2014

Fayette County, Alabama

Multi-Hazard Mitigation Plan

I. Comprehensive Plan

A multi-jurisdiction plan

Cover photo by James Sanders of EF-1 tornado damage in Fayette County on April 28, 2014 with underground safe room in foreground.

Prepared under the direction of the
Fayette County Hazard Mitigation Planning Committee

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2014 Fayette County, Alabama, Multi-Hazard Mitigation Plan

Town of Belk, Town of Berry, City of Fayette, Town of Glen Allen, and Fayette County

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I. Background

Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U. S.C. 5165 as amended by the Disaster Mitigation Act of 2000 (DMA) (P.L. 106-390), provides for States, Tribes, and local governments to undertake a risk-based approach to reducing risks to natural hazards through mitigation planning. The National Flood Insurance Act of 1968, as amended, 42 U. S. C. 4001 *et seq*. reinforced the need and requirement for mitigation plans, linking flood mitigation assistance to State, Tribal and Local Mitigation Plans. FEMA has implemented the various hazard mitigation planning provisions through regulations in 44 CFR Part 201, which also permits human-caused and technological hazards (man-made) to be addressed in a local mitigation plan. These Federal regulations describe the requirement for a State Mitigation Plan as a condition of pre- and post-disaster assistance as well as the mitigation plan requirement for local and Tribal governments as a condition of receiving hazard mitigation assistance. 44 CFR 201.6(d)(3) requires that a local jurisdiction must review and revise its local plan to reflect any changes and resubmit it for approval within five years in order to remain eligible for mitigation grant funding. The initial 2004 plan was approved by FEMA in 2005, upon its adoption by the Fayette County Commission, and the 2009 plan update was approved by FEMA on October 7, 2009.

II. Organization of the Plan

The 2014 Fayette County Multi-Hazard Mitigation Plan is organized to parallel the 44 CFR Section 201.6 Federal requirements for a local mitigation plan, as interpreted by Local Mitigation Planning Handbook, FEMA, March 2013. The organization of this plan is consistent with the organization of the 2013 Alabama State Hazard Mitigation Plan, which also parallels the Federal requirements. The plan has three parts, as follows:

Volume I	*Comprehensive Plan*, which is divided into these seven chapters:
Chapter 1	Introduction
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Chapter 3	Community Profiles
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This plan update is also organized similarly to the 2004 Fayette County Hazard Mitigation Plan and the 2009 Fayette County Hazard Mitigation Plan, which allows for easy cross reference. Each chapter of the 2014 plan update references the requirements of 44 CFR Section 201.6 that it addresses and includes a table that summarizes the updates to the 2009 plan.

III. Highlights of the Plan

Through a comprehensive planning process and risk assessment, this plan update continues a unified approach among all Fayette County communities for dealing with identified hazards and associated risk issues. It serves as a guide for local governments in their ongoing efforts to reduce community vulnerabilities. It also evaluates the 2009 plan: notes its successes and shortcomings, suggests adjustments, and introduces new measures to address the various hazards.

Each hazard, natural and human-caused, that is viewed as a possible risk to Fayette County is described in detail; the vulnerability of the County and each jurisdiction to the hazards are addressed; goals, objectives, and mitigation strategies and actions are stated; and mitigation plans that direct each jurisdiction in the implementation and monitoring of the measures are included in the update.

Chapter 1. Introduction

Chapter 1 of the plan update provides a general introduction to the plan update. It explains the purpose of the plan and which jurisdictions participated in the plan update. The chapter mentions the regulations that require the active participation by local jurisdictions in the mitigation planning process. Also included in this chapter is the explanation of various funding sources that can be applied for if a plan update is submitted to FEMA. Summaries of the planning processes from the 2004 and 2009 plan and this update's planning process are also described in this section.

Chapter 2. Prerequisites

Chapter 2 of the plan update addresses the regulations governing the development and updating of the mitigation plan. It addresses 44 CFR Secs. 201.6 and the prerequisites required through these regulations. It goes into greater detail about the various mitigation grants and other federal money available for the County's use for mitigation planning and projects.

Chapter 2 also addresses multi-jurisdictional participation and plan adoption. It describes the relationship and responsibilities of the various entities involved in the planning process. It explains the various means in which they could participate in the planning process. The multi-jurisdictional plan adoption procedure is explained in the last section of the chapter.

Chapter 3. Community Profiles

Chapter 3 profiles the participating jurisdictions. Each jurisdiction within Fayette County is described in detail. The overall geographic setting and history of Fayette County and the participating jurisdictions are addressed. Summaries about the jurisdictions' government, demographics, economy, utilities, media, transportation and climate are included.

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Chapter 4. The Planning Process

Chapter 4 explains the planning process in detail. It explains how the public was involved in the planning process, what steps the Hazard Mitigation Planning Committee (HMPC) took in developing the plan update, what documents were consulted in the plan update, and how the plan was prepared, reviewed and updated.

In January 2014, a kick off meeting was held to reactivate the HMPC and prepare for the upcoming five year plan update. The Fayette County Hazard Mitigation Planning Committee (HMPC), comprised of representatives from all the jurisdictions and organizations concerned with hazard mitigation, guided the development of this plan.

During the plan drafting process, the Hazard Mitigation Planning Committee held four meetings between January 30 and July 22, 2014. Each Committee member was asked to participate in a series of exercises designed to solicit input into the planning process. A notice and survey were sent to various local and regional agencies with an interest in hazard mitigation, agencies that have the authority to regulate development, and representatives of businesses, academia and other private and non-profit interests notifying them of the draft plan and requesting their input and cooperation.

The participating jurisdictions provided copies of their plans, studies, reports, ordinances, regulations and technical information to the planning team in 2009, but no significant changes had been made to these documents since then. The planning team had previously reviewed the documents and recorded the sections from each document that pertained to hazard mitigation. These documents were considered to see what mitigation measures were currently being pursued and what new measure could be included in future revisions.

The Hazard Mitigation Planning Committee solicited public input into the mitigation plan through a public survey, public meetings, the local news media, and a website at Fayette.hazardmitigationplan.com. They were also invited to attend committee meetings and provide their comments and concerns. The plan on the website was continually updated and available for public review and comment throughout the planning process. The public was further encouraged to participate via Twitter and Facebook or to email their comments to Fayette@hazardmitigationplan.com. The Fayette County EMA made a number of attempts to get participation by the media, public and area agencies through emails once the draft plan was complete. They also held a county wide community meeting in the Council Chambers of the Fayette City Hall on July 22, where the public was invited to fill out a public survey about the risks and threats of hazards.

A public hearing to receive comments was jointly held by all jurisdictions prior to each adopting this plan by resolution, as required by State law. The original resolutions and public hearing minutes are kept on file at the EMA offices.

The plan review and update process resulted in a comprehensive update of the entire 2009 plan elements, which was achieved through a process that involved the following tasks, among others:

- Update of the Community Profiles to reflect changed demographics, economic characteristics, and growth and development trends.
- A detailed assessment of local capabilities to carry out mitigation measures.
- An evaluation of the status and effectiveness of Community Mitigation Action Programs adopted in the 2009 plan, which was reflected in the 2014 Community Action Programs for each jurisdiction.
- A reassessment of risks to include detailed research and analysis of hazards affecting the communities, as well as adding man-made hazards to the Risk Assessment.
- A thorough update of critical facilities and assessment of vulnerabilities.
- A complete update of the HAZUS – MH reports for floods, earthquakes, and hurricanes.
- A reexamination of development trends and exposure to risks.

- A review and recommitment to the vision for disaster-resistant communities; modifications to the 2009 goals; and support of the 2013 State goals for hazard mitigation,
- Identification and analysis of a comprehensive range of mitigation alternatives.
- A reprioritization of mitigation actions and projects.
- Revised mitigation action programs for each jurisdiction to better reflect the results of the plan update.
- Review of the plan maintenance.

Chapter 5. Risk Assessment

Chapter 5 first describes the process used to identify and prioritize the hazard risks to each Fayette County jurisdiction. It describes the resources used to identify the hazards and provides detailed descriptions of each identified hazard. A hazard profile for each identified hazard includes a general description of the nature of the hazard in Fayette County, followed by an explanation of the location, extents, previous occurrences, and the probabilities of future occurrences. The hazard profiles rely heavily on maps, charts, tables, and figures to communicate the profile information. The Federal requirements for repetitive loss properties are included in this chapter.

Vulnerability assessments are reported for each identified hazard. The vulnerability assessments include a summary of the impacts of each hazard on each jurisdiction. Next, vulnerability assessments of structures are reported. Detailed inventories of buildings, infrastructure, and critical facilities are presented and often mapped. The HAZUS-MH data bases are supplemented by local information. The estimates of losses are calculated in HAZUS-MH for earthquakes, hurricanes, and floods, and methods are presented for loss estimate calculations of the other identified hazards. A fresh look at land and development trends since the 2009 plan reveals the concerns for reducing exposure for developing areas of Fayette County.

Chapter 5 concludes with an analysis of how the risks vary among the jurisdictions. This concluding section summarizes the findings of the hazard profiles and vulnerability assessments.

A complete reevaluation of the hazards was performed by the planning team in the plan update process. Hazard profiles and vulnerability assessments were based on current and more complete information since the 2004 plan. The latest release of HAZUS-MH was applied to the risk assessments, and the updated HAZUS-MH database provided much of the information required to evaluate the vulnerability of structures and perform loss estimates.

Chapter 6. Mitigation Strategy

Chapter 6 addresses the full range of mitigation strategies evaluated by the HMPC. It explains the common community vision for disaster resistance and the goals that the plan is trying to achieve, along with objectives that can be used to achieve those goals. It identifies and analyzes mitigation actions and projects. A description of participation and compliance with the National Flood Insurance Program is provided. Mitigation actions implementation is discussed. This forms the basis for the Community Action Programs for each jurisdiction.

The goals in the 2009 plan have been reaffirmed, based on current conditions, the completion of mitigation measures over the five-year plan implementation cycle, the 2014 update to the risk assessment in Chapter 5, the update to the risk assessment in the 2013 Alabama Hazard Mitigation Plan, and the update of State goals and mitigation priorities reflected in the state plan.

The goals for this plan update are, as follows:

- **Prevention Goal.** Manage the development of land and buildings to minimize risks of loss due to natural and man-made hazards.

- **Property Protection Goal.** Protect structures and their occupants and contents from the damaging effects of natural and man-made hazards.

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

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

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

This strategic planning approach for identifying and analyzing mitigation actions and projects follows five categories of a comprehensive hazard mitigation program, which also form the basis for the goals of this plan. These program categories were developed by FEMA for managing a successful mitigation program and were used as guidelines for identifying and sorting the alternative mitigation measures. They are prevention, property protection, public education and awareness, natural resources

protection, and structural projects. Emergency services was discarded as a mitigation goal, with related emergency services measures incorporated into one of the five other goals.

The Hazard Mitigation Planning Committee (HMPC) and local jurisdictions selected among the available mitigation measures within each of the above categories and prioritized the measures by applying the STAPLEE method. They also evaluated the consistency with the vision, goals, and objectives; weight of benefit to cost; FEMA and State funding priorities for Hazard Mitigation Assistance grants; and the planning, regulatory, fiscal, and staffing capacities of the jurisdictions for carrying out the measures. Mitigation measures that resulted in loss reduction to existing and new buildings and infrastructure were chosen for the final list of considered measures. Each jurisdiction assigned a priority to selected measures, established a general completion schedule, assigned administrative responsibility for carrying out the measures, estimated costs, where possible, and identified potential funding sources, including potential eligibility for FEMA Hazard Mitigation Assistance Programs.

A separate Community Action Program has been established for each community and published as a separate volume. The proposed measures are within the authority of the jurisdiction or are part of a joint effort among multiple jurisdictions covered by this plan. All actions included in these programs are achievable and within the capabilities of each jurisdictions.

Chapter 7. Plan Maintenance Process

Chapter 7 describes the maintenance process for the 2014 Fayette County Multi-Hazard Mitigation Plan. It explains the monitoring, evaluation and updating procedures and how to incorporate the plan into other planning mechanisms. It also describes the need for continuing public participation in the plan maintenance process.

The plan explains that ongoing monitoring of the plan should occur throughout the next five years until the next scheduled update. Ongoing status reports of each jurisdiction's progress will be reviewed by the EMA Director and representatives from the HMPC and should include the following information:

- Actions that have been undertaken to implement the scheduled mitigation measure, such as, obtaining funding, permits, approvals or other resources to begin implementation.
- Mitigation measures that have been completed, including public involvement activities.
- Revisions to the priority, timeline, responsibility, or funding source of a measure and cause for such revisions or additional information or analysis that has been developed that would modify the mitigation measure assignment as initially adopted in the plan.

- Measures that a jurisdiction no longer intends to implement and justification for cancellation.

The ongoing review process may require adjustments to the selection of mitigation measures, priorities, timelines, lead responsibilities, and funding sources.

Plan evaluation should occur within sixty days following a significant disaster or an emergency event having a substantial impact on a portion of or the entire Fayette County area or any of its jurisdictions. A risk assessment should be done and the findings should determine any new mitigation initiatives that should be incorporated into this plan to avoid similar losses from future hazard events.

The HMPC will oversee an annual evaluation of progress towards implementation of the Mitigation Strategy. In its annual review, the HMPC will discuss the following topics to determine the effectiveness of the implementation actions and the need for revisions to the Mitigation Strategy:

- Are there any new potential hazards that have developed and were not addressed in the plan?
- Have any disasters occurred and are not included in plan?
- Are there additional mitigation ideas that need to be incorporated into the plan?
- What projects or other measures have been initiated, completed, deferred or deleted?
- Are there any changes in local capabilities to carry out mitigation measures?
- Have funding levels to support mitigation actions either increased or decreased?

Any updates, revisions, or amendments to the Fayette County Emergency Operations Plan, local comprehensive plans, capital improvement budgets or plans, zoning ordinances and maps, subdivision regulations, building and technical codes, and related development controls should be consistent with the goals, objectives, and mitigation measures adopted in this plan. As part of subsequent five-year update process, all local planning mechanisms should again be reviewed for effectiveness, and recommendations for new integration opportunities should be carefully considered. Multi-hazard mitigation planning should be integrated into existing public information activities, as well as household emergency preparedness.

Ongoing public education programs should stress the importance of managing and mitigating hazard risks. Consequently, the Hazard Mitigation Planning Committee is dedicated to direct involvement of its citizens in providing feedback and comments on the plan throughout the five-year implementation cycle and interim reviews.

Public meetings will be held when significant modifications to the plan are required or when otherwise deemed necessary by the Hazard Mitigation Planning Committee. The public will be able to express their concerns, ideas, and opinions at the meetings. At a minimum, public hearings will be held during the annual and five-year plan updates and to present the final plan and amendments to the plan to the public before adoption.

Appendices

The final sections of the plan are the Appendices. The supporting documents for this plan update that were able to be included in this plan update have been inserted into the following appendices:

A *Federal Requirements for Local Mitigation Plans* contains the entire 44 CFR Sec. 201.6 requirements for local mitigation plans.

B *Community Mitigation Capabilities* reports on the results of a comprehensive survey and assessment of each jurisdiction's capabilities to implement mitigation measures.

C *2009 Plan Implementation Status* reports the evaluation results of implementation of mitigation measures recommended for implementation by each jurisdiction in the 2004 plan.

D *Hazard Ratings and Descriptions* reports the results of the Committee exercise for identifying hazards for inclusion in the 2014 plan update and the ratings of the hazards for extents and probability of future occurrences. A complete description of each identified hazard is included here.

E *Hazard Profile Data* contains detailed hazard records of the National Weather Service, the National Climatic Data Center, and local newspapers.

F *Alternative Mitigation Measures* examines the range of mitigation measures considered for the 2014 Mitigation Strategy in Chapter 6 and the Community Action Programs in Volume II.

G *Committee Meeting Documentation* documents the HMPC meetings during the drafting phase of the 2014 plan update.

H *Community Involvement Documentation* reports on the full scope of community involvement opportunities during the drafting phase of the 2014 plan update.

I *Multi-Jurisdictional Participation Activities* records the scope of participation of all jurisdictions in the drafting and adoption of the 2014 plan update.

J *Adopting Resolution* presents a model resolution for plan adoption by local governing bodies.

Other documents and materials mentioned in the plan or used in its preparation but not included in the plan appendices are kept on file in the Fayette County EMA office. These other documents and materials, include, but are not limited to the following items:

- Local newspaper articles reporting hazard events since 1960;
- 2014 HAZUS-MH global reports for earthquakes, hurricanes, and floods;
- Damage reports of hazard events;
- Meeting records of the Hazard Mitigation Planning Committee prior to 2014, since first established in 2004; and
- Documentation in support of the 2004, 2009, and 2014 plans.

Chapter 1 – Introduction

1.1 Background

The 2014 Fayette County Multi-Hazard Mitigation Plan is a multi-jurisdictional, multi-hazard mitigation plan for all communities that have participated in the preparation of this plan through the Hazard Mitigation Planning Committee (HMPC). This plan fulfills the requirements of the Federal Disaster Mitigation Act of 2000 (DMA 2000), as administered by the Alabama Emergency Management Agency (AEMA) and the Federal Emergency Management Agency (FEMA) Region IV. This plan covers the entire county including all unincorporated areas, the Towns of Belk, Berry, Glen Allen, and the City of Fayette. Other participants include the Fayette County School Board and the Fayette County Fire Association.

1.2 Authority

Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U. S.C. 5165 as amended by the Disaster Mitigation Act of 2000 (DMA) (P.L. 106-390), provides for States, Tribes, and local governments to undertake a risk-based approach to reducing risks to natural hazards through mitigation planning. The National Flood Insurance Act of 1968, as amended, 42 U. S. C. 4001 *et seq*. reinforced the need and requirement for mitigation plans, linking flood mitigation assistance to State, Tribal and local mitigation plans.

FEMA has implemented the various hazard mitigation planning provisions through regulations in 44 CFR Part 201, which also permit man-made hazards to be addressed in a local mitigation plan. These Federal regulations describe the requirement for a State mitigation plan as a condition of pre- and post-disaster assistance as well as the mitigation plan requirement for local and Tribal governments as a condition of receiving hazard mitigation assistance. 44 CFR 201.6(d)(3) requires that a local jurisdiction must review and revise its local plan to reflect any changes and resubmit it for approval within five years of FEMA approval in order to remain eligible for mitigation grant funding.

1.3 Funding

The Fayette County EMA applied to the Alabama EMA for planning grant funds in 2013 to complete the 2014 update of this plan. In late 2013, the Alabama EMA awarded a $20,625 planning grant funded through the FEMA Hazard Mitigation Grant Program (HMGP) to the Fayette County Commission to fund 75% of the total cost of the five year plan update for all incorporated and unincorporated areas within Fayette County. Fayette County provided the 25% match through in-kind services.

1.4 Eligibility for FEMA Hazard Mitigation Assistance Grants

Adoption of this plan is the initial step towards continuing eligibility for FEMA Hazard Mitigation Assistance (HMA) grant assistance to participating localities. These FEMA grants include the following programs:

1. The Hazard Mitigation Grant Program (HMGP). The HMGP is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (the Stafford Act), Title 42, U.S. Code (U.S.C.) 5170c. It provides opportunities for communities to undertake mitigation measures to reduce the risk of loss of life and property from future disasters during the reconstruction process following a disaster. Funding becomes following a Presidential major disaster declaration in the areas of the State requested by the Governor. The amount of HMGP funding available is based upon the estimated total of Federal assistance for disaster recovery under the declaration: up to 15 percent of the first $2 billion of the total estimated disaster assistance, up to 10 percent for amounts between $2 billion and $10 billion, and up to 7.5 percent for amounts between $10 billion and $35.333 billion. For States with enhanced hazard mitigation plans, up to 20 percent for estimated amounts of disaster assistance not to exceed $35.333 billion can become available. Following the 2011 tornado outbreak, approximately $70 million became available statewide.

2. The Pre-Disaster Mitigation Grant Program (PDM). The PDM program provides funds to states, territories, Indian tribal governments, communities, and universities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds. For FY 2013, $23.7 million in PDM funding was available nationwide.

3. The Flood Mitigation Assistance Program (FMA). The FMA program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FEMA provides FMA funds to assist states and communities with the implementation of measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). For FY 2013, $120 million in FMA funding was available nationwide. Two types of FMA grants are available to communities:

    - *Planning Grants* to prepare Flood Mitigation Plans

    - *Project Grants* to implement measures to reduce flood losses, such as elevation, acquisition, or relocation of NFIP-insured structures. Priority is given to properties that have incurred repetitive flood insurance losses.

4. The Public Assistance Grant Program (Categories C – G) (PA). The Public Assistance Grant Program provides assistance to State, Tribal and local governments, and certain types of Private Nonprofit organizations to quickly respond to and recover from major disasters or emergencies declared by the President. Through categories C – G of the PA Program, FEMA provides supplemental Federal disaster grant assistance for the repair, replacement, or restoration of publicly infrastructure and facilities and the facilities of certain Private Non-Profit (PNP) organizations that were damaged by the declared disaster. The PA Program can also be used to protect these damaged facilities from future events through hazard mitigation measures.

5. The Fire Management Assistance Grant Program. Fire Management Assistance Grant Program (FMAGP) provides grants to States, local and tribal governments. Funds can be used for the “mitigation, management, and control of fires on publicly or privately owned forests or grasslands,” where destruction poses such a threat that could result in a major disaster declaration. The State submits a request for assistance to FEMA at the time a "threat of major disaster" exists. The process is expedited with a FEMA decision made within hours. The FMAG provides a 75 percent Federal cost share with the State for eligible firefighting costs, such as “expenses for field camps; equipment use, repair and replacement; tools, materials and supplies; and mobilization and demobilization activities.”

1.5 Fayette County Hazard Mitigation Plan (2005)

The initial Fayette County Hazard Mitigation Plan was approved by FEMA in 2005 and was prepared by the West Alabama Regional Commission (WARC) under the direction of the Fayette County EMA Director and the Hazard Mitigation Planning Committee. It includes all incorporated and unincorporated areas of Fayette County and addresses all natural and manmade hazards. The 2005 plan was the first coordinated effort in Fayette County to assess risks and develop mitigation strategies to respond to those risks.

1.6 Fayette County Hazard Mitigation Plan 2009 Plan Update

The first plan update process began in September 2007 after the Alabama EMA awarded the Alabama Association of Regional Councils (AARC) a planning grant. In turn, funds were passed through to the West Alabama Regional Commission to pay 75% of the plan update costs. Again, the West Alabama Regional Commission planners worked under the direction of the Fayette County EMA Director and the Hazard Mitigation Planning Committee. The 2009 plan includes all incorporated and unincorporated areas of Fayette County and adds manmade hazards to the natural hazards. The City of Winfield, which partially lies within Fayette County, chose to participate in the Fayette planning process, although its primary location is Marion County. The 2009 plan was adopted by all municipalities, the Fayette County School Board, the Fayette County Fire Association, and the West Alabama Regional Commission. FEMA approved the plan on October 7, 2009.

1.7 The 2014 Fayette County Multi-Hazard Mitigation Plan Update

The Fayette County Hazard Mitigation Planning Committee (HMPC) was reactivated five years later in January 2014 to update the 2009 plan as the 2014 Fayette County Multi-Hazard Mitigation Plan. The Fayette County Commission retained Lehe Planning, LLC, to prepare the updated plan under the direction of the HMPC and the Fayette County EMA Director, James Sanders. The firm's manager, James E. Lehe, AICP, a professional urban planner, served as the Planning Coordinator for the update. The 2014 HMPC represented unincorporated Fayette County; the City of Fayette; the Towns of Belk, Berry, and Glen Allen; the Fayette County School Board and the Fayette County Fire Association. The HMPC convened four meetings to oversee the drafting of the plan update and hosted a community event to inform the public of the plan findings and recommendations and solicit public comments. The 2014 planning process continued the unified approach among all Fayette County communities and continues to guide Fayette County communities in their ongoing efforts to mitigate vulnerabilities.

Chapter 2 – Prerequisites

2.1 Federal Prerequisites

This chapter of the Plan addresses the Prerequisites of 44 CFR Sections 201.6(a)(1) and (4) and (c)(5), as follows:

Section 201.6(a) Plan requirements.

(1) A local government must have a mitigation plan approved pursuant to this section in order to receive HMGP project grants. ... A local government must have a mitigation plan approved pursuant to this section in order to apply for and receive mitigation project grants under all other mitigation grant programs.

(4) Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan … .

Section 201.6(c) Plan content. The plan shall include the following:

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

2.2 Plan Approval Required for Mitigation Grants Eligibility

FEMA approval of this plan is the initial step towards continuing eligibility for FEMA grant assistance to participating localities and school districts, under the following hazard mitigation assistance programs: the Hazard Mitigation Grant Program (HMGP), the Pre-Disaster Mitigation Grant Program (PDM), the Flood Mitigation Assistance Program (FMA), Categories C – G of the Public Assistance (PA) Grant Program, and the Fire Management Assistance Grant Program (FMAGP). Once the plan is approved pending adoption, the governing bodies of the participating jurisdictions and school districts must formally adopt the plan and submit their adopting resolutions to FEMA through the Alabama EMA to receive official FEMA approval. This process must take place within twelve months of FEMA's notification of conditional approval pending

adoption. If the plan is not approved by FEMA and locally adopted by resolution of the governing body, the jurisdiction or school board will not be eligible to apply for and receive project grants under any of the FEMA hazard mitigation assistance programs. Hazard mitigation assistance programs have additional requirements for grant eligibility depending on the program's funding source.

2.3 Multi-Jurisdictional Participation

The Fayette County EMA serves as the lead coordinating agency for mitigation planning. It has been working in conjunction with the Hazard Mitigation Planning Committee (HMPC) and has remained in contact and coordinated mitigation activities with all Fayette County jurisdictions throughout the five year period since the 2005 plan was first approved. Fayette County; the Towns of Belk, Berry, and Glen Allen; the City of Fayette, the Fayette County School Board, and the Fayette County Fire Association all have continued to participate in the 2014 plan update of the existing plan. In addition to the participating jurisdictions, other stakeholders affected by the plan, including Federal, State, and regional agencies, business interests, academia, non-profits, and the general public contributed to the drafting of this Plan. (See Chapter 4 – "The Planning Process" for a more detailed explanation of the organization of the HMPC and the participation of stakeholders in the planning process.)

School districts are defined as local governments, according to Federal regulations at 44 CFR Section 201.2, and are therefore required to have a FEMA-approved local mitigation plan to be eligible for project grants under FEMA hazard mitigation assistance programs. A school district may also demonstrate their participation as a separate government entity in another local government's approved mitigation plan to be eligible for project grants under FEMA hazard mitigation assistance programs. The Fayette County Board of Education actively participated in and adopted the 2014 plan.

The planning process presented many opportunities for multi-jurisdictional participation. (See Appendix I "Multi-Jurisdictional Participation Activities," which shows the type of participation by Fayette County jurisdictions.) These multi-jurisdictional participation opportunities included the following activities:

- Attendance and participation in four HMPC committee meetings beginning on January 30, 2014, during the drafting phase of the plan (see Appendix G "Committee Meeting Documentation," which includes agendas and sign-in sheets).
- Providing key staff support to complete HMPC exercises and questionnaires regarding local capabilities for conducting mitigation activities, the implementation status of the 2009 mitigation actions, identifying and rating

hazards, profiling hazards and hazard events, evaluating alternative mitigation measures, and updating plan goals and objectives.

- Reviewing and providing comments on draft plan sections.
- Compiling plans, studies, reports, regulations, ordinances, and codes related to hazard mitigation and making these documents available to planners for review.
- Conferring with planners during the drafting phase of the plan update.
- Providing information to the HMPC and planners on critical facilities and infrastructure.
- Attendance and participation in the Community Meeting held following the final HMPC committee meeting, at the end of the drafting phase of the plan update.
- Communicating with elected officials and other jurisdictional constituents on the scope and contents of the draft plan update.
- Conducting public hearings, which offered additional opportunities for public comments prior to formal adoption by the governing bodies.

Residents of each jurisdiction and other stakeholders were provided the following opportunities for participation in the planning process:

- Attending HMPC meetings as observers of these open public forums, which were publicly announced.
- Participating in the Community Meeting.
- Completing Public Questionnaires distributed at the Community Meeting.
- Accessing the plan update website at http://fayette.hazardmitigationplan.com to keep abreast of HMPC activities, review draft sections of the plan, and offer comments and suggestions through a special email account, fayette@hazardmitigationplan.com .
- Contacting HMPC members and Fayette County EMA staff.
- Contacting planners by email through the special email account noted above.
- Contacting elected officials of each jurisdiction.
- Attending public hearings of the local governing bodies and offering comments.

2.4 Multi-Jurisdictional Plan Adoption

All jurisdictions in Fayette County, along with the Fayette County School Board and the Fayette County Volunteer Fire Association have actively participated in the planning process. Upon completion of the plan, each of the four municipalities (Belk, Berry, City of Fayette, and Glen Allen) along with the Fayette County Commission, Fayette County School Board, and the Fayette County Fire Association, passed a formal Resolution accepting, approving, and adopting the Fayette County Hazard Mitigation Plan. By adopting this multi-jurisdictional hazard mitigation plan Fayette County and the listed local governments will be eligible applicants for mitigation monies through the various Hazard Mitigation Assistance programs offered by FEMA. The model Adopting Resolution can be found in Appendix J.

Chapter 3 – Community Profiles

3.1 Federal Advisory Guidance for Community Profiles

The advisory on page 27 of the FEMA Local Multi-Hazard Mitigation Planning Guidance, July 1, 2008, suggests that community profile information be included in a mitigation plan for context:

> *The planning team should consider including a current description of the jurisdiction in this section or in the introduction of the plan. The general description can include a socio-economic, historic, and geographic profile to provide a context for understanding the mitigation actions that will be implemented to reduce the jurisdiction's vulnerability.*

Since 2008, FEMA published an update to the above-referenced 2008 advisory guidance, Local Mitigation Planning Handbook, March 2013. This latest guidance advises that community assets be identified in step 2 of Task 5 *Conduct a Risk Assessment.* This step requires identification of "People, Economy, Built Environment, and Natural Environment," all of which are profiled here and incorporated into the vulnerability components found in sections 5.5 through 5.10 of Chapter 5 Risk Assessment in this 2014 plan update.

3.2 Summary of Plan Updates

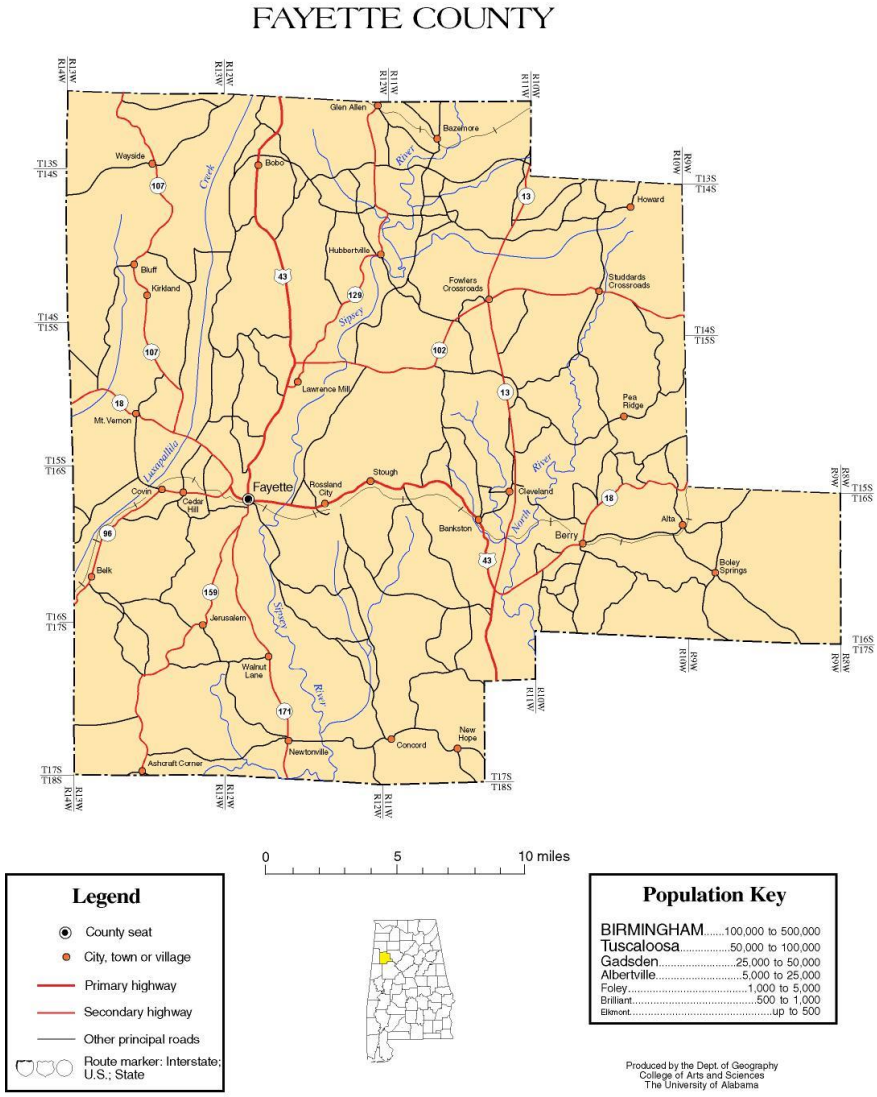
This chapter replaces *Section Two: General Characteristics* of the 2009 Fayette County Plan Update in its entirety. This 2014 update presents much more thorough profiles of Fayette County and its communities.

3.3 Geographic Setting and History

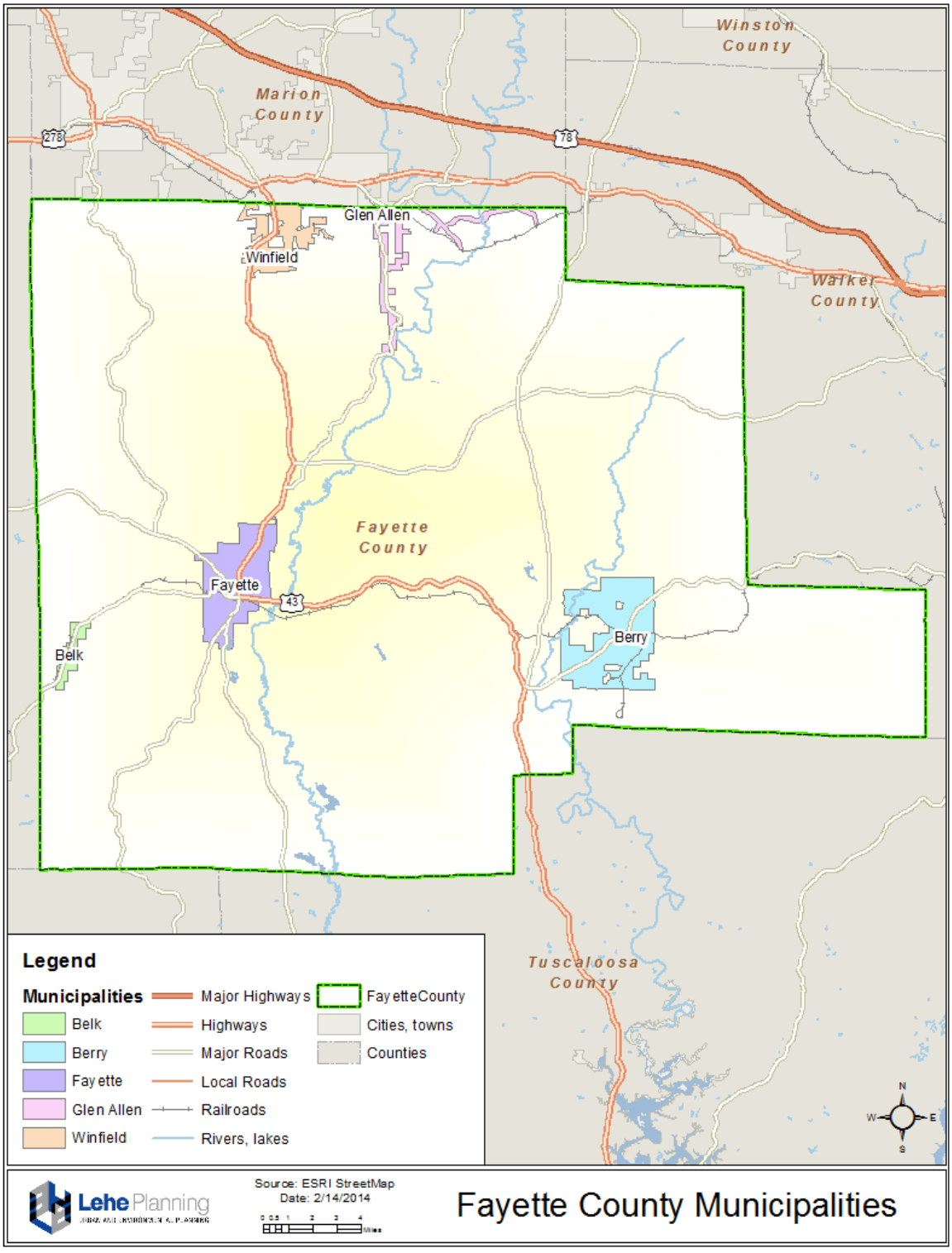
Fayette County

Fayette County was established on December 20, 1824, following General Lafayette's tour of Alabama and is also named after him. Fayette County is located in west central Alabama. See Map 3-1 "Fayette County Location" Map. Fayette County encompasses 630 square miles of land area and approximately 1.7 square miles of water area as reported by the 2010 Census. Fayette County has a population of 17,241 (2010 Census) and consists of four municipalities: the Town of Belk, the Town of Berry, the City of Fayette, and Town of Glen Allen (see Map 3-2 "Fayette County Municipalities").

Map 3-1. Fayette County Location



Map 3-2. Fayette County Municipalities



Town of Belk

The Town of Belk is located in the western portion of Fayette County, comprising 1.39 square miles. The 2010 population (US Census) is 215 and the town is home to a U.S. Post Office and Georgia-Pacific Sawmill. State Road 96 runs through the middle of the town.

Town of Berry

The Town of Berry comprises 10.77 square miles of land and .01 square miles of water. It is located in the eastern portion of Fayette County and has a population of 1,148 (2010 Census). State Road 18 and County 63 intersect at the center of town.

City of Fayette

The City of Fayette has 8.55 square miles of land area and .08 square miles of water. In terms of population, it is the largest incorporated place in Fayette County, comprising 4,619 people (2010 Census). The city is home to the Richard Arthur Field airport, and US Hwy 43 intersects at the center of the city. The county seat is located in the City of Fayette.

Credit: Calvin Beale

Town of Glen Allen

The Town of Glen Allen, located at the northern county boundary, comprises 6.55 square miles of land and .01 square miles of water. The 2010 population (US Census) is 510, making it the third largest incorporated place in the county.

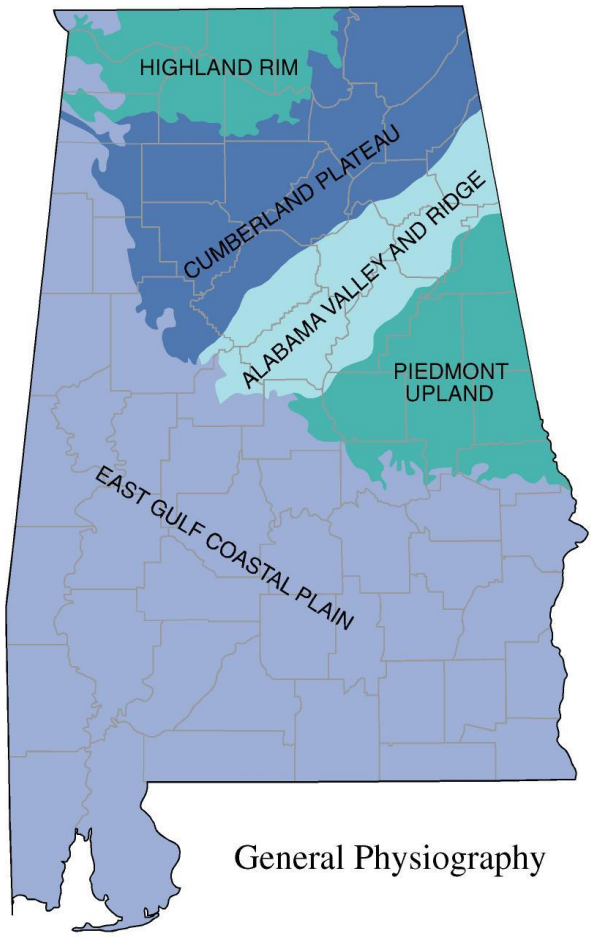
3.4 Government

Fayette County is governed by six County Commissioners elected by citizens in their commission districts. The chairmanship rotates among the commissioners allowing each to serve as chairman. An elected mayor and council serve each municipality. The City of Fayette serves as the Fayette County seat and is the center for local business and trade.

3.5 Physical Features

Fayette County is located within the Cumberland Plateau and East Gulf Coastal Plain physiographic province of Alabama, according to the Geological Survey of Alabama. Fayette County's location within this physiographic region is depicted in Map 3-3 "General Physiography". The Encyclopedia of Alabama defines the Cumberland Plateau as "flat-topped high-elevation plateaus separated by deep, steep-sided valleys". The Warrior and Tennessee River systems drain most of the Cumberland Plateau. It is characterized by Paleozoic sandstone, shale, and limestone geologic features. The East Gulf Coastal Plain is "flat and relatively featureless in some areas, but elsewhere it consists of rounded and eroded hills, topographic features known as cuestas and flatwoods, and the floodplains of the Alabama, Tombigbee, and Black Warrior rivers" (Encyclopedia of Alabama). The East Gulf Coastal Plain is characterized by Mesozoic and Cenozoic sediments.

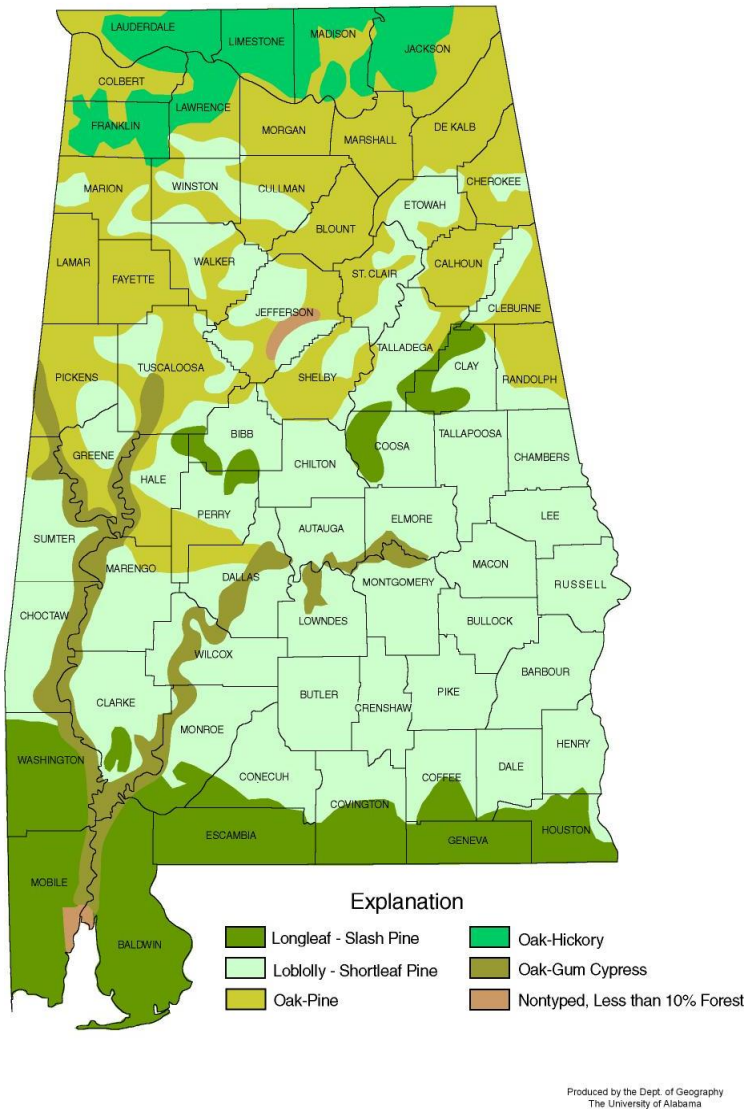
Map 3-3. General Physiography



The Sipsey River, a tributary of the Tombigbee River, flows through the center of Fayette County and the North River, a tributary of the Upper Black Warrior River, flows through the eastern portion of the county. The Sipsey River is one of the last free-flowing swamp streams in Alabama and provides a tourist attraction for canoers, and fishermen (Encyclopedia of Alabama).

The dominant varieties of trees in Fayette County are oak and pine. Both oak and pine trees are typically used for furniture, paneling, flooring, and roofing. Fayette County's location within Alabama's distribution of forest types is depicted in Map 3-4 "Alabama Forest Types."

Map 3-4. Alabama Forest Types



3.6 Climate

Fayette County has hot, humid summers and mild winters. The average annual temperature in the county is 61.9 degrees, with the average winter temperature at 44.6 degrees and average summer temperature at 78.7 degrees. The average annual precipitation is 59.1 inches. Snowfall is very rare, averaging 1.3 inches. Table 3-1 presents additional climate observations.

Table 3-1. Weather Observations

Category	Observation
Average Winter Temperature	44.6° F
Average Winter Minimum Temperature	33.0° F
Lowest Temperature (January 11, 1949)	-5.0° F
Average Summer Temperature	78.7° F
Average Summer Maximum Temperature	91.2° F
Highest Temperature	92.3° F
Total Annual Precipitation	59.1 inches
Heaviest One-Day Rainfall	17.0 inches
Average Total Snowfall	1.3 inches

Source: Southeast Regional Climate Center, 2012

3.7 Demographics

Fayette County experienced a slight increase in population from 1990 to 2000 (2.9%), but then experienced a decline of 6.8% from 2000 to 2010. The Town of Glen Allen showed the most dramatic increase in percentage of population from 2000 to 2010, comprising 15.4%. Table 3-2 shows the population for Fayette County and its municipalities from 1990 to 2010, as well as the percent change (US Census).

Table 3-2. Population Change from 1990 to 2010

Jurisdiction	1990	2000	Number Change	Percent Change	2010	Number Change	Percent Change
Fayette County	17,962	18,495	533	2.9%	17,241	-1,254	-6.8%
Belk	255	214	-41	-16.1%	215	1	0.5%
Berry	1,218	1,238	20	1.6%	1,148	-90	-7.3%
Fayette	4.909	4,922	13	0.3%	4,619	-303	-6.2%

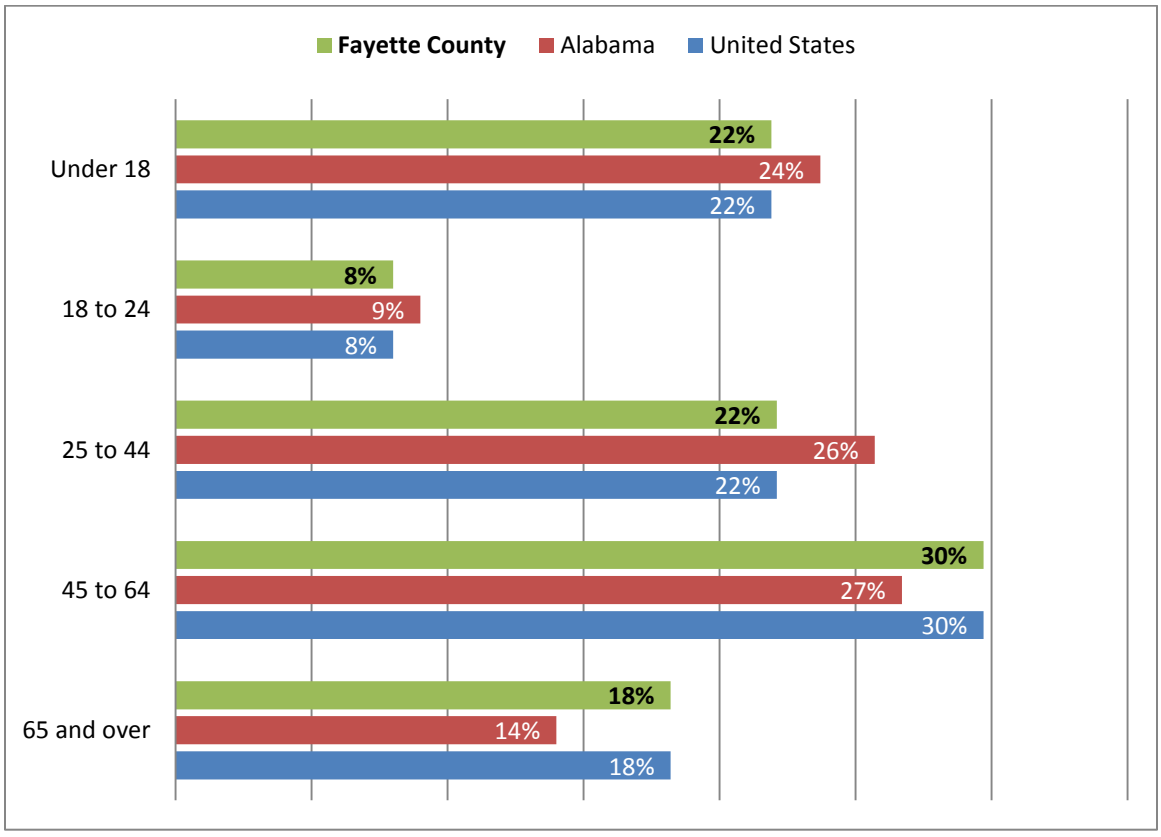
Jurisdiction	1990	2000	Number Change	Percent Change	2010	Number Change	Percent Change
Glen Allen	350	442	92	26.3%	510	68	15.4%

Source: U.S. Census Bureau, 2010

Age Distribution

Data from the US Census Bureau 2008-2012 American Community Survey indicates that Fayette County's age distribution is slightly older than the populations of Alabama, but comparable to the United States. Thirty percent of Fayette County's population is under the age of 25. Residents between 45 and 64 years of age comprise another 30% of the population. This age group affects such community resources as health care facilities and elderly and public assistance programs—particularly during severe weather events. Chart 3-1 breaks down population by age groups.

