

MACON COUNTY NATURAL HAZARD MITIGATION PLAN UPDATE

NOVEMBER 2009

ADOPTED BY:
MACON COUNTY COMMISSION
TOWN OF FRANKLIN
TOWN OF NOTASULGA
TOWN OF SHORTER
CITY OF TUSKEGEE

FEMA APPROVED ON:

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Additional copies of the Macon County Natural Hazard Mitigation Plan are available by contacting:

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CHAPTER 1: PURPOSE AND PROCESS

The Macon County Natural Hazard Mitigation – 2009 Update is an update of the 2004 Macon County Plan. Much of the 2004 plan has been retained, with new information and updated strategies.

Natural hazard mitigation is the process of reducing or eliminating the loss of life and property damage resulting from natural disaster events. This process begins with the hazard mitigation plan in which hazards are identified and analyzed to determine their potential impact on an area and steps are outlined to avoid or minimize the undesired effects. The overall purpose of the hazard mitigation plan and planning process is the resulting mitigation strategy, which outlines a coordinated implementation of action steps with as little conflict and/or duplication of efforts as possible by the responsible agencies and jurisdictions. The plan has been updated to reflect additional input and a review of recent activities. During the Macon County hazard mitigation planning process and the 2009 update, the following three goals were established and confirmed to guide mitigation efforts:

- Promote natural hazard mitigation as a means to decrease loss of life, property damage, and economic loss during a disaster occurrence.
- Provide on-going support of the Macon County Emergency Management efforts to make Macon County and its municipalities less vulnerable to natural disasters.
- Educate the general population about natural hazards and hazard mitigation options.

This 2009 plan update includes an update to the identification of natural hazards that are deemed to be a threat to the county, an update to the assessment and analysis of the risks and vulnerability of each jurisdiction, an update to the strategy for long and short mitigation of identified natural hazards and plan for on-going review and maintenance of the *Macon County Natural Hazard Mitigation Plan*. As such, this plan follows the requirements for local mitigation planning as required under Section 322 of the Stafford Act (42U.S.C. 5165) and 44 CFR Part 201 as the necessary components of a local hazard mitigation plan and the new regulations for the program per 2008.

In 2003, and during the 2009 update, the Macon County Emergency Management Agency (EMA) contracted with the South Central Alabama Development Commission (SCADC) to outline a local participation and planning process and prepare the *Macon County Natural Hazard Mitigation Plan*. Funding for the project was provided through a grant from the Alabama Emergency Management Agency (AEMA) Pre-Disaster Mitigation Program with matching funds provided by the Macon County EMA.

The Macon County Commission contracted with South Central Alabama Development Commission again in 2007 and 2008 to update the plan.

1.1 Authority

Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-228, as amended), Title 44 of the Code of Federal Regulations (CFR), as amended by Section 201 of the Disaster Mitigation Act of 2000, provides the framework for state and local governments to evaluate and mitigate all hazards as a condition of receiving Federal disaster assistance. A major requirement of the law is the development of a local hazard mitigation plan.

Exercising the authority and requirements of these laws, adoption of the *Macon County Natural Hazard Mitigation Plan* by participating jurisdictions assures continuing eligibility for Federal Emergency Management Agency (FEMA) grant assistance to these jurisdictions, including the Hazard Mitigation Grant Program, the Pre-Disaster Mitigation Grant Program, the Flood Mitigation Assistance Program, and other federally-funded programs.

1.2 Jurisdictions

The *Macon County Natural Hazard Mitigation Plan* and its 2009 update is multi-jurisdictional in scope, covering Macon County in its entirety including the unincorporated areas and the participating municipalities of Franklin, Notasulga, Shorter, and Tuskegee. It fulfills the requirements of the Sections 201.6(a)(3) and 201.6(c)(5) of the *Disaster Mitigation Act of 2000* as administered by the Alabama Emergency Management Agency (AEMA) and FEMA, Region IV, for multi-jurisdictional planning participation and adoption. This plan has been reviewed and adopted by the five participating local governments located within Macon County. Local resolutions documenting adoption of the *Macon County Natural Hazard Mitigation Plan – 2009 Update* can be found in Appendix A: Local Resolutions of Adoption by Participating Jurisdictions. (Resolutions have not been adopted, however, resolutions of adoption will be included in Appendix A, upon approval by FEMA.)

1.3 Participation

All jurisdictions covered under the *Macon County Natural Hazard Mitigation Plan* participated in the 2004 planning process and the 2009 update by representation on the LEPC. These jurisdictions include the Town of Franklin, Notasulga and Shorter, the City of Tuskegee and the unincorporated parts of Macon County. Those representatives who were unable to attend committee meetings were afforded the opportunity to participate through meeting minutes and opportunities of review draft material. Each jurisdiction has participated through a formal resolution to be adopted, approving the 2009 plan update.

Participation in the Macon County hazard mitigation planning process and 2009 update includes two components: committee participation and public participation. The committee participation component included establishing the Local Emergency Planning Committee (LEPC), setting a meeting schedule and meeting notification, tracking participation and follow-up measures. The public participation component

included building an awareness of the planning process in 2004 through public workshops, and opportunities for plan review and comments. The LEPC agreed that this extensive education process was integral and supportive to the 2009 update.

Participation in the 2009 update included a series of four LEPC meetings to review and update the plan. In addition, two public hearings were conducted by the LEPC before the draft was provided to Macon County at a county commission meeting. The 2009 plan update was included on the County Commission agenda, which is posted in accordance with Alabama's public meeting law. Dates of public meetings and county commission are available at the SCADC.

Because Macon County has a standing LEPC whose purpose is to address hazardous substances, emergency planning, and health and environmental risks, it was decided that the LEPC would continue to serve as the hazard mitigation planning committee. Each of the governmental jurisdictions is represented with both elected officials and staff and/or board members. Other representation on the LEPC includes emergency services, law enforcement, medical services, utilities, education, business and industry, forestry, agriculture, social services and the media. The Macon County EMA provides continuous coordination with the LEPC and individual members. The membership of the Macon County LEPC is in accordance with the requirements of Section 44 CFR 201.6(b)(2) for a multi-jurisdictional plan as demonstrated in Figure 1, which lists the LEPC members and who they represent.

Other stakeholders in the *Macon County Natural Hazard Mitigation Plan* were also invited to participate in the planning process. These agencies were mostly state or federal in nature, or other local citizen organizations. Stakeholder agencies included Alabama Power, Dixie Electric, Alagasco, Alabama Department of Transportation – Sixth Division, Tuskegee-Macon County YMCA, Alabama Emergency Management Agency, Tuskegee Area Chamber of Commerce, Federal Emergency Management Agency – Region IV, Army Corps of Engineers, Economic Development Administration, Alabama Department of Environmental Management, Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Geological Survey – Office of Water Resources, Geological Survey of Alabama, National Resource and Conservation Service, and the Macon County Cooperative Extension System.

As a result of Macon County's desire to bring as much participation as possible to the process through a variety of representatives, persons are asked to directly participate in the planning process. LEPC members often serve as representatives of more than one segment of the population. Volunteer firefighters are the most notable in this respect because of their representation as both an emergency responder and for their locale, or jurisdiction, within Macon County.

Figure 1

Macon County Local Emergency Planning Committee
Membership and Representative

Macon County

Louis Maxwell, Chair, County Commission
 Dennis Bradford, Macon County Engineer
 R. E. Corbitt, Jr., Revenue Commissioner
 Judy Kinebrew, Director, Emergency Management Agency
 Joyce O’Neal, Human Resources
 Fred Gray, County Attorney
 David Warren, Macon County Sheriff
 Jesse Barnes, Macon County Hazardous Waste
 William Cook, Compliance Officer

Town of Franklin

Rufus Carson, Mayor
 John Johnson, Police Department

Town of Notasulga

Frank Tew, Mayor
 J W Tapley, Police Department

Town of Shorter

Willie Mae Powell, Mayor
 Sandor Maloy, Police Department

City of Tuskegee

Omar Neal, Mayor
 Lester Patrick, Police Department
 Diane White, City Clerk

Fire Protection

Jimmy Ellis, Shorter Fire Department
 Scott Cooper, Franklin Fire Department
 Fred Iverson, Tuskegee Fire Department
 Mike Whitman, Notasulga Fire Department

Medical Services

Dale Gamble, CARE Ambulance
 Patricia Clay, Macon County Health Care Authority
 Willie Haygood, Tuskegee-Macon County Red Cross
 Anita Williams, CAVHCSEC (Veterans Hospital)
 James Martin, Macon County Health Department

Media

Silas Buchanan, WBIL Radio Station
 Guy Rhodes, Tuskegee News

Education

Wilbert Anderson, Tuskegee University
 Leslie Pointer, V.P. Tuskegee University
 James Beacher, Macon County Board of Education, Transportation
 Benjamin Rackley, Tuskegee Health Education Center
 ???, B.T. Washington High School
 Supt. Gwendolyn Moore, Macon County Board of Education

Utilities

Alan Smith, Tuskegee South Sewage Treatment Plant
 Jeff Ezell, BellSouth
 Mark Cooley, Tuskegee North Sewage Treatment Plant
 Lewis Maxwell, Star-Mindingall Water Authority
 Eleanor Love, Macon County Water Authority
 John Tate, Tuskegee Water Filtration Plant

Business

Tony Mann, Victoryland Greyhound Park
 Jess Colson, Macon County Board of Realtors
 Shepherd Morris, Morris Flying Service
 David Mullins, Terra International
 Arnold Woodham, Helena Chemical Company
 Tammy Ellzey, Halla Climate Systems Alabama
 Andy Floyd, Floyd Electrical Company

Agriculture/Forestry

James S. Bannon, EV Smith Research Center
 Scott Hartley, Taleecon Farmers Cooperative
 Bob Montgomery, Alabama Forestry Commission

Organizations

John Cantelow, Macon County Ministers’ Council
 Michael Martin, Tuskegee Post Office
 Linda Simpson, Tuskegee Housing Authority
 James Upshaw, Macon County Community Action
 Florence Tyner, RSVP

To encourage participation by committee members in the original 2004 plan, the LEPC and other stakeholders were notified of the hazard mitigation planning process, and were also notified of the dates for the LEPC meetings. Following each meeting, a summary was generated and any handouts and worksheets that were distributed during the meeting were distributed to those unable to attend. Committee members

were asked, if they were not present at the meeting, to complete the worksheets and return them to the Macon County EMA in advance of the next meeting or to at least bring them with them to the next meeting.

In addition to the meeting notice/summary letters that were mailed, the *Tuskegee News*, a local weekly newspaper, ran a meeting reminder notice at least once prior to each meeting, along with a summary of the previous meeting. Meeting handouts from the previous meeting were also included so that the work/comments could be completed and returned prior to the next meeting. Nine articles about the planning meetings ran in the *Tuskegee News*.

The purpose of the newspaper articles was two-fold: one, to remind the LEPC committee members of upcoming meetings; and two, through repetition, to build awareness in the general public about the hazard mitigation planning process. This second purpose of the newspaper articles is part of the public participation component of the Macon County natural hazard mitigation planning process. The public participation component of the project included advertising and conducting two public workshops offering the general public an opportunity to review and comment on the natural hazard mitigation process prior to completion of the project.

Follow-up measures of the public participation plan included responding to areas of high interest and areas in which it was determined that participation was very low. In response to the high level of interest by the fire fighting community and requests during a workshop, the Macon County EMA Director made a presentation to the Macon County Fire Chief Association in 2003 to review the material that was presented at the first workshop and receive additional comments from this sector of the emergency response community.

As part of the 2008/2009 plan update, four meetings were held with the LEPC, with updated membership. The series of four meetings were held with the LEPC to review material and provide input. Two public meetings were also held, one for input and the other for review of the plan, and the plan was on the County Commission agenda under the open meetings law, before submission to the AEMA and FEMA.

Attendance at the LEPC planning meetings and at the public workshops was moderate to low. Even during the 2009 update, a lack of participation by the elected officials and others in the governmental jurisdictions was an issue although other representatives of each of the jurisdictions as well as the unincorporated portions of Macon County were present at the LEPC meetings. To address this deficit, the draft of the *Macon County Natural Hazard Mitigation Plan* was presented by the County EMA Director at public meetings of the Macon County Commission and at council meetings of each of the four municipalities covered under the plan in 2003. Prior to the presentations, a sample resolution for consideration of adoption was provided to each elected official in their council packages and a copy of the draft plan was placed in each town hall. At each of these public meetings, elected officials were provided with the opportunity to ask questions and/or comment about the contents of the plan as it was presented. The federal requirements for participation in the planning process and adoption of the plan pursuant to 44 CFR 201.6(a)(4) in order to remain eligible for future hazard mitigation or emergency relief funding through the Hazard Mitigation

Grant Program (HMGP) and the Pre-Disaster Mitigation (PDM) program was explained. No comments or requests for changes were presented to the EMA Director at the meetings or at any time afterwards.

During the 2009 update of the plan representatives from all jurisdictions were invited to the LEPC meetings. LEPC members were also informed of the two public meeting. In addition, a final meeting of the LEPC was held in conjunction with the County Commission meeting to provide an opportunity to review the plan prior to submittal to the AEMA and FEMA.

1.4 Process

In preparing the 2009 update, the LEPC insisted that process and preparation of the original 2003-2004 plan be included given the recent completion of the original plan. The following summarizes the process in the 2003-2004 plan and the 2009 update.

The 2003-2004 *Macon County Natural Mitigation Plan* was developed using a ten-step process outlined by the FEMA shown in Figure 2. The planning process for the 2004 plan was initiated by the Macon County EMA with funding provided through a grant from the AEMA Pre-Disaster Mitigation Program with matching funds provided by the Macon County EMA. The first organizational step was to contract with the South Central Alabama Development Commission for services to outline a participation plan and prepare the *Macon County Natural Hazard Mitigation Plan* under the direction of the EMA Director and with the oversight of the local emergency mitigation planning committee. The County Commission contracted with the South Central Alabama Development Commission for the 2009 update, as well. Macon County's LEPC continues to serve as the hazard mitigation planning committee. In addition to the members of the Macon County LEPC, representatives of state, federal and regional agencies were invited to participate in the 2003-2004 process as well as the 2009 update, to ensure intergovernmental coordination and cooperation and representation of neighboring communities through regional agencies, such as SCADC, Alabama Department of Transportation, Sixth Division, and larger utility companies. The composition of the Macon County LEPC (also see Figure 1) includes the following:

- Members representing local governments and their populations;
- Members representing four volunteer and one municipal fire departments,
- Members representing medical services—one ambulance business and four health care providers;
- Members representing the media – a newspaper and a radio station;
- Members representing academia – two from Tuskegee University, three from the Macon County public school system (a Board of Education member, a transportation staff person, and a teacher/principal), and one from a health education center;
- Members representing local utilities including water, sewer and communications;
- Members representing local businesses;
- Members representing agriculture and forestry; and
- Members representing nonprofits and social/service organizations.

Of the members representing local governments, seven represent Macon County, two each represent the Towns of Franklin, Notasulga and Shorter, and three represent the City of Tuskegee. The seven Macon County members represent the Macon County Commission, staff functions and the population of Macon County living in the unincorporated areas. The Chair of the Macon County Commission, who serves on the LEPC, is elected at-large representing the entire county rather than one district.

Figure 2

**Hazard Mitigation
10-Step Planning Process**

- Step 1: Organize
- Step 2: Involve the Public*
- Step 3: Coordinate with Agencies and Organizations*
- Step 4: Assess the Hazard
- Step 5: Assess the Problem
- Step 6: Set Goals
- Step 7: Review Possible Activities
- Step 8: Draft an Action Plan
- Step 9: Adopt an Action Plan
- Step 10: Implement, Evaluate and Revise**

** Step 2 and Step 3 are continuous throughout the process.*
*** Upon evaluation and revision, the process should begin again at Step 2. Evaluation and revision of the plan should occur at least every five years.*

The use of such a large committee with a wide variety of representative sectors as the hazard mitigation planning committee is a key element in involving the public. The public was made aware of the planning process, in 2003-2004, as well as the 2009 update, through newspaper articles as well as public notices of public meetings. Each LEPC member is charged with the responsibility of acting as a liaison to their representative communities to inform others about the process. The public was involved in the 2003-2004 planning process through two public workshops, a presentation to the Macon County Fire Chief Association, and presentations to each of the governmental jurisdictions at their regular public meetings. Citizens were notified of the public workshops by mailing and posting of flyers in prominent locations throughout the county and through three newspaper articles.

At the first public workshop in 2003, which was led by the Macon County EMA and SCADC, items of discussion included the hazard mitigation planning process, a county profile, past hazard occurrence documentation, hazard identification and prioritization, hazard impact assessment and critical facilities, and preliminary hazard mitigation goals. To conclude the meeting, SCADC distributed a form for comments and suggestions while hosting a question and answer period. Participants also provided information on past hazard events. This information was integrated into the next planning meetings.

A second public workshop was also led by the Macon County EMA and SCADC in 2003. The second workshop was advertised in the same manner as the first. The purpose of the workshop was to review a draft of the plan prior to submission to AEMA and FEMA for review and comments. Due to the low attendance at the workshop, it was decided by the Macon County EMA and SCADC that the EMA Director would present the draft to all of the governmental jurisdictions at public meetings, providing them with an opportunity to comment on the plan. All elected officials were notified in their council packages of the

upcoming presentation and a copy of the draft was placed in each town hall and the Macon County Courthouse for review prior to the meetings

Step 3 of the process in the original 2003-2004 plan, coordinate with Agencies and Organizations, was accomplished by the membership of the Macon County LEPC and the additional agencies and organizations that were invited to participate in a series of four meetings during the planning process.

At the first planning meeting of the LEPC in 2003, *Assessing the Hazard* and *Assessing the Problem* were addressed. The meeting was attended by committee members representing Macon County, City of Tuskegee, medical services, fire protection, utilities, businesses, agriculture and forestry, and SCADC. The hazard mitigation planning process was introduced by the EMA Director stating that the plan would cover Macon County and the municipalities of Franklin, Notasulga, Shorter and Tuskegee. The Director also explained that new Federal Emergency Management Agency (FEMA) requirements state that for an area to remain eligible for disaster recovery funds in case of a declared disaster after November 1, 2004, the locality must have an adopted hazard mitigation plan in place.

A video, produced by FEMA, entitled *Mitigation Workshops* was shown to committee members in 2003. A list of 15 natural hazards was distributed and committee members were asked to review each hazard and then mark the hazard as it pertains to Macon County as not applicable or as a Priority 1, 2, or 3 hazard (with 1 being highest priority and 3 being lowest). In a comparison and discussion of results, it was determined that there are six natural hazards that can be considered a high priority in Macon County. These are (in ranking order) tornadoes, wildfires, extreme heat, drought, and flood and windstorms. The natural hazard that presents the least threat to Macon County is volcanoes. Those hazards that were mostly ranked as priority two include hail, hurricanes, ice storms, and expansive soils/sinkholes; and as priority three include landslides, dam failure, earthquakes and coastal storms.

Following the identification and prioritization of the natural hazards most threatening to Macon County, a blank form entitled *Problem Assessment – Hazard Impacts* was distributed. Each committee member was asked to take six forms and fill one each of the top six natural hazards. Committee members were asked to list the impact of the hazard on each of the subject areas listed (life safety, public health, mental health, buildings, roads and transportation, utilities, infrastructure, critical facilities, business centers, major employers, landmarks, economy, repetitive losses, natural areas and development trends. Committee members were asked to bring the hazard impact form with them at the next meeting for comparison and Discussion. Committee members were then provided with an opportunity to review maps of identified hazard patterns prior to the conclusion of the meeting.

The second planning meeting was held in 2003 including the ten-step hazard mitigation process was reviewed. The inventory maps of natural hazard patterns and physical and demographic features of Macon County were reviewed, along with a history of past natural hazard occurrences. The hazards that were identified at the first meeting were then reviewed, with committee members stating that no changes needed to be made. The LEPC then had a discussion of the potential impacts of the “priority one” hazards, with each impact being listed on an overhead. Using the hazard impact worksheets, the LEPC was able to discuss

and identify critical facilities within the county and municipalities. To conclude the meeting, a handout defining a goal, objective and mitigation action was distributed. Committee members were asked to develop three general goals as a result of the problem assessment discussion and return them to the Macon County EMA so that preliminary goals could be presented and discussed with the general public at the first public workshop on. Committee members received copies of the public workshop flyers and were asked to distribute them in their communities and work places.

A third planning meeting of the LEPC was held in preparing the 2003-2004 plan, to review the results of the first public workshop and to address *Setting Goals* and *Reviewing Possible Actions*. LEPC members were presented with a list of historical and current plans, ordinances and studies that were prepared for Macon County and its municipalities. These plans were researched for ideas and relevance toward hazard mitigation and disaster preparedness. A short list of SCADC's findings was presented, which stated that out of the 16 plans reviewed, there was very little information directly related to hazard mitigation. Existing information that was gathered from the plan review included police and fire protection services and needs; protection and preservation of environmentally-sensitive areas; road and bridge improvement needs; limits to development in flood-prone areas; the number of unsafe buildings has increased the potential for fire hazards; and, there is a lack of adequate medical facilities. The plan review also resulted in a summary of available tools that can be used in hazard mitigation activities. These tools include flood damage prevention ordinances, subdivision regulations, zoning ordinances, capital improvement programs, and proposed dangerous buildings ordinance. Committee members were asked to provide information regarding any other plans or reports that may be relevant to the *Macon County Natural Hazard Mitigation Plan*. The information gathered from the pan review was incorporated into the mitigation strategy of this plan as either a resource for implementation or as a need for a tool for implementation.

During the remainder of the meeting, committee members discussed six preliminary goals that had been formulated by SCADC from existing plans and studies and from discussions at previous planning meetings and the first public workshop. The committee discussion resulted in the incorporation of one goal into two others and the development of at least three objectives for each of the goals.

A fourth planning meeting was held in preparing the 2003-2004 plan and the LEPC addressed *Reviewing Possible Actions*, *Drafting an Action Plan* and *Implementation, Monitoring and Evaluation*. SCADC presented three final goals that had been consolidated from the six formulated by the LEPC at the previous meeting and asked the committee to affirm the goals, which the committee did. The more detailed objectives for each of the goals were presented and the committee was asked if it was in agreement with each of the objectives. The LEPC agreed with the objectives as presented. A discussion of action steps associated with each objective was then begun and it was explained that the proposed actions steps were the responsibility of a variety of agencies and organizations for implementation and that the costs were projected on a five-year basis, since the plan is to be updated every five years. The LEPC reviewed each of the action steps, made adjustments, consolidations and eliminations as necessary. The LEPC also was instrumental in finalizing cost projections and prioritization of the action steps.

