaging impacts of	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	Ongoing

			flooding, erosion, landslides, and wild fires within urban and rural areas					
28	Natural Resource Protection	All	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.	HMGP grants, General Fund, other grant	Medium	All jurisdictions	HMGP	Ongoing
20	Natural Resource Protection	All	Enact and enforce dumping regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	Ongoing
30	Natural Resource Protection	All	Enact and enforce erosion and sedimentation control regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	Ongoing
31	Natural Resource Protection	All	Seek technical assistance through hthe Alabama Cooperative Extension System with Best Management Practices (BMP) for channel and drainage	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	Ongoing

			system maintenance.					
32	Natural Resource Protection	All	Encourage land acquisition programs to acquire habitat throughout Marengo County	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	Ongoing
Goal: Apply engineered structural modifications to natural systems and public infrastructure to reduce potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable								
33	Structural Projects	All	Improve maintenance programs for streams and drainage ways	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
34	Structural Projects	All	Implement drainage improvement in watersheds throughout Marengo County	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
35	Structural Projects	All	Continue to clear debris from roads and drainage ways	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
36	Structural Projects	All	Continue to improve and maintain county road system	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
37	Structural Projects	All	Prepare and implement standard operation procedures for drainage system maintenance	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	Ongoing

Goal: Improve the Efficiency, timing, and effectiveness of response and recovery for natural hazard disasters								
38	Emergency Services	All	Improve public warning systems	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
39	Emergency Services	All	Improve public access to weather alerts	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
40	Emergency Services	All	Use social media to provide information about the public about dangerous weather	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
41	Emergency Services	All	Purchase emergency generators for post-disaster mitigation as needed. In particular for the Volunteer Fire Departments, Marengo County Courthouse, and all water and sewer facilities throughout Marengo County.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
42	Emergency Services	All	Install an automated weather monitoring system that transmit data to the County EMA and the NWS,	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing

			including all-weather stations, precipitation gauges, wind gauges, and temperature gauges					
43	Emergency Services	All	Promote the use of weather radios in households and businesses.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
44	Emergency Services All	All	Upgrade Critical Communication Infrastructure	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing

vii. Town of Providence Mitigation Measures (New and Continued from 2010)

Mitigation Measure Number	Program Objective	Hazards Addressed	Mitigation Measure	Funding Resources	Priority	Responsible Department	Existing Potential Resources	Timeframe
Goal: Maintain a comprehensive database of hazard locations, socio economic data, infrastructure, and critical facilities inventories								
1	Prevention	All	Maintain a centralized countywide natural hazards and risk assessment database in GIS that is accessible to all personnel including flood zones, geohazards, major drainage structures, dams/levees; tornado tracks,	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	Virtual Alabama, GIS Data, HMGP	5 years
Goal: Manage the development of land and buildings to minimize the risks of loss due to natural hazards								
2	Prevention	Flood	Continue participation in the National Flood Insurance Program	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	FEMA flood maps, HMGP, ADECA	2 years
3	Prevention	Flood	Train local floodplain managers through programs offered at the State and Federal level.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	1 year
4	Prevention	All	The participating community has adopted	HMGP grants, General Fund, other grant	High	Marengo County EMA	HMGP and ADECA	Ongoing

			and enforces floodplain management ordinances that meet or exceed the minimum requirements of the NFIP. These requirements are intended to prevent loss of life and property and reduce taxpayer costs for disaster relief, as well as minimize economic and social hardships that result from flooding.	funding				
5	Prevention	All	Maintain a library of technical assistance and guidance materials for local floodplain managers and use Marengo County EMA website for implementation	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	1 year
6	Prevention	All	Promote adoption of uniform flood hazard prevention ordinance among all of the NFIP communities in	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	1 year

			Marengo County.					
7	Prevention	All	Acquire GIS software for marinating risk assessment data	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	5 years
8	Prevention	All	Prepare and adopt a comprehensive plan	HMGP grants, General Fund, other grant funding	Low	Marengo County EMA	HMGP and ADECA	10 years
9	Prevention	All	Require the construction of Safe Rooms in new public buildings, such as new schools, libraries, community centers and other public buildings when feasible	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
10	Prevention	All	Construct free-standing public Safe Rooms in existing vulnerable locations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP ADECA	5 years
11	Prevention	All	Apply for funding to update/revise mitigation plan when needed	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	5 years
12	Prevention	All	Conduct special studies as needed to identify hazard risks and mitigation measures	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	10 years

Goal: Protect structures and their occupants and contents from damaging effects of natural hazards								
13	Property Protection	All	Encourage retrofits of older homes constructed before the enactment of floodplain regulations	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years
14	Property Protection	All	Maintain insurance riders on existing properties	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
15	Property Protection	All	Provide back-up power for critical facilities and fire stations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
16	Property Protection	All	Promote good construction practices and proper code enforcement to eliminate most structural problems during natural hazard events	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years
17	Property Protection	All	Encourage the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years

			feasible.					
18	Property Protection	All	Retrofit public schools with community Safe Rooms.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
19	Property Protection	All	Increase access to Flood Insurance Rate Maps.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Completed
20	Property Protection	All	Promote the purchase of flood insurance coverage by property owners and renters in high-risk flooding areas.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
21	Property Protection	All	Continue to send law enforcement and fire personnel to emergency response training	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	Ongoing
22	Property Protection	Fire	Install water infrastructure and Fire hydrants in rural areas	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
23	Property Protection	All	Encourage the construction of safe rooms in new and existing construction.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
Goal: Education and inform the public about the risk of hazards and the techniques available to reduce threats to life and property.								
24	Public	All	Maintain appropriate	HMGP grants,	Medium	All	HMGP	Ongoing

	Education and Outreach		media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	General Fund, other grant funding		jurisdictions		
25	Public Education and Outreach	All	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	1 year
26	Public Education and Outreach	All	Conduct regular public meetings of hazards and mitigation measures	HMGP grants, General Fund, other grant	Low	All jurisdictions	HMGP	1 year
Goal: Preserve and restore the beneficial functions of natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.								
27	Natural Resource Protection	All	Maintain a healthy forest that can help mitigation the damaging impacts of flooding, erosion, landslides, and wild fires within urban and	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	5 years

			rural areas					
28	Natural Resource Protection	All	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.	HMGP grants, General Fund, other grant	Medium	All jurisdictions	HMGP	10 years
20	Natural Resource Protection	All	Enact and enforce dumping regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years
30	Natural Resource Protection	All	Enact and enforce erosion and sedimentation control regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	1 year
31	Natural Resource Protection	All	Seek technical assistance through hthe Alabama Cooperative Extension System with Best Management Practices (BMP) for channel and drainage system maintenance.	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	10 years
32	Natural Resource	All	Encourage land acquisition programs	HMGP grants, General Fund,	High	All jurisdictions	HMGP	5 years

	Protection		to acquire habitat throughout Marengo County	other grant				
Goal: Apply engineered structural modifications to natural systems and public infrastructure to reduce potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable								
33	Structural Projects	All	Improve maintenance programs for streams and drainage ways	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
34	Structural Projects	All	Implement drainage improvement in watersheds throughout Marengo County	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
35	Structural Projects	All	Continue to clear debris from roads and drainage ways	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years
36	Structural Projects	All	Continue to improve and maintain county road system	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
37	Structural Projects	All	Prepare and implement standard operation procedures for drainage system maintenance	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years
Goal: Improve the Efficiency, timing, and effectiveness of response and recovery for natural hazard disasters								
38	Emergency	All	Improve public	HMGP grants,	High	All	HMGP	1 year