Chart 3-1. Fayette County Population by Age



Source: U.S. Census Bureau, 2010

Racial Composition

Fayette County is predominantly White, comprising 86.7% of the population. Of the 11.3% African American population, 25.7% live in the City of Fayette and 16.9% live in the Town of Glen Allen. Persons of Hispanic origin of any race are estimated to be a small percentage of the population. A relatively small percentage of American Indians and Asians reside in Fayette County.

Table 3-3. Population by Race and Hispanic Origin

Community	White	Black/African American	American Indian	Asian	Other Race	Two or More Races	Hispanic (of any race)
Fayette County	86.7%	11.3%	0.2%	0.3%	0%	1.5%	1.2%
Belk	100%	0%	0%	0%	0%	0%	0%
Berry	89.1%	6.7%	0%	0%	0%	4.2%	2.2%
Fayette	72.8%	25.7%	0%	0%	0%	1.0%	1.0%
Glen Allen	81.6%	16.9%	0.6%	0%	0%	0.8%	0%

Source: U.S. Census Bureau, 2008-2012 American Community Survey 5-year Estimates

Gender

Table 3-4 shows population distribution by gender in Fayette County jurisdictions. Two localities, Belk and Glen Allen, have a greater population of males, than females, which is atypical considering women usually live longer than men.

Table 3-4. Population by Gender

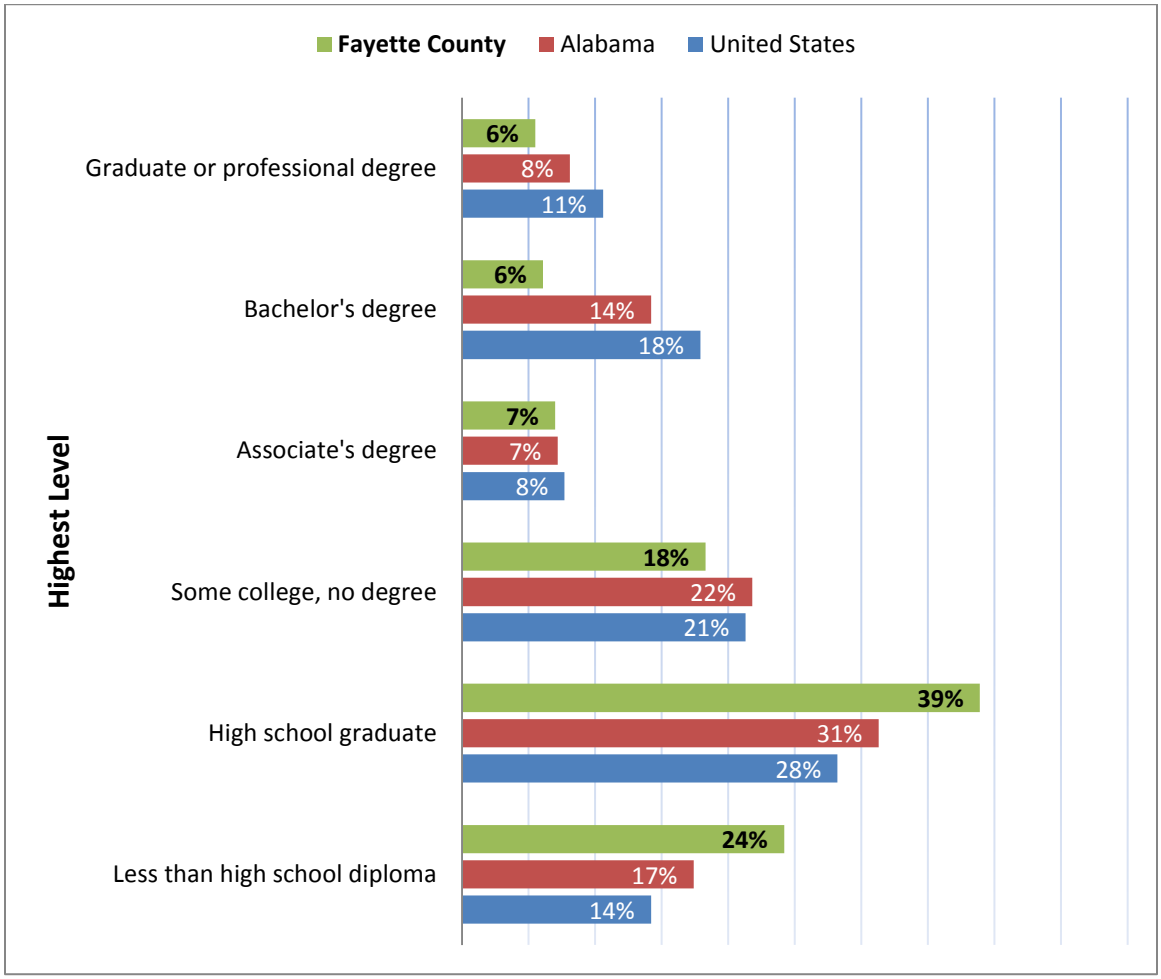
Community	Male	Female
Fayette County	49.2%	50.8%
Belk	51.5%	48.5%
Berry	43.4%	56.6%
Fayette	48.7%	51.3%
Glen Allen	55.1%	44.9%

Source: U.S. Census Bureau, 2008-2012 American Community Survey

Educational Attainment

Fayette County exhibits lower levels of educational attainment, as measured by the highest level of education received for residents aged 25 and older, than either Alabama or the United States. Chart 3-2 compares Fayette County, the State of Alabama, and the United States by educational attainment. Approximately 40% of residents in Fayette County (age 25+) have at least a high school diploma; approximately a quarter of the population has less than a high school diploma. Thirty-seven percent of Fayette County residents have at least some college experience.

Chart 3-2. Educational Attainment of Population Ages 25 Years or Older



Source: U.S. Census Bureau, 2008-2012 American Community Survey 5-year Estimates

Income

In addition to the racial and age composition within the County, income levels are important when identifying vulnerable population. Individuals and families with lower incomes may not have the resources to prepare or recover from natural disasters. Table 3-5 shows the median household income and poverty level data for the jurisdictions in Fayette County, the State of Alabama and the United States.

The median household income for Fayette County is $33,090, which represents a 15.9% increase since 2000. The median household income for the State of Alabama is $43,160. The median household income for the United States is $53,046. None of the localities in Fayette County meet or exceed these levels of income; the Town of Glen Allen has the highest median household income in Fayette County, at $33,309. Chart 3-3 portrays the household income distribution for Fayette County, compared to that of Alabama and the U.S. The majority of households in Fayette County earn between $35,000 and $44,999, which is less than the State of Alabama and the U.S. where most households earn between $50,000 and $74,999.

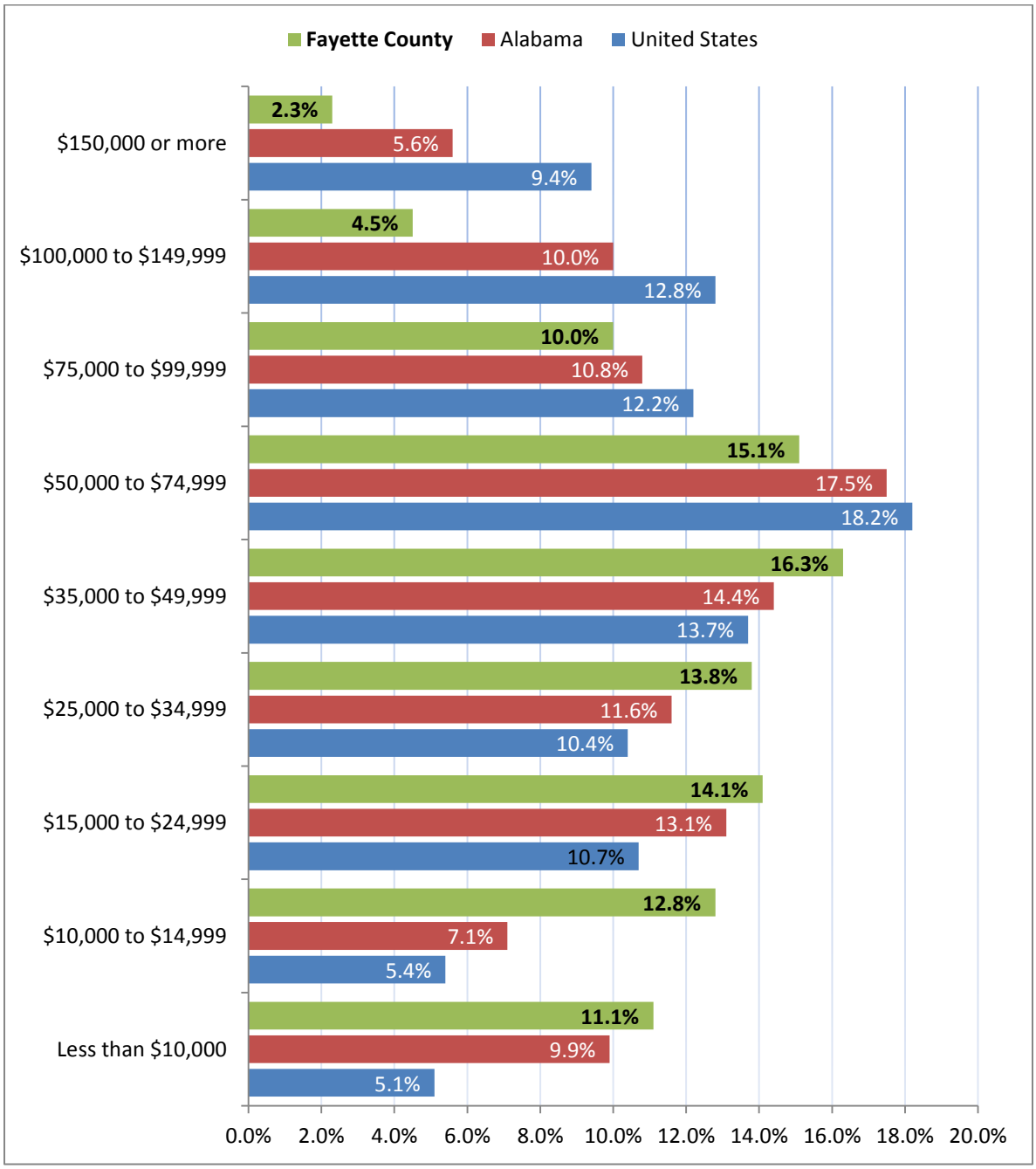
The percent of persons below the poverty level in the State of Alabama is 18.1%. The corresponding rate for the United States is 14.9%. Most municipalities in Fayette County are above both these rates. Only the Town of Glen Allen falls below both the state and national poverty level.

Table 3-5. Comparison of Income and Poverty Levels

Geographic Area	Median Household Income	Persons Below Poverty Level	Percent Below Poverty Level
Fayette County	$33,090	3,232	19.1%
Belk	$31,250	57	28.8%
Berry	$29,167	241	19.1%
Fayette	$27,921	1,115	25.7%
Glen Allen	$33,309	51	10.6%
Alabama	$43,160	842,292	18.1%
U.S.	$53,046	44,852,527	14.9%

Source: US Census, 2008 – 2012 American Community Survey

Chart 3-3. Household Income Distribution



Source: U.S. Census Bureau, 2008-2012 American Community Survey 5-year Estimates

3.8 Economy

Business and Industry

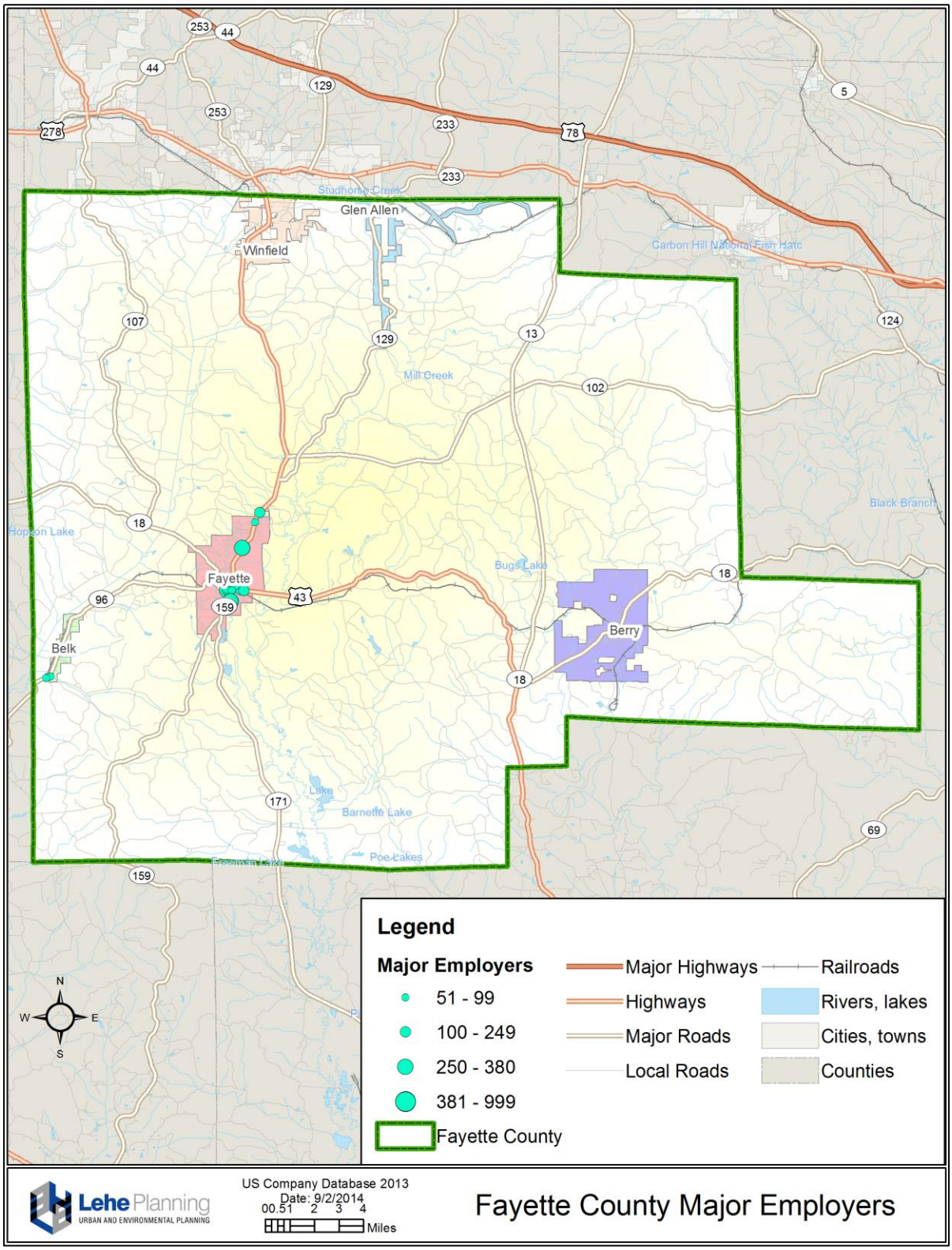
Fayette County's predominant industry is manufacturing, representing 26.5% of the employed population (age 16+). Companies such as Jim Walters, TBEI, and Best Manufacturing comprise the manufacturing industry. Educational services, health care and social assistance make up a significant portion of the employed population, at 22.9%, including Fayette Medical Center and Fayette County Board of Education. Table 3-6 "Major Employers" lists the companies with at least 50 employees or more. Map 3-5 portrays the major employers by number of employees.

Table 3-6. Major Employers

FIRM	LOCATION	EMPLOYEES	SIC	SIC DESCRIPTION
Fayette Medical Center	Fayette	250-499	8062	General Medical & Surgical Hospitals
Jim Walters*	Berry	250-499	1499	Misc. Nonmetallic Minerals, Except Fuels
TBEI	Fayette	250-499	3713	Truck & Bus Bodies
Fayette County Board of Education	Fayette	250-499	8211	Elementary & Secondary Schools
Best Manufacturing	Fayette	250-499	3069	Fabricated Rubber Products
Fayette Glove Co.	Fayette	250-499	2381	Fabric Dress & Work Gloves
Walmart Supercenter	Fayette	100-249	5311	Department Stores
American Power Source, Inc.	Fayette	100-249	2211	Broad woven Fabric Mills, Cotton
Rph Management, Inc.	Fayette	100-249	8741	Management Services
North River Apparel	Berry	100-249	2329	Men's and Boy's Clothing
Fayette County Commission	Fayette	100-249	9111	Executive Offices
Georgia Pacific	Belk	50-99	2421	Sawmills & Planing Mills
VFW Post 5406	Fayette	50-99	8641	Civic & Social Association
North River Apparel	Berry	50-99	2321	Men's & Boy's Furnishings
Fayette Elementary School	Fayette	50-99	8211	Elementary & Secondary Schools
Fayette County Industrial Board	Fayette	50-99	9121	Legislative Bodies
Handi Mart	Fayette	50-99	5171	Petroleum Bulk Stations & Terminals
Bevill State Community College	Fayette	50-99	8222	Junior Colleges
Fayette City Hall	Fayette	50-99	9111	Executive Offices
N&N Transport, Inc.	Belk	50-99	4212	Local Trucking, Without Storage

Source: U.S. Company Database, 2013
*Jim Walters is in the process of closing

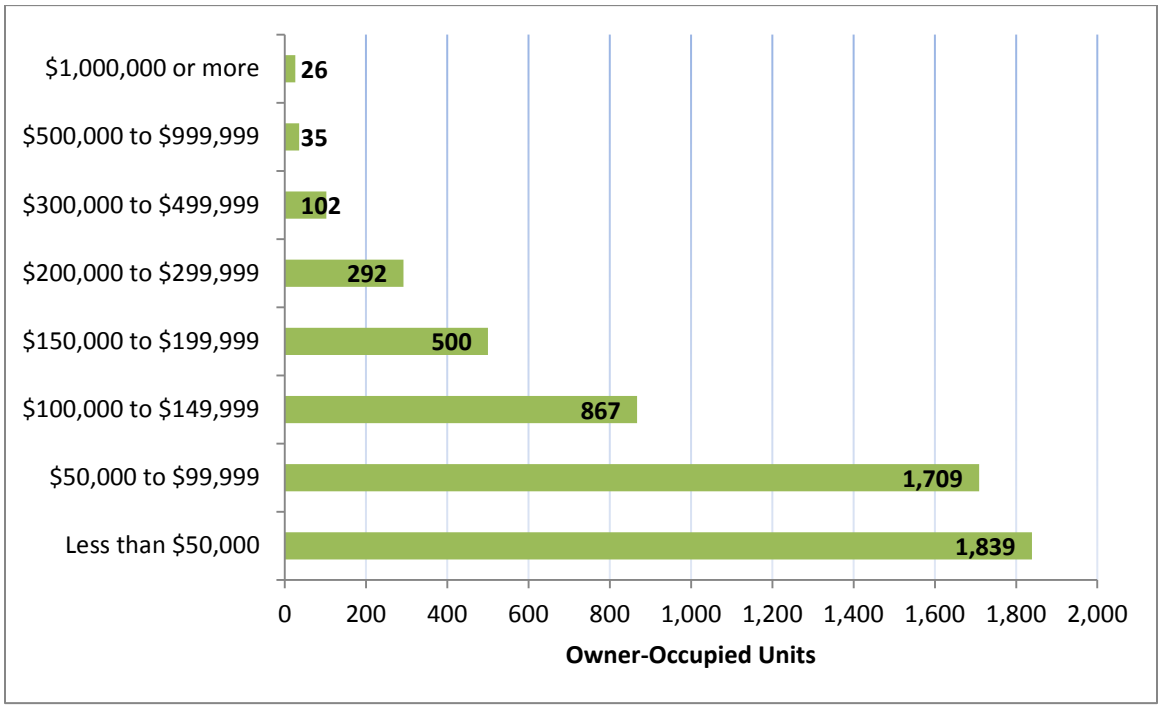
Map 3-5. Major Employers



Housing

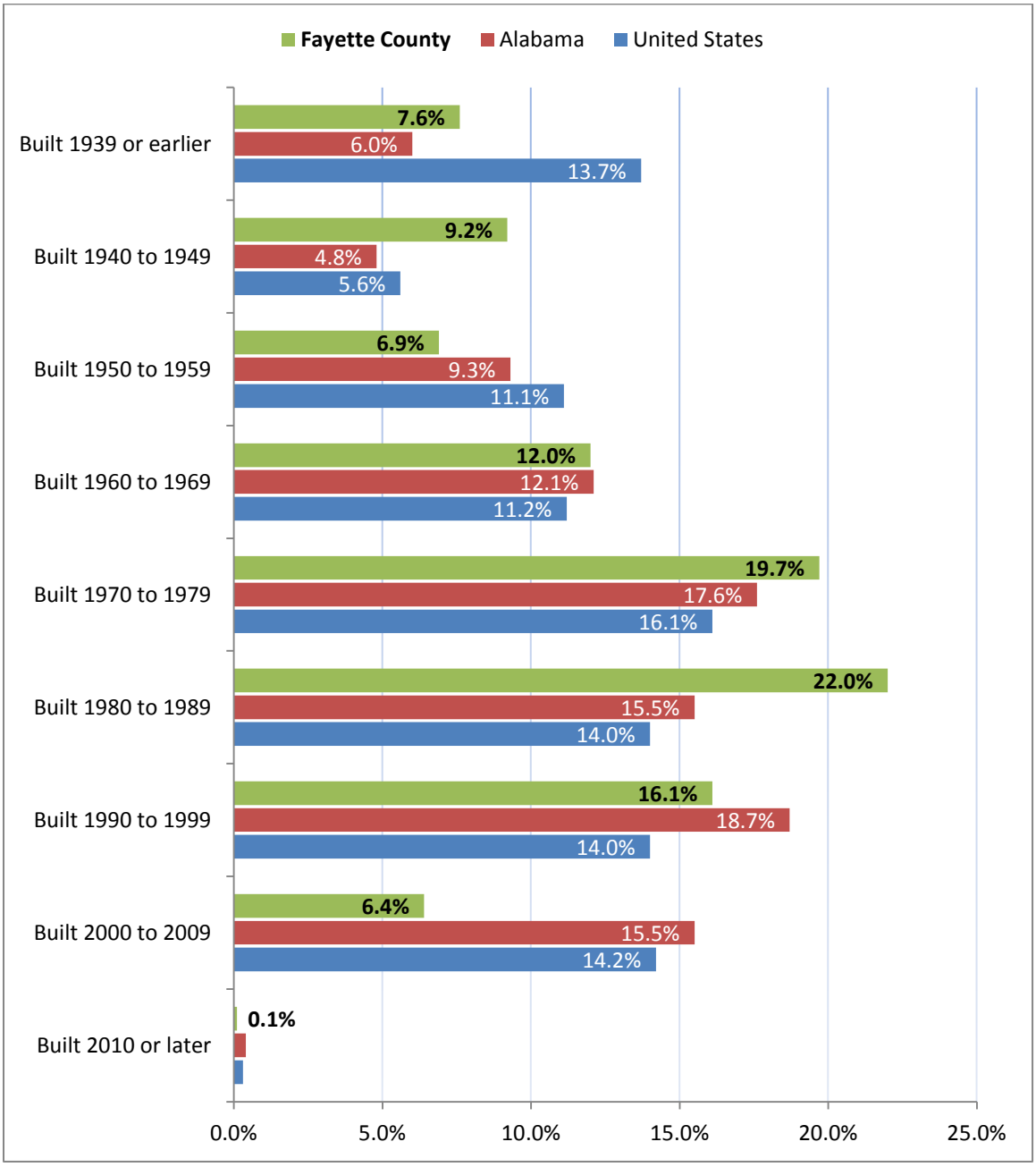
Housing is important when considering mitigation planning. Data on housing are reported from the 2008-2012 5-year estimates of the U.S. Census Bureau's American Community Survey. The median value for a home in Fayette County was $72,600 in 2012. The number of housing units by range of value is shown in Chart 3-4. Chart 3-5 "Housing Stock by Age" indicates that the majority of houses in Fayette County were constructed between 1970 and 1999, comprising more than half of the total percentage of housing (57.8%). This is similar to the age of housing in the State of Alabama and the U.S.

Chart 3-4. Housing Units by Value



Source: U.S. Census Bureau, 2008-2012 American Community Survey 5-year Estimates

Chart 3-5. Housing Stock by Age



Source: U.S. Census Bureau, 2008-2012 American Community Survey 5-year Estimates

3.9 Utilities

Electricity is provided by Alabama Power and gas is available from the Fayette Gas Board and the Berry Gas Board. Water and sewer services are provided by municipal or rural systems, such as Berry Water Department, Fayette City Water,

Fayette County Water Authority, Fayette Waste Water Treatment, and Fayette Water Works Plant. Fayette County operates a solid waste collection program and an inert landfill.

3.10 Media

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

TV and Radio

Fayette County is provided cable or satellite TV by West Alabama TV Cable, Charter Communications, Comcast, DIRECTV LLC, Dish Network, and AT&T. Most of the television stations serving the Fayette County market (ABC 33/40, CBS 42, NBC 13, and Fox 6) feature live Doppler radar and certificated meteorologists. WLDX AM 990 is a local radio station located in Fayette.

Newspapers

The residents of Fayette County have access to the Fayette Times-Record (local newspaper), Tuscaloosa News, and the Birmingham News.

Telephone, Cellular, and Internet Services

Excel Communications, Cellular One of West Arab, Froglevel Network, Wireless Communications, AT&T, and Verizon provide internet and telephone services to the areas in and around Fayette County.

3.11 Transportation

Interstates

US-43 is the major state roadway serving Fayette County, as well as State Highways 159, 129, and 102. See Map 3-6 “Transportation Facilities”.

Railway

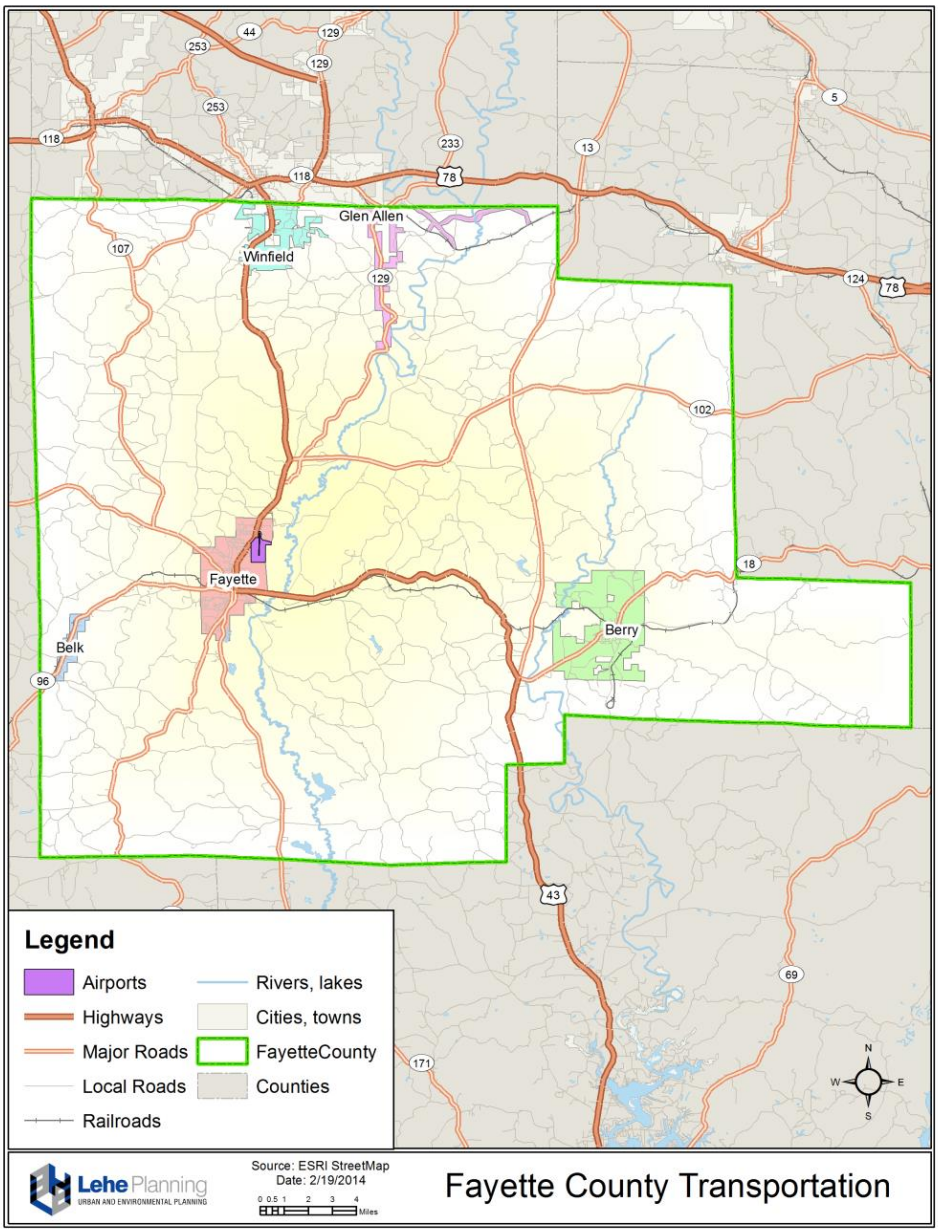
Fayette County is served by two major rail providers: Burlington Northern Santa Fe (BNSF) and Norfolk Southern. Glen Allen Rail has main line access to BNSF lines

for the loading and unloading of coal, petroleum coke, and anthracite. They also provide access to Norfolk Southern for handling bulk liquids and pneumatic solids. See Map 3-6.

Airports

The county is served by one non-commercial airport, Richard Arthur Field, near the City of Fayette. See Map 3-6.

Map 3-6. Transportation Facilities



Chapter 4 - The Planning Process

4.1 Federal Requirements for the Planning Process

This chapter of the Plan addresses the Planning Process requirements of 44 CFR Section 201.6 (b) and (c)(1) and the process for the plan review and update requirements of Section 201.6 (d)(3), as follows:

> "201.6(b) *Planning process.* An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:
>
> (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
>
> (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
>
> (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information. "
>
> "201.6 (c) *Plan content.* The plan shall include the following:
>
> (1) Documentation of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved."

"201.6 (d) *Plan review.*

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

4.2 Summary of Plan Updates

This chapter delineates the planning process that was used in the 2014 update of the hazard mitigation plan. The formatting of this part of the plan is different from the 2009 plan. Also new opportunities were provided for all to participate in the planning process through a new website and Twitter and Facebook accounts. There was more direct involvement and oversight by HMPC and the committee included new members.

4.3 Opportunities for Public Comment on the Plan

The Hazard Mitigation Planning Committee (HMPC) solicited public input into the mitigation plan through public meetings, the local news media, and an internet website fayette.hazardmitigationplan.com. Residents were encouraged to provide input through their representative on the Committee from each jurisdiction and they were invited to attend committee meetings and provide their comments and concerns at those meetings. The plan on the website was continually updated and available for public review and comment throughout the planning process. The public could also send comments to the committee through Twitter, Facebook and email at fayette@hazardmitigationplan.com. The meeting materials such as the PowerPoint presentations and handouts were uploaded to the website and available for public viewing. (Refer to Appendix H "Community Involvement Documentation" for further explanation and documentation.)

HOME ABOUT SERVICES CONTACT

Hazard Mitigation Planning

2014 Fayette County

Multi-Hazard Mitigation Plan

The Fayette County Hazard Mitigation Planning Committee encourages the public, government agencies, colleges and universities, neighboring jurisdictions, businesses and industries, and others concerned with hazard mitigation to become involved in the process of updating the 2014 Fayette County, Alabama, Multi-Hazard Mitigation Plan. Please review the information presented here and contribute your ideas and recommendations for planning to make Fayette County communities safer communities.

What is the 2014 plan update?

The 2014 Plan is a multi-jurisdictional guide for all Fayette County communities. Participating jurisdictions include all unincorporated areas, the Towns of Belk, Berry, Glen Allen, and the City of Fayette. Other participants include the Fayette County School Board and the Fayette County Fire Association. It fulfills the requirements of the Federal Disaster Mitigation Act of 2000 (DMA 2000) as administered by the Alabama Emergency Management Agency (AEMA) and the Federal Emergency Management Agency (FEMA) Region IV.

The planning process began in 2004 with the appointment of the Hazard Mitigation Planning Committee (HMPC) by the EMA Director. The HMPC guided the preparation of the initial 2005 Fayette County Hazard Mitigation Plan plan, which was drafted by the West Alabama Regional Commission (WARC). The plan was subsequently approved by FEMA and adopted by the County Commission and the governing bodies of all participating municipalities. The HMPC reconvened in January 2007 to update the 2004 plan as the 2009 Fayette County Hazard Mitigation Plan with WARC assistance. The 2009 plan was adopted locally and approved by FEMA on October 7, 2009. The HMPC has again reconvened for this 2014 update, which continues the unified approach among all Fayette County communities to guide their ongoing efforts to mitigate vulnerabilities.

The Fayette County Hazard Mitigation Planning Committee

The Hazard Mitigation Planning Committee convenes regularly to oversee the drafting of the 2014 plan update. Meetings are held in the Emergency Operations Center of the Fayette County EMA and are open to the public and all interested agencies. A community meeting will be held during the final drafting stage of the plan to provide additional opportunities for public review and comments. Committee representatives participate in plan exercises and other activities throughout the planning process. In the end, the Hazard Mitigation Planning Committee will approve the final draft plan and recommend its adoption to all participating jurisdictions and agencies.

HMPC Meeting Schedule
Thursday, January 30, 2014 at 1 PM: click here for agenda and slide presentation
Thursday, March 20, 2014 at 1 PM: click here for agenda, slide presentation, and HMPC Hazard Identification and Ratings Exercise
Thursday, May 29, 2014 at 1 PM: click here for agenda, slide presentation, Mitigation Action Program Table handout, HMGP Project Selection Exercise Part 1, and HMGP Project Selection Exercise Part 2
Tuesday, July 22, 2014 at 3 PM: click here for agenda and slide presentation

After the final HMPC meeting the public had the opportunity to attend the Fayette City Council meeting where the plan was presented and a survey form was available for the public to fill out. The public was made aware of the meeting through notices on the local radio stations. A copy of the survey form and a sign in sheet is included in Appendix H.

As required by State law, all participating jurisdictions held a public hearing to receive comments prior to each jurisdiction adopting this Plan by resolution. The Fayette County EMA has copies of the resolutions and public hearing minutes at their office.

4.4 Opportunities for Involvement in the Planning Process

An email was sent to various local and regional agencies with an interest in hazard mitigation, agencies that have the authority to regulate development, and representatives of businesses, academia and other private and non-profit interests notifying them of the draft plan and requesting their input and cooperation. (A copy of the email is included in Appendix H). The GSA of Alabama provided additional information on geohazards that affect Fayette County for the update. Those agencies which received the notice are listed below.

Federal Agencies

- National Weather Service
- USDA Natural Conservation Service – Alabama District
- U.S. Army Corp of Engineers
- Federal Emergency Management Agency

State Agencies

- Alabama Emergency Management Agency
- Alabama Department of Economic and Community Affairs
- Alabama Department of Environmental Management
- Alabama Department of Transportation
- Alabama Forestry Commission
- Geological Survey of Alabama
- Alabama Historical Commission

Regional Agencies

- West Alabama Regional Commission

Neighboring Counties (represented by county EMA directors)

- Lamar County
- Marion County
- Walker County
- Tuscaloosa County
- Pickens County

Academia

- Fayette County School District
- Bevill State Community College

Non-Profits and Other Agencies

- West Alabama Chapter – American Red Cross
- Fayette Medical Center

- Fayette Area Chamber of Commerce

4.5 Review and Incorporation of Applicable Plans and Documents

Fayette County is a very rural county comprised of five jurisdictions with limited capabilities for undertaking mitigation actions. As documented in Appendix B. Community Capabilities, the City of Fayette is the only jurisdiction among the five that has any significant capabilities in the areas of planning and regulatory tools, staffing, and mitigation project experience. It is the only jurisdiction with building codes, subdivision regulations, and zoning, and, like most Alabama communities, does not have an active comprehensive planning program. Its City Engineer is a "jack-of-all trades" and serves as the City's building official, zoning administrator and flood plain manager, among other responsibilities. Consequently, the only applicable City documents reviewed for this plan update were their existing regulatory tools. The review found these tools to be very basic and typical for a small Alabama city. None of the other municipalities have any applicable regulations, documents, or plans in place. The Fayette County government does, however, have some capabilities to coordinate mitigation through its Hazard Mitigation Planning Committee and its Emergency Operations Planning processes.

This mitigation plan update recognizes the limited capabilities of each community to integrate the recommended actions of this plan. Despite these limitations, any future plans, ordinances or regulations, and future planning documents should, to the extent possible, recognize and integrate the findings of this plan. Specific measures for plan integration were taken into consideration in developing the Community Action Programs for each jurisdiction.

4.6 How the Plan was Prepared

The Hazard Mitigation Planning Committee held four committee meetings between January and July 2014. The kick-off meeting was held on January 30, 2014, and was held in the EMA offices of Fayette County. An introduction to hazard mitigation was made to ensure that all the participants understood what hazard mitigation is and to get the most out of the committee's efforts. Examples of past events were provided to illustrate the destructive nature of the different hazards and to show what the plan is trying to address. An explanation of the regulatory authority that addresses the plan and the funding that is impacted through the use of the plan was provided. The need for participation in the planning process was discussed and the new format of the plan was presented. The planning process was mentioned and a review of drafts of chapters 1, 2 and 7 and appendices A and J was conducted.

The second meeting of the HMPC was held on March 20, 2014. The main topics were Chapter 3 and the beginning of Chapter 5. The committee members discussed the community profiles of their area and suggested changes to Chapter 3 which includes the demographics, major employers, transportation and utilities of the

communities and the county. They also reviewed the beginning of Chapter 5 which covers hazard identification and risk. The committee discussed hazards that had occurred over the previous 5 year period; what their impact had been on their different jurisdictions and the possibility of them occurring again. They also reviewed appendices D and E. The Hazard Identification and Ratings exercise was handed out at the end of the meeting for the participants to fill out and return for the next meeting.

On May 29, 2014, the third meeting was held. The second part of Chapter 5, "Vulnerability of Structures Within Each Jurisdiction" was reviewed. This section of the chapter discussed the different type of structures within each community and how much of an economic loss could occur depending on the type and severity of the hazard. It also covered the future land development and the affect it can have on mitigating the effects of a hazard event. Chapter 6, Mitigation Strategies, was also discussed. An explanation of the goals that are to be focused on while choosing strategies was provided along with a brief review of the evaluation of the measures. Appendix B, Capabilities, was reviewed to determine if the data on the capabilities for each jurisdiction was correct. Appendix C was also reviewed. A new exercise to illustrate how to perform project selection once funding becomes available was conducted. See Appendix G for a copy of the exercise.

The final meeting was held on July 22, 2014. During the meeting the HMPC finalized their mitigation measure selection for their jurisdictions. They also reviewed Chapter 4 and Appendices G, H and I. Following the HMPC meeting the EMA director, James Sanders spoke at the Fayette City Council meeting and briefly commented on the plan and invited all in attendance to stay after the meeting and learn more about the plan. A number of the people who attended the council meeting visited with the HMPC members after the meeting to discuss the plan. A survey was provided to the attendees of the Community Meeting in which they could tell the HMPC what hazards they were concerned about and provide additional information about their concerns.

The Lehe Planning team assembled the final draft plan for submission to the Alabama Emergency Management Agency for FEMA review and approval, prior to local adoption. This final approved plan was adopted by resolutions of all participating jurisdictions at public hearings of their governing bodies.

4.7 Who was Involved in the Planning Process

4.7.1 The Hazard Mitigation Planning Committee

The Fayette County Hazard Mitigation Planning Committee (HMPC) included representatives from all the jurisdictions and organizations concerned with hazard

mitigation, guided the development of this plan. The membership of the HMPC and the jurisdictions and organizations represented are listed below:

James Sanders, Fayette County EMA Director
Jason Cowart, Fayette County Department of Human Resources
Marie McClusky, Town of Berry
Tony R. Ellis, Fayette Fire Department and Fire Association
Allen J. Dunavant, Town of Glen Allen
John Ray Gordon, Fayette County Commission
Dewayne Roby, City of Fayette
Wade Shipman, Fayette County Board of Education
Gerald Dedeaux, Town of Berry
Treasa Blake, Fayette County 911
Ronald Stough, Fayette Police Department

The Town of Belk passed a resolution requesting the Fayette County EMA represent them on the HMPC. A copy of the resolution is included in Appendix G.

4.7.2 The Guidelines of the Hazard Mitigation Planning Committee

The Hazard Mitigation Planning Committee had a list of participation guidelines for the Committee to abide by:

1. At least one appointed representative from each participating local government should attend all committee meetings. In the event of extenuating circumstances, the local government may send a non-appointed representative.

2. Each local government should submit requested information to the Fayette County EMA in a timely manner. Local governments should meet timeframes and deadlines established by the committee. In the event of extenuating circumstances, the Hazard Mitigation Planning Committee Chairman may approve late submissions.

3. Committee members should cooperate with the Fayette County EMA during the development and finalization of the Fayette County Hazard Mitigation Plan by providing the best available information necessary to complete the plan.

4. Each participating local government must submit a list of prioritized mitigation actions. The local government must provide an analysis of considered mitigation measures and the method used to prioritize the actions. This analysis should address the cost benefit of the measures. The selected actions must identify the hazard(s) being mitigated.

4.7.3 Preparation of the Plan Update

This 2014 plan update was prepared under the direction of the Hazard Mitigation Planning Committee with the support of the Fayette County EMA. The Fayette County Commission retained the consulting firm of Lehe Planning, LLC to prepare the 2014 update. A professional urban planner, James E. Lehe, AICP, served as Plan Coordinator. A professional planner will continue to provide guidance and support to the Committee with any revisions, amendments, or updates to this Plan.

4.8 How the Public was Involved in the Planning Process

The public was given many opportunities to participate in the plan update. The opportunities ranged from being an active participant during committee meetings to offering comments through the internet and social media.

All Hazard Mitigation Planning Committee meetings were announced and open to the public. Anyone interested in the planning process was welcomed to attend and the meeting dates were posted on the Fayette County Hazard Mitigation Plan Update website at fayette.hazardmitigationplan.com. They were also invited to attend the Fayette City Council meeting following the final HMPC meeting where the plan was presented and a survey form was available for the public to complete.

The public was encouraged to participate via Twitter and Facebook or to email their comments to fayette@hazardmitigationplan.com.

At the end of the planning process, the public was invited to attend public hearings held by each jurisdiction for plan adoption by each of the governing bodies, allowing individuals a final opportunity for public comment.

For more detailed documentation, including the sign-in sheet and survey, and additional discussion of public involvement, see Appendix H “Community Involvement Documentation”.

4.9 The Plan Review and Update Process

The plan review and update process resulted in a comprehensive update of the 2009 plan elements, which was achieved through a process that involved the following tasks, among others:

- Addition of Community Profiles to reflect changed demographics, economic characteristics, and growth and development trends.
- An assessment of local capabilities to carry out mitigation measures.

- An evaluation of the status and effectiveness of Mitigation Actions adopted in the 2009 plan, which was reflected in the 2014 Action Programs for each jurisdiction.
- A reassessment of risks to include detailed research and analysis of hazards affecting the communities.
- A listing of critical facilities and assessment of vulnerabilities.
- The use of the HAZUS – MH reports for floods, earthquakes, and hurricanes.
- An examination of development trends and exposure to risks.
- A review and commitment to support the 2013 State goals for hazard mitigation.
- Identification and analysis of a comprehensive range of mitigation alternatives.
- A prioritization of mitigation actions and projects.
- Creation of community action programs for each jurisdiction that reflect the results of the plan update.

Chapter 5 – Risk Assessment

5.1 Federal Requirements for Risk Assessments

This chapter and the associated appendices addresses the Risk Assessment requirements of 44 CFR Section 201.6 (c) (2), as follows:

> "201.6 (c) (2) A *Risk Assessment* that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include:
>
> (i) A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.
>
> (ii) A description of the jurisdiction's vulnerability to the hazards described in paragraph (c) (2) (i) of this section. This description shall include an overall summary of each hazard and its impact on the community. All plans approved after October 1, 2008 must also address NFIP insured structures repetitively damaged by floods. The plan should describe vulnerability in terms of:
>
> A. The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;
>
> B. An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate;
>
> C. Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

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

5.2 Summary of Plan Updates

The description of hazards in Section 5.3 have been reorganized from the 2009 plan so that lightning and hail fall under the severe storm category; the winter storm category includes freezes; the sinkhole category includes land subsidence; and the dam failures category does not include levees. Each hazard section is organized by a brief introduction, location and potential, extent and intensity, previous occurrences, and probability of future risk. These subsections also include a discussion of hazards that may occur as a result of other hazards.

5.3 Identification and Description of Hazards

5.3.1 Types of Hazards

The hazards affecting each Fayette County jurisdiction are listed in Table 5-1 "Identified Fayette County Hazards." This table also notes several hazards that may occur as consequences of other hazards. For example, hurricanes frequently spawn tornadoes. The 2009 Fayette County Natural Hazards Mitigation Plan includes a similar list of natural hazards, but the 2014 Fayette County Multi-Hazard Mitigation Plan identifies hazards that can occur as consequences of other hazards. Detailed descriptions of these hazards can be found in Appendix D, "Hazard Ratings and Descriptions."

Table 5-1. Identified Fayette County Hazards

Hazards	Associated Hazards	Jurisdictions Affected
Severe Storms	Thunderstorms Hail Lightning High Winds/Straight-line Winds Tornadoes Floods Landslides Wildfires	Fayette County
		Belk
		Berry
		Fayette
		Glen Allen

Hazards	Associated Hazards	Jurisdictions Affected
Tornadoes	High Winds Severe Storms Lightning Hail	Fayette County
		Belk
		Berry
		Fayette
		Glen Allen
Floods	Landslides	Fayette County
		Belk
		Berry
		Fayette
		Glen Allen
Droughts/Heat Waves	Extreme Heat Wildfires Sinkholes	Fayette County
		Belk
		Berry
		Fayette
		Glen Allen
Winter Storms/Freezes	Snow Storms Ice Storms Extreme Cold	Fayette County
		Belk
		Berry
		Fayette
		Glen Allen
Hurricanes	Tropical Storms Tropical Depressions Severe Storms High Winds Floods Tornadoes	Fayette County
		Belk
		Berry
		Fayette
		Glen Allen
		Belk

Hazards	Associated Hazards	Jurisdictions Affected
Sinkholes (Land Subsidence)		Fayette County
		Belk
		Berry
		Fayette
		Glen Allen
Landslides	Mudslides	Fayette County
		Belk
		Berry
		Fayette
		Glen Allen
Earthquakes	Landslides	Fayette County
		Belk
		Berry
		Fayette
		Glen Allen
Wildfires		Fayette County
		Belk
		Berry
		Fayette
		Glen Allen
Dam/Levee Failures	Floods	Fayette County
		Belk
		Berry
		Fayette
		Glen Allen
Manmade and Technological		Fayette County
		Belk
		Berry
		Fayette
		Glen Allen

5.3.2 Sources for Identifying Fayette County Hazards

The planning team used the following sources for identifying hazards in Fayette County:

1. HMPC Hazard Identification and Ratings Exercise. The Hazard Mitigation Planning Committee (HMPC) began the 2014 hazard identification process by reviewing and evaluating the list of hazards identified in the 2009 plan, which is reported in Appendix D "Hazard Ratings and Descriptions."

2. 2013 Alabama State Plan. The 2013 update of the State Plan served as an additional resource for identifying local hazards. The planning team compared the list of all of the hazards identified by the State against the local list of hazards and noted differences between the two lists. Table 5-2 compares the hazards identified in this 2011 plan update to those identified in the 2013 Alabama State Plan.