The work of the LEPC was used along with the research prepared by the SCADC to prepare a draft of the *Macon County Natural Hazard Mitigation Plan*. The draft was presented at the second public workshop and to each of the local governments at their own public commission or council meeting and submitted to AEMA (and subsequently to FEMA) for review and comments. Following the AEMA and FEMA review, revisions were made to the draft and it was then presented to each of the local governments for review and adoption. During the last presentations to the local governments, emphasis was placed on the vulnerability and responsibility of each of the local governments in future hazard mitigation activities. These presentations and adoption by the local governments completed *Adopting an Action Plan*. Provisions to implement, evaluate and revise the plan are addressed in the final chapter of this plan.

With respect to the process utilized for the 2009 update, the following summarizes the steps in the process. In addition, the LEPC utilized the process in Figure 2 as a continuing guide for reference. In order to complete the 2009 plan update the LEPC was convened to review the existing plan, new requirements and provisions for the update. The 2004 plan was reviewed during a second meeting and the hazard identification was updated, along with critical facilities. A public meeting was held for input and a third meeting of the LEPC included a review of goals and strategies. At each of these stages in the update, the staff, LEPC and public was afforded an opportunity to provide input on the plan.

During the update process, each chapter or section of the original plan was reviewed with the LEPC for comments and updates. SCADC staff and the consultant led the planning process, working in conjunction with the Macon County Emergency Management Agency and the Director. The LEPC was included in all stages of the update. Jurisdictions were also asked to comment with respect to priorities in their jurisdiction. Response to the inquiry was somewhat limited. Neighboring communities, agencies and representatives on the LEPC were provided opportunities for input on the update. This input from LEPC meetings, updated material and limited input from public meetings was utilized in preparing the 2009 draft plan.

In order to determine the sections of the plan to be updated and not revised, the LEPC reviewed the 2003-2004 draft, previous information and recent experiences. As a result the primary updates were hazard identification and priority hazards. The LEPC also reviewed new information in determining the greatest risks. The goals and actions were also updated. The LEPC specifically reviewed the plan maintenance and review section of the plan. Since this section had been reviewed and added to in detail, recently, the committee determined that there was no reason to change this section. The committee did note, however, that the LEPC should regularly review the action items for progress. This increased awareness is reflected in the updated action plan.

Implementation of the *Macon County Natural Hazard Mitigation Plan* will be shared by all local governments in the county, along with a number of emergency agencies and responders. The on-going review and evaluation will enable the Macon County EMA to update the mitigation plan in response to changing conditions and changes in the economic climate that may have an impact on the provision of facilities and services.

In updating the *Macon County Natural Hazard Mitigation Plan* the consulting staff reviewed the original plan and new data on events as well as discussed priorities to determine if any new information had changes any of the priorities. The priorities were modified accordingly.

During the 2009 update and 2004 plan, previous and current studies were reviewed for information relevant to the *Macon County Natural Hazard Mitigation Plan*. The update, specifically, recognizes the creation of a county planning commission and the creation of a county master plan were reviewed. Plans for Shorter and Notasulga were updated, as well as zoning ordinances updated in the municipalities. Plans for rural transportation and updates to the Regional Comprehensive Economic Development Strategy (CEDS) were also reviewed. In both cases, access, transportation and their relationship to hazard mitigation were considered.

1.5 Adoption of the Plan Update

Adoption of the 2008-2009 update has not been completed at this point. The plan update will be adopted by the Macon County Commission and jurisdictions of Franklin, Shorter, Notasulga and Tuskegee after the county has been notified that the plan has been approved. Resolutions of approval will be included as part of Appendix A of this update, upon approval of the plan update by FEMA.

1.6 Macon County Hazard Mitigation Plan Meetings

March 28, 2007	Convene LEPC; Review of current plan; Action since last plan
June 30, 2007	Data review; review hazards,
July 10, 2007	Public meeting
March 2008	Hazard risk discussion
March 2008	Draft plan, review goals and strategies
April 2008	Preliminary LEPC approval
May 27, 2008	LEPC meeting for final review
June 4, 2008	Meeting with Judy Kinebrew and County Engineer, surveyed jurisdictions on progress and needs relative to final projects; reviewed status of NFIP.
June 30, 2008	LEPC public meeting
July 14, 2008	Draft approval

As an integral part of the 2009 plan update, the public was provided an opportunity to participate in the plan and review draft material. In July 2007, a public meeting was held at the Macon County Courthouse. The previous plan goals, findings and recommendations were reviewed, as well progress in updating the plan, during the LEPC meeting process, in accordance with Alabama Public Meeting requirements. These meetings were held at the Macon County EMA Center.

In June 2008, a final public meeting was conducted at the Macon County Courthouse to provide an opportunity for the public to review the draft plan. In addition, at a commission meeting in July 2008, the

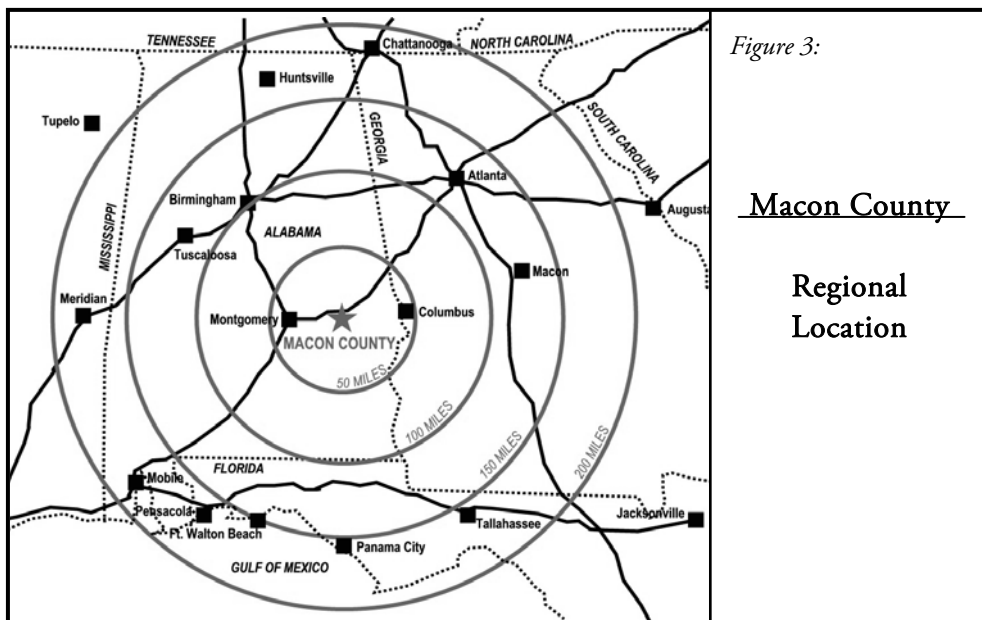
plan was approved as a part of an official County Commission meeting, which was conducted in accordance with Alabama Public Meeting Requirements.

Continued public participation will be assured by the LEPC complying with Alabama's public meeting requirements, including public notification of meetings. Furthermore, the public will be advised when each municipal jurisdiction considers and adopts the Hazard Mitigation Plan update, in accordance with this same public meetings requirements.

CHAPTER 2: MACON COUNTY PROFILE

A comprehensive profile of relevant county features and characteristics was completed in the 2004 hazard mitigation plan. Since there is limited data available and few changes in population and demographic characteristics from the 2000 census, the county profile has not been substantially altered for the 2008-09 update. The following represents a relatively comprehensive profile of Macon County.

Macon County, located in east central Alabama, is a primarily rural county with four incorporated municipalities: Franklin, Notasulga, Tuskegee and Shorter. Tuskegee, located in the north central part of the county, is the county seat. Macon County is located within 50 miles of Montgomery, Auburn, Opelika and Columbus, Georgia. Major Alabama cities within a 200-mile radius include Birmingham, Huntsville, Mobile, and Tuscaloosa. Other cities within a 200-mile radius include Atlanta and Macon, Georgia; Chattanooga, Tennessee; Meridian, Mississippi; and Fort Walton, Panama City, Pensacola and Tallahassee, Florida. Macon County encompasses 614 square miles of land is accessed by Interstate 85 across the northern portion of the county. Macon County also has regional access by U.S. Highway 29, U.S. Highway 80 and Alabama Highways 14, 51, 81 and 199.



2.1 Demographic Characteristics

Macon County is fairly sparsely populated with a population density of 39.5 persons per square mile, as compared to the State of Alabama with 87.6 persons per square mile. Almost half of the county's population lives in the City of Tuskegee, which has a density of 765.7 persons per square mile.

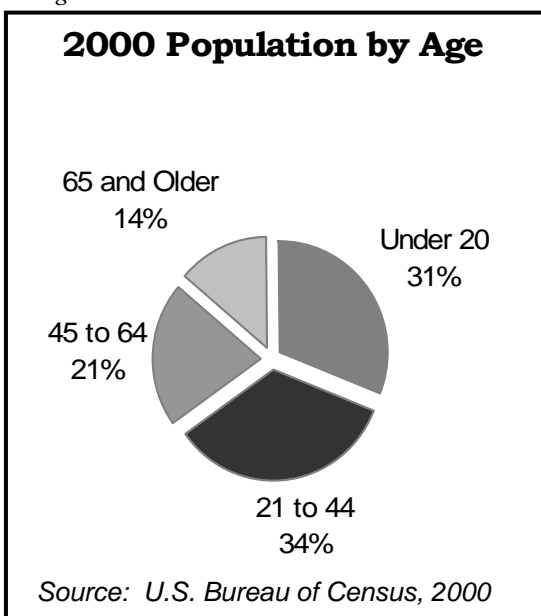
Figure 4

Macon County Population, 2000		
Area	Population	% of Total Population
Macon County	24,105	100%
Franklin	149	1%
Notasulga	916	4%
Shorter	355	1%
Tuskegee	11,846	49%
Unincorporated Area	10,839	45%

Source: U.S. Bureau of Census, 2000

Macon County has a population of 24, 105 persons, according to the 2000 Census, of which nearly half, at 45 percent, live in the unincorporated areas of the county. Of the remaining 55 percent, 49 percent live in the City of Tuskegee; 4 percent live in the Town of Notasulga; and, 1 percent each live in the Towns of Franklin and Shorter. The majority of the population of Macon County is female, at 54 percent, and 46 percent are male. The female ratio of Macon County is slightly higher than that of the State, which is 51.7 percent.

Figure 5:



There are 10,627 housing units in Macon County, the majority of which, at 48 percent, are located in Tuskegee. As shown in Figure 9, the central part of the county in around Tuskegee is the most densely populated part of the county with the remainder having 20 units or less per square mile. Of the total housing units in the county, 84.2 percent are occupied and 15.8 percent are vacant, of which 1.3 percent are for seasonal, recreational or occasional use. Of the total occupied housing, 67.3 are owner-occupied and 32.7 percent are renter-occupied. The majority of the housing units, at 63 percent, are single unit unattached structures. Only 9 percent of the housing structures have four or more units. The portion of the housing structures that are mobile homes is 17 percent. A large portion of the county's housing stock, at 39.6 percent, is more than 30 years old. Between 1995 and March 2000, 1,242 new housing units were constructed, comprising

12 percent of the existing housing stock. It is interesting to note that 25.1 percent of the housing stock is between 24 to 33 years old, having been built between 1970 and 1979.

The median age in Macon County is 32.0, which is younger than the median age of the State, at 35.8. Tuskegee University accounts for a large part of the younger population of the county. The median age of Tuskegee is 26.4, while the median age in the other municipalities is considerably older, at 32.9 in Shorter, 40.0 in Notasulga, and 47.1 in Franklin. The majority of the population, at 31 percent, is under 20 years of age, while the elderly population, age 65 and older, comprises only 14 percent. The remaining 55 percent of the population is between the ages of 21 to 44 (at 34 percent) or the ages of 45 to 64 (at 21 percent).

Macon County is a majority minority area, with African-Americans comprising 84.6 percent of the population, according to the 2000 Census. Of the total county population, 14.0 percent is white. The only municipality in the county that does not have a majority minority population is the Town of Notasulga, in which 66.3 percent of the population is white and 32.4 percent is African-American. The racial composition of other races in Macon County is nearly negligible, with all other races combined only comprising 1.4 percent of the total population.

Figure 6

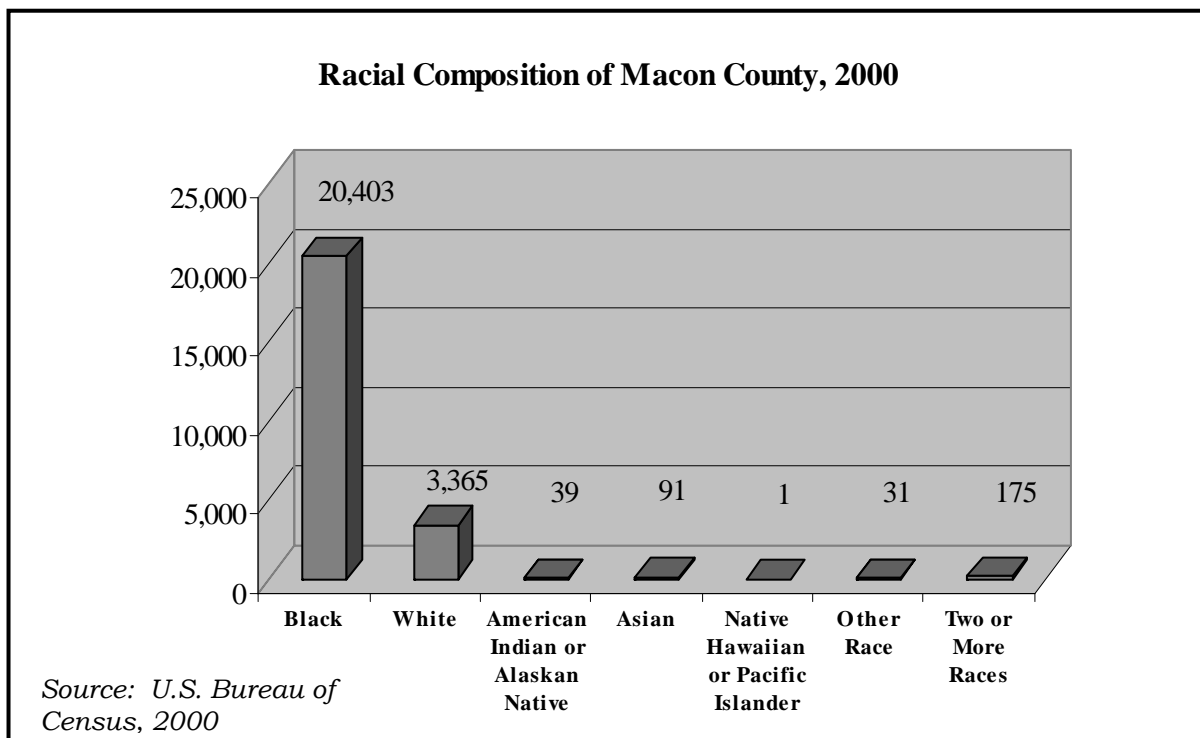
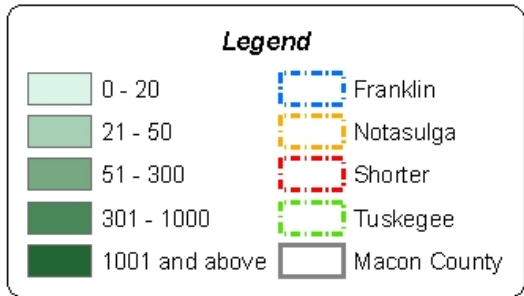
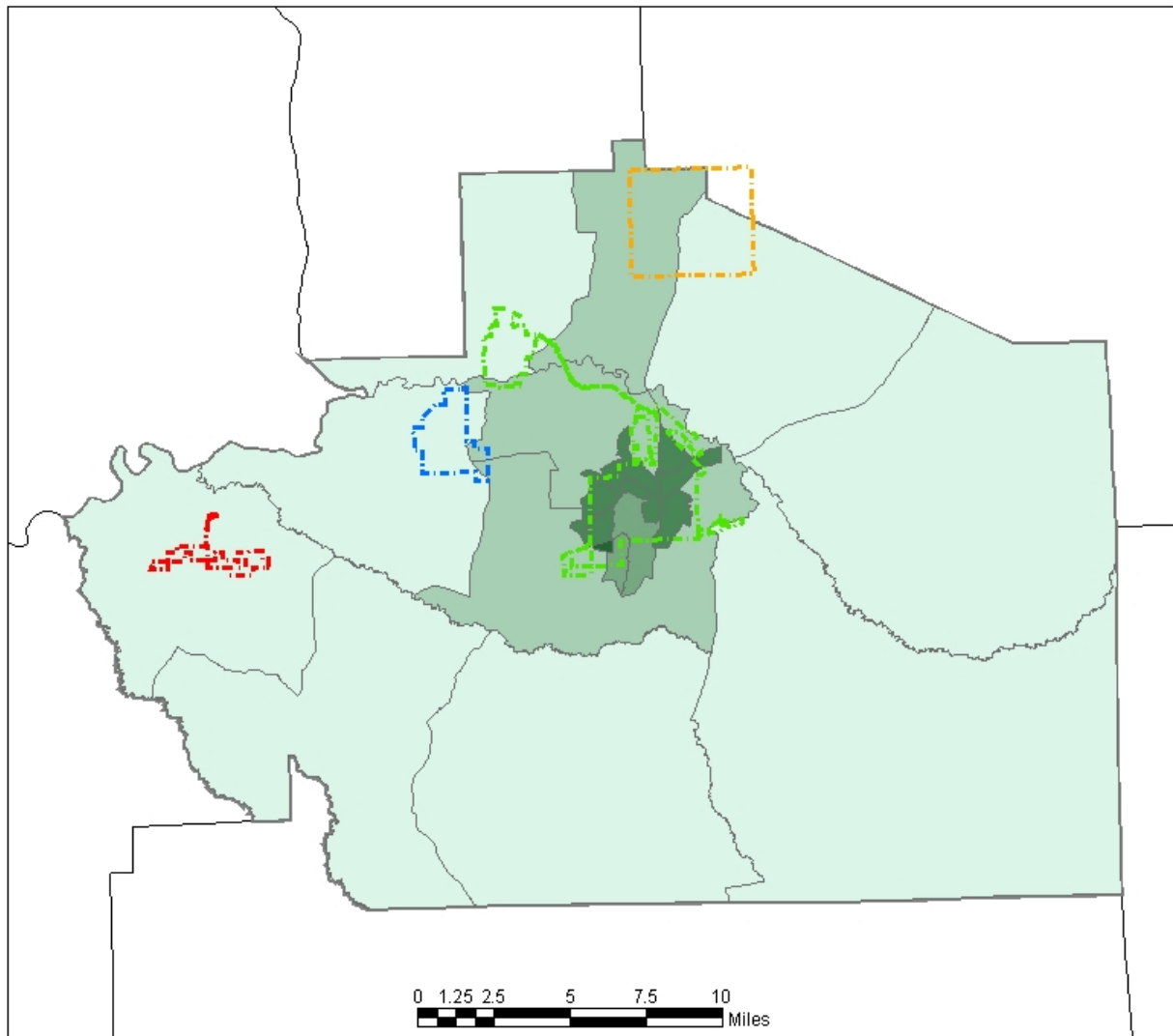


Figure 7

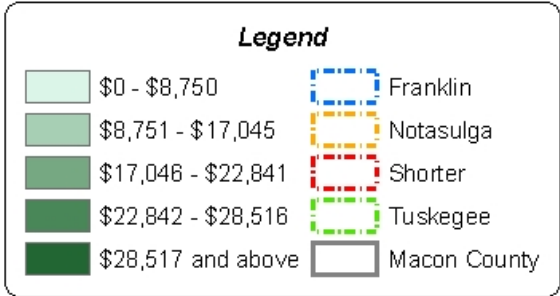
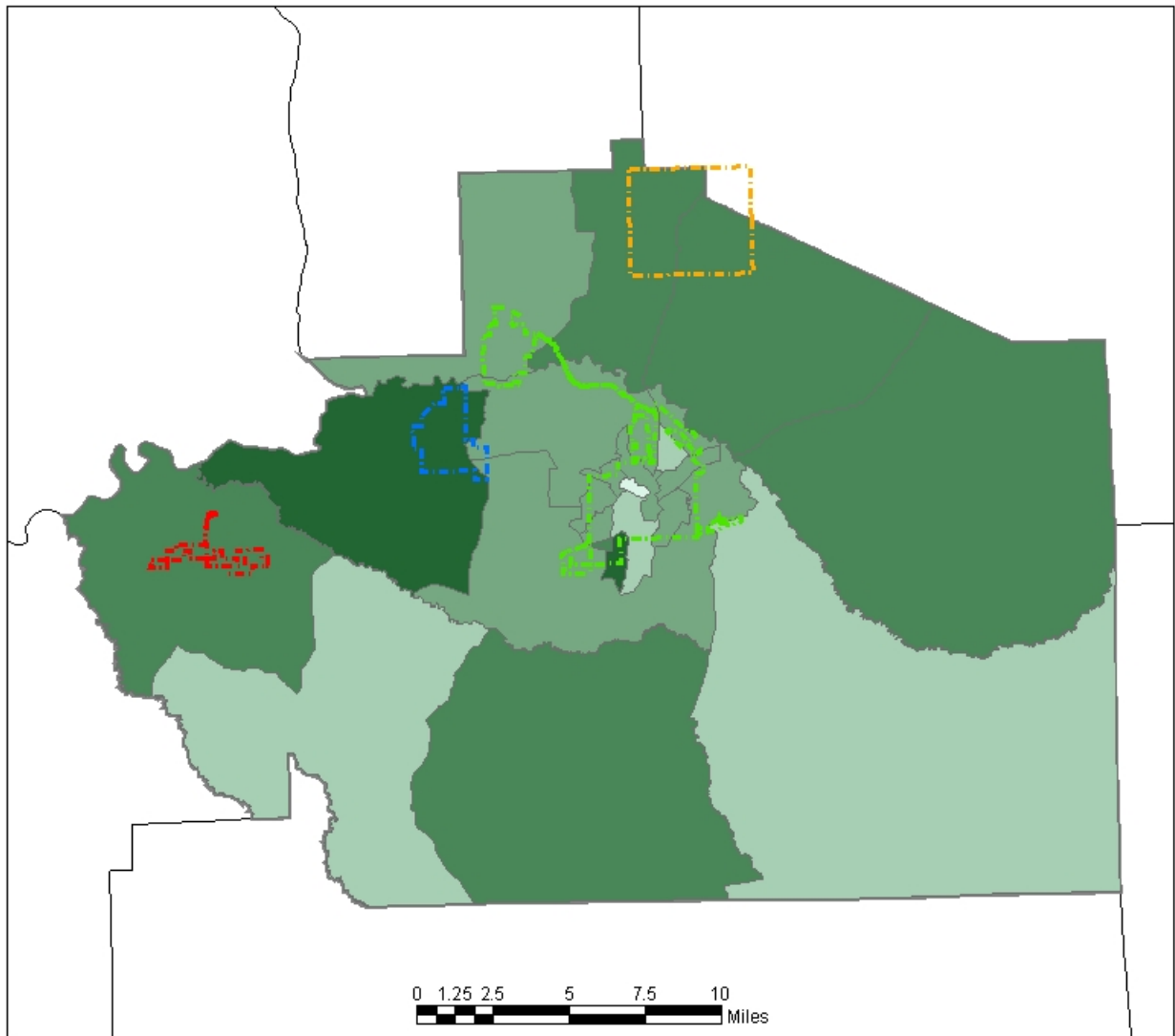
Housing Units Per Square Mile of Macon County



Note: This map is based on Census 2000 Block Groups.
Sources: U.S. Census 2000, SF1; Census Bureau TIGER/Line Files 2000; and local sources.