	Services		warning systems	General Fund, other grant funding		jurisdictions		
39	Emergency Services	All	Improve public access to weather alerts	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
40	Emergency Services	All	Use social media to provide information about the public about dangerous weather	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
41	Emergency Services	All	Purchase emergency generators for post-disaster mitigation as needed. In particular for the Volunteer Fire Departments, Marengo County Courthouse, and all water and sewer facilities throughout Marengo County.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
42	Emergency Services	All	Install an automated weather monitoring system that transmit data to the County EMA and the NWS, including all-weather stations, precipitation gauges, wind gauges,	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years

			and temperature gauges					
43	Emergency Services	All	Promote the use of weather radios in households and businesses.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
44	Emergency Services All	All	Upgrade Critical Communication Infrastructure	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years

viii. Town of Sweet Water Mitigation Measures (New and Continued from 2010)

Mitigation Measure Number	Program Objective	Hazards Addressed	Mitigation Measure	Funding Resources	Priority	Responsible Department	Existing Potential Resources	Timeframe
Goal: Maintain a comprehensive database of hazard locations, socio economic data, infrastructure, and critical facilities inventories								
1	Prevention	All	Maintain a centralized countywide natural hazards and risk assessment database in GIS that is accessible to all personnel including flood zones, geohazards, major drainage structures, dams/levees; tornado tracks,	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	Virtual Alabama, GIS Data, HMGP	5 years
Goal: Manage the development of land and buildings to minimize the risks of loss due to natural hazards								
2	Prevention	Flood	Provide information to the public about flooding safety.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	FEMA flood maps, HMGP, ADECA	2 years
3	Prevention	Flood	Train local floodplain managers through programs offered at the State and Federal level.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	1 year
4	Prevention	All	The participating community has adopted	HMGP grants, General Fund, other grant	High	Marengo County EMA	HMGP and ADECA	Ongoing

			and enforces floodplain management ordinances that meet or exceed the minimum requirements of the NFIP. These requirements are intended to prevent loss of life and property and reduce taxpayer costs for disaster relief, as well as minimize economic and social hardships that result from flooding.	funding				
5	Prevention	All	Maintain a library of technical assistance and guidance materials for local floodplain managers and use Marengo County EMA website for implementation	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	1 year
6	Prevention	All	Promote adoption of uniform flood hazard prevention ordinance among all of the NFIP communities in	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	1 year

			Marengo County.					
7	Prevention	All	Acquire GIS software for marinating risk assessment data	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	5 years
8	Prevention	All	Prepare and adopt a comprehensive plan	HMGP grants, General Fund, other grant funding	Low	Marengo County EMA	HMGP and ADECA	10 years
9	Prevention	All	Require the construction of Safe Rooms in new public buildings, such as new schools, libraries, community centers and other public buildings when feasible	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
10	Prevention	All	Construct free-standing public Safe Rooms in existing vulnerable locations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP ADECA	5 years
11	Prevention	All	Apply for funding to update/revise mitigation plan when needed	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	5 years
12	Prevention	All	Conduct special studies as needed to identify hazard risks and mitigation measures	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	10 years

Goal: Protect structures and their occupants and contents from damaging effects of natural hazards								
13	Property Protection	All	Encourage retrofits of older homes constructed before the enactment of floodplain regulations	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years
14	Property Protection	All	Maintain insurance riders on existing properties	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
15	Property Protection	All	Provide back-up power for critical facilities and fire stations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
16	Property Protection	All	Promote good construction practices and proper code enforcement to eliminate most structural problems during natural hazard events	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years
17	Property Protection	All	Encourage the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years

			feasible.					
18	Property Protection	All	Retrofit public schools with community Safe Rooms.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
19	Property Protection	All	Increase access to Flood Insurance Rate Maps.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Completed
20	Property Protection	All	Promote the purchase of flood insurance coverage by property owners and renters in high-risk flooding areas.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
21	Property Protection	All	Continue to send law enforcement and fire personnel to emergency response training	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	Ongoing
22	Property Protection	Fire	Install water infrastructure and Fire hydrants in rural areas	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
23	Property Protection	All	Encourage the construction of safe rooms in new and existing construction.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
Goal: Education and inform the public about the risk of hazards and the techniques available to reduce threats to life and property.								
24	Public	All	Maintain appropriate	HMGP grants,	Medium	All	HMGP	Ongoing

	Education and Outreach		media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	General Fund, other grant funding		jurisdictions		
25	Public Education and Outreach	All	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	1 year
26	Public Education and Outreach	All	Conduct regular public meetings of hazards and mitigation measures	HMGP grants, General Fund, other grant	Low	All jurisdictions	HMGP	1 year
Goal: Preserve and restore the beneficial functions of natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.								
27	Natural Resource Protection	All	Maintain a healthy forest that can help mitigation the damaging impacts of flooding, erosion, landslides, and wild fires within urban and	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	5 years

			rural areas					
28	Natural Resource Protection	All	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.	HMGP grants, General Fund, other grant	Medium	All jurisdictions	HMGP	10 years
20	Natural Resource Protection	All	Enact and enforce dumping regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years
30	Natural Resource Protection	All	Enact and enforce erosion and sedimentation control regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	1 year
31	Natural Resource Protection	All	Seek technical assistance through hthe Alabama Cooperative Extension System with Best Management Practices (BMP) for channel and drainage system maintenance.	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	10 years
32	Natural Resource	All	Encourage land acquisition programs	HMGP grants, General Fund,	High	All jurisdictions	HMGP	5 years

	Protection		to acquire habitat throughout the Town of Sweet Water	other grant				
Goal: Apply engineered structural modifications to natural systems and public infrastructure to reduce potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable								
33	Structural Projects	All	Improve maintenance programs for streams and drainage ways	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
34	Structural Projects	All	Implement drainage improvement in watersheds throughout Marengo County	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
35	Structural Projects	All	Continue to clear debris from roads and drainage ways	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years
36	Structural Projects	All	Continue to improve and maintain county road system	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
37	Structural Projects	All	Prepare and implement standard operation procedures for drainage system maintenance	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years
Goal: Improve the Efficiency, timing, and effectiveness of response and recovery for natural hazard disasters								
38	Emergency	All	Improve public	HMGP grants,	High	All	HMGP	1 year

	Services		warning systems	General Fund, other grant funding		jurisdictions		
39	Emergency Services	All	Improve public access to weather alerts	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
40	Emergency Services	All	Use social media to provide information about the public about dangerous weather	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
41	Emergency Services	All	Purchase emergency generators for post-disaster mitigation as needed. In particular for the Volunteer Fire Departments, Marengo County Courthouse, and all water and sewer facilities throughout Marengo County.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
42	Emergency Services	All	Install an automated weather monitoring system that transmit data to the County EMA and the NWS, including all-weather stations, precipitation gauges, wind gauges,	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years

			and temperature gauges					
43	Emergency Services	All	Promote the use of weather radios in households and businesses.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
44	Emergency Services All	All	Upgrade Critical Communication Infrastructure	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	

Town of Thomaston Mitigation Measures (New and Continued from 2010)