Table 5-2. Comparison of Identified Fayette County Hazards to 2013 State Plan

Hazards Identified in 2013 Alabama State Plan	Equivalent 2014 Fayette County Identified Hazards	Differences
Floods (storm surge, riverine, flash floods, etc.)	Floods	No storm surge or coastal floods in Fayette County inland location.
High Winds (hurricanes, tornadoes and windstorms)	Tornadoes – High Winds Severe Storms – High Winds Hurricanes – High Winds	High winds included as components of tornadoes, severe storms, and hurricanes in Fayette County plan.
Winter/Ice Storms	Winter Storms/Freezes	Fayette County plan identifies extreme cold as an associated hazard.
Landslides	Landslides	Fayette County plan identifies mudslides as an associated natural hazard.
Sinkholes and Land Subsidence	Sinkholes (Land Subsidence)	No difference.
Earthquakes	Earthquakes	Fayette County plan identifies landslides as an associated natural hazard.
Droughts	Droughts/Heat Waves	Included as a component of droughts/heat waves in Fayette County plan. Fayette County plan identifies sinkholes as a consequence of droughts/heat waves.

Hazards Identified in 2013 Alabama State Plan	Equivalent 2014 Fayette County Identified Hazards	Differences
Hail	Severe Storms – Hail	Included as a component of severe storms in Fayette County plan.
Wildfires	Wildfires	Fayette County plan associates wildfires with droughts/heat waves.
Extreme Temperatures	Droughts/Heat Waves – Extreme Heat Winter Storms/Freezes – Extreme Cold	Included as components of droughts/heat waves and winter storms/freezes in Fayette County plan.
Lightning	Severe Storms – Lightning	Included as a component of severe storms in Fayette County plan.
Dam/Levee Failures	Dam/Levee Failures	Fayette County plan associates floods with dam/levee failures.
Tsunamis	None	Fayette County is an inland location not subject to tsunamis.
Sea Level Rise	None	Fayette County is an inland location not subject to sea level rise.

3. List of Federally-Declared Disasters. Federal disaster declarations affecting Fayette County were an additional source for hazard identification. All declarations that have been issued between 1973 and 2012 are included in the following table.

Table 5-3. Summary of Federally-Declared Disasters 1973-2012

Disaster Number	Disaster Type	Date	Declaration Type*
369	Tornadoes, flooding	3/27/1973	HM
388	Severe storms, flooding	7/3/1973	HM
422	Tornadoes	3/27/1973	PA-ABCDEFG, HM
458	Severe storms, flooding	5/29/1973	HM
464	Severe storms, flooding	4/23/1975	HM
488	Severe storms, tornadoes, flooding	10/2/1975	HM
532	Severe storms, flooding	4/21/1977	HM
3045	Drought	8/16/1977	PA-AB
563	Severe storms, flooding	8/9/1978	HM
578	Severe storms, winds, flooding	4/18/1979	IA, PA-ABCDEFG, IFG, HM
598	Hurricane Frederic	9/13/1979	HM
619	Severe storms, tornadoes, flooding	4/20/1980	HM
638	Severe storms, tornadoes, flooding	4/10/1981	HM
639	Severe storms, flooding	5/14/1981	HM
695	Severe storms, flooding, tornadoes	12/13/1983	HM
742	Hurricane Elena	9/7/1985	HM
848	Severe storms, tornadoes	11/17/1989	HM

856	Flooding, severe storms, tornadoes	2/25/1990	HM
861	Flooding, severe storms, tornadoes	3/21/1990	HM
890	Flooding, severe storms	1/9/1991	HM
3096	Severe snowfall, winter storm	3/15/1993	PA-AB
1013	Winter storm, severe storms, freezing, flooding	3/3/1994	HM
1019	Severe storm, flooding, tornadoes	3/30/1994	HM
1034	Severe storms, flooding, Tropical Storm Alberto	7/8/1994	HM
1047	Severe storms, flooding, tornadoes	4/21/1995	HM
1070	Hurricane Opal	10/4/1995	HM
1104	Severe storms, flooding	4/22/1997	HM
1108	Storms, tornadoes, floods	3/20/1996	HM
1185	Severe storms, high winds, flooding	7/25/1997	HM
1208	Severe storms, flooding	3/9/1998	HM
1214	Severe storms, tornadoes	4/9/1998	HM
1250	Hurricane Georges	9/30/1998	HM
1261	Freezing Rain & Ice Storm	1/15/1999	PA-ABCDEFG, HM
2279	Fayette Fire	9/18/1999	PA-B
1317	Winter Storm	2/18/2000	HM
1322	Severe storms, flooding	3/17/2000	HM
1352	Tornadoes	12/18/2000	HM
1362	Severe storms, flooding	3/5/2001	PA-ABCDEFG
1399	Severe storms, tornadoes	12/7/2001	IA, DH, IFG, SBA
1438	Tropical Storm Isidore	10/9/2002	HM
1442	Severe storms, tornadoes	11/14/2002	DH, IFG, SBA
1549	Hurricane Ivan	9/15/2004	IA, PA-AB, HM
1593	Hurricane Dennis	7/10/2005	HM
1605	Hurricane Katrina	8/29/2005	HM
3237	Hurricane Katrina evacuation	9/10/2005	PA-AB, DFA
1687	Severe storms, tornadoes	3/3/2007	HM
3292	Hurricane Gustav	8/30/2008	SA, PA-B
1789	Hurricane Gustav	9/10/2008	HM
1797	Hurricane Ike	9/26/2008	HM
1835	Severe storms, tornadoes, straight-line winds, flooding	4/28/2009	HM
1836	Severe storms, tornadoes, straight-line winds, flooding	5/8/2009	HM
1842	Severe storms, tornadoes, straight-line winds, flooding	6/3/2009	HM
1866	Tropical Storm Ida	12/22/2009	HM
1870	Severe storms, flooding	12/31/2009	HM
1908	Severe storms, tornadoes, straight-line winds, flooding	5/3/2010	HM
3319	Severe storms, tornadoes, straight-line winds	4/27/2011	PA-B
1971	Severe storms, tornadoes, straight-line winds, flooding	04/28/2011	IA,PA-AB, DFA, HM
4052	Severe storms, tornadoes, straight-line winds, flooding	2/21/2012	HM
4082	Hurricane Isaac	9/21/2012	HM

*** Declaration Type Key**

IA – Individual assistance	A – Debris removal
PA – Public assistance	B – Protective measures
DH – Disaster housing	C – Roads and bridges
CC – Crisis counseling	D – Water control facilities
DFA – Direct federal assistance	E – Public buildings
DUA – Disaster unemployment assistance	F – Public utilities
HM – Hazard mitigation	G – Recreation

IFG – Individual and family grant	SA – Stafford Act
IHP - Individuals and households	403C – Department of Defense
SBA – Small Business Administration	

Source: FEMA, Region IV

4. Other Hazard Identification Sources. Other sources for identifying hazards included the following:
   - Fayette County EMA staff
   - Discussions with individuals serving on the HMPC
   - Local newspapers
   - National Weather Service records
   - NOAA Storm Events Database
   - Extensive internet research

5.4 Hazard Profiles

5.4.1 Severe Storms Profile

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

Primary Effects from thunderstorms in Fayette County would include:

- High Winds, Straight-line Winds;
- Lightning;
- Flooding;
- Hail; and
- Tornadoes.

Hazardous results from significant thunderstorms in Fayette County include:

- High winds that can cause downed trees and electrical lines, resulting in loss of power.
- Severe storms capable of producing intense lightning that poses threats to people and infrastructure, and can ignite fires.
- Heavy rains capabale of producing severe storm water run-off in developed areas, and can cause bodies of water to breach their banks.
- Large hail that can injure people and livestock, and damage crops.

Severe thunderstorms capable of producing tornadoes that destroy anything in

their path, resulting in loss of power, shelter, and potential loss of life.

One of the largest storms occurred February 16, 2001. Fayette County reported numerous trees and power lines blown down throughout the county. A number of the trees fell onto automobiles and homes causing major damage. A doctor's office had its roof torn off in Fayette, and one mobile home was overturned. No injuries were reported. A large "bow echo or derecho," a long-lived and widespread convective windstorm, swept across much of the northern two-thirds of Alabama. The windstorm moved into western Alabama around 1:41 PM and exited the eastern counties around 4:38 PM. Wind gusts were estimated between 60 and 105 mph during the event. These gusts produced extensive wind damage throughout the entire area, similar to F0 and F1 tornado damage. The American Red Cross estimated that at least 2,500 homes throughout the state were damaged or destroyed. Major electrical transmission lines were down in Tuscaloosa and Fayette Counties. Alabama Power estimated that at least 400,000 homes and businesses were initially without power, which is one third of their total customers. According to Alabama Power, this event ranked as the third highest ever for power outages in the state of Alabama.

Location of Potential Severe Storms

Severe storms lack geographic centers and boundaries, therefore cannot be substantively mapped. All areas of Fayette County have equal exposure to severe storms, including thunderstorms, high winds, heavy precipitation, and hail.

Extent and Intensity of Severe Storms

The extent of severe storms depends on severity and duration. A storm's severity is measured by the combination of rainfall, wind-speed, the size of any accompanying hail, and the intensity of lightning. The exact extent of severe storms is not predictable. Severe storms can also result in flooding due to heavy precipitation and wildfires due to lightning and will accompany hurricanes and tornadoes.

Large hail, though very rare, can cause injury or loss of life and major property damages, including crop damages. Normally, however, hail damage is limited to automobiles and minor building damage. Both lightning and high winds have the potential to cause loss of life and considerable property damage. The power of lightning's electrical charge and intense heat can electrocute on contact, split trees, and ignite fires. The most typical threat of high winds is power outages, which usually occurs

when trees fall onto power lines, although they can cause severe damage to buildings and infrastructure. The National Climatic Data Center reports indicate 132 severe storm events from 1996 to 2013, with 20 events experiencing property damage and one storm event experiencing injuries and/or death in Fayette County.

Previous Occurrences of Severe Storms

According to the National Climatic Data Center, 132 severe storms occurred in Fayette County between 1996 and 2013. There was an estimated $1.2 million in total damages. One death and three injuries were reported during these thunderstorm events. Table 5-4 shows the details of thunderstorms for Fayette County during the seventeen-year study period.

Table 5-4. Annual Summary of Severe Storm Events, Fayette County, 1996-2013

Year	Type	Number	Deaths	Injuries	Total Damages
1996	Thunderstorm	5	0	0	$161,000
1996	Hail	2	0	0	$20,000
1997	Thunderstorm	2	0	0	$12,000
1997	Hail	2	0	0	$11,000
1998	Thunderstorm	5	0	0	$83,000
1999	Thunderstorm	2	0	0	$9,000
2000	Thunderstorm	5	0	0	$16,000
2000	Hail	2	0	0	$1,000
2001	Thunderstorm	6	1	3	$332,000
2001	Hail	2	0	0	$0
2002	Thunderstorm	2	0	0	$5,000
2002	Hail	1	0	0	$0
2003	Thunderstorm	3	0	0	$20,000
2003	Hail	2	0	0	$0
2004	Thunderstorm	3	0	0	$76,000
2005	Thunderstorm	4	0	0	$28,000
2005	Hail	2	0	0	$0

Year	Type	Number	Deaths	Injuries	Total Damages
2006	Thunderstorm	10	0	0	$105,000
2006	Hail	4	0	0	$0
2007	Thunderstorm	2	0	0	$11,000
2007	Hail	1	0	0	$0
2007	Lightning	1	0	0	$60,000
2008	Thunderstorm	7	0	0	$35,000
2008	Hail	3	0	0	$0
2009	Thunderstorm	13	0	0	$82,000
2009	Hail	5	0	0	$0
2010	Thunderstorm	4	0	0	$21,500
2010	Hail	2	0	0	$0
2011	Thunderstorm	11	0	0	$73,500
2011	Hail	2	0	0	$0
2011	Precipitation	1	0	0	$0
2012	Thunderstorm	5	0	0	$0
2012	Hail	5	0	0	$0
2013	Thunderstorm	6	0	0	$0
TOTAL		**132**	**1**	**3**	**$1,162,000**
Annual Average		**7.3**	**0**	**0.1**	**$64,556**

Source: National Climatic Data Center, 2013

Probability of Future Severe Storm Events

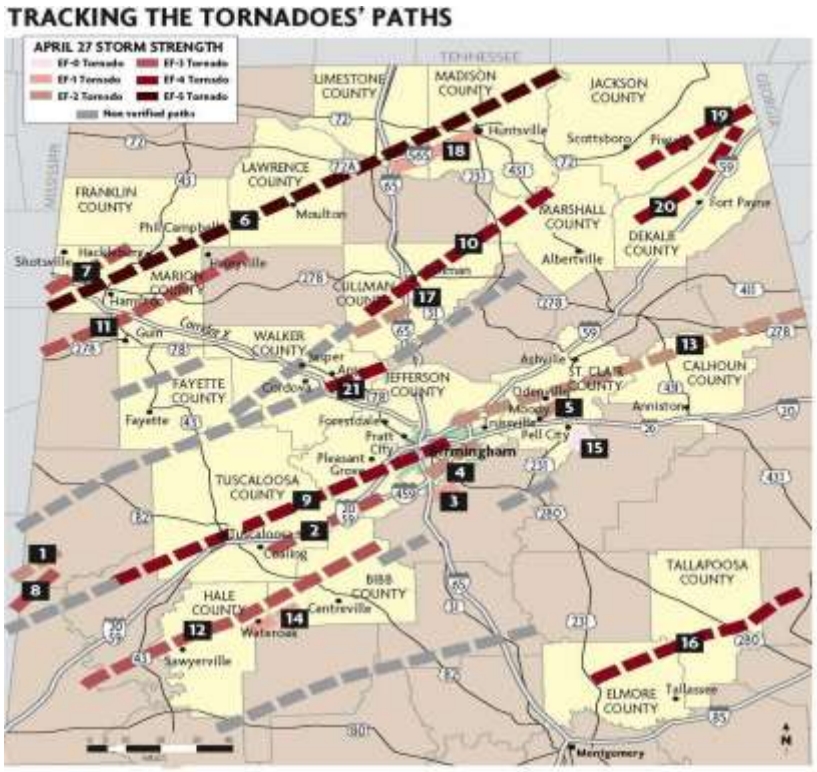
It is certain that severe storms will show annual occurrences throughout all of Fayette County jurisdictions. Although, not every storm will exhibit all the hazards associated with severe storms; high winds are less frequent, and large, damaging hail is rare.

5.4.2 Tornadoes Profile

Source: WLDX, 2012

On April 27th, 2011, at least 28 tornadoes touched down in central Alabama, causing over a thousand injuries and 248 deaths within the state. Map 5-1 shows the paths and intensity of these tornadoes. A tornado with an EF-1 rating touched down in Fayette County in the early morning of April 27, lasting eight minutes and traveling 7.3 miles and causing significant damage to the town of Berry. This tornado injured four people. The second tornado, rated an EF-4, ripped through several counties, including Fayette, causing severe damage. A third tornado, rated EF-3, struck Fayette County destroying trees, a house, and outbuildings. Four people died in Fayette County as a result of these tornadoes. Map 5-1 shows the tornado tracks on April 27, 2011 throughout the state of Alabama.

Map 5-1. Tracks of the Tornadoes' Paths in Alabama on April 27, 2011



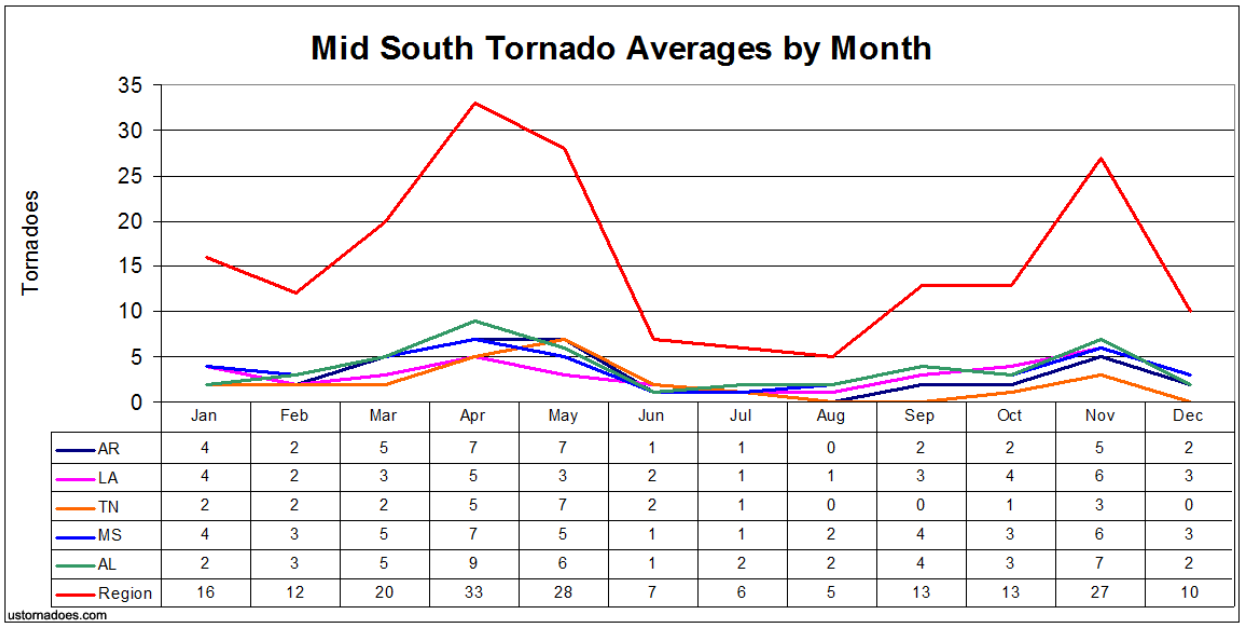
AREA (COUNTY)	Estimated peak winds	INJURIES/ FATALITIES	START TIME	END TIME	DAMAGE PATH	WIDTH
1. **Pickens County**	135 mph	Unknown	4:16 a.m.	*	1 miles	.8 mile
2. **Cooling** (Tuscaloosa/Jefferson)	155 mph	Unknown	5:17 a.m.	5:35 a.m.	18.3 miles	200 yds.
3. **Altadena** (Shelby/Jefferson)	100 mph	Unknown	5:50 a.m.	5:54 a.m.	3.4 miles	100 yards
4. **Cahaba Heights**	120 mph	Unknown	5:54 a.m.	6 a.m.	7.9 miles	200 yds.
5. **Odenville** (St. Clair)	120 mph	Unknown	6:14 a.m.	6:18 a.m.	3.9 miles	200 yds.
6. **Marion/ Franklin (Ala.) Lawrence/Limestone, Madison counties and Franklin,Tenn**	200+ mph	At least 26 fatalities	3:05 p.m.	*	132 miles	1.25 mile
7. **Shetsville** (Marion)	150-160 mph	At least 6 fatalities	3:57 p.m.	4:20 p.m.	19.1 miles	3/4 mile
8. **Sumter/Pickens counties**	140 mph	Unknown	3:57 p.m.	*	9 miles	1/2 mile
9. **Tuscaloosa/Birmingham**	190 mph	+ 1,000 injuries, 65 fatalities	4:43 p.m.	6:14 p.m.	80.5 miles	1.5 miles
10. **Walker/Cullman, Marshall and Morgan counties**	170 mph	Unknown	*	*	54 miles	3/4 mile
11. **Haleyville** (Marion/Winston)	150-160 mph	Unknown	5:10 p.m.	5:51 p.m.	31.8 miles	3/4 mile
12. **Sawyerville/Eoline** (Greene/Hale/Bibb)	145 mph	50 injuries, 7 fatalities	5:30 p.m.	6:55 p.m.	71.3 miles	1 mile
13. **Argo/Shoal Creek Ohatchee/Forney** (Jefferson/St. Clair Calhoun/Etowah/Cherokee)	150-160 mph	Unknown	6:23 p.m.	7:47 p.m.	72 miles	1.25 miles
14. **Wateroak** (Hale/Bibb)	105 mph	Unknown	6:50 p.m.	6:59 p.m.	5.5 miles	150 yards
15. **Pell City**	80 mph	Unknown	7:55 p.m.	7:59 p.m.	2.3 miles	50 yards
16. **Lake Martin** (Elmore/Tallapoosa Chambers counties)	170 mph	Several injuries, 9 fatalities	8:12 p.m.	9:09 p.m.	44.1 miles	1/2 mile
17. **Cullman County**	120 mph	Unknown	*	*	26 miles	1/2 mile
18. **Limestone, Madison counties**	90 mph	Unknown	*	*	3.8 miles	50 yards
19. **Jackson and DeKalb counties**	190 mph	8 deaths; unknown injuries	*	*	28 miles	1/2 mile
20. **DeKalb County**	175 mph	32 deaths; unknown injuries	*	*	33 miles	1/2 mile
21. **Walker/Blount, Cullman counties**	170 mph	7 fatalities	*	*	61 miles	1/4 mile

* Survey incomplete. Source: National Weather Service, Alabama Emergency Management Agency, staff reports. NEWS STAFF

Tornadoes are rotating columns of air extending downward to the ground with recorded winds in excess of 300 miles per hour. They are highly localized events, most of which last for a short period of time and have a limited destruction path. In Alabama the peak tornado season extends from March through early June, with April and May being peak months for tornado activity. Additionally, Alabama experiences a secondary

tornado season from September through November. Chart 5-1 depicts the monthly tornado frequency for the mid-south region.

Chart 5-1. Monthly Tornado Frequency, Mid-South Region



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AR	4	2	5	7	7	1	1	0	2	2	5	2
LA	4	2	3	5	3	2	1	1	3	4	6	3
TN	2	2	2	5	7	2	1	0	0	1	3	0
MS	4	3	5	7	5	1	1	2	4	3	6	3
AL	2	3	5	9	6	1	2	2	4	3	7	2
Region	16	12	20	33	28	7	6	5	13	13	27	10

Source: ustornadoes.com, 2013

Primary effects from tornadoes in Fayette County include:

- Loss of life;
- Property damage;
- Infrastructure destruction and damage; and
- Sanitation and water delivery interruption.

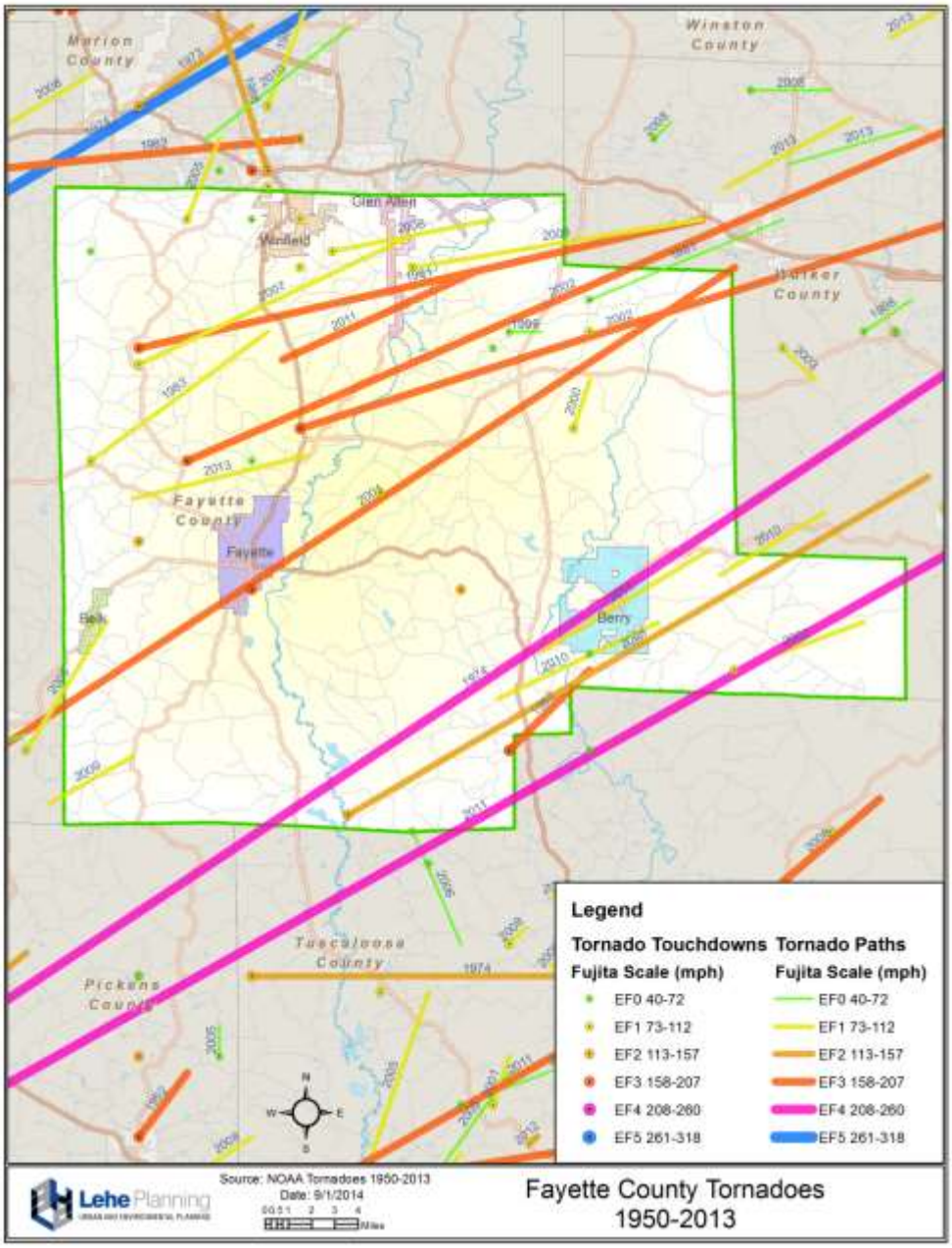
Hazardous results from significant tornadoes in Fayette County include:

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

Location of Potential Tornadoes

All Fayette County locations are equally at risk for tornadoes. Map 5-2 "Fayette County Tornado Locations, 1950-2013," shows tornado tracks from that time period. Although many of the tornadoes appear to go straight through the Town of Berry, all jurisdictions in Fayette County are equally susceptible.

Map 5-2. Fayette County Tornado Locations, 1950-2013



Extent and Intensity of Potential Tornadoes

Tornadoes pose a significant threat to Fayette County communities. The Hazard Mitigation Planning Commission (HMPC) ranked tornadoes second among all hazards in terms of exposure, risk and probability of future occurrences (see Appendix D "Hazard Ratings and Descriptions"). In Fayette County, tornadoes occur almost yearly and can be severe.

Tornadoes are now measured using the new enhanced Fujita Tornado Scale by examining the damage caused by the tornado after it passes over manmade structures and vegetation. The new scale was put into use in February of 2007. Table 5-5 (below) compares the estimated winds in the original F-scale and the operational EF-scale that is currently in use by the National Weather Service. Like the original scale there are six categories from zero to five that represent damage in increasing degrees.

Table 5-5. Comparison of F-Scale to EF-Scale

EF-Scale	Old F-Scale	Typical Damage
EF-0 (65-85 mph)	F0 (65-73 mph)	Light damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF-1 (86-110 mph)	F1 (73-112 mph)	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF-2 (111-135 mph)	F2 (113-157 mph)	Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF-3 (136-165 mph)	F3 (158-206 mph)	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.

EF-Scale	Old F-Scale	Typical Damage
EF-4 (166-200 mph)	F4 (207-260 mph)	Devastating damage. Whole frame houses Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF-5 (>200 mph)	F5 (261-318 mph)	Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yds.); high-rise buildings have significant structural deformation; incredible phenomena will occur.
EF No rating	F6-F12 (319 mph to speed of sound)	Inconceivable damage. Should a tornado with the maximum wind speed in excess of EF-5 occur, the extent and types of damage may not be conceived. A number of missiles such as iceboxes, water

Source: NOAA Storm Prediction Center, 2014

Previous Occurrences of Tornadoes

One of the most damaging tornadoes occurred November 24, 2001. What was the longest tornado of the day began at 10:55 AM about two-tenths of a mile inside Pickens County, about 5.8 miles southwest of Kennedy. The tornado traveled across southeastern Lamar County damaging or destroying a number of structures south and east of Kennedy. The tornado traveled on a northeast track moving into Fayette County at 11:07 am. Traveling northeast it went across the western and northern sections of the City of Fayette, doing serious damage to a number of structures.

From the City of Fayette the tornado traveled across mostly rural areas damaging structures and downing numerous trees and power lines. The tornado, while still strong, was weaker than it had been in southern Lamar County. The tornado crossed into Walker County at 11:41 am, south-southwest of Carbon Hill before ending. Total path length has been estimated at 38.9 miles with a Fujita-scale rating of F3. The tornado began with F0 damage in Pickens County, but strengthened to F3 intensity in southern Lamar County. It weakened some as it moved across Fayette County where the Fujita rating was an F2. The path was 300 yards wide in Lamar County, but estimated to have decreased to about 90 yards wide across much of Fayette County. Two people were killed in a mobile home in Lamar County just southwest of Kennedy, and one person was injured. No deaths or injuries were reported in Pickens, Fayette or Walker counties.

According to the National Climatic Data Center (see Table E-2 in Appendix E "Hazard Profile Data"), Fayette County was the site of 24 tornado events between 1996 and 2013. These events caused 8 injuries, 4 deaths and damages of $3.1 million—an average of 1.9 tornadoes and $256,923 in property damages per year.

Table 5-6. Annual Summary of Tornado Events, Fayette County, 1996-2013

Year	Tornadoes	Deaths	Injuries	Total Damages
1996	0	0	0	$0
1997	0	0	0	$0
1998	0	0	0	$0
1999	1	0	0	$15,000
2000	1	0	1	$85,000
2001	1	0	0	$800,000
2002	3	0	3	$745,000
2003-2004	0	0	0	$0
2005	2	0	0	$70,000
2006	3	0	0	$36,000
2007	1	0	0	$50,000
2008	3	0	0	$135,000
2009	2	0	0	$50,000
2010	2	0	0	$97,000
2011	3	4	4	$1,000,081
2012	0	0	0	$0
2013	1	0	0	$0
TOTAL	**24**	**4**	**8**	**$3,083,081**
AVERAGE	**2.0**	**0.4**	**0.7**	**$256,923**

Source: National Climatic Data Center

Probability of Future Tornado Events

Storm experts point out that tornadoes are unpredictable, which makes future risk difficult to determine. However, if historical trends continue, Fayette County can anticipate two tornadoes per year. According to climatologists, the effect of climate change on tornadic activity is inconclusive. Jeff Trapp, a professor of atmospheric science at Purdue University indicates that, "while it's unclear how the intensity or frequency of tornadoes will increase, there may be more days featuring conditions ripe for twisters. We would see an increase in the number of days that could be favorable for

severe thunderstorm and tornado formation. The tornado season, which varies by region, could be expanded".

5.4.3 Floods Profile

According to the Hazard Mitigation Planning Committee (see Appendix D "Hazard Ratings and Descriptions"), floods are a low to moderate concern to Fayette County communities. NOAA records affirm these public perceptions.

Primary effects from floods in Fayette County could potentially include:

- Loss of life;
- Property damage;
- Crop damage; and
- Dam and levee failure.

Hazardous results from significant flooding in Fayette County include:

- Rising water levels that can quickly sweep people along in its path.
- Rapidly moving water destroying anything in its path, leaving hazardous mold and conditions ideal for insect breeding.
- Periods of standing water killing inadaptable plants, and flowing water removing sediment and nutrients from the soil.
- Breached dams and levees allowing water to flood into the surrounding floodplain, resulting in destruction of crops and property.

Location of Potential Floods

Fayette County is prone to flooding primarily along the Sipsey River and adjoining creeks. Developed municipal areas can experience flooding from storm water runoff during periods of heavy rain. Many county roads are prone to flooding and have experienced washouts during periods of excessive rainfall. The City of Fayette has several downtown streets that have experienced flooding, but extensive drainage system improvements in recent years have provided substantial relief.

The Flood Insurance Rate Maps (FIRMs) of the National Flood Insurance Program (NFIP) indicates Fayette County has extensive areas located in the 100-year flood plain. Map 5-3 "Fayette County Flood Zones" shows that most of the flood zones occur in and around each of the county's jurisdictions, with a significant focus in the City of Fayette.

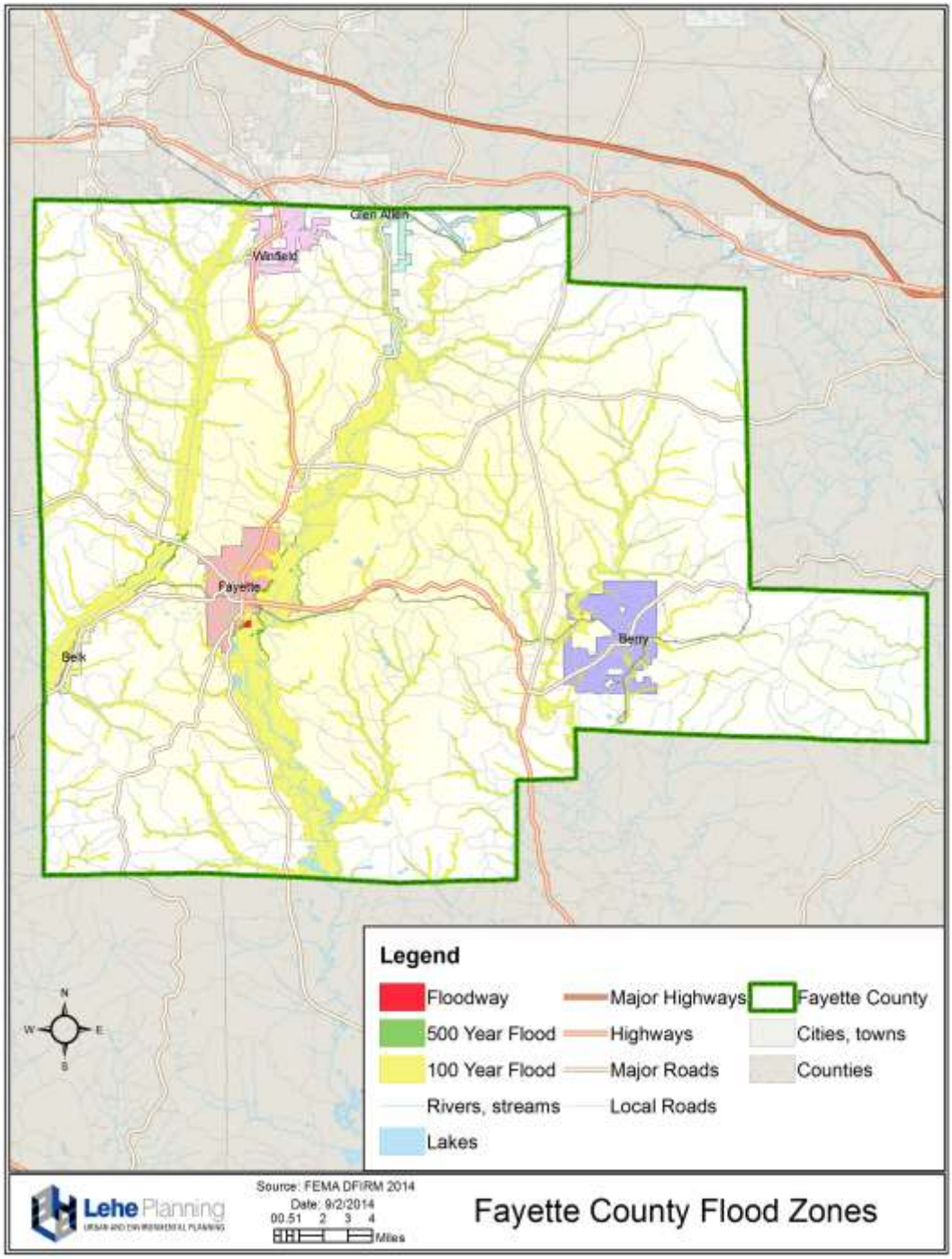
Extent and Intensity of Potential Floods

The extent of each flood varies according to the amount of rainfall, the rate of storm water flow, and the capacity of the receiving channel to discharge flood waters. Fayette County experiences riverine flooding, primarily along local streams and tributaries of the Sipsey River. A FEMA 2010 Flood Insurance Study for Fayette County reported reliable information on the Sipsey River stream gage No. 02455 and Luxapillila Creek stream gage No. 02440. A 24-hour rainfall report by the U.S. Weather Bureau shows the storm of April 3, 1979 producing 8 inches of rainfall, which approximates a 1 percent annual chance of flooding. The 0.2 percent annual chance of flooding on the Sipsey River could lead to overflow of the city's sewage lagoons, damaging residential and commercial buildings.

As noted in Table 5-3. "Summary of Federally-Declared Disasters 1973-2012", flooding events are prominent throughout the years. Map 5-3 "Fayette County Flood Zones" shows that the 100-year flood zone extends into mostly rural, undeveloped areas, running alongside the Towns of Belk and Berry, and the City of Fayette. In addition, Section 5.6.3 for HAZUS-MH Loss Estimates (based on a 100-year flood event) provides an overview of economic losses by jurisdiction and expected building damage. Map 5-32 "Total Residential Building Damage from 100-Year Flood" shows that the downtown Fayette area is most vulnerable to flooding.

Table E-6 in Appendix E records flood events since 1996. These records indicates that property damages resulting from flooding have been relatively minor, with damages averaging about $11,000 per year from 11 minor events since 1996. Most of the flooding resulted in street flooding with occasional temporary closings of some impassable streets. Over the past five years, downtown Fayette has flooded five times, with at least one business reporting some damage in 2009. The most severe flood depths on record are six inches in Downtown Fayette on March 9, 2011. As previously mentioned, the City has constructed drainage improvements to its downtown to mitigate future flood damages.

Map 5-3. Fayette County Flood Zones



Previous Occurrences of Floods

The most recent significant flood events occurred in 2000 and 2009. The April 3, 2000, event flooded numerous roads across Fayette County, and many of these roads

had sections washed out. A few vehicles were pushed off the roads by the high water, but no injuries were reported. One to three inches of rain fell in a short period of time on already saturated ground. Three-day totals were five to seven inches of rain. Also, in January of 2009, 5.5 inches fell in a two-day period, washing out many roads, requiring schools to be closed.

National Climatic Data Center (NCDC) records (see Table E-6 in Appendix E) indicate that 11 floods have occurred in Fayette County from 1996 to 2013. Table 5-7 below shows that a total of $125,000 in damages has occurred, averaging at approximately $11K per year.

Table 5-7. Annual Summary of Flood Events, Fayette County, 1996-2013

Year	Floods	Deaths	Injuries	Total Damage
1996	0	0	0	$0
1997	0	0	0	$0
1998	1	0	0	$35,000
1999	0	0	0	$0
2000	1	0	0	$30,000
2001	0	0	0	$0
2002	0	0	0	$0
2003	0	0	0	$0
2004	2	0	0	$10,000
2005	0	0	0	$0
2006	0	0	0	$0
2007	0	0	0	$0
2008	0	0	0	$0
2009	3	0	0	$20,000
2010	0	0	0	$0
2011	2	0	0	$30,000
2012	1	0	0	$0
2013	1	0	0	$0
TOTAL	**11**	**0**	**0**	**$125,000**
AVERAGE	**1.6**	**0**	**0**	**$11,364**

Source: National Climatic Data Center, 2013

Probability of Future Flood Events

Past trends indicate that regular occurrences of heavy rainfall will continue to create flooding throughout Fayette County. Fayette County should expect approximately one flood event per year, although the severity of damage may vary widely from one

year to the next. The occurrence of 100 and 500-year flood events are unlikely, with damages being minimal. With respect to climate change, an increase in temperature and moisture in the air can lead to heavier precipitation events. However, the causes of flooding are varied, including improper land uses on floodplains, surface paving, quality of flood forecasting, settlement patterns, and warning systems.

5.4.4 Droughts/Heat Waves Profile

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

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

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

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

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

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

Primary effects from droughts and heat waves in Fayette County include:

- Crop and other agricultural damage;
- Water supply shortage - water wells, creeks, rivers, and lakes dry up;
- Forest fires; and
- Heat exhaustion and heat stroke.

Hazardous results from significant droughts and heat waves in Fayette County include:

- Agricultural damage from drought will result in economic losses of crops and livestock.
- A water supply shortage will result in damage to the sewer system, a lack of hydroelectric power, and the necessity for water to be transported into the area.
- Forest fires can devastate vast acreages, burning homes and businesses.
- Heat exhaustion can be debilitating and result in hospitalization. Heat stroke can cause death.

Location of Potential Droughts/Heat Waves

Droughts and heat waves affect all areas and jurisdictions of Fayette County equally. Certain areas, such as agricultural areas and areas with vulnerable water supplies, may be more susceptible to the adverse effects of droughts.

Extent and Intensity of Potential Droughts/Heat Waves

Typically, Fayette County droughts and extreme heat events do not carry reported damages. The injuries on record occurred in 2007 (see Table 5-8), when heat index temperatures rose upwards of 100 degrees plus. The highest recorded temperature of 110 occurred in July 29, 1930.

Previous Occurrences of Droughts/Heat Waves

Alabama experienced the worst drought it has ever seen in 2007. With drought conditions carrying over from 2006 (at a deficit of 12 inches of rain), by late spring of 2007, the drought moved up to a D4 Exceptional Drought intensity, the highest intensity, which is characterized by widespread crop and pasture losses, wildfires, and severe shortages of water resources in reservoirs, streams, and wells. The 2007 drought was not limited to Fayette County; it became widespread, affecting most of the southeastern U.S. West-central Alabama reported a rainfall deficit that reached nearly 30 inches by 2007. Impacts were felt by farmers of all crops, including timber, livestock producers, and the forestry service. Additionally, electricity providers were affected as river and lake levels dropped and some municipalities were forced to place restrictions on water consumption as supplies became strained. State Agriculture Commissioner Ron Sparks referred to this event as the worst drought in 30-40 years.

According to the National Climatic Data Center (NCDC) records, there have been 22 droughts in Fayette County between 1996 and 2012 (Table 5-8). These events are recorded in Table E-9 in Appendix E "Hazard Profile Data." Also, during the same period, Fayette County endured six episodes of extreme heat conditions, which led to ten injuries. These are provided in Table E-10 "Fayette County Extreme Heat Events" in Appendix E.

Table 5-8. Annual Summary of Drought/Extreme Heat Events, Fayette County, 1996-2012

Year	Type	Number	Deaths	Injuries	Total Damages
1996	Extreme Heat	1	0	0	$0
1997-2005	-	0	0	0	$0
2006	Drought	3	0	0	$0
2007	Drought	10	0	0	$0
2007	Extreme Heat	1	0	10	$0
2008	Drought	8	0	0	$0
2009	-	0	0	0	$0
2010	Drought	1	0	0	$0
2011	-	0	0	0	$0
2012	Extreme Heat	4	0	0	$0
TOTAL		**28**	**0**	**10**	**$0**
Annual Average		**4.7**	**0**	**1.7**	**$0**

Source: National Climatic Data Center, 2013

Probability of Future Drought/Heat Wave Events

Fayette County is susceptible to droughts and heat waves. There is not a significant historical record of droughts and heat waves, with the exception of the severe droughts occurring in 2007 and 2008. According to the National Climatic Data Center, "scientists know that atmospheric moisture plays an important role in heat waves. They tend to occur more frequently in dry conditions with low humidity, but heat waves in high humidity can take their toll on the population, livestock, and wildlife".

5.4.5 Winter Storms/Freezes Profile

What most called the worst winter storm in Alabama history struck Friday afternoon, January 27, 2000 and lasted until mid-day Saturday, January 28th. Snow began falling over north Alabama Friday afternoon and spread southward overnight to the Gulf Coast. The storm was caused by a strong and massive low-pressure system that moved from the western Gulf of Mexico into the Florida panhandle, and up the Eastern Seaboard. The heaviest snow began after midnight when northerly winds of 40 to 55 mph became common. Frequent lightning discharges occurred for several hours giving an eerie blue-tinged glow to the atmosphere. By mid-day Saturday, snow had

accumulated to 6 to 12 inches over North Alabama and 2 to 4 inches at the Gulf Coast. A 40-mile-wide band of 12 to 20 inches fell from the Birmingham area northeastward to DeKalb and Cherokee counties, generally following the Appalachian Mountains.

High winds combined with the heavy wet snow felled numerous trees and knocked down power lines over a wide area. Numerous roads became impassable, and hundreds of thousands of homes were without power. It was estimated that 400,000 homes were without electricity, and many remained so for several days. Temperatures fell well into the single digits and teens across much of the state Saturday night. The Birmingham Airport temperature fell to 2 degrees, the coldest January temperature ever recorded. Some roads in north Alabama remained impassable until the following Tuesday. The snow and high winds knocked many radio and television stations off the air, and severely hampered emergency personnel responding to fires, stranded motorists, and those in dire need of medical attention. Many large trees fell onto homes and businesses and numerous awnings and roofs collapsed under the weight of the heavy snow.

There were at least 14 deaths in the state associated with the exposure or stress from the storm. One person froze to death in their home. Six people died because of abandoned or disabled vehicles. Seven people died outside due to exposure. One of the seven died while waiting in a bus shelter for a bus. Most of the damage estimates were at least $50 million. Some estimates ranged between $80 and $100 million.

Primary effects from winter storms in Fayette County include:

- Injury and damage from downed trees and utility lines due to the snow and ice load;
- Widespread impassable roads and bridges;
- Disruption of services and response capabilities; and
- Crop and other agricultural damage.

Hazardous results from winter storms in Fayette County include:

- Loss of power, communications, and fires. Widespread power outages close businesses and impact hospitals, nursing homes, and adult and child care facilities serving special needs populations.
- Loss of transportation affecting emergency response, recovery and supply of food and materials.
- Numerous vehicle accidents which stretch thin the resources of fire, rescue and law enforcement.
- Stranded motorists and the homeless can create a food and housing shortage within the community.
- The widespread nature of winter storms usually creates a strain on

police, fire and medical providers due to the volume of calls for service.

Winter temperatures in Fayette County are generally moderate; the average temperature is 44.6° F and the average winter minimum is 33° F (Table 5-9). Extreme cold temperatures are rare for this area. These rare temperature lows can result in burst plumbing in homes and occasional deaths due to lack of sufficient heating or exposure to cold. The lowest recorded temperature of -5° F occurred in 1949.

Table 5-9. Winter Weather Observations, Fayette County

Category	Observation
Average Winter Temperature	44.6° F
Average Winter Minimum Temperature	33.0° F
Lowest Temperature (January 11, 1949)	-5° F
Average Season Snowfall	1.3 inches
Largest Snowfall (January 6, 1950)	14.2 inches

Source: SE Regional Climate Center/National Climate and Data Center, 2012

Location of Potential Winter Storms/Freezes

All participating jurisdictions are equally likely to experience winter storms/freezes, which may be accompanied by snow, freezing rains, and extreme temperature lows.

Extent and Intensity of Winter Storms/Freezes

Fayette County experiences annual disruptions and some damages due to severe winter storms/freezes. The yearly average snowfall is 1.3 inches, but some events have produced major disruptions and damages. Winter temperatures on average are above freezing, but occasional freezes do occur.

Previous Occurrences of Winter Storms/Freezes

Tables 5-10 “Annual Summary of Winter Storm Damages” and 5-11 “Annual Summary of Extreme Cold Events and Damages” provide a summary of the available historical data from 1996 to 2012 for winter weather events in Fayette County from the National Climatic Data Center (NCDC). There have been nine reported winter storms or extreme cold events since 1996 (Refer to Table E-7 “Fayette County Snow and Ice Events, 1950-2012” and Table E-8 “Fayette County Extreme Cold Events, 1950-2012” in Appendix E).

The most recent recorded snow event was on February 12-13, 2014, bringing up to 3 inches of snow in some areas of Fayette County. This winter storm, as well as the severe winter storm occurring in January 2014 will be discussed in more detail in the

next plan update. In 2011, Fayette County experienced two winter storms, one of which occurred on February 9, bringing 4 inches of snow to the area.

Table 5-10. Annual Summary of Winter Storm Damages, Fayette County, 1996-2012

Year	Winter Storm	Deaths	Injuries	Total Damages
1996	3	0	0	$41,000
1997	0	0	0	$0
1998	1	0	0	$500,000
1999	1	0	0	$0
2000	1	0	0	$10,000
2001-2008	0	0	0	$0
2009	1	0	0	$0
2010	0	0	0	$0
2011	2	0	0	$0
2012	0	0	0	$0
TOTAL	**9**	0	0	**$551,000**
Annual Average	**1.5**	0	0	**$91,833**

Source: National Climatic Data Center, 2013

Table 5-11. Annual Summary of Extreme Cold Events and Damages, 1996-2012

Year	Extreme Cold	Deaths	Injuries	Total Damages
1996	2	0	0	$1,000,000
1997-2002	0	0	0	$0
2003	1	0	0	$0
2004 – 2012	0	0	0	$0
TOTAL	**3**	**0**	**0**	**$1,000,000**

Source: National Climatic Data Center, 2013

Probability of Future Winter Storm/Freeze Events

Winter storms/freezes should continue to affect Fayette County on an annual basis, to some extent. However, the historical records cannot determine future outcomes; frequency of these events is totally unpredictable. The risks associated with the average annual hazard are slight, but the more infrequent, severe winter storms/freezes have potentially severe risks. These severe winter events can cause

major transportation disruptions, lengthy power outages, substantial property damages, and some loss of life.

Map 5-4, which follows, shows the higher relative frequency of winter storms in North Alabama from 1993-2012 and indicates that Fayette County has approximately .59 to 1.11 winter storms per year. With an increase of moisture in the atmosphere, it is probable that precipitation will get heavier and under the right conditions could lead to heavier snowfall.