Figure 8

Median Household Income of Macon County



Note: This map is based on Census 2000 Block Groups.
Sources: U.S. Census 2000, SF3; Census Bureau TIGER/Line Files 2000; and local sources.

Macon County has a per capita income of \$13,714 and a median household income of \$21,180, according to the 2000 Census. This is considerably less than that of the State, which has a 2000 per capital income of \$18,189 and a 2000 median household income of \$34,135. Comparatively, the Town of Franklin has a per capita income of \$34,571 and median household income of \$35,000; the Town of Notasulga has a has a per capita income of \$17,115 and a median household income of \$31,307; the Town of Shorter has a per capita income of \$10,630 and a median household income of \$18,929; and, the City of Tuskegee has a per capita income of \$12,340 and a median household income of \$18,889. The portions of the county with the lowest median income, as shown in Figure 10, are in the southwest and southeast with a median income of less than \$10,000.

2.2 Physical Characteristics

It makes sense that the population base is located in the northern part of the county when viewed from a geographical standpoint. As shown in Figure 7, most the regional access is located in the northern part of the county, while the southern part is comprised primarily of county roads. General land use patterns (Figure 8) also follow the transportation system, with the majority of structural development being located in the northern part of the county and the majority of the southern part of the county being in agricultural and forestry land uses.

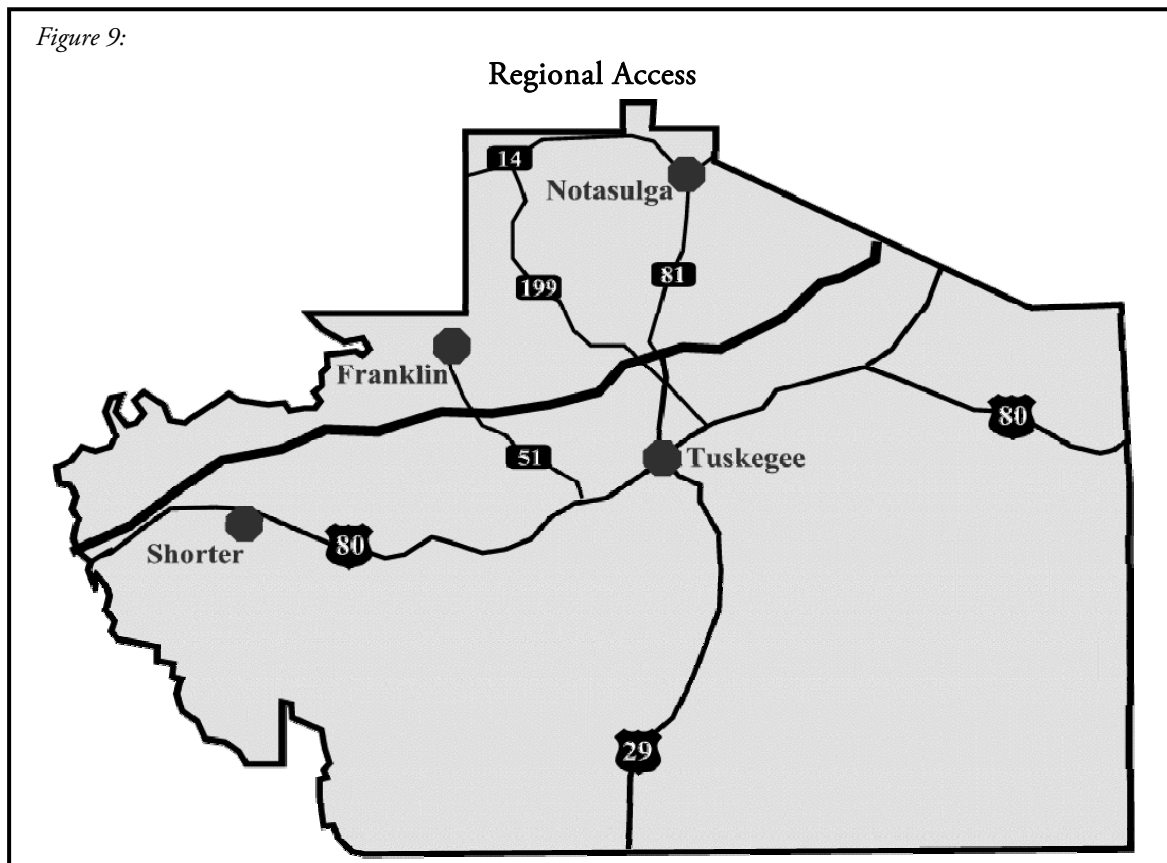
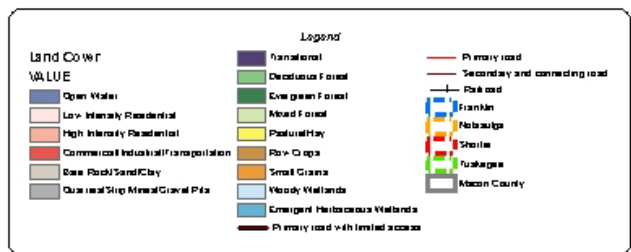
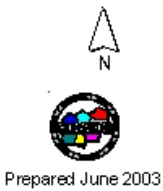
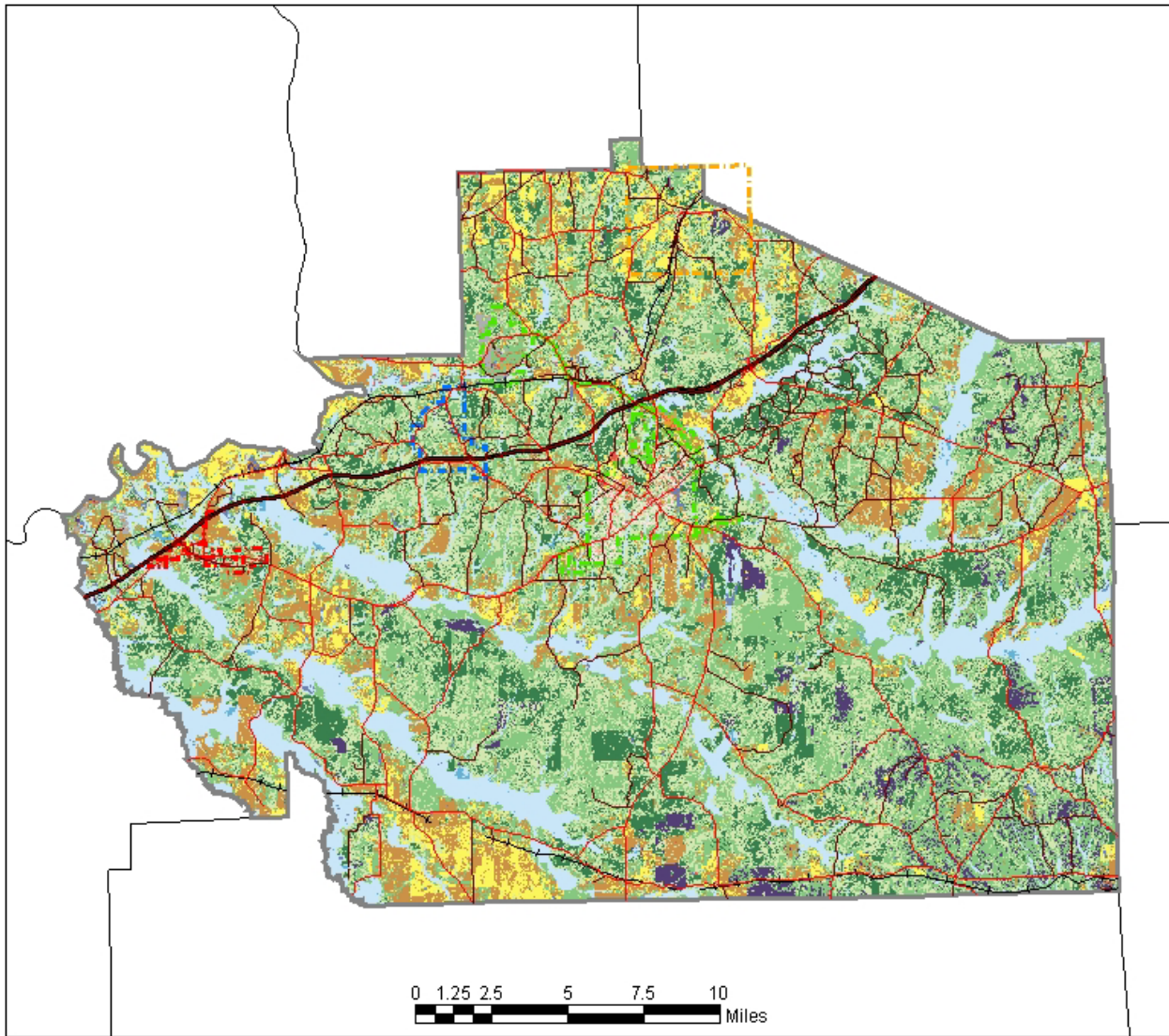


Figure 10

Land Use & Land Cover of Macon County



Sources: USGS, Alabama Land Cover Data Set, 1999; Census Bureau TIGER/Line Files 2000; and local sources.

Residential land uses throughout Macon County tend to be low density single family housing, with a small percentage of medium and high density housing found in the Tuskegee area. As stated earlier, 17 percent of the housing in the county is mobile homes, most of which (at 80 percent) are found in the unincorporated areas on single ownership lots or tracts of land. The land use/land cover map does not show any high intensity residential uses outside of the City of Tuskegee.

Agricultural uses in Macon County are primarily timberland. Of the total 392,960 acres in Macon County, 81 percent is in forestland, much of which is in timber production. Moreover, Tuskegee National Forest is located in the northeast portion of the county. Forested land is located throughout the county, with pasture and row crop agricultural uses interspersed in between. The most concentrated areas in row crop and pasture land uses are found along the northern and western perimeters of the county. This would correlate with the lower elevations along the major streams in the county. The elevation of Macon County ranges between 39 and 247 feet above sea level with the low lying areas following stream beds and the elevation generally sloping from high points in the southeast to low points in the northwest, as shown in Figure 13.

There are four major streams in Macon County, along with the Tallapoosa River, which forms the western boundary of the county. Flowing west across the northern part of the county into the Tallapoosa River is Uphapee Creek, which is fed by Chewacla Creek and Opintlocco Creek along with several small tributaries. Flowing northwest into the Tallapoosa River is Calebee Creek in the central part of the county and Cubhatchee Creek in the southwest portion of the county. Line Creek forms the southwestern boundary of Macon County and also flows northwest into the Tallapoosa, Opintlocco, Calebee and Cubhatchee creek beds. The existing floodplains are linear in nature and generally are not expansive in width, with the widest floodplains being approximately one mile wide. There are a significant number of tributaries feeding the primary creeks in the county; however, floodplains along the tributaries are minimal in size.

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

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

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

Soils in the Congaree-McQueen-Mantachie Association are deep to very deep, somewhat poorly to moderately well drained, and formed in fluvial and alluvial sediments. Runoff of these soils is slow to

moderate with moderate permeability. Slopes are minimal, usually between 0 to 5 percent, but having a range from 0 to 15 percent in the McQueen series. Soils in this association are found on stream terraces and in flood plains that flood late in winter and early spring.

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

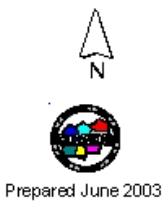
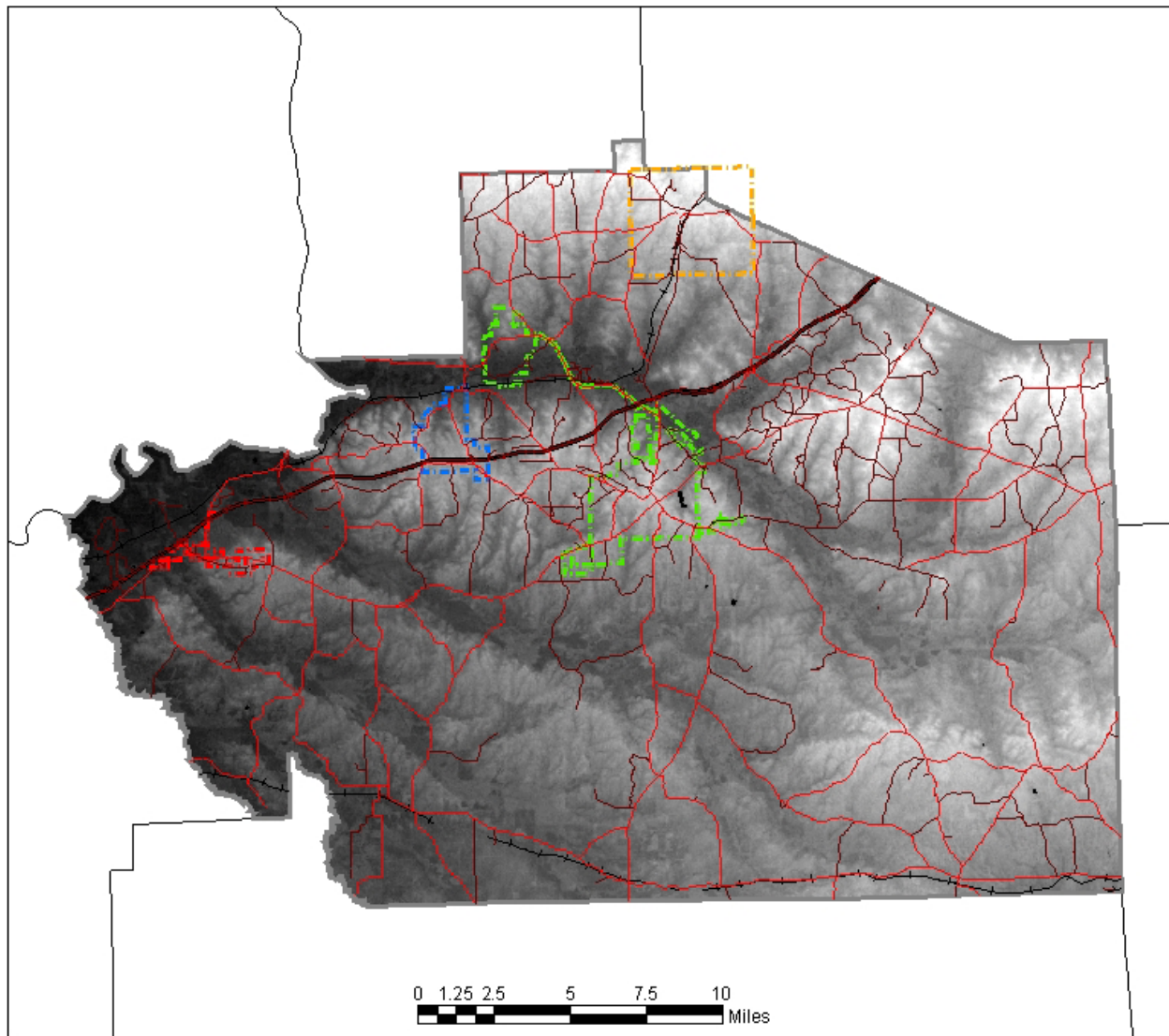
The Troup-Dothan-Conecuh Association consists of soils that are deep to very deep, moderately well drained to excessively well drained, and very slowly to moderately permeable. These soils are on broad, nearly level to strongly sloping uplands of the Coastal Plain with slopes ranging from 0 to 12 percent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

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

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

Figure 11

Digital Elevation Model of Macon County



Legend

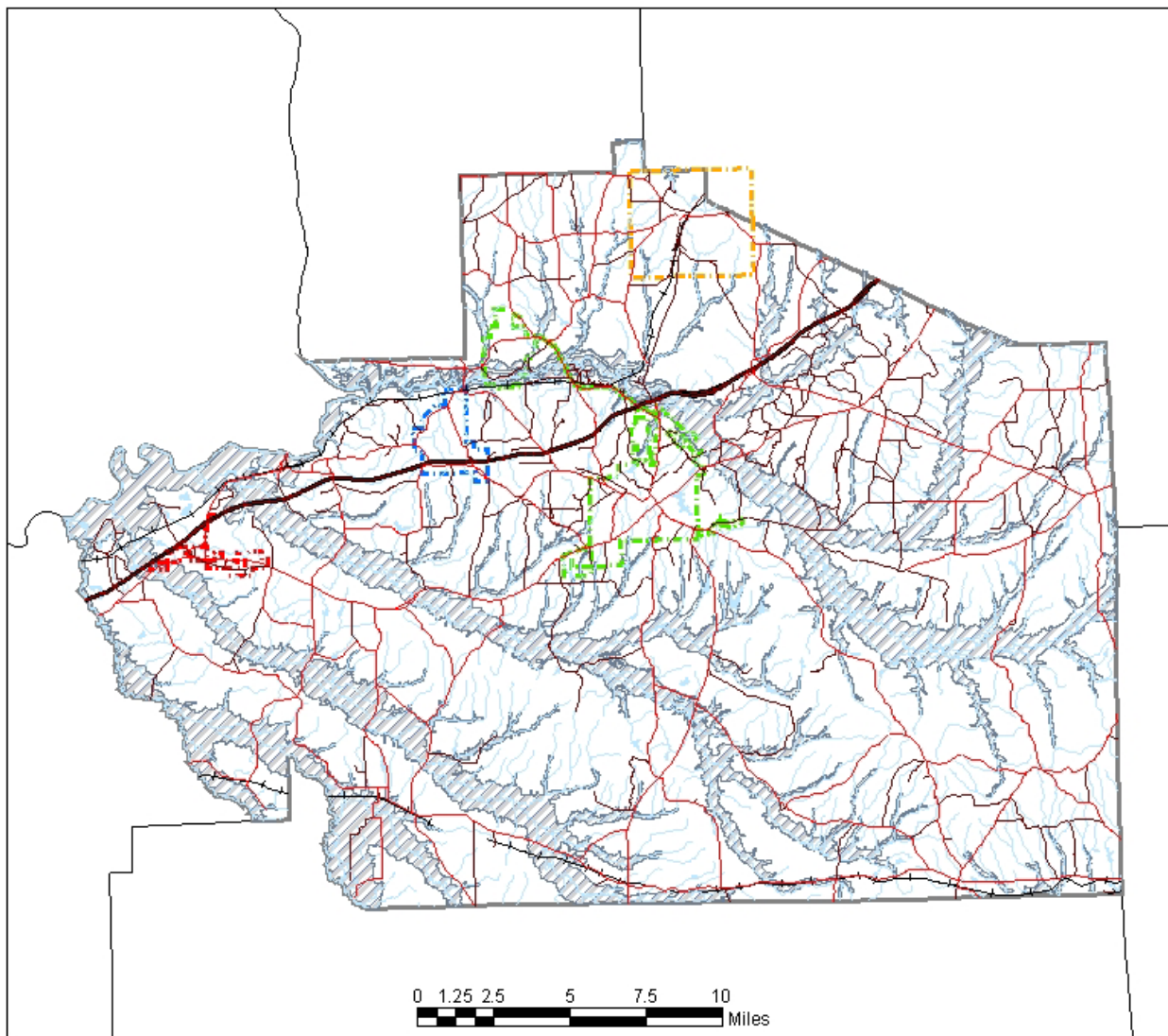
Primary road with limited access	Railroad
Primary road	Franklin
Secondary and connecting road	Notasulga
	Shorter
	Tuskegee
	Macon County

Elevation Model:
Range
Low = 39 ft
High = 247 ft
Mean = 116 ft

Sources: NASA, NIMA, German Aerospace Center, & Italian Space Agency, SRTM Elevation Dataset, 2002; Census Bureau TIGER/Line Files 2000; and local sources.

Figure 12

Floodplains of Macon County



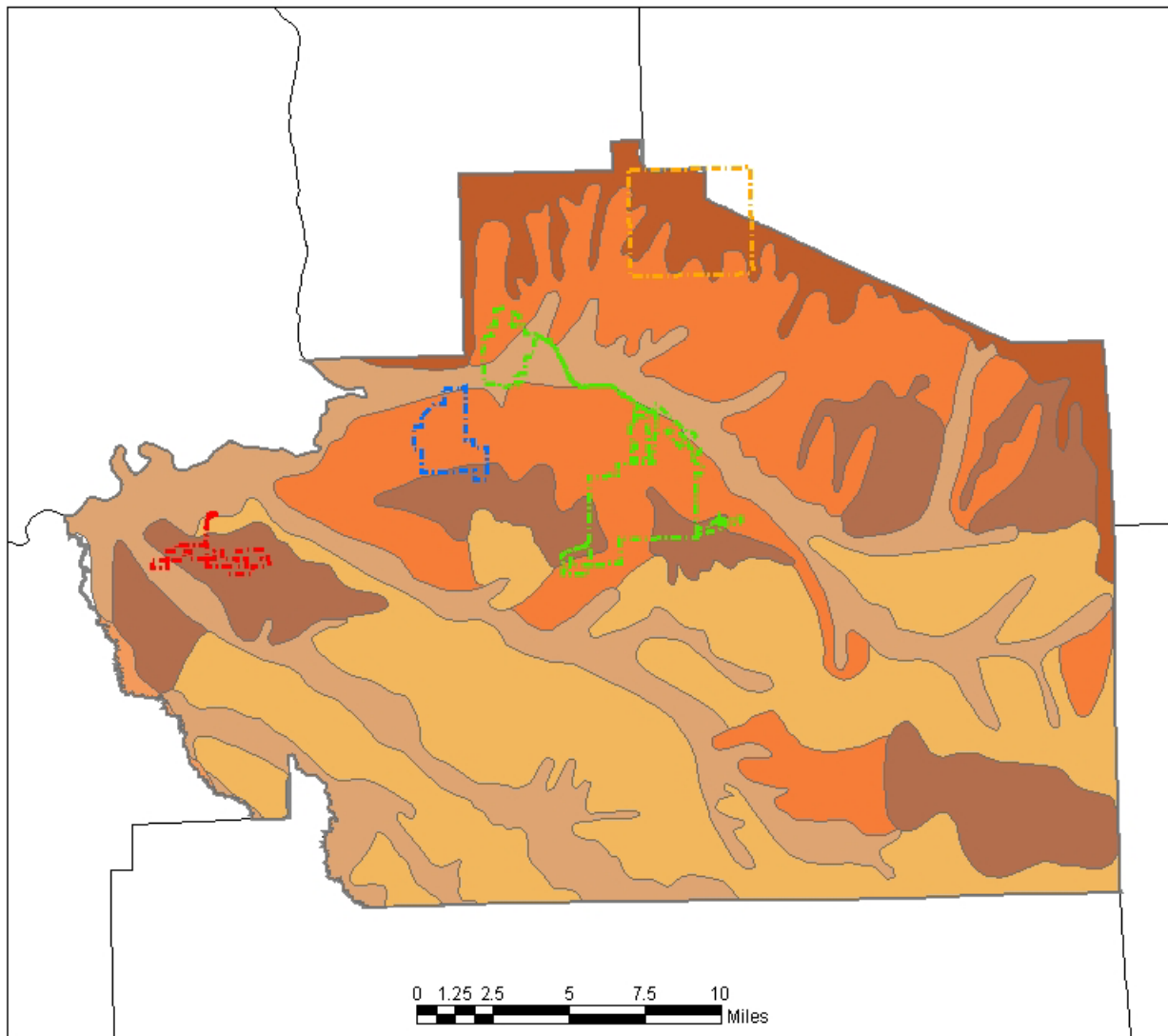
Legend

Floodplains	Franklin
Primary road with limited access	Notasulga
Primary road	Shorter
Secondary and connecting road	Tuskegee
Railroad	Macon County
Small Streams	
Large Streams & Lakes	

Sources: FEMA NFIP FIRMs, Lowndes County, Ala. (Incorporated and Unincorporated Areas); Census Bureau TIGER/Line Files 2000; and local sources.