Mitigation Measure Number	Program Objective	Hazards Addressed	Mitigation Measure	Funding Resources	Priority	Responsible Department	Existing Potential Resources	Timeframe
Goal: Maintain a comprehensive database of hazard locations, socio economic data, infrastructure, and critical facilities inventories								
1	Prevention	All	Maintain a centralized countywide natural hazards and risk assessment database in GIS that is accessible to all personnel including flood zones, geohazards, major drainage structures, dams/levees; tornado tracks,	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	Virtual Alabama, GIS Data, HMGP	5 years
Goal: Manage the development of land and buildings to minimize the risks of loss due to natural hazards								
2	Prevention	Flood	Effectively administer and enforce local floodplain management regulations	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	FEMA flood maps, HMGP, ADECA	2 years
3	Prevention	Flood	Train local floodplain managers through programs offered at the State and Federal level.	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	1 year
4	Prevention	All	The participating community has	HMGP grants, General Fund,	High	Marengo County EMA	HMGP and ADECA	Ongoing

			adopted and enforces floodplain management ordinances that meet or exceed the minimum requirements of the NFIP. These requirements are intended to prevent loss of life and property and reduce taxpayer costs for disaster relief, as well as minimize economic and social hardships that result from flooding.	other grant funding				
5	Prevention	All	Maintain a library of technical assistance and guidance materials for local floodplain managers and use Marengo County EMA website for implementation	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	1 year
6	Prevention	All	Promote adoption of uniform flood hazard prevention ordinance among all of the NFIP	HMGP grants, General Fund, other grant funding	Medium	Marengo County EMA	HMGP and ADECA	1 year

			communities in Marengo County.					
7	Prevention	All	Acquire GIS software for marinating risk assessment data	HMGP grants, General Fund, other grant funding	High	Marengo County EMA	HMGP and ADECA	5 years
8	Prevention	All	Prepare and adopt a comprehensive plan	HMGP grants, General Fund, other grant funding	Low	Marengo County EMA	HMGP and ADECA	10 years
9	Prevention	All	Require the construction of Safe Rooms in new public buildings, such as new schools, libraries, community centers and other public buildings when feasible	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
10	Prevention	All	Construct free-standing public Safe Rooms in existing vulnerable locations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP ADECA	5 years
11	Prevention	All	Apply for funding to update/revise mitigation plan when needed	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	5 years
12	Prevention	All	Conduct special studies as needed to identify hazard risks and mitigation	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	10 years

			measures					
Goal: Protect structures and their occupants and contents from damaging effects of natural hazards								
13	Property Protection	All	Encourage retrofits of older homes constructed before the enactment of floodplain regulations	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years
14	Property Protection	All	Maintain insurance riders on existing properties	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Ongoing
15	Property Protection	All	Provide back-up power for critical facilities and fire stations	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
16	Property Protection	All	Promote good construction practices and proper code enforcement to eliminate most structural problems during natural hazard events	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	2 years
17	Property Protection	All	Encourage the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years

			public buildings where feasible.					
18	Property Protection	All	Retrofit public schools with community Safe Rooms.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
19	Property Protection	All	Increase access to Flood Insurance Rate Maps.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	Completed
20	Property Protection	All	Promote the purchase of flood insurance coverage by property owners and renters in high-risk flooding areas.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
21	Property Protection	All	Continue to send law enforcement and fire personnel to emergency response training	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	Ongoing
22	Property Protection	Fire	Install water infrastructure and Fire hydrants in rural areas	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
23	Property Protection	All	Encourage the construction of safe rooms in new and existing construction.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
Goal: Education and inform the public about the risk of hazards and the techniques available to reduce threats to life and property.								

24	Public Education and Outreach	All	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	Ongoing
25	Public Education and Outreach	All	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	HMGP grants, General Fund, other grant funding	Medium	All jurisdictions	HMGP	1 year
26	Public Education and Outreach	All	Conduct regular public meetings of hazards and mitigation measures	HMGP grants, General Fund, other grant	Low	All jurisdictions	HMGP	1 year
Goal: Preserve and restore the beneficial functions of natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.								
27	Natural Resource Protection	All	Maintain a healthy forest that can help mitigation the damaging impacts of flooding, erosion, landslides, and wild	HMGP grants, General Fund, other grant	High	All jurisdictions	HMGP	5 years

			fires within urban and rural areas					
28	Natural Resource Protection	All	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.	HMGP grants, General Fund, other grant	Medium	All jurisdictions	HMGP	10 years
29	Natural Resource Protection	All	Enact and enforce dumping regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years
30	Natural Resource Protection	All	Enact and enforce erosion and sedimentation control regulations	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	1 year
31	Natural Resource Protection	All	Seek technical assistance through hthe Alabama Cooperative Extension System with Best Management Practices (BMP) for channel and drainage system maintenance.	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	10 years
32	Natural	All	Encourage land	HMGP grants,	High	All	HMGP	5 years

	Resource Protection		acquisition programs to acquire habitat throughout Marengo County	General Fund, other grant		jurisdictions		
Goal: Apply engineered structural modifications to natural systems and public infrastructure to reduce potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable								
33	Structural Projects	All	Improve maintenance programs for streams and drainage ways	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
34	Structural Projects	All	Implement drainage improvement in watersheds throughout Marengo County	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
35	Structural Projects	All	Continue to clear debris from roads and drainage ways	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years
36	Structural Projects	All	Continue to improve and maintain county road system	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
37	Structural Projects	All	Prepare and implement standard operation procedures for drainage system maintenance	HMGP grants, General Fund, other grant funding	Low	All jurisdictions	HMGP	5 years
Goal: Improve the Efficiency, timing, and effectiveness of response and recovery for natural hazard disasters								

38	Emergency Services	All	Improve public warning systems	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
39	Emergency Services	All	Improve public access to weather alerts	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	1 year
40	Emergency Services	All	Use social media to provide information about the public about dangerous weather	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	2 years
41	Emergency Services	All	Purchase emergency generators for post-disaster mitigation as needed. In particular for the Volunteer Fire Departments, Marengo County Courthouse, and all water and sewer facilities throughout Marengo County.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years
42	Emergency Services	All	Install an automated weather monitoring system that transmit data to the County EMA and the NWS, including all-weather stations, precipitation	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	10 years

			gauges, wind gauges, and temperature gauges					
43	Emergency Services	All	Promote the use of weather radios in households and businesses.	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	3 years
44	Emergency Services	All	Upgrade Critical Communication Infrastructure	HMGP grants, General Fund, other grant funding	High	All jurisdictions	HMGP	5 years

6. Plan Maintenance – The Marengo County Emergency Management Agency is responsible for maintaining the local Hazard Mitigation Plan, including all monitoring, evaluation, and updating activities. As part of this plan update process, the MC EMA reviewed the status detailed in the 2010 Plan for monitoring, evaluating, and updating the plan and compared it to the plan maintenance activities that took place since plan adoption in 2010.

   Regular plan monitoring will be achieved through Marengo County EMA's efforts to track mitigation activities. The annual review will take place in June of each year and will be initiated by the Marengo County EMA Director. The Director will e-mail a survey to each member of the Hazard Mitigation Planning Committee. The survey will request input on the following items:

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

   The Marengo County Natural Hazards Mitigation Plan will be updated every five years as required by FEMA. At the beginning of the fifth year, the EMA director will begin making arrangements for the plan's update. The process of updating the plan will be undertaken in the same way as the development of the plan. The public participation component will also be included. At least two advertised public meetings will be held to involve the public in the update process. Drafts of the updated plan will also be available for public comment. Within the five-year cycle, a jurisdiction may request to update the plan. If the jurisdiction would like to update only a jurisdiction specific portion, such as mitigation goals/strategies it may do so. Any jurisdiction MUST contact the EMA director in order to ensure he has an amended copy of their part of the plan. Private citizens and/or local businesses may request an update within the five- year planning cycle also. All request made by private citizens and/or local businesses must be made directly to the EMA.

