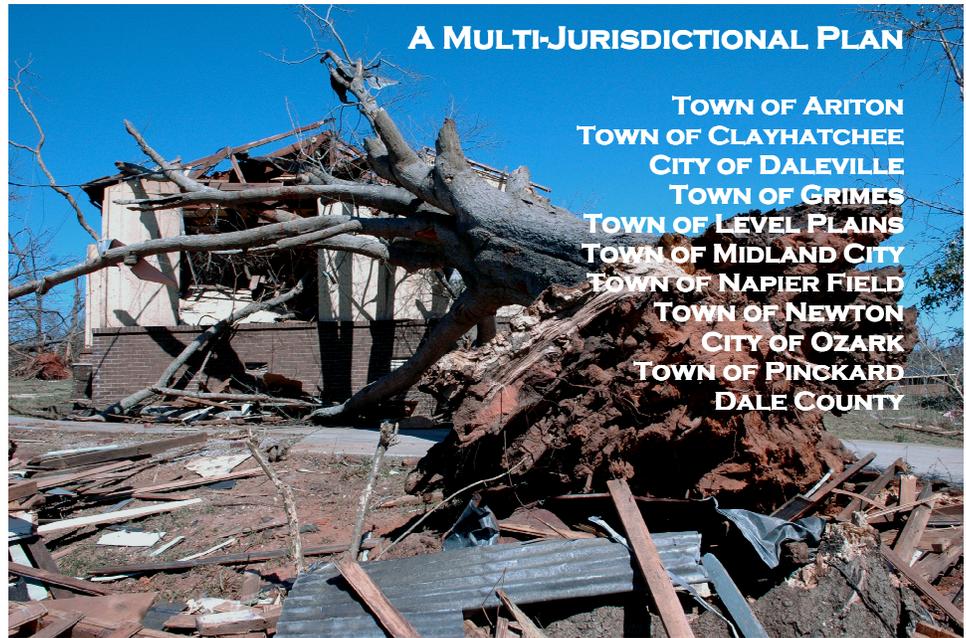


2011
DALE COUNTY, ALABAMA
Multi-Hazard Mitigation Plan

I. Comprehensive Plan



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



With the support of the Dale County EMA by:



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FEMA Hazard Mitigation Grant Program

September 13, 2011

2011 Dale County, Alabama, Multi-Hazard Mitigation Plan

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September 13, 2011

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Executive Summary

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 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 in order to remain eligible for mitigation grant funding. The initial plan was created by Lehe Planning, LLC, under the direction of the Dale County EMA. The 2004 Dale County, Alabama, Natural Hazards Mitigation Plan was approved by FEMA and subsequently adopted by all Dale County jurisdictions.

II. Organization of the Plan

The 2011 Dale 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 Multi-Hazard Mitigation Planning Guidance, FEMA, July 1, 2008. The organization of this plan is consistent with the organization of the 2010 Alabama Hazard Mitigation Plan, which also parallels the Federal requirements. The main body of the plan, the “Comprehensive Plan” has seven chapters, as follows:

Chapter 1	Introduction
Chapter 2	Prerequisites
Chapter 3	Community Profiles
Chapter 4	The Planning Process
Chapter 5	Risk Assessment
Chapter 6	Mitigation Strategy
Chapter 7	Plan Maintenance Process

This plan update is also organized similar to the 2004 plan, which allows for easy cross reference. Each chapter of the 2011 plan update references the requirements of

44 CFR Section 201.6 that it addresses and includes a table that summarizes the updates to the 2004 plan.

A supplemental plan document includes “Community Action Programs” which breaks out the Community Action Programs for each jurisdiction and notes priorities, time frame, implementation responsibilities, cost estimates, if available, and potential funding sources.

The “Appendices” provide evidence and supporting documentation to the Planning Process, Risk Assessment, and Mitigation Strategy chapters of the Comprehensive Plan.

III. Highlights of the Plan

Through a comprehensive planning process and risk assessment, this plan update creates a unified approach among all Dale 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 previous plans and notes its successes and shortcomings. The plan update suggests adjustments and introduces new measures to address the identified hazards.

Each hazard that may be viewed as a possible risk to Dale 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 action programs that direct each community 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 both the initial plans’ and this update’s planning processes are also included in this section.

Chapter 2. Prerequisites

Chapter 2 of the plan update addresses the Federal regulations governing the development and updating of the mitigation plan. It addresses 44 CFR §. 201.6 and the prerequisites required through these regulations. It describes the various mitigation grants and other federal money available for the County’s use for mitigation planning.

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 also 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 Dale County is described in detail. The overall geographic setting and history of Dale County and the participating jurisdictions are addressed. Summaries about the jurisdictions' government, demographics, economy, utilities, media, transportation and climate are included.

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 Dale County 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.

From March 2011 through August 2011, the Dale County Hazard Mitigation Committee held five meetings. The Dale County EMA staff and the planning consultant team organized the planning process and the HMPC representative membership. The HMPC, comprised of representatives from all the jurisdictions and organizations concerned with hazard mitigation, guided the development of this plan.

At the meetings, each Committee member was asked to participate in a series of exercises designed to solicit input into the planning process. A notice 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 informing 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. The planning team reviewed the documents and recorded the sections from each document that pertained to hazard mitigation. These documents were closely examined to see what mitigation measures were currently being pursued and what new measures could be included in future revisions.

The Hazard Mitigation Planning Committee solicited public input into the mitigation plan through a community meeting and an internet Web site. A toll free number was available for the residents to reach the planning team. They were also invited to attend committee meetings and provide their comments and concerns. The HMPC sponsored a special community meeting for additional public input into the planning process during the drafting stage of the plan. At that meeting, the plan, hazards, and mitigation measures were discussed among participants. Displays and

handouts regarding various hazards were made available to the public. The public was encouraged to fill out a public survey about the risks and threats of hazards.

A public hearing to receive comments was held by each jurisdiction prior to adopting the plan by resolution, as required by State law. The original resolutions and public hearing minutes are kept on file at the administrative offices of each jurisdiction and the Dale County EMA office.

The plan review and update process resulted in a comprehensive update of the original 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 previous plans, which was reflected in the 2011 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.
- The analysis of flood, earthquake, and hurricane wind impacts using the latest edition of HAZUS-MH software.
- A review and recommitment to the vision for disaster-resistant communities; modifications to the previous goals; and support of the 2010 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.
- Revisions to the plan maintenance procedures to institute streamlined amendments and better explain circumstances that require amendments.

Chapter 5. Risk Assessment

Chapter 5 first describes the process used to identify and prioritize the hazard risks to each Dale 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 Dale 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 new 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. The estimates of losses are calculated in HAZUS-MH for floods, earthquakes, and hurricanes.

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 original plans. The latest release of HAZUS-MH was applied to the risk assessment for hurricanes.

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 various goals that the plan is trying to achieve, along with companion 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 and the final section details the County's overall mitigation action program. The "Community Action Programs" supplement Chapter 6 by breaking out the action programs for each community.

The goals in the previous plans have been updated based on current conditions, including the completion of mitigation measures over the five-year plan implementation cycle, the 2011 update to the risk assessment in Chapter 5, the update to the risk assessment in the 2010 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:

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

The 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 measures were discarded as a mitigation goal by FEMA and the available emergency services that could be incorporated into one of the five above categories were and those that could not were not addressed in this plan update.

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 fiscal and staffing capabilities 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 action program has been established for each community in the supplemental document, "Community Action Programs." 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 jurisdiction.

Chapter 7. Plan Maintenance Process

Chapter 7 describes the maintenance process for the 2011 Dale 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 HMPC, with the support of the Dale County EMA staff, 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 Dale 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? Why?
- 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 Dale 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 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. 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 included in the “Appendices.” The evidence and 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 *2004 Plan Implementation Status* reports the evaluation results of implementation of mitigation measures recommended for implementation by each jurisdiction in the 2004 plan.
- D *HMPC Hazard Identification and Ratings* reports the results of the Committee exercise for identifying hazards for inclusion in the 2011 plan update and the ratings of the hazards for extents and probability of future occurrences, along with completed descriptions of each identified hazard.
- E *Hazard Profile Data* contains detailed hazard records of the National Weather Service, the National Climatic Data Center, and local records.
- F *Identification and Analysis of Alternative Mitigation Measures* examines the range of mitigation measures considered for the 2011 Mitigation Strategy.
- G *Committee Meeting Documentation* documents the HMPC meetings during the drafting phase of the 2011 plan update.
- H *Community Involvement Documentation* reports on the full scope of community involvement opportunities during the drafting phase of the 2011 plan update.
- I *Multi-Jurisdictional Participation Activities* records the scope of participation of all jurisdictions in the drafting and adoption of the 2011 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 Dale County EMA office. These other documents and materials, include, but are not limited to the following items:

- Damage reports of hazard events;
- Meeting records of the Hazard Mitigation Planning Committee prior to 2011, since first established in 2004; and
- Previous plans, plan amendments, and supporting documentation.

Chapter 1 – Introduction

- 1.1 Background
- 1.2 Authority
- 1.3 Funding
- 1.4 Eligibility for FEMA Hazard Mitigation Assistance Grants
- 1.5 Dale County Natural Hazards Mitigation Plan (2004)
- 1.6 The 2011 Dale County Multi-Hazard Mitigation Plan Update

1.1 Background

The 2011 Dale County, Alabama, Multi-Hazard Mitigation Plan is a multi-jurisdictional guide for all communities that have participated in the preparation of this plan through the Hazard Mitigation Planning Committee (HMPC). The jurisdictions that participated in the development of this plan include Dale County; the cities of Daleville and Ozark; and the towns of Ariton, Clayhatchee, Grimes, Level Plains, Midland City, Napier Field, Newton, and Pinckard. 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.

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 Dale County EMA applied to the Alabama EMA for planning grant funds in early 2010 to complete the 2011 update of this plan. In September 2010, the Alabama EMA awarded a \$45,000 planning grant funded through the FEMA Hazard Mitigation Grant Program (HMGP) to the Dale County Commission to fund 75% of the \$60,000 total cost of the five year plan update for all incorporated and unincorporated areas within Dale County.

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 provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. The HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.
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.
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 implement 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).

4. The Repetitive Flood Claims (RFC) Program. The Repetitive Flood Claims (RFC) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108–264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). Up to \$10 million is available annually for FEMA to provide RFC funds to assist states and communities reduce flood damages to insured properties that have had one or more claims to the National Flood Insurance Program (NFIP).

5. The Severe Repetitive Loss (SRL) Program. The Severe Repetitive Loss (SRL) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act of 1968 to provide funding to reduce or eliminate the long-term risk of flood damage to severe repetitive loss (SRL) structures insured under the National Flood Insurance Program (NFIP).

1.5 Dale County Natural Hazards Mitigation Plan (2004)

The planning process began in February, 2003, with the appointment of the first Hazard Mitigation Planning Committee (HMPC) by the Director of the Dale County Emergency Management Agency (EMA) at the time, Mr. Ray Phillips. A local consultant prepared a draft plan, and the committee convened three times over a two month period through March, 2003 and submitted a draft plan to the Alabama EMA for review. Later that year, the Alabama EMA disapproved the initial draft plan. In June, 2004, the County Commission retained Lehe Planning, LLC to complete the plan, and Mr. Phillips, reorganized the Committee to better represent the participating jurisdictions and community interests. On July 12, 2004, the Dale County Commission formally established the reorganized committee by resolution. The reorganized HMPC held two additional committee meetings in June and July of 2004, and completed the plan on July 24, 2004. The plan was adopted shortly afterwards by the Dale County Commission and participating municipalities, and FEMA approved the adopted plan on March 1, 2005.

The scope of the 2004 Dale County, Alabama, Natural Hazards Mitigation Plan is the unincorporated and incorporated areas within Dale County. The plan addresses all natural hazards deemed to threaten property and persons within the county. Both short- and long-term hazard mitigation strategies are addressed, implementation tasks assigned, and funding alternatives identified.

1.6 The 2011 Dale County Multi-Hazard Mitigation Plan Update

The Hazard Mitigation Planning Committee (HMPC) was reactivated and reconvened in March, 2011, to update the 2004 plan as the 2011 Dale County, Alabama,

Multi-Hazard Mitigation Plan. Once again, the Dale County Commission retained the firm of Lehe Planning, LLC, who had also been retained for the 2004 plan, to prepare the 2011 plan update under the direction of the HMPC and the Dale County EMA Director, Robert Marsh. The firm's manager, James E. Lehe, AICP, a professional urban planner, served as the Planning Coordinator for the update. The 2011 HMPC represents unincorporated Dale County, the cities of Daleville and Ozark; and the towns of Midland City, Ariton, Clayhatchee, Grimes, Level Plains, Napier Field, Newton, and Pinckard, as well as other stakeholders and interested agencies. The HMPC convened on a regular basis during the update process to oversee the drafting of the plan. Through a comprehensive planning process and risk assessment, the plan creates a unified approach among all Dale 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.

Chapter 2 – Prerequisites

- 2.1 Federal Prerequisites
- 2.2 Plan Approval Required for Mitigation Grants Eligibility
- 2.3 Multi-Jurisdictional Participation
- 2.4 Multi-Jurisdictional Plan Adoption

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), the Repetitive Flood Claims (RFC) Program, and the Severe Repetitive Loss Program (SRL). 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 Dale 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 Dale County jurisdictions throughout the five year period since the initial 2004 plan was first approved. Dale County, the cities of Daleville and Ozark; and the towns of Ariton, Clayhatchee, Grimes, Level Plains, Midland City, Napier Field, Newton, and Pinckard, all have continued to participate in the 2011 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 a 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 planning process presented many opportunities for multi-jurisdictional participation. (See Appendix I “Multi-Jurisdictional Participation Activities,” which shows the type of participation by Dale County jurisdictions.) These multi-jurisdictional participation opportunities included the following activities:

- Attendance and participation in HMPC committee meetings beginning on March 3, 2011. (See Appendix G “Committee Meeting Documentation,” which includes agendas, sign-in sheets, and meeting minutes).
- Providing key staff support to complete HMPC exercises and questionnaires regarding local capabilities for conducting mitigation activities, the implementation status of the 2004 community mitigation action programs, 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 individual jurisdictional meetings 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 during 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://dale.hazardmitigationplan.com> to keep abreast of HMPC activities, review draft sections of the plan, and offer comments and suggestions through a special email account, dale@hazardmitigationplan.com.
- Contacting HMPC members and Dale County EMA staff.
- Contacting planners through a toll free number at 1-866-978-3633, established for the plan update or 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

The governing bodies of each participating jurisdiction have adopted the 2011 Dale County Multi-Hazard Mitigation Plan Update by resolution following public notice and hearing. Adoption followed notification from the Alabama EMA that the plan had received conditional approval from FEMA pending adoption. Adoption by all participating jurisdictions took place within one year of the notification of FEMA conditional approval, and afterwards, a certified copy of each adopting resolution was transmitted to FEMA through the Alabama EMA. Once the first resolution had been received by FEMA, the plan was formally approved on that date, which begins the next five year planning cycle. FEMA then issued a final approval notification. (The form of the adopting resolutions is in Appendix J “Adopting Resolution”). Copies of the resolution are on file at the EMA and with each jurisdiction.

Chapter 3 – Community Profiles

- 3.1 Federal Advisory Guidance for Community Profiles
- 3.2 Summary of Plan Updates
- 3.3 Geographic Setting and History
- 3.4 Government
- 3.5 Physical Features
- 3.6 Climate
- 3.7 Demographics
- 3.8 Economy
- 3.9 Utilities
- 3.10 Media
- 3.11 Transportation

3.1 Federal Advisory Guidance for Community Profiles

This chapter addresses the advisory on page 27 of the FEMA Local Multi-Hazard Mitigation Planning Guidance, July 1, 2008, which suggests community profile information be included 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.

3.2 Summary of Plan Updates

Table 3-1 summarizes changes made to the 2004 plan as a result of the 2011 plan update, as follows:

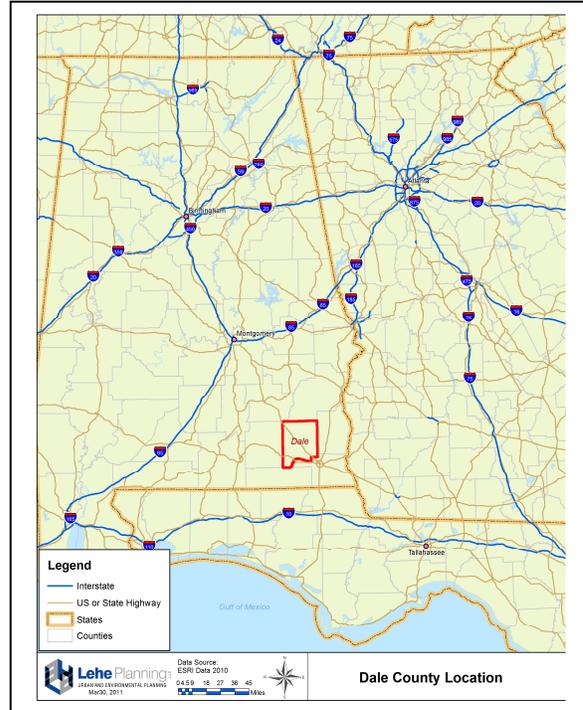
Table 3-1. Summary of Plan Updates

Section	Change	
3.3	Geographic Setting and History	Updated descriptions, maps, and data
3.4	Government	Updated descriptions and data
3.5	Physical Features	Updated descriptions, maps, and data
3.6	Climate	Updated descriptions and data
3.7	Demographics	Updated descriptions, map, and data
3.8	Economy	Updated descriptions, map, and data
3.9	Utilities	Updated descriptions and data
3.10	Media	Updated descriptions and data
3.11	Transportation	Updated descriptions, map, and data

3.3 Geographic Setting and History

Dale County

Dale County was established on December 22, 1824 by an act of the Alabama State Legislature. Since the establishment, the county was reduced in 1841, 1868, and 1903 to form Coffee County, Geneva County, and Houston County. The county is named in honor of General Samuel Dale, who had a critical part in shaping the state of Alabama from the Mississippi Territory. The county is located in southeastern Alabama, as shown on Map 3-1 “Dale County Location,” and adjoins Pike and Barbour counties on the north, Coffee County on the west, Houston and Geneva counties on the south, and Henry County on the east. The Enterprise-Ozark Micropolitan Statistical Area is in part located in Dale County. The City of Ozark is the county seat and was selected in 1870, after being moved twice. Dale County has a population of approximately 50,251 (2010 U.S. Census Bureau) and contains nearly 563 square miles.