Map 5-4. Alabama Winter Storm Interval (1993-2012)

Source: State of Alabama Hazard Mitigation Plan, 2013

5.4.6 Hurricanes Profile

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

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

Primary effects of hurricanes include storm surges which are defined as large volumes of ocean water that is driven onshore by a land-falling hurricane or tropical storm. Storm surges can increase mean water level by 15+ feet, if accompanied by tide. This is the leading cause of death in a hurricane. Wind is the secondary cause of death related to hurricanes. Wind continues to cause destruction as the storm travels miles inland and is able to completely destroy towns and structures. The winds near the eye of the storm are the strongest and most intense and can produce tornadoes. Heavy rains during hurricanes can easily exceed 15 to 20 inches and can cause flooding beyond coastal regions.

Secondary effects of hurricanes include tornadoes, which are usually found in the right-front quadrant of a storm or embedded in rain bands. Some hurricanes are capable of producing multiple twisters, but are usually not accompanied by hail or numerous lightning strikes. Tornado production can occur for days after the hurricane makes landfall and can develop at any time of the day or night. Inland flooding is another secondary effect of hurricanes. It is statistically responsible for the greatest number of fatalities over the last 30 years, related to hurricanes. The stronger storms are not necessarily the cause of most flooding; the weaker storms that move slowly across the landscape can deposit large amounts of rain causing significant flooding.

Location of Potential Hurricanes

Fayette County is at a low risk for a direct hit by a hurricane due to its position several hundred miles inland from the Alabama coastline. Although Fayette County does not feel the effects of storm surges, other effects including heavy rain, flooding, and tornadoes often have significant impacts on the County. For example, in 1995 Hurricane Opal made landfall in the Florida Panhandle near Pensacola Beach. Opal then moved across the state of Alabama destroying trees, signs, and power lines with her high winds.

Heavy rain fell quickly across the county causing flooding along the banks of creeks and streams.

Extent and Intensity of Potential Hurricanes

Hurricanes pose the greatest threat to life and property, but tropical depressions and storms can also cause extensive damage and loss of life. Inland hurricanes will dissipate by the time they reach Fayette County, which is located over 230 miles from the closest Gulf Coast landfall location. Should the path pass through or very near Fayette County, the hurricane would be downgraded to a tropical depression with thunderstorms and maximum sustained winds of 38 mph or less. If rated as an inland tropical storm, maximum sustained winds could go as high as 73 mph. Hurricanes can be accompanied by tropical storms, tropical depressions, severe storms, high winds, floods, and even tornadoes. The last recorded hurricane event for Fayette County was a tropical storm in 2005.

Previous Occurrences of Potential Hurricanes

Fayette County has been subject to eleven Federal disaster declarations for hurricanes occurring in Alabama. They include Frederic (#598), Elena (#742), Opal (#1070), Ivan (#1549), Dennis (#1593), Katrina (#1605 & #3237), Gustav (#1789 & #3292), Ike (#1797), and Isaac (#4082). The following discusses a few of the more significant hurricanes occurring in the State of Alabama.

Hurricane Ivan

Hurricane Ivan impacted southern Alabama from September 13-16, 2004, making landfall near Gulf Shores at approximately 10:00 a.m. on the 16th as a Category 3 hurricane (see Map 5-5 for hurricane track). Storm surge values of 10-14 feet along the Alabama and Florida coastlines were the highest observed in over 100 years. As the storm moved inland, high winds and heavy rains wreaked havoc across the state. Heavy rainfall, ranging between five and eight inches, caused minor flooding across various areas of the state. Hurricane force winds were experienced for two to four hours across all inland Alabama counties, causing major damage to trees. These fallen trees were determined to be the primary cause of all inland structural damage attributed to the storm and caused electricity to residents to be interrupted for a week or more. Alabama totaled an estimated $500,000,000 in damage to timber. Most of the soybean and pecan crops were destroyed, while the cotton crop suffered significantly though was not completely ruined.

Map 5-5. Hurricane Ivan Track

Source: National Hurricane Center

Hurricane Dennis

As a Category 3 hurricane, Dennis came ashore at Navarre Beach in the Florida Panhandle around 2:00 p.m. on July 10, 2005. Dennis brought with him sustained wind speed at 135 mph and estimated storm surges of 10-15 feet. The National Weather Service issued an inland hurricane warning, including all seven West Alabama Regional Commission counties, which indicated areas would experience substantial winds in excess of 74 mph with gusts up to 90 mph. The hurricane produced 5-10 inches of rain throughout Alabama. President Bush approved a disaster declaration to provide infrastructure assistance to governments in many counties across Alabama making them eligible to receive federal and state assistance to recover costs of debris removal operations and emergency protective measures. Fayette County was not included in this declaration. The county experienced fallen trees and power lines and assisted 31 evacuees displaced by this hurricane.

Hurricane Katrina

Hurricane Katrina made landfall on August 29, 2005 near Buras, Louisiana as a Category 3 storm and became known not only as the costliest but also as one of the most devastating hurricanes in the history of the United States. It is the deadliest hurricane to strike U.S. coastlines since 1928 and produced damages in excess of $75 billion.

Map 5-6. Hurricane Katrina Track

Katrina had maximum sustained winds estimated to be 120 mph at landfall. As Katrina moved across land, the storm weakened, though it maintained hurricane status past Laurel, Mississippi. Southwestern Alabama experienced hurricane conditions as Katrina moved through neighboring Mississippi.

The effects of Katrina were widespread across Alabama, particularly areas in the western portions of the state. These effects included significant rainfall values totaling between 5 and 6 inches near the Mississippi state line and high winds with gusts recorded to be 68 mph out of Vance, Alabama. The rain and winds resulted in thousands of fallen trees and downed power lines. Power outages lasted from a few days to a week or more and Alabama Power reported Katrina to be the worst storm in their history for statewide damage and power outages. Additionally, minor damage occurred to some structures throughout the area. In Alabama, six tornadoes also stemmed from Katrina, four of which were F-0 and two that were F-1. Peak wind gusts in Fayette County reached 75 miles per hour.

Table 5-12 “Annual Summary of Hurricane Events, 1996-2013” provides a summary of the available historical data for hurricane events in Fayette County from the National Climate and Data Center (NCDC). There have been two reported hurricane or tropical storm events since 1996, totaling $555,000 in damages.

Table 5-12. Annual Summary of Hurricane Events, Fayette County, 1996-2013

Year	Type	Number	Deaths	Injuries	Total Damage
1996-2004	-	0	0	0	$0
2005	Tropical Storm	2	0	0	$555,000
2006-2013	-	0	0	0	$0
TOTAL		**2**	**0**	**0**	**$555,000**

Source: National Climatic Data Center

Probability of Future Hurricane Events

As is the case with most natural hazards, past records are no guarantee of the probability of future hurricane events affecting Fayette County. Given its inland location within about 230 miles of the Gulf Coast, however, Fayette County can continue to expect the remnants of frequent Gulf Coast hurricanes and occasional direct impacts of tropical depressions.

Climate changes have been theorized to affect future hurricane events in that the hurricane season has been expanded in recent years. The typical April through November hurricane season is lasting longer. According to Meteorologist Jeff Masters, this is likely due to warmer seawater and an increase of moisture in the atmosphere. Hurricanes most significant damage is cause by high winds and storm surges. While the effect of climate change on winds is debatable, there is a general consensus that sea levels are rising and water temperatures are increasing as a direct result of global warming.

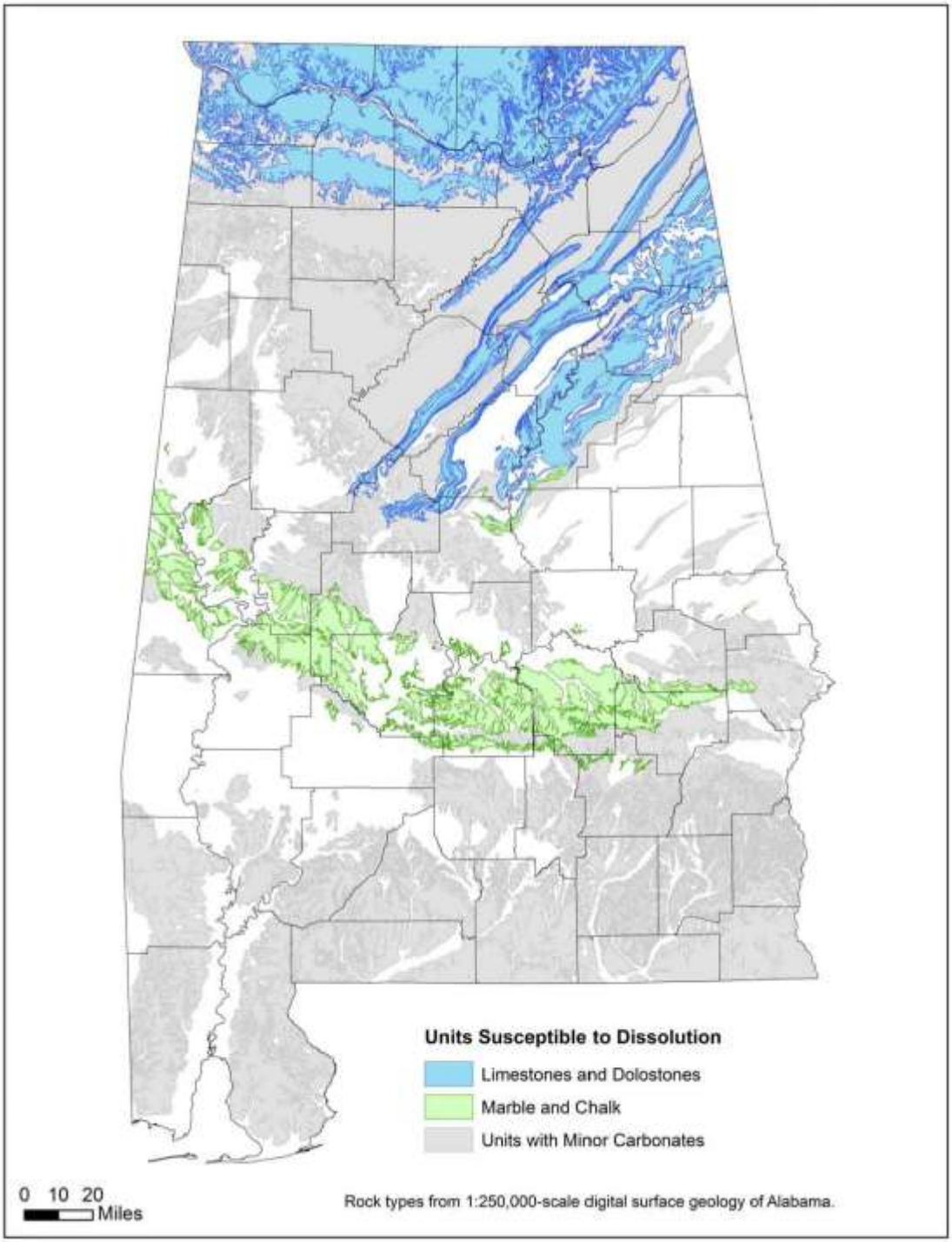
5.4.7 Sinkholes (Land Subsidence) Profile

Sinkholes occur naturally where limestone, salt, or other rocks below the ground surface are dissolved by circulating groundwater. As the rock dissolves, spaces and caverns develop underground. The land usually stays intact until the underground spaces become too large to support the ground at the surface. When the ground loses its support, it will collapse, forming a sinkhole. Sinkholes can be small or so extreme they consume an automobile or a house. Certain activities can increase the potential for sinkholes in these areas, such as: periods of drought, excessive rainfall, well pump-age, and construction.

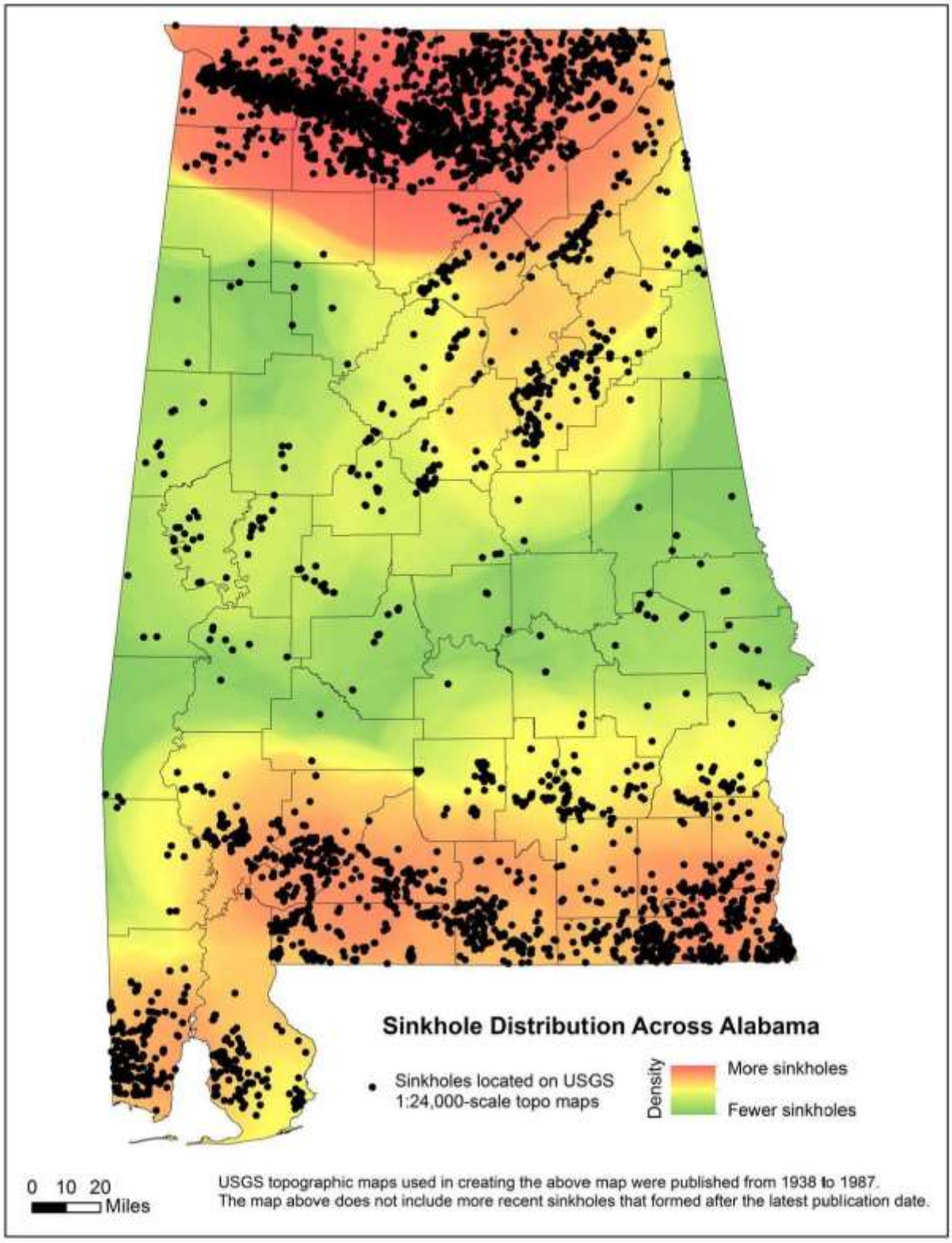
Map 5-7 shows there are units with minor carbonate rocks in Fayette County (Map 5-7), while Map 5-8 shows only a few sinkholes identified from USGS topographic maps. However, there has been extensive coal mining in the eastern half of the county. This area includes the Town of Berry, and the unincorporated areas of Howard, Studdard Crossroads, Cleveland, Bankston, Salem, Boley, Concord, and New Hope. Although there have not been any injuries or property damage due to these mines, their presence,

particularly the older mines in the northwest part of the county, warrants consideration of sinkholes.

Map 5-7. Karst Geography, Alabama



Map 5-8. Alabama Sinkhole Density



Location of Potential Sinkholes

There are no locations of active sinkholes or areas of subsidence in Fayette County.

Extent and Intensity of Potential Sinkholes

The extensive coal mining conducted in the eastern portion of the county indicates that there is potential for sinkholes to occur. Mine subsidence occurs when an area overlying a mine, typically no more than 50 feet of vertical distance between the seam and the surface, collapses into the mine. The extent of the damage is usually localized. A mine sinkhole occurs most often with abandoned mines, since active mines companies are required to perform at a depth sufficient enough to avoid subsidence.

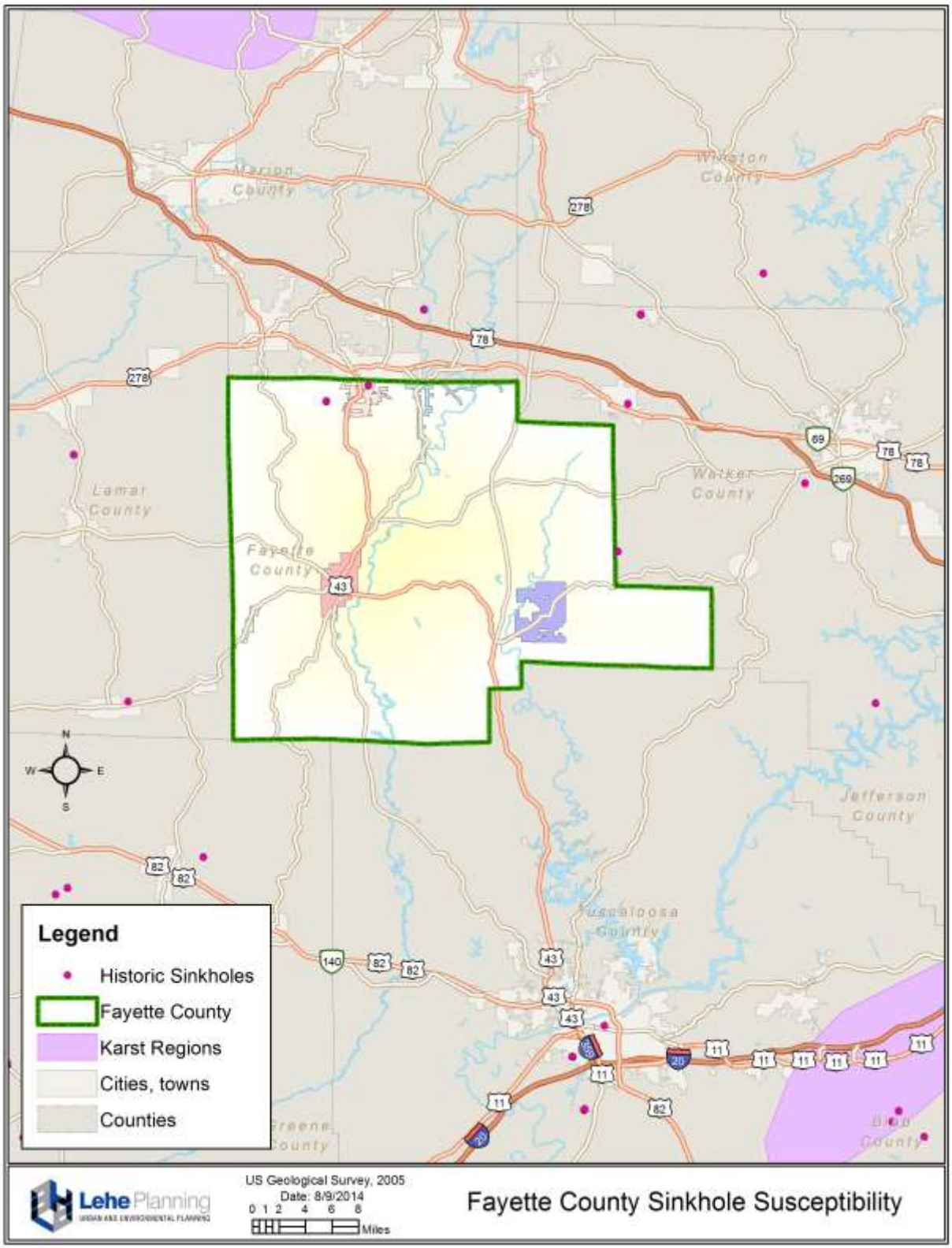
Previous Occurrences of Sinkholes

Data from the Geological Survey of Alabama counts over 6,400 sinkhole events in Alabama; however, there are no reports of sinkholes in Fayette County.

Probability of Future Sinkhole Events

Fayette County lacks a history of sinkholes as well as the geological conditions conducive to sinkholes; therefore, the probability of future naturally-induced sinkhole events is minimal for all jurisdictions. Map 5-9 “Fayette County Sinkhole Susceptibility” shows that there are no Karst regions in Fayette County. However, sinkholes can be triggered by a change in the local environment that affects the soil mass. Ongoing data collection by the Geological Survey of Alabama might reveal unknown conditions that raise the likelihood of sinkholes within Fayette County.

Map 5-9. Fayette County Sinkhole Susceptibility



5.4.8 Landslides Profile

A landslide is defined by the United States Geological Survey as the movement of rock, debris, or earth down a slope. Various natural and man-induced triggers can cause a landslide. Naturally induced landslides occur as a result of weakened rock composition, heavy rain, changes in groundwater levels, and seismic activity. Geologic formations in a given area are key factors when determining landslide susceptibility. The three underlying geologic formations present within the region are the Coker, Gordo, and Tuscaloosa groups. These groups are classified as having low to moderate susceptibility to slope failure.

Primary effects from landslide in Fayette County include:

- Property damage;
- Impassable roads;
- Sediment erosion; and
- Underground infrastructure damage.

Hazardous results from landslides in Fayette County include:

- Force capable of destroying most structures, while carrying anything they come in contact with.
- Material that can damage and destroy roads, as well as block them with debris, resulting in disruption to business and other activity.
- Removed sediment leaving the surrounding area bare and prone to erosion.
- Destruction and burial of underground pipes and wiring from an area, creating a loss of services.

Location of Potential Landslides

In a 1982 study performed by Karen F. Rheams of the United States Geological Survey, Fayette County did not contain any of the 454 reported landslides in the state of Alabama. The report separated the landslides into natural and man-induced events such as those attributed to roadway construction.

The Geologic Survey of Alabama (GSA) has studied the potential for landslides throughout Alabama. Geographic Information System (GIS) data provided by the GSA for this plan, classifies landslide incident and susceptibility shown on Map 5-10 “Fayette County Landslide Areas,” as follows:

1. Landslide susceptibility. Susceptibility is the probable degree of response to landslide triggers, that is, the response to cutting or excavation, loading of slopes, or to unusually high rainfall. Generally, unusually high rainfall or changes in existing conditions can initiate landslide movement in areas where

rocks and soils have experienced numerous landslides in the past. The potential for landslides is classified into one of the following categories:

- High susceptibility – greater than 15% of a given area is susceptible to land sliding;
- Medium susceptibility – 1.5% to 15% of a given area is susceptible to land sliding; or
- Low susceptibility – less than 1.5% of a given area is susceptible to land sliding.
- No susceptibility indicated – susceptibility is the same as or lower than incidence.

2. Landslide incidence. Landslide incidence is the number of landslides that have occurred. These areas are classified according to the percentage of the area affected by landslides, as follows:

- High incidence – greater than 15% of a given area has previously experienced land sliding;
- Medium incidence – 1.5% to 15% of a given area has previously experienced land sliding; or
- Low incidence – less than 1.5% of a given area has previously experienced land sliding.

All jurisdictions in Fayette County, as shown in Map 5-10 "Fayette County Landslide Areas," are rated as having a moderate degree of susceptibility to landslides.

Extent and Intensity of Potential Landslides

According to the GSA data, most of Fayette County is an area of moderate susceptibility to landslides, including Belk, Fayette, and Glen Allen. These same areas, however, have a low incidence. The Town of Berry is in an area of low susceptibility and low incidence. See Map 5-10.

Previous Occurrences of Landslides

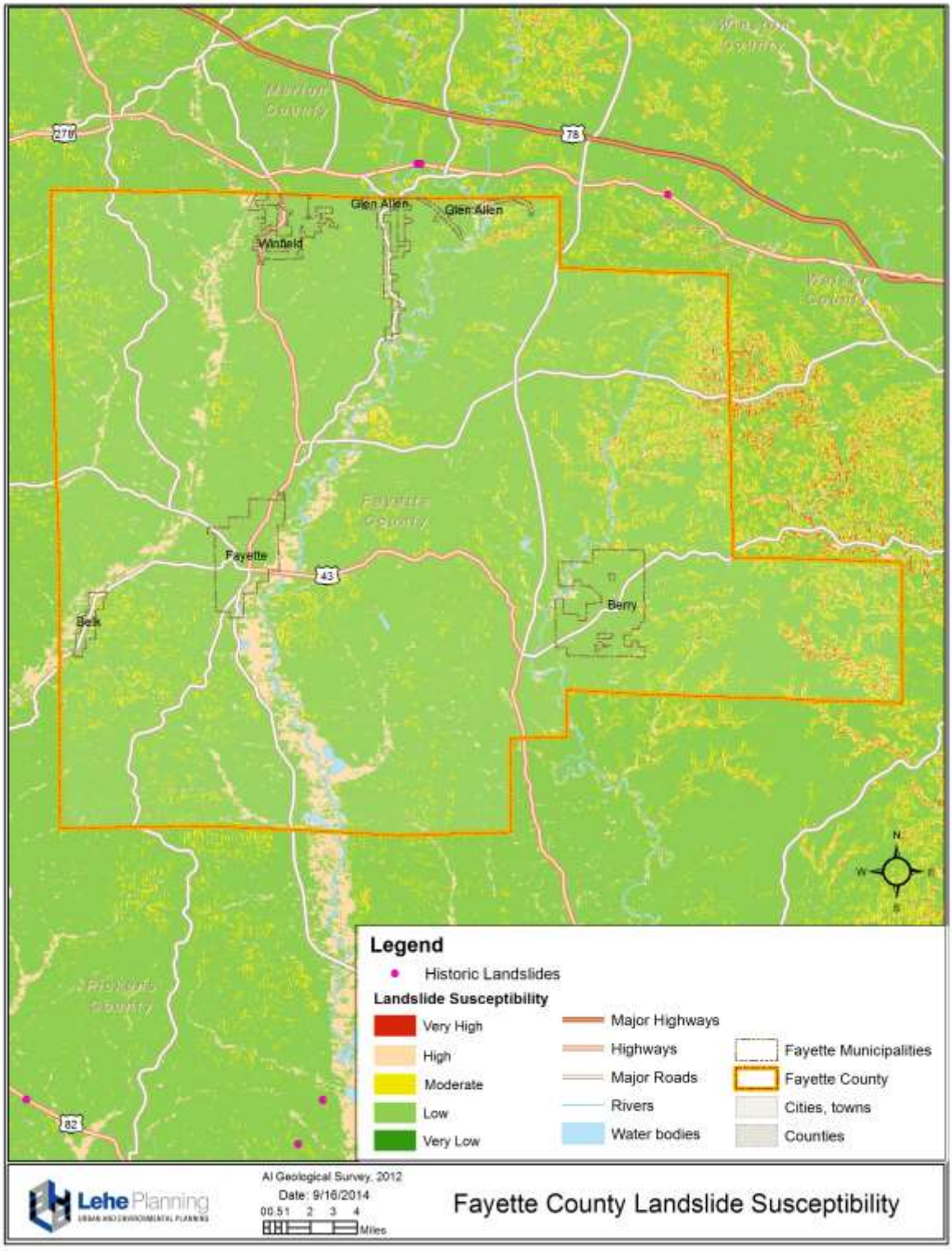
The National Climatic Data Center shows no records of landslides in Fayette County. The planning team was unable to uncover evidence that landsides have occurred in the County. A landslide mapping project of the Geological Survey of Alabama (Rheams, 1982), also did not identify any landslides in the county.

Probability of Future Landslide Events

Based on the lack of evidence of past occurrences, the probability of future landslides is equally unlikely for all jurisdictions in Fayette County. Any future landslides are likely to be the result of construction activities and will be commensurately minor in

scope. The risk of landslides is low compared to other natural hazards in Fayette County.

Map 5-10. Fayette County Landslide Areas



5.4.9 Earthquakes Profile

An earthquake is a sudden slip on a fault and the resulting ground shaking and radiated seismic energy caused by the slip. The hazards associated with earthquakes include anything that can affect the lives of humans including surface faulting, ground shaking, landslides, liquefaction, tectonic deformation, tsunamis, and seiches. Earthquake risk is defined as the probability of damage and loss that would result if an earthquake caused by a particular fault were to occur.

Losses depend on several factors including the nature of building construction, population density, topography and soil conditions, and distance from the epicenter. Interestingly, an earthquake's magnitude can be a poor indicator of hazard impact because the duration of ground shaking, and resulting increased damages, is not factored into the magnitude concept. While collapse of structures can be a great loss, collapse is caused mainly by large magnitude earthquakes, and earthquakes of this size are rare. For any given earthquake, few structures will actually collapse, but most damage will be associated with contents and nonstructural components. Structures built with more flexible materials, such as steel framing, are preferred. Wood frame construction, which constitutes a high percentage of homes in the United States, also tends to flex rather than crack or crumble, but is more susceptible to fire.

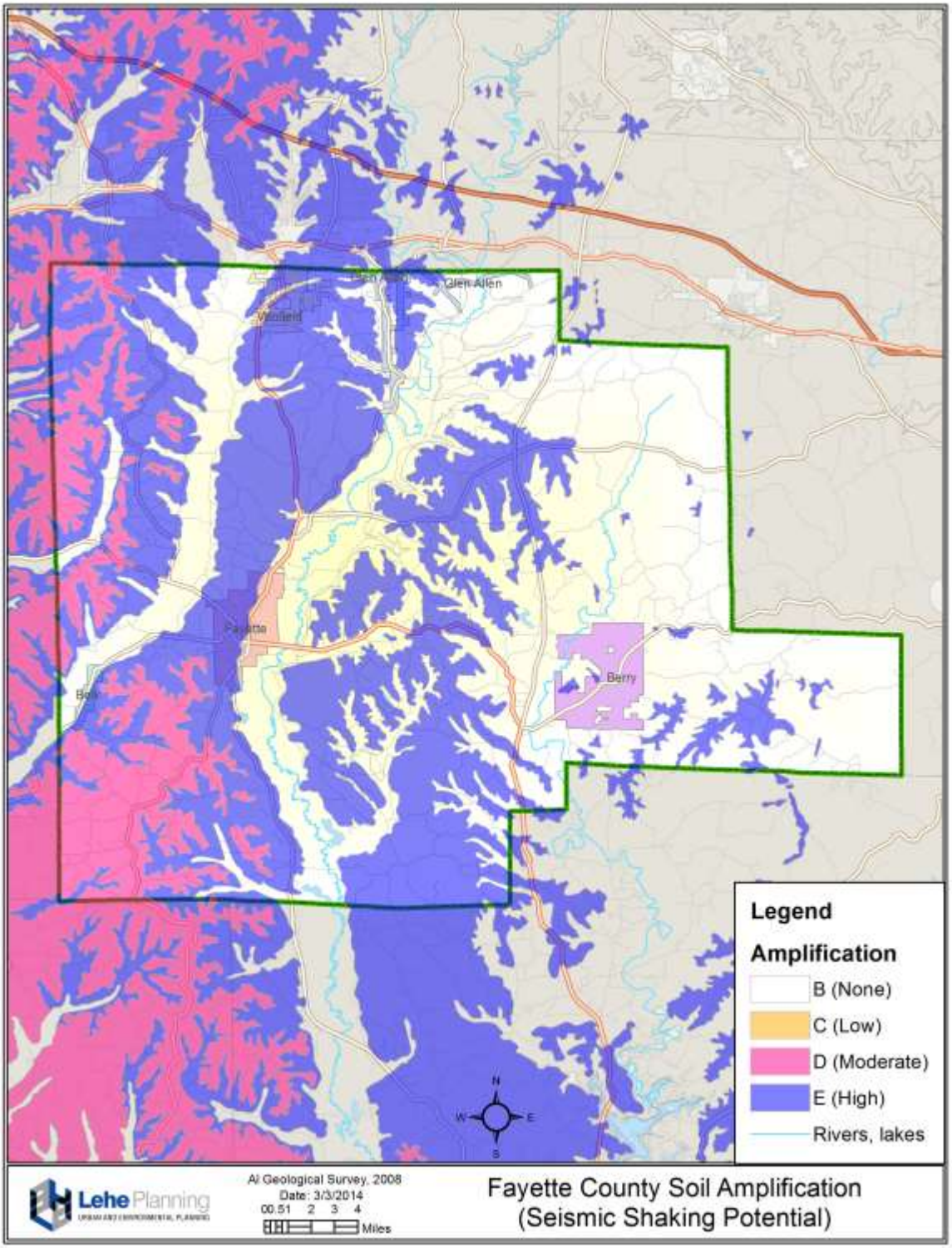
Building codes have historically been utilized to address construction standards to mitigate damages for earthquakes and other hazards. However, older structures, non-compliance, and incomplete knowledge of needed measures remain a problem. In order to reduce losses to lives and property, wider adoption of improved construction methods for both residential and important critical facilities such as hospitals, schools, dams, power, water, and sewer utilities is needed.

Location of Potential Earthquakes

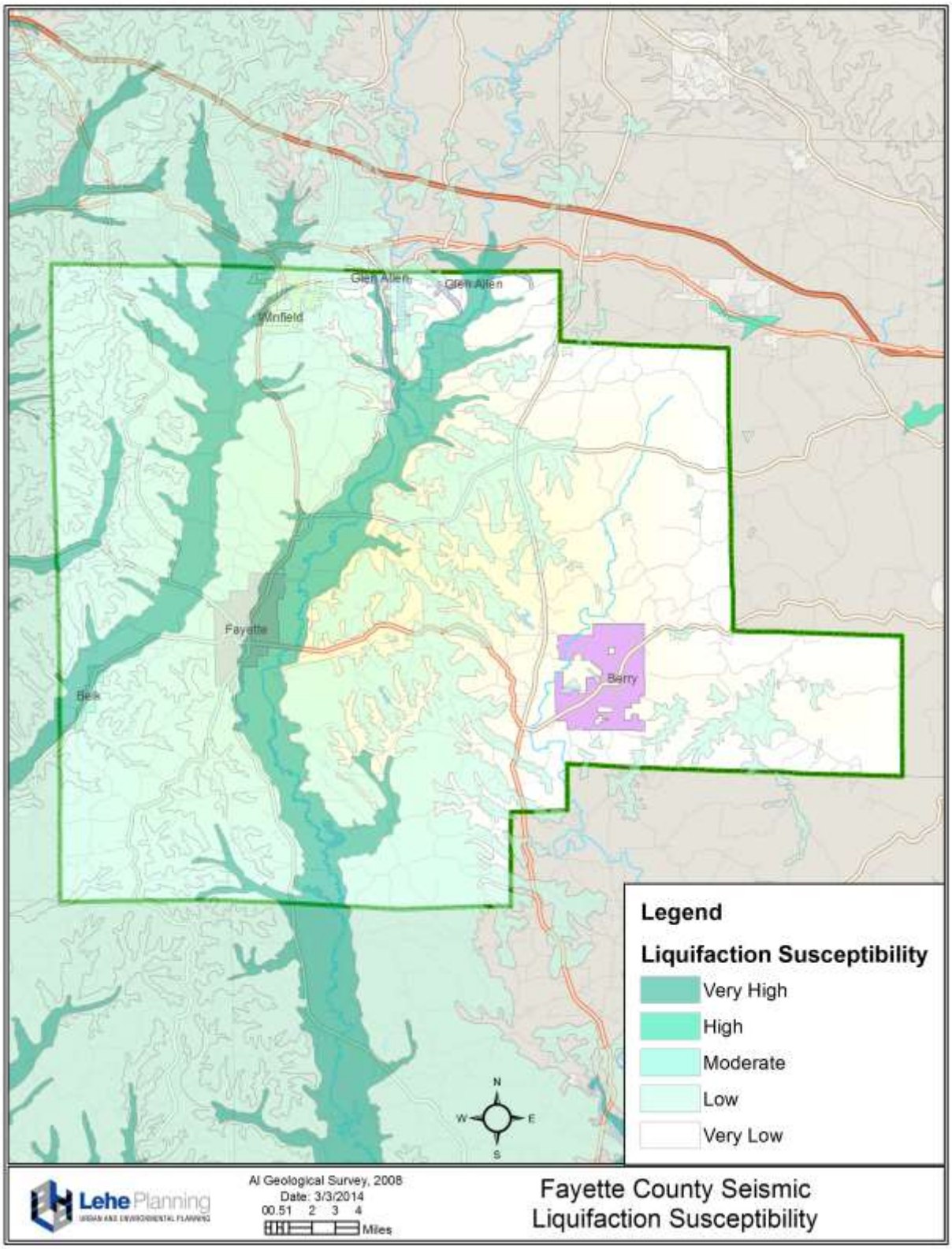
When earthquakes strike a region, it is impossible to predict which area will be affected the most at a sub-county level. All of Fayette County has a moderate degree of susceptibility to earthquakes, but the impacts can vary depending on the magnitude and epicenter location. The following maps (Map 5-11 and 5-12), generated from 2011 GIS data supplied by the Geological Survey of Alabama (GSA), show locational variations in ground shaking and soil liquefaction throughout Fayette County. Damages to buildings and infrastructure depend not only on the energy released during an earthquake but also underlying soils and geological characteristics. For instance, structures built upon loose sediments of riverine floodplains along the Sipsey River and North River is more likely to be damaged than structures built in higher elevations. Liquefaction is most likely to occur in soils with high water content within parts of these flood plains. Given the natural physical features of Fayette County, ground-shaking potential and seismic liquefaction

susceptibility are moderate to high in Belk, Fayette, and Glen Allen; and little to no susceptibility in Berry.

Map 5-11. Fayette County Earthquake Ground Shaking Potential



Map 5-12. Fayette County Earthquake Liquefaction Potential



Extent and Intensity of Potential Earthquakes

According to the Geological Survey of Alabama (GSA), recent seismograph records indicate that earthquakes in the state are frequent but not strong enough to be felt on the land surface. Earthquakes can occur anywhere in Alabama but are unlikely to cause damage. As discussed in the "Earthquakes Description" included in Appendix D, the intensity of shaking from an earthquake is described by the Modified Mercalli Intensity Scale, for which numbers relate to observed effects of shaking on a scale of 1 to 12.

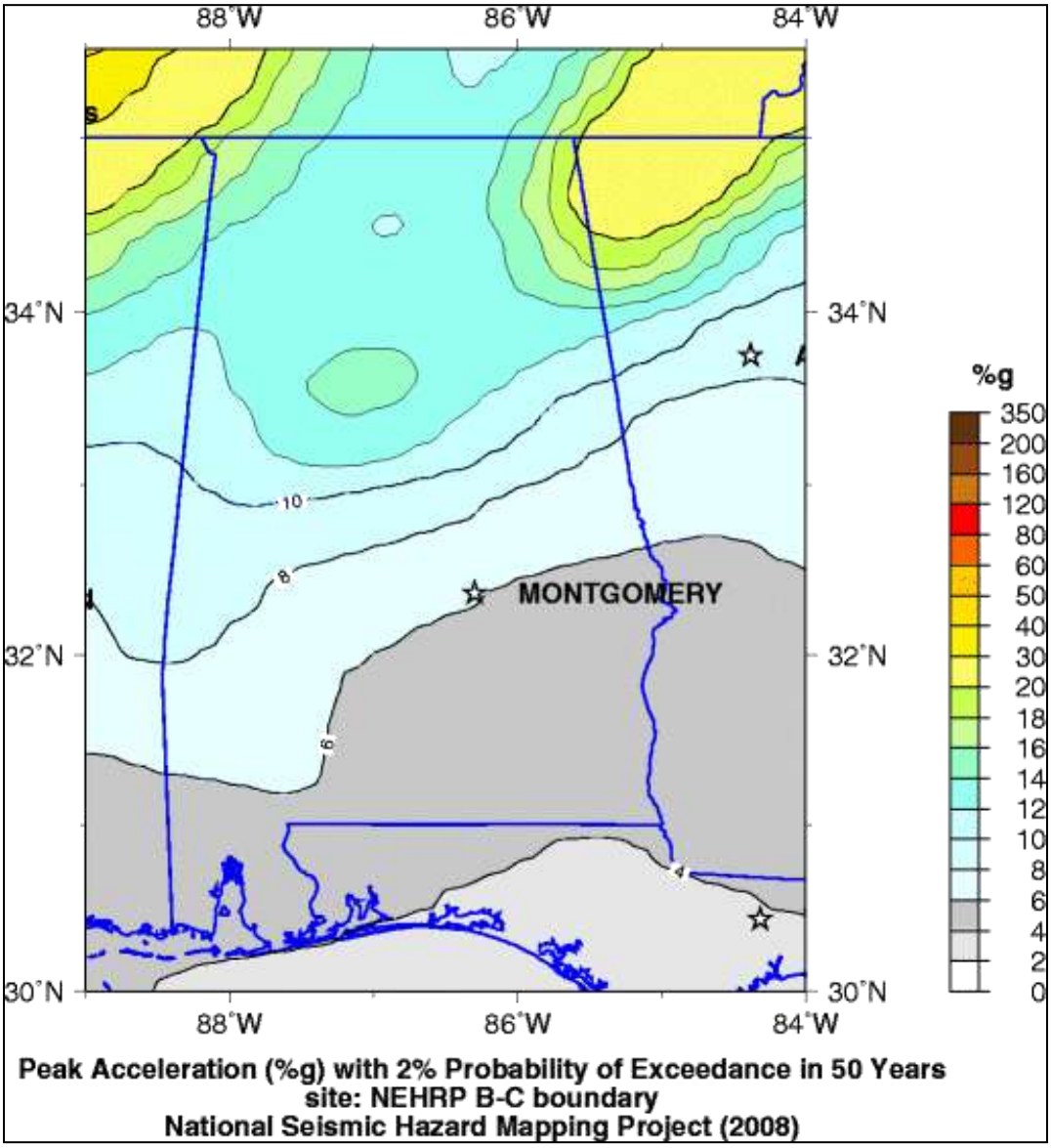
Figure 5-1. Modified Mercalli Intensity Scale

I.	**Not felt.**
II.	**Felt by persons at rest, on upper floors, or favorably placed.**
III.	**Felt indoors. Vibrations like passing of light trucks.**
IV.	**Vibration like passing of heavy trucks.**
V.	**Felt outdoors. Small unstable objects displaced or upset.**
VI.	**Felt by all. Furniture moved. Week plaster/masonry cracks.**
VII.	**Difficult to stand. Damage to masonry and chimneys.**
VIII.	**Partial collapse of masonry. Frame houses moved.**
IX.	**Masonry seriously damaged or destroyed.**
X.	**Many buildings and bridges destroyed.**
XI.	**Rails bent greatly. Pipelines severely damaged.**
XII.	**Damage nearly total.**

Source: Geological Survey of Alabama

The USGS publishes national seismic hazard maps which show likelihood of exceeding a level of earthquake shaking in a given time period. The shaking intensity is measured in peak ground acceleration (PGA) which is acceleration (shaking) of the ground expressed as a percentage of gravity (%g), or as a percentage of 9.8 meters per second squared. Map data from the 2008 national seismic hazard map (Map 5-13) shows Fayette County has only a 2% chance of exceeding shaking above 16%g in the next 50 years.

Map 5-13. State of Alabama Peak Ground Acceleration

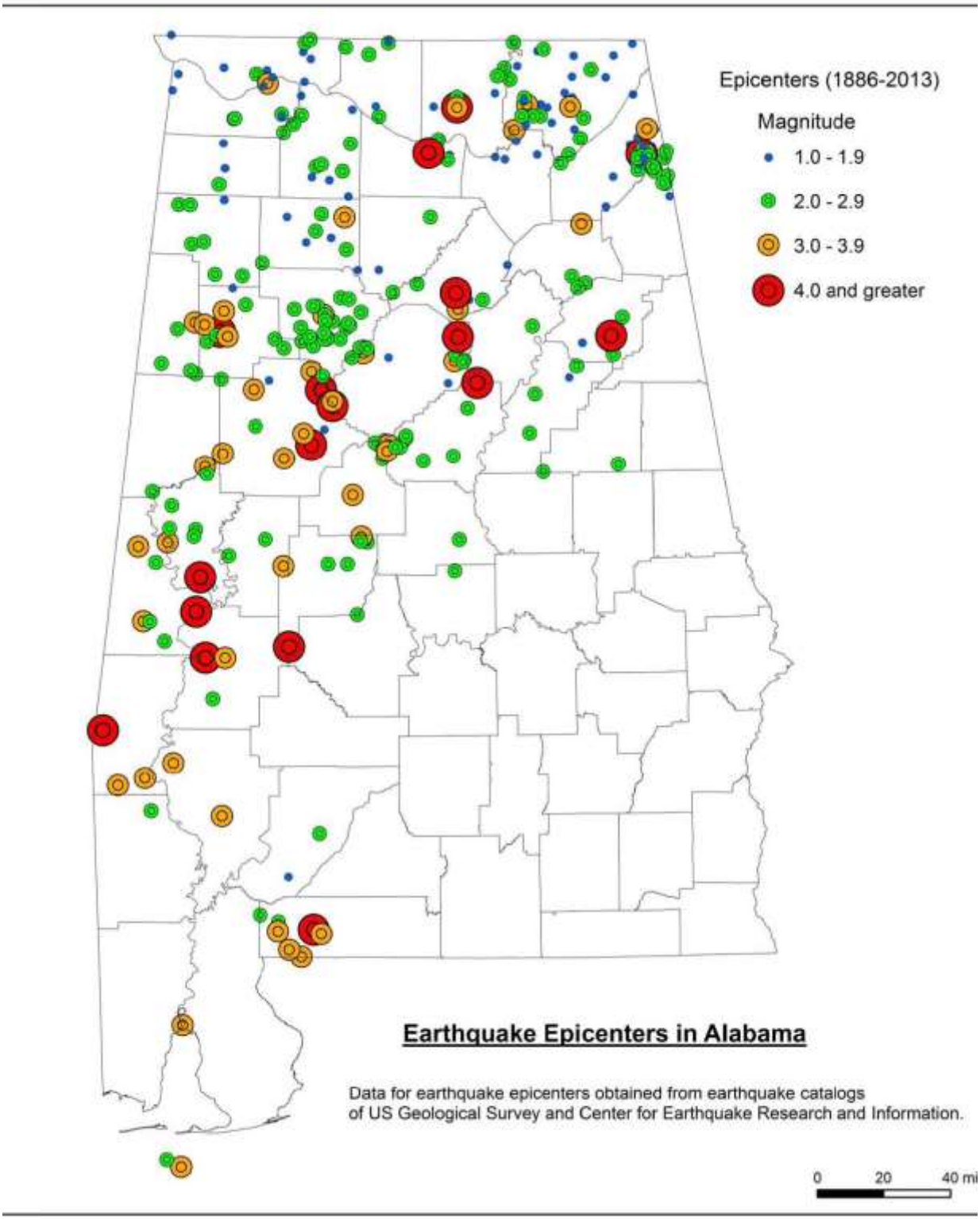


Source: United States Geological Survey, Earthquakes Hazards Program

Previous Occurrences of Earthquakes

Map 5-14 "Alabama Earthquake Locations" shows the location and magnitude of recorded earthquakes since 1886. Three earthquakes were recorded during the ten-year study period; in the City of Fayette in 2000, in Winfield in 2002, and in Covin in 2005. The magnitudes of the quakes ranged from 2.2 to 1.9 respectively and did not cause any damages. On April 29, 2003, Fayette County felt tremors from an earthquake in DeKalb County that registered a 4.9 on the Richter scale. No damage was reported.