Figure 13

General Soils of Macon County



General Soils		Legend	
Major Soil Associations	Congaree-McQueen-Mantachie	Shorter	
	Okitibeha-Luvene-Sumter	Tuskegee	
	Troup-Dothan-Conecuh	Macon County	
	Luvene-Cowarts-Troup		
	Luvene-Marwyn-Cowarts		
	Franklin		
	Notasulga		

Sources: USDA NRCS SSD STATSGO & OSD information; Census Bureau TIGER/Line Files 2000; and local sources.

2.3 Development Trends

Most development in Macon County is concentrated around urban and town centers, including Tuskegee and Notasulga. There is some potential for future development in Shorter, with increased industrial development, dog track and new sewer expansions. Since 2004, this pattern of development has continued. A pattern of subdivision development in previously rural countryside is beginning to emerge. For the most part, these developments are small subdivisions or estate type/ “farm house” type developments. The potential for greater commercial, industrial and residential along Interstate-85 is increasing. This has prompted plans and zoning regulations at the county level. In addition there has been new industrial development in the Shorter area, with the Halla Corporation. The dog racing facility has expanded in the Shorter area as well. Growth from Auburn-Opelika is increasing to put some pressure on the Interstate-85 corridor.

2.4 Summary of Characteristics

The inventory and analysis of existing conditions is the first step in assessment of an area’s vulnerability to natural hazards. Through the analysis of existing demographic conditions, it is possible to locate concentrations of population, as well as portions of the population that may be more at risk to natural hazards than other portion because of restricted mobility due to any number of reasons, such as advanced age or economic mobility due to any number of reasons, such as advanced age or economic limitations. Analysis of the existing physical conditions provides knowledge of those areas that are highly susceptible to flooding due to the presence of streams and creeks, flood plains, and hydric soils. The existing land uses and transportation systems are also important in hazard mitigation planning because they show where there could be significant structural and infrastructural damage and what could impede emergency responders.

A summary of Macon County characteristics begins with the existing physical patterns of elevation, soils and floodplains. All of these have a linear east-west pattern generally lying from southeast to northwest. Lower elevations are found in the northwest portion of the county along the Tallapoosa River with higher elevations in the western part of the county. Narrow, linear flood plains follow the major streams that flow from the west and southwest to the northeast to the Tallapoosa River. Although there are six soil associations present in Macon County, only four of the associations are present to any significant degree. The northern half of the county is characterized by soils in Luverne-Cowarts-Troup Association and the Troup-Dothan-Conecuh Association that are more suitable for urban uses. These soils are generally well-drained, have good permeability and runoff can range from slow to rapid. Soils in the southern half of the county are primarily in the Oktibbeha-Luverne-Sumter Association and are better suited for woodland use and some crop and pasture use than urban uses. While these soils are well-drained, they have steep slopes, slow permeability and medium to rapid runoff, leading to erosion problems. Soils in the flood plains found in both the northern and southern parts of the county are in the Congaree-McQueen-Mantachie Association, which are generally flat, with slow to moderate permeability and have a tendency to flood.

The summary of physical conditions explains past development and transportation trends with the great majority of development occurring in the northern portion of the county that is less expensive and more conducive to development. The land use/land cover map shows that Macon County is mostly wooded with some pasture and crop uses in the southeastern and northern parts of the county and urban uses

concentrated around the county's main transportation artery, Interstate 85. Demographic characteristics show that housing density is also highest in the proximity of Interstate 85 and the City of Tuskegee. Those persons who may have mobility limitations due to age or income are located in the southeastern, southwestern and north central portions of the county.

Without consideration of past natural events and patterns, that portion of the Macon County population that is most vulnerable to disaster events are located in the southwest and southeast corners based on poor physical conditions (soils and floodplains), coupled with a low median household income and limited access to major transportation routes as those portions of the county are only accessible by county roads. These parts of the county would be most difficult for emergency responders to reach and due to sparse population density would have the least amount of disaster resources, such as storm shelters, available to them in a hazard event.

CHAPTER 3: HAZARD IDENTIFICATION, VULNERABILITY AND RISK ASSESSMENT

The hazard identification, vulnerability and risk assessment from the 2004 plan has been updated in this 2008/2009 update. Potential hazards and priorities were reviewed with the LEPC. A review of past disaster and past natural hazards has been included in the 2008/2009 update. Past declarations have been updated to 1975-2007 from the 2003 data and storm events have been updated to 1950-2007 from the 2003 data.

The risk assessment includes the identification and description of natural hazards that can affect Macon County and its jurisdictions, a profile of the natural hazards that were identified, and an assessment of vulnerability. To better understand the risk assessment process, the following definitions, as reported in the *State of Alabama Hazard Risk and Vulnerability Analysis*, prepared by the AEMA, are provided.

- Risk:* the probability that damage to life and property will occur due to impacts from a particular natural hazard. (Can include magnitude, duration, frequency and area affected.)
- Magnitude:* how big or strong the event may be
- Duration:* how long the event will last
- Frequency:* how often the event may occur
- Area Affected:* where and how much area may be impacted by an event
- Vulnerability:* the degree of exposure to a hazard or how susceptible an area is to a hazard and the losses likely to result from a disaster.

3.1 Hazard Identification

Natural hazards that have the potential to impact Macon County were identified using a variety of resources. An overall list of natural hazards has been utilized from Federal Emergency Management Agency Publication 386-2 which is a state and local mitigation planning how to guide entitled: *Understanding Your Risks – Identifying Hazards and Estimating Losses*. Using the general list of natural hazards, research was conducted into past disaster occurrences in Macon County. This has been updated from 2003 data. Information was utilized in conjunction with the inventory and summary of physical characteristics of the county (see Chapter 2) to determine those hazards most likely to impact Macon County and where. A review of historical and existing plans and regulations in Macon County that identify the potential for natural hazards is also included.

A review of past disaster declarations (available through the AEMA) in Macon County revealed that the most frequent natural disaster between 1975 and 2007 have been flooding, severe storms/ or tornados, hurricanes and droughts.

A review of the disaster events during a 32-year period, 5 were local declarations and 12 were federal declarations. The dates and types of occurrences are shown in Figure 14. In each of the 12 federal declarations, federal assistance was provided to Macon County in the following manner: both public and individual assistance. Beyond financial assistance, federal assistance was provided in the form of crisis counseling, disaster housing, disaster unemployment assistance, and individual and family grants.

Figure 14

**Past Disaster Occurrences, 1975 to 2007
32 Years**

<u>Date</u>	<u>Hazard</u>	<u>Local or Federal Declaration</u>
January 1975	Tornado	Federal
March 1975	Flood	Federal
October 1975	Severe Storm	Federal
August 1977	Drought	Federal
June 1989	Heavy Rain – Flooding	Local
March 1990	Severe Storm – Flooding	Federal
June to October 1990	Drought	Local
November 1992	Heavy Rain – Flooding	Federal
March 1993	Snow Storm	Federal
October 1995	Hurricane – Opal	Federal
March 1996	Severe Storm – Tornado	Federal
February to August 2000	Drought	Local
December 2000	Severe Storm – Tornado	Local
March 2001	Heavy Rain – Flooding	Local
May 2003	Severe Storms, Tornadoes and Flooding	Federal
August 2004	Hurricane – Ivan	Federal
July 2005	Hurricane – Katrina	Federal

Source: Alabama Emergency Management Agency, FEMA, 2007.

Information available through the National Oceanographic and Atmospheric Administration (NOAA) shows that Macon County suffered a total of 79 storm events between January 1950 through December 2007, which is an average of 1.3 events per year. The most frequent storm event during the 57-year time period was thunderstorm and wind storms, with 49 occurrences resulting in a total of \$412,000 in property

damage and \$12,000 in crop damage. Of the remaining storm events profiled, Macon County suffered 11 tornados, 2 winter storms, 8 floods, 6 heat/drought event, and 3 hurricane. Although they occur less frequently, the NOAA information shows that Hurricane Opal and the six tornados were, by far, the most costly to the county, resulting in \$1 billion and \$780,000 in property damage, respectively, and the loss of three lives and nine injuries.

In the initial review of the list of natural hazards, with past occurrence documentation, the LEPC determined that four of the 19 listed hazards were eliminated due to a lack of applicability in Macon County. Upon review, these hazards should continue to be eliminated from consideration. The four hazards that were eliminated and the reasons why are as follows:

- Avalanche:* Due to the southern geographic location and existing physiographic conditions of Macon County, the lack of accumulated snowfall and relatively flat to rolling topography, avalanche hazards do not apply.
- Coastal Erosion:* Due to the inland geographic location of Macon County, coastal erosion does not apply.
- Tsunami:* Due to the inland geographic location of Macon County, tsunamis, or tidal waves, do not apply.
- Volcano:* Due to the existing physiographic conditions of Macon County, volcanic hazards do not apply.

The list of 15 remaining hazards identifies the hazards which have significant potential to impact Macon County. The 15 hazards that were researched follows, along with a definition of each, as provided in FEMA Publication 386-2, *Understanding Your Risks. Identifying hazards and estimating losses:*

- Coastal/Tropical Storm:* a cyclone (cyclonic, low-pressure system) with maximum with sustained winds greater than 39 miles per hour and less than 74 miles per hour.
- Dam Failure:* Leakage, or collapse, of a structure, or barrier, constructed to hold back flowing water, resulting in massive quantities of water rushing beyond the barrier at rapid speeds and flooding of nearby areas.
- Drought:* A prolonged period of dry weather; lack of rain.
- Earthquake:* A sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of Earths' tectonic plates.
- Expansive Soils:* Soils that are characterized by swelling, or expanding, when wet and shrinking, or contracting when dry, also referred to as shrink-swell. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.
- Extreme Heat:* A period of sustained high temperatures.
- Flood:* A natural event for rivers and streams. Excess water from snowfall, rainfall or storm surge accumulates and overflows onto the banks and adjacent flood plains, or adjacent lowlands.

- Hailstorm: A storm in which hail falls. Hail is small, rounded pieces of ice that sometimes fall during thunderstorms.
- Hurricane: A category of tropical cyclone characterized by thunderstorms and defined surface wind circulation. Hurricanes develop over warm waters and are caused by the atmospheric instability created by the collision of warm air with cooler air.
- Land Subsidence/Sinkholes: Sinkholes are caused by a loss of support, roof collapse and/or raveling. Loss of support occurs when decreases of groundwater reduce the buoyant support of groundwater cavities. The collapse of the roof causes a subsurface cavity. Raveling is the slow erosion of unconsolidated sediments moving from one area into another underground opening. A visible sinkhole is formed when the collapse of an unsupported opening results in the enlargement of the opening beyond the ability of the covering material (rock or soil) to bridge the opening.
- Landslide: A downward movement of a slope and materials under the influence or gravity. Includes rock falls, deep failure of slopes, and shallow debris flows. Landslides can be triggered by both natural and man-made changes in the environment. These changes may result from weakness in the composition of the soil, heavy rain or changes in the groundwater level. Man-made landslides may result from changes in slope caused by terracing for agriculture, cut-and-fill in construction areas, mining operations, or changes in soil moisture due to changes in irrigation, groundwater or surface water.
- Severe Winter Storm: A prolonged period of rain and/or storms with freezing temperatures, resulting in sleet and ice and freezing of surfaces.
- Tornado: A violently rotating column of air extending from a thunderstorm to the ground.
- Wildfire: An uncontrollable fire spreading through vegetative fuels, exposing and possibly consuming structures. Wildfires often begin unnoticed and spread quickly and are usually signaled by dense smoke that fills the area for miles around.
- Windstorm: A storm with strong winds but little or no rain or hail, etc.

A review of historical and existing plans and regulations for Macon County revealed that there continues to be limited current information that is directly related to hazard identification or natural hazard mitigation. Existing information does include police and fire protection services and needs; a plan of the protection and preservation of environmentally-sensitive areas; and statements as to the need for road and bridge improvements, limitations to development in flood-prone areas, the increase in fire hazards due to unsafe buildings and the lack of adequate medical facilities in the county. The review of the existing plans shows that the potential of disaster events has been a consideration in past growth and development planning for the county, which is evident in the lack of development that has occurred in the flood-prone areas of the county. The plan review also resulted in identifying tools in the county and municipalities that can be used in hazard mitigation activities. These include comprehensive plans for the towns of Shorter and Notasulga as well as Macon County. Both municipalities adopted plans in 2008 and either drafted or adopted new zoning ordinances and subdivision regulations with greater emphasis in natural resource and flood protection. The county also adopted a comprehensive county plan, established a planning commission and has drafted a zoning ordinance and subdivision regulations. These tools include flood damage prevention

ordinances, subdivision regulations, zoning ordinances, capital improvement programs, and proposed dangerous buildings ordinance.

- Historical plans that were reviewed include:
 - Areawide Plan: Fire Protection Study, 1974
 - Areawide Study: Environmental Assets, 1975
 - Areawide Plan: Rural Land Use Analysis, 1977
 - Areawide Study: Environmental Review Manual, 1977
 - Macon County, Alabama Community Facilities Plan, Public Improvements Program and Capital Improvements Budget, 1977
 - Areawide Land Development Plan, 1978
 - Shorter Comprehensive Plan, 2008
 - Shorter Zoning Ordinance and Subdivision Regulations, 2008
 - Notasulga Comprehensive Plan, 2008
 - Notasulga Draft Zoning Ordinance and Subdivision Regulations, 2008
 - Macon County Comprehensive Plan, Zoning Ordinance, Subdivision Regulations

- Current Plans that were reviewed include:
 - Macon County Emergency Operations Plan
 - Macon County Flood Damage Prevention Ordinance
 - Tuskegee and Macon County Tourism Development Plan
 - Tuskegee Zoning Ordinance;
 - Rural County Highway Development Plan, 1992
 - Franklin Comprehensive Plan
 - Bullock/Macon Counties Strategic Plan 2000-2012
 - SCADC Comprehensive CEDS
 - Rural Transportation Report

3.2 Hazard Profiling

The following profile for each of the 15 hazards that could impact Macon County includes past occurrences, location, general descriptions and probability. Hazards which are similar in nature and impact have been grouped together. Historical data, unless noted otherwise, was gathered from the National Climatic Data Center (NCDC). The 2008/2009 update includes additional data from 1950-2007. Maps included in Figures 15-20 have not been revised from the 2003 plan due to conclusions during the update that these geographic areas have not changes significantly.

Coastal Storms and Hurricanes.

Ten tropical cyclones have occurred in Macon County during the 150-year period from 1851 through 2001. As shown in Figure 15, six of the ten tracks of the tropical cyclones were minor tropical storms. However, two H1 tropical cyclones and three tropical depressions have occurred in the county in the referenced time period. The NCDC only reports three hurricane events, Opal on October 4, 1995, as having an impact on Macon County. Hurricane Opal resulted in two deaths, approximately \$100 million

in property damage and \$10 million in crop damage. The pattern of tropical cyclones and Hurricane Opal affected the entire county. There is only a limited probability of experiencing hurricane conditions in Macon County. Since the affects of Hurricane Opal were high winds and rain, similar to a thunderstorm, the effects of a coastal storms and hurricane can be addressed with other severe thunderstorms and tornadoes.

The NCDC also lists two other events having an impact on Macon County, Tropical Storm Dennis on July 10, 2005 and Tropical Storm Katrina on August 26, 2005. TS Dennis resulted in no deaths or injuries and lists \$25,000 in property damage. TS Katrina resulted in no deaths and 8 injuries along with \$34.9 million in property damage.

Dam Failure.

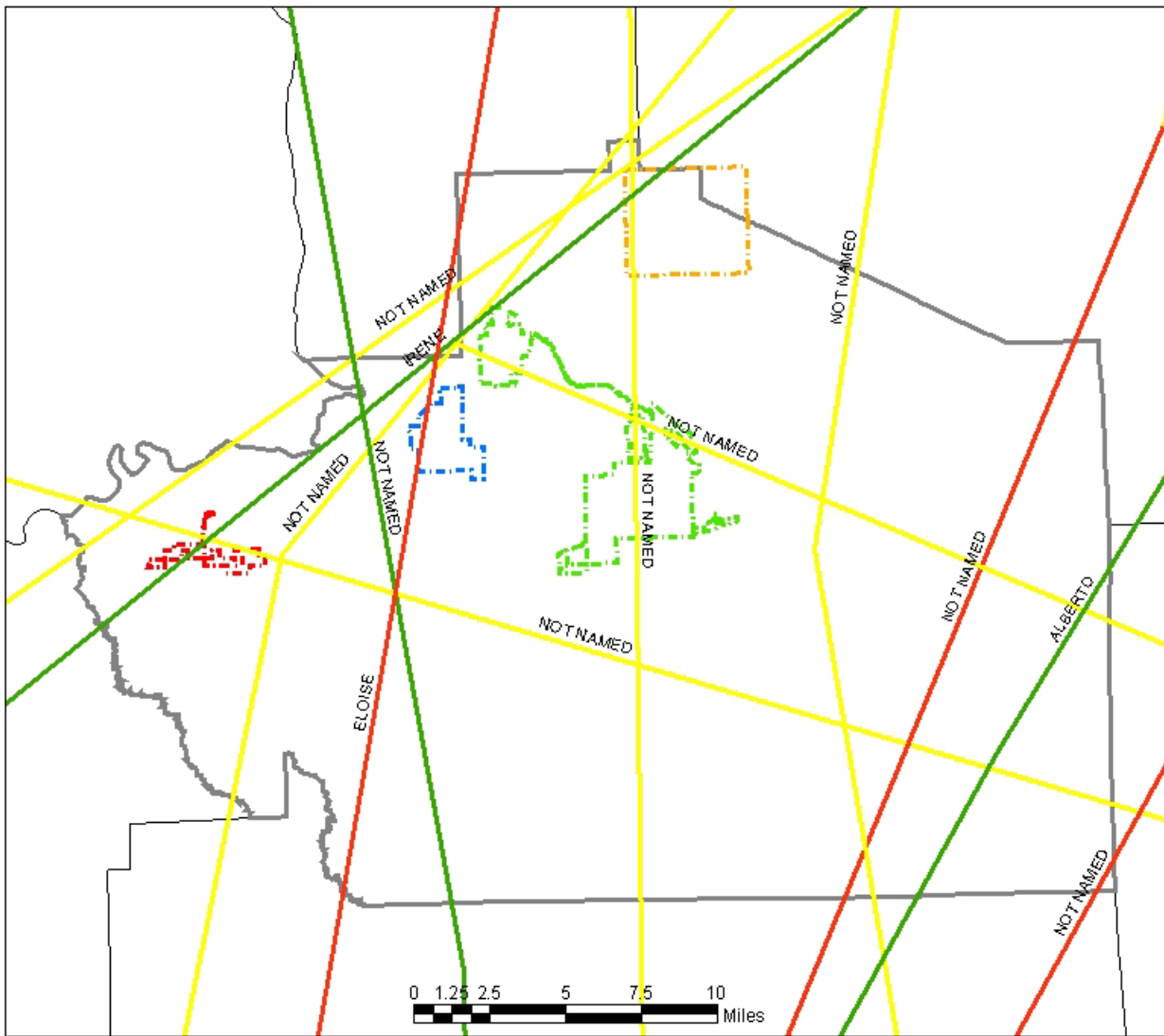
There are no records of prior dam failures in any of the four municipalities or the unincorporated portions of Macon County. According to the Geographic Names Information System (GNIS), there are approximately 24 small dam structures located within Macon County, with elevations ranging between 269 feet above sea level to 492 feet above sea level. Of these dams, one is the Tuskegee City Lake Dam and another is the Notasulga City Lake Dam. The remainder of the dams appear to be private.

The Tallapoosa River forms the northwest border of Macon County. There are three dams located on the Tallapoosa River just north of Macon County, which are Thurlow Dam, Yates Dam, and Martin Dam, and further north in Randolph County is R.L. Harris Dam. All of the four dams are well-maintained by the Alabama Power Company for hydroelectric purposes. If all four dams, however, were to fail at the same time, the resulting flood waters have the potential to wash away the greater portion of western Macon County.

While there is low probability of dam failure to any significant extent in Macon County, it should be noted that there are no inspection provisions available for dams on private property. Even failure of a dam with a small impoundment could result in significant property damage at the least. This hazard is considered to have a county-wide impact on Macon County.