Map 3-1. Dale County Location

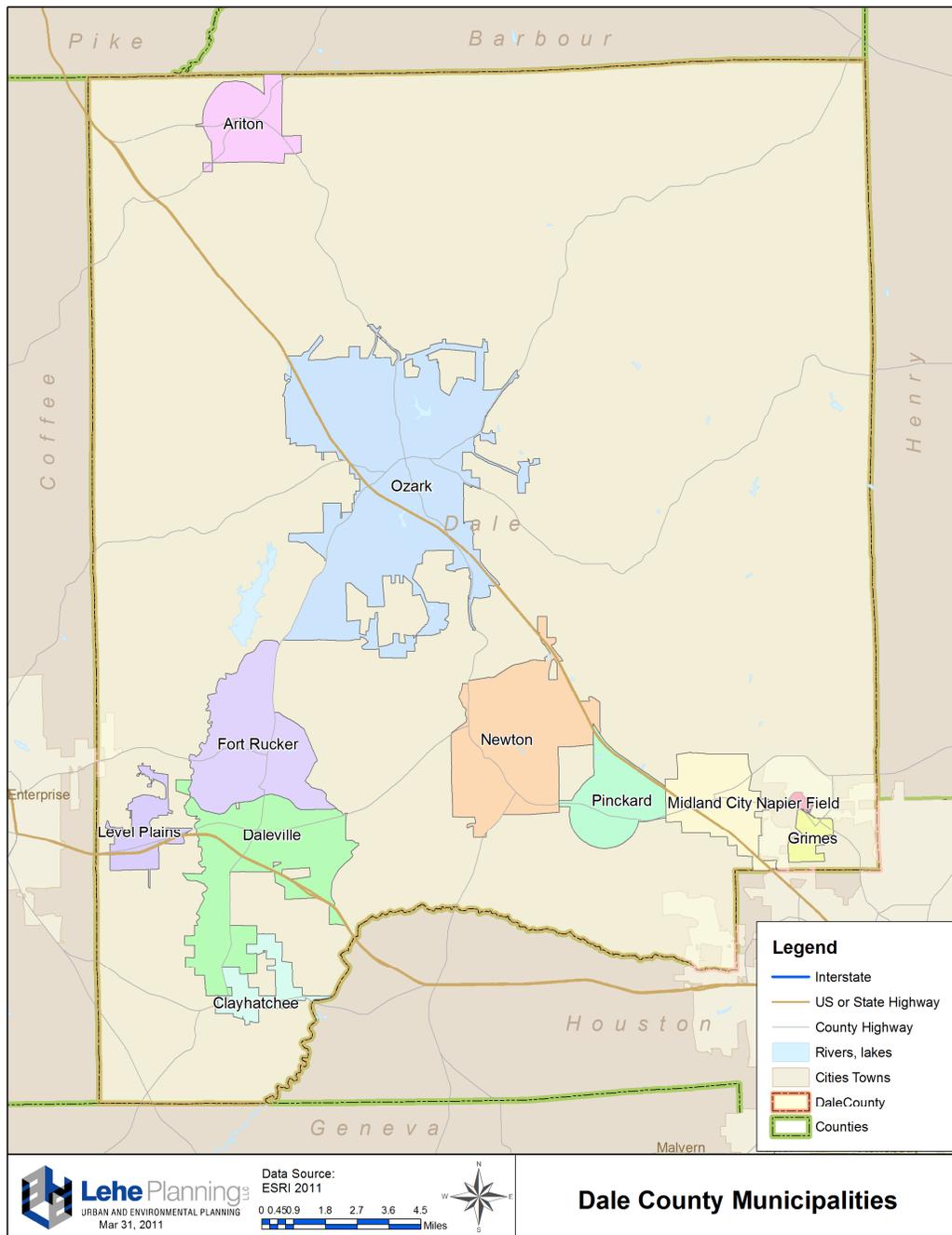
Dale County includes ten incorporated municipalities and one unincorporated community, Fort Rucker, recognized as a Census Designated Place (CDP) by the Census Bureau, which are shown on Map 3-2 “Dale County Municipalities,” as follows:

- Town of Ariton
- Town of Clayhatchee
- City of Daleville
- Town of Grimes
- Town of Level Plains
- Town of Midland City
- Town of Napier Field
- Town of Newton
- City of Ozark
- Town of Pinckard
- Fort Rucker CDP

The following municipalities are partially located in Dale County. These municipalities are located primarily in the counties indicated, and are not included in this plan:

- City of Dothan (primarily in Houston County)
- City of Enterprise (primarily in Coffee County)

Map 3-2. Dale County Municipalities



Town of Ariton

The Town of Ariton is located in northwestern Dale County. It encompasses an area of 5.1 square miles and has a population of 764, according to the 2010 U.S. Census Bureau.

Town of Clayhatchee

The Town of Clayhatchee is located in southwestern Dale County, twenty miles north of the Florida state line. The name of the town is from the two streams that run through it, Claybank Creek and Choctawhatchee River. Clayhatchee has a population of 589, according to the 2010 Census population, and encompasses an area of 2.7 square miles.

City of Daleville

The City of Daleville, also known as the Gateway to Fort Rucker, is located in the southwestern part of the county. It was the first county seat until 1843, when it was moved to Newton, Alabama. The Army Aviation Museum is located in Daleville, which has one of the largest collections of helicopters in the world. The city has an area of 14.1 square miles and has a 2010 population of 5,295.

Town of Grimes

The Town of Grimes is located in southeastern Dale County. It encompasses an area of 1.3 square miles and is the second smallest municipality in Dale County with a 2010 population of 558.

Town of Level Plains

The Town of Level Plains is located in southwestern Dale County. The town was incorporated on April 30, 1965. Level Plains has a total area of 3.1 square miles, with a 2010 population of 2,085.

Town of Midland City

The Town of Midland City is located in southwestern Dale County. The Howell House, built in 1907, is located in Midland City. The town encompasses an area of 6.1 square miles, with a 2010 population 2,344.

Town of Napier Field

The Town of Napier Field is located in southwestern Dale County, and is the smallest municipality in Dale County with a 2010 population of 354. Napier Field has an area of 0.3 square miles.

Town of Newton

The Town of Newton, encompasses an area of 14.3 square miles, is located in the south central part of the county, with a 2010 population of 1,511. The town was a place for local Confederate recruiting during the Civil War and in March 1865 a battle broke out between local Home Guard units and pro-Union irregulars. This event is honored by the Newton Civil War Monument and re-enactments. Newton is also home to the Dale County Agriculture Museum.

City of Ozark

The City of Ozark, county seat of Dale County, is located in the central part of the county, in the region known as Wiregrass. The city was incorporated on October 27, 1870, and is the largest municipality in Dale County with a 2010 population of 14,907 residents. Up until World War I, agriculture was the main sector of Ozark's economy, now Fort Rucker is the main driving force in their economy, as well as the Dale County Agricultural Complex and the High Technology Center. The city has a total area of 34.1 square miles.



Figure 3-1. Dale County Courthouse, Located in Ozark

Town of Pinckard

The Town of Pinckard is located in the south central part of Dale County. Pinckard has a 2010 population of 647 and encompasses 5.3 square miles.

Fort Rucker (unincorporated)

Fort Rucker is an unincorporated Census Designated Place (CDP) located in southwestern Dale County. U.S. Army Aviation is located at Fort Rucker, and it is the largest military base in Alabama. The Fort has an area of 10.9 square miles and a 2010 population of 4,636. Lake Tholocco is located in Fort Rucker and covers over 600 acres.

3.4 Government

The main governing body for Dale County is the Dale County Commission, with the courthouse offices located in Ozark. The Dale County Commission is composed of a five member Board: one Chairman and four Commissioners that are elected from

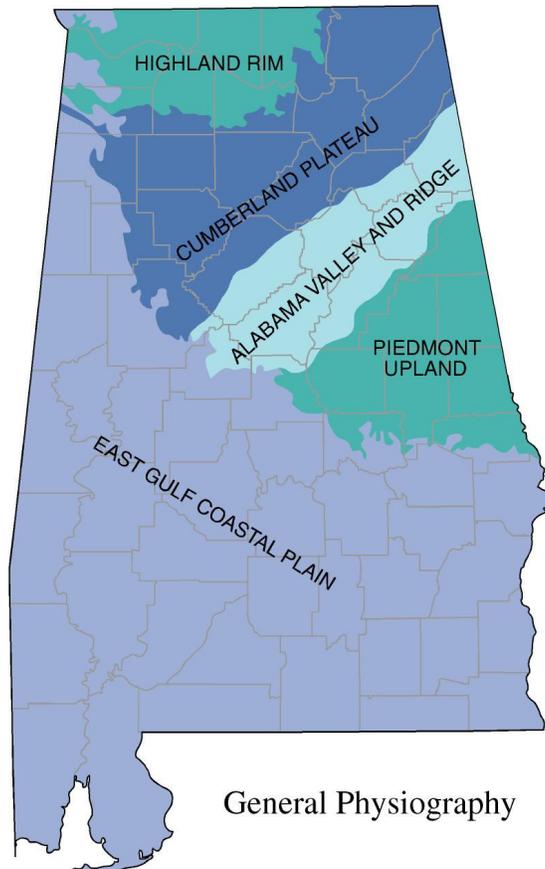
districts to serve four year terms, which are staggered. Currently the Chairman is also the Probate Judge; starting in 2012 they will be two separate positions.

All of the municipalities have a mayor/council form of government.

3.5 Physical Features

Dale County is located within the East Gulf Coastal Plain physiographic province of Alabama, according to the Geological Survey of Alabama. Dale County's location within the East Gulf Coastal Plains is depicted in Map 3-3 "General Physiography." The Encyclopedia of Alabama defines the Coastal Plains province as "it 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." It is the largest physiographic province in Alabama, encompassing about 60 percent of the land.

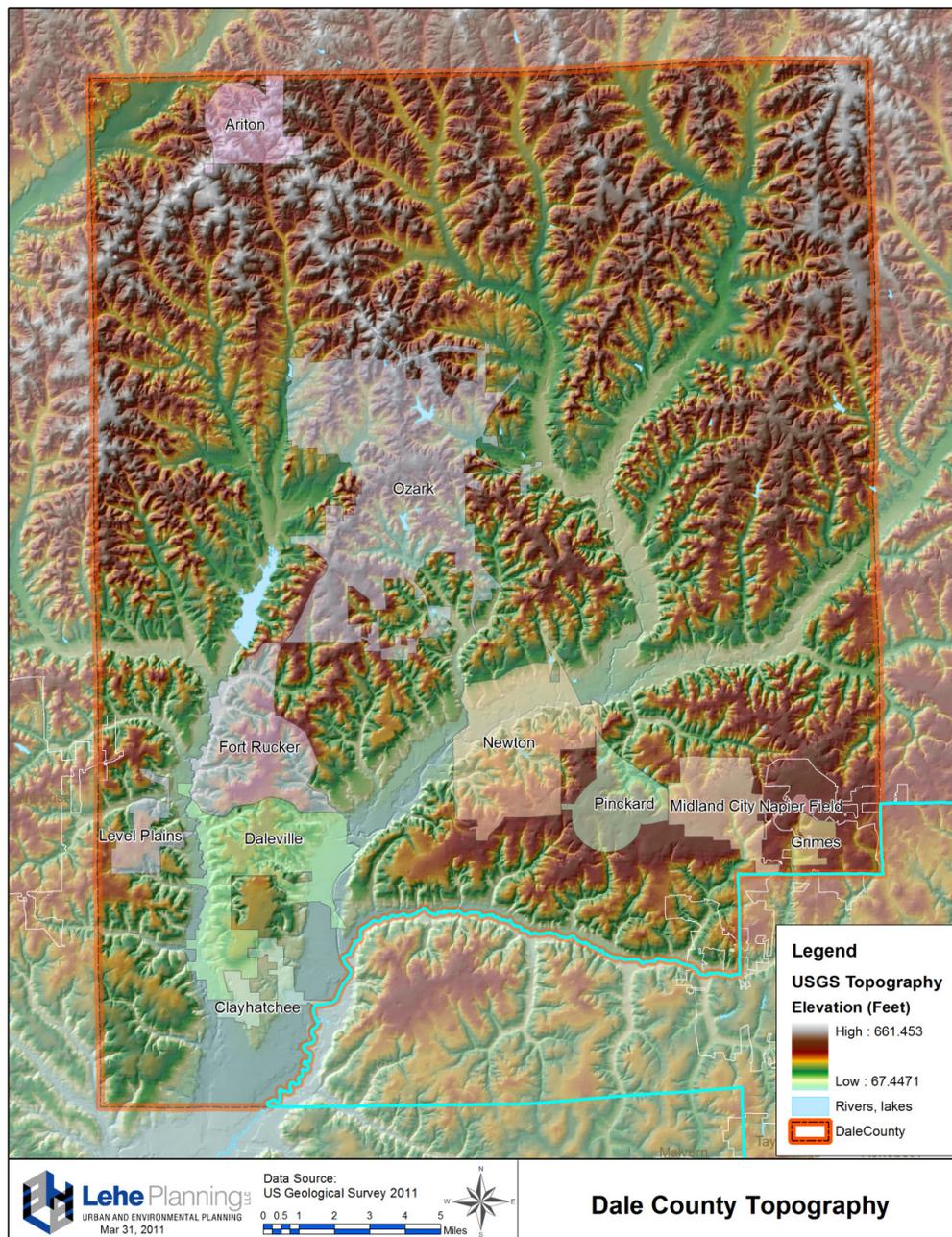
Map 3-3. General Physiography



Produced by the Dept. of Geography
College of Arts and Sciences
The University of Alabama

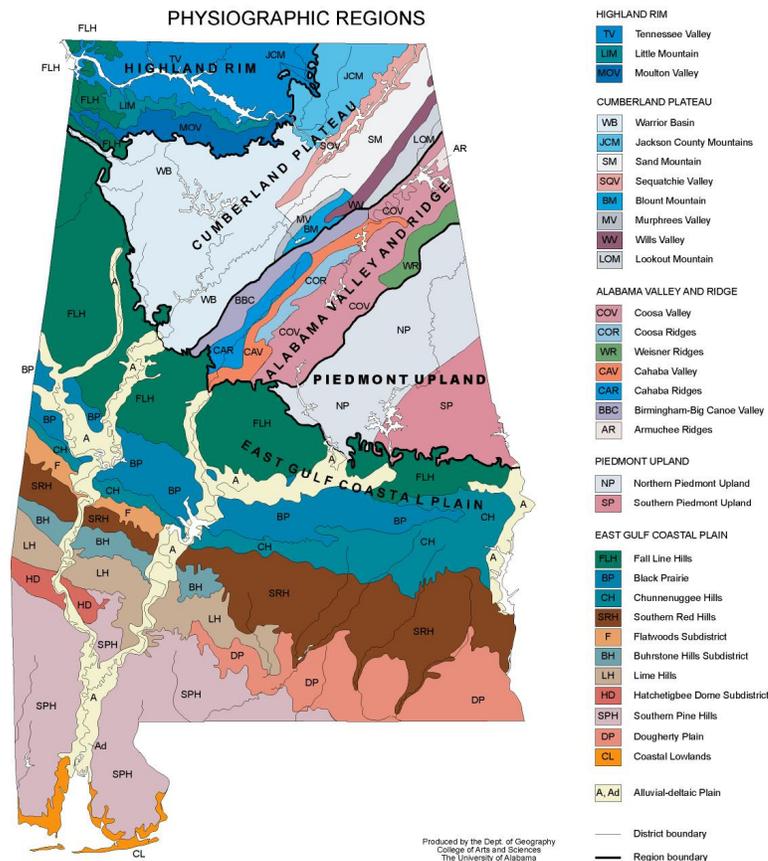
Dale County has one major river that runs along the southern border, the Choctawhatchee River. The river is listed as one of the hot beds by the Nature Conservancy for its aquatic biodiversity, it contains many at-risk species. Dale County also consists of one other river and two creeks that can cause floods, Pea River, Cowpen Creek and Clay Bank Creek. Map 3-4 “ Topography” shows the location of rivers and lakes and the elevation range between 67 and 661 feet above mean sea level.

Map 3-4. Topography



Dale County is located entirely in the Southern Red Hills section of the Coastal Plain Province. The soils in this area are “characteristic of those formed in the humid, subtropical climate of the southeastern section of the United States. They are derived from the sandy red clays of the Lafayette formation. The topsoil is paler and sandier, except where washed off on steep slopes.” (Woods, Prazinko, and Diamond, 2001) Dale County’s location within Alabama’s distribution of physiographic regions is depicted in Map 3-5 “Alabama’s Physiographic Regions.”

Map 3-5. Alabama’s Physiographic Regions



3.6 Climate

Dale County has a temperate, humid, subtropical climate with summers that are generally hot and winters that are short and mild. Dale County is in an area of Alabama that experiences severe droughts. The average annual precipitation is 54.1 inches. Snowfall is very rare. Table 3-2 presents general climate observations:

Table 3-2. General Climate Observations

Category	Average
Annual Average Temperature	66.4° F
Average January Temperature	50.3° F
Average July Temperature	80.5° F
Average Annual Precipitation	54.1 inches
Average Annual Snowfall	0.1 inches

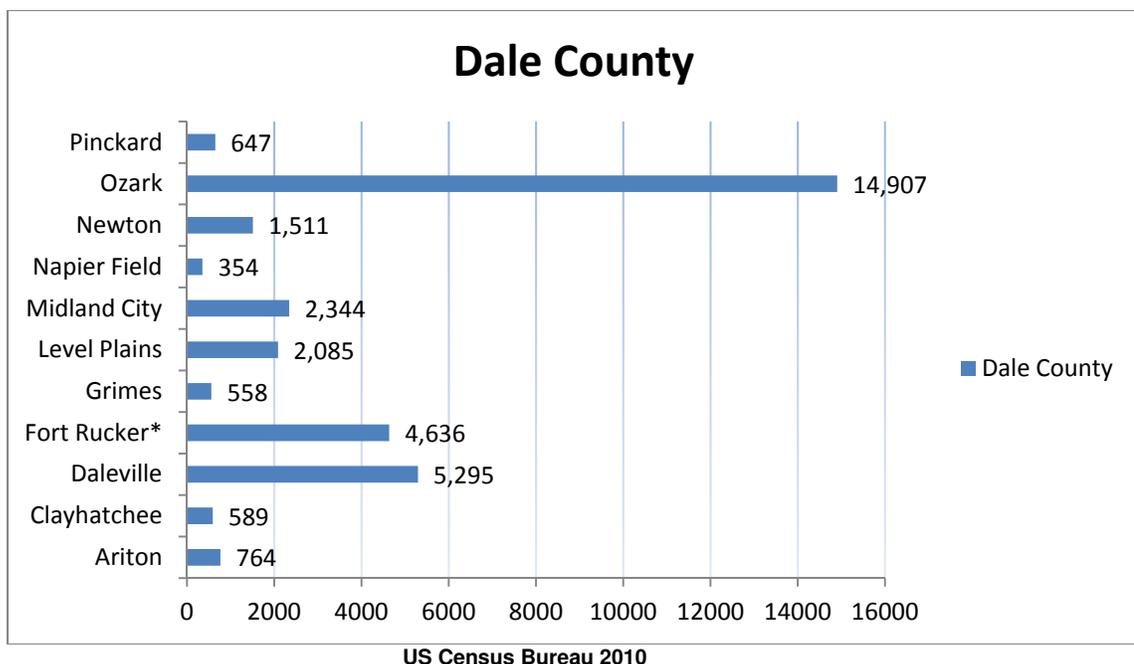
Source: Southeast Regional Climate Center

3.7 Demographics

2010 Population

Dale County has a 2010 population of 50,251. The cities of Ozark and Daleville are the major municipalities, with populations of 14,907 residents and 5,295 residents. These cities account for 40 percent of Dale County’s population. All other municipalities are small in comparison: only Midland City, Newton, and Level Plains have a population of more than 1,500 residents, while other municipalities count fewer than 775 residents. Fort Rucker,* although not a municipality, is shown for comparison. It is the third largest community, with a 2010 population of 4,636.