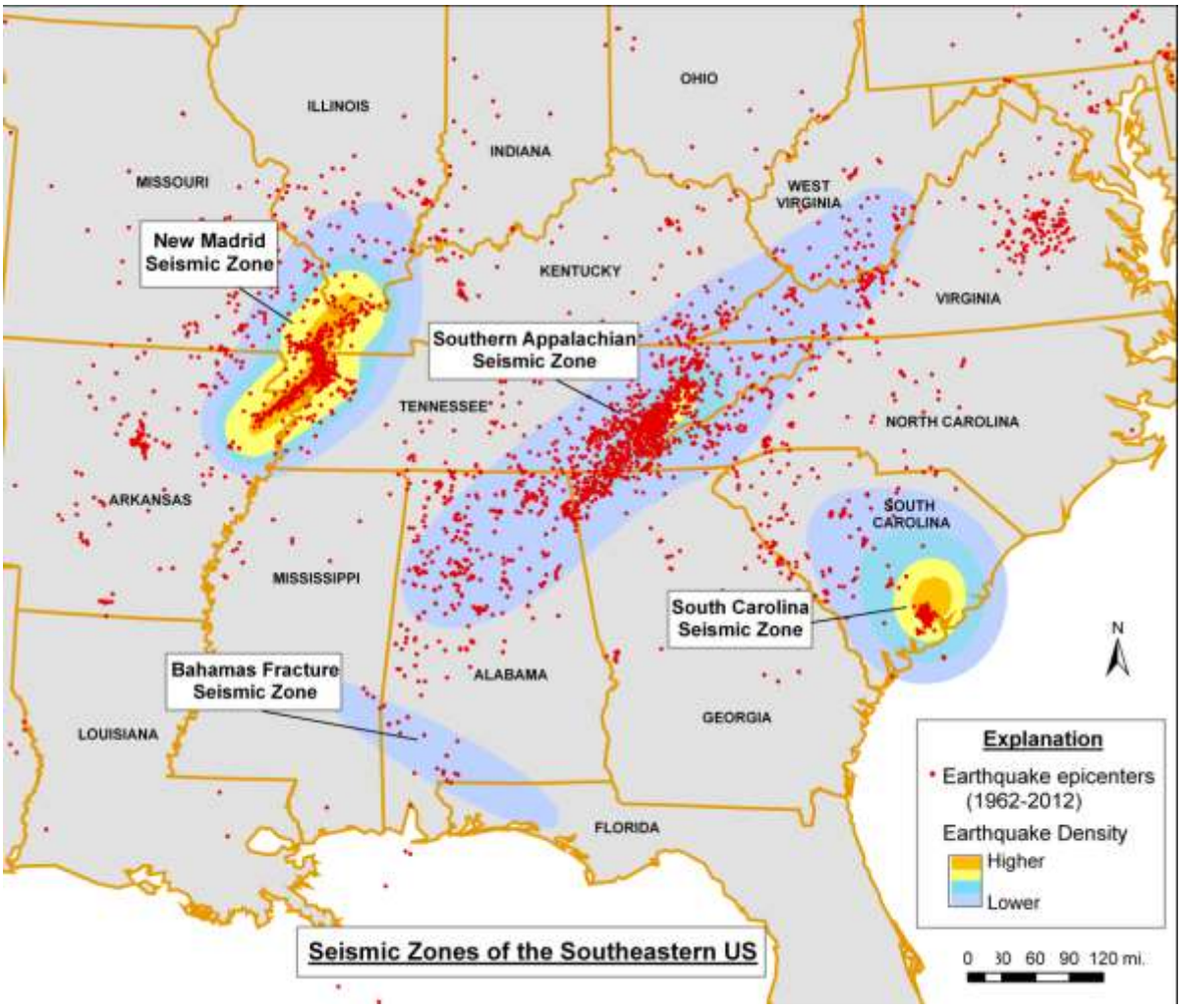
Map 5-14. Alabama Earthquake Locations



Probability of Future Earthquake Events

Because Fayette County is affected by the Southern Appalachian Seismic Zone and the New Madrid Seismic Zone (see Map 5-15), earthquake potential is likely, although potential for significant shaking is very low. Damage could be catastrophic in Fayette County if a powerful earthquake were to occur, because buildings have not been constructed to withstand such a powerful force. The last significant earthquake that affected Alabama was the 1895 New Madrid earthquake. This quake is estimated to have been a 6.8 in magnitude on the Richter scale and was moderately felt throughout the southeastern United States. The New Madrid Seismic Zone runs along the Mississippi River. Geologists agree that another major earthquake along the New Madrid Seismic Zone could cause chimneys to fall, glass to break, and walls to crack in Fayette County.

Map 5-15. Seismic Zones in Southeastern United States



Source: Geological Survey of Alabama

5.4.10 Wildfires Profile

Wildfires are responsible for burning thousands of acres of land across the United States each year. These fires are uncontrolled and in dry conditions can spread rapidly through the surrounding vegetation and in some cases structures. Wildfires are large, fast moving, disastrous fires that occur in the wilderness or rural areas. Fayette County is prone to wild/forest fires especially during times of drought. Fayette County has a total of 333,600 acres of forestland.

Primary effects from a wildfire in Fayette County include:

- Loss of property;
- Loss of livestock;
- Destruction of wilderness; and
- Crop destruction.

Hazardous results from a significant wildfire in Fayette County include:

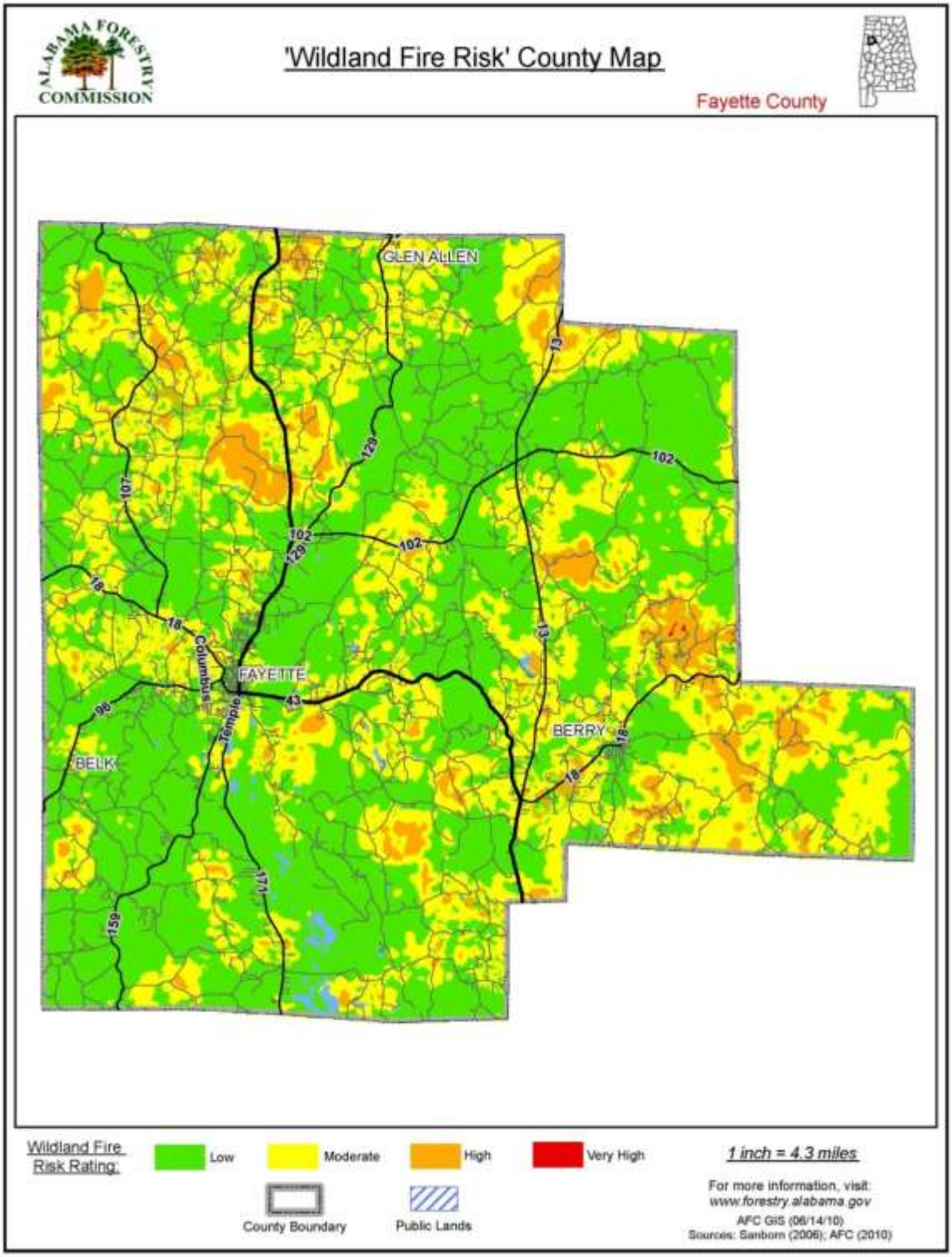
- Widespread fire destroying everything flammable, leaving people homeless and businesses destroyed.
- Inability of fenced- in livestock to escape the path of a wildfire, potentially causing death by smoke inhalation.
- Possible destruction of entire forest due to extremely hot fires.
- Loss of an entire year's crop through burning of all vegetation.

Non-permitted burns are a major issue in relation to wildfires. These burns tend to rage out of control, leading to damaging fires. Standard land management practices call for prescribed burns, thinning, mowing and the use of herbicides to reduce dangerous concentrations of underbrush vegetation, which in return, helps reduce the fuels available for wildfires and aids in the development of healthy habitats and regeneration of species.

Location of Potential Wildfires

The National Forest Service (NFS) maintains data nationwide and produces various maps and forecasts daily under the Wildland Fire Assessment System (WFAS). A review of this data showed Fayette County has between a 5-10 percent probability of a fire occurring because of a lightning strike. The probability of ignition by lightning depends mainly on fuel moisture. Fuel Model Maps help to determine susceptibility of vegetative cover to wildfires. Fayette County is covered by Fuel Models A and C. Areas covered by these models consist of light fuel vegetation, such as herbaceous plants and round woods that are less than one-quarter of an inch. Map 5-16 "Fayette County Wildfire Risk," denotes risk levels for wildfires by area.

Map 5-16. Fayette County Wildfire Risk



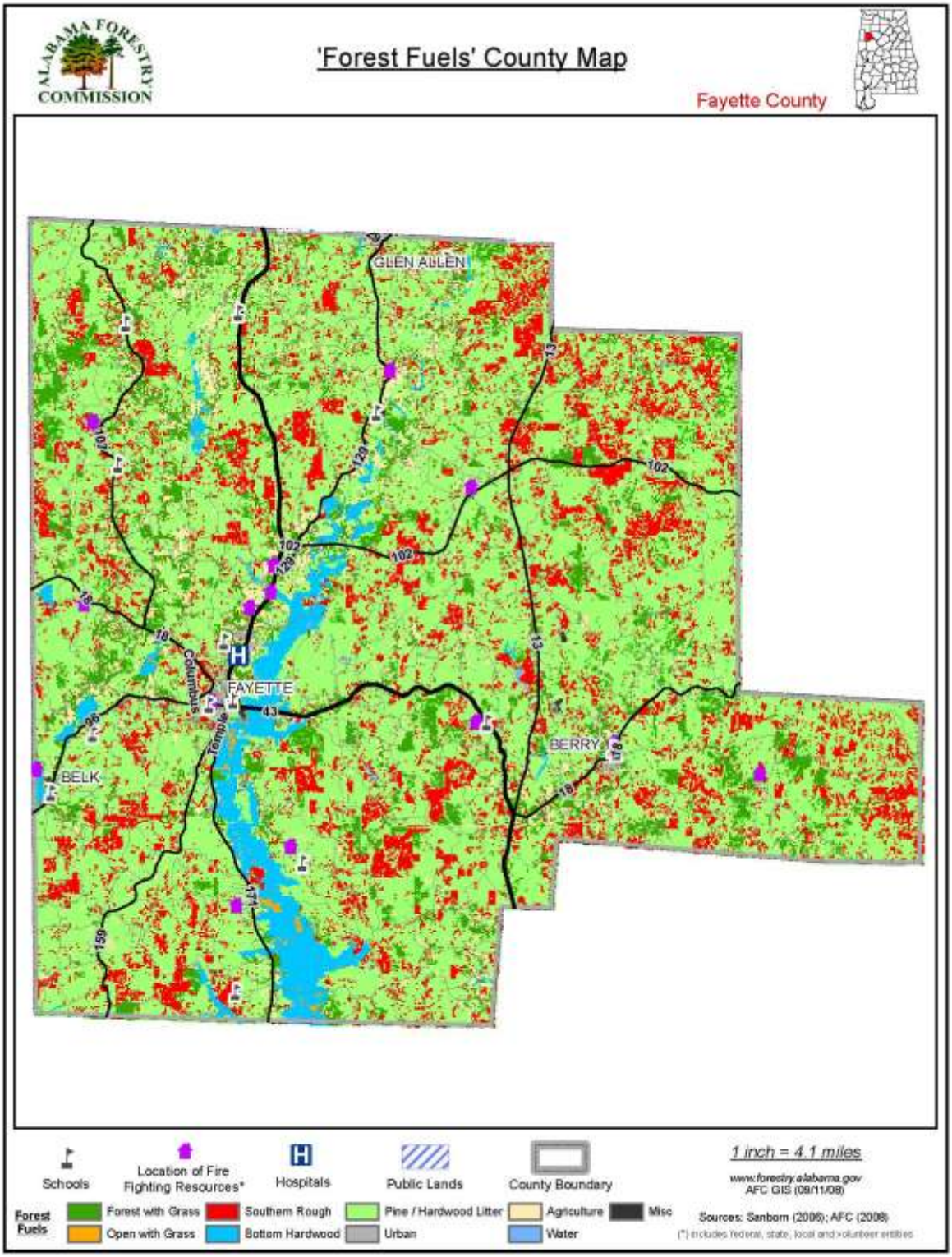
Extent and Intensity of Potential Wildfires

Fayette County has multiple fuel sources, as shown on Map 5-17 "Fayette County Forest Fuels," and is prone to drought and thunderstorms which increase the potential severity of wildfires significantly. Weather conditions, given the high frequency of severe storms with lightning and periodic severe drought conditions, can exacerbate wildfires.

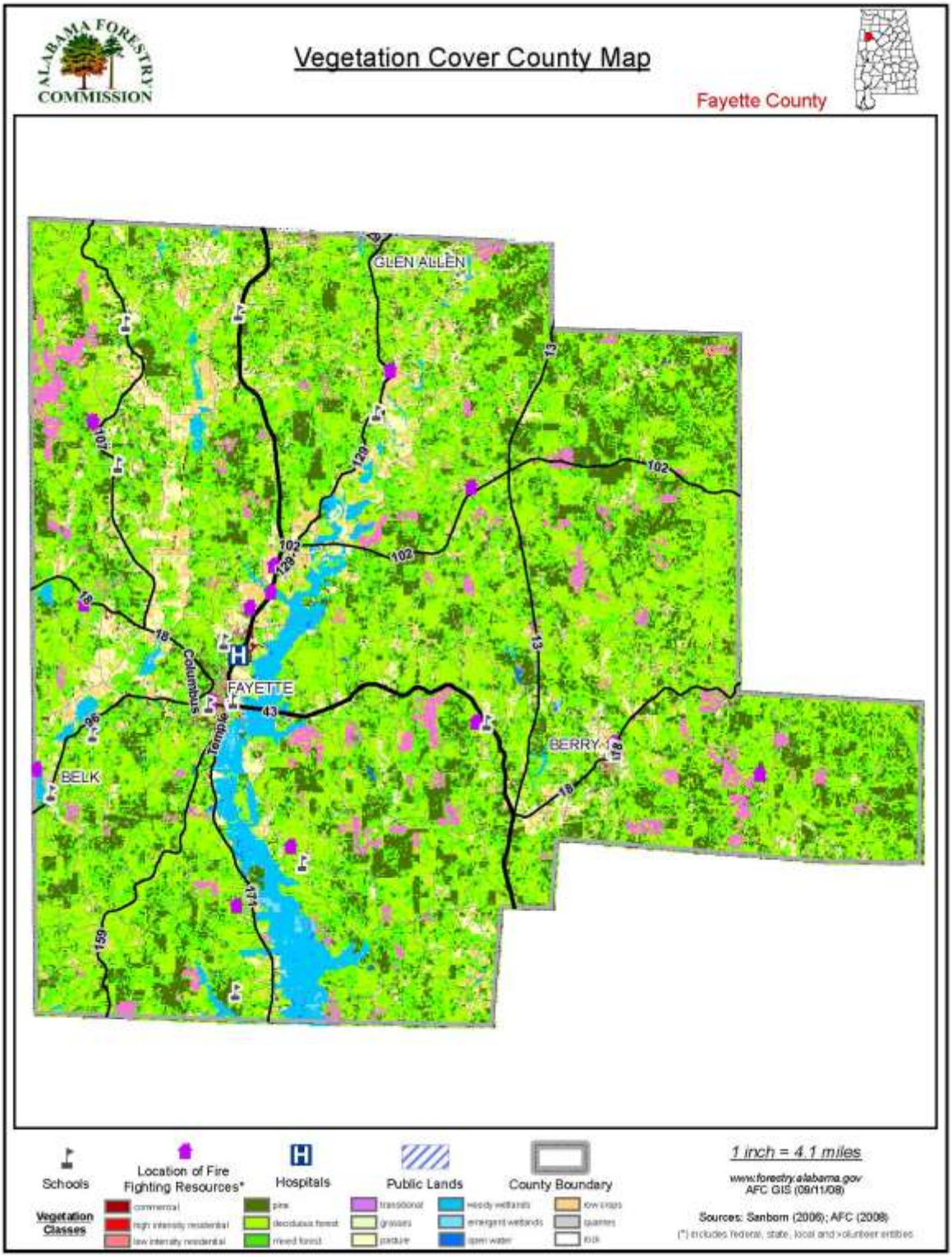
The weather is a natural contributor to wildfire occurrences. Extreme dry weather creates the perfect conditions for woodlands ready to spread fire rapidly. Droughts increase the inflammability of vegetation and pose greater difficulty in suppressing fires. Map 5-18 shows the vegetation cover in Fayette County. In the midst of the 2006-2008 drought, in March 2007, a very dry month, there were approximately 1,000 acres a day burned in the State of Alabama. In addition to drought, lightning can strike woodlands setting them on fire and trees that had been downed through severe weather events can add to the vegetative fuels to make timber for fires.

Firefighting resources can affect the severity of wildfires. Fayette County has one full-time fire department and twelve volunteer fire departments. Limited firefighting resources are stretched during periods when numerous fires occur and can compound the risk and extent of wildfire damages. Fayette County does not have a Forestry Commission office and relies on response from neighboring counties through a mutual aid agreement.

Map 5-17. Fayette County Forest Fuels



Map 5-18. Fayette County Vegetation Cover

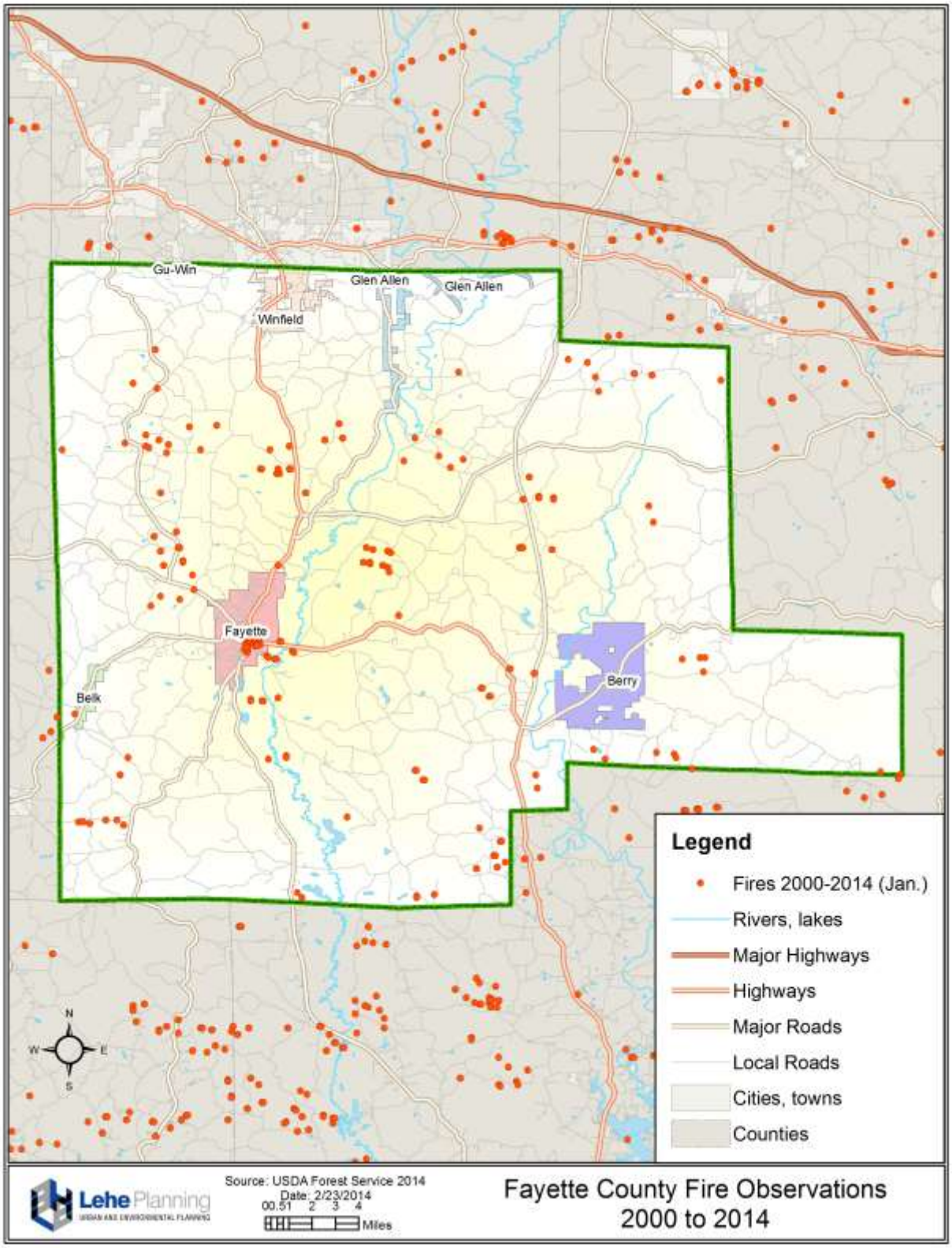


Previous Occurrences of Wildfires

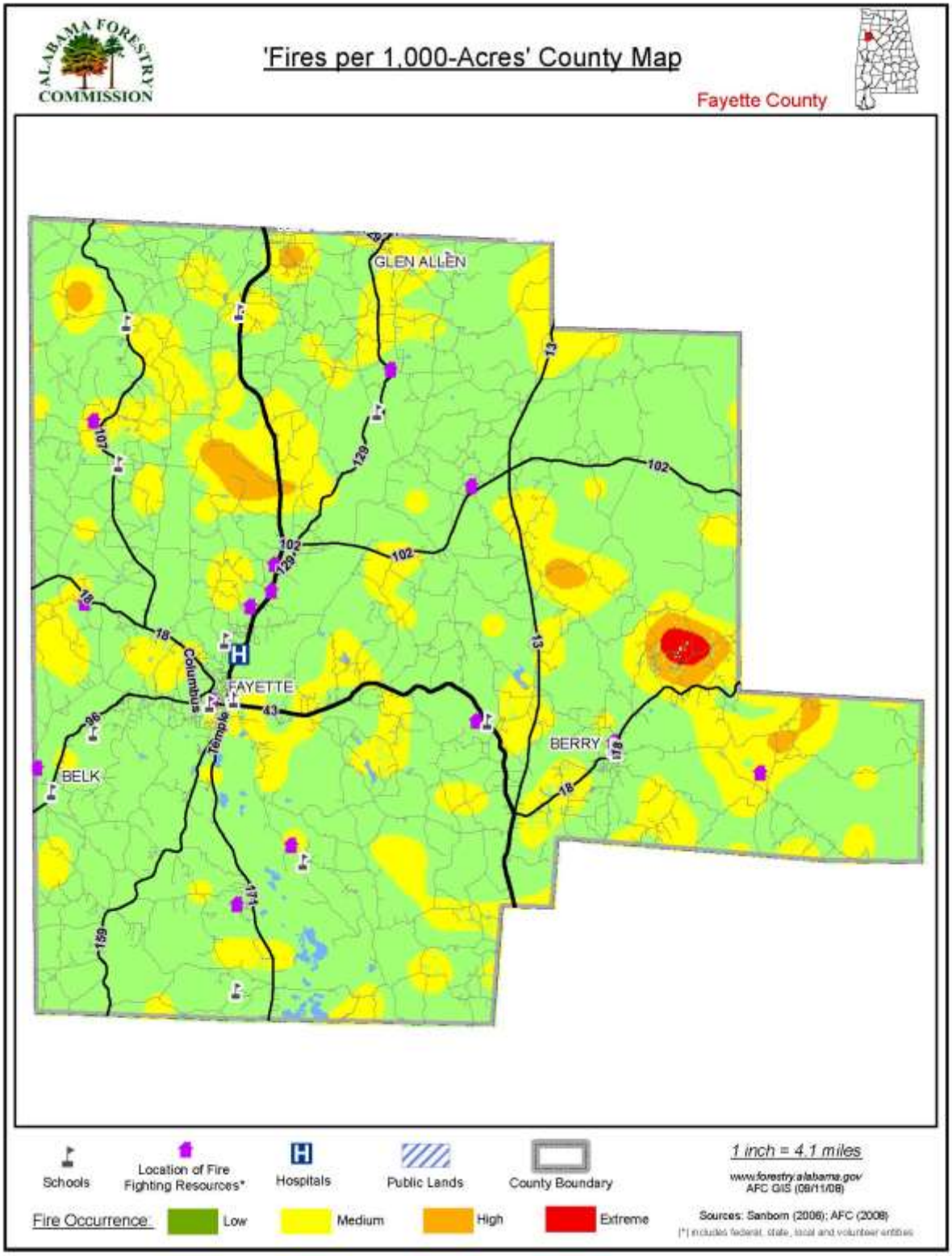
According to the Alabama Forestry Commission, between January 1, 2009 and December 31, 2013, Fayette County averaged 18.4 fires per year, with an average of 144 acres burned per year. Fayette County ranks 46th among 67 Alabama counties for number of fires and 56th for acres burned. In 2013, Fayette County incurred 14 grass fires. The most acreage burned in a single event was a result of lighting on July 27, 2000 when 400 acres were destroyed.

Map 5-19 “Fayette County Fire Observations” shows the location of wildfires between 2000 and January 2014. Map 5-20 “Fayette County Fires Occurrences” shows areas at various levels of wildfire occurrences from low to high. These wildfire occurrence areas generally coincide with areas denoted as low to high risk areas on Map 5-16 “Fayette County Wildfire Risk.” The areas at highest risk in Fayette County are just north of the City of Fayette and the area around unincorporated Pea Ridge. These areas are ranked as “Extreme” or “High” on both the fire susceptibility and fire occurrence indexes.

Map 5-19. Fayette County Fire Observations



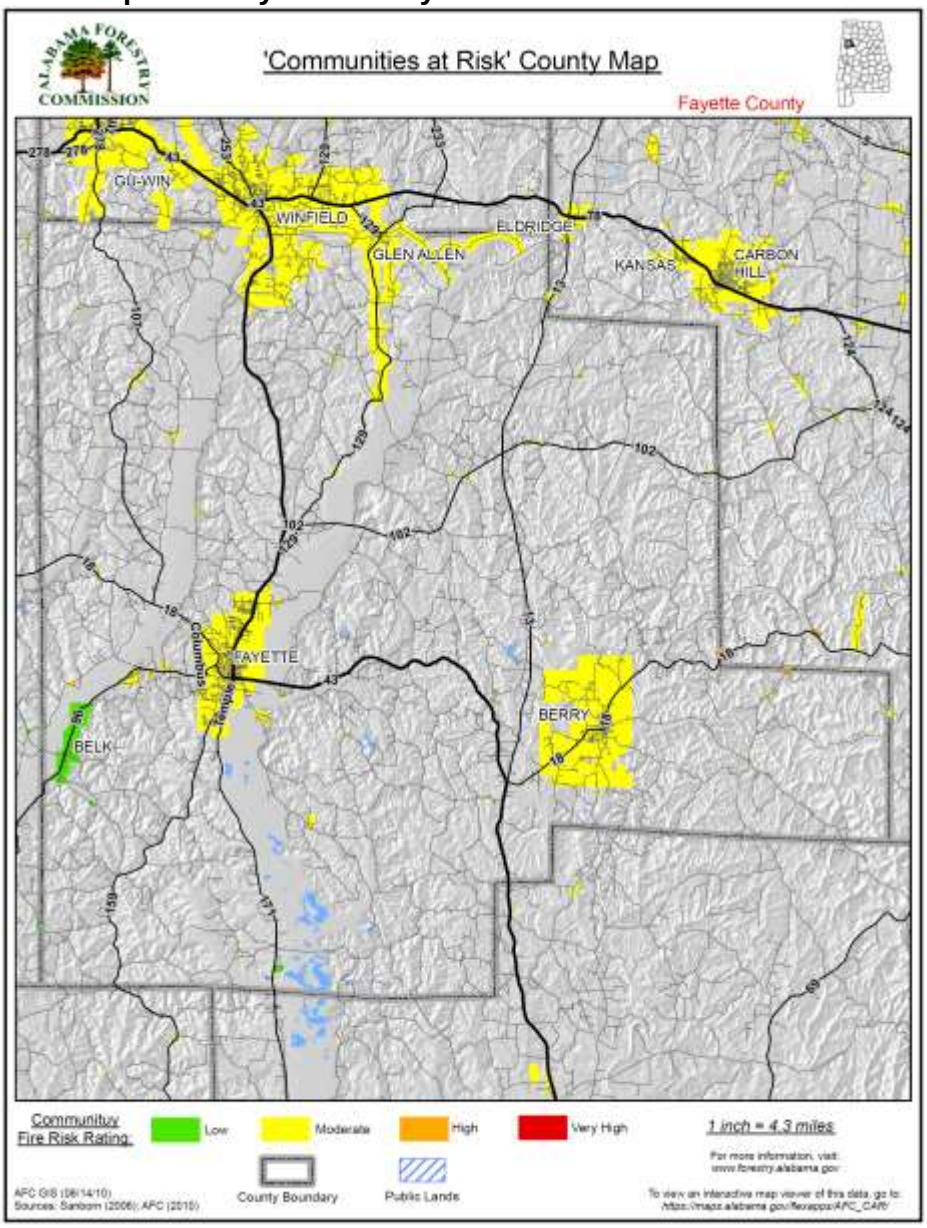
Map 5-20 Fayette County Fires Occurrences



Probability of Future Wildfire Events

Fayette County, on average, is the site of 18.4 wildfires per year, which cause damage to an average of 144 acres per year. The average size of each wildfire is 7.9 acres. Unless there are major changes in the weather, the probability of future events, based on recent trends and historical information, should remain approximately 144 wildfires per year, based on events between 2009 and 2013. Although one can extract data and estimates of future frequency from historical information, the risk of a specific wildfire occurring and the location of damage are largely random. Map 5-21 "Fayette County Communities at Wildfire Risk" rates the risk level of all Fayette communities. Fayette, Berry, and Glen Allen are at moderate risk of wildfires, and Belk is at low risk.

Map 5-21. Fayette County Communities at Wildfire Risk



5.4.11 Dam/Levee Failures Profile

The National Inventory of Dams lists twelve dams in Fayette County. Table 5-13 lists the number of dams classified in each potential downstream hazard category. Three dams are classified as having high hazard potential, meaning failure or faulty operation would probably result in the loss of human life. Six dams are listed in the significant risk category meaning their failure or faulty operation would probably not result in the loss of life, but would result in economic loss, environmental damage, and disruption of lifeline facilities. The remaining three dams in the county are listed as at low risk meaning that their failure or faulty would not result in the loss of life and only low economic or environmental damage.

Table 5-13. Fayette County Dams Risk

Hazard Categories	Number of Dams
High	3
Significant	6
Low	3
Undetermined	0
Total	**12**

Source: Army Corps of Engineers

Dam and levee failures are potentially catastrophic flood events and can occur with little warning. A failure is usually the result of neglect, unsound construction, or structural damage attributable to an earthquake or other natural hazard. Severe dam and levee failures are very rare in the United States, but, when they do occur, downstream damages can include devastating human casualties, property damages, and altered natural landscapes.

Location of Potential Dam Failures

According to the U.S. Corps of Engineers, there are 12 dams and zero levees in Fayette County. See Map 5-22 for location information.

Map 5-22. Fayette County Dams

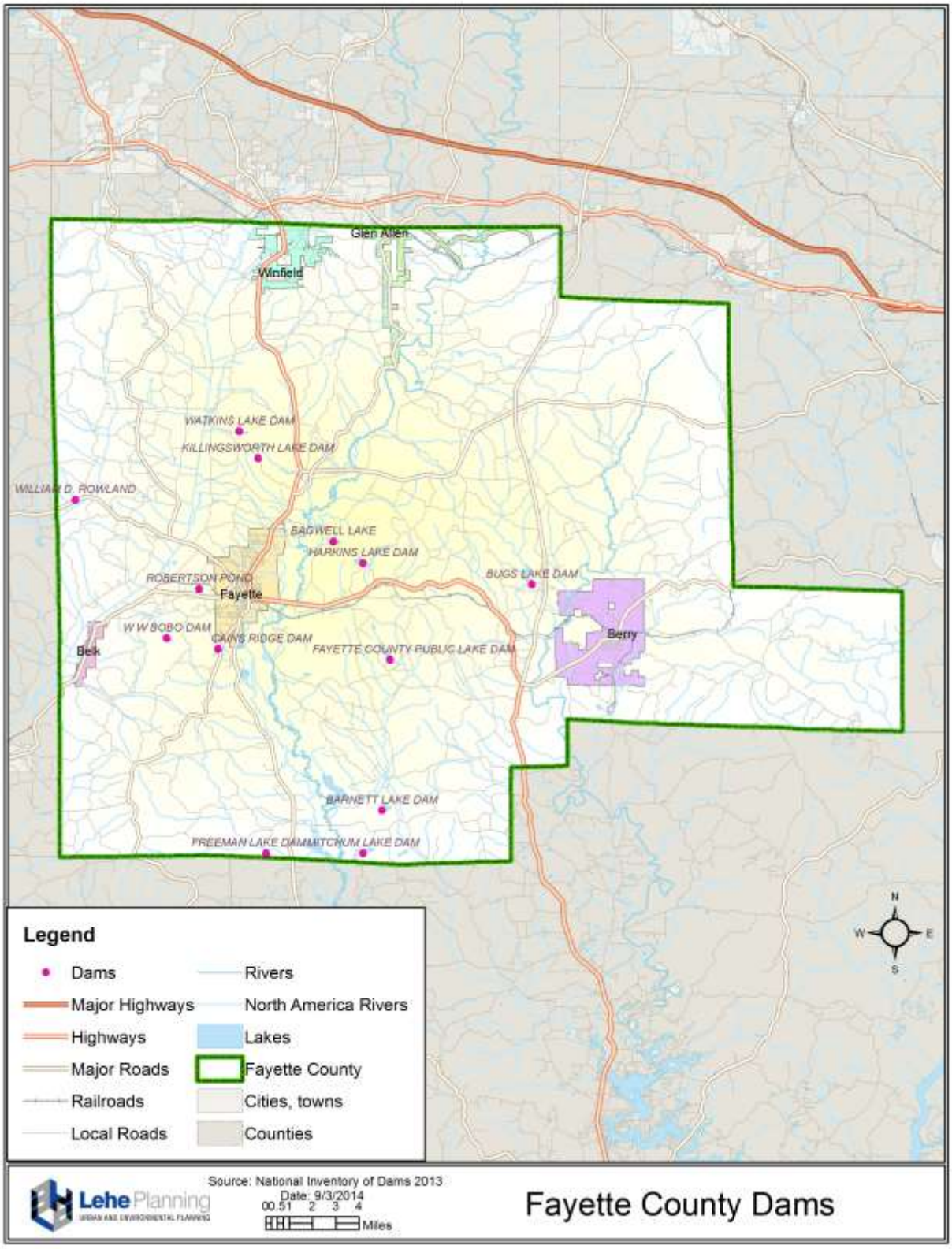


Table 5-14. Fayette County Dams

Dam Name	River	Year Completed	Height (ft.)	Max Storage	Max Discharge
Bagwell Lake	TR-Sipsey River - Offstream	1962	25	120	50
Barnett Lake Dam	TR- Davis Creek	1960	25	242	163
Bugs Lake Dam	Clear Creek	1952	28	1583	1579
Cains Ridge Dam	TR-Martins Creek-Offstream	1980	17	199	600
Fayette County Public Lake Dam	-	-	-	-	-
Freeman Lake Dam	TR-Bear Creek	1962	25	105	600
Harkins Lake Dam	TR-Fulton Creek	1956	35	330	600
Killingsworth Lake Dam	TR-Sipsey River	1967	31.00	374.00	1.15000
Mitchum Lake Dam	TR-Sipsey River-Offstream	1955	30	156	600
Robertson Pond	TR-Luxapillila River	1998	23	176	210
Slurry Imp. No. 1*	-	-	-	-	-
Watkins Lake Dam	TR-Luxapallila Creek	1950	18	107	405
William D. Rowland Dam	TR – Hells Creek	1994	23	145	190
WW Bobo Dam	TR-Luxapallila Creek	1955	15	95	154

Source: Army Corps of Engineers
*Not shown on Map 5-22

Extent of Potential Dam/Levee Failures

Dams and levees do not pose a significant risk to developed areas of Fayette County. The dams are located in remote areas of unincorporated Fayette County.

Previous Occurrences of Dam/Levee Failures

Bugs Lake Dam (or Bays Lake as it is now known) broke in 1980. At that time this dam was a small privately owned mill pond that broke because of heavy rainfall during this period. Since then, the dam has been replaced with an earthen dam built by the Army Corps of Engineers.

Probability of Future Dam/Levee Failure Events

The risks to Fayette County associated with dam failure are minimal. The U.S. Corps of Engineers monitors and inspects the largest dam, at Bugs Lake; therefore the dam poses little risk for failure.

5.4.12 Manmade and Technological Hazards Profile

Manmade and technological hazards are any threats that originate from or are induced by human activity, unlike the natural hazards previously profiled which have an origin in the natural environment. Technological disasters and acts of terrorism are the main categories of manmade hazards, according to FEMA, and have been subdivided into ten incident types in order to identify and prioritize these threats, as well as track specific occurrences for this plan. FEMA's term, "technological hazards," are those "incidents that can arise from human activities such as manufacture, transportation, storage, and use of hazardous materials." The term "terrorism" refers to "intentional, criminal, [or] malicious acts" (FEMA 387-7).

Hazardous material accidents are the main type of manmade hazard that concerned the Hazard Mitigation Planning Committee (HMPC) members. These types of manmade accidents are the ones that occurred most often.

Location of Potential Manmade Hazards

All Fayette County jurisdictions are subject to manmade hazards and equally at risk. Map 5-23 shows the locations of hazardous materials storage, six of which are located in or near the City of Fayette and one is located in Town of Belk. As described above, hazardous materials events can occur anywhere those materials are manufactured, stored, or transported. Also, depending on the type of material, the threat could be far reaching if it is able to be transported through the air or water.

Extent and Intensity of Potential Manmade Hazards

Fayette County has a few hazardous materials events per year. The extent of hazardous materials spills can be minimal to severe, sometimes costing thousands of dollars for clean-up. The extent of technological hazards impacts and terrorist attacks can be quite severe, with potential for widespread damage to property and infrastructure and major loss of life and casualties, within any jurisdiction.

Previous Manmade and Technological Hazard Occurrences

There were three incidents on record for Fayette County during the time period between 1996 and 2013. The United States Department of Transportation's Hazardous Materials Information System was utilized along with local input to provide data for this section.

In 1998 and 1999, two hazardous material spills occurred in the Town of Berry. The incidents, categorized as "Highway" transportation related activities, released 50 gallons of combustible liquid and 2 gallons of Phosphoric Acid, respectively. A minimal amount of damage was reported.

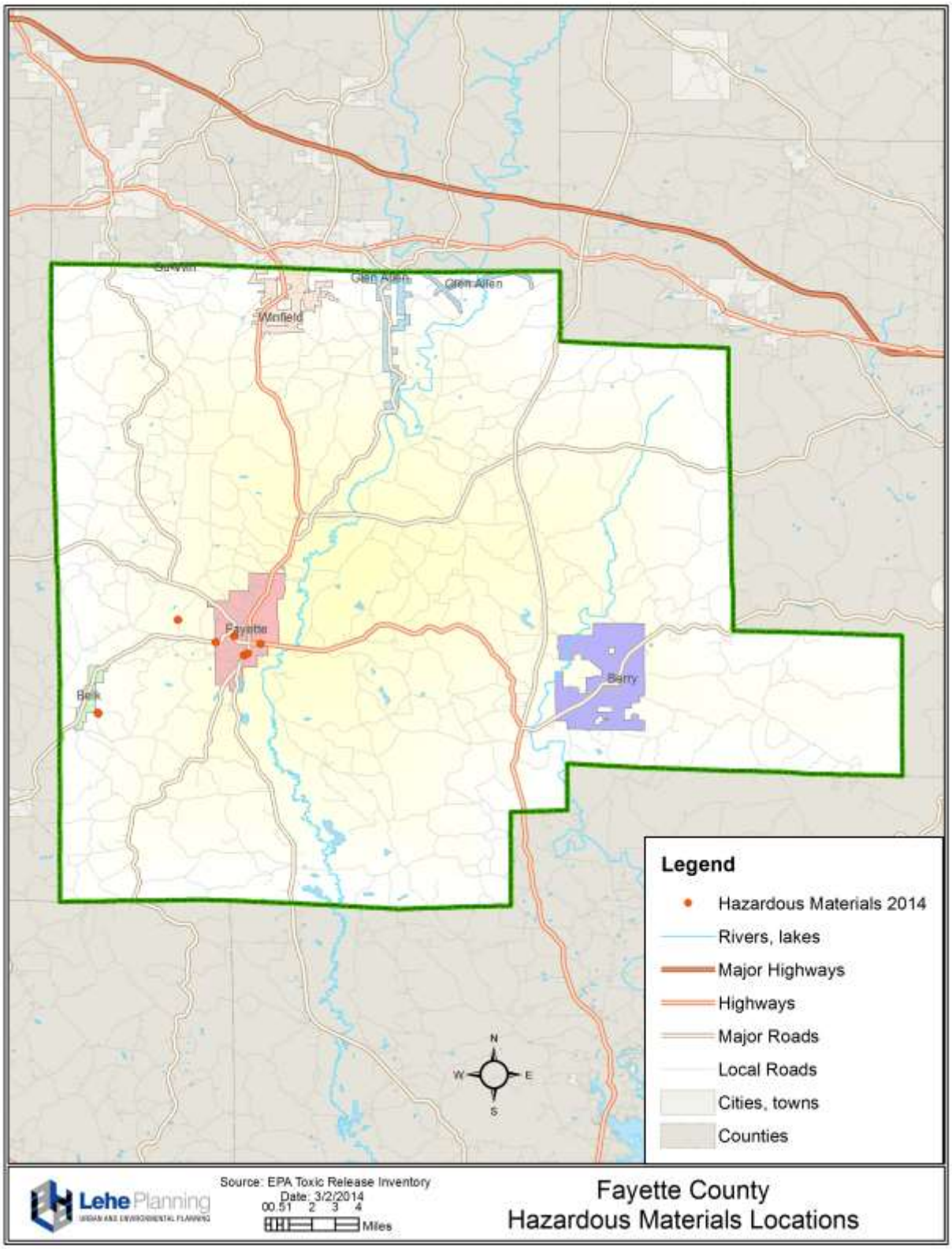
In 2005, the County experienced a fuel spill into a creek near Covin. The spill originated from West Oil Supply located in Winfield. Local responders from both Fayette and Marion counties coordinated efforts to utilize booms and pads to soak up the spill successfully. Clean-up costs were reported at roughly $14,110.

Prior to the study period, a significant event occurred in 1996 at the Oneita Plant in the City of Fayette. A chlorine leak at the plant's wastewater treatment facility resulted in an area evacuation of about 300 people for over two and a half hours while plant personnel corrected a leaking cylinder valve. Approximately 300-500 pounds of chlorine gas had escaped during the incident.

Probability of Future Manmade and Technological Hazard Events

One of the hardest features to grasp of a manmade and technological hazard is its unpredictability. There is no way to determine if there is going to be a manmade hazard event at any certain time. For many natural hazards there is a season (e.g., hurricanes and tornadoes), a map of probable locations (e.g., floods and earthquakes) or forecasts (e.g., severe storms). For manmade hazards, events can happen anytime and virtually anywhere, and they do not need any specific circumstances in which to occur.

Map 5-23. Fayette County Hazardous Materials Locations



5.5 Vulnerability of Structures within Each Jurisdiction

5.5.1 Scope of Structure Inventory

Section 5.5 presents an inventory of existing and future buildings, critical facilities, and infrastructure. For the purposes of this risk assessment, *vulnerability* refers to the exposure of buildings, critical facilities, and infrastructure to a particular hazard and their susceptibility to damage from the hazard. The inventory in this section forms the loss estimates in Section 5.6 "Estimate of Dollar Losses to Vulnerable Structures."

Many Fayette County hazards are county-wide, including severe storms, hurricanes, tornadoes, winter storms/freezes, droughts/heat waves, wildfires, and earthquakes. Floods, sinkholes, and landslides on the other hand, are location-specific hazards.

5.5.2 Inventory Methodology

The planning team assembled structure inventories in three steps.

First, a countywide inventory of the number and property values of structures was created using FEMA's HAZUS-MH, which is a risk assessment software tool for projecting losses from floods, hurricane winds, and earthquakes. The planning team used the latest edition of HAZUS-MH software (version 2.1). HAZUS-MH modeled scenarios for Fayette County using a Level 1 analysis, which utilizes data provided with the software and calculates damages at the county level. Calculations below the county level are not recommended, because accuracy tends to diminish.

Second, the planning team used local GIS data to create maps and lists of critical facilities located in vulnerable areas. The GIS data came from Fayette County, Geological Survey of Alabama, U.S.G.S., National Weather Service, NFIP, U.S. Census Bureau, Alabama State Data Center, and the Alabama Forestry Commission.

Third, to estimate future building values and exposures, the planning team applied population projections from the Alabama State Data Center to the HAZUS-MH tables of existing building values. It is important to note that both population projections and HAZUS-generated structure counts and values are approximate; however, the planning team's estimates are useful for prioritizing mitigation measures by place and hazard, since the *relative* values of existing and future populations, values, and rates of exposure are probably accurate.

The designation *building,* as used in this risk assessment, includes all walled and roofed structures. The designations *critical facilities* and *infrastructure* include the following structures, as classified by HAZUS-MH:

Critical Facilities

- Essential Facilities. These critical facilities are essential to the health and welfare of the entire Fayette County population and are particularly critical following hazard events. Emergency response facilities (police, fire, and emergency management), medical care facilities (hospitals and other care facilities), schools, and shelters for evacuation are all examples of essential facilities.
- High Potential Loss Facilities. These critical facilities include military installations, nuclear power plants and dams.

Infrastructure

- Transportation Systems Lifeline. These facilities include highways, bridges, tunnels, heavy/light railways, airports, buses, ports, and waterways.
- Lifeline Utility Systems Lifeline. These facilities are essential lifelines that include potable water, wastewater, natural gas, oil, electric, and communications systems.

Other

- User-Defined Facilities. The user may include additional facilities or systems unique to their study region which are not included in the general HAZUS-MH listing of critical facilities and infrastructure.

Critical facilities and infrastructure have been apportioned to each jurisdiction on the basis of population distribution, as follows:

Table 5-15. 2012 Population Distribution by Jurisdiction

Jurisdiction	2012 Estimate	% of Total
Belk	212	1.2%
Berry	1,130	6.7%
Fayette	4,550	26.8%
Glen Allen	504	2.9%
Unincorporated	10,587	62.4%
Fayette County	16,983	100%

Source: U.S. Census, American Fact Finder

The plan projects future numbers of buildings, critical facilities, and infrastructure to the year 2030 using the Alabama State Data Center's projection of Fayette County population growth. Since no projections existed for individual jurisdictions, the method described here was developed to provide a 2030 projected population for each jurisdiction. To project populations for each jurisdiction, the annual growth rate for each jurisdiction has been calculated based upon population growth between 1990 and 2012. In the case of the overall population of Fayette County, the Alabama State Data Center

2030 county estimate has been used, and the unincorporated area projection is the countywide population less the total of all municipal populations.

The 2030 populations of Fayette County and its jurisdictions are used to compute *growth multipliers.* The growth multiplier is equal to 1 + the 2012-2030 percentage increases for each jurisdiction. For example, if 1,000 residential buildings are presently exposed, then a 2030 Growth Multiplier of 1.24 (where a jurisdiction's population is projected to increase 24 percent) would project 1,240 residential buildings will be exposed in 2030. The Growth Multiplier is applied to all present day estimates to project future conditions. This growth projection method is not precise, but it does provide a good indication of how growth might affect future exposure of structures to hazards.

Table 5-16. 2030 County Growth Projection

	2012	2030	Number	Percent
Fayette County	16,983	15,195	-1,788	-10.5%

Source: Alabama State Data Center

Table 5-17. Annual Growth Rates by Jurisdiction

Jurisdiction	1990	2010	Estimated 2012	1990-2012 Growth	Percent Change 1990-2012	Annual Growth Rate
Belk	255	215	212	-43	-16.9%	-0.84%
Berry	1,218	1148	1130	-88	-7.2%	-0.34%
Fayette	4,909	4619	4550	-359	-7.3%	-0.34%
Glen Allen	350	510	504	154	44.0%	1.67%
Unincorporated		8,739	10587	500	5.0%	0.22%
Fayette County	18,809	17,241	16983	-1826	-9.7%	-0.46%

Source: Derived from the US Census

Table 5-18. 2030 Growth Projections and Multipliers

Jurisdiction	Estimated 2012	Annual Growth Rate	Projected 2030	Projected Change 2012-2030	Percent Increase 2012-2030	2030 Growth Multiplier
Belk	212	-0.84%	184	-28	-13.4%	0.87
Berry	1130	-0.34%	1,066	-64	-5.6%	0.94
Fayette	4550	-0.34%	4,294	-256	-5.6%	0.94
Glen Allen	504	1.67%	668	164	32.5%	1.33
Unincorporated	10587	*	8,983	-1,604	-15.2%	0.85
Fayette County	16983	*	15,195	-1,788	-10.5%	0.89
*Countywide population is provided by the Alabama State Data Center; unincorporated is the remaining County population						

Source: Derived from Alabama State Data Center and the U.S. Census

Table 5-19. 2030 Population Distribution by Jurisdiction

Jurisdiction	2030 Population	% of Total
Belk	184	1.2%
Berry	1,066	7.0%
Fayette	4,294	28.3%
Glen Allen	668	4.4%
Unincorporated	8,983	59.1%
Fayette County	15,195	100%

Source: Derived from Alabama State Data Center

5.5.3 HAZUS-MH Structure Inventory

The percent exposure can be applied to the structure inventories to derive a general estimate of vulnerable structures by hazard. Most hazards are county-wide, but location-specific hazards such as flooding, wildfires, dam/levee failures, sinkholes and landslides can vary from minimal vulnerability to as much as 100% of a community's total geographic area. In cases where exposure is 1% or less, a 1% exposure rate has been applied. Although this does not yield a precise estimate, it provides a general indication of the number and types of structures exposed to each hazard within each jurisdiction. This data is shown in Table 5-20.