Figure 15

Tropical Cyclones of Macon County





 Prepared June 2003

Historical Tracks (1851-2001)		Legend	
Subtropical Storm	Orange line	Notasulga	Orange dashed box
Tropical Depression	Green line	Shooter	Red dashed box
Tropical Storm	Yellow line	Tuskegee	Green dashed box
H1	Red line	Macon County	Grey outline
H2	Orange line		
H3	Red line		
H4	Orange line		
H5	Red line		
Franklin	Blue dashed box		
Tropical Disturbance	Light green line		
Tropical Wave	Light green line		
Tropical Low	Light green line		
Extratropical Storm	Light green line		
Subtropical Depression	Blue line		

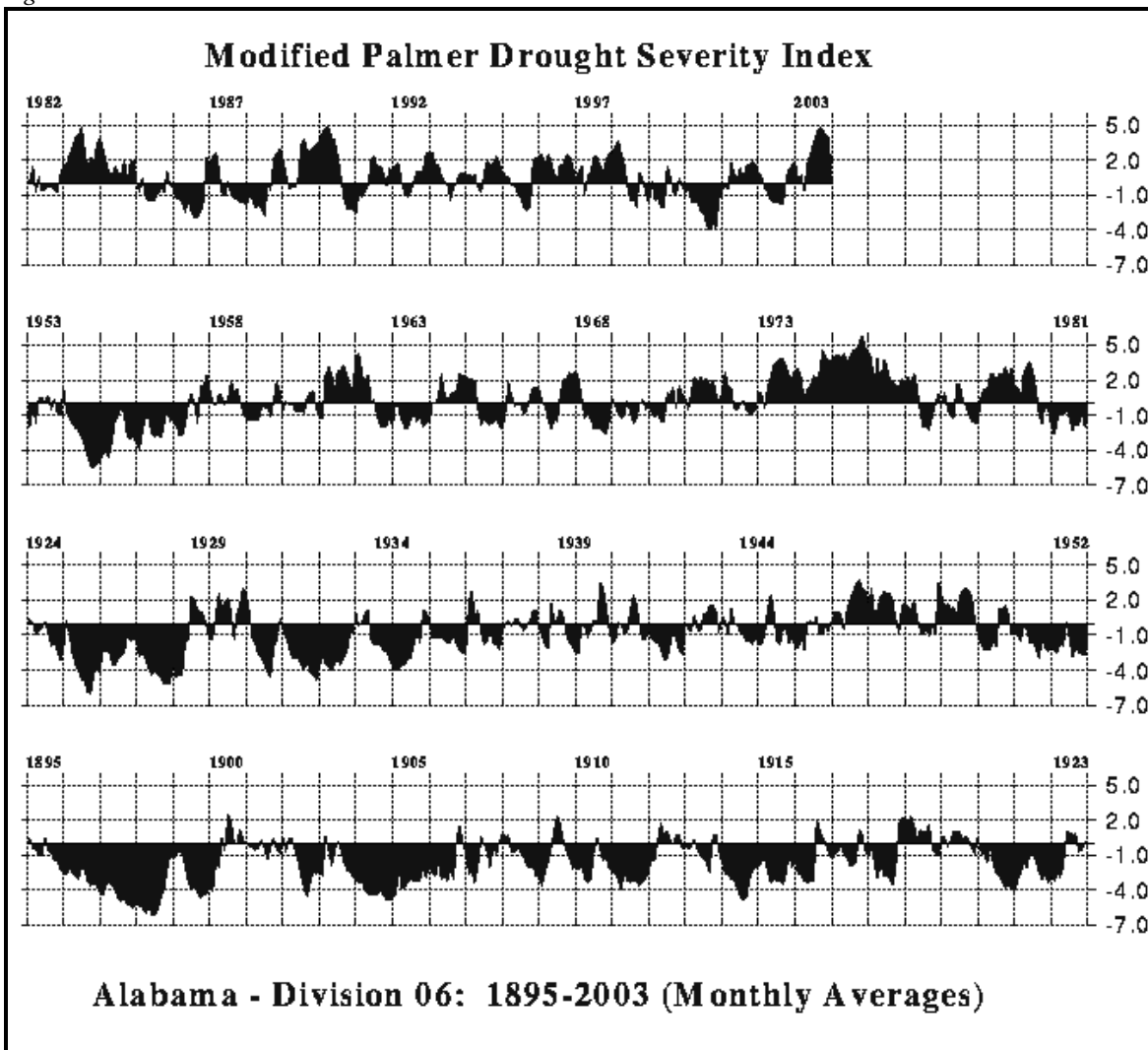
Sources: NOAA, Tropical Prediction Center/National Hurricane Center, Historical North Atlantic Cyclone Tracks 2002; Census Bureau TIGER/Line Files 2000; and local sources.

Drought and Extreme Heat

Extreme heat and drought often occur simultaneously in Macon County. Drought is a prolonged period of dry weather due to a lack of rain. The National Oceanic and Atmospheric Administration reports that the annual normal daily mean temperature for Montgomery, which is the closest station to Macon County, between 1971 and 2000 is 65.1 degrees Fahrenheit, with the warmest month being July at 81.8 degrees Fahrenheit and the coldest month being January at 46.6 degrees Fahrenheit. The annual normal monthly precipitation during the same time period is 54.77 inches with an average of 108 days per year with precipitation of more than .01 inch.

Macon County’s economic dependence upon agriculture, coupled with the low per capita income of the county, at \$13,714 according to the 2000 Census, makes the county population very susceptible to extreme changes in weather. Conditions of extreme heat and drought can affect the population’s ability to produce livable earnings and produce dangerous living conditions for the low-income sector of the population due to an inability to find refuge from extreme heat.

Figure 16



The NCDC reports five drought events and one excessive heat event between 1950 and 2007. The single excessive heat event took place between February 23 and February 27, 2006 and marked a point at which damage to agricultural crops took place due to the unseasonably warm temperatures. Of the five drought events three of them combine for successive months during 2006, beginning July 7 and ending September 19. That period of drought resulted in D2 (sever) to isolated D3 (extreme) conditions. Several significant precipitation events occurred mid-September which improved conditions to be better than D2. The other two drought events in 2007 are similar in that they combine to form a successive drought between May 22 and June 30. This period of drought resulted in many of the centrally located counties under D3 (extreme) and D4 (excessive) drought conditions. Furthermore, drought conditions that affected much of the southeastern United States and especially Alabama, certainly impacted Macon County. Consideration of extreme heat and drought was a major point of discussion in the LEPC's review of priority hazard conditions for which to plan.

The U.S. Geological Survey (USGS) reports, however, in a publication entitled National Weather Summary 1988-89 – Floods and Droughts: Alabama, statewide droughts occurred in 1938 to 1945, 1950 to 1963, 1964 to 1970, 1980 to 1982, and 1984 to 1988, with 1954 being the most extreme drought year on record in Alabama. This report covers a time period of 102 years between 1882 and 1988. During this time frame, Alabama was in a drought state for 34 years, collectively, or 33 percent of the time period. Each of these drought events was reported to have a recurrence interval of between 10 and 60 years.

Figure 16 shows the Modified Palmer Drought Severity Index for the period from 1895 to 2003 for Alabama Division 6, which covers the central portion of the state, including Macon County. According to this Palmer Index, periods of drought roughly align with the periods reported in the USGS report. The Palmer Modified Drought Index reports periods of drought over a 2.0 index in 1930, 1936, 1940, 1946-1949, 1957, 1961-1962, 1973-1976, 1979-1980, 1983, 1989-1990, 1997-1998 and 2003. Over the 108 year period reported in the Palmer Index, the Division 6 area underwent drought conditions in 21 of those years, or 19 percent of the time period.

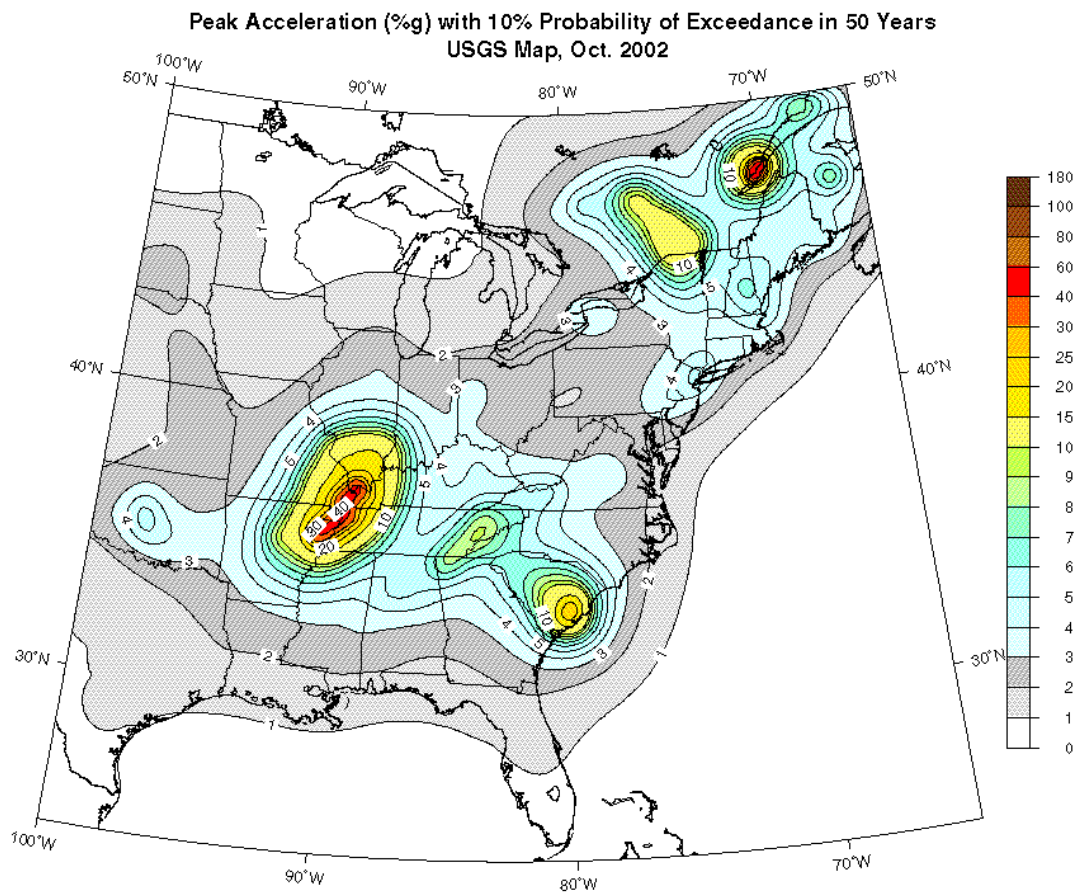
The incidence of past extreme heat and drought conditions, coupled with the overall climatic conditions of Macon County and the high recurrence interval reported by USGS make the probability of future occurrences of extreme heat and drought high, impacting the entire county. The agricultural community is particularly at risk in terms of property and crop damage from extreme heat and drought. Also, the high percentage of the population with low income or living in poverty and those living in unincorporated areas without access to public water are particularly at risk due to dry wells and lack of financial resources for air conditioning to ward off the impact of extreme heat. Drought impacts a road system through its impact on road conditions. Although this specific data was not updated in the 2008-09 mitigation plan update, the combination of all of the data reflected a high priority concern for Macon County.

Earthquakes.

The NCDC does not report any past occurrences of earthquakes in Macon County, although they have been known to occur in other parts of the state. Information available from the Geological Survey of Alabama (GSA) also shows that Macon County has never been impacted by an earthquake in their reporting period from 1186 through 2008. Earthquakes in Alabama are usually located in either the New Madrid Seismic Zone (NMSZ) or the Southern Appalachian Seismic Zone (SASZ). According to USGS, large earthquakes in either of these two seismic zones have the potential to affect the northern half of Alabama. The SASZ extends from Roanoke, Virginia in a southwesterly direction, to central Alabama following the Appalachian Mountains and is the zone in closest proximity to Macon County.

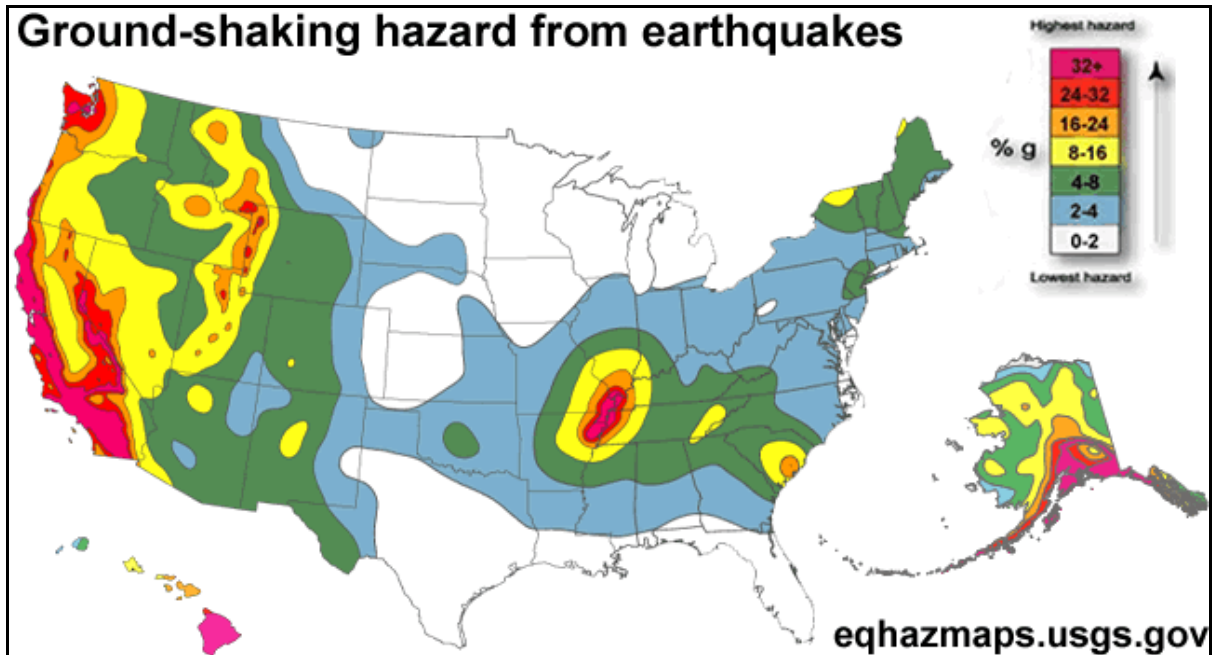
Historical records (1886 through 2008) document 239 earthquakes in Alabama. Although an earthquake can occur anywhere in Alabama, the historic pattern of epicenters has always been outside southeast Alabama. Also according to USGS, earthquakes occurring in Alabama are not likely to do serious damage. However, the entire county and all four municipalities are located in an area of Alabama that is subject to experiencing minor seismic waves related to an earthquake occurring elsewhere in Alabama.

Figure 17



Figures 17 and 18 show maps, produced by USGS, of peak acceleration with 10 percent probability of exceedance in 50 years and ground-shaking hazards occurring from earthquakes. The central portion of Alabama, where Macon County is located, is in the very low impact zone on both of these maps. Due to the lack of past occurrence and the geological characteristics of the State of Alabama and Macon County, there is a very low probability of future occurrences of an earthquake epicenter in Macon County and a low probability of severe damage occurring anywhere in Macon County from earthquakes occurring in other areas of the Southeast.

Figure 18

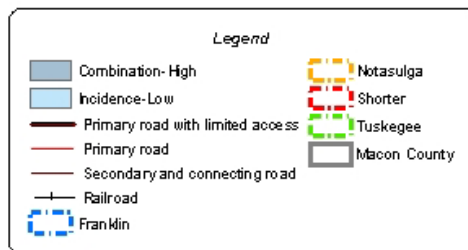
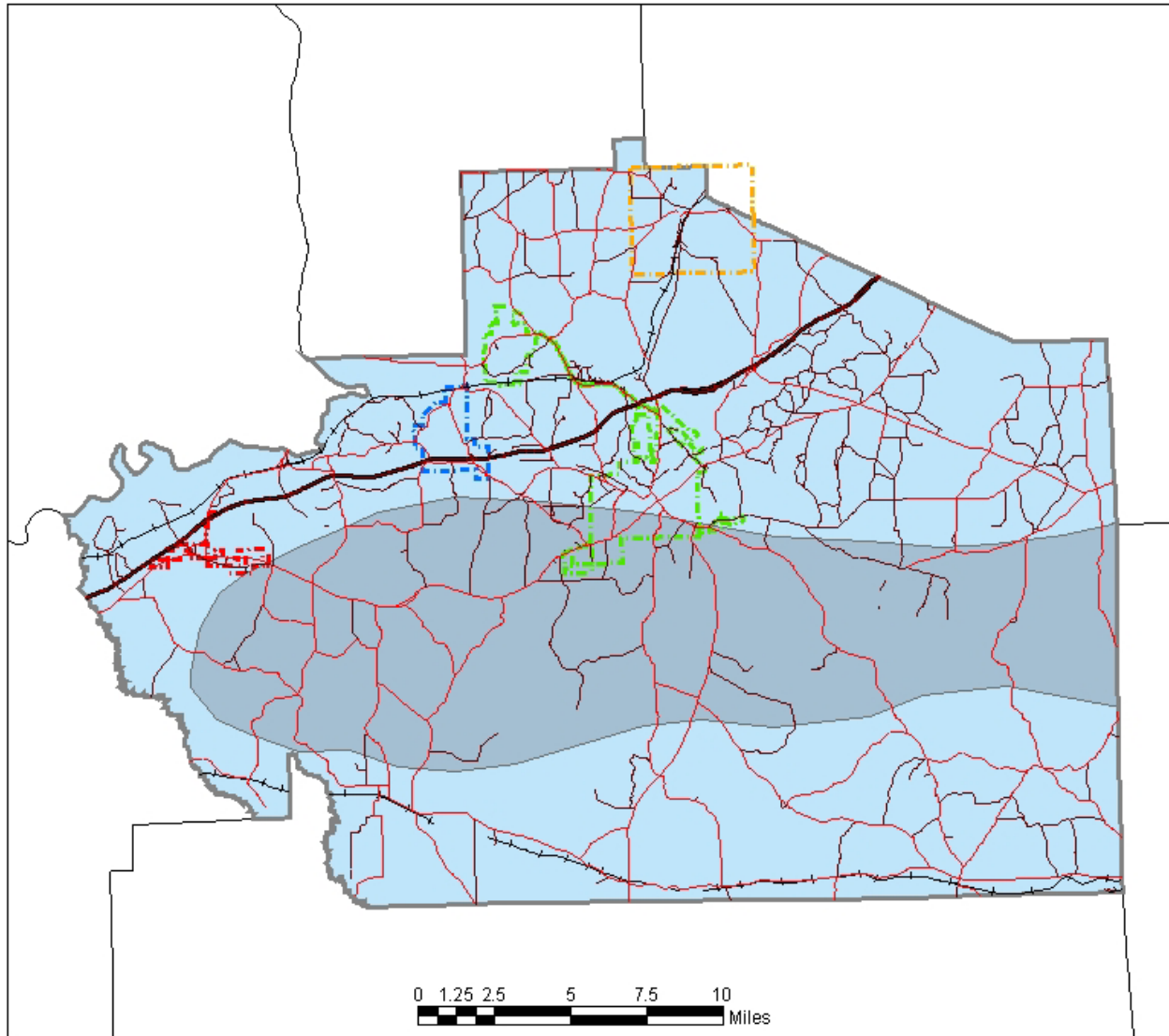


Land Subsidence/ Expansive Soils/ Sinkholes/ Landslides

CSA information reveals that Macon County has a moderate incidence of landslides in the central portion of the county, as shown in Figure 19. Additionally, there are outcrops of carbonite rocks in the southern portion of Macon County, making the area susceptible to sinkholes. According to the GSA data, however, Macon County does not have currently have active sinkholes and land subsidence. Nor, have there been any reports of sinkholes or landslides by citizens or by the Macon County EMA. There is, however, some stream bank erosion that is expected to continue as a natural function of stream morphology.

Figure 19

Landslide Potential of Macon County



Sources: USGS, Landslide Incidence & Susceptibility in the Conterminous US, 2001; Census Bureau TIGER/Line Files 2000; and local sources.

Given the lack of past occurrences and lack of data indicating any physical change that would increase the incidence of sinkholes and landslides, it is predicted that the probability of future occurrences of sinkholes and landslides is very low. However, citizens have commented on significant soil erosion along stream banks and road washing in the central portion of Macon County where there is a moderate incidence of landslides. It would be safe to assume that while the probability of sinkholes and landslides is low, the soils in this area of the county are more unstable and prone to erosion than in other areas. Due to the instability of the soils in this area, the incidence of man-induced landslides could be higher due to the lack of application of best management practices in all fields, including engineering and construction, agriculture, and silviculture.

Flooding.

Flooding is one of the most common hazards in the United States resulting in loss of property and lives at an average of 150 people a year nationwide. While Macon County is not highly susceptible to severe inundation of flood waters, it is highly susceptible to the rapid occurrence of flash floods which make parts of the county inaccessible by road and interrupt the delivery of services and the ability to respond in an emergency.

The NCDC reports eight occurrences of flooding in Macon County in a 50-year time span between 1950 and 2007. Five of these are classified as affecting the entire county, one affected the Town of Franklin, one affecting the City of Tuskegee and one was a recording of the Tallapoosa River cresting at 46.27 feet which is above flood stage at the flood stage of 40 feet at the Milstead Station. The combined loss of these eight floods was \$96,000 in property damage and \$5,000 in crop damage. The Alabama Emergency Management Agency, however, reports five flooding events separate from those listed by NCDC. Two of the AEMA floods were federal declarations and the remaining three were local declarations. The LEPC also considers the flash flooding due to inadequate water drainage in isolated cases to be at least a nuisance to residents and businesses. For example, near the northern entrance into downtown Tuskegee.

The Macon County Engineer reports that the necessary road improvements to provide accessibility throughout Macon County, even flooding conditions, are significant, totaling \$3,325,000 to improve just over 23 miles of roadway, as shown in Figure 20. Improvements, however, would provide necessary access and limit erosion and sedimentation during heavy rains and flash floods. Currently, the Macon County Commission spends approximately \$1 million per year in road maintenance to keep roads passable in emergency events. This information has not been updated since the 2004 Hazard Mitigation Plan, but remains essentially the same magnitude.

Since more than half of the reported flood events have impacted the entire county, it is safe to assume that all of Macon County is susceptible to flooding at one time or another. Flooding is most likely to occur in the floodplain areas found along the four major streams. Floodplains in Macon County (see Figure 12 in Chapter 2) lie in a southwest to northeast pattern across the entire county and are found in the north, central and south parts of the county. The floodplain areas tend to be narrow and linear in nature, following stream beds and to some degree larger tributaries of the Uphapee, Chewacla, Opintlocco, Calebee and Cubahatchee creeks. The floodplains are not expansive, with the widest areas being approximately one mile in width.

Figure 20

Macon County Necessary Road Improvements Due to Flooding

Road	Length	Estimated Cost
St. Marks Road	2 miles	\$200,000
Pecola Road	.75 mile	\$75,000
County Road 2	10 miles	\$2,000,000
County Road 67	7 miles	\$700,000
County Road 73	3.5 miles	\$350,000
Total	23.25 miles	\$3,325,000

Source: Macon County Engineering Department

Macon County does not have a history of severe flooding that is found in low elevation areas such as Elba, Alabama. But, local residents report continual flash flooding and road washing and erosion as a result of heavy rains and localized flash floods. Additionally, local residents feel that flash flooding is more dangerous, although less extreme, due to the quickness of the event and lack of warning time.

The probability of continued flooding occurrences is high based on the record of past events and due to the physical presence of floodplains and soils with characteristics that are conducive to flooding.

Hail.

In the 57-year time period between 1950 and 2007, the NCDC reports 44 occurrences of hail in Macon County, affecting all municipalities, as well as the unincorporated portions of the county. Although no deaths or injuries have been reported as a result of hail, the cumulative damage totals \$236,000 in property damage and \$13,000 in crop damage.