Chart 3-1. Population by Municipality



Population Growth

Dale County experienced population decline of 5.2 percent between 1970 and 2010. The towns of Grimes, Level Plains, and Midland City exhibited a significant increase in population between 1970 and 2010, with all of the towns continuing to show a substantial increase with growth rates above 21 percent in the 2000's. Napier Field and Newton experienced significant population losses between 1970 and 2010, while Ariton, Clayhatchee, Daleville, Ozark, and Pinckard experienced an increase. The City of Daleville experienced a slight increase in population by 2 percent, but its growth rate grew above 13 percent in the 2000's. More detailed demographic data can be found in section 5.7 "General Description of Land Uses and Development Trends."

Table 3-3. Population Changes 1970-2010

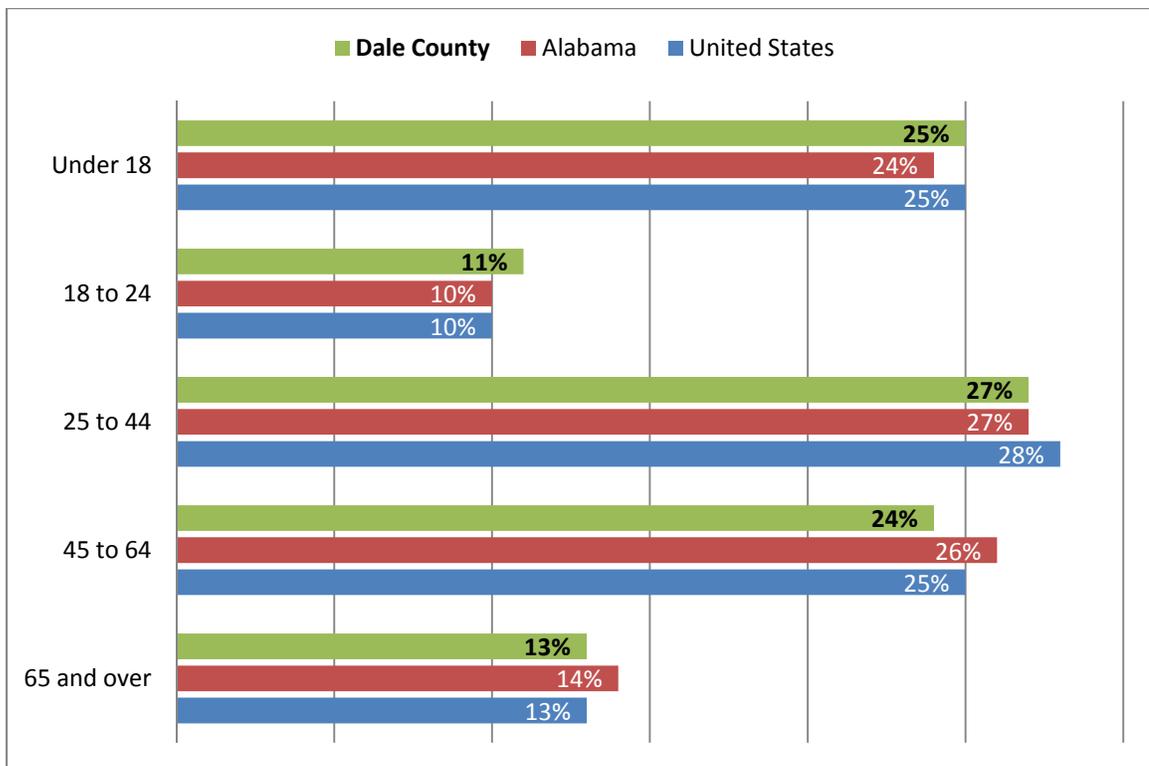
JURISDICTION	1970	1980	1990	2000	2010	Pop Change 1970-2010	% Change 1970-2010	Pop Change 2000-2010	% Change 2000-2010
State of Alabama	3,444,354	3,894,025	4,040,389	4,447,100	4,779,736	1,335,382	38.8%	332,636	7.5%
Dale County	52,995	47,821	49,633	49,129	50,251	-2,744	-5.2%	1,122	2.3%
Ariton	643	844	743	772	764	121	18.8%	-8	-1.0%
Clayhatchee	505	560	411	501	589	84	16.6%	88	17.6%
Daleville	5,182	4,255	5,117	4,648	5,295	113	2.2%	647	13.9%
Grimes	191	298	443	459	558	367	192.1%	99	21.6%
Level Plains	1,007	867	1,473	1,544	2,085	1,078	107.1%	541	35.0%
Midland City	1,172	1,903	1,819	1,703	2,344	1,172	100.0%	641	37.6%
Napier Field	572	493	462	404	354	-218	-38.1%	-50	-12.4%
Newton	1,865	1,540	1,580	1,708	1,511	-354	-19.0%	-197	-11.5%
Ozark	13,555	13,188	13,030	15,119	14,907	1,352	10.0%	-212	-1.4%
Pinckard	609	771	618	667	647	38	6.2%	-20	-3.0%
Fort Rucker*	14,242	8,932	7,593	6,052	4,636	-9,606	-67.5%	-1,416	-30.5%
*Unincorporated Census Designated Place (CDP)									

Source: U.S. Census Bureau 2010

Age Distribution

Data from the 2005-2009 American Community indicates that Dale County’s age distribution is slightly younger than the populations of Alabama and the United States. Over thirty five (35.4) percent of Dale County’s population is under the age of 25. Residents between 25 and 64 years of age composed a slim majority of the population. The group aged 65 years and older represents 12.9 percent of Dale County’s population. This age group affects such community resources as health care facilities and elderly and public assistance programs—particularly during severe weather events. Chart 3-2 breaks down population by age groups.

Chart 3-2. Population by Age



Source: U.S. Census Bureau, 2005-2009 American Community Survey 5-year Estimates

Racial Composition

Dale County is racially diverse, although the racial composition varies considerably among communities. The white share of population within incorporated areas ranges from 94.9 percent in Clayhatchee to 55.9 percent in Grimes, which has the highest African American population at 36.7 percent. Fort Rucker has the highest population of Hispanic origin of any race at 13.2 percent. A relatively small percentage of American Indians and Asians reside in Dale County.

Table 3-4. Population by Race and Hispanic Origin

Community	White	Black/African American	American Indian	Asian	Other Race	Two or More Races	Hispanic (of any race)
Dale County	74.1%	19.3%	0.7%	1.1%	1.9%	3.0%	5.6%
Ariton	78.3%	19.2%	0%	0.1%	0.9%	1.4%	6.0%
Clayhatchee	94.9%	1.7%	0.3%	0.3%	0.8%	1.9%	2.4%
Daleville	66.2%	22.6%	1.1%	2.7%	3.1%	4.3%	10.1%
Grimes	55.9%	36.7%	0%	0%	2.2%	5.2%	2.9%
Level Plains	75.3%	12.4%	0.5%	1.5%	5.1%	5.3%	11.0%
Midland City	70.4%	23.3%	0.5%	0.4%	1.7%	3.7%	4.1%
Napier Field	79.7%	16.1%	1.7%	1.7%	0%	0.8%	2%
Newton	83.6%	13%	0.7%	0.5%	0.2%	2.1%	1.5%
Ozark	64.8%	30.2%	0.7%	0.9%	0.8%	2.6%	3.2%
Pinckard	83.8%	12.7%	0.6%	0.5%	0.8%	1.7%	1.7%
Fort Rucker *	77.7%	11.9%	0.8%	1.3%	3.3%	4.9%	13.2%
*Census Designated Place							

Source: U.S. Census Bureau, 2010

Gender

Table 3-5 shows population distribution by gender in Dale County jurisdictions. Nationally, women compose a larger share of the population, because women live longer than men.

Table 3-5. Population by Gender

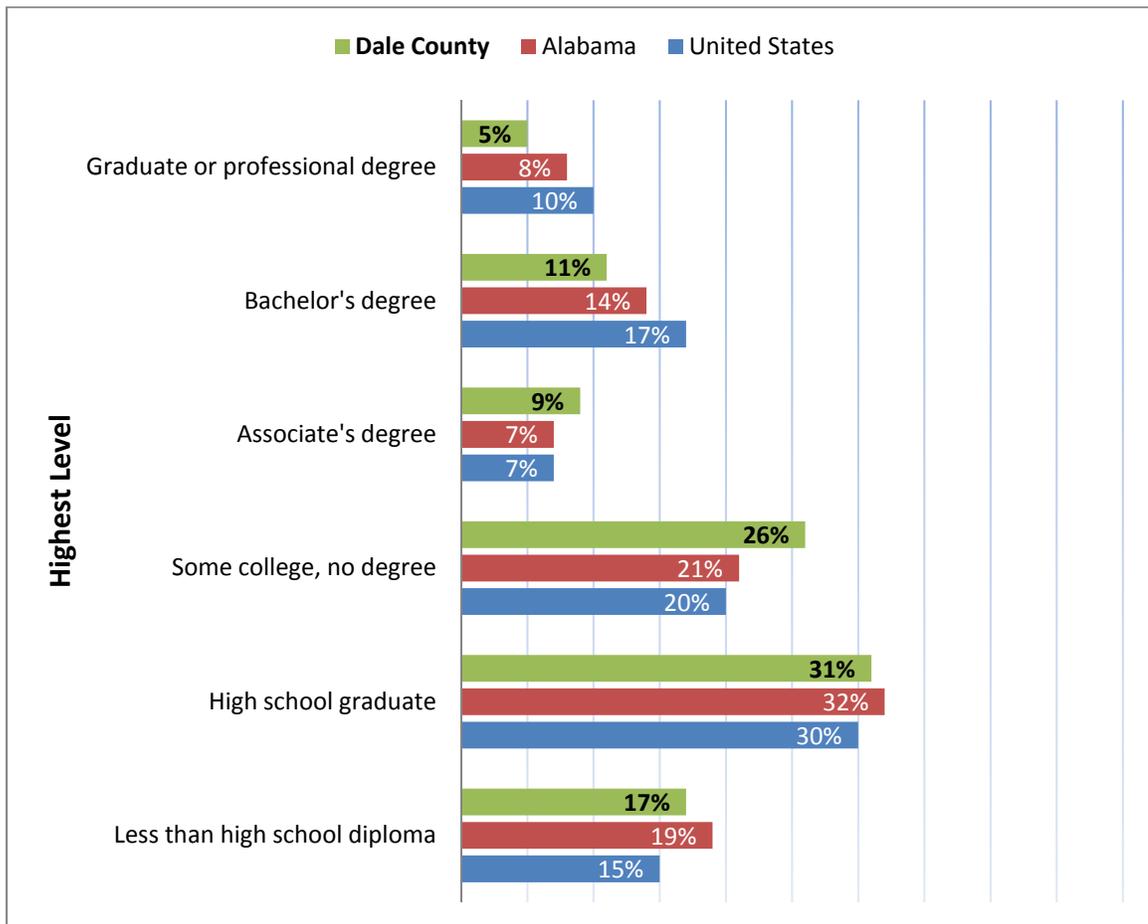
Community	Male	Female
Dale County	49.3%	50.7%
Ariton	44.1%	55.9%
Clayhatchee	48.2%	51.8%
Daleville	52.2%	47.8%
Fort Rucker *	61.1%	38.9%
Level Plains	43.5%	56.5%
Midland City	40.9%	59.1%
Napier Field	53.3%	46.7%
Newton	46.8%	53.2%
Ozark	45.4%	54.6%
Pinckard	48.3%	51.7%
*Unincorporated Census Designated Place (CDP)		

Source: U.S. Census Bureau, American Community Survey

Educational Attainment

Dale 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 3-3 compares Dale County, Alabama, and the United States by educational attainment. Dale County is below Alabama and slightly above the US in the share of its population with less than a high school diploma. Only five percent of Dale County residents have attained a graduate or professional degree.

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



Source: U.S. Census Bureau, 2005-2009 American Community Survey 5-year Estimates

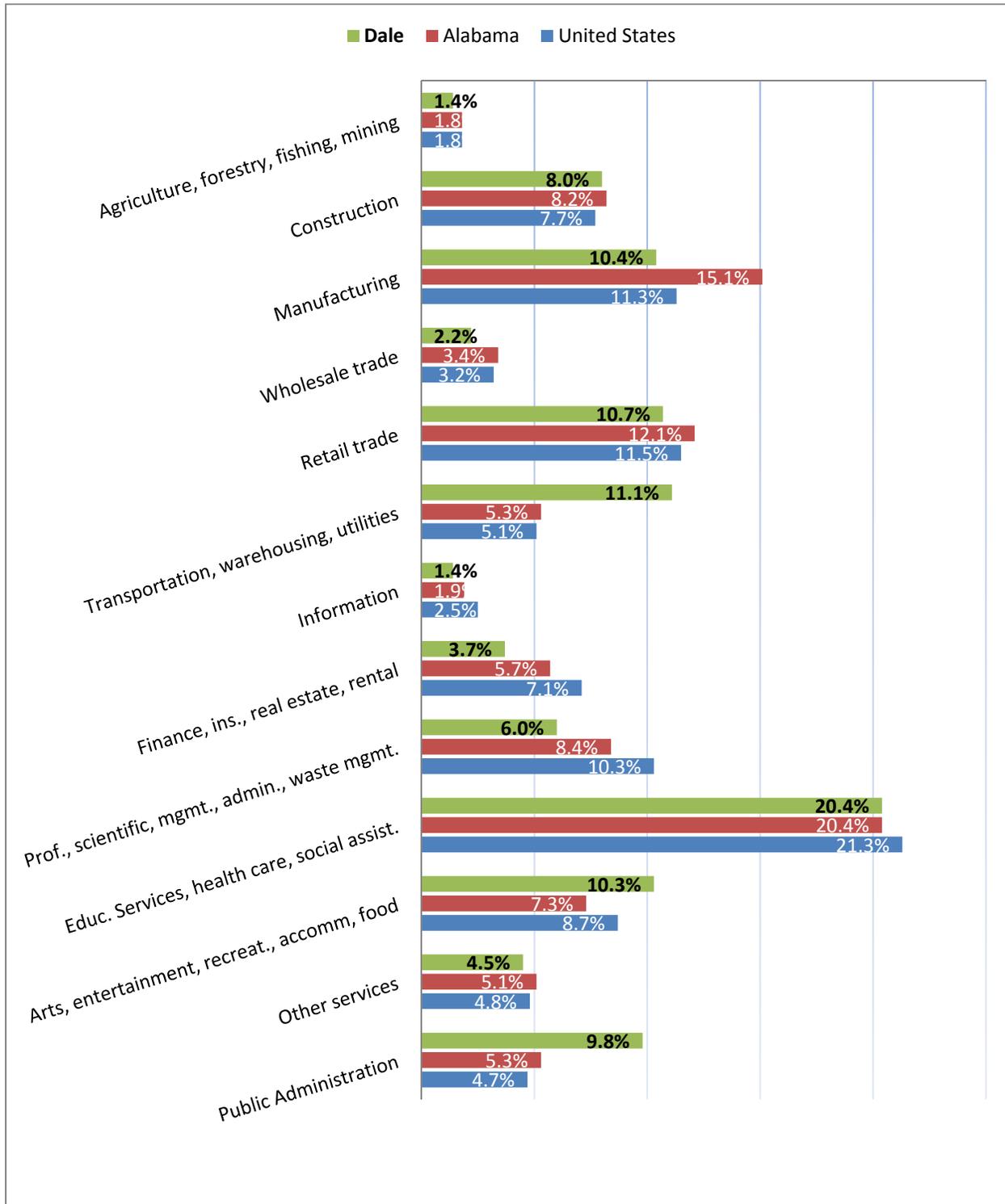
3.8 Economy

Business and Industry

Dale County is served by the Ozark Area Chamber of Commerce. The county's largest employers are the U.S. Army, Michelin Tire Corporation, Van Heusen, Lear Siegler, Dale Medical Center, and Wal-Mart.

Relative to the State of Alabama, Dale County's workforce is employed at a higher rate in transportation, arts, and public administration and at a significantly lower rate in manufacturing.

Chart 3-4. Employment by Industry

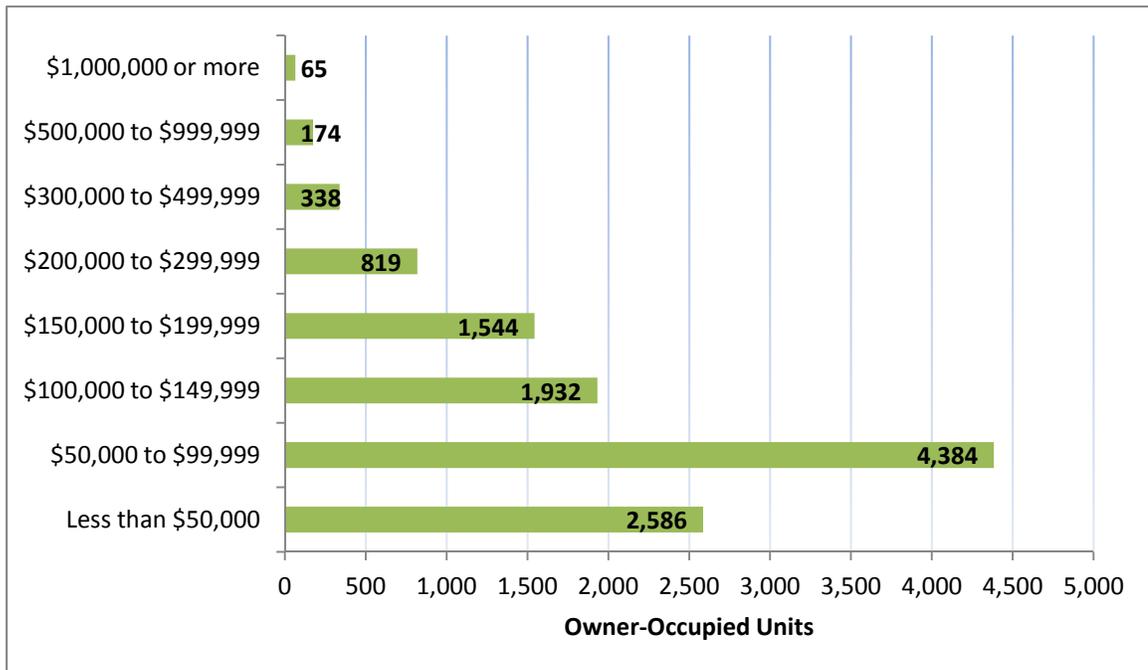


Source: U.S. Census Bureau, 2005-2009 American Community Survey 5-year Estimates

Income and Housing

Data on income and housing are reported from the 2005-2009 5-year estimates of the U.S. Census Bureau’s American Community Survey. The median household income for Dale County was \$42,225, which is below the state median of \$41,216. Statistics indicate 14.2 percent of Dale County residents and 16.8 percent of Alabama residents lived below the poverty line at some point in the 12 months prior to data collection. Social Security benefits contributed to the income of 31.7% of Dale County households, and the mean benefit per recipient household is \$12,407. The median value for a home in Dale County was \$88,800 in 2009. The number of housing units by range of value is shown in Chart 3-5. Dale County’s housing stock is older than Alabama’s housing stock, as shown in Chart 3-6.