Table 5-20. Hazard Exposure Rates by Jurisdiction

Identified Hazard	Belk	Berry	Fayette	Glen Allen	Unincorporated	Fayette County
Tornadoes	100%	100%	100%	100%	100%	100%
Severe Storms	100%	100%	100%	100%	100%	100%
Floods	1%	1%	1%	1%	1%	1%
Winter Storms/Freezes	100%	100%	100%	100%	100%	100%
Hurricanes	100%	100%	100%	100%	100%	100%
Droughts/Heat Waves	100%	100%	100%	100%	100%	100%
Wildfires	100%	100%	100%	100%	100%	100%
Dam/Levee Failures	0%	0%	0%	0%	0%	0%
Landslides	<1%	<1%	<1%	<1%	<1%	<1%
Earthquakes	100%	100%	100%	100%	100%	100%
Sinkholes	<1%	<1%	<1%	<1%	<1%	<1%
Man-Made Hazards	100%	100%	100%	100%	100%	100%

General Description of the Planning Region

HAZUS-MH refers to the geographic study area as the *region*, which is all of Fayette County, including all unincorporated areas and 4 municipalities. A more complete description of the planning region is presented in Chapter 3 "Community Profiles." The descriptions provided here were generated by the HAZUS-MH Global Reports for county-wide assessments of hurricanes. The Fayette County region is generally described by HAZUS-MH, as follows:

- The geographical size of the region is 628 square miles.
- The region contains 1,533 census blocks.
- There were over 7,000 households in the region, with a total population of 18,495 persons (Census 2000 data).

Table 5-21. HAZUS-MH Population and Building Value Data

State	County Name	2010 Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Alabama	Fayette	17,241	$687	$247	$934

Table 5-22. HAZUS-MH Building Inventory by Occupancy

Occupancy	Count	Share
Agriculture	27	0.3%
Commercial	347	3.4%
Education	11	0.1%
Government	23	0.2%
Industrial	117	1.2%
Religion	45	0.5%
Residential	9,423	94.3%
Total	**9,993**	**100%**

Building Inventory

- HAZUS-MH estimates that there are 9,993 buildings in the region, which have an aggregate replacement value of $934 million.
- In terms of building construction types found in the region, wood frame construction makes up approximately 67% percent of the building inventory. Manufactured housing accounts for approximately 18% of buildings, a considerable amount.

Table 5-23. HAZUS-MH Building Inventory by Construction Type

Construction Type	Count	Share
Wood	6,731	67.4%
Steel	308	3.1%
Concrete	126	1.3%
Masonry	996	9.9%
Manufactured Housing	1,830	18.3%
Total	**9,991**	**100%**

Critical Facilities Inventory

HAZUS-MH breaks critical facilities into the two groups described below and estimates the number of each type of facility.

(1) **Essential facilities** include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. HAZUS-MH estimates the numbers and types of essential facilities within the region, as follows:

- ✓ 1 hospital with a total bed capacity of 183 beds;

- ✓ 7 schools;
- ✓ 13 fire stations
- ✓ 1 emergency operations center; and
- ✓ 4 police stations.

(2) **High potential loss facilities,** which include dams, levees, military installations, and nuclear power plants. HAZUS-MH estimates the numbers and types of high potential loss facilities, as follows:

- ✓ 12 dams, with three classified as "high hazard;"
- ✓ 8 hazardous materials sites;
- ✓ 0 military installations; and
- ✓ 0 nuclear power plants.

Transportation and Utility Lifeline Inventories

HAZUS-MH breaks lifeline inventories into the two groups described below and estimates the number of each type of facility. HAZUS-MH estimates the total value of the lifeline inventory at $1.2 billion. A more detailed breakdown is provided in Table 5-30 "HAZUS-MH Transportation System Lifeline Inventory."

(1) **Transportation systems,** which include highways, railways, light rail, bus, ports, ferry and airports. HAZUS-MH estimates the length of highways and the number of bridges, as follows:

- ✓ 112 miles (180 kilometers) of highways;
- ✓ 108 bridges; and
- ✓ 1 airports with 1 runway,

(2) **Utility systems,** which include potable water, wastewater, natural gas, crude and refined oil, electric power, and communications. HAZUS-MH estimates the length of pipes, as follows:

- ✓ 2,720 miles (4,378 kilometers) of potable water, waste water, and natural gas pipes;

5.5.4 Existing and Future Structure Vulnerabilities by Hazard and Jurisdiction

Buildings

The building exposure totals generated by HAZUS-MH are gross estimates that show relative vulnerability of buildings to earthquakes, hurricane winds, and flooding. The numbers provided in the HAZUS-MH reports are not based on actual field inventories, which is beyond the scope of this planning process. Many of the numbers provided by HAZUS-MH are generated from formulas based on national standards. Where values are given for future conditions, the values are in 2006 dollars.

Building exposure in Fayette County is mostly residential at about 73 percent. This ratio should remain constant through the 2030 plan horizon, and occupancy ratios are assumed constant for the purposes of this analysis.

Table 5-24. Building Exposure by Occupancy

Occupancy	Existing Exposure ($1,000)	Future Exposure ($1,000)	% of Total (Future)
Agriculture	$2,678	$2,383.42	0.29%
Commercial	$116,968	$104,101.52	12.53%
Education	$8,965	$7,978.85	0.96%
Government	$14,937	$13,293.93	1.60%
Industrial	$79,954	$71,159.06	8.56%
Religious	$23,094	$20,553.66	2.47%
Residential	$687,097	$611,516.33	73.59%
Total	**$933,693**	$830,986.77	**100%**

Building values within each jurisdiction are expected to increase according to (a) growth in Fayette County's population; and (b) the growth in each jurisdiction's share of the county population. Communities need to be cognizant of the increasing risks and exposure resulting from growth.

Fayette County is projected to decline in growth approximately 10.5% from 2012 to 2030, with decreases projected 15% for unincorporated Fayette County, 13% for Belk, and 5.6% for Berry and Fayette. Only the Town of Glen Allen is expected to increase from 2012 to 2030, approximately 32%. Occupancy of buildings by jurisdiction is assumed to generally follow the county-wide distribution, and is projected to change according to each jurisdiction's growth multiplier.

Table 5-25. Building Values by Jurisdiction

Jurisdiction	Building Value					
	Existing Residential	Future Residential	Existing Non-Residential	Future Non-Residential	Existing Total	Future Total
Belk	$8,245	$7,379	$2,959	$2,648	$11,204	$10,028
Berry	$46,035	$43,046	$16,522	$15,449	$62,557	$58,495
Fayette	$184,139	$174,029	$66,088	$62,459	$250,227	$236,488
Glen Allen	$19,926	$27,057	$7,151	$9,711	$27,077	$36,768
Unincorporated	$428,742	$363,431	$153,876	$130,436	$582,618	$493,867
Fayette County	687,087	614,943	246,596	220,703	$933,683	$835,646

Note: Totals of all municipalities and unincorporated areas may not equal Fayette County totals due to rounding.

Table 5-26. Building Count by Occupancy and Jurisdiction

Jurisdiction	Building Count by Occupancy													
	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
	Agric.		Commercial		Education		Govt.		Industrial		Religion		Residential	
Belk	32	29	1,404	1,256	108	96	179	160	959	859	277	248	8245	7,379
Berry	179	168	7,837	7,328	601	562	1,001	936	5,357	5,009	1,547	1,447	46,035	43,047
Fayette	718	678	31,347	29,626	2,403	2,271	4,003	3,783	21,428	20,251	6,189	5,849	184,142	174,031
Glen Allen	78	105	3,392	4,606	260	353	433	588	2,319	3,149	670	909	19,926	27,058
Unincorporated	1671	1417	72,988	61,870	5,594	4,742	9,321	7,901	49,891	42,291	14,411	12,215	428,749	363,437
Fayette County	2678	2397	116,968	104,686	8,965	8,024	14,937	13,369	79,954	71,559	23,094	20,669	687,097	614,952

Note: Totals of all municipalities and unincorporated areas may not equal Fayette County totals due to rounding.

Table 5-27. Building Exposure by Jurisdiction and Hazard

Identified Hazard	Building Exposure ($1000s) by Jurisdiction											
	Belk		Berry		Fayette		Glen Allen		Unincorporated		Fayette County	
	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
Tornadoes	$11	$10	$63	$58	$250	$236	$27	$37	$583	$494	$934	$836
Severe Storms	$11	$10	$63	$58	$250	$236	$27	$37	$583	$494	$934	$836
Floods	$0	$0	$1	$1	$3	$2	$0	$0	$6	$5	$9	$8
Hurricanes	$11	$10	$63	$58	$250	$236	$27	$37	$583	$494	$934	$836
Winter Storms/Freezes	$11	$10	$63	$58	$250	$236	$27	$37	$583	$494	$934	$836
Droughts/Heat Waves	$11	$10	$63	$58	$250	$236	$27	$37	$583	$494	$934	$836
Wildfires	$11	$10	$63	$58	$250	$236	$27	$37	$583	$494	$934	$836
Dam/Levee Failures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Landslides	$0	$0	$1	$1	$3	$2	$0	$0	$6	$5	$9	$8
Earthquakes	$11	$10	$63	$58	$250	$236	$27	$37	$583	$494	$934	$836
Sinkholes (Land Subsidence)	$0	$0	$1	$1	$3	$2	$0	$0	$6	$5	$9	$8
Manmade/Technological	$0	$10	$63	$58	$250	$236	$27	$37	$583	$494	$934	$836

Note: Totals of all municipalities and unincorporated county may not equal Fayette County totals due to rounding

Critical Facilities

HAZUS-MH estimates there are 26 essential facilities within Fayette County. The number of essential facilities will decrease, according to future estimates. Of the high potential loss facilities, there are 12 dams, 3 identified as high hazard. There are also 8 hazardous materials sites. Dams are expected to decrease to approximately 11 and hazardous materials sites to 7.

Table 5-28. HAZUS-MH Essential Facilities Data

Classification	Existing Estimate	Future Estimate
Hospitals	1 (183 total bed capacity)	0.9 (164 total bed capacity)
Fire Stations	13	11.6
Police Stations	4	3.6
EOC	1	0.9
Schools	7	6.3

Table 5-29. HAZUS-MH High Potential Loss Facilities Data

Classification	Existing Estimate	Future Estimate
Dams	12	10.7
Hazard Materials Sites	8	7.1
Military Installations	0	0
Nuclear Power Plants	0	0

Infrastructure

Infrastructure inventories appear below. Infrastructure expansion is not directly related to population growth; consequently, no projections are given here. Most of the at-risk transportation system components are highway road segments and bridges, which are most vulnerable to flooding.

Table 5-30. HAZUS-MH Transportation Systems Lifeline Inventory

System	Component	# Locations/Segments	Replacement Value ($ millions)
Highway	Bridges	108	57.00
	Segments	17	786.60
	Tunnels	0	0
	Subtotal		***$843.50***
Railways	Bridges	0	0
	Facilities	0	0
	Segments	6	28.50

System	Component	# Locations/Segments	Replacement Value ($ millions)
	Tunnels	0	0
		Subtotal	***$28.50***
Light Rail	Bridges	0	0
	Facilities	0	0
	Segments	0	0
	Tunnels	0	0
		Subtotal	
Bus	Facilities	0	0
		Subtotal	***0***
Ferry	Facilities	0	0
		Subtotal	***0***
Port	Facilities	0	0
		Subtotal	***0***
Airport	Facilities	1	10.70
	Runways	1	38.00
		Subtotal	***$48.60***
		Total	**$920.60**

The types of utilities most vulnerable to hazards are wastewater treatment plants, water treatment and distribution facilities, and electric power lines and substations. Hurricanes, severe storms, and flooding pose the greatest threat to these facilities.

Table 5-31. HAZUS-MH Utilities Systems Lifeline Inventory

System	Component	# Locations / Segments	Replacement value ($ millions)
Potable Water	Distribution Lines	NA	43.80
	Facilities	2	59.90
	Pipelines	0	0
		Subtotal	***$103.70***
Waste Water	Distribution Lines	NA	26.30
	Facilities	2	119.90
	Pipelines	0	0
		Subtotal	***$146.10***
Natural Gas	Distribution Lines	NA	17.50
	Facilities	3	2.90
	Pipelines	0	0
		Subtotal	***$20.50***

System	Component	# Locations / Segments	Replacement value ($ millions)
Oil Systems	Facilities	0	0
	Pipelines	0	0
		Subtotal	***$0***
Electrical Power	Facilities	0	0
		Subtotal	***$0***
Communication	Facilities	1	.10
		Subtotal	***$.10***
		Total	**$270.40**

Local Inventories of Critical Facilities and Infrastructure

The following maps and tables show the locations of major critical facilities, including Government Facilities, Public Safety Facilities, Schools, Hospitals and Elderly Care Facilities, Utilities, Dams, and Transportation Infrastructure.

Table 5-32. Fayette County Government Facilities

Agency	Type	Address	City
Alabama Dept. Transportation	Regulation, Administration Of Transportation	432 12th St NW	Fayette
Alabama Highway Dept.	Highway And Street Construction	432 12th St NW	Fayette
Alabama Human Resources Dept.	Administration Of Social And Manpower Programs	410 16th St NE	Fayette
Belk Town Hall	Executive Offices	7633 Highway 96	Belk
Berry City Hall	Executive Offices	30 School Ave	Berry
Fayette Board Of Registrars	Legislative Bodies	103 1st Ave NW # 4	Fayette
Fayette City Civil Air Patrol	Legislative Bodies	110 21st St NE	Fayette
Fayette City Hall	Executive Offices	102 2nd Ave SE	Fayette
Fayette County Small Claims Court	Courts	113 Temple Ave N	Fayette
Fayette Co Farm Service Agency	Regulation Of Agricultural Marketing	245 County Road 26 S	Fayette
Fayette Co Memorial Library	Libraries	326 Temple Ave N	Fayette
Fayette Commissioners Court	Courts	103 1st Ave NW	Fayette
Fayette County Child Welfare	Administration Of Social And Manpower Programs	410 16th St NE	Fayette
Fayette County Circuit Judge	Courts	113 Temple Ave N	Fayette
Fayette County Commission	Executive Offices	103 1st Ave NW Ste. 2	Fayette
Fayette County Drivers' License	Regulation, Administration Of Transportation	103 1st Ave NW	Fayette
Fayette County Extension Office	Legislative Bodies	650 McConnell Loop	Fayette
Fayette County Health Dept.	Administration Of Public Health Programs	215 1st Ave NW	Fayette
Fayette County Juvenile Probation	Legislative Bodies	113 Temple Ave N	Fayette
Fayette County Revenue Commission	Finance, Taxation, And Monetary Policy	113 Temple Ave N	Fayette
Fayette County Road Shop	Legislative Bodies	1112 Highway 96	Fayette
Fayette County School Bus Shop	Administration Of Educational Programs	407 5th Ave NE	Fayette
Fayette County Veteran Affairs	Legislative Bodies	103 1st Ave NW	Fayette
Fayette Examiners Of Accounts	Legislative Bodies	113 Temple Ave N	Fayette

Agency	Type	Address	City
Fayette Housing Authority	Administration Of Social And Manpower Programs	405 6th St SW	Fayette
Fayette Judge Of Probate	Courts	113 Temple Ave N	Fayette
Fayette Probate Tag Office	Legislative Bodies	113 Temple Ave N	Fayette
Highway Dept. Project Office	Highway And Street Construction	1516 Temple Ave S	Fayette
Industrial Board of Fayette County	Legislative Bodies	102 2nd Ave SE	Fayette
National Guard	National Security	17510 Highway 18 E	Berry
Northwest AL Mental Health Center	Administration Of Public Health Programs	123 2nd Ave NW	Fayette
Park Rec Board City Fayette	Land, Mineral, And Wildlife Conservation	102 2nd Ave SE	Fayette
Revenue Commissioners Office	Finance, Taxation, And Monetary Policy	113 Temple Ave N	Fayette
State Of Alabama	Legislative Bodies	1620 Temple Ave N	Fayette
Town Of Glen Allen	Legislative Bodies	156 Highway 129 S	Glen Allen
Tri County Mr-Dd Board	General Government	423 2nd Ave SE	Fayette
US Army National Guard Recruiting	National Security	2335 6th Ave NE	Fayette
USDA - Natural Resource Conservation	Legislative Bodies	103 1st Ave NW	Fayette
US Office of Economic Opportunity- Community Action	Administration Of Social And Manpower Programs	650 McConnell Loop	Fayette
US Post Office	U.S. Postal Service	10745 Highway 18 E	Bankston
US Post Office	U.S. Postal Service	7660 Highway 96	Belk
US Post Office	U.S. Postal Service	107 Federal Ave	Berry
US Post Office	U.S. Postal Service	152 Highway 129 S	Glen Allen
US Post Office Main	U.S. Postal Service	223 Temple Ave N	Fayette
Veterans Affairs Services	Administration Of Veterans' Affairs	103 1st Ave NW	Fayette

Map 5-24. Fayette County Government Facilities

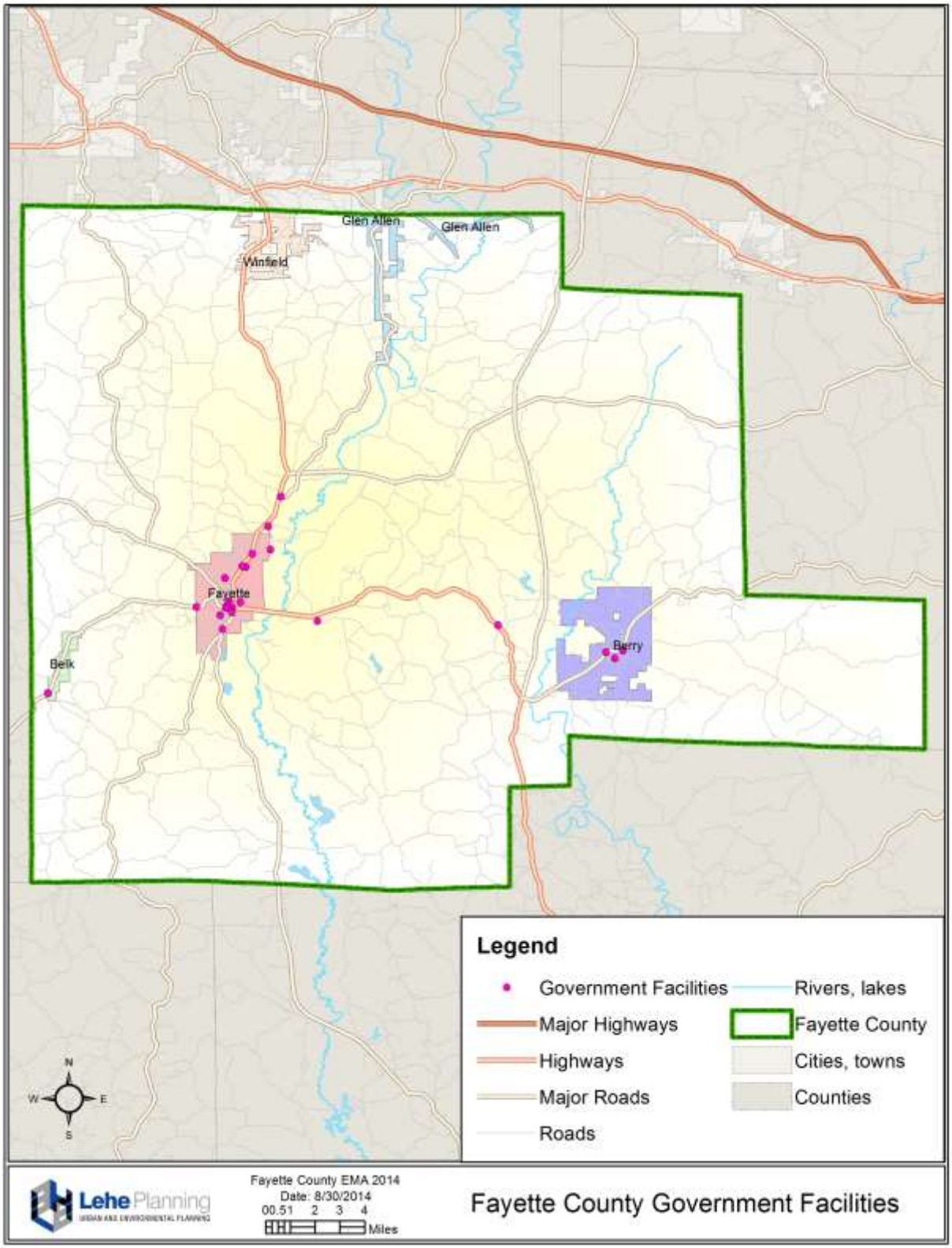


Table 5-33. Fayette County Public Safety Facilities

Agency	Type	Address	City
Bankston/Stough Volunteer Fire Dept.	Fire Protection	10385 Highway 18 E	Bankston
Bankston Volunteer Fire Dept.	Fire Protection	203 Temple Ave N	Fayette
Belk Volunteer Fire Dept.	Fire Protection	7633 Highway 96	Belk
Berry Rescue Squad	Fire Protection	17780 Highway 18 E	Berry
Community Corrections	Correctional Institutions	11 Court Sq.	Fayette
Fayette City Fire Dept.	Fire Protection	118 1st Ave NE	Fayette
Fayette Co Emergency Management Agency	Legislative Bodies	118 1st Ave NE	Fayette
Fayette County E911 District	Legislative Bodies	118 1st Ave NE	Fayette
Fayette Police Dept.	Police Protection	118 1st Ave NE	Fayette
Fayette Sheriff's Dept.	Police Protection	113 1st Ave W	Fayette
Fowler Crossroads Volunteer Fire Dept.	Fire Protection	170 Prospect Rd	Bankston
Glen Allen Fire Dept.	Fire Protection	164 Highway 129	Glen Allen
Kirkland Bluff Wayside Volunteer Fire Dept.	Fire Protection	7973 Highway 107	Winfield
Lawrence Mill Volunteer Fire Dept.	Fire Protection	700 County Road 80	Fayette
Sheriff's Office	Police Protection	113 1st Ave NW	Fayette
Walnut Lane Volunteer Fire Dept.	Fire Protection	7838 Highway 171 S	Fayette

Map 5-25. Fayette County Public Safety Facilities

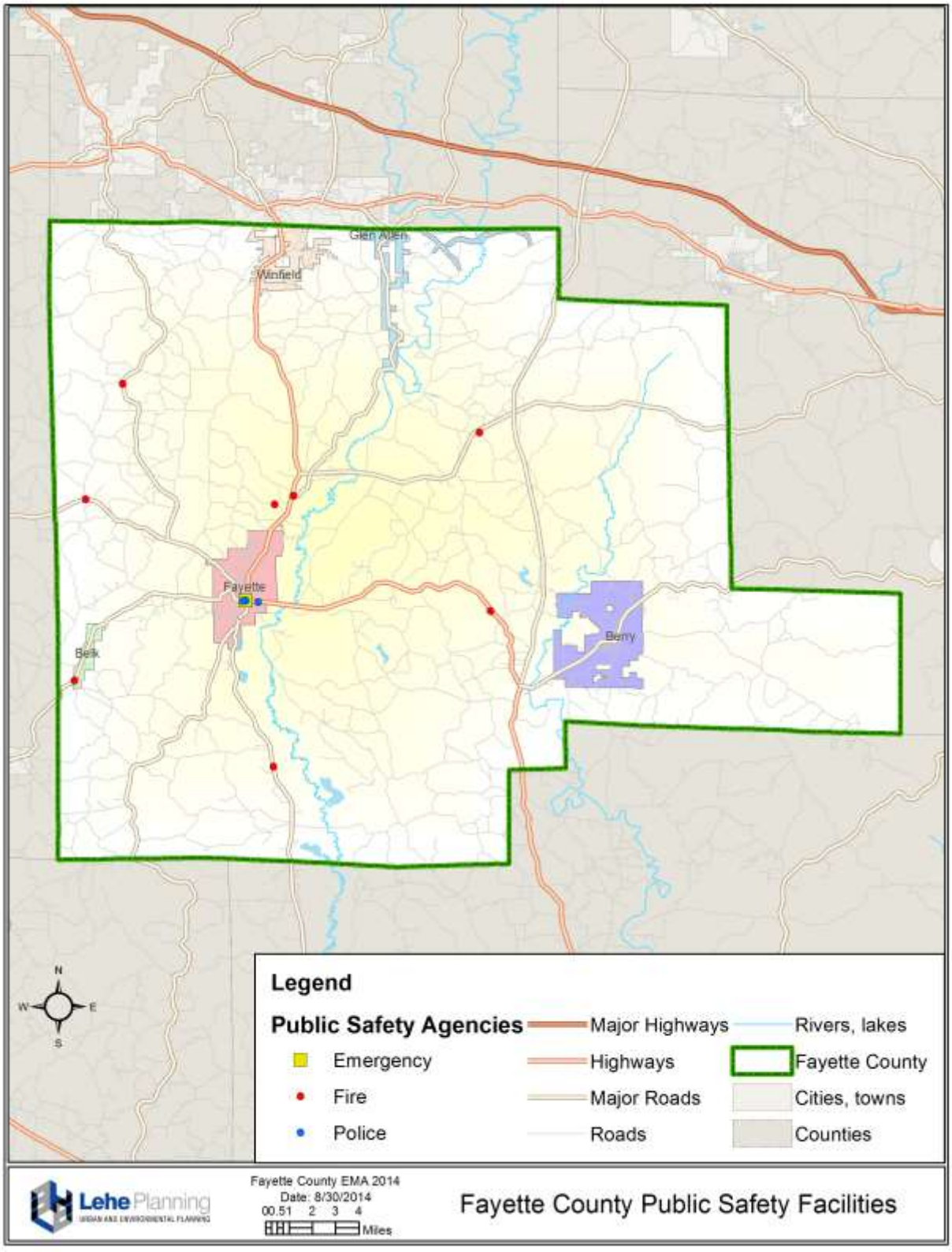


Table 5-34. Fayette County Schools

School	Type	Address	City
Alabama Co-Operative Extension Office	Colleges And Universities	650 McConnell Loop	Fayette
Berry Elementary School	Elementary And Secondary Schools	341 School Ave	Berry
Berry High School	Elementary And Secondary Schools	18242 Highway 18 E	Berry
Bevill State Community College	Junior Colleges	2631 Temple Ave N	Fayette
Fayette Alternative School	Elementary And Secondary Schools	631 1st St SW	Fayette
Fayette Challenger School	Elementary And Secondary Schools	508 4th St NE	Fayette
Fayette County Board Education	Elementary And Secondary Schools	103 1st Ave NW	Fayette
Fayette Elementary School	Elementary And Secondary Schools	509 2nd St NE	Fayette
Fayette High School	Elementary And Secondary Schools	202 Tiger Dr.	Fayette
Fayette Middle School	Elementary And Secondary Schools	418 3rd Ave NE	Fayette
First Baptist Preschool	Elementary And Secondary Schools	208 2nd Ave NE	Fayette
Hubbertville High School	Elementary And Secondary Schools	7360 County Road 49	Fayette
NW Alabama Adult Education	Vocational Schools	2631 Temple Ave N	Fayette
Rhema Christian Academy	Elementary And Secondary Schools	21506 Highway 18 E	Berry

Map 5-26. Fayette County Schools

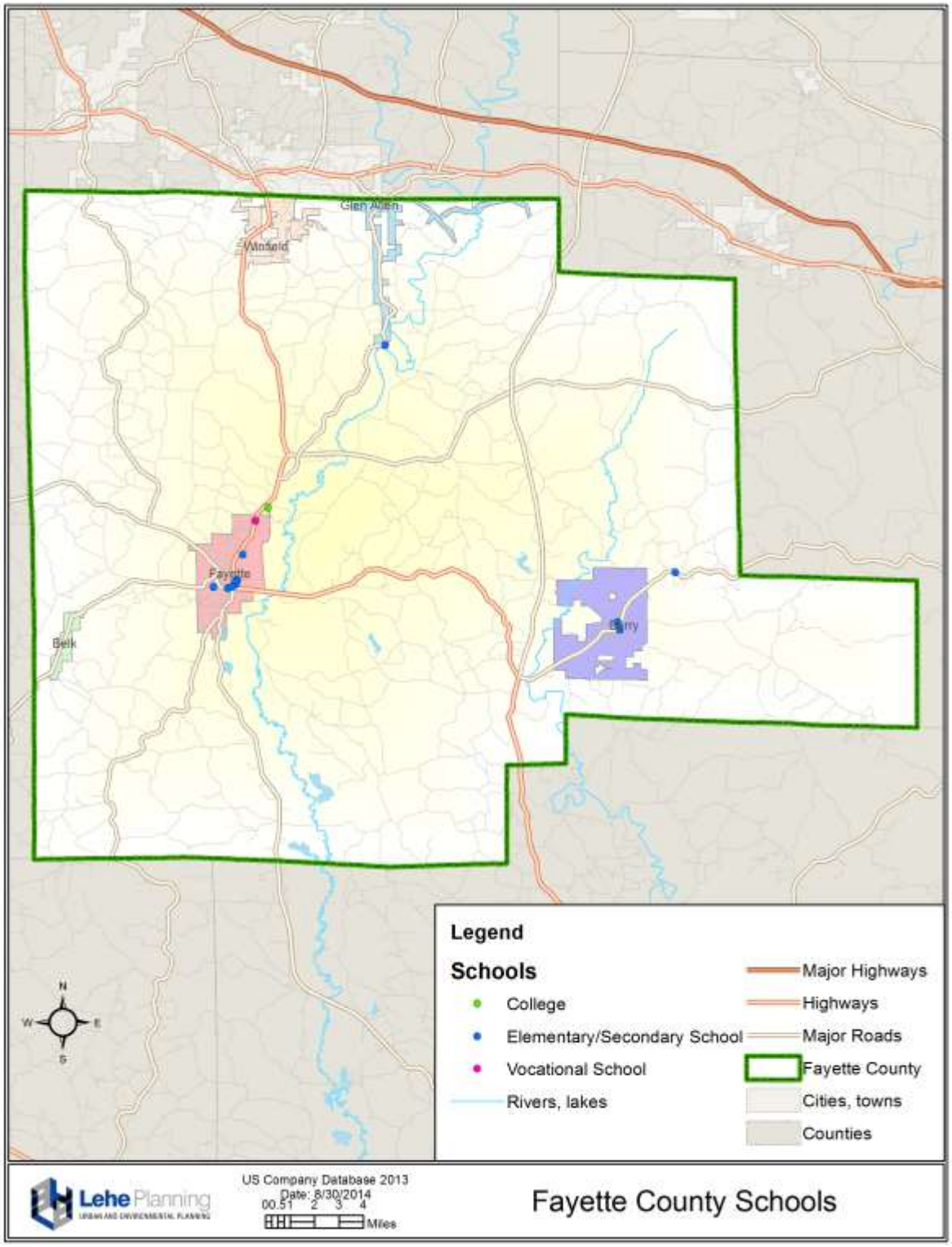


Table 5-35. Fayette County Hospital and Elderly Care Facilities

Name	Type	Address	City
Fayette Medical Center	General Medical & Surgical Hospital	1653 Temple Ave N	Fayette
Fayette Hospice Medical Center	Skilled Nursing Care Facility	411 Fayette Square	Fayette
Northwest Alabama Mental Health	Psychiatric Hospital	123 2nd Ave NW	Fayette
Hubbertville Senior Center	Residential Care	500 Bankhead Hwy	Winfield
Morningside of Fayette	Residential Care	404 25th St NW	Fayette
Fayette Medical Center Long Term Care	Residential Care	1653 Temple Ave N	Fayette
Johnston Place	Residential Care	416 16th St NE	Fayette
Southside Boarding Home	Residential Care	315 8th St SW	Fayette
Fayette County Aging Program	Residential Care	431 Center Rd	Fayette

Map 5-27. Fayette County Hospitals and Elderly Care Facilities

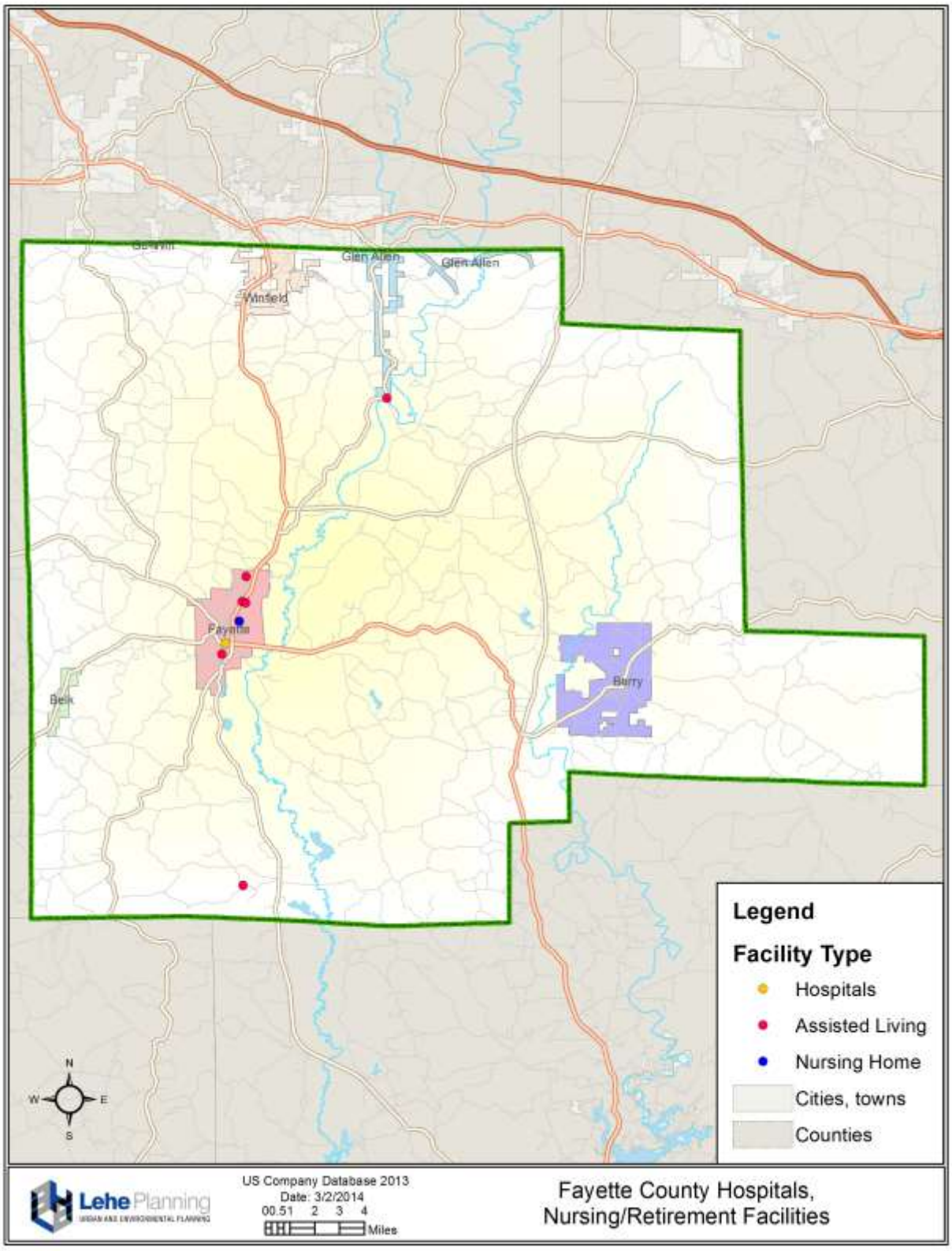


Table 5-36. Fayette County Utilities

Company	Address	City	Type
Alabama Power Company	1534 Temple Ave N	Fayette	Electric
Berry Gas Board Inc.	17720 Highway 18 E	Berry	Gas
Berry Water Dept.	30 School Ave	Berry	Water/Waste Water
Cellular One of West Alabama	313 Fayette Square	Fayette	Communications
Excel Communications	10873 Northside Rd	Berry	Communications
Fayette City Gas Board Shop	315 2nd Ave SE	Fayette	Gas
Fayette City Water	311 2nd Ave SE	Fayette	Water/Waste Water
Fayette County Landfill	804 Mount Joy Rd	Fayette	Solid Waste
Fayette County Water Authority	214 Columbus St W	Fayette	Water/Waste Water
Fayette Waste Water Treatment	102 2nd Ave SE	Fayette	Water/Waste Water
Fayette Water Works	311 2nd Ave SE	Fayette	Communications
Fayette Water Works Plant	2592 Highway 96	Fayette	Water/Waste Water
Gas Board City of Fayette	315 2nd Ave SE	Fayette	Gas
Solid Waste Authority	103 1st Ave NW	Fayette	Solid Waste
Water Plant	102 2nd Ave Ne	Fayette	Water/Waste Water
West Alabama TV Cable Co	213 2nd Ave NE	Fayette	Communications
Wireless Innovations	1552 Temple Ave N	Fayette	Communications
WLDX Radio AM 990	733 Columbus St E	Fayette	Communications

Map 5-28. Fayette County Utilities

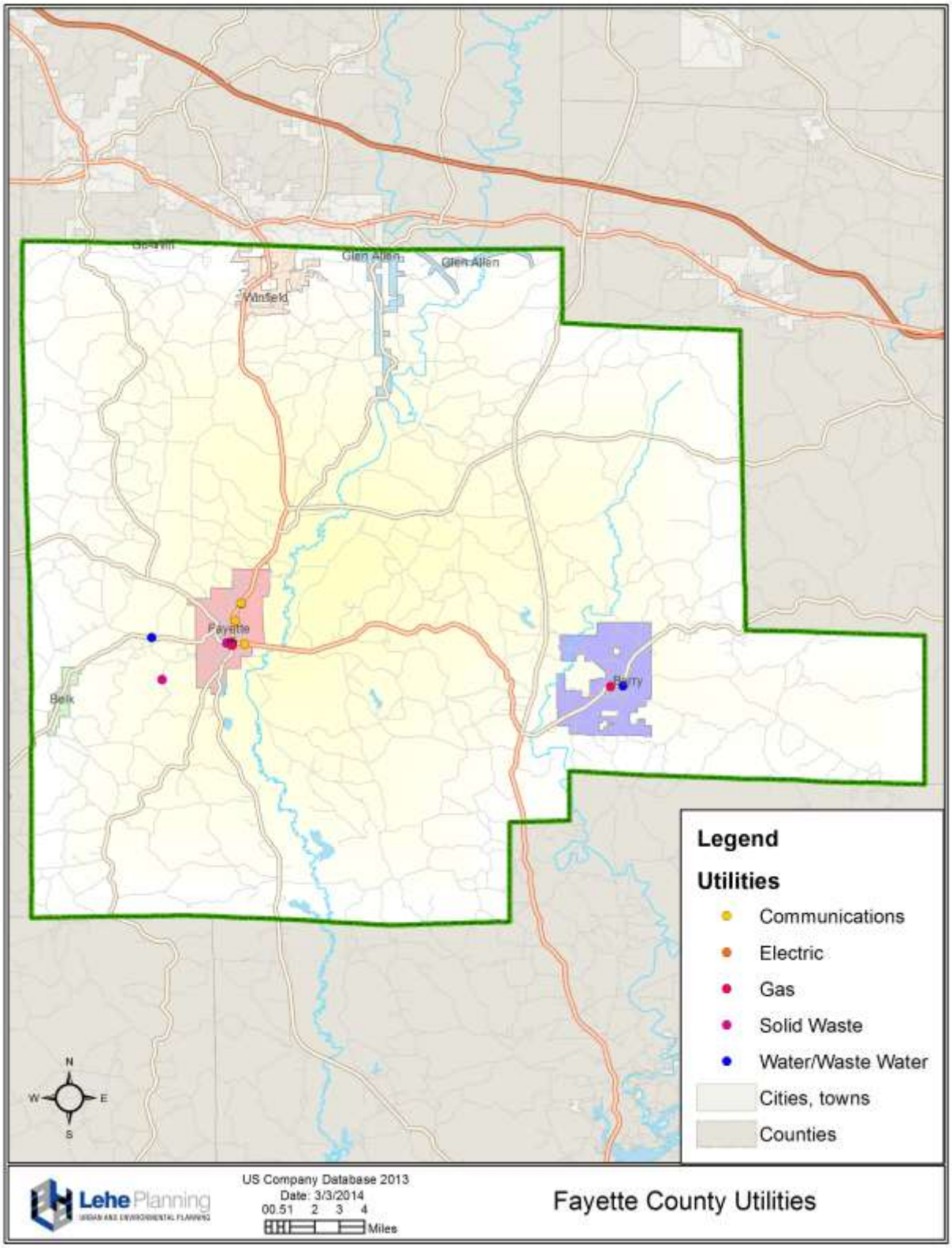
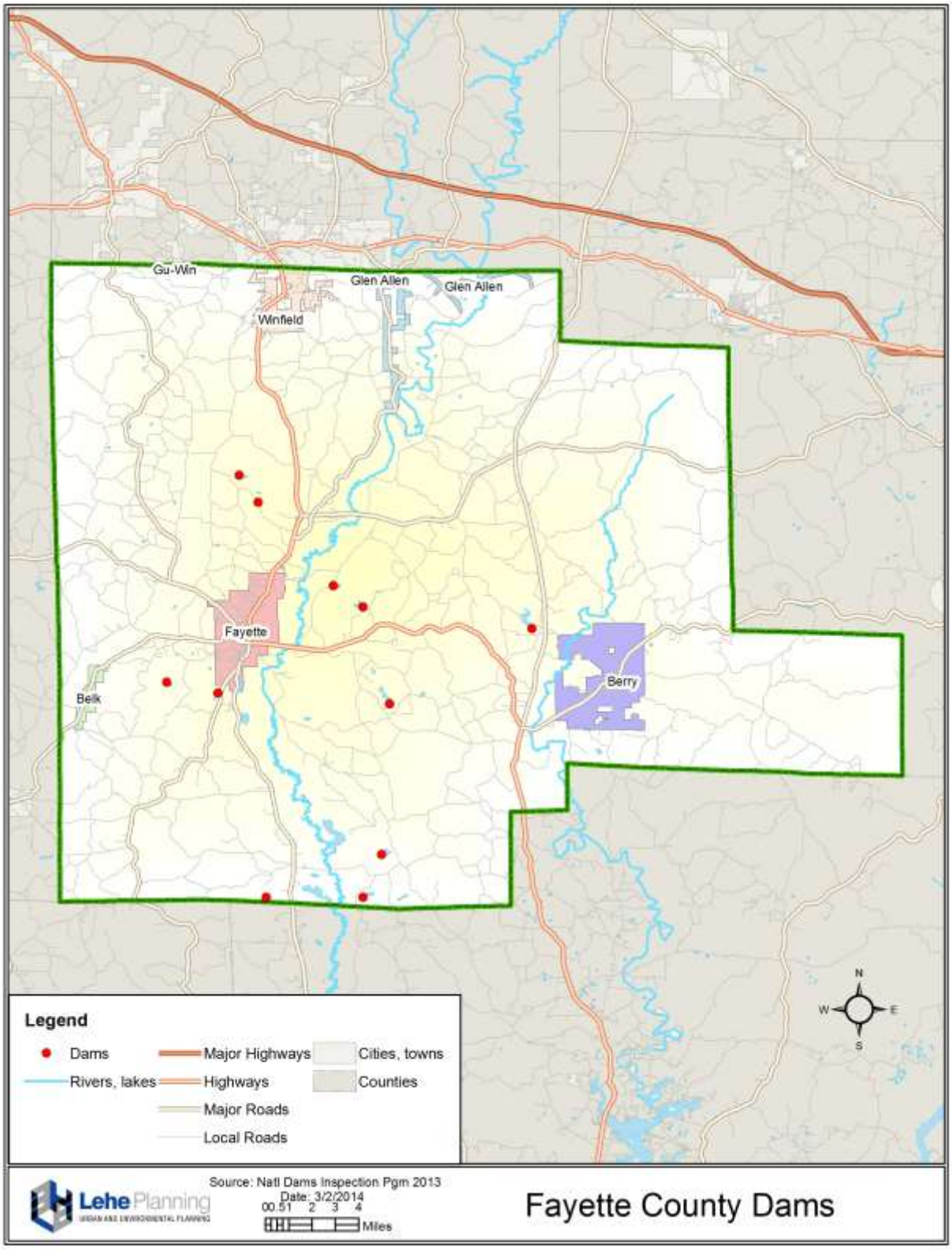


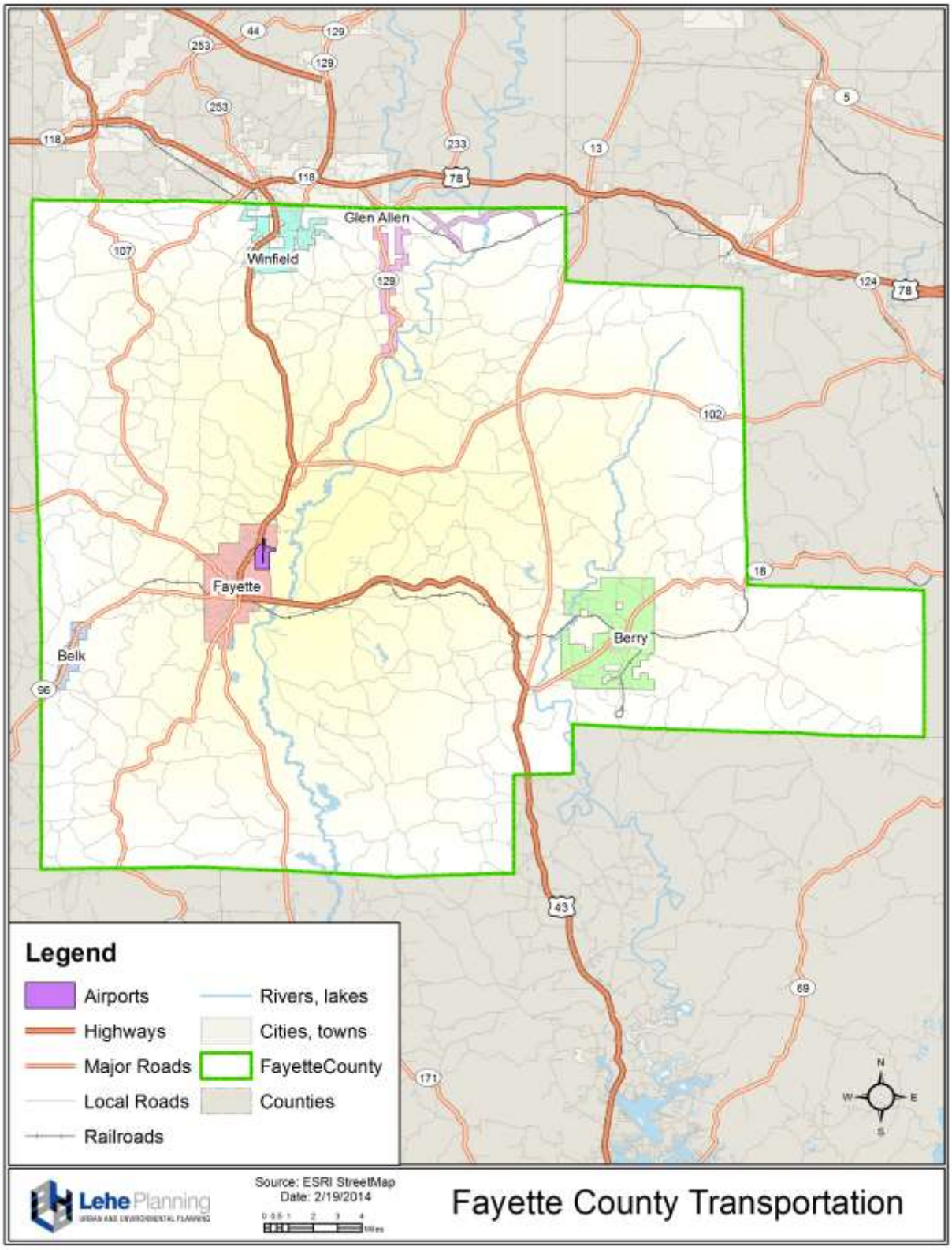
Table 5-37. Fayette County Dams

Dam Name	River	Year Completed	Height (ft.)	Max Storage	Max Discharge
Bagwell Lake	TR-Sipsey River - Offstream	1962	25	120	50
Barnett Lake Dam	TR- Davis Creek	1960	25	242	163
Bugs Lake Dam	Clear Creek	1952	28	1583	1579
Cains Ridge Dam	TR-Martins Creek-Offstream	1980	17	199	600
Fayette County Public Lake Dam	-	-	-	-	-
Freeman Lake Dam	TR-Bear Creek	1962	25	105	600
Harkins Lake Dam	TR-Fulton Creek	1956	35	330	600
Killingsworth Lake Dam	TR-Sipsey River	1967	31.00	374.00	1.15000
Mitchum Lake Dam	TR-Sipsey River-Offstream	1955	30	156	600
Robertson Pond	TR-Luxapillila River	1998	23	176	210
Slurry Imp. No. 1*	-	-	-	-	-
Watkins Lake Dam	TR-Luxapallila Creek	1950	18	107	405
William D. Rowland Dam	TR – Hells Creek	1994	23	145	190
WW Bobo Dam	TR-Luxapallila Creek	1955	15	95	154

Map 5-29. Fayette County Dams



Map 5-30. Fayette County Transportation Infrastructure



5.6 Estimate of Dollar Losses to Vulnerable Structures

5.6.1 Scope and Purpose of Loss Estimates

This section provides estimates of damages to vulnerable structures identified above in Section 5.5. Lost estimates are calculated using the structure, contents, and function of each asset. The following definitions are used:

- ✓ *Structure loss* – (% damage) X ($ replacement value of the structure)
- ✓ *Content loss* – (% damage) X ($ replacement value of the contents)
- ✓ *Functional Loss* - indirect effects of the hazard, such as the days of interruptions in operations that an asset incurs during an event.