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. 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 all of the jurisdictions. A copy of the plan 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.

A critical part of maintaining an effective and relevant natural hazards mitigation plan is ongoing public review and comment. Consequently, the Hazard Mitigation Planning Committee 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 hard copy of the plan will be available for viewing at all appropriate agencies throughout the County; including, at a minimum, the Marengo County Emergency Management Agency Office, the office of the County Commission, the offices of the Mayors, and the main public library.

The Marengo County Hazard Mitigation Plan will be incorporated into existing planning mechanisms in all participating jurisdictions. However, since Marengo County is rural with negligible growth, there are few existing planning mechanisms available. Those jurisdictions with building codes or zoning ordinances will incorporate hazard mitigation strategies into existing codes. These updates will occur as budgets and time allow. Those jurisdictions without building codes or zoning ordinances, that decide to adopt new ordinances, will be required to reflect the goals and objectives they set forth in the plan. Those jurisdictions updating comprehensive plans will also have to reflect their hazard mitigation goals and objectives in their plan. The Marengo County EMA will also incorporate the plan in the Emergency Operations Plan at the next update. The mitigation plan was reviewed to ensure that any proposed changes (i.e. land use) would not conflict with strategies identified in the plan. The mitigation plan will also be consulted to ensure that no hazards (i.e. landslides, subsidence, and

expansive soil) are present when permits or variances are granted. Strategies and goals identified in the mitigation plan will also be incorporated into other planning mechanisms' strategies and goals. As other jurisdictions update their plans, the same steps will be followed.

7. Approval and Adoption – After preliminary review by FEMA, each jurisdiction in Marengo County will adopt the plan via resolution. The Marengo County plan update applies to all local agencies, board, commission, and departments assigned mitigation responsibilities, and to others as deigned by the Marengo County Commission or Director or the Marengo County Emergency Management Agency.

   The Marengo County Multi-Hazard Mitigation Plan Update was prepared in compliance with Public Law 106-390, Disaster Mitigation Act of 2000, as amended. This plan update implements hazard mitigation measures intended to eliminate or reduce the effects of further disaster throughout Marengo County, and was developed in a joint and cooperate venture by members of the Marengo County Hazard Mitigation Planning Committee.

   Marengo County will comply with all application state and federal statutes and regulations in effect with respect to the periods for which it received grant funding, in compliance with 44 Code of Federal Regulations (CDF) 113.11c. Marengo County will amend its plan whenever necessary to reflect changes in local/state and/or federal laws and statutes required in 44 CFR, 12,11d. At a minimum, the Marengo County Emergency Management Agency will review and if necessary, update the plan every five years from the date of approval in accordance with 44 CRF, 201.6 (5) (d0 (3) in order to continue program eligibility.

7. Appendices
    a. Appendix A – 44 CFR 201 Hazard Mitigation Planning

AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

SUBCHAPTER D—DISASTER ASSISTANCE

PART 200 [RESERVED]

PART 201—MITIGATION PLANNING

Sec.
201.1 Purpose.
201.2 Definitions.
201.3 Responsibilities.
201.4 Standard State Mitigation Plans.
201.5 Enhanced State Mitigation Plans.
201.6 Local Mitigation Plans.
201.7 Tribal Mitigation Plans.

AUTHORITY: Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121 through 5207; Reorganization Plan No. 3 of 1978, 43 FR 41943, 3 CFR, 1978 Comp., p. 329; Homeland Security Act of 2002, 6 U.S.C. 101; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376; E.O. 12148, 44 FR 43239, 3 CFR, 1979 Comp., p. 412; E.O. 13286, 68 FR 10619, 3 CFR, 2003 Comp., p. 166.

SOURCE: 67 FR 8848, Feb. 26, 2002, unless otherwise noted.

§201.1 Purpose.

(a) The purpose of this part is to provide information on the polices and procedures for mitigation planning as required by the provisions of section 322 of the Stafford Act, 42 U.S.C. 5165.

(b) The purpose of mitigation planning is for State, local, and Indian tribal governments to identify the natural hazards that impact them, to identify actions and activities to reduce any losses from those hazards, and to establish a coordinated process to implement the plan, taking advantage of a wide range of resources.

§201.2 Definitions.

Administrator means the head of the Federal Emergency Management Agency, or his/her designated representative.

Flood Mitigation Assistance (FMA) means the program authorized by section 1366 of the National Flood Insurance Act of 1968, as amended, 42 U.S.C. 4104c, and implemented at parts 78 and 79.

Grantee means the government to which a grant is awarded, which is accountable for the use of the funds provided. The grantee is the entire legal entity even if only a particular component of the entity is designated in the grant award document. Generally, the State is the grantee. However, after a declaration, an Indian tribal government may choose to be a grantee, or may act as a subgrantee under the State. An Indian tribal government acting as grantee will assume the responsibilities of a "state", as described in this part, for the purposes of administering the grant.

Hazard mitigation means any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.

Hazard Mitigation Grant Program (HMGP) means the program authorized under section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5170c, and implemented at part 206, subpart N of this chapter.

Indian Tribal government means any Federally recognized governing body of an Indian or Alaska Native Tribe, band, nation, pueblo, village, or community that the Secretary of Interior acknowledges to exist as an Indian Tribe under the Federally Recognized Indian Tribe List Act of 1994, 25 U.S.C. 479a. This does not include Alaska Native corporations, the ownership of which is vested in private individuals.

Local government is any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity.

Managing State means a State to which FEMA has delegated the authority to administer and manage the HMGP under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c). FEMA may also delegate authority to tribal governments to administer and manage the HMGP as a Managing State.

Pre-Disaster Mitigation Program (PDM) means the program authorized under section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5133.

Regional Administrator means the head of a Federal Emergency Management Agency regional office, or his/her designated representative.

Repetitive Flood Claims (RFC) program means the program authorized under section 1323 of the National Flood Insurance Act of 1968, as amended, 42 U.S.C. 4011, which provides funding to reduce flood damages to individual properties for which 1 or more claim payments for losses have been made under flood insurance coverage and that will result in the greatest savings to the National Flood Insurance Program (NFIP) in the shortest period of time.

Severe Repetitive Loss (SRL) program means the program authorized under section 1361(a) of the National Flood Insurance Act of 1968, as amended, 42 U.S.C. 4102a, and implemented at part 79 of this chapter.

Severe Repetitive Loss properties are defined as single or multifamily residential properties that are covered under an NFIP flood insurance policy and:

(1) That have incurred flood-related damage for which 4 or more separate claims payments have been made, with the amount of each claim (including building and contents payments) exceeding $5,000, and with the cumulative amount of such claims payments exceeding $20,000; or

(2) For which at least 2 separate claims payments (building payments only) have been made under such coverage, with cumulative amount of such claims exceeding the market value of the property.

(3) In both instances, at least 2 of the claims must be within 10 years of each other, and claims made within 10 days of each other will be counted as 1 claim.

Small and impoverished communities means a community of 3,000 or fewer individuals that is identified by the State as a rural community, and is not a remote area within the corporate boundaries of a larger city; is economically disadvantaged, by having an average per capita annual income of residents not exceeding 80 percent of national, per capita income, based on best available data; the local unemployment rate exceeds by one percentage point or more, the most recently reported, average yearly national unemployment rate; and any other factors identified in the State Plan in which the community is located.