Chart 3-5. Housing Units by Value



Source: U.S. Census Bureau, 2005-2009 American Community Survey 5-year Estimates

Chart 3-6. Housing Stock by Age

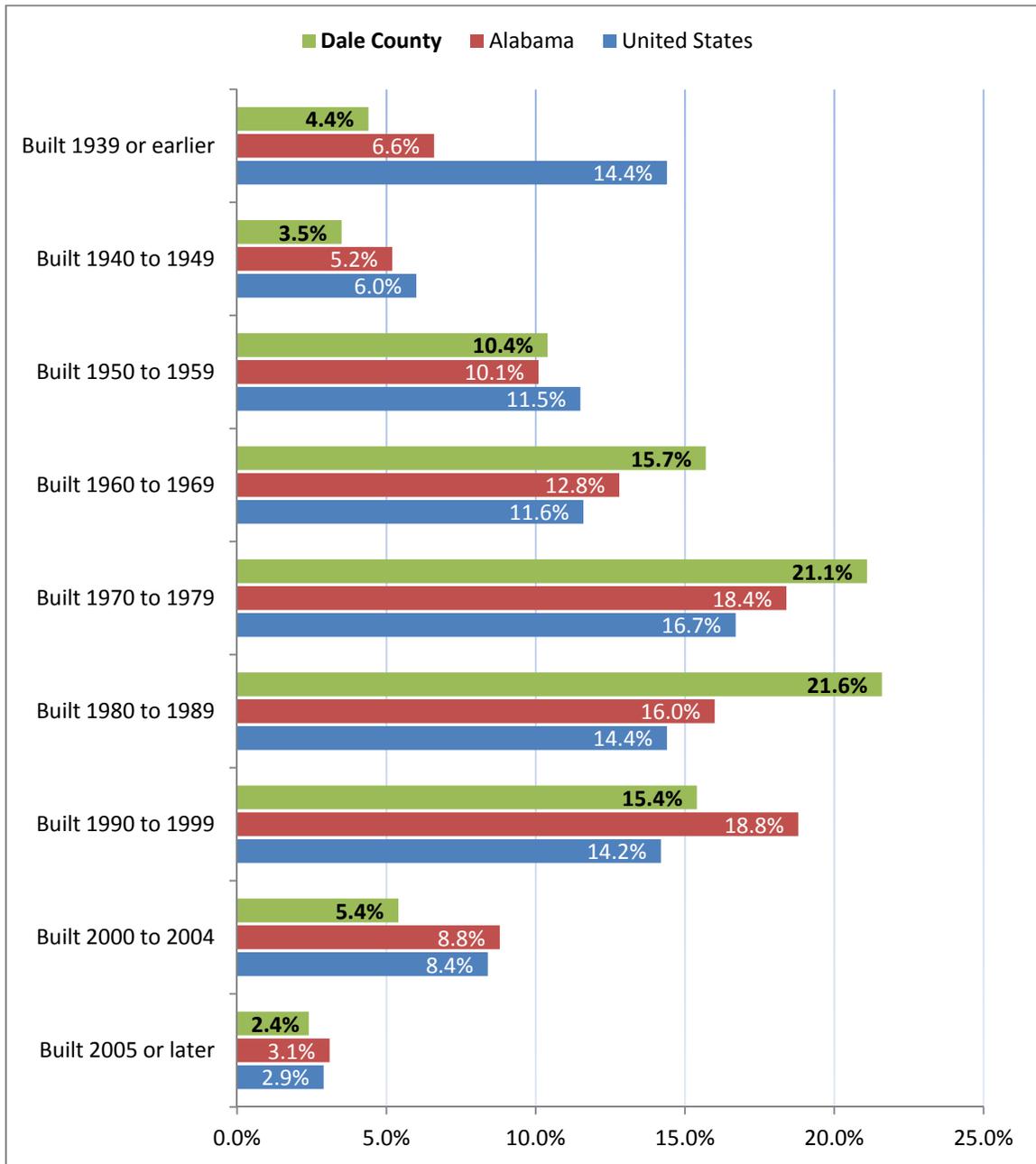
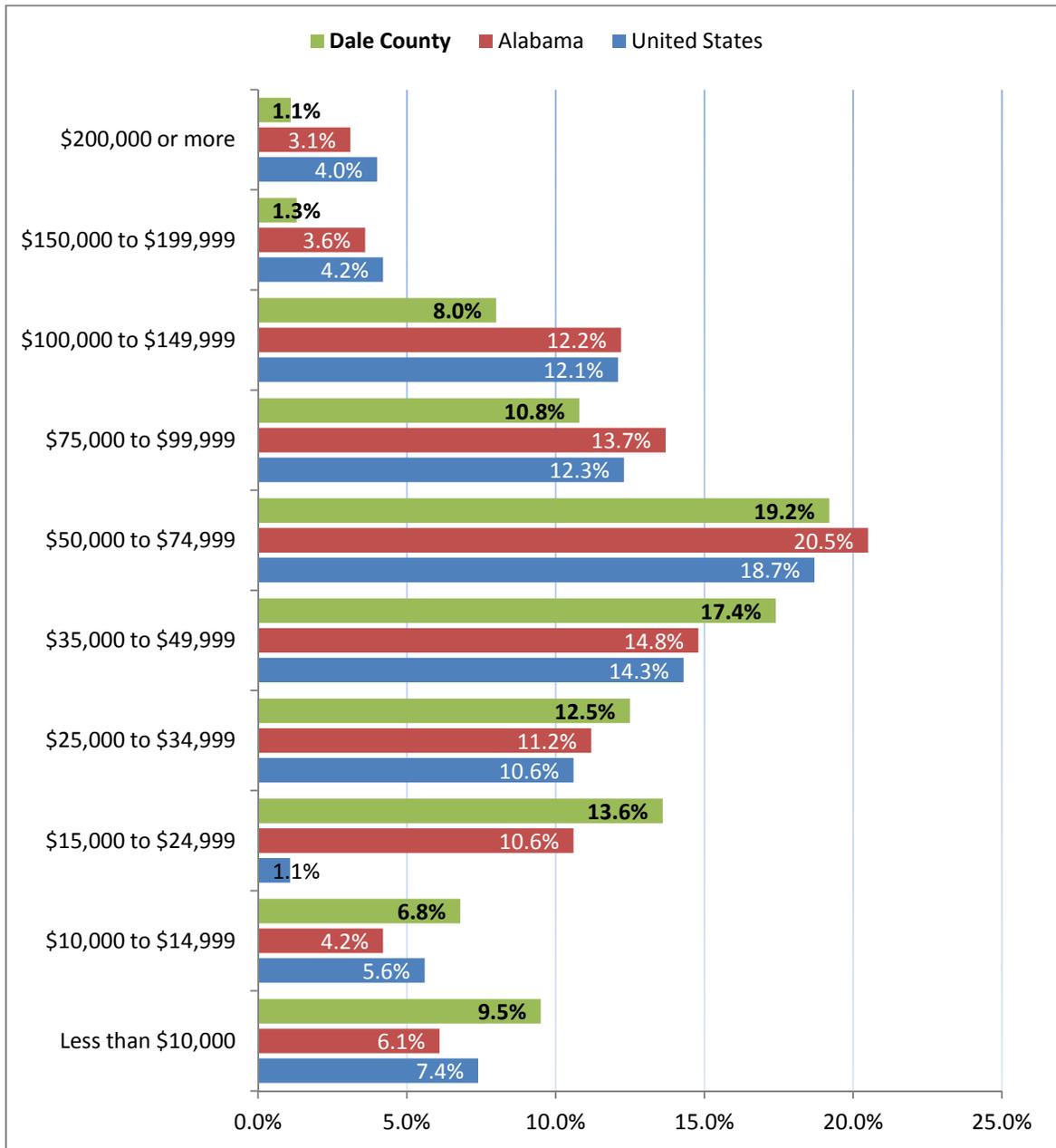


Chart 3-7. Household Income Distribution



Tourism

Dale County has many attractions and events for tourists and local residents. Major tourist attractions and events include:

- ✓ Aviation Campus of Enterprise-Ozark Community College

- ✓ Carillon and Bell Tower
- ✓ Claybank Church
- ✓ Dale County Confederate Soldier Monument
- ✓ Dowling Museum/Ann Rudd Arts Center
- ✓ Eagle Stadium
- ✓ Ed Lisenby Public Lake and Walking Trail
- ✓ Fort Rucker Equestrian Center
- ✓ The Howell House
- ✓ Jesse Bowman's Guide Service
- ✓ Lake Tholocco
- ✓ Mabson Community Education Forest
- ✓ Newton Civil War Monument
- ✓ Oates-Reynolds Memorial Building/Dale Co. Agricultural Museum
- ✓ Ozark Country Club
- ✓ Sea Divers, Inc.
- ✓ Silver Wings Golf Course
- ✓ Steagall Park
- ✓ U.S. Army Aviation Museum

3.9 Utilities

Electric Power

Dale County is served by Alabama Power Company, Power South, Pea River Electric Co Op, and Covington Electric for their electric power needs.

Natural Gas

Southeast Alabama Gas District, Southern Natural Gas, and Alabama Gas Corporation provide local distribution of natural gas to Dale County.

Water and Sewer

Dale County is served by Daleville Water and Sewer Board, Level Plains Water System, Ariton Water Works, Midland City Water Department, Napier Field Water System, Newton Water Works Board, Ozark Utilities Board, Dale County Water Authority, and Pinckard Water Department.

3.10 Media

TV and Radio

Dale County is provided cable by Charter Communications, Comcast and Time Warner Cable. The satellite providers are Direct TV and Dish Network. The County has seven local radio stations.

Newspapers

There is one local newspaper published in Dale County. The newspaper is the *Dale News*, based in the Fort Rucker.

Telephone, Cellular, and Internet Services

An extensive range of regional and national cellular providers serve Chambers County. Century Link provides telephone and internet services.

3.11 Transportation**Interstates**

U.S. highways 231 and 84 are the major highways that serve Dale County, as well as state highways 27, 105, 123, 134, and 249. There are not any major interstates that serve the county.

Trucking

AWC Carrier Incorporated, located in Newton, serves Dale County.

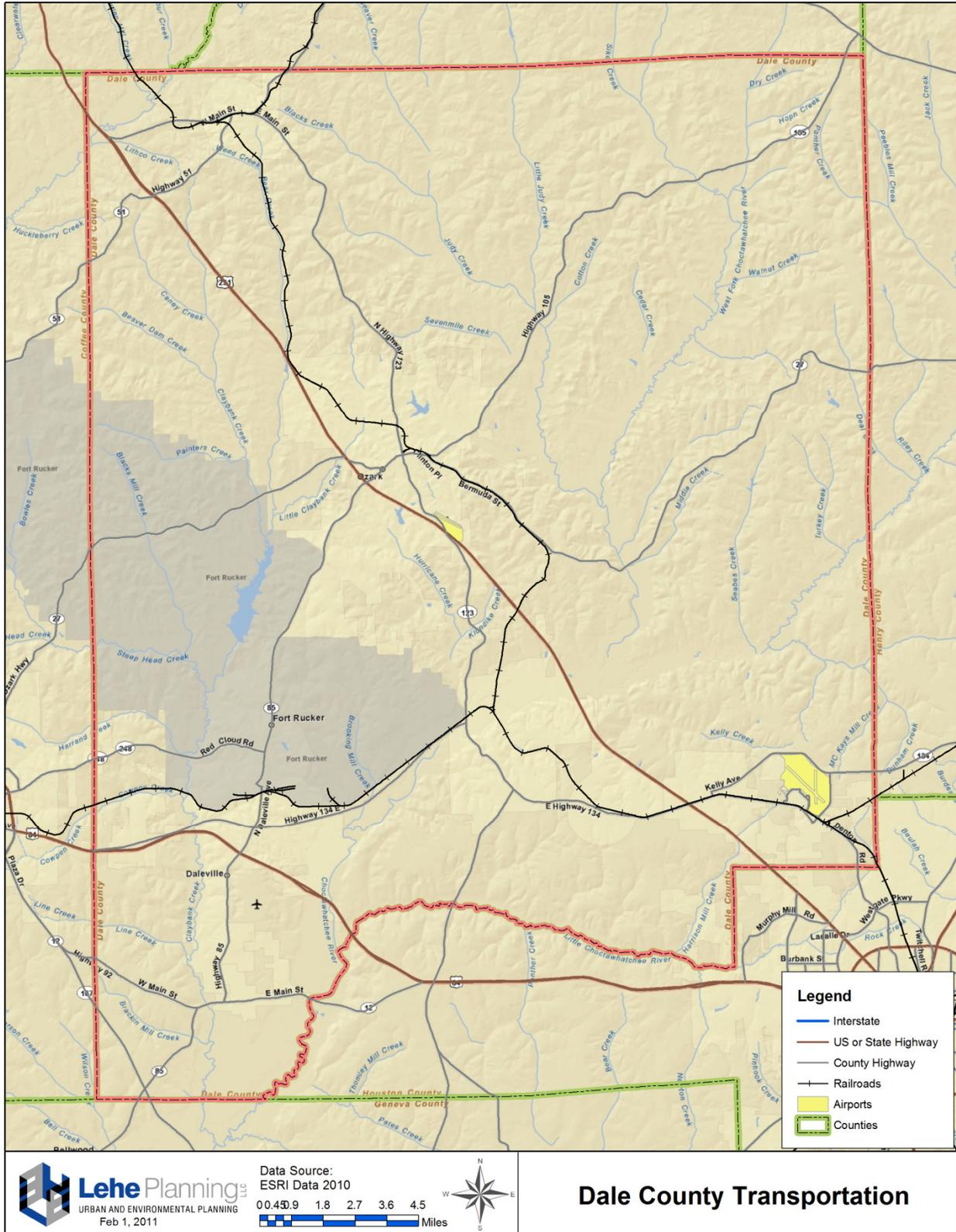
Railway

Dale County is served by one major railroad: CSX Transportation.

Airports

Dale County has one public airport, Blackwell Field Airport, which is located in Ozark.

Map 3-6. Transportation Facilities



Chapter 4 - The Planning Process

- 4.1 Federal Requirements for the Planning Process
- 4.2 Summary of Plan Updates
- 4.3 Opportunities for Public Comment on the Plan
- 4.4 Opportunities for Involvement in the Planning Process
- 4.5 Review and Incorporation of Applicable Plans and Documents
- 4.6 How the Plan was Prepared
- 4.7 Who was Involved in the Planning Process
- 4.8 How the Public was Involved in the Planning Process
- 4.9 The Plan Review and Update 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

Table 4-1 summarizes changes made to the 2004 plan as a result of the 2011 plan update:

Table 4-1. Summary of Plan Updates

Section		Change
4.3	Opportunities for Public Comment on the Plan	Adds new opportunities through toll free number, new Web site, and an updated public survey
4.4	Opportunities for Involvement in the Planning Process	Expanded opportunities
4.5	Review and Incorporation of Applicable Plans and Documents	Incorporated new studies; intensive examination of local tools
4.6	How the Plan was Prepared	Increased number and scope of HMPC meetings; more direct involvement and oversight by HMPC
4.7	Who was Involved in the Planning Process	Reorganized HMPC with new members
4.8	How the Public was Involved in the Planning Process	Increased involvement
4.9	The Plan Review and Update Process	This is the first 5 year review and update of the plan

4.3 Opportunities for Public Comment on the Plan

The Hazard Mitigation Planning Committee (HMPC) solicited public input into the mitigation plan through a public survey, public meetings and an internet Web site at dale.hazardmitigationplan.com. Residents were encouraged to provide input through their representative on the Committee from each jurisdiction. A toll free number, 866-978-3633, was available for the residents to reach the planning team. The plan on the Web site was continually updated and available for public review and comment throughout the planning process. (Refer to Appendix H “Community Involvement Documentation” for further explanation and documentation).

A community meeting was held in August 2011 where members of the planning team and EMA were available to discuss the mitigation planning process and the community mitigation actions programs for each community. Severe weather information, mitigation measures, and a Public Survey questionnaire were available. A

copy of the survey can be found in Appendix H “Community Involvement Documentation”.

A public hearing to receive comments was 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 Dale County EMA offices.

4.4 Opportunities for Involvement in 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. (A copy of the notice and survey are included in Appendix H). Those agencies which received the notice and survey are listed below.

Federal Agencies

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

State Agencies

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

Local and Regional Agencies

- Southeast Alabama Regional Planning Commission
- City of Ozark Chamber of Commerce
- Daleville Area Chamber of Commerce

Neighboring Counties and Military Bases (represented by County EMA directors)

- Barbour County
- Coffee County
- Geneva County
- Henry County
- Houston County
- Ft. Rucker

Academia

- Dale County Public Schools – Board of Education
- Ozark City Schools – Board of Education
- Daleville City Schools – Board of Education

Non-Profits and Other Agencies

- American Red Cross, Dale County Chapter
- Dale County Medical Center
- Salvation Army

4.5 Review and Incorporation of Applicable Plans and Documents

The participating jurisdictions provided copies of their plans, studies, reports, ordinances, regulations and technical information that they believed related to hazard mitigation to the planning team. The documents were closely examined to see what hazard mitigation measures were currently being pursued and what new measure could be included in future revisions of the existing documents. Some of these documents addressed specific natural hazards concerns – floodplain management, storm water detention, erosion and sedimentation control and shoreline management.

The following plans and documents were reviewed by the planning team:

- Comprehensive Plans
- Zoning Ordinances
- Building Codes and Related Ordinances
- Subdivision Regulations
- Land Use Plans
- Flood Damage Prevention Ordinances
- Erosion and Sedimentation Control Regulations
- Emergency Response or Operations Plan
- Regulations on the Impacts of Wetlands
- Tree and Natural Tree Preservation Ordinances
- Flood Plain Management Ordinances
- Storm Water Management Plans
- Open Burn Ordinance
- U.S. Census Bureau and Alabama Data Center demographic and economic reports
- NOAA and NWS storm events records
- FEMA and local disasters reports
- Flood Insurance Studies and Flood Insurance Rate Maps
- Alabama State Hazard Mitigation Plan 2010

It is recommended that any pertinent mitigation strategies developed from this mitigation plan update be integrated into any revisions of existing comprehensive plans and future planning documents at the appropriate time. Specific measures for plan integration are included in the Community Mitigation Action Programs for each jurisdiction which can be found in Chapter 6 – “Mitigation Strategy.”

4.6 How the Plan was Prepared

From March 2011 through August 2011, the Dale County Hazard Mitigation Committee held five meetings to participate in the plan drafting process. Agendas and sign-in sheets from these meetings are on file in the EMA office and copies are included in Appendix G “Committee Meeting Documentation.”

The first planning meeting was held on March 3, 2011. The meeting topics included an introduction to mitigation planning, a review of the 2004 plan, and a preview of the plan update process. Each member was given a copy of the 2004 summary of capabilities and asked to write down any changes to their jurisdiction’s capabilities since 2004. (See Appendix B “Community Mitigation Capabilities” for the results of this assessment). The members were also provided with draft copies of Chapters 1, 2 and 7 of the 2011 plan update for review and comment.

The Committee meeting held on April 7, 2011, addressed the findings of the previous exercises and the planning team described the different hazards and how their risks vary throughout Dale County and its communities. They were also provided a risk assessment handout which asked members to identify natural hazards they believed affected their jurisdiction and rate the extents and probabilities of future occurrences. (See Appendix D- "HMPC Hazard Identification and Ratings" for the results of this exercise). They were asked to provide information on previous events on a "Hazard Profile Worksheet. They were provided with draft copies of Appendix E and Chapter 3.



The Committee reconvened on June 16, 2011 and the implementation status exercise was handed out during this meeting and members were asked to review the mitigation measures they chose for the 2006 amended plan and indicate if the measure had been met or not, and if not, why. (See Appendix C - "2004 Plan Implementation Status".) Also discussed were the impacts on the communities by the different hazards and how the risks vary from area to area within the county. The members received the draft on Part One of Chapter 5.