For hazards with damage records, loss estimates count damages from the most probable severity. For location-specific events, loss estimates evaluate the affected parts of each jurisdiction. Although these estimates are broad, they can be useful in roughly assessing the benefits and costs of a proposed mitigation project. Moreover, these estimates provide a basis for selecting and prioritizing actions recommended by the Mitigation Strategy in Chapter 6.

This section also describes methodology and highlights limitations of insufficient data and lack of reliable methods. Measures for compiling and analyzing data to improve risk assessment studies appear in Section 5.6.5 “Recommended Risk Assessment Measures.”

As explained above, most hazards are county-wide. In the case of county-wide hazards, exposure is distributed uniformly over all municipalities and unincorporated areas. County-wide hazards include tornadoes, severe storms, winter storms/freezes, droughts/heat waves, wildfires, and earthquakes. In contrast, exposure to location-specific hazards—including flooding, dam/levee failures, sinkholes and landslides—varies widely among jurisdictions.

5.6.2 Loss Estimate Methodology

Method 1: HAZUS-MH Loss Estimates

This plan estimates losses using HAZUS-MH, which was used as a basis for the vulnerable structures inventory of Section 5.5. HAZUS-MH uses approximations and algorithms to estimate losses, so results do not reflect actual losses with certainty. These loss estimates are most useful for judging a hazard’s risk *relative to* other hazards and the vulnerability of a structure *relative to* other structures, rather than as absolute measures of likelihood and economic appraisal. These 2011 HAZUS-MH loss estimates are updates of estimates included in the 2006 plan.

HAZUS-MH offers three levels of analysis. Level 1 requires the least amount of local data and is sufficient for mitigation policy planning purposes. A Level 1 analysis

relies on the national data set provided with HAZUS-MH. The analysis provides general loss estimates for earthquakes, floods, and hurricane winds. All loss estimates are at a county level, which is the smallest geographic area of meaningful analysis using HAZUS-MH.

Method 2: Estimates Based upon Historical Records

Data and records from Section 5.4 supplemented the HAZUS-MH data to prepare loss estimates. Damage data and records of previous occurrences were obtained from the following primary sources:

1. NFIP insurance claims data since 1978 (see Section 5.8);
2. NOAA, National Climatic Data Center damage estimates (see damage summaries in Section 5.4 "Hazard Profiles" and Appendix E "Hazard Profile Data."
3. National Weather Service Alabama Tornado database.
4. Alabama State Hazard Mitigation Plan, 2013 update, section 5.4 "Vulnerability Assessment and Loss Estimation."

Jurisdictional Estimates

To derive jurisdictional estimates, the planning team used existing (2012) and future (2030) population estimates to distribute losses among Fayette County's four jurisdictions. Population distribution appears in Table 5-38 below. (See Section 5.5.2 "Inventory Methodology"). The damage estimates in this section, however, only apply to existing conditions.

Table 5-38. Population Distribution by Jurisdiction, 2012 and 2030

Jurisdiction	Estimated 2012	% of 2012	Projected 2030	% of 2030 Projection
Belk	212	1.2%	184	1.2%
Berry	1,130	6.7%	1,066	7.0%
Fayette	4,550	26.8%	4,294	28.3%
Glen Allen	504	3.0%	668	4.4%
Unincorporated	10,587	62.3%	8,983	59.1%
Fayette County	16,983	100%	15,195	100%

5.6.3 HAZUS-MH Loss Estimates

The planning team performed HAZUS-MH Hurricane studies to estimate losses. Global Summary and Quick Assessment Reports of the HAZUS-MH runs contain detailed results. These studies, maps, and reports were prepared by a qualified GIS professional with advanced HAZUS training classes completed at the FEMA Emergency Management Institute in Emmitsburg, Maryland, and extensive experience in its local

application to mitigation planning. The following HAZUS-MH reports are on file with the Fayette County EMA and available for public review:

- HAZUS-MH Hurricane Frederic Event Global Report, dated May 13, 2014
- HAZUS-MH Hurricane Frederic Quick Assessment Report, May 13, 2014
- HAZUS-MH 100 Year Flood Event Global Report, dated May 3, 2014
- HAZUS-MH 100 Year Flood Event Quick Assessment Report, dated May 3, 2014
- HAZUS-MH 500-year, 6.5 Magnitude Earthquake Event Global Report, dated May 13, 2014

Flood Loss Estimates

The planning team used HAZUS-MH to assess the 100-year flood event scenario. The following table itemizes the overall "Quick Assessment" results for the 100-year flood event.

Table 5-39. HAZUS-MH Flood Module Quick Assessment Results

Fayette County 100 Year Flood Event	
Area (Square Miles)	628
Number of Residential Buildings	9,424
Number of All Buildings	9,994
Number of Persons in the Region	18,000
Residential Building Exposure ($ millions)	$687
Total Building Exposure ($ millions)	$934
Displaced Population (# of households)	269
Short Term Shelter Requirements (# of people)	251
Residential Property (Capital Stock) Losses ($ millions)	$15
Total Property (Capital Stock) Losses ($ millions)	$52
Business Interruptions (Income) Losses ($ millions)	$0
Total Economic Losses ($ millions)	**$67**

Economic Losses by Jurisdiction. The following table shows jurisdictional loss estimates, which were obtained by dividing the county's total losses by each jurisdiction's share of the 2012 county population.

Table 5-40. Total Economic Losses by Jurisdiction

Jurisdiction	Share of Losses	Total Economic Losses ($ Millions)
Belk	1.7%	$.1
Berry	6.7%	$0.4
Fayette	26.7%	$1.6
Glen Allen	3.3%	$0.2
Unincorporated	61.6%	$3.7
Fayette County	100%	$6

Building-Related Damages. HAZUS estimates that a 100-year flood event would moderately damage 58 buildings — over 19 percent of the total number of buildings at risk of flooding in Fayette County. The event would destroy nine buildings. The following tables show the detailed results, and GIS maps illustrate the HAZUS-generated damages due to flooding.

Table 5-41. Expected Building Damage by Occupancy

Table 3: Expected Building Damage by Occupancy

	1-10		11-20		21-30		31-40		41-50		Substantially	
Occupancy	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	11	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	0	0.00	17	28.33	12	20.00	22	36.67	9	15.00
Total	0		12		17		12		22		9	

Table 5-42. Expected Building Damage by Building Type

Table 4: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	0	0.00	2	100.00	0	0.00	0	0.00	0	0.00	0	0.00
ManufHousing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	8	100.00
Masonry	0	0.00	2	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Steel	0	0.00	7	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	0	0.00	0	0.00	17	32.69	12	23.08	22	42.31	1	1.92

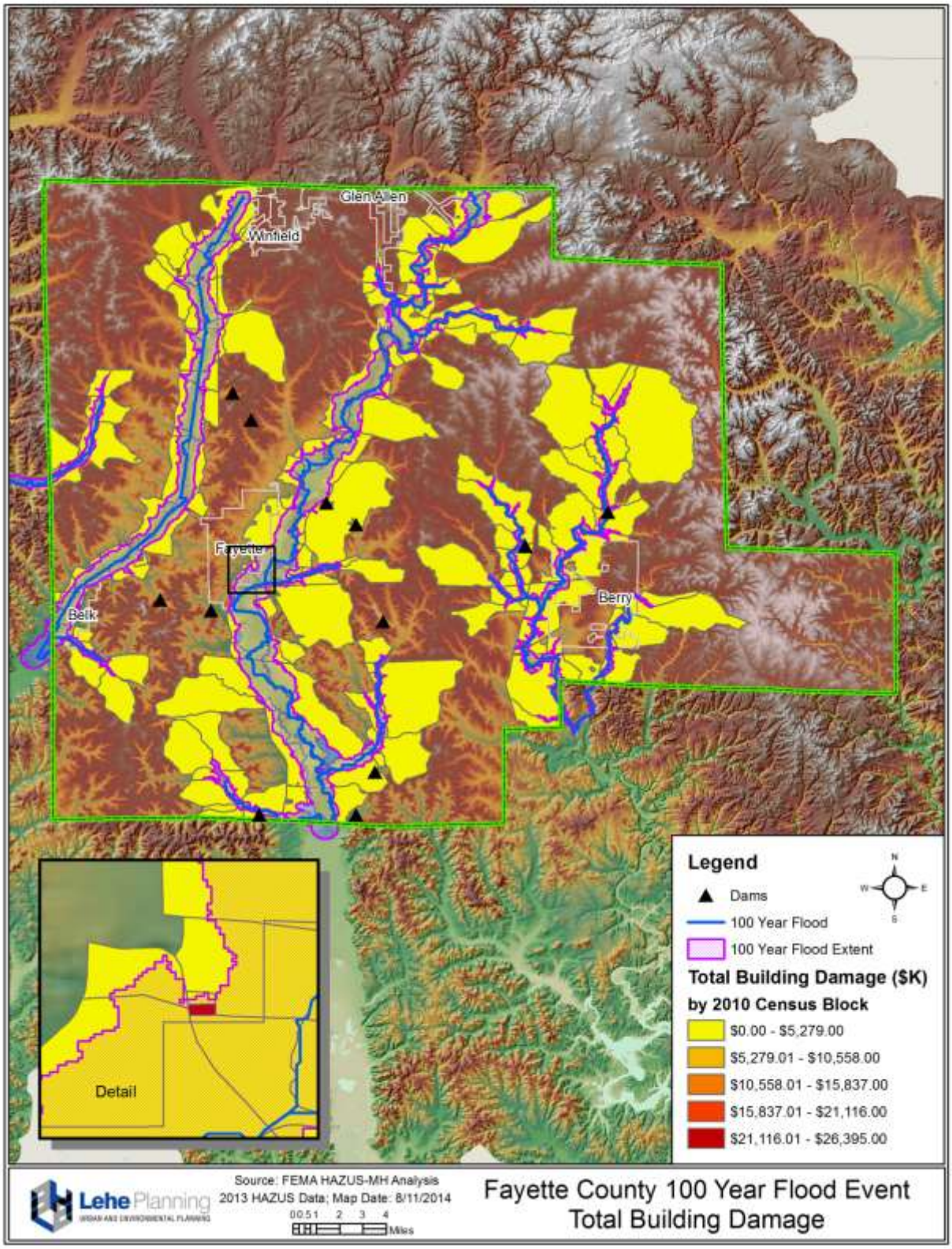
Essential Facilities Damages. HAZUS predicts that a 100-year flood event would cause no damage to the estimated 34 essential facilities (police stations, fire stations, hospitals, and schools) in Fayette County.

Building Related Losses. Building losses are broken into two categories by HAZUS: direct building losses and business interruption losses. Direct building losses include estimated costs to repair or replace damaged buildings and contents. Business interruption losses are losses associated with the inability to operate a business as a result of the flood and also include temporary living expenses for displaced households. The total losses are estimated at $51.79 million, with 0.6% related to business interruption. Residential occupancies account for 28.6% of the total loss.

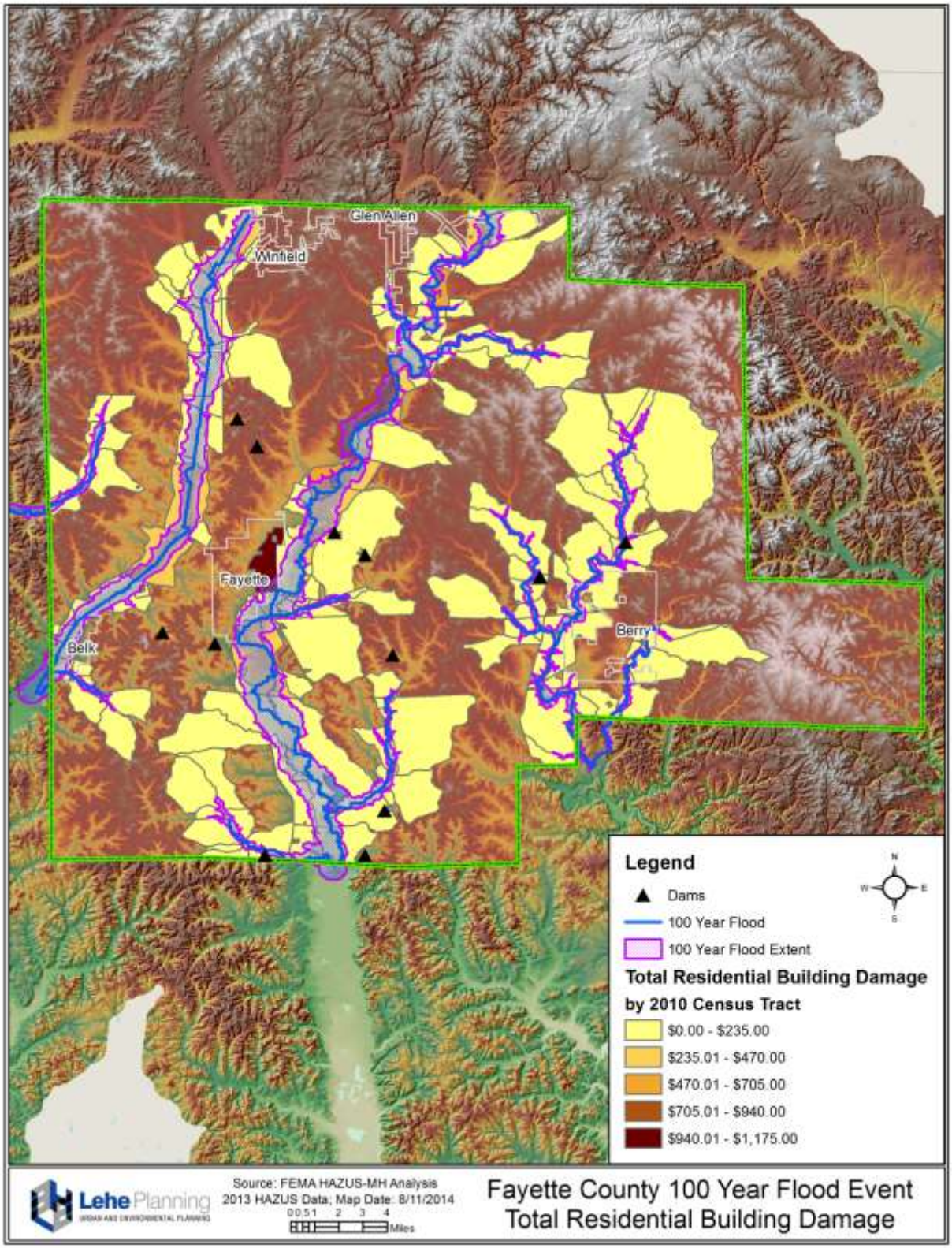
Table 5-43. Building Related Economic Loss Estimates ($ Millions)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	9.51	0.79	5.92	0.34	16.55
	Content	5.31	2.90	18.54	1.83	28.57
	Inventory	0.00	0.07	6.27	0.04	6.38
	Subtotal	**14.82**	**3.75**	**30.73**	**2.20**	**51.50**
Business Interruption						
	Income	0.00	0.01	0.00	0.00	0.02
	Relocation	0.00	0.00	0.01	0.00	0.01
	Rental Income	0.00	0.00	0.00	0.00	0.00
	Wage	0.00	0.02	0.01	0.24	0.26
	Subtotal	**0.00**	**0.03**	**0.02**	**0.24**	**0.29**
ALL	**Total**	**14.82**	**3.78**	**30.75**	**2.44**	**51.79**

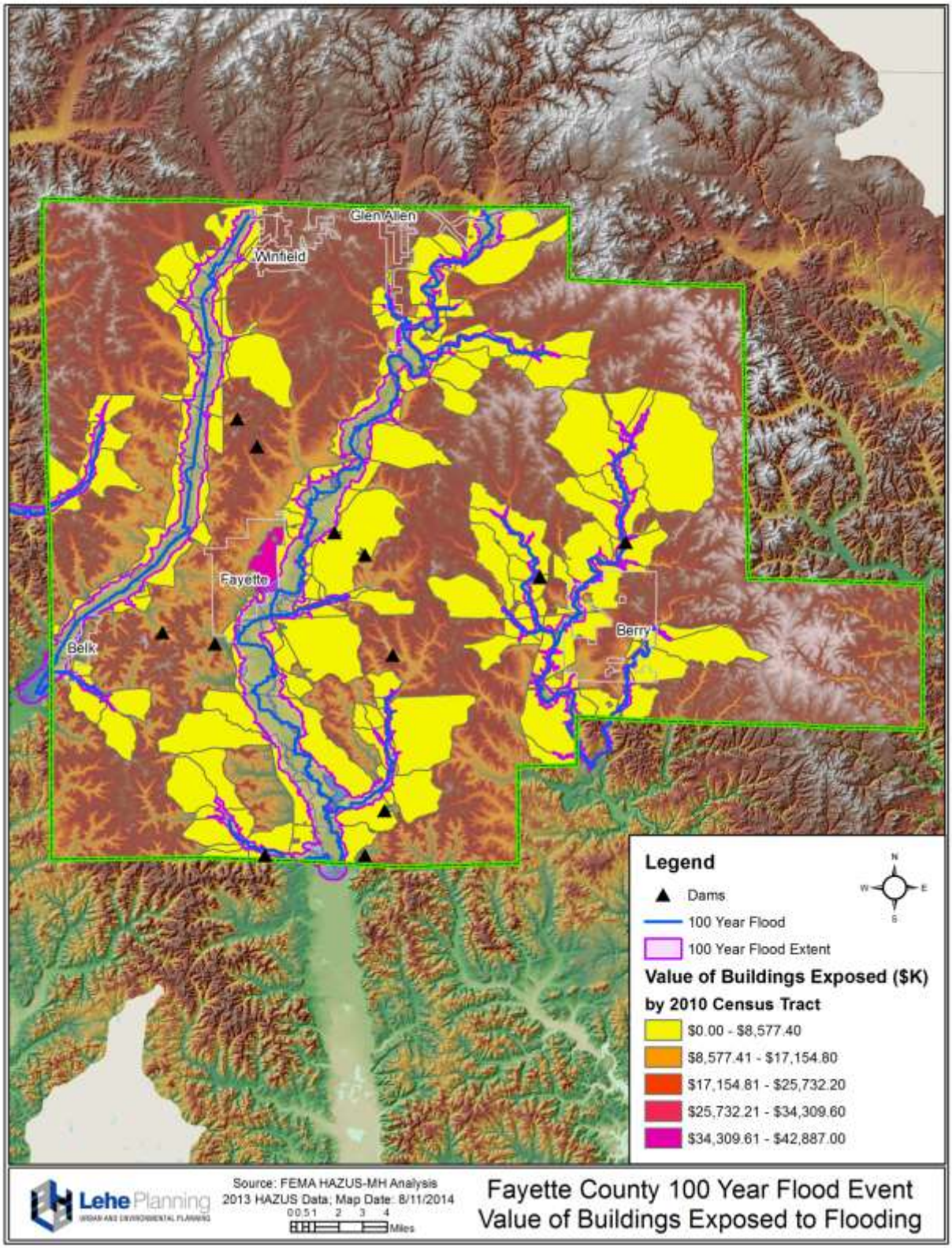
Map 5-31. Total Building Damage from 100 Year Flood



Map 5-32. Total Residential Building Damage from 100 Year Flood



Map 5-33. Value of Buildings Exposed to 100 Year Flood



Hurricane Loss Estimates

The planning team used HAZUS-MH to assess a historic Hurricane Frederic event scenario. HAZUS only assesses the hurricane wind effects of each event. The following tables show the direct economic losses generated by HAZUS-MH, followed by Map 5-34, which show the geographic distribution of economic losses as a result of Hurricane Frederic (2006 dollars).

Table 5-44. HAZUS-MH Hurricane Scenarios

General Building Stock

Occupancy	*Building Count*	*Dollar Exposure ($ M)*
Residential	9,424	687
Commercial	347	117
Other	223	130
Total	9,994	934

Number of Buildings Damaged

Damage State	*Residential*	*Commercial*	*Other*	*Total*
Minor	300	<10	<10	300
Moderate	20	0	0	20
Severe	0	0	0	0
Destruction	0	0	0	0
Total	300	<10	<10	300

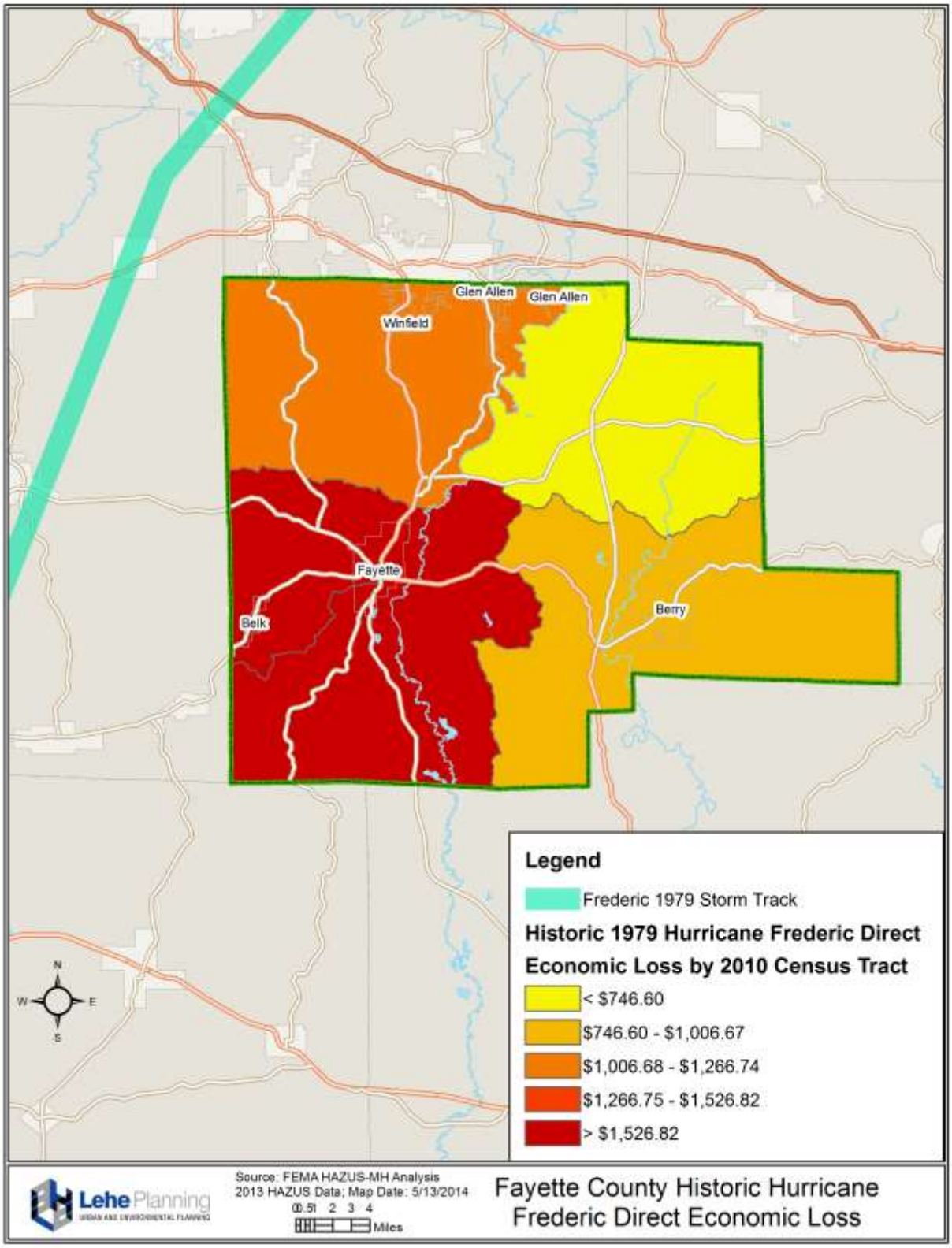
Shelter Requirements

Displaced Households (# Households)	0
Short Term Shelter (# People)	0

Economic Loss ($ Millions)

Capital Stock		6
Residential Property	6	
Commercial Property	<1	
Other Property	<1	
Business Interruption (Income)		<1
Total Direct Economic Loss		6

Map 5-34. HAZUS-MH Hurricane Frederic Direct Economic Loss



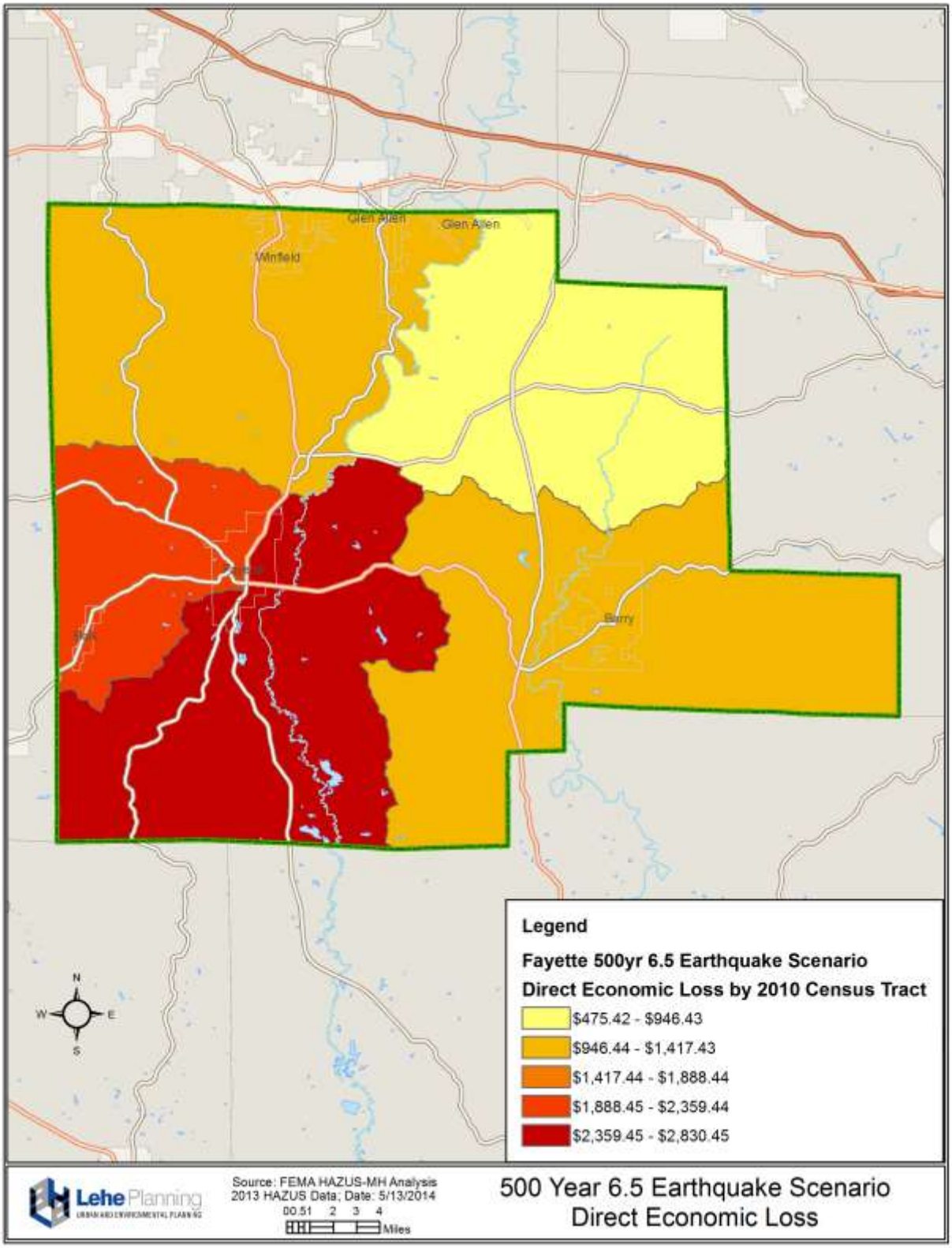
Earthquake Loss Estimates

The planning team used HAZUS-MH to estimate the losses as a result of a 500-year 6.5 magnitude earthquake. Results indicate that approximately 326 buildings will sustain at least moderate damage, over 3% of all buildings. HAZUS estimates that one1 building will be damaged beyond repair. HAZUS-MH predicts no damage to essential facilities, such as hospitals, schools, EOCs, Police and Fire Stations, although 13 percent of hospital beds would be unavailable immediately after the event, with all but 10 percent in service one week later and 98 percent of beds operational after 30 days.

Additionally, the event report predicts that all components of the transportation system will maintain at least 50 percent functionality, because no component will suffer damage. Likewise, HAZUS predicts no disabling damage to the utility infrastructure but rather only a handful of leaks and breaks in water and gas lines. Therefore, the model projects no interruption of water, gas, or electrical service.

No casualties are expected, and total building-related economic losses (structural, contents, inventory, income and wages, etc.) are estimated at $7.8 million countywide, 28% of which can be attributed to business interruption losses. The largest loss is expected to be sustained by the residential occupancies which make up over 57% of the total loss. Estimated damage to transportation, utilities and communications systems is minimal. Map 5-35 shows the direct economic impact by 2010 Census tracts.

Map 5-35. 500-Year 6.5 Magnitude Earthquake Economic Loss Impacts



5.6.4 Loss Estimates Based on Historical Records

Severe Storms Loss Estimates

As reported in the severe storms hazard profile in Section 5.4.2, National Climatic Data Center (NCDC) records show frequent annual severe storm occurrences since 1996. The database shows 132 severe storm events for Fayette County—roughly 7 per year. The database also shows approximately $1.2 million in damages since 1996.

Tornado Loss Estimates

According to the NOAA National Climatic Data Center and National Weather Service (NWS) records (see Section 5.4.2 "Tornadoes Profile"), Fayette County has been the site of 24 tornadoes from 1996 to 2013, averaging approximately 2.0 annually. These tornadoes caused 4 deaths, 8 injuries, and property damages of over $3 million.

Flood Loss Estimates

The National Climatic Data Center (NCDC) Storm Events Database shows approximately two floods per year, on average since 1996 (Section 5.4.3). There have been 11 floods reported for Fayette County for the 1997-2013 period. Average annual damages are estimated at $125,000.

Winter Storms/Extreme Cold Estimates

The National Climatic Data Center (NCDC) estimated that 9 winter storm/extreme cold events occurred in the period between 1996 and 2013. Damages amounted to $551,000, average at $11,364.

Loss Estimates for Remaining Hazards

Historical data is not sufficient to estimate losses for the remaining hazards identified in this Plan. In some cases, there have been no recorded events, such as dam/levee failures and landslides, and in other cases, no damages resulted from an event, as is the case for instances of droughts/heat events, earthquakes, wildfires, and sinkholes.

5.6.5 Recommended Risk Assessment Measures

The Mitigation Strategy of this Plan (Chapter 6) should include both short term and long term measures to improve the completeness and reliability of loss estimates. These measures should carry out the following general objectives:

- ✓ Critical Facilities Assessments. Assess critical facilities (hospitals, schools, fire and police stations, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.

- ✓ Geographic Information Systems (GIS). Maintain a comprehensive database of hazard locations, socio-economic data, infrastructure, and critical facilities inventories.
- ✓ Planning Studies. Conduct special plans and studies, as needed, to identify hazard risks and develop mitigation projects.

5.7 General Description of Land Uses and Development Trends

5.7.1 Impacts of Development Trends on Vulnerability

Development trends demand consideration in any plan for hazard mitigation. This section examines development trends affecting vulnerability to natural hazards. Development can raise vulnerability in several ways, including:

- Competing uses for land can push new development into areas prone to flooding, landslides and other location-specific hazards.
- New roads, parking lots, and other impervious surfaces can increase urban runoff and thereby exacerbate flooding.
- New residential, commercial and industrial development in previously rural areas can boost the community's vulnerability to wildfires.
- Increased population can stretch scarce water resources in times of drought.
- Development on slopes and geologically unstable terrain can increase exposure to and even cause sinkholes and landslides.

5.7.2 Past Trends

Growth in Fayette County has decreased over the past twenty years at a rate of 8.3%. While Fayette County declined 1.7% in population from 1990 to 2000, the decline in population from 2000 to 2010 was much greater at 6.7%. The State far outpaced the growth that was seen in Fayette County, increasing by 18.3% from 1990 to 2010 Table 5-45 depicts population growth trends for Fayette County jurisdictions and the State of Alabama, from 1990 to 2010.

Table 5-45. Fayette County Historic Growth Trends

Jurisdiction	1990	2000	Number Change	Percent Change	2010	Number Change (1990 – 2010)	Percent Change (1990 – 2010)
Alabama	4,040,389	4,447,100	406,711	10.1%	4,779,736	332,636	18.3%
Fayette County	18,809	18,495	-314	-1.7%	17,241	-1,568	-8.3%
Belk	255	214	-41	-16.1%	215	-40	-15.7%
Berry	1,218	1,238	20	1.6%	1,148	-70	-5.7%
Fayette	4,909	4,922	13	.26%	4,619	290	-5.9%
Glen Allen	350	442	92	26.3%	510	160	45.7%
Unincorporated	10,087	11,679	1,592	15.8%	8,739	-1,348	-13.4%

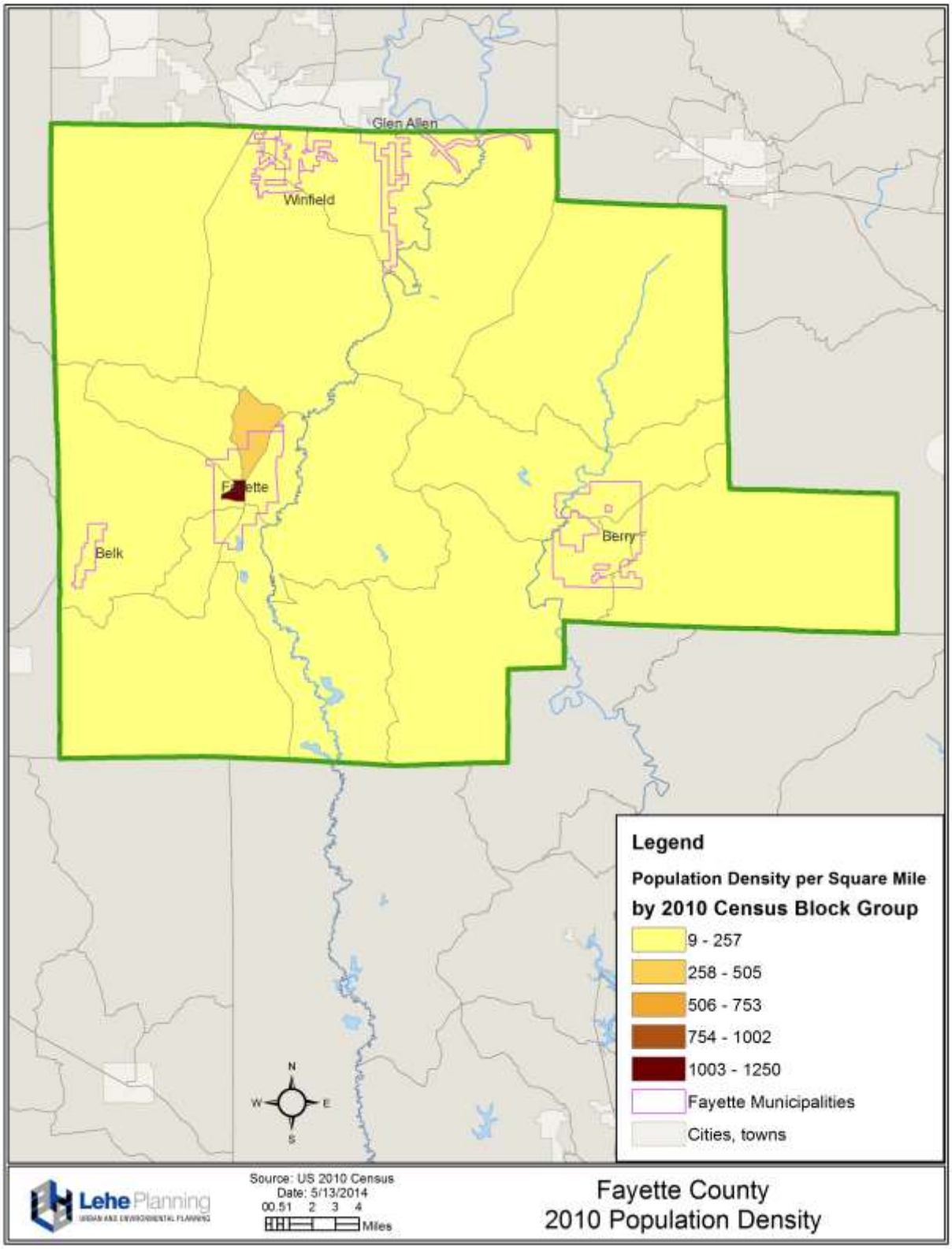
Source: U.S. Census Bureau, 2010

Distribution of Growth within Fayette County

With a 2010 population of 4,619, the City of Fayette is the largest city in Fayette County, followed by approximately 1,148 people residing in Berry. Those residing in unincorporated parts of Fayette County dominate the population figures, at 8,739. Only the City of Fayette increased in population by 5.9% from 2000 to 2010. All of the other jurisdictions declined in growth.

Map 5-36 shows population density (persons per square mile) for Fayette County in 2010. The densest areas are predominately located in the City of Fayette.

Map 5-36. Population Density in Fayette County



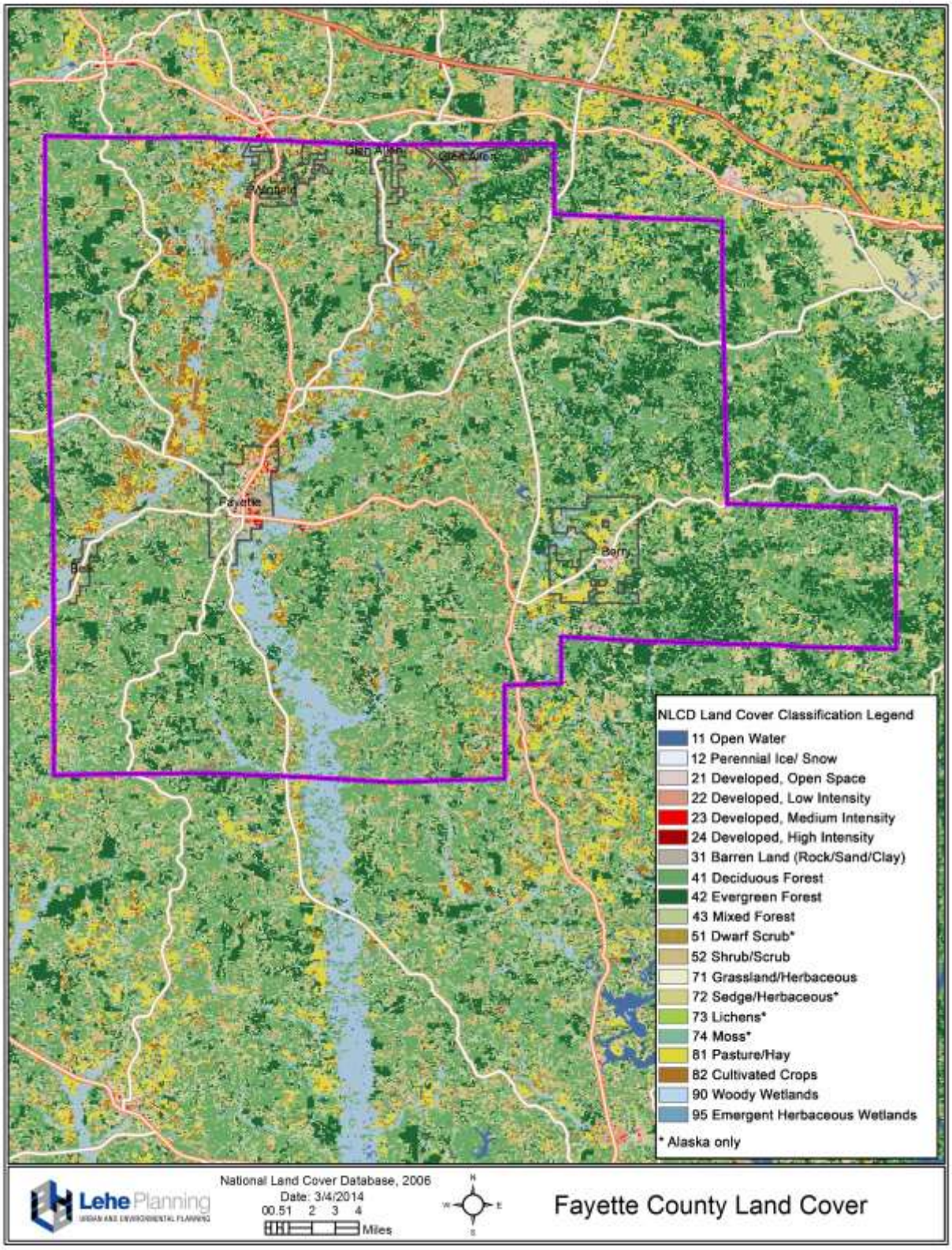
Land Use

Fayette County has an area of approximately 630 square miles of land area and about 1.7 square miles of water area. The County is located within the Cumberland Plateau and characterized by sandstone, shale, and limestone. The Warrior and Tennessee Rivers drain most of the Cumberland Plateau. The Sipsey River, a tributary of the Tombigbee River, flows through the center of Fayette County; the North River, a tributary of the Upper Black Warrior River, flows through the eastern portion of the county.

Fayette County has approximately 333,600 acres of forestland (Alabama Forestry Commission, 2011). Map 5-37 “Land Cover” shows that the majority of Fayette County is deciduous forest with evergreen forest, pasture, and cultivated crops interspersed throughout.

Fayette County is predominantly agricultural with some urbanization within the incorporated communities. The most densely developed areas lie within the Fayette city limits.

Map 5-37. Fayette County Land Cover



5.7.3 Future Trends

Table 5-46 presents projected growth in Fayette County and the State of Alabama, between 2000 and 2030 according to projections compiled by the Center for Business and Economic Research at the University of Alabama. Fayette County's population decline between 2000 and 2030 nears 18%, compared to a growth of 20% for the State. These projections are based on historical data and do not reflect current economic development efforts in Fayette County or throughout the State. Table 5-47 and Chart 5-2 show the estimated 2012 population and the projected 2030 population by jurisdiction. Aside from the unincorporated portion of Fayette County (accounting for 59%), the City of Fayette comprises most of the 2030 population growth at 28%.

Table 5-46. Population 2000-2010 and Projections 2015-2035

Population Estimate/Projection						Change 2000-2030	
	2000[a]	2010[a]	2015[b]	2025[b]	2030[b]	Number	Percent
Alabama	4,447,100	4,779,736	4,943,866	5,242,423	5,365,245	918,145	20.6%
Fayette	18,495	17,241	16,771	15,747	15,195	-3,300	-17.8%

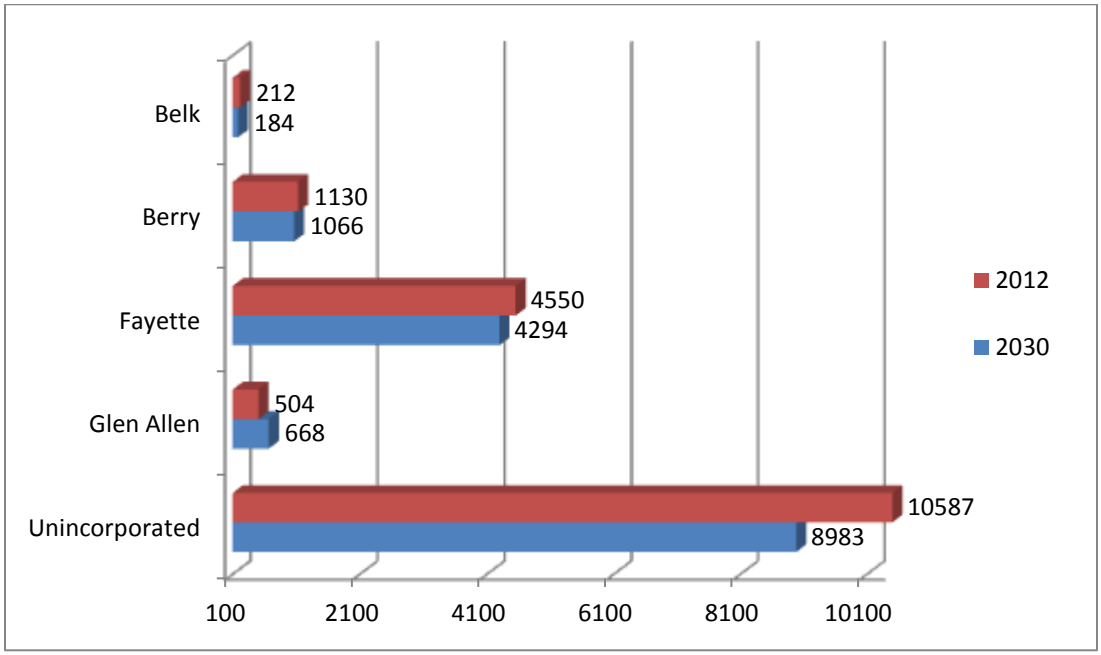
[a] US Census Bureau. 2010 Census [b] Center for Business and Economic Research, U. of Alabama

Table 5-47. Population Projections by Jurisdiction

Jurisdiction	Estimated 2012	Projected 2030	Projected Change 2012-2030	Percent Increase 2012-2030	% of Total 2030
Belk	212	184	-28	-13.4%	1.2%
Berry	1130	1,066	-64	-5.6%	7.0%
Fayette	4550	4,294	-256	-5.6%	28.3%
Glen Allen	504	668	164	32.5%	4.4%
Unincorporated	10587	8,983	-1,604	-15.2%	59.1%
Fayette County	16983	15,195	-1,788	-10.5%	100%

Source: Derived from the Alabama State Data Center & U.S. Census

Chart 5-2 Projected Population Changes



Economic development prospects

Fayette County's predominant industry is manufacturing. Companies such as Pittsburg & Midway Coal Mining, Ox Bodies, Inc. and Best Manufacturing comprise this industry. Educational services, healthcare, and social assistance make up a significant portion of the employed population, as well.

Fayette County is one of three counties in Northwest Alabama (others including Marion and Lamar) forming the C3 of Northwest Alabama Economic Development Alliance. The C3 Alliance works to promote environments conducive to business location and expansion, creating jobs for the three counties. A campus for Bevill State Community College is located in Fayette County, along with a local art museum, civic center, and multi-purpose complex with equestrian and RV facilities.

5.8 Repetitively-Damaged NFIP-Insured Structures

FEMA defines *repetitive loss* property as properties that have two or more losses of at least $1,000 and have been paid under the National Flood Insurance Program (NFIP) within any 10-year period. According to the State NFIP Coordinator, Fayette County and its municipalities have zero repetitively damaged properties. Table 5-48 describes the number of policies in force.

Table 5-48. NFIP Policies and Repetitive Loss Claims

Community Name	Total NFIP Policies	Repetitive Loss Structures	Total RL Claims	Total RL Losses	Total Insurance in Force
Belk	1	0	0	$0	$42,000
Berry	0	0	0	$0	$0
Fayette	8	0	0	$0	$1,614,500
Glen Allen	0	0	0	$0	$0
Fayette County	11	0	0	$0	$1,274,100
Totals	20	0	0	$0	$2,930,600

Source: NFIP State Coordinator, 2014 & FEMA Policy Statistics, 2014

5.9 Summary of Hazards and Community Impacts

Table 5-49 summarizes each jurisdiction's vulnerability. Community impacts include the following descriptions and measurements:

Location. Location measures the geographic extent of the identified hazard in one of three ways, as follows:

1) *Community-wide* - the entire geographic area is affected;
2) *Partial* - a significant portion of the community is affected; or
3) *Minimal* - a negligible area is affected.

Probability. Probability measures the likelihood of the hazard occurring within the community, based on historical incidence. The scale for frequency runs as follows:

1) *Very high* - annually;
2) *High* - every two to three years;
3) *Moderate* - every three to ten years;
4) *Low* - every ten years; or
5) *Very low* - rare.