Hail is most often associated with thunderstorms and give the climatic conditions of Macon County and record of past occurrences, it is probable that the incidence of future hail events is moderate to high.

Ice Storm.

Only two occurrences of snow and ice have been reported by the NCDC between 1950 and 2007. The first was on December 18, 1996, resulting in \$240,000 in property damage and \$320,000 in crop damage. The second event was a snowstorm on January 2, 2002, resulting in no property or crop damage being reported. The Southeast Regional Climate Center reports a monthly average total snowfall of .2-inch in January, with snow not being recorded at any other time in the year. The recording time period was between 1948 and 2004. The annual average minimum temperature in the same time period was 51.7 degrees Fahrenheit and the month with the lowest average minimal temperature was January, at 33.6 degrees Fahrenheit.

Although Macon County is located in a temperate to subtropical climate, severe winter storms, ice storms and snowfall do occur. Generally, the damage from ice storms and freezing temperatures is significantly higher than snowfall, due to freezing of infrastructures such as water pipes, impassable roads and cracking and falling of frozen tree limbs on power lines, communication lines and structures. When these events do

occur, they impact the entire county, due in part to the lack of preparation made by citizens for this type of cold weather. While the probability of future occurrence on a regular basis is low, the probability is still there for future occurrence of occasional winter storm and ice storm events.

Tornado / Windstorms / Thunderstorms.

The most violent of tornadoes are capable of tremendous destruction with wind speeds of 250 miles per hour or more. Damage paths can be in excess of one mile wide and 50 miles long. Macon County is located in Wind Zone III and is associated with 200 miles per hour wind speeds. Tornado and windstorm paths are not localized and have the potential to affect any portion of or the entire county during a given event. Since 1950, tornadoes have caused nearly a million dollars in property damage alone.

The NCDC reports eleven tornado events 1950 and 2007, however because previous methods of data collections the first five are listed under the general county category heading. The following six events are all linked with their location – 2 in Shorter, 3 in Tuskegee and 1 in Little Texas. Of those tornados, two are listed at a magnitude of F2, five as F1 and the remaining four as F0.

Figure 21

Profile of Tornado Events in Macon County, 1950 to 2007

Date	Magnitude	Loss of Life	Injuries	Financial Loss
Jan. 10, 1975	F2	0	9	\$250,000
May 16, 1983	F1	0	0	\$3,000
May 3, 1984	F1	0	0	\$25,000
May 3, 1984	F2	0	0	\$250,000
Nov. 26, 1986	F1	0	0	\$250,000
Dec. 16, 2000	F0	0	0	\$15,000
Sept. 16, 2004	F0	0	0	\$2,000
July 6, 2005	F1	0	1	\$48,000
July 6, 2005	F0	0	0	\$18,000
Aug. 29, 2005	F0	0	0	\$30,000
April 11, 2007	F1	0	0	\$10,000
Total	11 events	0	10	\$901,000

Source: Storm Events 1950-2008, National Climatic Data Center (NCDC)

In the same time period, the NCDC reported 48 thunderstorm and high wind events, resulting in one injury, \$410,000 in property damage and \$12,000 in crop damage, as shown in Figure 25. The mathematical rate of incidence for tornado events is once every nine years and for thunderstorm events is approximately once every 1.3 years. There is no true way to predict the probability of future occurrence, except to acknowledge that Macon County is in an area with climatic conditions susceptible to tornadoes and thunderstorms. Considering the repetitive incidences of tornados, windstorms and thunderstorms, the probability for future occurrences is high and appears to impact all jurisdictions in Macon County. While

loss of life and injuries is not frequent, the property damage is significant. Additionally, by nature, tornados leave very little response time for residents to take cover. Therefore, advance warnings and measures to ensure structural integrity are critical in all jurisdictions.

Figure 22

**Profile of Thunderstorm and High Wind Events in Macon County
1950 to 2004**

Location or County	Date	Magnitude	Death	Injury	Property Damage	Crop Damage
County	12/23/1956	0 kts.	0	0	--	--
County	02/05/1971	0 kts.	0	0	--	--
County	04/13/1979	0 kts.	0	0	--	--
County	05/03/1984	0 kts.	0	0	--	--
County	04/05/1985	0 kts.	0	0	--	--
County	07/30/1986	0 kts.	0	0	--	--
County	04/18/1988	0 kts.	0	0	--	--
County	07/15/1988	0 kts.	0	0	--	--
County	03/21/1989	0 kts.	0	0	--	--
County	06/05/1989	0 kts.	0	0	--	--
County	06/05/1989	0 kts.	0	0	--	--
County	02/10/1990	0 kts.	0	0	--	--
County	02/16/1990	0 kts.	0	0	--	--
County	02/22/1990	0 kts.	0	0	--	--
County	03/29/1991	0 kts.	0	0	--	--
County	03/29/1991	0 kts.	0	0	--	--
County	04/09/1991	0 kts.	0	0	--	--
County	05/05/1991	0 kts.	0	0	--	--
County	05/05/1991	0 kts.	0	0	--	--
County	06/26/1992	0 kts.	0	0	--	--
County	07/03/1992	0 kts.	0	0	--	--
County	08/27/1992	0 kts.	0	0	--	--
County	08/27/1992	0 kts.	0	0	--	--
Tallassee	05/15/1995	N/A	0	0	--	--
Tuskegee	08/19/1995	N/A	0	0	\$12,000	--
Tuskegee	03/06/1996	65 kts.	0	0	\$150,000	\$12,000
Shorter	03/06/1996	60 kts.	0	1	\$50,000	--
Tuskegee	03/06/1996	60 kts.	0	0	\$35,000	--
Tuskegee	03/30/1997	50 kts.	0	0	\$5,000	--
Tuskegee	06/05/1998	55 kts.	0	0	\$10,000	--
Notasulga	03/03/1999	55 kts.	0	0	\$2,000	--

Tuskegee	03/19/2000	55 kts.	0	0	\$2,000	--
Countywide	07/20/2000	55 kts.	0	0	\$50,000	--
Tuskegee	08/10/2000	50 kts.	0	0	\$3,000	--
Notasulga	08/10/2000	50 kts.	0	0	\$2,000	--
Tuskegee	01/19/2001	55 kts.	0	0	\$2,000	--
Notasulga	03/15/2001	60 kts.	0	0	\$18,000	--
Shorter	06/14/2001	50 kts.	0	0	\$3,000	--
Tuskegee	08/20/2002	50 kts.	0	0	\$8,000	--
Shorter	08/20/2002	50 kts.	0	0	\$2,000	--
Tuskegee	04/24/2003	55 kts.	0	0	\$3,000	--
Shorter	06/17/2003	50 kts.	0	0	\$5,000	--
Notasulga	11/24/2004	52 kts.	0	0	\$20,000	--
Hardaway	3/31/2005	52 kts.	0	0	\$5,000	--
Milstead	3/31/2005	52 kts.	0	0	\$7,000	--
Countywide	4/12/2005	40 kts.	0	0	\$2,000	--
Countywide	4/30/2005	52 kts.	0	0	\$3,000	--
Tuskegee	3/20/2006	50 kts.	0	0	\$10,000	--
Pleasant Hill	1/5/2007	50 kts.	0	0	\$3,000	--
Totals		49 Events	0	1	\$412,000	\$12,000
<i>Source: Storm Events 1950-2007, National Climatic Data Center (NCDC)</i>						
<i>Note: Does not include remnants of Hurricane Opal (10/4/1995), Hurricane Frances (9/7/2004), Hurricane Ivan (9/16/2004)</i>						

Wildfire.

Wildfires are a significant hazard in Macon County due, in large part, to the presence of the Tuskegee National Forest and a very high proportion of forested land in the county. Of the total land in Macon County, 81 percent is in forested land – totaling 318,800 acres of forest land. Due to an expanding urban interface area, the threat of human danger from wildfires is steadily increasing in Macon County. Beyond loss of life, injury and property damage issues that arise from wildfires, Macon County’s dependence upon the timber industry means that the overall economic well-being of the county is threatened by wildfires as well. The fact that the average annual value of stumpage timber sold in Macon County is over \$6 million illustrates the point.

Secondary impacts from wildfires include a loss of tax revenue due to a loss of timber; erosion which leads to road and bridge deterioration; loss of habitat and a threat to endangered species; threatened water quality and stream sedimentation. The risks and vulnerability associated with wildfire are increasing with continued urban sprawl and potential growth in the county. The AFC data was not updated in the 2008-09 update, however, the information in Figure 23 continues to serve to illustrate the hazard.

<p><i>Figure 23</i></p> <p>Alabama Forestry Commission Fire Data for Macon County (1995-2004)</p>
9 year average: 79 fires
Number 14 in state in terms of number of fires
Number 8 in state on average acres lost
4 year average – 1317.5 acre/yr

3.3 Related Man-Made Hazards

Although specifically intended to address natural hazards, jurisdictions are encouraged to consider other hazards, especially as they might relate to natural hazards. Noticeably, the ongoing planning for the pandemic flu should to be related to hazard mitigation plans. Plans for Homeland Security and transportation of hazardous materials should also be considered in more detail in future plan updates.

3.4 Vulnerability

With the information from the hazard profiles, the Macon County Local Emergency Planning Committee (LEPC) was able in 2003-04 to identify and prioritize those hazards that have the most potential to impact Macon County and its jurisdiction. As a result of the committee discussions, six hazards were identified as Priority 1 hazards, meaning that they were the most likely to have the greatest and/or most frequent impact on Macon County. These six Priority 1 hazards, in order of priority are (1 & 2) tornados, thunderstorms and windstorms (3), wildfire, (4 & 5) extreme heat, drought and floods (6). Priority 2 hazards include hail, coastal storms and hurricanes (3), ice storm and expansive soil/sink holes; and, Priority 3 hazards include landslide, dam failure and earthquake. During the 2009 update, the LEPC reviewed information to update the priority hazards as shown in Figure 24. There were some minor changes in priority, primarily recently impacted by the droughts of 2007 and to some extent by the storm event that impacted the county partly due to tropical storms of recent years. The hazard identification and prioritization are shown in Figure 26. It was further determined by the LEPC that the vulnerability to each of the 15 hazards is equal throughout the county, for the most part. Only the probability for future incidence of sinkholes, land subsidence and landslides seem to be concentrated in the south central unincorporated portion of the county.

Figure 24-A

**Macon County
Hazard Identification and Prioritization**

Hazard	Priority 1	Priority 2	Priority 3	N/A	Risk
Avalanche				15	None
Coastal Erosion				16	None
Hurricane/Coastal Storm		8/9			Moderate
Dam Failure			13		Low
Earthquake			14		Low
Expansive Soils/Sinkholes		11			Moderate
Extreme Heat/Drought	4/5				High
Flood	6				High
Hail		7			Moderate
Land Subsidence/Landslide			12		Low
Ice Storm		10			Moderate
Tornado/ Thunderstorm/Windstorm	1/2				High
Tsunami				17	None
Volcano				18	None
Wildfire	3				High

Source: LEPC

Figure 25 is the matrix implicated the relative priority considered through the LEPC for the Macon County Jurisdictions. Hazards are ranked through the LEPC as high, moderate and low risk priorities. The LEPC reviewed the data on hazard event occurrence and the LEPC’s experience with damages from such events in order to group hazards into the low, moderate and high categories. Group discussions and consensus meeting technique was used for this evaluation.

The *Alabama Hazard Risk and Vulnerability Analysis*, a State document produced by the AEMA shows that Macon County has a social vulnerability score of 8.07, which is the eighth highest in the state. The high social vulnerability is due to the high percentage of the population under 18 years of age and over 64 years of age, the high percentage of minority population and high percentage of persons with a low median income. The vulnerability and risk analysis conducted during the Macon County hazard mitigation planning process, however, does not agree with the State’s vulnerability and risk analysis as reported in the results of State’s vulnerability analysis for Macon County:

Hazard	State	Macon County
Flood Risk	Low	High
Flood Vulnerability	Low	Low
Hurricane Risk	Very High	Moderate
Hurricane Vulnerability	Very High	Moderate
Tornado Risk	Low	High
Tornado Vulnerability	Low	High

The reason for the differences between the State assessment and the local assessment have not yet been determined, however, it will be an on-going task as the State EMA continues to update the statewide hazard mitigation plan and Macon County continues to implement, monitor and evaluate the local plan to bring the vulnerability and risk assessment by both organizations into agreement.

Figure 24-B

Macon County Hazard Identification and Prioritization					
Hazard	Tuskegee	Notasulga	Shorter	Franklin	Other
Avalanche					N/A
Coastal Erosion					N/A
Dam Failure	Low	Low	Low	Low	
Earthquake	Low	Low	Low	Low	
Expansive Soils/Sinkholes	Low	Low	Low	Low	
Extreme Heat/Drought	High	High	High	High	
Flood	High	High	High	High	
Hail	Moderate	Moderate	Moderate	Moderate	
Hurricane/Coastal Storm	Moderate	Moderate	Moderate	Moderate	
Land Subsidence/Landslide	Low	Low	Low	Low	
Ice Storm	Moderate	Moderate	Moderate	Moderate	
Tornado/Thunderstorm/ Windstorm	High	High	High	High	
Tsunami					N/A
Volcano					N/A
Wildfire	High	High	High	High	
Windstorm	High	High	High	High	

Source: LEPC

The priority characterizations on Figures 24-A and 24-B are the results of the LEPC reviewing all data and overall priorities and ranking by consensus in high, moderate and low categories.

Due to similarity of events and impacts, the six hazards that pose the most threat to Macon County and its jurisdiction have been condensed into four hazard groups: (1) tornado and windstorms, (2) wildfire, (3) extreme heat and drought and (4) flooding. The following is an assessment of each of the four priority one hazard categories in terms of risk and vulnerability, as defined. Information provided for each hazard group includes the degree of risk as noted by the priority rating given to each hazard by the Macon County Local Emergency Planning Committee and the degree of impact (vulnerability) on Macon County and its residents, with comments regarding how the hazard might or could affect the county.

Tornado, Thunderstorms and Windstorms

With the available information as presented, the Macon County LEPC determined that Macon County is moderately to severely vulnerable to tornadoes, thunderstorms and windstorms. Potential impacts from tornadoes, thunderstorms and windstorms include loss of life and injury; severe property damage with frame, manufactured and congregate housing being the most susceptible; water contamination and water shortage; blocked access and road deterioration; power outages, disruption of commerce. Macon County's vulnerability is increased due to a lack of available trained response personnel, slowed emergency response time and an overload at existing medical facilities. Resulting secondary impacts of a tornado or windstorm could include panic, anxiety, and depression; power outages; interruption in utility services (communications, water); loss of tax revenue and economic opportunities; spoilage of goods; decreased employer production; and loss of timber income.

Wildfire

With the available information as presented, the Macon County LEPC determined that, while the risk is high, Macon County is moderately vulnerable to wildfires. Potential impacts from wildfires include loss of life and injury; severe property damage; injury to victims and response personnel; smoke inhalation and toxic fumes; decreased visibility for vehicular traffic leading to a documented increase in auto accidents; threats to utility lines and poles, phone boxes and fiber optic lines. Additionally, there is a high incidence of repetitive losses due to wildfires in Macon County.

Extreme Heat and Drought

The Macon County LEPC determined that the county's vulnerability to extreme heat and drought is moderate with the most severe threat being to county's elderly and low-income population. Extreme heat and drought also places an increased demand on medical services and emergency response services that are already in short supply. Additional impacts on the county due to extreme heat and drought include increased road cracking and road repairs resulting in higher maintenance costs and inaccessibility to some portions of the county; increased power and water usage resulting in higher payments and sometimes higher rates; increased fire potential; increased loss of vegetation and property damage with the most significant threat to agricultural production including crops, timber and livestock; an increased threat to the quantity and quality of water in the Tallapoosa River; and increased anxiety in the population which can result in increased crime.

Flooding

With the available information, the Macon County LEPC determined that, while the flooding problem is recurring, the impact of flooding on Macon County is low. Potential impacts from flooding is surface and groundwater contamination, increased septic failure, increased stress and anxiety, increased road damage, threat to the rail system, increased agricultural loss for both crops and livestock, and loss of natural habitat. While there is a low threat to life safety and structural conditions, the repetitive losses and damages to the road system make flooding a significant hazard to Macon County.

3.5 Vulnerability to Priority 2 and 3 Hazards

Of the priority 2 hazards vulnerable to the county, hurricanes and tropical storms as well as damage from hail is significant. However, these hazards are not profiled further due to the inconsistency of their patterns and the fact that most of their impact is from high wind, tornados and flooding which are profiled in this update. The remaining priority 2 and 3 hazards are not profiled further, due to lack of significant data or impact from these hazards. The 2008-09 update included substantial review and prioritization of the hazards impacting the county.

3.6 Probability of Priority 1 Hazards

The following is a summary of probability of Priority 1 hazards and hurricane hazard (which is a Priority 2). This assessment is based on NCDC data and occurrences of disaster events for the periods included. The probability is based on dividing the number of events by the number of years reported.

Figure 25

Probability of Priority 1 Hazards (plus Hurricanes)

Priority Hazards	Years Covered	# of Events	Probability
Tornadoes	57	11	19%
Thunderstorms/Windstorms	54	49	90%
Drought	32	3	10%
Flooding	32	6	18%
Hurricane	32	3	10%

Note: The Probability is rounded off from actual calculation

CHAPTER 4: RISK ASSESSMENT AND VULNERABILITY

During the 2009 plan update, the LEPC reviewed the profiles of priority hazards, including the following in formation of risk for the priority hazards.

As defined previously, risk is the probability that damage to life and property will occur due to impacts from a particular hazard. The following is an initial assessment of losses that could be experienced in Macon County based on existing structural assets and population location and characteristics. The implementation included in this update remains as the implementation included in the current plan. This implementation includes the data illustrated in Figures 24 and 26. This staff and LEPC agree that this information has not altered significantly; especially given this original plan was completed so recently.

4.1 Structural Assets and Impacts

An inventory of assets and critical facilities susceptible to the first priority hazards within Macon County continues to be needed. The Macon County EMA and LEPC intended to have this information collected and analyzed by the next major update. This update was not considered a major update at its inception. The county intends to collect this data and will submit the data as an actual update as a priority in 2010 utilizing an acceptable methodology. Such an analysis should describe the vulnerability of the types and numbers of existing and potential future buildings, infrastructure, and critical facilities located in specific hazard areas. Values for the different types of buildings (i.e., residential, commercial, industrial, agricultural, institutional, governmental/ educational, and utilities) in Macon County will be obtained from the Macon County Revenue Commissioner's Office and/or from each jurisdiction's property insurance providers.

A specific action item is included in the 2009 update, specifying that the LEPC will undertake a description of vulnerability in terms of types and numbers of future buildings, infrastructure and critical facilities located in identified hazard areas in preparation of the next plan update. In order to accomplish this task, GIS mapping and locating of these facilities by latitude and longitude should be initiated.

4.2 Impacts on Population

As stated in the previous chapter, the entire area of Macon County and the areas of its jurisdictions are considered to be highly vulnerable to all identified first priority natural hazards with the exception of wildfire. While the unincorporated part of Macon County is highly vulnerable to wildfire, the municipalities are moderately vulnerable. Therefore, only a portion of the population will be considered for the municipalities in assessing the risk factor of wildfire. Population figures and number of households

vulnerable to the identified first priority hazards are included in Figure 25. These numbers are the same as included in the original plan, since the use of the 2000 census is still a good indicator. Although the actual number may have likely changes due to inflation, the relative degree and position of the numbers should be about the same. These conclusions are supported by the general observations of limited development within the county.

Figure 26

Housing Units Vulnerable to First Priority Hazards				
	Tornado, Thunderstorm and Windstorms	Wildfire	Extreme Heat and Drought	Flooding
Unincorporated Area	4,870	4,870	4,870	2,435
Town of Franklin	77	20	77	20
Town of Notasulga	446	112	446	0
Town of Shorter	133	33	133	33
City of Tuskegee	5,101	1,275	5,101	1,275
Total	10,627	6,310	10,627	3,763

As also stated in the previous chapter, the *Alabama Hazard Risk and Vulnerability Analysis* shows that Macon County has a social vulnerability score of 8.07, which is the eighth highest in the state. One factor in the high social vulnerability is due to the high percentage of the population under 18 years of age and over 64 years of age. The median age of Macon County is 32.0, which is considerably lower than that of the State, at 35.8. The City of Tuskegee has the lowest median age, at 26.4; and the Town of Franklin has the highest median age, at 47.1. These populations are particularly vulnerable to disaster events due to their frequent dependency on others for assistance in mobility. A second factor in the high social vulnerability score is the high percentage of persons with a low median income. Macon County has a 2000 per capita income of \$13,714, in comparison with that of the State at \$18,189. Judging from the median household income map (see Figure 10) approximately 40 percent of the county has a median household income of less than \$17,045. These areas are primarily located in the southeast and southwest unincorporated part of the county, farthest away from centralized emergency assistance. Due to limited financial resources and limited accessibility, this population is also particularly vulnerable to any disaster event.

Figure 27

Population Vulnerable to First Priority Hazards

	Tornado, Thunderstorm and Windstorms	Wildfire	Extreme Heat and Drought	Flooding
Unincorporated Area	10,839	10,839	10,839	10,839
Town of Franklin	149	75	149	149
Town of Notasulga	916	458	916	916
Town of Shorter	355	178	355	355
City of Tuskegee	11,846	2,962	11,846	11,846
Total	24,105	14,512	24,105	24,105

Figure 28

Macon County Critical Facilities

Continuity of Government

Macon County Courthouse
City of Tuskegee Municipal
Complex
Notasulga Town Hall
Franklin Town Hall
Shorter Town Hall

Law Enforcement

Macon County Law Enforcement
Center
Tuskegee Police Department
Franklin Police Department
Notasulga Police Department
Shorter Police Department
Tuskegee Univ. Department of
Public Safety
CAVHCSEC Security
Victoryland Security

Public Warning Systems

City of Tuskegee
Town of Notasulga
Town of Shorter

Disaster Coordination and Support Agencies

Macon Co Emergency Mgmt
Agency
American Red Cross Tuskegee-
Macon County Chapter
Macon Co Dept of Human
Resources
Macon-Russell Community Action
Agency

Water Sources

Tallapoosa River

Power Utilities

Tuskegee Utilities Board
Alabama Power Company
Dixie Electric Cooperative
Alabama Electric Cooperative

Fire Protection

Tuskegee Fire Department
Franklin Fire Department
Notasulga Fire Department
Shorter Fire Department
CAVHCSEC Fire Department
Alabama Forestry Commission-
Macon Co
Brownville VFD
Chehaw VFD
District 3 VFD
Fort Davis VFD
Little Texas VFD
Macedonia VFD
Warrior Stand VFD

Water Utilities

Tuskegee Utilities Board
Macon County Water Authority
Star-Mindingall Water Authority
Wall Street Water Authority
Beauregard Water Authority

Hospitals/Health Care Agencies

CVHCESEC
Southeast Pediatrics
BMA Dialysis Center
Tuskegee Medical and Surgical
Center
Central Alabama Comprehensive
Health
Tuskegee Medical Center
VA Medical Center/Thomas Reed
Ambulatory Care
Magnolia Haven Nursing Home
Salem Nursing and Rehab Center of
Tuskegee
Macon County Health Department

Banks

RBC Bank
First Tuskegee Bank
Tuskegee Federal Credit Union
Auburn Bank
Kresgee Center

Post Offices

Shorter
Tuskegee
Tuskegee Institute
Notasulga
Fort Davis

Telephone Central Offices

BellSouth/AT&T
CenturyTel
Union Springs Telephone Company

Schools

Tuskegee University
Southern Community College
Booker T. Washington High School
Notasulga High School
Washington Public School
(alternative education)
Tuskegee Public School
Lewis Adams School
St. Joseph Catholic School
Tuskegee Institute Middle School
Deborah Cannon Wolfe School
Three Springs School of Tuskegee
Tuskegee Headstart Centers (7)

Mass Care Shelters

Booker T. Washington High School
Deborah Cannon Wolfe School
South Macon School
Notasulga High School

Gas Companies

Alagasco
Superior Gas
Cooperative Propane

Other

Halla Plant
VictoryLand Expansion

4.3 Critical Facilities

The process of determining Macon County's risk and vulnerability to natural hazards enabled the Macon County LEPC to identify critical facilities that would be impacted in the event of a disaster event. The LEPC identified critical facilities located in Macon County, based on two types of criteria: (1) Buildings or locations vital to the response and recovery effort, such as police and fire stations and telephone exchanges; and (2) Buildings or locations that, if damaged, would create secondary disasters, such as hazardous materials facilities and nursing homes. The critical facilities were grouped into one of seven categories as shown in Figure 27.