The final planning meeting before the development of the draft plan was held on July 21, 2011. The members were introduced to the alternative mitigation measures that could be considered when developing a community action program. The members were introduced to the five main goals of mitigation actions, possible mitigation measures, and the STAPLEE method for deciding the worth of different mitigation measures. They were provided a listing of alternative mitigation measures to begin the mitigation action program selection process. They were given a worksheet of mitigation measures from which they could choose those that most suited their jurisdiction. Space was provided at the end of the worksheet to add any other mitigation measures. The vulnerability sections of Chapter 5 – Risk Assessments and the first part of Chapter 6 – Mitigation Strategy were distributed to the members prior to the meeting.

The Committee members submitted their preferred mitigation measures to the planning team for inclusion in the draft plan. The planning team used this information for the plan update.



The Committee convened its final meeting immediately following the community meeting on August 11, 2011 to complete the draft review and discussions of all components of the 2011 draft plan. Subsequently, the planning team assembled the final draft plan for submission to the Alabama Emergency Management Agency for review and approval.

4.7 Who was Involved in the Planning Process

4.7.1 The Hazard Mitigation Planning Committee

The Dale 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. The membership of the HMPC and the jurisdictions and organizations represented are listed below:

- Robert Marsh, EMA Director, Dale County
- Eunice Hagler, Probate Judge
- Charles Knowles, Clayhatchee Chief of Police
- Jeff May, Alabama State Defense Force
- Shari Russell, Dale County Citizen Corps
- Rick McInturf, Ozark City Schools,
- Bobby Blankenship, Ozark Police
- Steve Price, Ozark Public Works
- Curt Dunn, Ozark Public Works
- Greg Boutwell, Ozark Fire Department
- Tyrus Waters, Mayor of Level Plains
- Paula Simmons, Ozark-Dale County E-911
- Wes Etheredge, Mayor of Daleville
- Charles G. Sapp, Jr., Daleville DPS
- Lanice A. Bonds, Level Plains Chief of Police
- Eric Blankenship, ECHO Fire Department
- Kurt McDaniel, Dale County Commission
- Derek Brewer, Dale County Engineering
- Dale Jones, Dale Medical Center
- Thomas Agee, Dale County ACES
- Tim Byrd, Dale County SO

- Steve Peterson, Napier Field VFD
- Carl Garrow, Ariton Chief of Police
- Steve Skew, Ozark Fire Department
- Kathy Walker, Ozark-Dale County E-911
- Tommy Dean, Ozark Fire Department

Notes:

- *The Dale County EMA serves as the lead local agency supporting the drafting, adoption, and ongoing implementation of the plan. The EMA supports committee activities and represents the interests of all Dale County jurisdictions and agencies, including school boards and utilities.*
- *Napier Field was represented by the EMA in accordance with the Resolution for Representation.*

4.7.2 The Mission of the Hazard Mitigation Planning Committee

The Committee chose to retain the mission statement from the 2004 plan for this update:

The mission of the Dale County Hazard Mitigation Planning Committee is to oversee and establish a comprehensive hazard mitigation planning process that:

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

4.7.3 Preparation of the Plan Update

This 2011 plan update was prepared under the direction of the Hazard Mitigation Planning Committee with the support of the Dale County EMA. The Dale County Commission retained the consulting firm of Lehe Planning, LLC, the same firm that assisted with the 2004 plan, to prepare the 2011 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 over the telephone. All Hazard Mitigation Planning Committee meetings were announced and open to the public.

The HMPC sponsored a special community meeting held on August 11, 2011. At that meeting the plan, hazards, and mitigation measures were discussed among participants. Displays and handouts regarding various hazards were made available to the public. The public was encouraged to fill out a public survey about the risks and threats of hazards. (The results from those surveys can be found in Appendix H “Community Involvement Documentation.”)

A toll free number (1-866-978-3633) was made available for interested parties to contact the planning team with questions and comments. They were also encouraged to email their comments to dale.hazardmitigationplan.com.

At the end of the planning process, the public was invited to attend the public hearings held by all jurisdictions prior to plan adoption allowing individuals a final opportunity for public comments.

For more detailed documentation 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 entire 2004 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 2004 plan, which was reflected in the 2011 Action Programs for each jurisdiction.
- A reassessment of risks to include detailed research and analysis of hazards affecting the communities.
- A thorough update of critical facilities and assessment of vulnerabilities.
- A reexamination of development trends and exposure to risks.
- A review and recommitment to the vision for disaster-resistant communities; modifications to the 2004 goals; and support of the 2010 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.

- Revisions to the plan maintenance procedures to institute streamlined amendments and better insure continuous monitoring and implementation of mitigation actions.

Chapter 5 – Risk Assessment

- 5.1 Federal Requirements for Risk Assessments
- 5.2 Summary of Plan Updates
- 5.3 Identification and Description of Hazards
- 5.4 Hazard Profiles
- 5.5 Vulnerability of Structures within Each Jurisdiction
- 5.6 Estimate of Dollar Losses to Vulnerable Structures
- 5.7 General Description of Land Uses and Development Trends
- 5.8 Repetitively-Damaged NFIP-Insured Structures
- 5.9 Summary of Hazards and Community Impacts
- 5.10 Risks that Vary Among the Jurisdictions

5.1 Federal Requirements for Risk Assessments

This chapter 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

Table 5-1 summarizes changes made to the 2004 plan:

Table 5-1. Summary of Plan Updates

Section		Change
5.3	Identification and Description of Hazards	Identifies multi-hazards; describes sources
5.4	Hazard Profiles	Improves descriptions of locations and extents; updates past occurrences; improves mapping
5.5	Vulnerability of Structures within Each Jurisdiction	A more comprehensive inventory of buildings, critical facilities, and infrastructure from HAZUS-MH; update of GIS data and mapping; improved methodologies; includes future conditions
5.6	Estimate of Dollar Losses to Vulnerable Structures	Improved methodology and documentation; updated GIS mapping
5.7	General Description of Land Uses and Development Trends	More extensive analysis; updates population and growth data; expands mapping
5.8	Repetitively-Damaged NFIP-Insured Structures	Addresses new requirement
5.9	Summary of Hazards and Community Impacts	Previously mentioned in hazard profiles; more community specific impact descriptions
5.10	Risks that Vary Among the Jurisdictions	Improved explanation of how risks vary

5.3 Identification of Hazards Affecting Each Jurisdiction

5.3.1 Types of Hazards

The hazards affecting each Dale County jurisdiction are listed in Table 5-2 “Identified Dale County Hazards.” This table also notes several hazards that may occur as consequences of other hazards. For example, hurricanes frequently spawn tornadoes. The 2004 Dale County Natural Hazards Mitigation Plan includes a similar list of natural hazards, but the 2011 Dale 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, “HMPC Hazard Identification and Ratings.”

Table 5-2. Identified Dale County Hazards

Hazards	Associated Hazards	Jurisdictions Affected
<p align="center">Severe Storms</p>	<p>Thunderstorms Hail Lightning High Winds Tornadoes Floods</p>	Dale County
		Ariton
		Clayhatchee
		Daleville
		Grimes
		Level Plains
		Midland City
		Napier Field
		Newton
		Ozark
		Pinckard
<p align="center">Tornadoes</p>	<p>High Winds Severe Storms</p>	Dale County
		Ariton
		Clayhatchee
		Daleville
		Grimes
		Level Plains
		Midland City
		Napier Field
		Newton
		Ozark
		Pinckard
<p align="center">Floods</p>		Dale County
	Ariton	
	Clayhatchee	
	Daleville	
	Grimes	
	Level Plains	
	Midland City	
	Napier Field	
	Newton	
	Ozark	
	Pinckard	
<p align="center">Drought/Heat Waves</p>	<p>Extreme Heat Wildfires Sinkholes</p>	Dale County
	Ariton	
	Clayhatchee	
	Daleville	
	Grimes	
	Level Plains	
	Midland City	
	Napier Field	
	Newton	
	Ozark	
	Pinckard	

Hazards	Associated Hazards	Jurisdictions Affected						
<p align="center">Hurricanes</p>	<p>Tropical Storms Tropical Depressions Severe Storms High Winds Floods</p>	<p>Dale County Ariton Clayhatchee Daleville Grimes Level Plains Midland City Napier Field Newton Ozark Pinckard</p>						
		<p align="center">Winter Storms/Freezes</p>	<p>Snow Storms Ice Storms Extreme Cold</p>	<p>Dale County Ariton Clayhatchee Daleville Grimes Level Plains Midland City Napier Field Newton Ozark Pinckard</p>				
				<p align="center">Dam/Levee Failures</p>	<p>Floods</p>	<p>Dale County Ariton Clayhatchee Daleville Grimes Level Plains Midland City Napier Field Newton Ozark Pinckard</p>		
						<p align="center">Wildfires</p>		<p>Dale County Ariton Clayhatchee Daleville Grimes Level Plains Midland City Napier Field Newton Ozark Pinckard</p>

Hazards	Associated Hazards	Jurisdictions Affected
Sinkholes (Land Subsidence)		Dale County
		Ariton
		Clayhatchee
		Daleville
		Grimes
		Level Plains
		Midland City
		Napier Field
		Newton
		Ozark
		Pinckard
Earthquakes	Landslides	Dale County
		Ariton
		Clayhatchee
		Daleville
		Grimes
		Level Plains
		Midland City
		Napier Field
		Newton
		Ozark
		Pinckard
Landslides		Dale County
		Ariton
		Clayhatchee
		Daleville
		Grimes
		Level Plains
		Midland City
		Napier Field
		Newton
		Ozark
		Pinckard

5.3.2 Sources for Identifying Dale County Hazards

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

1. HMPC Hazard Identification and Ratings Exercise. The Hazard Mitigation Planning Committee began the 2010 hazard identification process by completing an exercise to evaluate the list of hazards identified in the 2004 plan, which is reported in Appendix D “HMPC Hazard Identification and Ratings.” A similar exercise was administered for the 2004 plan, and Appendix D compares the results.
2. 2010 Alabama State Plan. The 2010 update of the State Plan served as an additional resource for identifying local hazards. The planning committee

compared the list of all of the hazards identified by the State against the local list of hazards noted differences between the two lists. Table 5-3 compares the hazards identified in this 2011 plan update to those identified in the 2010 Alabama State Plan.

Table 5-3. Comparison of Identified Dale County Hazards to 2010 State Plan

Hazards Identified in 2010 Alabama State Plan	Equivalent 2011 Dale County Identified Hazards	Differences
Floods (riverine flooding, storm surge, flash floods)	Floods	Riverine and flash floods included as components of Floods in Dale County plan.
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 Dale County plan.
Winter/Ice Storms	Winter Storms/Freezes	Dale County plan identifies extreme cold as an associated hazard.
Landslides	Landslides	Dale County plan identifies mudslides as an associated natural hazard.
Land Subsidence	Sinkholes (Land Subsidence)	Difference in terminology.
Earthquakes	Earthquakes	Dale County plan identifies landslides as an associated natural hazard.
Droughts	Droughts/Heat Waves	Included as a component of droughts/heat waves in Dale County plan. Dale County plan identifies sinkholes as a consequence of droughts/heat waves.
Hail	Severe Storms – Hail	Included as a component of severe storms in Dale County plan.
Wildfires	Wildfires	Dale 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 Dale County plan.
Lightning	Severe Storms – Lightning	Included as a component of severe storms in Dale County plan.

Hazards Identified in 2010 Alabama State Plan	Equivalent 2011 Dale County Identified Hazards	Differences
Dam Failures	Dam/Levee Failures	Dale County plan associates floods with dam/levee failures.
Tsunamis	None	Scientists agree that tsunamis are not a threat to coastal Alabama.

3. List of Federally-Declared Disasters. Federal disaster declarations affecting Dale County were an additional source for hazard identification. All declarations that have been issued between 1975 and April, 2011 are included in the following table:

Table 5-4. Summary of Federally-Declared Disasters 1975-2011

Disaster Number	Disaster Type	Date	Declaration Type*
458	Flood	3/14/1975	IA-PA-ABCDEFGF, DH, DUA, IFG
464	Flood	4/23/1975	IA-PA-ABCDEFGF, DH, DUA, IFG
488	Severe Storm	10/2/1975	IA-PA-ABCDEFGF, DH, DUA, IFG
3045	Drought	8/8/1977	PA-AB
3088	Tornado	5/11/1987	DH
861	Severe Storm	3/23/1990	IA-PA-ABCDEFGF, DH, DUA, IFG
3096	Snow	3/15/1993	PA-AB
1034	Severe Storm	7/8/1997	IA-PA-ABCDEFGF, DH, DUA, IFG
1070	Hurricane	10/12/1995	IA, PA-ABCDEFGF, DH, DUA, IFG
1208	Severe Storm	3/17/1998	IA, PA-ABCDEFGF, DH, DUA, IFG
1352	Severe Storm	12/19/2000	IA,PA-AB,CC,DH,DUA,IFG
1399	Severe Storm	12/13/2001	IA, PA-ABCDEFGF, DH, DUA, IFG
1442	Severe Storm	11/14/2002	IHP, CC,DUA
1549	Hurricane	9/15/2004	IA, PA-ABCDEFGF, CC,DUA,DH, SBA, HM
1593	Hurricane	7/10/2005	IA,PA-ABCDEFGF,HM
1605	Hurricane	8/29/2005	IA, PA-ABCDEFGF, CC,DUA,DH, SBA, HM
1687	Severe Storms	3/3/2007	IA
1835	Severe Storms	4/28/2009	IA,PA-AB,CC,DH,DUA,IFG
1870	Severe Storms	12/31/2009	PA-AB
1971	Severe Storms, Tornadoes, & Straight-line Winds	4/28/2011	PA-AB,IFG
* 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:
 - Dale County EMA staff and local government professionals
 - Discussions with longstanding residents who served on the HMPC and participated in community events and surveys
 - Interviews with professional experts from local jurisdictions and federal and state agencies, including the National Weather Service, Geologic Survey of Alabama, Alabama EMA, Alabama Forestry Commission and others
 - Local newspapers
 - National Weather Service records
 - NOAA Storm Events Database
 - Extensive internet research.

5.4 Hazard Profiles

5.4.1 Severe Storms Profile

Severe storms ranked first among all hazards affecting Dale County. According to the Hazard Mitigation Planning Committee (see Appendix D “HMPC Hazard Identification and Ratings”), severe storms are the most significant hazard facing Dale County communities. NOAA records confirm this perception, as severe storms are reported to have caused more than \$1.6 million of damages between 1995 and 2010. Severe storms may be accompanied by high winds, thunderstorms, lightning, tornadoes, and hail.

On August 8, 2006, Dale County experienced their most destructive severe storm event, as reported by NOAA National Climatic Data Center. The thunderstorm came in around 6:30 pm and caused damage countywide. Midland City was hit the hardest by the storm; several buildings and homes were damaged and there were extensive power outages that lasted up to nine hours throughout the city. Throughout the County there were numerous trees and power lines down, as well as damage to several homes due to fallen trees. The storm caused \$500,000 in property damage throughout Dale County.

Location

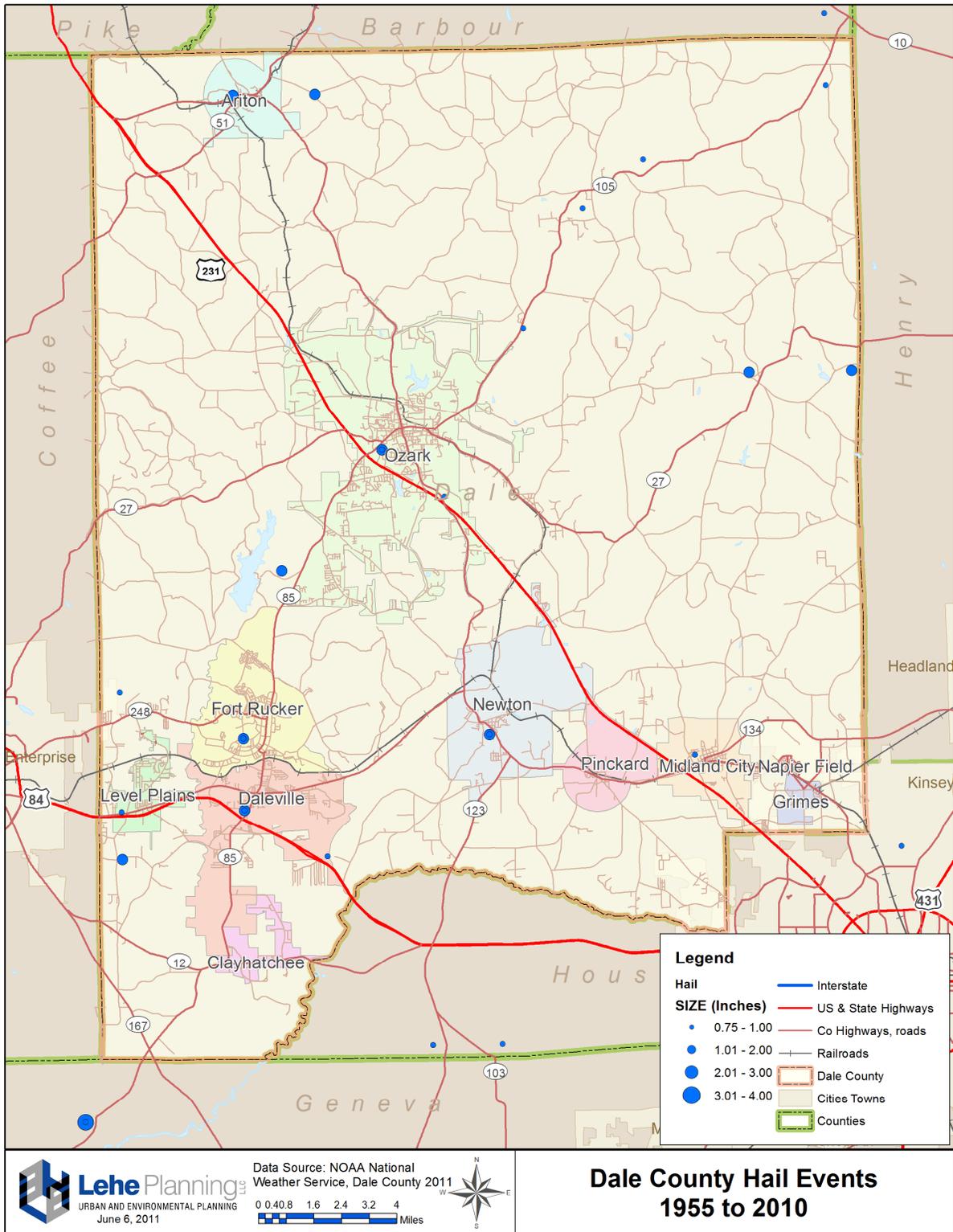
All areas of Dale County have equal exposure to severe storms. Unlike flooding and tornadoes, severe storms lack geographic centers and boundaries and therefore cannot be substantively mapped.