Extent. Extent measures the severity of the hazard and its potential to cause casualties, business losses, and damage to structures. The scale utilized runs as follows:

1) *Devastating* - the potential for devastating casualties, business losses, and structure damage;
2) *Significant* - the potential for some casualties and significant, but less than devastating, business losses and structure damage;
3) *Moderate* – moderate potential for economic losses and structure damage; or
4) *Slight* – slight or minimal potential for economic losses and structure damage.

Exposure. Exposure measures the percentage of structures within the community, including buildings, critical facilities, and infrastructure lifelines, that are exposed to the hazard. The classifications are defined as follows:

1) *High* - includes more than approximately 25 percent of the structures;
2) *Medium* - includes 10 percent to 25 percent of the structures; or
3) *Low* - includes less than 10 percent of the structures.

Damage Potential. Damage potential measures the damage that can be expected should an event take place. The classifications are defined as follows:

1) *High* - a hazard could damage more than 5 percent of the structures in a community;
2) *Medium* - a hazard could damage between 1 and 5 percent of the structures in a community; or
3) *Low* - a hazard could damage less than 1 percent of the structures in a community.

Table 5-49. Summary of Hazards and Community Impacts

Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location (Geographic Extent of Hazard in the Community)	Probability (Frequency of Hazard Occurrence in the Community)	Extent (Magnitude or Severity of Hazard in the Event of Occurrence)	Level of Exposure (Degree of Structures Exposed to the Hazard)	Level of Damage Potential (Percentage of Likely Damage to Exposed Structures)
Severe Storms	Fayette County	Community-wide	Very High	Significant	High	Low
	Belk	Community-wide	Very High	Significant	High	Low
	Berry	Community-wide	Very High	Significant	High	Low
	Fayette	Community-wide	Very High	Significant	High	Low
	Glen Allen	Community-wide	Very High	Significant	High	Low
	Uninc. Communities	Community-wide	Very High	Significant	High	Low
Tornadoes	Fayette County	Community-wide	High	Devastating	High	High
	Belk	Community-wide	High	Devastating	High	High
	Berry	Community-wide	High	Devastating	High	High
	Fayette	Community-wide	High	Devastating	High	High
	Glen	Community-wide	High	Devastating	High	High
	Uninc. Communities	Community-wide	High	Devastating	High	High
Floods	Fayette County	Partial	Very High	Significant	Low	Low
	Belk	Partial	Moderate	Moderate	Low	Low
	Berry	Partial	Moderate	Moderate	Low	Low
	Fayette	Partial	Very High	Significant	Medium	Medium
	Glen Allen	Partial	Moderate	Moderate	Low	Low
	Uninc. Communities	Partial	High	Moderate	Low	Low

Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location (Geographic Extent of Hazard in the Community)	Probability (Frequency of Hazard Occurrence in the Community)	Extent (Magnitude or Severity of Hazard in the Event of Occurrence)	Level of Exposure (Degree of Structures Exposed to the Hazard)	Level of Damage Potential (Percentage of Likely Damage to Exposed Structures)
Droughts/Heat Waves	Fayette County	Community-wide	Moderate	Moderate	High	Low
	Belk	Community-wide	Moderate	Moderate	High	Low
	Berry	Community-wide	Moderate	Moderate	High	Low
	Fayette	Community-wide	Moderate	Moderate	High	Low
	Glen Allen	Community-wide	Moderate	Moderate	High	Low
	Uninc. Communities	Community-wide	Moderate	Moderate	High	Low
Winter Storms/Freezes	Fayette County	Community-wide	Moderate	Significant	High	Low
	Belk	Community-wide	Moderate	Significant	High	Low
	Berry	Community-wide	Moderate	Significant	High	Low
	Fayette	Community-wide	Moderate	Significant	High	Low
	Glen Allen	Community-wide	Moderate	Significant	High	Low
	Uninc. Communities	Community-wide	Moderate	Significant	High	Low
Hurricanes	Fayette County	Community-wide	Low	Moderate	High	Low
	Belk	Community-wide	Low	Moderate	High	Low
	Berry	Community-wide	Low	Moderate	High	Low
	Fayette	Community-wide	Low	Moderate	High	Low
	Glen Allen	Community-wide	Low	Moderate	High	Low
	Uninc. Communities	Community-wide	Low	Moderate	High	Low

Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location (Geographic Extent of Hazard in the Community)	Probability (Frequency of Hazard Occurrence in the Community)	Extent (Magnitude or Severity of Hazard in the Event of Occurrence)	Level of Exposure (Degree of Structures Exposed to the Hazard)	Level of Damage Potential (Percentage of Likely Damage to Exposed Structures)
Sinkholes (Land Subsidence)	Fayette County	Minimal	Very Low	Slight	Low	Low
	Belk	Minimal	Very Low	Slight	Low	Low
	Berry	Minimal	Very Low	Slight	Low	Low
	Fayette	Minimal	Very Low	Slight	Low	Low
	Glen Allen	Minimal	Very Low	Slight	Low	Low
	Uninc. Communities	Minimal	Very Low	Slight	Low	Low
Landslides	Fayette County	Minimal	Very Low	Slight	Low	Low
	Belk	Minimal	Very Low	Slight	Low	Low
	Berry	Minimal	Very Low	Slight	Low	Low
	Fayette	Minimal	Very Low	Slight	Low	Low
	Glen Allen	Minimal	Very Low	Slight	Low	Low
	Uninc. Communities	Minimal	Very Low	Slight	Low	Low
Earthquakes	Fayette County	Community-wide	Low	Slight	High	Medium
	Belk	Community-wide	Low	Slight	High	Medium
	Berry	Community-wide	Low	Slight	Medium	Low
	Fayette	Community-wide	Low	Slight	High	High
	Glen Allen	Community-wide	Low	Slight	High	Medium
	Uninc. Communities	Community-wide	Low	Slight	High	Medium

Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location (Geographic Extent of Hazard in the Community)	Probability (Frequency of Hazard Occurrence in the Community)	Extent (Magnitude or Severity of Hazard in the Event of Occurrence)	Level of Exposure (Degree of Structures Exposed to the Hazard)	Level of Damage Potential (Percentage of Likely Damage to Exposed Structures)
Wildfires	Fayette County	Partial	Very High	Significant	Medium	High
	Belk	Partial	Low	Slight	Low	High
	Berry	Partial	Moderate	Slight	Low	High
	Fayette	Partial	Moderate	Slight	Low	High
	Glen Allen	Partial	Moderate	Slight	Low	High
	Uninc. Communities	Partial	Very High	Significant	Medium	High
Dam/Levee Failures	Fayette County	Minimal	Very Low	Slight	Low	Low
	Belk	Minimal	Very Low	Slight	Low	Low
	Berry	Minimal	Very Low	Slight	Low	Low
	Fayette	Minimal	Very Low	Slight	Low	Low
	Glen Allen	Minimal	Very Low	Slight	Low	Low
	Uninc. Communities	Minimal	Very Low	Slight	Low	Low
Manmade and Technological Hazards	Fayette County	Community-wide	Very High	Varies	High	Varies
	Belk	Community-wide	Very High	Varies	High	Varies
	Berry	Community-wide	Very High	Varies	High	Varies
	Fayette	Community-wide	Very High	Varies	High	Varies
	Glen Allen	Community-wide	Very High	Varies	High	Varies
	Uninc. Communities	Community-wide	Very High	Varies	High	Varies

5.10 Risks that Vary Among the Jurisdictions

This Plan has strongly emphasized the variations in risks among jurisdictions. In particular, the following sections contain specific references to jurisdictional variations:

- Hazard identification. Each jurisdiction was independently assessed to identify pertinent hazards, based on the sources noted in Section 5.3 "Identification of Hazards Affecting Each Jurisdiction." Descriptions of hazards can be found in Appendix D, "Hazard Identification, Ratings and Descriptions".
- Hazard profiles. Each of the hazard profiles in Section 5.4 notes how the location, extent, past occurrences, and probability of future events may vary among all jurisdictions. Maps are included, where possible, to emphasize the locations of hazards in relation to jurisdictional limits.
- Summary of Community Impacts. Table 5-49 "Summary of Hazards and Community Impacts" summarizes how hazards impact each jurisdiction.

Risk may vary among jurisdictions, as described in Table 5-50 "Jurisdictional Risk Variations." This table presents an overview of the common and unique risks within each jurisdiction and the unique characteristics of those risks. The risk variations table uses the following terms, as defined here:

Variation of Risks. Measures whether a risk is common or unique, as follows:

1) *Common risk* - affects all areas equally; or
2) *Unique risk* - affects certain jurisdictions with varying probability and extent.

Location. Indicates whether a hazard's impact varies within the community, as follows:

1) *Specific locations* - the hazard only threatens particular parts of the jurisdiction; or
2) *Not unique* - the hazard affects all parts of the jurisdiction.

Probability. Probability measures the likelihood of the hazard occurring within the community, based on historical incidence. The scale for frequency runs as follows:

1) *Very high* - annually;
2) *High* - every two to three years;
3) *Moderate* - every three to ten years;
4) *Low* - every ten years; or
5) *Very low* - rare.

Extent. Extent measures the severity of the hazard and its potential to cause casualties, business losses, and damage to structures. The scale utilized runs as follows:

1) *Devastating* - the potential for devastating casualties, business losses, and structure damage;
2) *Significant* - the potential for some casualties and significant, but less than devastating, business losses and structure damage;
3) *Moderate* – moderate potential for economic losses and structure damage; or
4) *Slight* – slight or minimal potential for economic losses and structure damage.

.

Table 5-50. Jurisdictional Risk Variations

Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
Severe Storms	Common Risks	Fayette County	Not Unique	Not Unique	Not Unique
		Belk	Not Unique	Not Unique	Not Unique
		Berry	Not Unique	Not Unique	Not Unique
		Fayette	Not Unique	Not Unique	Not Unique
		Glen Allen	Not Unique	Not Unique	Not Unique
		Uninc. Communities	Not Unique	Not Unique	Not Unique
Tornadoes	Common Risks	Fayette County	Not Unique	Not Unique	Not Unique
		Belk	Not Unique	Not Unique	Not Unique
		Berry	Not Unique	Not Unique	Not Unique
		Fayette	Not Unique	Not Unique	Not Unique
		Glen Allen	Not Unique	Not Unique	Not Unique
		Uninc. Communities	Not Unique	Not Unique	Not Unique
Floods	Unique Risks	Fayette County	Specific Locations	Very High	Moderate
		Belk	Specific Locations	Moderate	Moderate
		Berry	Specific Locations	Moderate	Moderate
		Fayette	Specific Locations	Very High	Moderate
		Glen Allen	Specific Locations	Moderate	Moderate
		Uninc. Communities	Specific Locations	High	Moderate
Droughts/Heat Waves	Common Risks	Fayette County	Not Unique	Not Unique	Not Unique
		Belk	Not Unique	Not Unique	Not Unique
		Berry	Not Unique	Not Unique	Not Unique
		Fayette	Not Unique	Not Unique	Not Unique
		Glen Allen	Not Unique	Not Unique	Not Unique
		Uninc. Communities	Not Unique	Not Unique	Not Unique

Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
Winter Storms/Freezes	Common Risks	Fayette County	Not Unique	Not Unique	Not Unique
		Belk	Not Unique	Not Unique	Not Unique
		Berry	Not Unique	Not Unique	Not Unique
		Fayette	Not Unique	Not Unique	Not Unique
		Glen Allen	Not Unique	Not Unique	Not Unique
		Uninc. Communities	Not Unique	Not Unique	Not Unique
Hurricanes	Common Risks	Fayette County	Not Unique	Not Unique	Not Unique
		Belk	Not Unique	Not Unique	Not Unique
		Berry	Not Unique	Not Unique	Not Unique
		Fayette	Not Unique	Not Unique	Not Unique
		Glen Allen	Not Unique	Not Unique	Not Unique
		Uninc. Communities	Not Unique	Not Unique	Not Unique
Sinkholes (Land Subsidence)	Unique Risks	Fayette County	Specific Locations	Very Low	Slight
		Belk	Specific Locations	Very Low	Slight
		Berry	Specific Locations	Very Low	Slight
		Fayette	Specific Locations	Very Low	Slight
		Glen Allen	Specific Locations	Very Low	Slight
		Uninc. Communities	Specific Locations	Very Low	Slight
Landslides	Unique Risks	Fayette County	Specific Locations	Very Low	Slight
		Belk	Specific Locations	Very Low	Slight
		Berry	Specific Locations	Very Low	Slight
		Fayette	Specific Locations	Very Low	Slight
		Glen Allen	Specific Locations	Very Low	Slight
		Uninc. Communities	Specific Locations	Very Low	Slight

Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
Earthquakes	Common Risks	Fayette County	Not Unique	Not Unique	Not Unique
		Belk	Not Unique	Not Unique	Not Unique
		Berry	Not Unique	Not Unique	Not Unique
		Fayette	Not Unique	Not Unique	Not Unique
		Glen Allen	Not Unique	Not Unique	Not Unique
		Uninc. Communities	Not Unique	Not Unique	Not Unique
Wildfires	Unique Risks	Fayette County	Specific Locations	Very High	Moderate
		Belk	Specific Locations	Very High	Moderate
		Berry	Specific Locations	Very High	Moderate
		Fayette	Specific Locations	Very High	Moderate
		Glen Allen	Specific Locations	Very High	Moderate
		Uninc. Communities	Specific Locations	Very High	Significant
Dam/Levee Failures	Unique Risks	Fayette County	Specific Locations	Very Low	Moderate
		Belk	Specific Locations	Very Low	Moderate
		Berry	Specific Locations	Very Low	Moderate
		Fayette	Specific Locations	Very Low	Moderate
		Glen Allen	Specific Locations	Very Low	Moderate
		Uninc. Communities	Specific Locations	Very Low	Moderate
Manmade and Technological	Common Risks	Fayette County	Not Unique	Not Unique	Not Unique
		Belk	Not Unique	Not Unique	Not Unique
		Berry	Not Unique	Not Unique	Not Unique
		Fayette	Not Unique	Not Unique	Not Unique
		Glen Allen	Not Unique	Not Unique	Not Unique
		Uninc. Communities	Not Unique	Not Unique	Not Unique

Chapter 6 – Mitigation Strategy

6.1 Federal Requirements for the Mitigation Strategy

This chapter of the Plan addresses the Mitigation Strategy requirements of 44 CFR Section 201.6 (c) (3), as follows:

> "201.6 (c)(3) *A mitigation strategy* that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. This section shall include:
>
> (i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.
>
> (ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.
>
> (iii) An action plan describing how the actions identified in paragraph (c) (3) (ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.
>
> (iv) For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan."

6.2 Summary of Plan Updates

This Chapter replaces the Mitigation Strategies portion of each Community Profile within the 2009 Fayette County Plan Update in its entirety.

6.3 Goals for Hazard Mitigation

6.3.1 Description of How the Goals were Developed

The goals in the previous plans have been updated based on current conditions, including the following factors, among others:

- The completion of mitigation measures over the five-year plan implementation cycle (see Appendix C "2009 Plan Implementation Status");
- The 2014 update to the risk assessment in Chapter 5;
- The update to the risk assessment in the 2013 Alabama State Hazard Mitigation Plan; and
- The update of State goals and mitigation priorities reflected in the State Plan.

The Hazard Mitigation Planning Committee (HMPC) evaluated the validity and effectiveness of the goals from the previous 2009 plan and determined that all of the goals statements and objectives should be updated for the 2014 plan update. The HMPC selected among available mitigation measures that best respond to the considerations listed in the next paragraph (see Appendix F "Alternative Mitigation Measures"). The 2009 implementation status report in Appendix C "2009 Plan Implementation Status" documents which measures have been completed.

Among the considerations reviewed by the planning team during the process of updating this goals section of the mitigation strategy were the following concerns:

- Whether the 2009 goals and objectives reflected the updates to the local risk assessment and the 2013 update to the State risk assessment;
- Whether the 2009 goals and objectives effectively directed mitigation actions and projects that helped reduce vulnerability to property and infrastructure;
- Whether the 2009 goals and objectives support the changed 2013 mitigation priorities established by the HMPC; and
- Whether the 2009 goals reflect the adopted goals in the 2013 Alabama State Hazard Mitigation Plan.

The updated goals are presented in Section 6.3.3 "Community Goals" and have also been incorporated into the "Community Action Programs" in Volume II.

As further explained in Appendix F, a strategic planning approach has been used for identification and analysis of mitigation actions and projects. FEMA's program categories for managing a successful mitigation program were used as guidelines for identifying and sorting the alternative mitigation measures:

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

The comprehensive listing of alternative mitigation measures within each of the above mitigation program areas was developed by the planning team (refer to Appendix F "Identification and Analysis of Mitigation Measures"). The process by which the Hazard Mitigation Planning Committee (HMPC) and local jurisdictions finally selected among the available mitigation measures applied the STAPLEE method. STAPLEE examines social, technical, administrative, political, legal, environmental, and economic considerations.

HMPC representatives from each jurisdiction participated in the evaluation and selection of the mitigation measures. Not all of the mitigation measures initially considered were included in the final Community Action Programs (see Volume II "Community Action Programs"). The STAPLEE evaluation eliminated many of the measures. Also, some communities did not have the capabilities to carry out a particular measure under consideration or had other concerns revealed by the STAPLEE method.

A capability assessment was performed by the planning team to determine each participating community's capability to implement their selected mitigation action program. A report of the assessment is documented in Appendix B - "Community Mitigation Capabilities." The assessment includes, among other capability factors, a review of local plans, studies, regulatory tools and other local planning tools. Mitigation measures to improve these tools to better integrate mitigation objectives were considered and, where deemed appropriate, selected for the action programs.

In addition to STAPLEE and community capabilities, the communities examined other evaluation criteria, including consistency with the vision, goals, and objectives established for the 2014 plan update; cost effectiveness in terms of benefit to cost; FEMA and State funding priorities for Hazard Mitigation Assistance grants; and the fiscal and staffing capabilities of the jurisdictions for carrying out the measures.

The "2014-2019 Fayette County Multi-Jurisdictional Mitigation Action Program," as presented in Table 6-2 in Section 6.5, presents all the goals, objectives and measures chosen by each of the participating jurisdictions. The Community Action Programs in Volume II, which supplement Table 6-2, break out the same mitigation goals, objectives, and mitigation measures by community and add the priority, timeframe for completion, and responsibility for implementation.

6.3.2 The Vision for Disaster-Resistant Fayette County Communities

The communities of Fayette County envision active resistance to the threats of nature to human life and property through publicly-supported mitigation measures with proven results. Each community within the County embraces a long-term commitment to reduce the exposure and risks of natural and man-made hazards within its jurisdiction by activating all available resources through cooperative intergovernmental and private sector initiatives, augmenting public knowledge and awareness, and enhancing local mitigation capabilities.

This shared vision among all Fayette County local governments can be achieved through a long-term hazard mitigation strategy that fully responds to the following hazards identified by this plan:

- Severe Storms,
- Tornadoes
- Floods,
- Droughts/Heat Waves,
- Winter storms/Freezes,
- Hurricanes,
- Sinkholes (Land Subsidence),
- Landslides,
- Wildfires,
- Earthquakes,
- Dam/Levee Failures, and
- Man-made and Technological.

The attainment of this vision requires successful implementation of a comprehensive range of mitigation measures that promote the following underlying principles and purposes:

- To reduce or eliminate risks from natural and man-made hazards.
- To reduce the vulnerability of existing, new, and future development of buildings and infrastructure.
- To minimize exposure and vulnerability of people, buildings, critical facilities, and infrastructure to identified hazards.
- To increase public awareness and support of hazard mitigation.
- To establish interagency cooperation for conducting hazard mitigation activities.
- To strengthen communications and coordination among individuals and organizations.
- To integrate local hazard mitigation planning with State hazard mitigation planning, local comprehensive planning activities, and emergency operations planning.
- To protect people and property and reduce losses and damages to buildings and infrastructure.

6.3.3 Community Goals

The goals to guide the Mitigation Strategy and achieve the long-range vision shared among Fayette County communities are presented here:

1. **Prevention Goal.** Manage the development of land and buildings to minimize risks of loss due to hazards.
2. **Property Protection Goal.** Protect structures and their occupants and contents from the damaging effects of natural hazards.
3. **Public Education and Awareness Goal.** Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.
4. **Natural Resources Protection Goal.** Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.
5. **Structural Projects Goal.** Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where found to be feasible, cost effective, and environmentally suitable.

6.3.4 Compatibility with 2013 Alabama State Plan Goals

The 2014 Fayette County vision, goals, and objectives are reflective of the goals adopted in the 2013 Alabama State Hazard Mitigation Plan. The State plan includes the following five goals for statewide hazard mitigation:

1. Establish a comprehensive statewide hazard mitigation system.
2. Reduce the State of Alabama's vulnerability to natural hazards.
3. Reduce vulnerability of new and future development.
4. Foster public support and acceptance of hazard mitigation.
5. Expand and promote interagency hazard mitigation cooperation.

Alabama local governments, including Fayette County communities, are the fundamental building blocks of the "comprehensive statewide hazard mitigation system." The underlying principles and purposes of the 2014 Fayette County community goals, listed in Subsection 6.3.3 complement the remaining five State goals, as follows: (a) to reduce or eliminate risks from natural and man-made hazards; (b) to reduce the vulnerability of existing, new, and future development of buildings and infrastructure; (c) to minimize exposure and vulnerability of people, buildings, critical facilities, and infrastructure to identified hazards; (d) to increase public awareness and support of hazard mitigation; and (e) to establish interagency cooperation for conducting hazard mitigation activities.

6.4 Participation and Compliance with the National Flood Insurance Program (NFIP)

Fayette County and its municipal jurisdictions have been mapped and the floodplain identified. The jurisdictions of Fayette County, Belk, Berry, Fayette and Glen Allen all are members in good standing with the NFIP. All of these jurisdictions had their floodplain maps updated in 2010. All NFIP communities in Fayette County have continued to effectively enforce and keep their floodplain ordinances current since their original entry into the program. Local flood plain ordinance administrators provide technical assistance to applicants and keep abreast of changes in floodplain management requirements through the State NFIP Coordinator. All communities have developed five-year action programs to improve local flood plain management programs (see specific action items for each community in Section 6.7, Goal 1 Prevention, Objective 1.5 "Flood Plain Management Program.") Demonstrations of community commitment to effective implementation of the NFIP include the following actions:

- Longstanding records of continuous and effective enforcement of flood plain management ordinance requirements;
- Continuing education of local flood plain administrators;
- Community outreach to inform builders and property owners of flood plain management ordinance permitting requirements;
- Continuing updates of local flood plain ordinances for compliance with the most current NFIP standards;
- Ongoing relations by each community with the State NFIP Coordinator;

- Monitoring flooding events and damages in conjunction with the Fayette County EMA;
- Encouragement to participate in the Community Rating System (CRS) program, through this hazard mitigation planning process and the HMPC; and
- Maintaining NFIP publications on hand by the Fayette County EMA as technical support resources to local flood plain administrators and as public education information for the general public.

The following Table 6-1 provides information on the NFIP participation status of Fayette County jurisdictions:

Table 6-1. NFIP Community Status, Fayette County Jurisdictions

Community ID	Jurisdiction	Current Effective Map Date	Status
010219	Fayette County	06/04/2010	Participating
010083	Belk	06/04/2010(M)	Participating
010255	Berry	06/04/2010(M)	Participating
010084	Fayette	06/04/2010	Participating
010256	Glen Allen	06/04/2010(M)	Participating

(M)=No Elevations Determined - All Zone A, C and X
Source: NFIP Community Status Book, 4/30/2014

6.5 Implementation of Mitigation Actions

The range of measures described in Section 6.3 “Goals for Hazard Mitigation” was the source for all actions and projects selected by the Hazard Mitigation Planning Committee (HMPC) and the planning team for inclusion in the five-year Community Mitigation Action Programs for each jurisdiction (see Volume II). Each jurisdiction assigned a priority to selected measures, established a general completion schedule, assigned administrative responsibility for carrying out the measures, estimated costs, where possible, and identified potential funding sources, including potential eligibility for FEMA Hazard Mitigation Assistance Programs.

Social, technical, administrative, political, legal, environmental, and economic considerations (often referred to as the STAPLEE method) guided the evaluation of the range of measures considered by the Hazard Mitigation Planning Committee (HMPC) and its final recommended action programs for each participating jurisdictions. The STAPLEE method addressed the following areas of concern and responded to many of the questions presented here:

1. Social Considerations.

- *Environmental justice.* Will the proposed measure be socially equitable to minority, disadvantaged, and special needs populations, such as the elderly and handicapped?
- *Neighborhood impact.* Will the measure disrupt established neighborhoods or improve quality of life for affected neighborhoods?
- *Community support.* Is the measure consistent with community values? Will the affected community support the measure?
- *Impact on social and cultural resources.* Does the measure adversely affect valued local resources or enhance those resources?

2. Technical Considerations.

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

3. Administrative Considerations.

- *Staffing.* Does the jurisdiction have adequate staff resources and expertise to implement the measure? Will additional staff, training, or consultants be necessary? Can local funds support staffing demands? Will the measure overburden existing staff loads?
- *Maintenance.* Does the jurisdiction have the capabilities to maintain the proposed project once it is completed? Are staff, funds, and facilities available for long-term project maintenance?
- *Timing.* Can the measure be implemented in a timely manner? Are the timeframes for implementation reasonable?

4. Political Considerations.

- *Political support.* Does the local governing body support the proposed measure? Does the public support the measure? Do stakeholders support the measure? What advocates might facilitate implementation of the proposal?

5. Legal Considerations.

- *Legal authority.* Does the jurisdiction have the legal authority to implement the measure? What are the legal consequences of taking action to implement the measure as opposed to an alternative action or taking no action? Will new legislation be required?

6. Environmental Considerations.

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

7. Economic Considerations.

- *Availability of funds.* Will the measure require Federal or other outside funding sources? Are local funds available? Can in-kind services reduce local obligations? What is the projected availability of required funds during the timeframe for implementation? Where funding is not apparently available, should the project still be considered but at a lower priority?
- *Benefits to be derived from the proposed measure.* Will the measure likely reduce dollar losses from property damages in the event of a hazard? To what degree?
- *Costs.* Are the costs reasonable in relation to the likely benefits? Do economic benefits to the community outweigh estimated project costs? What cost reduction alternatives might be available?
- *Economic feasibility.* Have the costs and benefits of the preferred measure been compared against other alternatives? What is the economic impact of the no-action alternative? Is this the most economically effective solution?
- *Impact on local economy.* Will the proposed measure improve local economic activities? What impact might the measure have on the tax base?
- *Economic development goals.* Will the proposal advance the overall economic goals and objectives of the community?

The STAPLEE evaluation also facilitated the prioritization of measures. If a measure under consideration was found to be financially feasible and had high ratings, it was given a higher priority for implementation than measures that fell lower in the rating. Moreover, a general economic evaluation was performed as part of the STAPLEE method, as described above. Weighing potential economic benefits to reducing damages against costs made it possible to select among competing projects. Especially important to the selection process is the estimated cost and availability of funds through local sources and potential FEMA Hazard Mitigation Assistance (HMA) grant programs. Prior to implementation of projects proposed for HMA funding, a detailed benefit-cost analysis (BCA) will be required.

All of the above considerations and prioritization methods resulted in the final goals, objectives, and mitigation measures presented in Table 6.2 “2014-2019 Fayette County Multi-Jurisdictional Mitigation Action Program” and Volume II “Community Action Programs,” which supplements Table 6.2.

Table 6-2. 2014-2019 Fayette County Multi-Jurisdictional Mitigation Action Program

	Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	Estimated Cost
1	**Goal for Prevention. Manage the development of land and buildings to minimize risks of loss due to natural hazards.**						
1.1	**Comprehensive Plans and Smart Growth. Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.**						
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions. Each plan should address natural hazards exposure and include long term disaster resistance measures. The vulnerability and environmental suitability of lands for future development should be clearly addressed. Local plans should assess the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	Fayette	All	Both	Action	TBD	TBD
1.2	**Geographic Information Systems (GIS). Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.**						
1.2.1	Maintain a centralized, countywide natural hazards and risk assessment database in GIS that is accessible to local planners and emergency management personnel, including such data as, flood zones, geohazards, major drainages structures, dams/levees, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	Fayette County	All	Both	Action	Existing Funds	No Additional Cost
1.2.2	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.	Fayette County	All	Both	Action	Existing Funds	No Additional Cost
1.3	**Planning Studies. Conduct special studies, as needed, to identify hazard risks and mitigation measures.**						
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Both	Action	TBD	TBD

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	Estimated Cost
1.3.2	Identify existing culturally or socially significant structures and critical facilities within participating jurisdictions that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Existing	Action	Existing Funds	No Additional Cost
1.3.3	Evaluate elevation and culvert sizing of existing roadways in flash flood-prone areas to ensure compliance with current standards for design year floods, and develop a program for construction upgrades as appropriate.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Existing	Action	Existing Funds	No Additional Cost
1.3.4	Maintain inventory and map of existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Fayette County, Belk, Berry, Fayette and Glen Allen	Wildfires	Existing	Action	Existing Funds	No Additional Cost
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Both	Action	TBD	TBD
1.3.6	Develop an inventory of public and commercial building vulnerable to earthquake damage, focusing on pre 1940 construction and buildings with cripple wall foundations.	Fayette County, Belk, Berry, Fayette and Glen Allen	Earthquake	Existing	Project	TBD	TBD
1.4	**<u>Zoning</u>. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.**						
	Reserved for future mitigation measures						
1.5	**<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.**						
1.5.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Both	Action	Existing Funds	No Additional Cost

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	Estimated Cost
1.5.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Both	Action	Existing Funds	No Additional Cost
1.5.3	Promote the adoption of uniform flood hazard prevention ordinance among all NFIP communities. The ordinance standards should encourage flood plain management that maintains the natural and beneficial functions of flood plains by maximizing the credits that could be obtained for "Higher Regulatory Standards" under the Community Rating System (CRS) Program.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Both	Action	Existing Funds	No Additional Cost
1.5.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association Flood Plain Managers and encourage active participation.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Both	Action	Existing Funds	No Additional Cost
1.5.5	Improve flood risk assessment by documenting high water marks post event, verification of FEMA's repetitive loss inventory and revising and updating regulatory floodplain maps.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Both	Project	Existing Funds	No Additional Cost
1.6	**<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.**						
1.6.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Fayette	All	New	Action	Existing Funds	No Additional Cost
1.6.2	Evaluate and revise as appropriate, building codes for roof construction to maximize protection against wind damage from hurricanes, tornadoes, and windstorms; encourage installation of "hurricane clips."	Fayette	Tornadoes, Hurricanes, Severe Storms	New	Action	Existing Funds	No Additional Cost

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	Estimated Cost
1.6.3	Relocate existing utility lines underground, where feasible and cost effective, and require, through local subdivision and land development regulations, the placement of all new utility lines underground for large residential subdivisions and commercial developments.	Fayette	Tornadoes, severe storms, winter storms/freezes hurricanes	Both	Action	TBD	TBD
1.6.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Fayette County, Belk, Berry, Fayette and Glen Allen	Wildfires	Both	Action	Existing Funds	No Additional Cost
1.6.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Existing	Action	Existing Funds	No Additional Cost
1.6.6	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Fayette County, Belk, Berry, Fayette and Glen Allen	Tornadoes, Hurricanes, Severe Storms	New	Project	Existing Funds	No Additional Cost
1.7	**Landscape Ordinances. Establish minimum standards for planting areas for trees and vegetation to reduce storm water runoff and improve urban aesthetics.**						
	Reserved for future mitigation measures						
1.8	**Storm Water Management. Manage the impacts of land development on storm water runoff rates and to natural drainage systems.**						
1.8.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Fayette	Flooding	Existing	Action	Existing Funds	No Additional Cost
1.8.2	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	Fayette	Flooding	Existing	Action	Existing Funds	No Additional Cost

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	Estimated Cost
1.9	**Dam Safety Management. Establish a comprehensive dam safety program.**						
1.9.1	Support legislation to establish a State dam safety program.	Fayette County, Belk, Berry, Fayette and Glen Allen	Dam/Levee Failure	Both	Action	Existing Funds	No Additional Cost
1.10	**Community Rating System Program (CRS). Increase participation of NFIP member communities in the CRS Program.**						
1.10.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Both	Action	Existing Funds	No Additional Cost
1.11	**Critical Facilities Assessments. Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.**						
1.11.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding, Tornadoes, Hurricanes, Severe Storms and Earthquakes	Existing	Action	TBD	TBD
1.11.2	Conduct wildfire vulnerability assessments, including the vulnerability of critical facilities and number of residential properties in these risk areas, and prepare a comprehensive inventory to identify high and moderate wildfire risk areas.	Fayette County, Belk, Berry, Fayette and Glen Allen	Wildfire	Both	Project	Existing Funds	No Additional Cost
2	**Goal for Property Protection: Protect structures and their occupants and contents from the damaging effects of natural hazards.**						
2.1	**Building Relocation. Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.**						

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	Estimated Cost
2.1.1	Relocate buildings out of hazardous flood areas, with emphasis on pre-FIRM residential buildings, where deemed more cost effective than property acquisition or building elevation.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Existing	Project	FEMA HMA Grant	TBD
2.2	**<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.**						
2.2.1	Acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Existing	Project	FEMA HMA Grant	TBD
2.2.2	Utilize the most recent NFIP repetitive loss property list, and other appropriate sources, to create and maintain a prioritized list of acquisition mitigation projects based on claims paid.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Existing	Project	FEMA HMA Grant	TBD
2.3	**<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.**						
2.3.1	Elevate certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Existing	Project	FEMA HMA Grant	TBD
2.3.2	Repair, elevate and weatherize existing homes.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Existing	Project	FEMA HMA Grant	TBD
2.4	**<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.**						
2.4.1	Flood proof pre-FIRM non-residential buildings, where feasible.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Existing	Project	FEMA HMA Grant	TBD
2.5	**<u>Building Retrofits</u>. Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.**						

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	Estimated Cost
2.5.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and man-made hazards.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding, Tornadoes, Hurricanes, Severe Storms and Earthquakes	Existing	Action	FEMA HMA Grant	TBD
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Fayette	Flooding, Tornadoes, Hurricanes, Severe Storms and Earthquakes	Existing	Action	FEMA HMA Grant	TBD
2.6	**Hazard Insurance Awareness. Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.**						
2.6.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Existing	Action	Existing Funds	No Additional Cost
2.6.2	Promote the purchase of crop insurance to cover potential losses due to drought.	Fayette County, Belk, Berry, Fayette and Glen Allen	Drought	Existing	Action	Existing Funds	No Additional Cost
2.7	**Back Up Power: Assure uninterrupted power supplies during emergency events.**						
2.7.1	Install backup power for critical facilities.	Fayette County, Belk, Berry, Fayette and Glen Allen	Hurricanes, Tornadoes, Severe Storms	Existing	Project	FEMA HMA Grant	TBD
3	**Goal for Public Education and Outreach. Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.**						
3.1	**Map Information. Increase public access to Flood Insurance Rate Map (FIRM) information.**						

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	Estimated Cost
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Both	Action	Existing Funds	No Additional Cost
3.2	**Outreach Projects. Conduct regular public events to inform the public of hazards and mitigation measures.**						
3.2.1	Participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Both	Action	Existing Funds	No Additional Cost
3.2.2	Distribute materials, via the internet and other media, and other outreach activities and workshops to encourage families and individuals to implement hazard mitigation measures in their homes.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Existing	Action	Existing Funds	No Additional Cost
3.2.3	Promote disaster resilience within the business community through workshops, educational materials and planning guides, intended to assist business owners in recovering from a disaster event in a timely manner.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Both	Action	Existing Funds	No Additional Cost
3.2.4	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Both	Action	Existing Funds	No Additional Cost
3.2.6	Distribute public education materials to farmers on soil and water conservation practices.	Fayette County, Belk, Berry, Fayette and Glen Allen	Drought	Both	Action	Existing Funds	No Additional Cost
3.3	**Real Estate Disclosure. Encourage real estate agents to disclose flood plain location for property listings.**						
3.3.1	Arrange with the Multiple Listing Service (MLS) to require floodplain location disclosure as a condition for each real estate listing.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Existing	Action	Existing Funds	No Additional Cost

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	Estimated Cost
3.4	**Library. Use local library resources to educate the public on hazard risks and mitigation alternatives.**						
3.4.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Both	Action	Existing Funds	No Additional Cost
3.5	**Education Programs. Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.**						
3.5.1	Distribute hazard mitigation brochures to students through area schools.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Both	Action	Existing Funds	No Additional Cost
3.5.2	Educate homeowners about structural and non-structural retrofitting of vulnerable homes.	Fayette County, Belk, Berry, Fayette and Glen Allen	Earthquake	Both	Action	Existing Funds	No Additional Cost
3.6	**Community Hazard Mitigation Plan Distribution. Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.**						
3.6.1	Distribute the 2014 plan to local officials, stakeholders, and interested individuals through internet download.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Both	Action	Existing Funds	No Additional Cost
3.7	**Technical Assistance. Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.**						
3.7.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Both	Action	Existing Funds	No Additional Cost
3.8	**Mass Media Relations. Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.**						

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	Estimated Cost
3.8.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Both	Action	Existing Funds	No Additional Cost
3.9	**Weather Radios. Improve public access to weather alerts.**						
3.9.1	Promote the use of weather radios in households and businesses.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Both	Action	Existing Funds	No Additional Cost
3.9.2	Install weather radios in all public buildings and places of public assembly.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Both	Action	Existing Funds	No Additional Cost
3.9.3	Distribute weather radios and emergency response instructions to area residents.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Both	Action	FEMA HMA Grant	TBD
3.10	**Disaster Warning. Improve public warning systems.**						
3.10.1	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Both	Project	FEMA HMA Grant	TBD
3.10.2	Upgrade critical communications infrastructure.	Fayette County, Belk, Berry, Fayette and Glen Allen	All	Both	Project	FEMA HMA Grant	TBD
4	**Goal for Natural Resources Protection. Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.**						

	Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	Estimated Cost
4.1	**Open Space Easements and Acquisitions. Acquire easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands to assure permanent protection of these natural resources.**						
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Existing	Project	FEMA HMA Grant	TBD
4.2	**River/Stream Corridor Restoration and Protection. Restore and protect river and stream corridors within areas.**						
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	Fayette	Flooding	Both	Action	Existing Funds	No Additional Cost
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Existing	Action	Existing Funds	No Additional Cost
4.3	**Urban Forestry Programs. Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.**						
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Existing	Action	Existing Funds	No Additional Cost
4.4	**Water Resources Conservation Programs. Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and heat waves.**						
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Fayette County, Belk, Berry, Fayette and Glen Allen	Droughts/heat waves, wildfires	Both	Action	Existing Funds	No Additional Cost
5	**Goal for Structural Projects. Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.**						

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	Estimated Cost
5.1	**Drainage System Maintenance. Improve maintenance programs for streams and drainage ways.**						
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Both	Action	Existing Funds	No Additional Cost
5.2	**Reservoirs and Drainage System Improvements. Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.**						
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	Fayette County, Belk, Berry, Fayette and Glen Allen	Flooding	Both	Project	FEMA HMA Grant	TBD
5.2.2	Improve and retrofit water supply systems to save water during drought events and to eliminate breaks and leaks.	Fayette County, Belk, Berry, Fayette and Glen Allen	Drought	Both	Project	FEMA HMA Grant	TBD
5.3	**Community Shelters and Safe Rooms: Provide shelters from natural hazards for the safety of community residents.**						
5.3.1	Construct new community safe rooms in accessible locations and add safe rooms within new and existing public and institutional buildings, such as schools, colleges and universities, senior centers, community centers, hospitals, and government buildings.	Fayette County, Belk, Berry, Fayette and Glen Allen	Hurricanes, Tornadoes, Severe Storms	New	Project	FEMA HMA Grant	TBD
5.3.2	Establish a program for subsidizing individual and community safe room construction in appropriate locations and facilities.	Fayette County, Belk, Berry, Fayette and Glen Allen	Hurricanes, Tornadoes, Severe Storms	Both	Project	FEMA HMA Grant	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Fayette County, Belk, Berry, Fayette and Glen Allen	Hurricanes, Tornadoes, Severe Storms	Both	Project	Existing Funds	No Additional Cost

Chapter 7–Plan Maintenance Process

7.1 Federal Requirements for the Plan Maintenance Process

This Chapter of the Plan addresses the Plan Maintenance Process requirements of 44 CFR Sec. 201.6 (c) (4), as follows:

Sec. 201.6 (c) *Plan content.* The plan shall include the following:

(4) A plan maintenance process that includes:

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

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

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

7.2 Summary of Plan Updates

This Chapter presents a more active monitoring and streamlined plan amendment process; revised guidance for annual evaluation of plan status; refined and updated process, ongoing integration of local planning mechanism, and new public participation opportunities to be continuously monitored and annually evaluated. Despite no attempts to maintain the 2009 plan have occurred over the previous five-year planning cycle, the Hazard Mitigation Planning Committee's (HMPC) is committed to following the new procedures presented in this 2014 plan update.

7.3 Monitoring, Evaluating, and Updating the Mitigation Plan

7.3.1 Ongoing Monitoring of the Plan

The Hazard Mitigation Planning Committee's (HMPC) ongoing review process throughout the year should continually monitor the current status of the mitigation

measures scheduled for implementation. Ongoing status reports of each jurisdiction's progress will be reviewed by the Fayette County EMA Director and representatives from the HMPC and should include the following information:

- Actions that have been undertaken to implement the scheduled mitigation measure, such as, obtaining funding, permits, approvals or other resources to begin implementation.
- Mitigation measures that have been completed, including public involvement activities.
- Revisions to the priority, timeline, responsibility, or funding source of a measure and cause for such revisions or additional information or analysis that has been developed that would modify the mitigation measure assignment as initially adopted in the plan.
- Measures that a jurisdiction no longer intends to implement and justification for cancellation.

The ongoing review process may require adjustments to the selection of mitigation measures, priorities, timelines, lead responsibilities, and funding sources scheduled in the "Community Action Programs." In the event modifications to the plan are warranted as a result of the annual review or other conditions, the HMPC will oversee and approve all amendments to the plan by majority vote of a quorum of HMPC members. Conditions that might warrant amendments to this plan would include, but not be limited to, special opportunities for funding and response to a natural or manmade disaster. A copy of the plan amendments will be submitted by the Fayette County EMA to all jurisdictions in a timely manner and filed with the Alabama EMA.

7.3.2 Evaluating the Plan

Within sixty days following a significant disaster or an emergency event having a substantial impact on a portion of or the entire Fayette County area or any of its jurisdictions, the HMPC will conduct or oversee an analysis of the event to evaluate the responsiveness of the Mitigation Strategy to the event and the effects on the contents of the Risk Assessment. The Risk Assessment should evaluate the direct and indirect damages, response and recovery costs (economic impacts) and the location, type, and extents of the damages. The findings of the assessment should determine any new mitigation initiatives that should be incorporated into this plan to avoid similar losses from future hazard events. The results of the assessment will be provided to those affected jurisdictions for review. These results also provide useful information when considering new mitigation initiatives as an amendment to the existing plan or during the next five-year plan update period.

The HMPC will oversee an annual evaluation of progress towards implementation of the Mitigation Strategies. Any discussions and reports by the HMPC should be documented. When the plan is next revised, the evaluation findings can

clearly justify and explain any revisions. In its annual review, the HMPC should discuss the following topics to determine the effectiveness of the implementation actions and the need for revisions to the Mitigation Strategies:

- Are there any new potential hazards that have developed and were not addressed in the plan?
- Have any disasters occurred and are not included in plan?
- Are there additional mitigation ideas that need to be incorporated into the plan?
- What projects or other measures have been initiated, completed, deferred or deleted?
- Are there any changes in local capabilities to carry out mitigation measures?
- Have funding levels to support mitigation actions either increased or decreased?

The HMPC may create subcommittees to oversee and evaluate plan implementation. This will be done at the Committee's discretion.

7.3.3 Plan Update Process

Any of the following situations may require a review and update of the plan:

- Requirement for a five-year update.
- Change in federal requirements for review and update of the plan.
- Significant natural hazard or manmade event(s) before the expiration of the five-year plan update.

As stated above in Section 7.3.2, the HMPC will convene within 60 days of a significant disaster to discuss the potential need for any amendments to the plan. If there are no significant disasters which trigger an update, the current Federal guidelines require a five-year update.

The Fayette County EMA will release or publish a notice to the public that an update is being initiated and provide information on meeting schedules, how and where to get information on the plan, how to provide comments on the plan, and opportunities for other public involvement activities. The EMA will then convene the HMPC and, with the assistance of EMA staff or a consultant, as deemed necessary, carry out the steps necessary to update the plan.

The initial steps for the five-year update to this plan should begin nine to twelve months before the current FEMA approval expiration, which takes into consideration the 90 day review process by the Alabama EMA and FEMA. Additional time for planning grants may require up to an additional year added to the start date. Once the Hazard

Mitigation Planning Committee has been organized to oversee the update, the following steps will take place in order to facilitate the process:

Step 1. Review of the most recent FEMA local mitigation planning requirements and guidance.
Step 2. Evaluation of the existing planning process and recommendations for improvements.
Step 3. Examination and revision of the risk assessment, including hazard identification, profiles, vulnerabilities, and impacts on development trends, to ensure accuracy and up-to-date information.
Step 4. Update of mitigation strategies, goals and action items, in large part based on the annual plan implementation evaluation input.
Step 5. Evaluation of existing plan maintenance procedures and recommendations for improvements.
Step 6. Comply with all applicable Federal regulations and directives.

Ninety days prior to the anniversary date, a final draft of the revised plan will be submitted to the Alabama EMA for review and comments and then to FEMA for conditional approval. Once FEMA Region IV has issued a conditional approval, the updated plan will be adopted by all participating jurisdictions.

7.4 Incorporation of the Mitigation Plan into Other Planning Mechanisms

This plan supplements the most recent edition of the Fayette County Emergency Operations Plan, which is administered through the Fayette County Emergency Management Agency. Further, each governmental entity will be responsible for implementation of their individual Community Mitigation Action Programs based on priorities, funding availability, capabilities, and other considerations described in Chapter 6 "Mitigation Strategy." Because the 2014 Fayette County Multi-Hazard Mitigation Plan is a multi-jurisdictional plan, the mechanisms for implementation of the various mitigation measures through existing programs may vary by jurisdiction. Each jurisdiction's unique needs and capabilities for implementation are reflected in its respective mitigation action program.

The Hazard Mitigation Planning Committee recognizes the importance of fully integrating hazard mitigation planning and implementation into existing local plans, regulatory tools, and related programs. This plan is intended to influence each jurisdiction's planning decisions concerning land use, development, public facilities, and infrastructure. Any updates, revisions, or amendments to the Fayette County Emergency Operations Plan, local comprehensive plans, capital improvement budgets or plans, zoning ordinances and maps, building and technical codes, and related development controls should be consistent with the goals, objectives, and mitigation measures adopted in this plan. Each jurisdiction's commitment to this consistency is

reflected in its respective mitigation action program. As part of the subsequent five-year update process, all local planning mechanisms should again be reviewed for effectiveness, and recommendations for new integration opportunities should be carefully considered. This type of evaluation was performed in the 2014 update and should follow in the next update cycle.

Multi-hazard mitigation planning should not only be integrated with local planning tools but into existing public information activities, as well as household emergency preparedness. Ongoing public education programs should stress the importance of managing and mitigating hazard risks. Public information handouts and brochures for emergency preparedness should emphasize hazard mitigation options, where appropriate.

Of particular importance to incorporating hazard mitigation planning into other planning programs, is the Fayette County EMA's commitment to full integration of multi-hazard mitigation planning into its comprehensive emergency operations planning program and associated public emergency management activities, to the furthest possible extent.

7.5 Continuing Public Participation in the Plan Maintenance Process

A critical part of maintaining an effective and relevant multi-hazard mitigation plan is ongoing public review and comment. Consequently, the Hazard Mitigation Planning Committee is dedicated to direct involvement of its citizens in providing feedback and comments on the plan throughout the five-year implementation cycle and interim reviews.

To this end, copies of this 2014 Fayette County Multi-Hazard Mitigation Plan will be maintained in the offices of the Fayette County EMA and the principal offices of all of the jurisdictions that participated in the planning process. After adoption, a public information notice will inform the public that the plan may be viewed at these offices or on the Web at http://www.fayettecountyal.com/ema.html. The Fayette County EMA website contains a link to download an on-line copy of the plan. Public comments can be received by the Fayette County EMA by telephone, mail, or e-mail.

Public meetings will be held when significant modifications to the plan are required or when otherwise deemed necessary by the Hazard Mitigation Planning Committee. The public will be able to express their concerns, ideas, and opinions at the meetings. At a minimum, public hearings will be held during the annual meetings and five-year plan updates and to present the final plan and amendments to the plan to the public before adoption. Public opinion surveys may be conducted during the community meetings and public involvement activities required for the five-year update and may be periodically administered by the Fayette County EMA.

Public involvement activities initiated by the 2014 planning process are documented in Appendix H - “Community Involvement Documentation.” The public outreach goal of this plan and the associated objectives and mitigation measures commit each locality to implement a range of public education and awareness opportunities. The constant monitoring of these programmed mitigation actions assures ongoing public participation throughout the plan maintenance process.