4.4 Development Patterns

As demonstrated in the community profile (Chapter 2), the transportation system of Macon County has played a significant role in past development patterns and continues to do so today. All four of the municipalities in Macon County are located in the northern half of the county within close proximity to Interstate 85. The only major economic event in the recent past has been the location of a Hyundai supplier in Shorter on a site adjacent to Interstate 85. The remainder of Macon County has historically been agricultural in nature and continues to be with a primary dependency upon timber, with 81 percent of the total land area in forestland.

The dependency upon agriculture/forestry is also evident in the population trends of the last 20 years. Between 1980 and 1990, Macon County suffered a 7.1 percent decrease in population; and between 1990 and 2000, the population decreased another 3.3 percent. When looking at the total picture, however, all of the population loss between 1990 and 2000 was in the municipalities: Franklin, at -12.9 percent; Notasulga, at -6.5 percent; Shorter, at -21.1 percent; and Tuskegee, at -5.4 percent. Only the unincorporated part of Macon County realized a population increase from 10,799 persons in 1990 to 10,839 persons in 2000, which was only a .3 percent increase.

4.5 Repetitive Losses

Most repetitive losses are reflected in flood losses. These losses are documented through ADECA. There are no repetitive losses in Macon County or municipalities.

4.6 Estimated Losses

Figure 29 provides general estimates of property damage that could result from each of the identified Priority 1 hazards based on historical data per event averages. These are gross estimates of yearly damages and should only be interpreted as indicators of the degree of damage possible. The figures are based solely on past occurrences, as described in other parts of this plan. More accurate methods are available to assess damages, particularly the U.S. Army Corps of Engineers' Flood Damage Assessment (HEC-FDA) model, FEMA's Benefit-Cost Modules, and the HAZUS loss estimation software. The Macon County EMA and LEPC intend to conduct more detailed loss estimates by applying the latest version of HAZUS-MH for multi-hazard assessments, and have this information analyzed by the next five-year major update.

Figure 29

Estimated Loss Projections Resulting From Priority 1 Hazards

Hazard	Average Occurrences (per year)	Total Deaths	Total Injuries	Average Crop and Property Loss (per event/per year)	Maximum Historical Property Loss (per event)
Tornado	.19	0	10	\$81,909/--	\$250,000
Thunderstorms/Windstorms	.85	0	1	\$8,408/\$244	\$150,000
Wildfires	77.3	*	*	\$8,775**/\$678,308**	*
Extreme Heat/Drought	.11	*	*	*	*
Flooding	.14	0	0	\$12,000/\$625	\$25,000

*This information is not available.

**A factor of \$750 per acre (half of avg selling price per acre) was used to determine wildfire losses based on an avg event size of 11.7 acres.

Sources: Storm Events 1950-2007, NCDC, NOAA, 2007; Historic Disaster Declaration for Alabama Counties, Alabama Emergency Management Agency, March 14, 2003; and Alabama Forestry Commission, 2004.

As noted previously in the section identifying the vulnerability of structural assets and critical facilities, the LEPC intends in the next plan update to identify structures, critical facilities and infrastructures and estimate their value in order to improve this section of the plan. GIS mapping and identification of structures by latitude and longitude will be included.

CHAPTER 5: HAZARD MITIGATION STRATEGY

The Hazard Mitigation Strategy outlines methods, or action steps, for implementation of the *Macon County Natural Hazard Mitigation Plan* over a five year time period. The strategy includes goals and objectives that were developed to guide the development of the plan and the subsequent mitigation efforts. The goals and objectives are followed by specific mitigation action steps to be implemented. The list of action steps includes an estimated cost per item and designates who the responsible agency or agencies should be. The final portion of the mitigation strategy is a five-year time schedule and cost breakdown per year for implementation. With input by from the governments and non-governmental organizations represented on the LEPC, and from public input received at the public meetings, the following goals and objectives were established by the LEPC to guide hazard mitigation efforts on an on-going basis beyond the five-year time frame of the implementation strategy. These goals and objectives are established for the County and all of its municipalities.

In the case of Macon County, the goals and objectives from the 2004 plan were reviewed with the LEPC. The goals and objectives for the 2008/2009 plan update remain the same as the original 2004 plan.

- Goal:** Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
- Objective: Establish a full warning system for notification of impending disasters throughout Macon County.
- Objective: Ensure that adequate protection shelters are available for use during disaster occurrences.
- Objective: Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
- Objective: Implement fire protection measures to decrease potential for loss of life and property damage.
- Objective: Limit impact of heat and drought on human health, property damage and agricultural losses.
- Objective: Improve infrastructural facilities to limit the impact of natural hazard events.
- Objective: Prepare and provide for emergency utility services before and during a disaster event.
- Goal:** Provide on-going support of the Macon County Emergency Management efforts to make Macon County less vulnerable to natural disasters.

- Objective: Ensure that the Macon County Hazard Mitigation Plan remains current and is implemented.
- Objective: Improve coordination and communication between emergency response organizations and highly vulnerable entities.
- Goal: Educate general population about natural hazards and hazard mitigation options.**
- Objective: Establish and implement hazard mitigation public awareness program.
- Objective: Establish and promote disaster prevention education programs, utilizing all forms of media (e.g., print, TV, internet websites – government and related non-governmental) to help distribute information and materials.

The *Macon County Natural Hazard Mitigation Plan* includes projects, action steps, and costs over five years. A large portion of the total cost is for road improvements that Macon County will be working on with the Alabama Department of Transportation. Sources for funding include federal and state grant funds, the Macon County Commission, the Macon County EMA, the City of Tuskegee, the Towns of Franklin, Notasulga and Shorter, local donations and private funds.

Priorities

Action items reflect the priority of vulnerability. The time frame reflects the urgency of the action items.

Progress and Action

Projects or action items that have been accomplished or initiated since the 2004 plan was approved are noted in the following charts or goals, objectives and actions.

Cost Benefit Consideration

Cost and benefits of proposed actions were discussed and are a consideration in all recommended actions. Costs from the 2004-2005 plan were not adjusted in the 2008-09 update since relative order of magnitude costs remain about the same. To clarify the economic considerations be the LEPC it should be noted that detailed cost-benefit analysis was not performed on each proposed action. As each proposed action was reviewed with the LEPC, the benefit of the action and the relative priority was discussed and the likelihood of economic return; the LEPC agreed to incorporate increased cost-benefit guidelines in future updates.

National Flood Insurance Program and Repetitive Losses

Macon County, Notasulga, and Tuskegee participate in the National Flood Insurance program or have flood plain zoning. There are no of repetitive losses in Macon County or any of the jurisdictions. Shorter mapping is being completed and Short must make application and be accepted in 2010. The Town of Franklin is not yet participating in the National Flood Insurance Program. According to the action items by jurisdiction, such participation and flood plain management is included as an action item.

Action Items and Responsibility by Jurisdiction

In the 2008-09 update, a chart is included as a format for identifying applicability of certain action items to various jurisdictions. This format, or chart, will be used as a checklist to monitor progress in various jurisdictions.

5.1 Countywide Action Items

It should be noted that the designation of “All” in the year column should be interpreted as continuous or periodic action on these action items. Also, progress on action items since the last update is included in parenthesis in the action column,

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

Objective 1: Establish a full warning system for notification of impending disasters throughout Macon County.					
Action	Total	Source	Jurisdiction	Hazard	Year
Develop a warning plan to install approximately 10 additional sirens at targeted sites to adequately cover population pockets in rural Macon County. (partially completed) (additional systems have been installed since the last update, additional funding required)	\$150,000.00	Federal, State & Local	Macon County	Tornado/ Thunderstorm	1-5
Designate a central emergency coordinator in each municipality and community to better facilitate communications with the Macon County Emergency Management Agency; Coordinate with 10 volunteer Fire Departments (partly complete/informal status/plan to formalize)	\$0.00	No funding	All	All	1-5
Construct warning signage for limited visibility due to forest fires on major roads in targeted areas. (partly complete/being coordinated with Forest Service)	\$20,000.00	Federal, State & Local	Macon County	Wildfire	1-3
Investigate use of phone messaging system to provide warning of all impending hazardous conditions; Consider “reverse” 911 system. (deferred, consideration of a more sophisticated system has been discussed since the last update) Purchase of radios has been interim progress	\$0.00	No funding	All	All	1
Total:	\$170,000.00				

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

Objective 2: Ensure that adequate protection shelters are available for use during disaster occurrences.					
Action	Total	Source	Jurisdiction	Hazard	Year
Maintain and expand Existing shelter facilities to provide adequate pre-disaster care and space, as needed; Expand Red Cross facilities. (partly complete; ongoing improvements have been made; need additional funding)	\$3,000.00	Local, Red Cross, MCMC, MCCA	Macon County	Tornado/ Thunderstorm	All
Designate and upgrade/retrofit, as necessary, 11 existing public facilities to provide shelter in areas of Macon County where there currently are no shelters, primarily targeting schools and community centers, at a rate of one site every two years; Coordinate with critical facilities, include provisions for evacuation shelters. (Partly complete) (county EMA has constructed a new central communications headquarters and communications system, additional public facilities need to be prioritized for more progress)	\$37,500.00	Federal, State and Local	All	Tornado/ Thunderstorm	All
Investigate construction of new public shelter facilities in those areas of the county with no shelter facilities as long-term and low-priority task; Give priority to southeast part of the county; Possibly a School; Consider in conjunction with senior center with ADECA funding. (partly complete; need to decide on site and secure funding)	\$0.00	No Funding	Macon County	Tornado/ Thunderstorm	All
Secure funds to continue efforts to assist citizens in constructing private shelters on their land at a rate of seven shelters per year. (Approx. \$5,000 per shelter with \$3,500 from grant) (partly complete) (the county has provided assistance in supporting grant funds for the activity since the last update)	\$175,000	Federal and Private	Macon County	Tornado/ Thunderstorm	All
Work with developers, home builders and contractors to promote construction of a safe room in all new residential development. (Deferred) (need formal arrangement with builders)	\$0.00	No Funding	All	Tornado/ Thunderstorm	All
Publicize information on locations of existing public shelters and when to use them; Coordinate with first responders; Utilize radio stations; Announce shelter openings in advance of event; Permanent evacuation and relocation; Also consider evacuations from shelters. (Partly complete) (progress has been made with radio stations, need more formal arrangements)	\$2,500.00	Local, Red Cross, MCMC, MCCA	All	Tornado/ Thunderstorm	All
Total:	\$218,000				

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

Objective 3: Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.					
Action	Total	Source	Jurisdiction	Hazard	Year
Incorporate and enforce flood management ordinances in all county and municipal zoning ordinances. (Partly complete) (the county has been working with all jurisdictions to adopt flood plain ordinances) All jurisdictions have in place, except for Franklin	\$0.00	Local funds	All	Flooding	All
Ensure that future land use and growth plans do not extend into flood plain area; Coordinate with updating of flood plain maps. (partly complete, ongoing progress being made, need ongoing program for monitoring implementation)	\$0.00	Local funds	All	Flooding	All
Develop long-range growth and development plan for Macon County to address permitting and construction process in unincorporated areas (partly complete) (progress toward zoning in at least flood plain areas is needed ;Macon County Planning Commission has been formed and a comprehensive plan as been approved)	\$40,000.00	Federal and Local	Macon County	Wildfire	1-2
Promote updated comprehensive plans for Tuskegee, Notasulga, other municipalities with planning jurisdictions. (Partly complete) (Notasulga, Shorter have adopted comprehensive plans; Tuskegee is in process of updating comprehensive plan)	\$0.00	Local Fund	All	All	All
Ensure that the Macon County Emergency Management Agency is involved in the review of all local future growth and development plans. (Deferred, need formal process)	\$12,500.00	Local funds	All	All	All
Utilize AEMA Flood Relocation Program to remove commercial and residential structures from flood prone areas, if necessary in the future. Deferred, specific relocation project should be identified	\$0.00	No funding	All	Flooding	All
Total:	\$52,500.00				

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

Objective 4: Implement fire protection measures to decrease potential for loss of life and property damage.					
Action	Total	Source	Jurisdiction	Hazard	Year
Develop and utilize zoning ordinances to manage development in urban fringe areas; Promote zoning, especially in flood prone areas of all municipalities. (Partly complete) (local zoning ordinances with flood plain provisions have been adopted in Notasulga and Shorter; new county zoning ordinance has such provisions)	\$0.00	Local Funds	All	Wildfire	1-5
Establish education program to provide information on methods to construct buffers and fire breaks on private property in urban interface areas. (Partly complete) (county using on going Forestry Commission Education, need a formalized agreement)	\$0.00	Local Funds	Macon County	Wildfire	1-5
Support Alabama Forestry Commission efforts to help educate private landowners to protect their own and others property through construction of fire lanes and fire breaks on forested property, making landowners aware of both their responsibility and liability. (Partly complete) (Need formal agreement on implementation, this is being supported on a continuing basis)	\$0.00	Local Funds	Macon County	Wildfire	1-5
Total:	\$0.00				

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

Objective 5: Limit impact of heat and drought on human health, property damage and agricultural losses					
Action	Total	Source	Jurisdiction	Hazard	Year
Work with Lower Tallapoosa River Watershed Management Committee to implement public awareness and education efforts about water conservation and water quality; Include in LEPC and coordinate notice of citizens of conservation, especially in drought conditions; Coordinate with watershed management planning. (Partly complete) (need a formal agreement on implementation and coordination of hazard mitigation plan with watershed planning; Macon county is participating on an ongoing basis)	\$0.00	Local	All	Extreme Heat / Drought	1-5
Promote interconnected water resource mapping and planning process; Increase capacity of water systems for fire service and fire hydrants. (Partly complete) (Macon County is participating with SCADC in regional water mapping)	\$0.00	State	Macon County	Extreme Heat/Drought	1-5
Work with Macon County medical providers to develop emergency supplies and education program. (Deferred) (need to establish formal program)	\$0.00	Local	All	Extreme Heat / Drought	1-5
Work with Macon County Farm Service Agency and County Extension Service to establish a drought information center. (partly complete) (extension system has enhanced their ongoing drought information efforts; Need to formalize plans for a “virtual” center)	\$0.00	Local USDA	Macon County	Extreme Heat / Drought	1-5
Develop a drought and heat indicator plan and warning system,that includes a response strategy. (Deferred) (need to set time frame for implementation)	\$0.00	Local	All	Extreme Heat / Drought	1-5
Develop print public service announcements (Partly complete) (county cooperation with weather channels on this, need formal arrangement)	\$2,500.00	Local	Macon County	Extreme Heat / Drought	1-5
Total:	\$2,500.00				

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

Objective 6: Improve infrastructural facilities to limit the impact of natural hazard events.					
Action	Total	Source	Jurisdiction	Hazard	Year
Elevate and pave county roads that have a high potential for flooding and/or washing during flood events to provide access and limit erosion and sedimentation. (Partly complete) (Macon County has established a plan to improve unpaved roads and bridges as funds are available as follows)	\$0.00		Macon County	Flooding	1-5
St. Marks Road – 2 miles	\$200,000				
Pecola Road - .75 miles	\$75,000				
County Road 2-10 miles from Hwy 80 to Hardaway County Road 67	\$1,999,999	Federal, State and Local	Macon County	Flooding	1-5
7 miles County Road 73	\$700,000				
3.5 miles	\$350,000				
Continue bridge inspection and improvement efforts to prevent washing and/or failure during flood events. (Partly complete) (Macon County is working on bridge repair and improvements as funds are available need a formalized reporting process or progress to county commission)	\$7,000,000	Federal, State and Local	Macon County	Flooding	1-5
Maintain all roads to allow constant access for emergency response, recovery and repair, and continuity of delivery services at eight roads per year. (Partly complete) (Macon County is working on maintenance of roads on an ongoing basis, the county is also participating in the regional rural transportation planning program to address roads and safety improvements in the county; Need a formal schedule for road maintenance)	\$5,000,000	County	Macon County	All	1-5
Total:	\$15,324,999				

Objective 7: Prepare and provide for emergency utility services before and during a disaster event.					
Action	Total	Source	Jurisdiction	Hazard	Year
Investigate need for and coordination of emergency water supply during disaster events. (water systems are being included in EMA planning and coordination Need to identify funds for water systems upgrades)	\$0.00	Macon Co. EMA	All	All	1-5

Goal B: Provide on-going support of the Macon County Emergency Management efforts to make Macon County less vulnerable to natural disasters.

Objective 1: Ensure that the Macon County Hazard Mitigation Plan remains current and is implemented.					
Action	Total	Source	Jurisdiction	Hazard	Year
Update the Macon County Hazard Mitigation Plan every five years as required by regulations. (Complete) (plan is being updated)	\$7,000.00	Macon Co. EMA	Macon County	All	1-5
Communicate with the general public on a periodic basis to provide a status report of the plan and any project or programs that are a result of the plan and its implementation. (Complete) (County EMA utilizes planning process to continue to get information out)	\$12,500.00	Macon Co. EMA	Macon County	All	1-5
Municipalities should provide local human resources or other resources, such as materials and supplies, to assist in implementation of the Macon County Hazard Mitigation Plan and its regular update. (Partly complete) (municipal contracts are participating in EMA planning and training)	\$25,000.00	Local	Franklin	All	1-5
Total:	\$44,500.00				

Goal B: Provide on-going support of the Macon County Emergency Management efforts to make Macon County less vulnerable to natural disasters.

Objective 2: Improve coordination and communication between emergency response organizations and highly vulnerable entities.					
Action	Total	Source	Jurisdiction	Hazard	Year
Designate a central emergency coordinator in each municipality and community to better facilitate communications with the Macon County Emergency Management Agency. (Partly complete) (informal coordination is ongoing in conjunction with EMA, need formal designation of coordinators)	\$0.00	No funding	All	All	1-5
Provide for incident command training for the local emergency coordinators and other responders; Give priorities to police and fire; Meet all FEMA training requirements (Partly complete) (EMA is assisting with ongoing training for all participants coordinated with LEPC)	\$2,000.00	Local	All	All	1-5
Develop an on-going cycle to promote regular updates to Macon County Commission, municipal councils, Fire Chiefs Association, utility boards, other emergency responders and elected officials (Partly complete) (county EMA has utilized plan update as a means to update commission and other elected officials, need agreement to do annual updates on plan progress)	\$7,500.00	Local	Macon County	All	1-5
Total:	\$9,500.00				

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

Objective 1: Establish and implement hazard mitigation public awareness program.					
Action	Total	Source	Jurisdiction	Hazard	Year
Cooperate and coordinate with various agencies and entities to assist with distribution of information and materials, including the Tuskegee Area Chamber of Commerce, Tuskegee University, DHR, Macon County Community Action, churches, municipalities, schools, etc. Partly complete) (ongoing communication through the LEPC and EMA is improving, need to adopt a formal program	\$2,500.00	Local	Macon County	All	1-5
Develop a portable information booth for display at local fairs and public events to distribute materials. (Deferred) (need to fund and construct information display)	\$5,500.00	Local	Macon County	All	1-5
Create and distribute magnets that list all emergency contact information of local responding agencies. (Partly complete) (some materials have been donated, need to implement this program in 2010-11)	\$2,500.00*	Local, Ad Company	Macon County	All	1-5
Total:	\$10,500.00				

* – Note: Completed at no cost to the county.