Extent

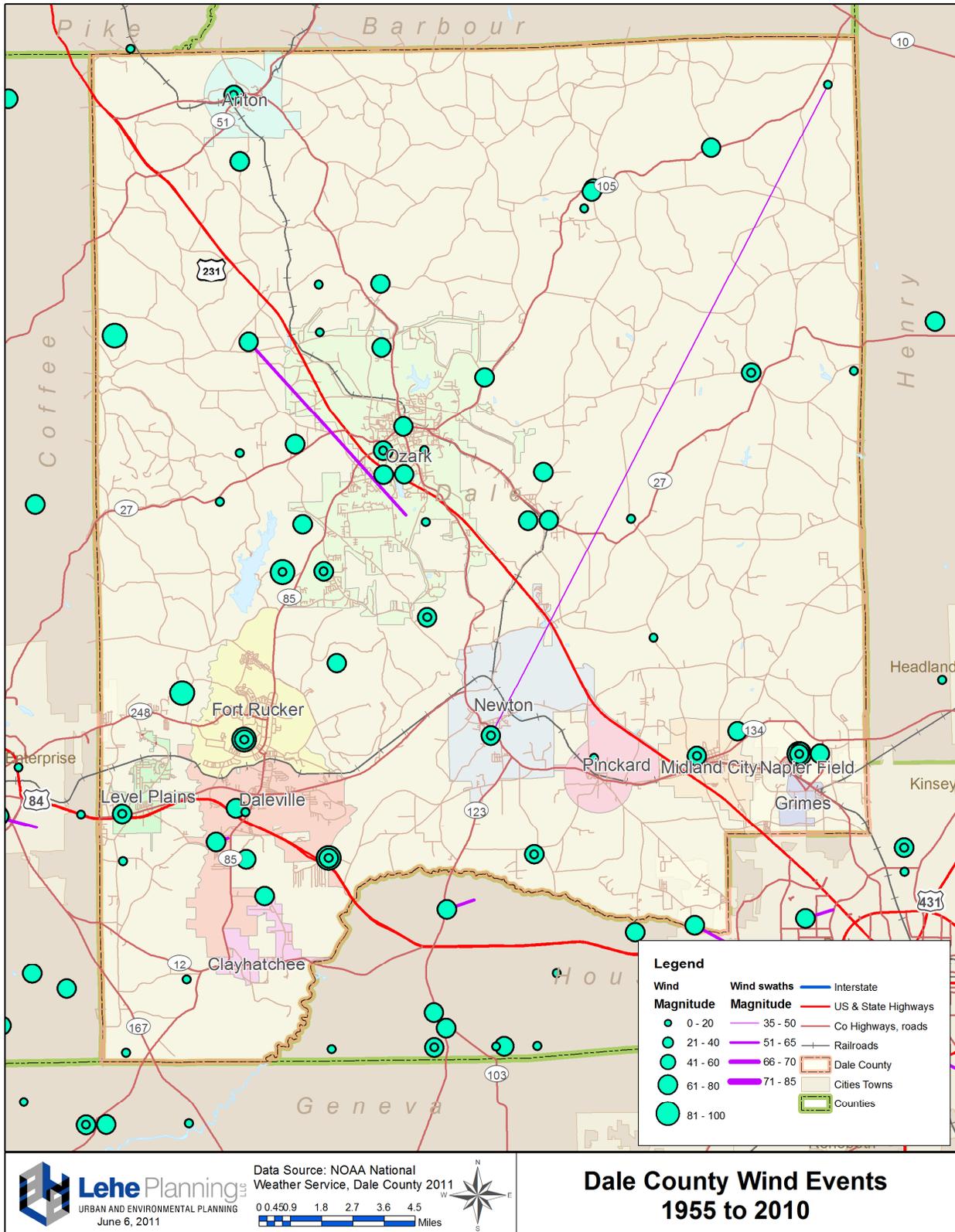
The extent of severe storms depends on severity and duration. A storm's severity is a combination of rainfall, wind-speed, the size of any accompanying hail and the scope of any flooding that a severe storm may induce. The exact extent of severe storms is not predictable. Severe storms can also result 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 is more likely to damage cars and windows than to damage farmland. Lightning can electrocute persons and cause wildfires in forests and pastures by striking trees and dry grass. The most typical threat posed by high winds is power outage, which usually occurs when trees fall onto power lines.

Map 5-1. Dale County Hail Events



Map 5-2. Dale County Wind Events



Past Occurrences

National Climatic Data Center (NCDC) records indicate that, between 1958 and 2010, there were 166 severe storm events reported for Dale County, averaging three per year. Severe storm events include thunderstorms/high winds, lightning, and hail, as indicated in Table 5-5. Lightning from an early morning storm on July 6, 2009 struck a mobile home in Ozark and completely destroyed it. The storm caused \$75,000 in property damage.

Table 5-5. Annual Summary of Severe Storm Events, 1958-2010

Year	Type	Number	Deaths	Injuries	Total Damages
1958	Hail	1	0	0	\$0
1961	Thunderstorm/High Winds	1	0	0	\$0
1962	Thunderstorm/High Winds	1	0	0	\$0
1965	Hail	1	0	0	\$0
1966	Thunderstorm/High Winds	1	0	0	\$0
1968	Thunderstorm/High Winds	3	0	0	\$0
1971	Thunderstorm/High Winds	1	0	0	\$0
1972	Hail	3	0	0	\$0
	Thunderstorm/High Winds	3	0	0	\$0
1973	Hail	1	0	0	\$0
	Thunderstorm/High Winds	4	0	0	\$0
1974	Thunderstorm/High Winds	2	0	0	\$0
1975	Thunderstorm/High Winds	2	0	0	\$0
1977	Thunderstorm/High Winds	1	0	0	\$0
1978	Thunderstorm/High Winds	1	0	0	\$0
1980	Thunderstorm/High Winds	1	0	0	\$0
1981	Hail	2	0	0	\$0
	Thunderstorm/High Winds	1	0	0	\$0
1982	Hail	1	0	0	\$0
	Thunderstorm/High Winds	1	0	0	\$0
1983	Thunderstorm/High Winds	3	0	0	\$0
1984	Hail	2	0	0	\$0
	Thunderstorm/High Winds	5	0	0	\$0
1985	Thunderstorm/High Winds	1	0	0	\$0
1986	Thunderstorm/High Winds	4	0	0	\$0
1987	Thunderstorm/High Winds	3	0	0	\$0
1988	Thunderstorm/High Winds	2	0	0	\$0
1989	Hail	1	0	0	\$0
	Thunderstorm/High Winds	2	0	0	\$0
1990	Hail	2	0	0	\$0

Year	Type	Number	Deaths	Injuries	Total Damages
	Thunderstorm/High Winds	7	0	0	\$0
1991	Thunderstorm/High Winds	1	0	0	\$0
1992	Thunderstorm/High Winds	2	0	0	\$0
1995	Thunderstorm/High Winds	4	0	0	\$22,000
1996	Thunderstorm/High Winds	3	0	0	\$5,000
1997	Hail	1	0	0	\$0
	Thunderstorm/High Winds	1	0	0	\$150,000
1998	Hail	5	0	0	\$0
	Thunderstorm/High Winds	4	0	0	\$103,000
2000	Hail	1	0	0	\$0
	Thunderstorm/High Winds	6	0	0	\$102,000
2001	Hail	1	0	0	\$0
	Thunderstorm/High Winds	4	0	0	\$4,000
2002	Hail	4	0	0	\$0
	Thunderstorm/High Winds	5	0	0	\$32,000
2003	Thunderstorm/High Winds	3	0	0	\$24,000
2004	Hail	2	0	0	\$0
	Thunderstorm/High Winds	6	0	0	\$21,000
2005	Hail	4	0	0	\$0
	Thunderstorm/High Winds	6	0	0	\$63,000
2006	Hail	2	0	0	\$0
	Lightning	1	0	0	\$50,000
	Thunderstorm/High Winds	6	0	0	\$548,000
2007	Hail	2	0	0	\$0
	Thunderstorm/High Winds	4	0	0	\$55,000
2008	Thunderstorm/High Winds	7	0	0	\$156,000
2009	Lightning	2	0	0	\$125,000
	Thunderstorm/High Winds	10	0	0	\$161,000
2010	Lightning	1	0	0	\$5,000
	Thunderstorm/High Winds	5	0	0	\$6,000
TOTAL		167	0	0	\$1,632,000
Annual Average		3.2	0	0	\$31,385

Source: National Climatic Data Center

Probability of Future Events

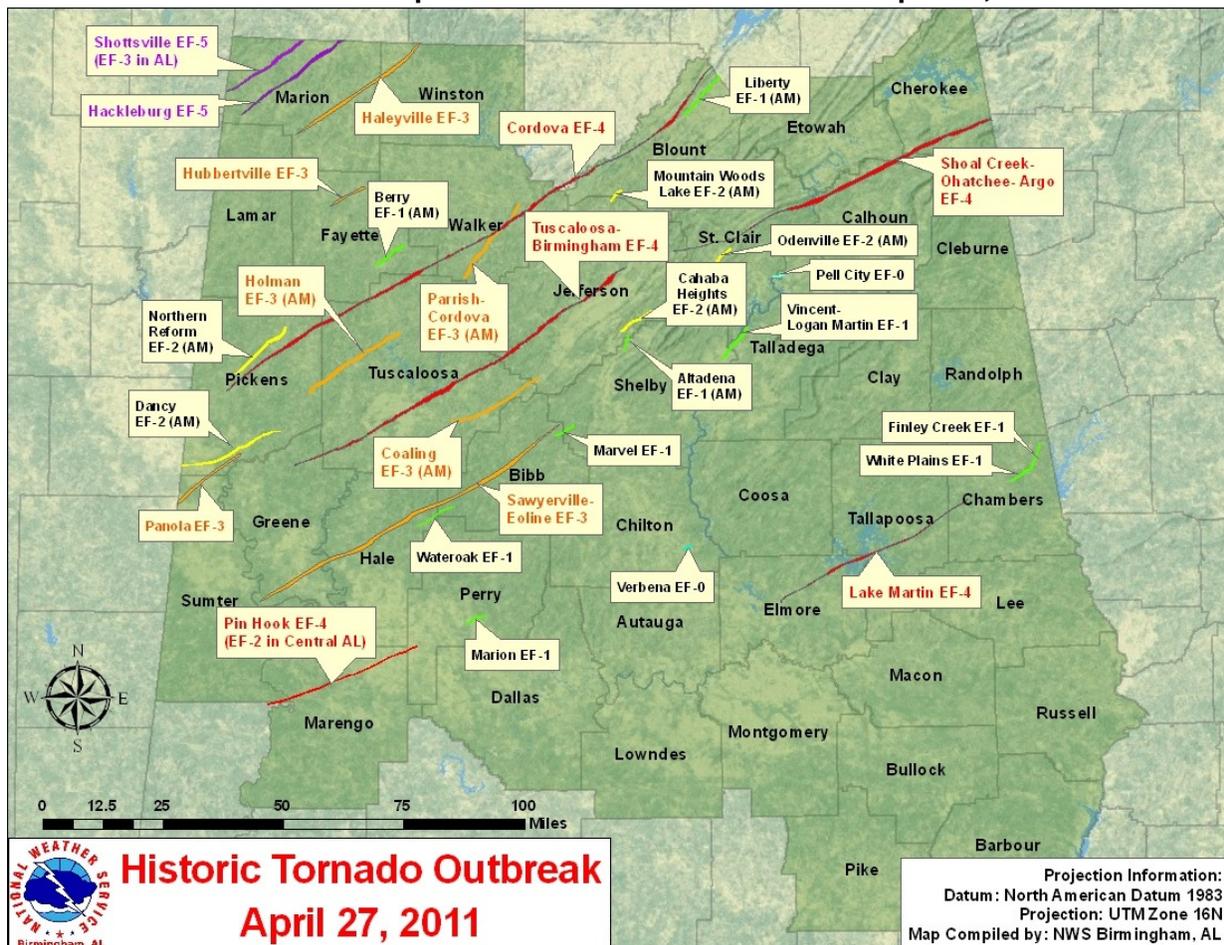
Frequent annual severe storm events are certain. Thunderstorms, hail and lightning will continue and can be expected to affect all Dale County jurisdictions. High winds, which sometimes accompany severe storms as described here, are however,

somewhat less frequent. Large, damaging hail does occasionally occur, but is relatively rare.

5.4.2 Tornadoes Profile

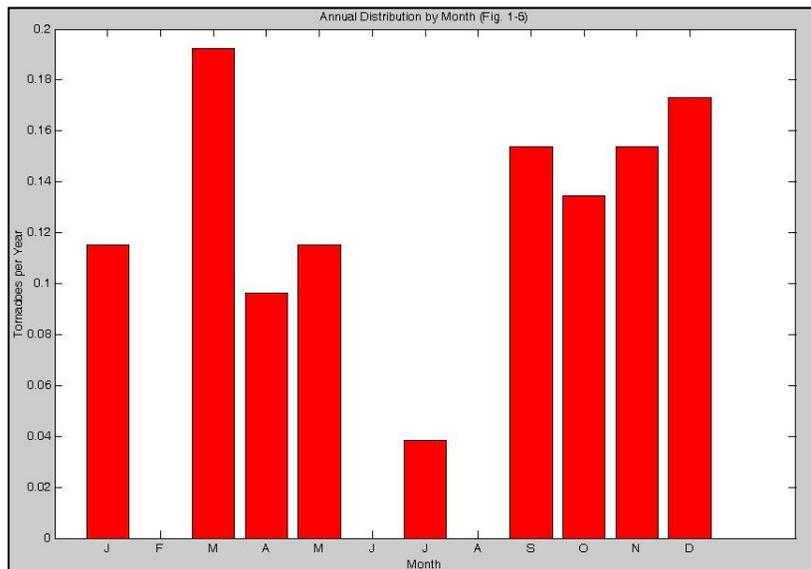
A span of devastating tornadoes and severe weather touched down in the southern, midwest, and eastern areas of the United States from April 25 through April 28, 2011. At least 332 tornadoes had been confirmed, making this the largest recorded tornado outbreak in history and the violent storms killed at least 344 people. NOAA classified the storm on April 27th as the fourth deadliest in the history of the United States. It has been recorded that at least 30 tornadoes touched down in Central Alabama with the first wave starting at 4:16 am in Pickens County and the second wave starting at 3:05 pm in Marion County and ending at 9:50 pm in Chilton County on April 27, 2011. Map 5-3 below, shows the paths and intensity of these tornadoes. The violent storms injured over a thousand citizens and killed at least 238 people just in Alabama. Dale County is listed as a Federal Disaster Declared area, although there are no reports of any damage in the County.

Map 5-3. Historic Tornado Outbreak April 27, 2011



The Hazard Mitigation Planning Committee determined that tornadoes pose the second most significant threat to Dale County communities. Over the last 56 years, tornadoes have frequently struck Dale County, resulting in lost lives, many injuries, destroyed homes, and utility interruptions. Chart 5-1 below, illustrates that tornadoes typically struck Dale County during the month of March. (The SATT software, produced by VorTek, LLC, shows tornadic activity within a 20 mile radius of the center of Dale County).

Chart 5-1. Monthly Tornado Frequency, 1950-2006

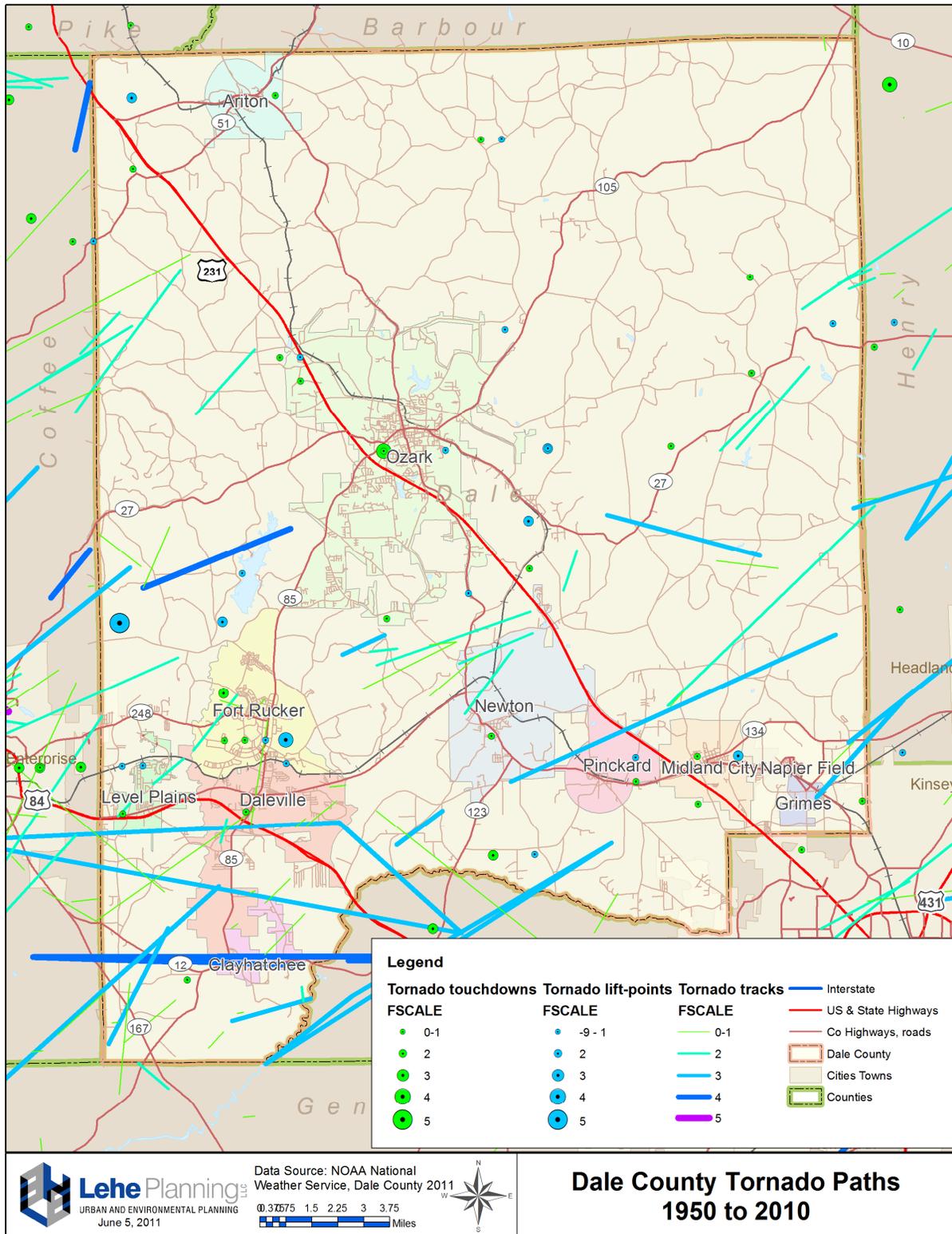


Source: VorTek, LLC. SATT 3.0 (Site Assessment of Tornado Threat) software

Location

All areas and jurisdictions in Dale County are equally at risk for tornadoes. Map 5-4 shows paths and intensities of tornadoes that occurred between 1950 and 2010. Although the map shows the majority of tornado paths in the southern part of the County, the entire County is equally susceptible to damage from tornadoes.