The Stafford Act refers to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93–288, as amended (42 U.S.C. 5121–5206).

State is any State of the United States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

State Hazard Mitigation Officer is the official representative of State government who is the primary point of contact with FEMA, other Federal agencies, and local governments in mitigation planning and implementation of mitigation programs and activities required under the Stafford Act.

Subgrantee means the government or other legal entity to which a subgrant is awarded and which is accountable to the grantee for the use of the funds provided. Subgrantees can be a State agency, local government, private nonprofit organizations, or Indian tribal government. Indian tribal governments acting as a subgrantee are accountable to the State grantee.

[67 FR 8848, Feb. 26, 2002, as amended at 72 FR 61747, Oct. 31, 2007; 74 FR 15344, Apr. 3, 2009; 74 FR 47481, Sept. 16, 2009]

§ 201.3 Responsibilities.

(a) *General.* This section identifies the key responsibilities of FEMA, States, and local/tribal governments in carrying out section 322 of the Stafford Act, 42 U.S.C. 5165.

(b) *FEMA.* The key responsibilities of the Regional Administrator are to:

(1) Oversee all FEMA related pre- and post-disaster hazard mitigation programs and activities;

(2) Provide technical assistance and training to State, local, and Indian tribal governments regarding the mitigation planning process;

(3) Review and approve all Standard and Enhanced State Mitigation Plans;

(4) Review and approve all local mitigation plans, unless that authority has been delegated to the State in accordance with §201.6(d);

(5) Conduct reviews, at least once every three years, of State mitigation activities, plans, and programs to ensure that mitigation commitments are fulfilled, and when necessary, take action, including recovery of funds or denial of future funds, if mitigation commitments are not fulfilled.

(c) *State.* The key responsibilities of the State are to coordinate all State and local activities relating to hazard evaluation and mitigation and to:

(1) Prepare and submit to FEMA a Standard State Mitigation Plan following the criteria established in §201.4 as a condition of receiving non-emergency Stafford Act assistance and FEMA mitigation grants. In addition, a State may choose to address severe repetitive loss properties in their plan as identified in §201.4(c)(3)(v) to receive the reduced cost share for the Flood Mitigation Assistance (FMA) and Severe Repetitive Loss (SRL) programs, pursuant to §79.4(c)(2) of this chapter.

(2) In order to be considered for the 20 percent HMGP funding, prepare and submit an Enhanced State Mitigation Plan in accordance with §201.5, which must be reviewed and updated, if necessary, every three years from the date of the approval of the previous plan.

(3) At a minimum, review and update the Standard State Mitigation Plan every 3 years from the date of the approval of the previous plan in order to continue program eligibility.

(4) Make available the use of up to the 7 percent of HMGP funding for planning in accordance with §206.434.

(5) Provide technical assistance and training to local governments to assist them in applying for HMGP planning grants, and in developing local mitigation plans.

(6) For Managing States that have been approved under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c), review and approve local mitigation plans in accordance with §201.6(d).

(d) *Local governments.* The key responsibilities of local governments are to:

(1) Prepare and adopt a jurisdiction-wide natural hazard mitigation plan as a condition of receiving project grant funds under the HMGP, in accordance with §201.6.

(2) At a minimum, review and update the local mitigation plan every 5 years from date of plan approval of the previous plan in order to continue program eligibility.

(e) *Indian tribal governments.* The key responsibilities of the Indian tribal government are to coordinate all tribal activities relating to hazard evaluation and mitigation and to:

(1) Prepare and submit to FEMA a Tribal Mitigation Plan following the criteria established in §201.7 as a condition of receiving non-emergency Stafford Act assistance as a grantee. This plan will also allow Indian tribal governments to apply through the State, as a subgrantee, for any FEMA mitigation project grant. Indian tribal governments with a plan approved by FEMA on or before October 1, 2008 under §201.4 or §201.6 will also meet this planning requirement. All Tribal Mitigation Plans approved after that date must follow the criteria identified in §201.7. In addition, an Indian Tribal government applying to FEMA as a grantee may choose to address severe repetitive loss properties as identified in §201.4(c)(3)(v) as a condition of receiving the reduced cost share for the FMA and SRL programs, pursuant to §79.4(c)(2) of this chapter.

(2) Review and update the Tribal Mitigation Plan at least every 5 years from the date of approval of the previous plan in order to continue program eligibility.

(3) In order to be considered for the increased HMGP funding, the Tribal Mitigation Plan must meet the Enhanced State Mitigation Plan criteria identified in §201.5. The plan must be reviewed and updated at least every 3 years from the date of approval of the previous plan.

[67 FR 8848, Feb. 26, 2002, as amended at 67 FR 61515, Oct. 1, 2002; 69 FR 55096, Sept. 13, 2004; 72 FR 61748, Oct. 31, 2007; 74 FR 47482, Sept. 16, 2009]

§ 201.4 Standard State Mitigation Plans.

(a) *Plan requirement.* States must have an approved Standard State Mitigation Plans meeting the requirements of this section as a condition of receiving non-emergency Stafford Act assistance and FEMA mitigation grants. Emergency assistance provided under 42 U.S.C. 5170a, 5170b, 5173, 5174, 5177, 5179, 5180, 5182, 5183, 5184, 5192 will not be affected. Mitigation planning grants provided through the Pre-disaster Mitigation (PDM) program, authorized under section 203 of the Stafford Act, 42 U.S.C. 5133, will also continue to be available. The mitigation plan is the demonstration of the State's commitment to reduce risks from natural hazards and serves as a guide for State decision makers as they commit resources to reducing the effects of natural hazards.

(b) *Planning process.* An effective planning process is essential in developing and maintaining a good plan. The mitigation planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups, and be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation programs and initiatives.

(c) *Plan content.* To be effective the plan must include the following elements:

(1) Description of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated.

(2) *Risk assessments* that provide the factual basis for activities proposed in the strategy portion of the mitigation plan. Statewide risk assessments must characterize and analyze natural hazards and risks to provide a statewide overview. This overview will allow the State to compare potential losses throughout the State and to determine their priorities for implementing mitigation measures under the strategy, and to prioritize jurisdictions for receiving technical and financial support in developing more detailed local risk and vulnerability assessments. The risk assessment shall include the following:

(i) An overview of the type and location of all natural hazards that can affect the State, including information on previous occurrences of hazard events, as well as the probability of future hazard events, using maps where appropriate;

(ii) An overview and analysis of the State's vulnerability to the hazards described in this paragraph (c)(2), based on estimates provided in local risk assessments as well as the State risk assessment. The State shall describe vulnerability in terms of the jurisdictions most threatened by the identified hazards, and most vulnerable to damage and loss associated with hazard events. State owned or operated critical facilities located in the identified hazard areas shall also be addressed;

(iii) An overview and analysis of potential losses to the identified vulnerable structures, based on estimates provided in local risk assessments as well as the State risk assessment. The State shall estimate the potential dollar losses to State owned or operated buildings, infrastructure, and critical facilities located in the identified hazard areas.

(3) A *Mitigation Strategy* that provides the State's blueprint for reducing the losses identified in the risk assessment. This section shall include:

(i) A description of State goals to guide the selection of activities to mitigate and reduce potential losses.

(ii) A discussion of the State's pre- and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including: an evaluation of State laws, regulations, policies, and programs related to hazard mitigation as well as to development in hazard-prone areas; a discussion of State funding capabilities for hazard mitigation projects; and a general description and analysis of the effectiveness of local mitigation policies, programs, and capabilities.