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

Objective 2: Establish and promote disaster prevention education programs, utilizing all forms of media (e.g., print, TV, internet websites - government and related non-governmental) to help distribute information and materials.					
Action	Total	Source	Jurisdiction	Hazard	Year
Working with Macon County Extension System to develop adult training/certification courses on land management (best management practices) to decrease property damage during natural disaster events. (Deferred) (need to formalize a time table for implementation)	\$20,000.00	USDA, Local	All	All	1-5
Develop broadcast public service announcements for airing on local television and radio stations. (Deferred) (need to conduct PSA's in 2010-11)	\$15,000.00		Macon County	All	3
Develop print public service announcements for publication in local newspaper and agency newsletters. (Deferred) (need to prepare and publish announcements in 2010-11)	\$2,500.00	Local	Macon County	All	1-5
Develop information website with links from Macon County Commission and municipal websites; Incorporate a comprehensive education program about preparedness; Coordinate with Health Department, including pandemic. (Partly complete) (Information partly included on website, need to upgrade on-line information by end of 2011)	\$4,400.00	Local	Macon County	All	2
Incorporate hazard awareness and mitigation into the curricula of local schools. (Deferred) (still important, needs to be implemented by end of 2012)	\$7,000.00	Board of Education	Macon County	All	2-3
Develop coloring and activity books at four appropriate age levels for widespread annual distribution. (Deferred) (other information distribution, need to implement this action in 2011)	\$6,500.00	Local	Macon County	All	1-2
Total:	\$55,400.00				

5.2 Action Items by Jurisdiction

This format is included to reflect that certain action items may be applicable to certain jurisdictions and not others. This format, or chart, will be used by the EMA Director and municipalities as a checklist for monitoring progress in the various jurisdictions. **Note: Action items relating to unincorporated Macon County are reflected in previous table, under the jurisdiction column, with Macon County noted for more areas. Some action items might appear under the “all” category as well. Action items are shown by (x) in the boxes of the chart. If a box is blank, it means the action item doesn’t include any responsibility.**

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

Mitigation Objective & Action	Hazard	Franklin	Notasulga	Shorter	Tuskegee
A-1, Establish a full warning system for notification of impending disasters throughout Macon County.					
Develop a warning plan to install additional sirens at targeted sites.	Tornado/ Thunderstorm	X	X	X	X
Designate a central emergency coordinator	All	X	X	X	X
Participate in phone messaging system to provide warning of all impending hazardous conditions; Consider “reverse” 911 system.	All	X	X	X	X
A-2, Ensure that adequate protection shelters are available for use during disaster occurrences.					
Maintain and expand Existing shelter facilities to provide adequate pre-disaster care and space, as needed;	Tornado/ Thunderstorm	X	X	X	X
Designate and upgrade/retrofit, as necessary, existing public facilities to provide shelter in areas of Tuskegee where there currently are no shelters; Coordinate with critical facilities, and include provisions for evacuation shelters.	Tornado/ Thunderstorm				X
Investigate construction of new public shelter facilities; Consider in conjunction with senior center with ADECA funding.	Tornado/ Thunderstorm	X	X	X	X
Secure funds to continue efforts to assist citizens in constructing private shelters	Tornado/ Thunderstorm	X	X	X	X
Work with developers, home builders and contractors to promote construction of a safe room in all new residential development.	Tornado/ Thunderstorm	X	X	X	X
Publicize information on locations of existing public shelters and when to use them; Coordinate with first responders; Utilize radio stations; Announce shelter openings in advance of event; Permanent evacuation and relocation; Also consider evacuations from shelters.	Tornado/ Thunderstorm	X	X	X	X

Mitigation Objective & Action	Hazard	Franklin	Notasulga	Shorter	Tuskegee
A-3, Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.					
Incorporate and enforce flood management.	Flooding	X	X	X	X
Ensure that future land use and growth plans do not extend into flood plain area; Coordinate with updating of flood plain maps.	Flooding	X	X	X	X
Promote updated comprehensive plan.	All	X	X	X	X
Ensure that the Macon County Emergency Management Agency is involved in the review of all local future growth and development plans.	All	X	X	X	X
Utilize AEMA Flood Relocation Program to remove commercial and residential structures from flood prone areas, if necessary in the future.	Flooding	X	X	X	X
A-4, Implement fire protection measures to decrease potential for loss of life and property damage.					
Develop and utilize zoning ordinance to manage development in urban fringe areas.	Wildfire	X	X	X	X
Establish education program to provide information on methods to construct buffers and fire breaks on private property in urban interface areas.	Wildfire	X	X	X	X
Support Alabama Forestry Commission efforts to help educate private landowners to protect their own and others property through construction of fire lanes and fire breaks on forested property, making landowners aware of both their responsibility and liability.	Wildfire	X	X	X	X
A-5, Limit impact of heat and drought on human health, property damage and agricultural losses					
Work with Lower Tallapoosa River Watershed Management Committee to implement public awareness and education efforts about water conservation and water quality; Include in LEPC and coordinate notice of citizens of conservation, especially in drought conditions; Coordinate with watershed management planning.	Extreme Heat / Drought	X	X	X	X
Promote interconnected water resource mapping and planning process; Increase capacity of water systems for fire service and fire hydrants.	Extreme Heat/Drought/Wildfire	X	X	X	X

Mitigation Objective & Action	Hazard	Franklin	Notasulga	Shorter	Tuskegee
Work with Macon County medical providers to develop emergency supplies and education program.	Extreme Heat / Drought	X	X	X	X
Work with Macon County Farm Service Agency and County Extension Service to establish a drought information center.	Extreme Heat / Drought	X	X	X	X
Develop a drought and heat indicator plan and warning system, that includes a response strategy.	Extreme Heat / Drought	X	X	X	X
Develop print public service announcements	Extreme Heat / Drought				
A-6, Improve infrastructural facilities to limit the impact of natural hazard events.					
Elevate and pave county roads that have a high potential for flooding and/or washing during flood events to provide access and limit erosion and sedimentation.	Flooding	X	X	X	X
St. Marks Road – 2 miles; Pecola Road - .75 miles; County Road 2-10 miles from Hwy 80 to Hardaway County Road 67; 7 miles County Road 73; 3.5 miles	Flooding	X	X	X	X
Continue bridge inspection and improvement efforts to prevent washing and/or failure during flood events.	Flooding	X	X	X	X
Maintain all roads to allow constant access for emergency response, recovery and repair, and continuity of delivery services at eight roads per year.	All	X	X	X	X
A-7, Prepare and provide for emergency utility services before and during a disaster event.					
Investigate need for and coordination of emergency water supply during disaster events.	All	X	X	X	X

Goal B: Provide on-going support of the Macon County Emergency Management efforts to make Macon County less vulnerable to natural disasters.

Mitigation Objective & Action	Hazard	Franklin	Notasulga	Shorter	Tuskegee
B-1, Ensure that the Macon County Hazard Mitigation Plan remains current and is implemented.					
Update the Macon County Hazard Mitigation Plan every five years as required by regulations.	All				
Communicate with the general public on a periodic basis to provide a status report of the plan and any project or programs that are a result of the plan and its implementation.	All				
Municipalities should provide local human resources or other resources, such as materials and supplies, to assist in implementation of the Macon County Hazard Mitigation Plan and its regular update.	All	X	X	X	X

Mitigation Objective & Action	Hazard	Franklin	Notasulga	Shorter	Tuskegee
B-2, Improve coordination and communication between emergency response organizations and highly vulnerable entities.					
Designate a central emergency coordinator in each municipality and community to better facilitate communications with the Macon County Emergency Management Agency.	All	X	X	X	X
Provide for incident command training for the local emergency coordinators and other responders; Give priorities to police and fire; Meet all FEMA training requirements (\$200,000)	All	X	X	X	X
Develop an on-going cycle to promote regular updates to Macon County Commission, municipal councils, Fire Chiefs Association, utility boards, other emergency responders and elected officials	All	X	X	X	X

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

Mitigation Objective & Action	Hazard	Franklin	Notasulga	Shorter	Tuskegee
C-1, Establish and implement hazard mitigation public awareness program.					
Cooperate and coordinate with various agencies and entities to assist with distribution of information and materials, including the Tuskegee Area Chamber of Commerce, Tuskegee University, DHR, Macon County Community Action, churches, municipalities, schools, etc.	All	X	X	X	X
Develop a portable information booth for display at local fairs and public events to distribute materials.	All				
Create and distribute magnets that list all emergency contact information of local responding agencies.	All				
C-2, Establish and promote disaster prevention education programs, utilizing all forms of media (e.g., print, TV, internet websites - government and related non-governmental) to help distribute information and materials.					
Working with Macon County Extension System to develop adult training/certification courses on land management (best management practices) to decrease property damage during natural disaster events.	All	X	X	X	X
Develop broadcast public service announcements for airing on local television and radio stations.	All				
Develop print public service announcements for publication in local newspaper and agency newsletters.	All				
Develop information website with links from Macon County Commission and municipal websites; Incorporate a comprehensive education program about preparedness; Coordinate with Health Department, including pandemic.	All				
Incorporate hazard awareness and mitigation into the curricula of local schools.	All				
Develop coloring and activity books at four appropriate age levels for widespread annual distribution.	All				

5.3 Mitigation Strategy Costs

Macon County Hazard Mitigation Plan Cost Summary

	FY 04-05	FY05-06	FY 06-07	FY 07-08	FY 08-09
Establish full warning system	\$40,000	\$30,000	\$40,000	\$30,000	\$30,000
Ensure adequate protection shelters	\$44,000	\$43,500	\$43,500	\$43,500	\$43,500
Land use regulations to support hazard mitigation	\$22,500	\$22,500	\$2,500	\$2,500	\$2,500
Fire protection measures	\$0	\$0	\$0	\$0	\$0
Limit impact of heat and drought	\$500	\$500	\$500	\$500	\$500
Infrastructural improvements	\$6,625,000	\$2,200,000	\$2,166,666	\$2,166,666	\$2,166,667
Emergency utility services	\$0	\$0	\$0	\$0	\$0
Implementation of Hazard Mitigation Plan	\$8,000	\$8,000	\$8,000	\$8,000	\$12,500
Coordination / Communication among emergency agencies	\$1,900	\$1,900	\$1,900	\$1,900	\$1,900
Public awareness program	\$1,000	\$1,000	\$1,000	\$6,000	\$1,500
Disaster prevention education programs	\$4,500	\$10,600	\$26,100	\$7,100	\$7,100
Total	\$6,747,400	\$2,318,000	\$2,290,166	\$2,266,166	\$2,266,167
Grand Total	\$15,887,899				
Total without road improvements	\$122,400	\$118,000	\$123,500	\$99,500	\$99,500
Grand Total without road improvements	\$562,900				

These costs have not been revised in the 2008-09 update, in that inflation might have affected actual numbers, but, the relative values or order of magnitude are summed to remain about the same.

Macon County Hazard Mitigation Plan Cost Allocation by Funding Sources

Task	Federal, State	County Comm.	Cities	Macon County EMA	Local Donation	Private	Total
Warning plan and sirens	\$112,500	\$7,500	\$30,000				\$150,000
Central emergency coordinator per community	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Visibility warning signs							\$0
Investigate telephone messaging system	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Existing shelter improvements and maintenance		\$250	\$750		\$2,000		\$3,000
Designate and upgrade existing facilities for shelters	\$28,125	\$0	\$0	\$9,375	\$0	\$0	\$37,500
Investigate construction of new shelters	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Construction of private shelters	\$87,500	\$0	\$0	\$0	\$0	\$87,500	\$175,000
Promote safe rooms in new construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Publicize shelter locations				\$1,250	\$1,250		\$2,500
Flood management ordinances	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Limit development plans in flood plains	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Limit development plans in fire hazard areas	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Review of all future growth and development plans	\$0	\$0	\$0	\$12,500	\$0	\$0	\$12,500
Flood relocation program, as necessary	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fire Protection Measures							\$0
Heat and Drought Protection Measures							\$0
Road elevation and paving	\$2,647,500	\$882,500					\$3,530,000

Task	Federal, State	County Comm.	Cities	Macon County	Local Donation	Private	Total
Emergency utility services							\$0
Update Macon County Hazard Mitigation Plan	\$0	\$0	\$0	\$7,000	\$0	\$0	\$7,000
Updates to general public	\$0	\$0	\$0	\$12,500	\$0	\$0	\$12,500
Local gov't support to Mitigation Plan Implementation	\$0	\$5,000	\$20,000	\$0	\$0	\$0	\$25,000
Incident command training	\$0	\$0	\$1,600	\$400	\$0	\$0	\$2,000
Updates to governments and agencies	\$0	\$0	\$0	\$7,500	\$0	\$0	\$7,500
Cooperation between agencies to distribute information	\$0	\$0	\$0	\$1,500	\$1,000	\$0	\$2,500
Portable display booth	\$0	\$0	\$0	\$5,500	\$0	\$0	\$5,500
Magnets	\$0	\$0	\$0	\$1,000	\$1,500	\$0	\$2,500
Extension training/certification courses	\$15,000	\$0	\$0	\$5,000	\$0	\$0	\$20,000
Broadcast PSA							\$0
Print PSA	\$0	\$0	\$0	\$2,500	\$0	\$0	\$2,500
EMA Website	\$0	\$0	\$0	\$4,400	\$0	\$0	\$4,400
Incorporate hazard mitigation into local schools	\$5,250	\$1,750	\$0	\$0	\$0	\$0	\$7,000
Coloring and activity books	\$0	\$0	\$0	\$3,250	\$3,250	\$0	\$6,500

Total	\$2,895,875	\$897,000	\$52,350	\$73,675	\$9,000	\$87,500	\$4,015,400
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Total without road improvements	\$248,375	\$14,500	\$52,350	\$73,675	\$9,000	\$87,500	\$485,400
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CHAPTER 6: PLAN MAINTENANCE AND REVIEW

The *Macon County Natural Hazard Mitigation Plan* was developed with the guidance of the Macon County Local Emergency Planning Committee so that the committee would be aware of the plan and its contents and, therefore, could ensure its ongoing implementation, review and amendment, as necessary. The Macon County LEPC is a standing committee comprised of members representing each of the local governments located in Macon County, along with both public and private representatives that have a vital stake in emergency management. The Macon County LEPC will continue to meet on a regular basis for other emergency management matters. The continued review and update of the *Macon County Natural Hazard Mitigation Plan* shall become an additional responsibility of the Macon County LEPC.

The plan is developed on a five-year time frame. It is intended to be reviewed on an annual basis for any necessary amendments, and to undergo a major review and update every five years. In this way, Macon County will have an ongoing mitigation plan and process.

The Macon County EMA staff will continue to serve as the LEPC's facilitator responsible for holding regularly scheduled meetings, assigning specific tasks necessary to monitor and update the plan to committee members, and serving as the committee's liaison with those assigned implementation responsibilities. The facilitator will also serve as the committee's liaison with participating municipalities and the Macon County Commission. New committee members may be nominated by the EMA Director and then approved by the entire committee.

After the initial *Macon County Natural Hazard Mitigation Plan* is finalized and adopted, the LEPC shall meet at least once per year to review and update the plan, as necessary. The following will stand as guidelines for those meetings in terms of addressing hazard mitigation:

- Each member or a designated alternate must attend at least one meeting a year.
- A list of completed and ongoing mitigation projects will be reviewed at each meeting.
- Previously implemented mitigation actions will be evaluated for effectiveness.
- There will be an update on the status of current mitigation projects.
- Changing land use patterns and new developments will be addressed.
- Any additions or changes in risk assessment and/or risk vulnerability will be identified.

- Any other concerns will be addressed, possible future mitigation plans discussed, and any new projects will be adopted by signed resolution.

The facilitator will schedule the meetings at a time and location convenient to all of the LEPC members. All meetings will be advertised in the local newspaper and open to the public for their comments and suggestions.

In the event that modifications to the plan are required, the LEPC will oversee, recommend, and/or approve all revisions and amendments to the *Macon County Natural Hazards Mitigation Plan*. The LEPC will then submit all revisions, except for mitigation projects or activities not of a countywide nature, for adoption (via signed resolutions) by all of the jurisdictions. Any new projects (developed and/or proposed prior to the first five-year and between subsequent five-year major updates), not of a countywide nature, will be added to the Macon County Natural Hazards Mitigation Plan upon recommendation of the LEPC and adoption (via signed resolution) by the appropriate governing body where the proposed project is to be located. A copy of and/or access to any and all adopted plan revisions will be provided to all LEPC members, the Macon County Commission, and each of the municipalities.

At the end of the five-year cycle of the Mitigation Strategy, 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.

Implementation of the plan will be the responsibility of a number of local governments and agencies. For this reason, two public workshops were held to inform citizens about the contents of the plan. For each mitigation action item, a responsible agency has been identified. Furthermore, the implementation of the action items was outlined by year for the first five years. The Macon County EMA will coordinate implementation efforts with each of the local governments and with other agencies as necessary.

A critical part of maintaining an effective and relevant natural hazard mitigation plan is ongoing public review and comment. The LEPC is dedicated to direct involvement of all Macon County citizens in providing input on the plan throughout the five-year implementation cycle.

A hard copy of the plan will be available for viewing at all appropriate agencies throughout Macon County, at minimum to include: the Macon County Emergency Management Agency office, the Macon County Courthouse, the offices of the Clerks of each municipality, and County or municipal government websites, if available. After adoption, a public information notice in the local newspaper will inform the public that the plan may be viewed at these locations.

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

If deemed appropriate by the Director of the Macon County EMA and once adopted, this plan shall be considered as an Annex to the Macon County Emergency Operations Plan, which is administered through the Macon County Emergency Management Agency office. In addition to adopting the *Macon County Natural Hazards Mitigation Plan* in its entirety, it is recommended that each adopting jurisdiction incorporate this plan or its elements into their own respective existing or future planning documents, if and when appropriate. Examples of such existing or future planning documents may include, but are not limited to: countywide or municipal comprehensive and/or land use plans and regulations/ordinances; countywide or municipal floodplain management plans; countywide or municipal capital improvement plans and budgets; and any other county or municipal disaster, readiness, and/or contingency plans. The process and/or procedure used by each jurisdiction in adopting and incorporating the *Macon County Natural Hazards Mitigation Plan* or its elements into their own planning documents shall be the same as that delineated in the *Code of Alabama, 1975, as amended* and any applicable local ordinances and regulations. The Macon County EMA staff and/or the planning staff of the South Central Alabama Development Commission will provide technical assistance when requested. Specially, the *Macon County Natural Hazard Mitigation Plan* should be carefully coordinated with the Emergency Management Operation Plan and plans for a continuation of cooperation (coop). Also, the hazard mitigation plan should be coordinated with the county's comprehensive plan, zoning ordinance and subdivision regulations. There should be some standardization and coordination of flood plain protection, etc. as part of municipal comprehensive planning.

Incorporation of Plan Provisions into Other Planning Mechanisms

Through participation in the LEPC, jurisdictions and the EMA Director will work to incorporate *Hazard Mitigation Plan* action items into other plans, such as county-wide plans for EMA operations and community plans including comprehensive plans, zoning ordinances, etc.

Consideration of hazard mitigation was incorporated in the preparation and adoption of the Macon County Comprehensive Plan. The SCADC staff assisted with both the Comprehensive Plan and the Natural Hazard Mitigation Plan, assuring some consistencies. The staff has assisted other jurisdictions in preparing comprehensive plans and zoning updates, providing similar considerations. The Regional Rural Transportation Plan and Comprehensive Economic Development Strategy have also incorporated common hazard mitigation thinking with other planning concerns, primarily through the experience of the SCADC staff.

APPENDIX A:
RESOLUTIONS AND APPROVALS

**A RESOLUTION TO ADOPT
THE MACON COUNTY NATURAL HAZARD MITIGATION PLAN**

WHEREAS, the Macon County Emergency Management Agency has engaged in extensive studies of the natural hazards facing Macon County; and,

WHEREAS, the Macon County Emergency Management Agency, with guidance from the Macon County Local Emergency Planning Committee, has prepared a Natural Hazard Mitigation Plan; and,

WHEREAS, the Macon County Commission formally represented by a delegation on the Macon County Local Emergency Planning Committee; and,

WHEREAS, the goals of this plan are to reduce the loss of life, decrease repetitive property losses due to disasters, and provide leadership and coordination to encourage all levels of government and public and private organizations in Macon County to undertake mitigation in minimizing potential disasters and to employ mitigation in the recovery following disasters; and,

WHEREAS, the strategies of this plan are to identify and characterize hazards, assess risk, prioritize and implement mitigation measures; and,

WHEREAS, the adoption of the Macon County Natural Hazard Mitigation Plan would be in the best interest and protection of the Citizens of Macon County; and,

NOW THEREFORE BE IT RESOLVED by The County Commission of Macon County, Alabama that the document entitled the Macon County Natural Hazard Mitigation Plan and all official maps pertaining thereto are hereby adopted this ____ day of _____, 2009.

ADOPTED and APPROVED by the County Commission of Macon County, Alabama on the _____ of _____, 2009.

Delivered to and approved by the County Commission Chair on this _____ day of _____, 2009.

Chairman Date

Attest:

Clerk/Administrator Date

**A RESOLUTION TO ADOPT
THE MACON COUNTY NATURAL HAZARD MITIGATION PLAN**

WHEREAS, the Macon County Emergency Management Agency has engaged in extensive studies of the natural hazards facing Macon County; and,

WHEREAS, the Macon County Emergency Management Agency, with guidance from the Macon County Local Emergency Planning Committee, has prepared a Natural Hazard Mitigation Plan; and,

WHEREAS, the Town of Franklin is formally represented by a delegation on the Macon County Local Emergency Planning Committee; and,

WHEREAS, the goals of this plan are to reduce the loss of life, decrease repetitive property losses due to disasters, and provide leadership and coordination to encourage all levels of government and public and private organizations in Macon County to undertake mitigation in minimizing potential disasters and to employ mitigation in the recovery following disasters; and,

WHEREAS, the strategies of this plan are to identify and characterize hazards, assess risk, prioritize and implement mitigation measures; and,

WHEREAS, the adoption of the Macon County Natural Hazard Mitigation Plan would be in the best interest and protection of the Citizens of the Town of Franklin; and,

NOW THEREFORE BE IT RESOLVED by The Town Council of the Town of Franklin, Alabama that the document entitled the Macon County Natural Hazard Mitigation Plan and all official maps pertaining thereto are hereby adopted this ____ day of _____, 2009.

ADOPTED and APPROVED by the Town Council of Town of Franklin, Alabama on the _____ of _____, 2009.

Delivered to and approved by the Mayor on this _____ day of _____, 2009.

Rufus C. Carson, Mayor Date

Attest:

Margaret Floyd, Clerk Date

**A RESOLUTION TO ADOPT
THE MACON COUNTY NATURAL HAZARD MITIGATION PLAN**

WHEREAS, the Macon County Emergency Management Agency has engaged in extensive studies of the natural hazards facing Macon County; and,

WHEREAS, the Macon County Emergency Management Agency, with guidance from the Macon County Local Emergency Planning Committee, has prepared a Natural Hazard Mitigation Plan; and,

WHEREAS, the Town of Shorter is formally represented by a delegation on the Macon County Local Emergency Planning Committee; and,

WHEREAS, the goals of this plan are to reduce the loss of life, decrease repetitive property losses due to disasters, and provide leadership and coordination to encourage all levels of government and public and private organizations in Macon County to undertake mitigation in minimizing potential disasters and to employ mitigation in the recovery following disasters; and,

WHEREAS, the strategies of this plan are to identify and characterize hazards, assess risk, prioritize and implement mitigation measures; and,

WHEREAS, the adoption of the Macon County Natural Hazard Mitigation Plan would be in the best interest and protection of the Citizens of the Town of Shorter; and,

NOW THEREFORE BE IT RESOLVED by The Town Council of the Town of Shorter, Alabama that the document entitled the Macon County Natural Hazard Mitigation Plan and all official maps pertaining thereto are hereby adopted this ___ day of _____, 2009.

ADOPTED and APPROVED by the Town Council of Town of Shorter, Alabama on the _____ of _____, 2009.

Delivered to and approved by the Mayor on this _____ day of _____, 2009.

Willie Mae Powell, Mayor Date

Attest:

Harold Powell, Clerk Date

Macon County Hazard Mitigation Plan Meetings:

March 28, 2007	Convene LEPC; Review of current plan; Action since last plan
June 30, 2007	Data review; review hazards,
July 10, 2007	Public meeting
March 2008	Hazard risk discussion
March 2008	Draft plan, review goals and strategies
April 2008	Preliminary LEPC approval
May 27, 2008	LEPC meeting for final review
June 4, 2008	Meeting with Judy Kinebrew and County Engineer, surveyed jurisdictions on progress and needs relative to final projects; reviewed status of NFIP.
June 30, 2008	LEPC public meeting
July 14, 2008	Draft approval