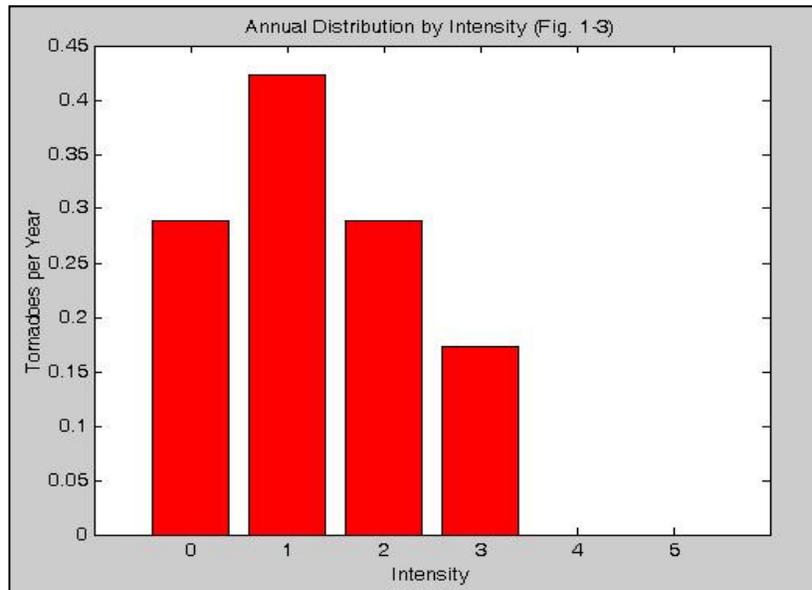
Map 5-4. Dale County Tornado Paths



Extent

Dale County tornadoes, on average, tend to be moderate and infrequent, as shown on Chart 5-2, which shows the frequency of tornadoes by intensity during the 1950 to 2006 period. The average intensity of tornadoes is an F-1 rating.

Chart 5-2. Annual Frequency of Tornado Intensity, 1950-2006



Source: VorTek, LLC. SATT 3.0 (Site Assessment of Tornado Threat) software

In 1971, Dr. T. Theodore Fujita of the University of Chicago developed the original F-scale for wind damages, including tornadoes. The original F-scale, however, was recently replaced by an enhanced version effective February 1, 2007. The Enhanced F-scale is a more precise method of tornado damage assessment that classifies damage according to calibrations developed by engineers and meteorologists across 28 different types of damage indicators. The underlying premise is that a tornado scale needs to take into account the varying strengths and weaknesses of different types of construction. As with the original F-scale, the enhanced version rates the tornado as a whole based on most intense damage within the path. Historical tornadoes before February 1, 2007, will not be re-evaluated using the Enhanced F-scale.

Past Occurrences

On January 13, 1972, a devastating F-2 tornado hit Dale County and killed four people, while injuring 88 people. The tornado entered Dale County at 1:00 am and struck two trailer parks. At least 68 mobile homes and 15 vehicles were completely destroyed, while several others were damaged. At the army base, Fort Rucker, two buildings and 15 helicopters were damaged. The tornado was reported to have caused \$250,000 in property damage.

One of the most intense tornadoes to strike Dale County was an F3 on December 30, 1973. The tornado completely demolished five buildings and homes and caused substantial damage to 30 others. No deaths were reported, but 23 injuries were reported.

On March 5, 1984, Dale County suffered from their most destructive tornado; it was classified as an F-2 rating. Fort Rucker and Ozark received severe damage. A shopping center was severely damaged and a mobile home park was heavily damaged. Several buildings, homes, and vehicles were damaged or destroyed. Fourteen injuries were reported and the tornado caused \$25 million in property damage. Figure 5-1 shows a photo from another tornado event in 2001.

Figure 5-1. Photo from November 2001 Tornado



According to the National NOAA National Climatic Data Center records of tornadoes (see Table E-2 in Appendix E “Hazard Profile Data” for the complete NCDC Storm Events Database for tornadoes), between 1954 and 2010, 34 tornadoes struck Dale County, an average of 0.6 per year. These tornadoes caused 161 injuries, 4 deaths and almost \$43.7 million in property damages, as summarized in Table 5-6 below. The data from the National Weather Service (NWS) casualty reports from the same period differs from this data (refer to Table E-1 in Appendix E). The NWS reported there being 4 deaths and 177 injuries from 31 tornadoes; the NWS does not report damage estimates.

Table 5-6. Annual Summary of Tornado Events, 1954-2010

Year	Number	Deaths	Injuries	Total Damages
1954	1	0	1	\$25,000
1955	2	0	5	\$2,503,000
1968	1	0	0	\$250,000
1972	1	4	88	\$250,000
1973	3	0	14	\$2,528,000

Year	Number	Deaths	Injuries	Total Damages
1974	1	0	0	\$25,000
1984	3	0	14	\$25,025,000
1986	2	0	1	\$2,750,000
1988	1	0	0	\$0
1997	4	0	4	\$1,400,000
1998	2	0	0	\$175,000
2000	1	0	0	\$2,000,000
2001	2	0	27	\$3,075,000
2002	1	0	3	\$150,000
2006	1	0	0	\$500,000
2007	3	0	4	\$2,775,000
2008	4	0	0	\$230,000
2009	1	0	0	\$0
TOTAL	34	4	161	\$43,661,000
Annual Average	0.6	0.1	2.9	\$779,660

Source: National Climatic Data Center

Probability of Future Events

Meteorologists are quick to point out that tornado frequency, intensities, and locations are totally unpredictable. Even with past records, it is impossible to guarantee the probability of future events. Although, if past trends would continue, Dale County can expect a tornado once every year to two years with severe tornadic activity causing some damage distributed uniformly among all communities. The average intensity of a tornado to strike Dale County would likely be around an F-1, resulting in close to \$800K in property damages and causing roughly three injuries annually and one death every ten years.

5.4.3 Floods Profile

According to the Hazard Mitigation Planning Committee (see Appendix D “HMPC Hazard Identification and Ratings”), floods pose the third highest threat to Dale County communities. NOAA records confirm these public perceptions, as floods are reported to have caused more than \$230 million of damages between 1998 and 2010, although the majority of this damage took place in 1998.

A flood event that took place March 8, 1998, as described on the NCDC website, typifies instances of severe flooding in Dale County:

An intense Gulf storm deposited up to 14 inches of rain across southeast Alabama on March 6-8. Houston, Dale, and Geneva counties were declared federal disaster areas. In Geneva County, runoff from torrential rains in Coffee and Dale counties pushed the Chotawhatchee River out of its banks. Resultant flooding the week of March 8 damaged 85 homes,

washed out many of the county roads and closed State Highway 27 south from Geneva. An estimated 300 residents were without water. Communities suffering the worst damage were Malvern, Slocomb, Geneva, and Samson. The Choctawhatchee River at Geneva crested near 39.3 feet on March 9. In Houston County, 60 roads were closed. At Cottonwood, several families were evacuated. Approximately 175 homes sustained flood damage. In Dale County, numerous county and state roads were flooded. Between 300 and 400 homes were damaged. The Choctawhatchee River at Newton crested near 34.6 feet (third highest) on March 9. In Henry County, flood damage to county roads alone was estimated near \$440,000.

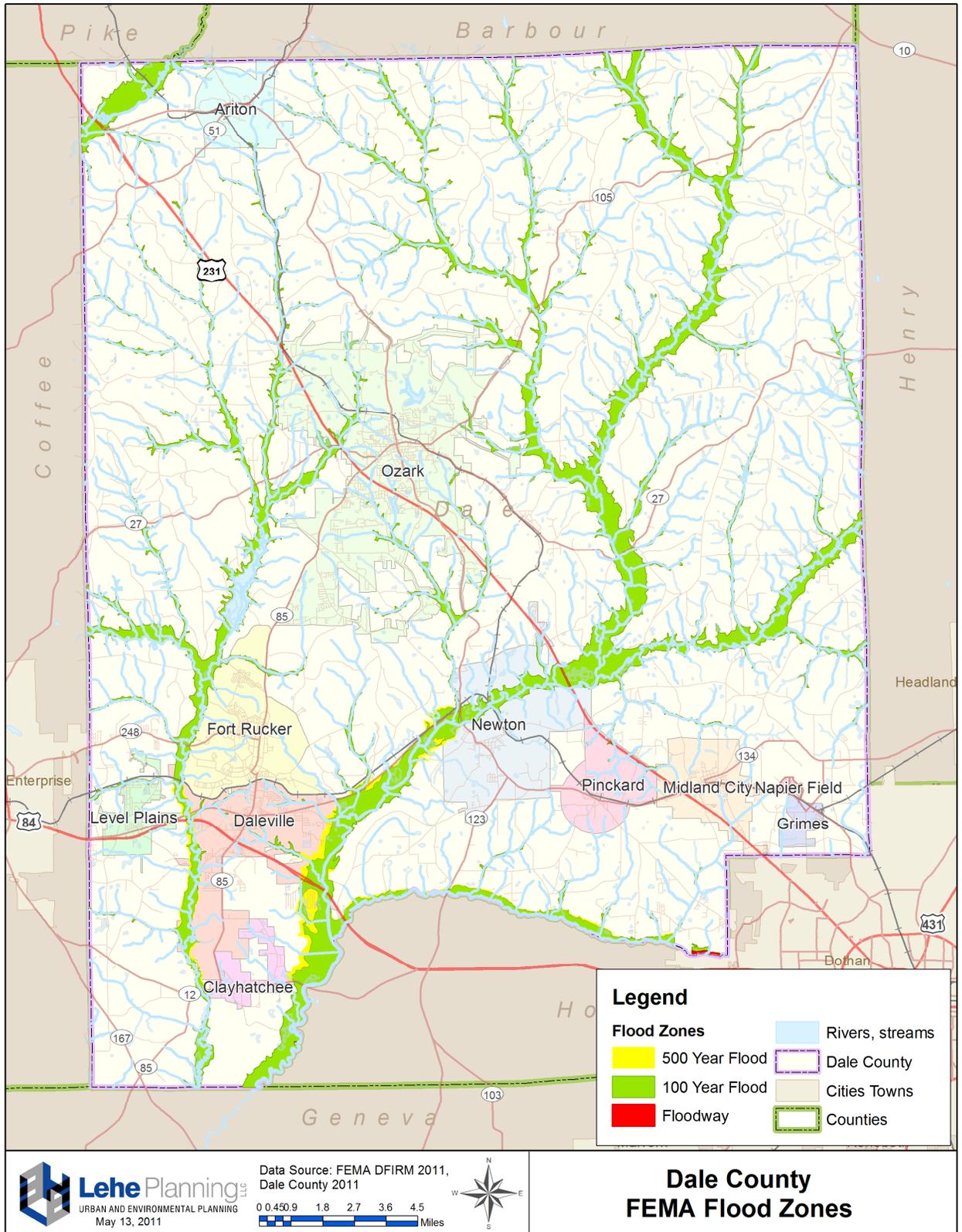
Location

The National Flood Insurance Program (NFIP) issues Flood Insurance Rate Maps (FIRMs) that highlight areas prone to flooding. Map 5-5 illustrates the boundaries of these flood zones along with major waterways. According to NFIP, the towns of Napier Field and Grimes do not contain any flood plains. The towns of Ariton, Level Plains, Midland City, and Pinckard have minimal areas of flood plains. The areas with the most extensive flood plains are Ozark, Newton, and Daleville. It is all riverine type flooding with the main source being the Choctawhatchee River and its two main tributaries.

Extent

Dale County experiences riverine flooding. The extent of each flood varies according to rainfall, the flow of storm water and the capacity of the receiving channel to discharge. The highest risk is the 100 year flood zones, which can be found on Map 5-5.

Map 5-5. Flood Zones



Past Occurrences

National Climatic Data Center (NCDC) records (for the complete NCDC listing, see Table E-7 in Appendix E “Hazard Profile Data”) indicate fairly frequent flooding over the period since 1998. There have been five floods reported for Dale County with a frequency of about one every other year, as shown in Table 5-7 below. The floods were either countywide or within various different places within the County. The annual average for damages cannot be determined, due to the fact that the flood event from 1998 includes the total cost of damages for Dale County, as well as three other counties.

Table 5-7. Annual Summary of Flood Events, 1998-2010 (NCDC)

Year	Number	Deaths	Injuries	Total Damages
1998	1	0	0	\$230,000,000
2001	2	0	0	\$10,000
2005	1	0	0	\$0
2009	1	0	0	\$0
TOTAL*	5	0	0	\$230,010,000
Annual Average*	0.4	0	0	Cannot be Determined

* includes damages for Dale and other Alabama counties.

Source: National Climatic Data Center

Probability of Future Events

Past trends indicate heavy rainfalls that create conditions of riverine and flash flooding every other year throughout Dale County. Floods in Dale County are likely to occur periodically within the County; while the areas with extensive flood zones can expect the highest probability of future events.

5.4.4 Droughts/Heat Waves Profile

Dale County’s last reported drought was on September 14, 2010 and lasted through October of 2010. The severe drought was classified as a D2 rating, which developed across the southeast of Alabama with long-drawn-out dry conditions. Due to the dry conditions the state had to declare a fire alert on September 23, 2010.

On August 1-2, 2010, heat indices reached 110 degrees or higher, effecting Dale and Houston Counties in the afternoon hours. The highest recorded temperature is 109, which occurred in July of 1952. The Hazard Mitigation Planning Committee (HMPC) (see Appendix D “HMPC Hazard Identification and Ratings.”) rated the extent of droughts/heat waves as the fourth highest threat among the natural hazards.

Location

Droughts and heat waves affect all areas and jurisdictions of Dale County with equal frequency.

Extent

The duration, the size and location of the affected area, and the degree of moisture insufficiency are the depending factors on the severity of a drought. Droughts cause the most damage in wooded rural and agricultural areas, where droughts raise the risk and severity of wildfires. Rural communities whose water supplies depend on subsurface aquifer systems suffer reduced water resources during droughts; these communities should have plans to ration water or seek alternative sources.

Past Occurrences

The National Climatic Data Center (NCDC) records indicate there was one drought event and two extreme heat events that affected Dale County in 2010, respectively. The following table summarizes these events. Detailed accounts appear in Appendix E.

Table 5-8. Annual Summary of Drought/Extreme Heat Events, 1950-2010 (NCDC)

Year	Type	Number	Deaths	Injuries	Total Damages
2010	Drought	1	0	0	\$0
	Extreme Heat	2	0	0	\$0
TOTAL		3	0	0	\$0

Source: National Climatic Data Center

Probability of Future Events

Dale County is in an area where it is fairly rare to have significant droughts and heat waves. Although historically it has not been a major problem, the region is susceptible to extreme drought conditions. The Hazard Mitigation Planning Committee (HMPC) ranked the probability of drought and heat waves occurring lower than in the same exercise during the 2004 plan development. The HMPC now indicates that drought and heat waves have a moderate likelihood of occurrence. They also indicate that they believe the extent of the hazard is low in severity (See Appendix D, “HMPC Hazard Identification and Ratings”).

5.4.5 Hurricanes Profile

On October 4-5, 1995, Hurricane Opal struck Dale County, which was their most destructive hurricane. The hurricane struck in the evening on the 4th and early morning on the 5th. Hurricane Opal moved north across south Alabama, causing widespread minor damage to structures with periodic occurrences of major damage. Many trees were downed causing damage to homes, vehicles, and buildings, as well as power and telephone outages. Over 90 percent of electric customers lost their power. The hurricane also caused extensive damage to the area’s agriculture. Hurricane Opal caused \$20 million in property damage and \$10 million in crop damage in the counties of Dale,

Coffee, Geneva, Henry, and Houston. The following map shows the path and strength of Opal as it passed through Dale County.

Figure 5-2. Hurricane Opal Track

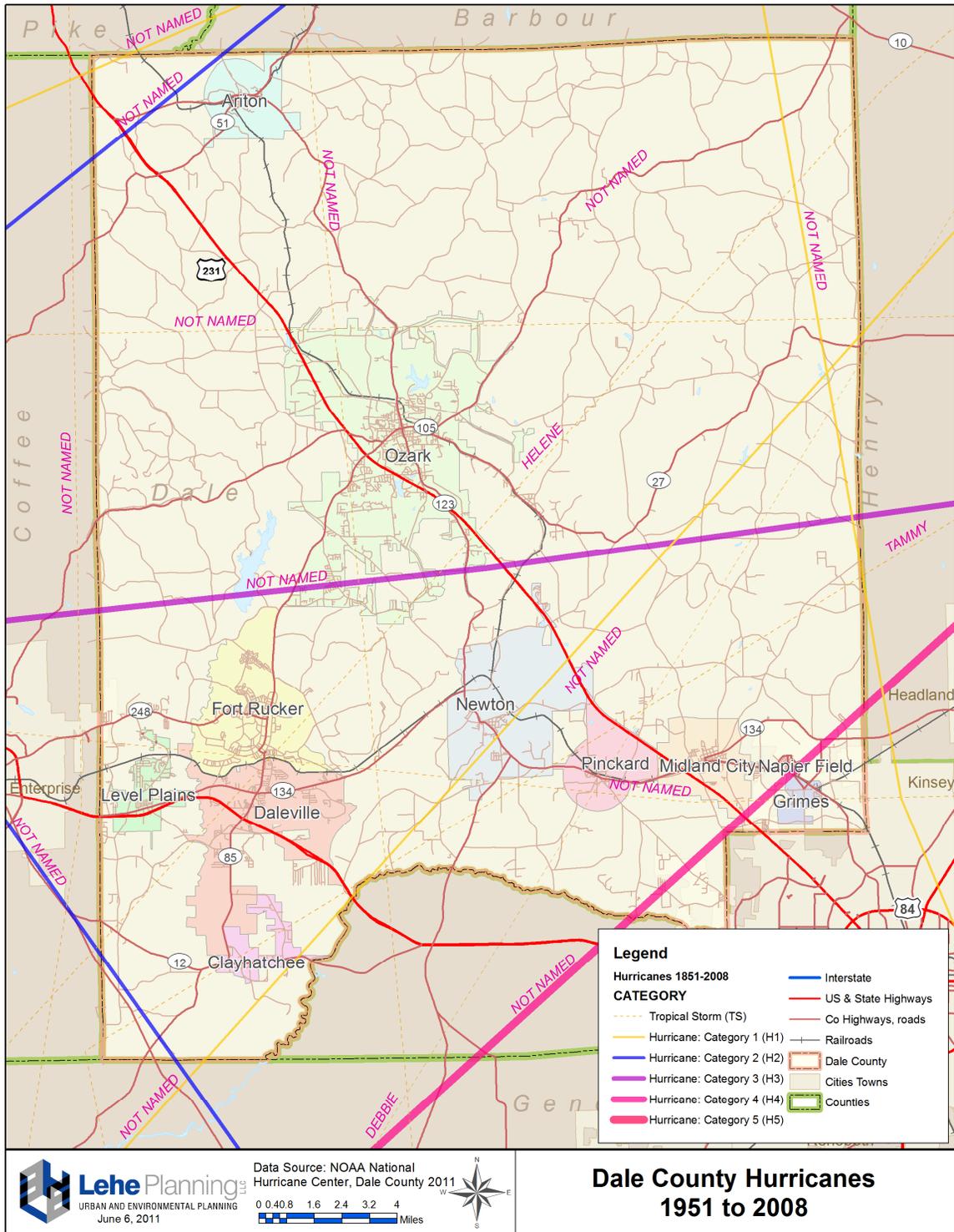


Source: National Hurricane Center

Location

Hurricanes are typically hundreds of miles wide, so all Dale County jurisdictions have an equal risk of hurricanes. Map 5-6 maps locations of hurricanes affecting Dale County.

Map 5-6. Hurricane & Storm Paths, 1951-2008



Extent

Hurricanes pose the greatest threat to life and property, but tropical depressions and storms can also cause extensive damage and loss of life. On average, Dale County experiences a hurricane event once every year to every other year, with severe damage. Hurricanes can be accompanied by tropical storms, tropical depressions, severe storms, high winds, floods, and even tornadoes. The last recorded hurricane event for Dale County was a tropical storm in 2005.