(iii) An identification, evaluation, and prioritization of cost-effective, environmentally sound, and technically feasible mitigation actions and activities the State is considering and an explanation of how each activity contributes to the overall mitigation strategy. This section should be linked to local

plans, where specific local actions and projects are identified.

(iv) Identification of current and potential sources of Federal, State, local, or private funding to implement mitigation activities.

(v) A State may request the reduced cost share authorized under §79.4(c)(2) of this chapter for the FMA and SRL programs, if it has an approved State Mitigation Plan meeting the requirements of this section that also identifies specific actions the State has taken to reduce the number of repetitive loss properties (which must include severe repetitive loss properties), and specifies how the State intends to reduce the number of such repetitive loss properties. In addition, the plan must describe the strategy the State has to ensure that local jurisdictions with severe repetitive loss properties take actions to reduce the number of these properties, including the development of local mitigation plans.

(4) A section on the *Coordination of Local Mitigation Planning* that includes the following:

(i) A description of the State process to support, through funding and technical assistance, the development of local mitigation plans.

(ii) A description of the State process and timeframe by which the local plans will be reviewed, coordinated, and linked to the State Mitigation Plan.

(iii) Criteria for prioritizing communities and local jurisdictions that would receive planning and project grants under available funding programs, which should include consideration for communities with the highest risks, repetitive loss properties, and most intense development pressures. Further, that for non-planning grants, a principal criterion for prioritizing grants shall be the extent to which benefits are maximized according to a cost benefit review of proposed projects and their associated costs.

(5) A *Plan Maintenance Process* that includes:

(i) An established method and schedule for monitoring, evaluating, and updating the plan.

(ii) A system for monitoring implementation of mitigation measures and project closeouts.

(iii) A system for reviewing progress on achieving goals as well as activities and projects identified in the Mitigation Strategy.

(6) A *Plan Adoption Process*. The plan must be formally adopted by the State prior to submittal to us for final review and approval.

(7) *Assurances*. The plan must include assurances that the State will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c) of this chapter. The State will amend its plan whenever necessary to reflect changes in State or Federal statutes and regulations as required in 44 CFR 13.11(d) of this chapter.

(d) *Review and updates*. Plan must be reviewed and revised to reflect changes in development, progress in statewide mitigation efforts, and changes in priorities and resubmitted for approval to the appropriate Regional Administrator every three years. The Regional review will be completed within 45 days after receipt from the State, whenever possible. We also encourage a State to review its plan in the post-disaster timeframe to reflect changing priorities, but it is not required.

[67 FR 8848, Feb. 26, 2002, as amended at 67 FR 61515, Oct. 1, 2002; 69 FR 55096, Sept. 13, 2004; 72 FR 61565, 61738, Oct. 31, 2007]

§201.5 Enhanced State Mitigation Plans.

(a) A State with a FEMA approved Enhanced State Mitigation Plan at the time of a disaster declaration is eligible to receive increased funds under the HMGP, based on twenty percent of the total estimated eligible Stafford Act disaster assistance. The Enhanced State Mitigation Plan must demonstrate that a State has developed a comprehensive mitigation program, that the State effectively uses available mitigation funding, and that it is capable of managing the increased funding. In order for the State to be eligible for the 20 percent HMGP funding, FEMA must have approved the plan within three years prior to the disaster declaration.

(b) Enhanced State Mitigation Plans must include all elements of the Standard State Mitigation Plan identified in

§201.4, as well as document the following:

(1) Demonstration that the plan is integrated to the extent practicable with other State and/or regional planning initiatives (comprehensive, growth management, economic development, capital improvement, land development, and/or emergency management plans) and FEMA mitigation programs and initiatives that provide guidance to State and regional agencies.

(2) Documentation of the State's project implementation capability, identifying and demonstrating the ability to implement the plan, including:

(i) Established eligibility criteria for multi-hazard mitigation measures.

(ii) A system to determine the cost effectiveness of mitigation measures, consistent with OMB Circular A–94, Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, and to rank the measures according to the State's eligibility criteria.

(iii) Demonstration that the State has the capability to effectively manage the HMGP as well as other mitigation grant programs, including a record of the following:

(A) Meeting HMGP and other mitigation grant application timeframes and submitting complete, technically feasible, and eligible project applications with appropriate supporting documentation;

(B) Preparing and submitting accurate environmental reviews and benefit-cost analyses;

(C) Submitting complete and accurate quarterly progress and financial reports on time; and

(D) Completing HMGP and other mitigation grant projects within established performance periods, including financial reconciliation.

(iv) A system and strategy by which the State will conduct an assessment of the completed mitigation actions and include a record of the effectiveness (actual cost avoidance) of each mitigation action.

(3) Demonstration that the State effectively uses existing mitigation programs to achieve its mitigation goals.

(4) Demonstration that the State is committed to a comprehensive state mitigation program, which might include any of the following:

(i) A commitment to support local mitigation planning by providing workshops and training, State planning grants, or coordinated capability development of local officials, including Emergency Management and Floodplain Management certifications.

(ii) A statewide program of hazard mitigation through the development of legislative initiatives, mitigation councils, formation of public/private partnerships, and/or other executive actions that promote hazard mitigation.

(iii) The State provides a portion of the non-Federal match for HMGP and/or other mitigation projects.

(iv) To the extent allowed by State law, the State requires or encourages local governments to use a current version of a nationally applicable model building code or standard that addresses natural hazards as a basis for design and construction of State sponsored mitigation projects.

(v) A comprehensive, multi-year plan to mitigate the risks posed to existing buildings that have been identified as necessary for post-disaster response and recovery operations.

(vi) A comprehensive description of how the State integrates mitigation into its post-disaster recovery operations.

(c) *Review and updates.* (1) A State must review and revise its plan to reflect changes in development, progress in statewide mitigation efforts, and changes in priorities, and resubmit it for approval to the appropriate Regional Administrator every three years. The Regional review will be completed within 45 days after receipt from the State, whenever possible.

(2) In order for a State to be eligible for the 20 percent HMGP funding, the Enhanced State Mitigation plan must be approved by FEMA within the three years prior to the current major disaster declaration.

§ 201.6 Local Mitigation Plans.

The local mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to

reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding.

(a) *Plan requirements.* (1) A local government must have a mitigation plan approved pursuant to this section in order to receive HMGP project grants. The Administrator may, at his discretion, require a local mitigation plan for the Repetitive Flood Claims Program. A local government must have a mitigation plan approved pursuant to this section in order to apply for and receive mitigation project grants under all other mitigation grant programs.

(2) Plans prepared for the FMA program, described at part 79 of this chapter, need only address these requirements as they relate to flood hazards in order to be eligible for FMA project grants. However, these plans must be clearly identified as being flood mitigation plans, and they will not meet the eligibility criteria for other mitigation grant programs, unless flooding is the only natural hazard the jurisdiction faces.

(3) Regional Administrator's may grant an exception to the plan requirement in extraordinary circumstances, such as in a small and impoverished community, when justification is provided. In these cases, a plan will be completed within 12 months of the award of the project grant. If a plan is not provided within this timeframe, the project grant will be terminated, and any costs incurred after notice of grant's termination will not be reimbursed by FEMA.

(4) Multi-jurisdictional plans (*e.g.* watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan. State-wide plans will not be accepted as multi-jurisdictional plans.

(b) *Planning process.* An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;

(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and

(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

(c) *Plan content.* The plan shall include the following:

(1) Documentation of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

(2) A *risk assessment* that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include:

(i) A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

(ii) A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. All plans approved after October 1, 2008 must also address NFIP insured structures that have been repetitively damaged by floods. The plan should describe vulnerability in terms of:

(A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;

(B) An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate;

(C) Providing a general description of land uses and development trends within the community so that mitigation

options can be considered in future land use decisions.

(iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

(3) *A mitigation strategy* that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. This section shall include:

(i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

(ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.

(iii) An action plan describing how the actions identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

(iv) For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

(4) A *plan maintenance process* that includes:

(i) A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

(ii) A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

(iii) Discussion on how the community will continue public participation in the plan maintenance process.

(5) *Documentation* that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council). For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

(d) *Plan review.* (1) Plans must be submitted to the State Hazard Mitigation Officer (SHMO) for initial review and coordination. The State will then send the plan to the appropriate FEMA Regional Office for formal review and approval. Where the State point of contact for the FMA program is different from the SHMO, the SHMO will be responsible for coordinating the local plan reviews between the FMA point of contact and FEMA.

(2) The Regional review will be completed within 45 days after receipt from the State, whenever possible.

(3) A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding.

(4) Managing States that have been approved under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c) will be delegated approval authority for local mitigation plans, and the review will be based on the criteria in this part. Managing States will review the plans within 45 days of receipt of the plans, whenever possible, and provide a copy of the approved plans to the Regional Office.

[67 FR 8848, Feb. 26, 2002, as amended at 67 FR 61515, Oct. 1, 2002; 68 FR 61370, Oct. 28, 2003; 69 FR 55096, Sept. 13, 2004; 72 FR 61748, Oct. 31, 2007 ; 74 FR 47482, Sept. 16, 2009]

§ 201.7 Tribal Mitigation Plans.

The Indian Tribal Mitigation Plan is the representation of the Indian tribal government's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards.

(a) *Plan requirement.* (1) Indian tribal governments applying to FEMA as a grantee must have an approved Tribal

Mitigation Plan meeting the requirements of this section as a condition of receiving non-emergency Stafford Act assistance and FEMA mitigation grants. Emergency assistance provided under 42 U.S.C. 5170a, 5170b, 5173, 5174, 5177, 5179, 5180, 5182, 5183, 5184, 5192 will not be affected. Mitigation planning grants provided through the PDM program, authorized under section 203 of the Stafford Act, 42 U.S.C. 5133, will also continue to be available.

(2) An Indian Tribal government applying to FEMA as a grantee may choose to address severe repetitive loss properties in their plan, as identified in §201.4(c)(3)(v), to receive the reduced cost share for the FMA and SRL programs.

(3) Indian Tribal governments applying through the State as a subgrantee must have an approved Tribal Mitigation Plan meeting the requirements of this section in order to receive HMGP project grants and, the Administrator, at his discretion may require a Tribal Mitigation Plan for the Repetitive Flood Claims Program. A Tribe must have an approved Tribal Mitigation Plan in order to apply for and receive FEMA mitigation project grants, under all other mitigation grant programs. The provisions in §201.6(a)(3) are available to Tribes applying as subgrantees.

(4) Multi-jurisdictional plans (*e.g.* county-wide or watershed plans) may be accepted, as appropriate, as long as the Indian tribal government has participated in the process and has officially adopted the plan. Indian tribal governments must address all the elements identified in this section to ensure eligibility as a grantee or as a subgrantee.

(b) An effective planning process is essential in developing and maintaining a good plan. The mitigation planning process should include coordination with other tribal agencies, appropriate Federal agencies, adjacent jurisdictions, interested groups, and be integrated to the extent possible with other ongoing tribal planning efforts as well as other FEMA mitigation programs and initiatives.

(c) *Plan content.* The plan shall include the following:

(1) Documentation of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved. This shall include:

(i) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval, including a description of how the Indian tribal government defined "public;"

(ii) As appropriate, an opportunity for neighboring communities, tribal and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and nonprofit interests to be involved in the planning process;

(iii) Review and incorporation, if appropriate, of existing plans, studies, and reports; and

(iv) Be integrated to the extent possible with other ongoing tribal planning efforts as well as other FEMA programs and initiatives.

(2) A *risk assessment* that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Tribal risk assessments must provide sufficient information to enable the Indian tribal government to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include:

(i) A description of the type, location, and extent of all natural hazards that can affect the tribal planning area. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

(ii) A description of the Indian tribal government's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the tribe. The plan should describe vulnerability in terms of:

(A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;

(B) An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the

methodology used to prepare the estimate;

(C) A general description of land uses and development trends within the tribal planning area so that mitigation options can be considered in future land use decisions; and

(D) Cultural and sacred sites that are significant, even if they cannot be valued in monetary terms.

(3) A *mitigation strategy* that provides the Indian tribal government's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. This section shall include:

(i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

(ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

(iii) An action plan describing how the actions identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the Indian Tribal government.

(iv) A discussion of the Indian tribal government's pre- and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including: An evaluation of tribal laws, regulations, policies, and programs related to hazard mitigation as well as to development in hazard-prone areas; and a discussion of tribal funding capabilities for hazard mitigation projects.

(v) Identification of current and potential sources of Federal, tribal, or private funding to implement mitigation activities.

(vi) An Indian Tribal government applying to FEMA as a grantee may request the reduced cost share authorized under § 79.4(c)(2) of this chapter of the FMA and SRL programs if they have an approved Tribal Mitigation Plan meeting the requirements of this section that also identifies actions the Indian Tribal government has taken to reduce the number of repetitive loss properties (which must include severe repetitive loss properties), and specifies how the Indian Tribal government intends to reduce the number of such repetitive loss properties.

(4) A *plan maintenance process* that includes:

(i) A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan.

(ii) A system for monitoring implementation of mitigation measures and project closeouts.

(iii) A process by which the Indian tribal government incorporates the requirements of the mitigation plan into other planning mechanisms such as reservation master plans or capital improvement plans, when appropriate.

(iv) Discussion on how the Indian tribal government will continue public participation in the plan maintenance process.

(v) A system for reviewing progress on achieving goals as well as activities and projects identified in the mitigation strategy.

(5) *Plan Adoption Process.* The plan must be formally adopted by the governing body of the Indian tribal government prior to submittal to FEMA for final review and approval.

(6) *Assurances.* The plan must include assurances that the Indian tribal government will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with § 13.11(c) of this chapter. The Indian tribal government will amend its plan whenever necessary to reflect changes in tribal or Federal laws and statutes as required in § 13.11(d) of this chapter.

(d) *Plan review and updates.* (1) Plans must be submitted to the appropriate FEMA Regional Office for formal review and approval. Indian tribal governments who would like the option of being a subgrantee under the State must also submit their plan to the State Hazard Mitigation Officer for review and coordination.

(2) The Regional review will be completed within 45 days after receipt from the Indian tribal government, whenever possible.

(3) Indian tribal governments must review and revise their plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for non-emergency Stafford Act assistance and FEMA mitigation grant funding, with the exception of the Repetitive Flood Claims program.

[72 FR 61749, Oct. 31, 2007, as amended at 74 FR 47482, Sept. 16, 2009]

PARTS 202–203 [RESERVED]

PART 204—FIRE MANAGEMENT ASSISTANCE GRANT PROGRAM

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204.2 Scope.
204.3 Definitions used throughout this part.
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AUTHORITY: Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121–5207; Reorganization Plan No. 3 of 1978, 43 FR 41943; 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376; E.O. 12148, 44 FR 43239, 3 CFR, 1979 Comp., p. 412; and E.O. 12673, 54 FR 12571, 3 CFR, 1989 Comp., p. 214.

SOURCE: 66 FR 57347, Nov. 14, 2001, unless otherwise noted.

Subpart A—General

§204.1 Purpose.

This part provides information on the procedures for the declaration and grants management processes for the Fire Management Assistance Grant Program in accordance with the provisions of section 420 of the Stafford Act. This part also details applicant eligibility and the eligibility of costs to be considered under the program. We (FEMA) will actively work with State and Tribal emergency managers and foresters on the efficient delivery of fire management assistance as directed by this part.

§204.2 Scope.

This part is intended for those individuals responsible for requesting declarations and administering grants under the Fire Management Assistance Grant Program, as well as those applying for assistance under the program.

§204.3 Definitions used throughout this part.

Applicant. A State or Indian tribal government submitting an application to us for a fire management assistance grant, or a State, local, or Indian tribal government submitting an application to the Grantee for a subgrant under an approved fire management assistance grant.

Declared fire. An uncontrolled fire or fire complex, threatening such destruction as would constitute a major disaster, which the Administrator has approved in response to a State's request for a fire management assistance declaration and in accordance with the criteria listed in §204.21.

b. Appendix B – Sign in sheets and agendas for each meeting

Marengo County Hazard Mitigation Plan update meeting

4/8/2014

Please sign in

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14	[illegible]	Demopolis Water	334-431-4679 bmccants@demopolitanwaterworks.com
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	Name	Organization/ Affiliation	Contact Information (address, e-mail address and telephone)
24	Luke Hallmark	McBee	P.O. Box 480339 Linden, AL 36748
25	Wilson Davis	Town of Sweetwater	Sweet Water, AL 36782
26	Tommy Tate	Demopolis Fire/Rescue	tommy.tate@demopolisal.gov 334-289-1212
24	James Bailey	Demopolis Fire/Rescue	james.bailey@demopolisal.gov 334-289-1212
28	Jim Orton	Alabama Forestry Commission	marengo.county@forestry.alabama.gov 295-5811
29	Meredith Hammond	Marengo Co Comm	PO Box 480715 Linden AL 36748 marengocounty@bellsouth.net
30	MIKE BAKER	CITY OF DEMOPOLIS	MIKE.BAKER@demopolisal.gov.
31	CLARENCE BROOKER	BLDG. OFFICIAL DEMOPOLIS	334-289-0579 P.O. Box 980 DEMOPOLIS
32	SCOTT MCCLURE	CITY OF LINDEN	211 N MAIN ST LINDEN AL 36748
33	TOMMY REESE	Demopolis P.D	301 E. WASHINGTON STREET Demopolis AL
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35			
36			

	Name	Organization/ Affiliation	Contact Information (address, e-mail address and telephone)
37	[illegible]	Mayor Town of myrtlewood	P.O Box 70 Myrtlewood 36763 295-4191
38	HEATH McCLURE	TOWN OF THOMASTON	P.O. BOX 276 THOMASTON, AL 36783 334-627-3434
39	Billy Carlisle	Alabama Forestry Commission	334-295-6811 2054 Hwy 43 S. Linden Al. 36748
40	Allen Ballard	Furnrsdale VFD	P.O. Box 277 Alt 334-507 0217 Furnsdale AL 36703 Don 334 3641 0708
41	Al Griffin	Demopolis City Schools	PO Drawer 759 Demopolis 334-289-1670 agriffin@dcsedu.com
42	Billy SANSING	Myrtlewood Fire Dept	P.O Box 129 Myrtlewood AL 36763 Myrtlewood VFD @ Net Zero. Net
43	Randy Sanders	Myrtlewood Police / Marengo S/O	randysanders42@yahoo.com 334-422-5534 c 334-295-4208 W
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4/2/2015

Marengo County Hazard Mitigation Plan update meeting

Please sign in

	Name	Organization/ Affiliation/Title	Contact Information (address, e-mail address and telephone)
1	Linda Walters	MCF+R Lt.	1919 E. Coats Ave Linden, Al 334-295-5083
2	Jami Walters	MCF+R Chief	1919 E. Coats Ave Linden Al 334-422-1334
3	Tommy Tate	Demopolis Fire/Rescue	306 Highway 80 west 334-289-1212
4	Danny Flowers	SWVFD	(334) 994-9911
5	Meredith Hammond	Marengo Co. Comm.	PO Box 480715 Linden Al 36748 334-295-2203 marengocounty@bellsouth.net
6	Chi Foster	Old Spring hill Rd	PO Box 476 Demopolis AL 36732 334-289-4140 CLFoster22@Yahoo.com
7	Kevin McKinney	Marengo EMA	Box 480057 Linden Al marengoema@bellsouth.net
8	Jamie Rice	DPD	301 East Washington St Demopolis Tommie.Rice@Demopolisal.gov
9	[illegible]	DPD	301 E Washington Demopolis rex.flowers@demopolisal.gov
10	Clarence Brooker	City of Demopolis	334-289-0577

	Name	Organization/ Affiliation	Contact Information (address, e-mail address and telephone)
	MIKE BAKER	CITY OF DEMOPOLIS	334-341-1082
11	Richard E. Bates	Marengo Co Sheriff	101 Dum St Linden, Al. 36748 marengosh@yahoo.com 334-295-4208
12	Randy Sanders	Chief Deputy MCSO	334 295-4208
13	Patrick Champion	Deputy Sheriff	334-295-4208
14	Mitchell Snipes	Amstar Ems	MITCHELL.SNIPES@AMSTAREMS.COM 334-295-4450
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c. Appendix C – Resolutions by each entity adopting the Plan Update

Appendix D Local Mtigation Plan Review Tool.

APPENDIX A:
LOCAL MITIGATION PLAN REVIEW TOOL

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool.*

Jurisdiction: Marengco County	**Title of Plan:** Marengo County Multi Jurisdictional Hazard Mitgation Plan	**Date of Plan:** May 12, 2015
Local Point of Contact: Kevin McKinney	**Address:** PO Box 480057 Linden, AL 36748	
Title: EMA Director		
Agency: Marengo County Commission		
Phone Number: 334.295.8870	**E-Mail:** marengoema@bellsouth.net	

State Reviewer:	**Title:**	**Date:**

FEMA Reviewer:	**Title:**	**Date:**
Date Received in FEMA Region *(insert #)*		
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved		

SECTION 1:
REGULATION CHECKLIST

INSTRUCTIONS: The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or page number)	**Met**	**Not Met**
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	13-21	✓	
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	13-21	✓	
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	13-21	✓	
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	13-21	✓	
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	170	✓	
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	170	✓	
ELEMENT A: REQUIRED REVISIONS			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT			
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	23-81	✓	
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	23-81	✓	
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	23-81	✓	
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	23-81	✓	
ELEMENT B: REQUIRED REVISIONS			
ELEMENT C. MITIGATION STRATEGY			
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	82	✓	
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	85	✓	
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	85	✓	
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	86-161	✓	
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	86-161	✓	
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	86-161	✓	
ELEMENT C: REQUIRED REVISIONS			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or page number)	**Met**	**Not Met**
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	82-86	✓	
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	82-86	✓	
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	82-86	✓	
ELEMENT D: REQUIRED REVISIONS			
ELEMENT E. PLAN ADOPTION			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	172	✓	
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	172	✓	
ELEMENT E: REQUIRED REVISIONS			
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)			
F1.			
F2.			
ELEMENT F: REQUIRED REVISIONS d			