Tropical storms and depressions often bring torrential rains and flooding, that may outlive the storm itself by several days. A relatively weak tropical storm or depression may cause more damage than a high-intensity, fast-moving hurricane if the storm lingers long enough to saturate flood plains.

Tornadoes may also form as a by-product of hurricanes, but not always. The threat of tornadoes expands the geographic scope of risk, because tornadoes can cause severe damage inland. Half of all hurricanes produce at least one tornado—typically within 12 hours of landfall and during daylight hours. The Hazard Mitigation Planning Committee (HMPC) (see Appendix D “HMPC Hazard Identification and Ratings.”) rated the extent of hurricanes as a moderate threat among the natural hazards.

Past Occurrences

On September 15, 2004, Dale County suffered from their second most destructive tropical storm, which spawned off of Hurricane Ivan. NOAA summarizes the event as follows:

Hurricane Ivan weakened to a tropical storm as it moved north into southwest Alabama on September 16. The maximum sustained and peak wind gust recorded was 44 and 54 knots, respectively, at Dothan, AL. The lowest sea-level pressure was 1000 mb at Dothan. Rainfall amounts were quite heavy, ranging from five to eight inches. Minor flooding was reported in Coffee, Geneva, and Houston counties. Schools and many businesses were closed on September 16 and 17. An estimated 50,000 customers were without power, including 20 percent of Dothan. There were numerous reports of roads closed by fallen trees and power lines. In Coffee County, many county roads were closed and several trees fell on houses and vehicles. Some businesses were damaged in Enterprise. Several trees fell on vehicles and houses, and damaged two businesses in Dothan. In Geneva County, several mobile homes were destroyed in Hartford. Cotton farmers suffered significant yield losses, especially in Coffee and Geneva counties, which will be realized at the time of the autumn harvest. Coffee and Geneva counties were declared federal disaster areas.

Table 5-9 “Annual Summary of Hurricane Events, 1995-2010” provides a summary of the available historical data for hurricane events in Dale County from the National Climatic Data Center (NCDC). There have been eight reported hurricane or

tropical storm events since 1995 (Refer to Table E-8 “Dale County Hurricane and Tropical Storm Events, 1950-2010” in Appendix E).

Table 5-9. Annual Summary of Hurricane Events, 1995-2010

Year	Type	Number	Deaths	Injuries	Total Damage
1995	Hurricane	1	0	0	\$30,000,000
1998	Tropical Storm	1	0	0	\$120,000
2001	Tropical Storm	1	0	0	\$250,000
2004	Tropical Storm	1	0	0	\$3,500,000
2005	Hurricane	1	0	0	\$1,500,000
2008	Tropical Storm	1	0	0	\$30,000
Total*		6	0	0	\$35,400,000
Annual Average*		0.4	0	0	Cannot be Determined
*Includes other counties in Alabama					

Source: National Climatic Data Center

Probability of Future Events

As is the case with most natural hazards, past records are no guarantee of the probability of future hurricane events affecting Dale County. However, based on historical data and its inland location within about 100 miles of the Gulf of Mexico, Dale County can reasonably expect some impact from at least one hurricane or tropical storm per year with around \$2.4 million in damages.

5.4.6 Winter Storms/Freezes Profile

On March 12-13, 1993, one of the worst winter storms affected the majority of Alabama. The storm was brought on by an immensely, strong low pressure system, which moved from the western Gulf of Mexico through the Florida panhandle, then up the Eastern Seaboard, before moving into Alabama. The snow began Friday afternoon over north Alabama and then moved south, all the way down to the Gulf Coast, throughout the night. By mid-day Saturday there were accumulations of snow from two to twelve inches of snow across Alabama. It was reported in the Ozark Alabama News, that Dale County had two inches of snow. Extreme cold and high winds accompanied the heavy snow, which caused many trees and power lines to be downed. Around 400,000 homes were without power, numerous streets were impassable, and the temperature had dropped to single digits. The heavy snow caused trees to fall and roofs to collapse, which caused damage to many homes and businesses. The winter storm caused an estimated \$5 billion in property damage and took 14 people’s lives.

The risks of winter storms and freezes include loss of life, power outages, agriculture damage, and road hazards. Fallen trees and limbs and heavy snow loads can collapse roofs and cause downed power and communication lines. Therefore, snowfalls of over two inches and long-lasting freezes, though rare, pose the greatest threats.

Winter temperatures in Dale County are generally moderate; the average daily low temperature for every month is above freezing. Hence, winter storms and extreme cold temperatures are rare. The lowest recorded temperature of 2° F occurred in 1982. Snowfalls rarely exceed two inches, and freezes rarely disrupt road travel for long periods. When winter storms or severe freezes occur, however, major transportation disruptions and power outages are expected because the community is unprepared.

Table 5-10. Winter Weather Observations

Item	Observation
Average Winter Temperature	51.6° F
Average Winter Minimum Temperature	40.5° F
Lowest Temperature (January 11, 1982)	2° F
Average Season Snowfall	0.1 inches
Largest Snowfall (1914)	3 inches

Source: SE Regional Climate Center

Location

Dale County and its participating jurisdictions are all equally likely to face the effects of winter storms/freezes, which may include snow, freezing rains, and extreme temperature lows.

Extent

When winter storms/freezes do occur, they tend to be mild and brief. The average snowfall is 0.1 inches yearly and winter temperatures on average are above freezing. The Hazard Mitigation Planning Committee (HMPC) (see Appendix D “HMPC Hazard Identification and Ratings.”) rated the extent of winter storms/freezes as a low threat among the natural hazards.

Past Occurrences

Table 5-11 “Annual Summary of Winter Storm/Extreme Cold Events” provides a summary of the available historical data from 1950 to 2010 for winter storm and extreme cold events. Since 1950, there has been only one snow storm and three extreme cold events reported affecting Dale County by NOAA National Climatic Data Center (Refer to Tables E-9 and E-10 in Appendix E).

The recorded snow event was a moderate snowfall on February 12, 2010, which brought one to seven inches of snow to the southeastern parts of Alabama. The largest snowfall recorded in Dale County occurred in February of 1914 at 3 inches.

Table 5-11. Annual Summary of Winter Storm/Extreme Cold Events, 1950-2010 (NCDC)

Year	Type	Number	Deaths	Injuries	Total Damages
1996	Extreme Cold	2	0	0	\$52,000,000*
2009	Extreme Cold	1	0	0	\$0
2010	Storm	1	0	0	\$0
TOTAL		4	0	0	\$52,000,000
*Includes other counties in Alabama					

Source: National Climatic Data Center

Map 5-7. Alabama Winter Storm (1993-2006)

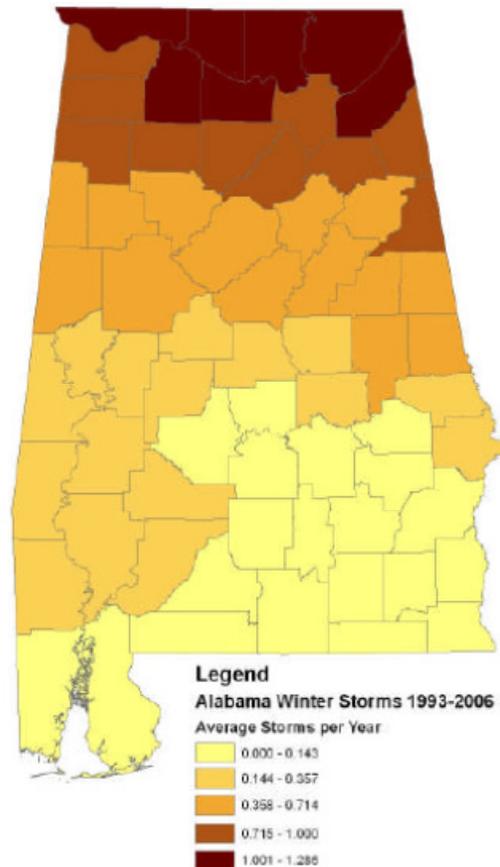
Source: 2007 Alabama State Plan

Probability of Future Events

Dale County does not have a considerable risk of a winter storm occurring, but it has a high threat of a winter storm adversely affecting the area. The infrequent, severe winter storms/freezes carry high risks and can cause major transportation disruptions, lengthy power outages, substantial property damages, and loss of life. Although they are rare, Dale County is susceptible to winter storms. Map 5-7 shows the low relative frequency of winter storms in southern Alabama from 1993 to 2006.

5.4.7 Dam/Levee Failures Profile

Dam failures are potentially the worst flood event and can occur with little warning. A dam or levee failure is usually the result of neglect, poor design, or structural damage caused by a natural hazard, such as an earthquake. Dam and levee failures are rare occurrences but the potential downstream damages could be significant due to the force and surge of huge volumes of water.



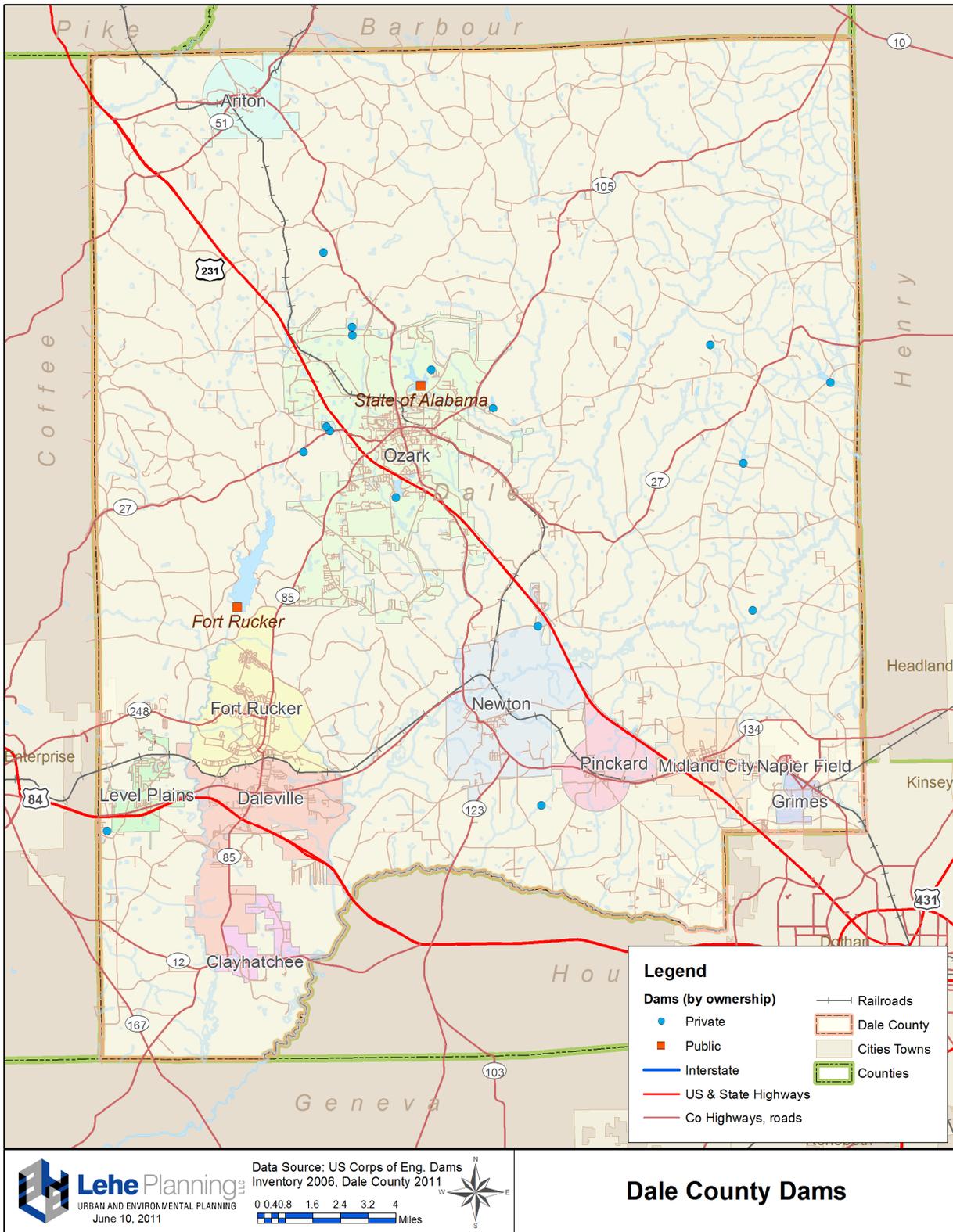
Alabama is the only state in the U.S. that currently does not have a statewide dam safety and inspection program. There have been numerous attempts, beginning in 2002, to pass dam safety legislation; the last failed attempt was in February 2008. It was introduced in the Alabama legislature as HB 454, "Alabama Dam Inventory and Classification Act." This bill would have established the Alabama Dam Security and Safety Program within the Alabama Department of Economic and Community Affairs (ADECA) Office of Water Resources, which also administers the National Flood Insurance Program. Once the bill is enacted by the legislature of Alabama, the program would provide for a full inventory of dams, new public safety programs, and the permitting and certification of dams that meet criteria to reduce dam failure.

Location

The U.S. Corps of Engineers has mapped all potential inundation areas, and identified 18 dams located in Dale County. As shown on Map 5-8 "Dale County Dams/Levees" there are dams located throughout the County, and the dams with the largest reservoirs are indicated as more significant hazards.

Two of the 18 facilities identified on Map 5-8 are public dams and house reservoirs containing maximum storages between 930 and 17,600 acre-feet of water. Lake Tholocco, which is owned by Fort Rucker, is the largest dam and is located in the west central area of the County. Dale County Public Lake, owned by the State of Alabama, is located in the central area of the County near Ozark. Both lakes are used for public recreation. The remaining 16 facilities are private dams that hold a much smaller capacity; the highest maximum storage is 350 acre-feet of water. These dams are used for irrigation, fish farming, fish/wildlife use, or private recreation.

Map 5-8. Dale County Dams/Levees



Extent

There are no indicators of the extent of damages due to dam/levee failures.

Past Occurrences

There have been no documented dam/levee failures within Dale County.

Probability of Future Events

The risks to Dale County associated with dam/levee failures are minimal, although if there was a dam failure, it would cause severe damage.

5.4.8 Wildfires Profile

The two primary categories of wildfires in Dale County are *wildland fires* and *interface fires*. *Wildland fires* feed on natural vegetation. *Interface fires* feed on both vegetation and human development. *Interface fires* occur at the interface of human development and nature, which increases the risk of man-made wildfires.

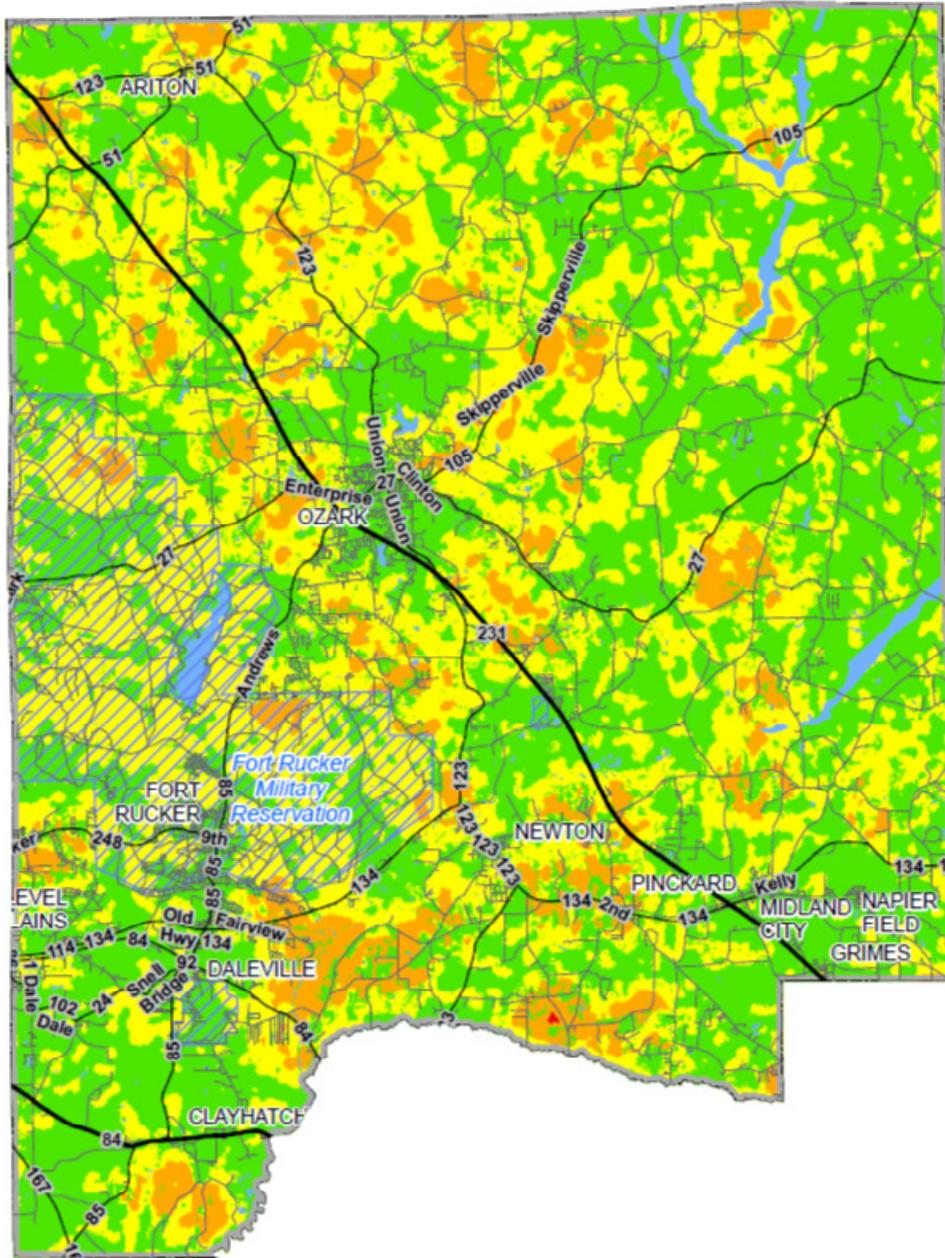
Non-permitted burns take place frequently and constitute a major cause of wildfires in Alabama. These burns tend to rage out of control, leading to damaging fires. To control the location of these types of wildfires, standard land management practices call for prescribed burns, thinning, mowing and the 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

Rural areas of unincorporated Dale County are the most susceptible to wildfires, with the area south of Newton being at the highest risk. Expanses of forestland provide an abundant fuel source. Map 5-9 below depicts the risk of a wildland fire on a given acre, according to the Alabama Forestry Commission, based on the frequency of fuels and historic fire levels.

Map 5-9. Wildfire Risk

Source: Alabama Forestry Commission



Wildland Fire Risk Rating:

■ Low

■ Moderate

■ High

■ Very High


County Boundary


Public Lands

1 inch = 3.8 miles

For more information, visit:
www.forestry.alabama.gov
AFC GIS (06/14/10)
Sources: Sanborn (2006); AFC (2010)

Extent

The extent of wildfires depends on human development patterns, weather, and firefighting resources in the affected area.

Dense clusters of wooden homes and other structures located near woodlands have the greatest potential for property damages and threats to life. These areas are prone to interface fires.

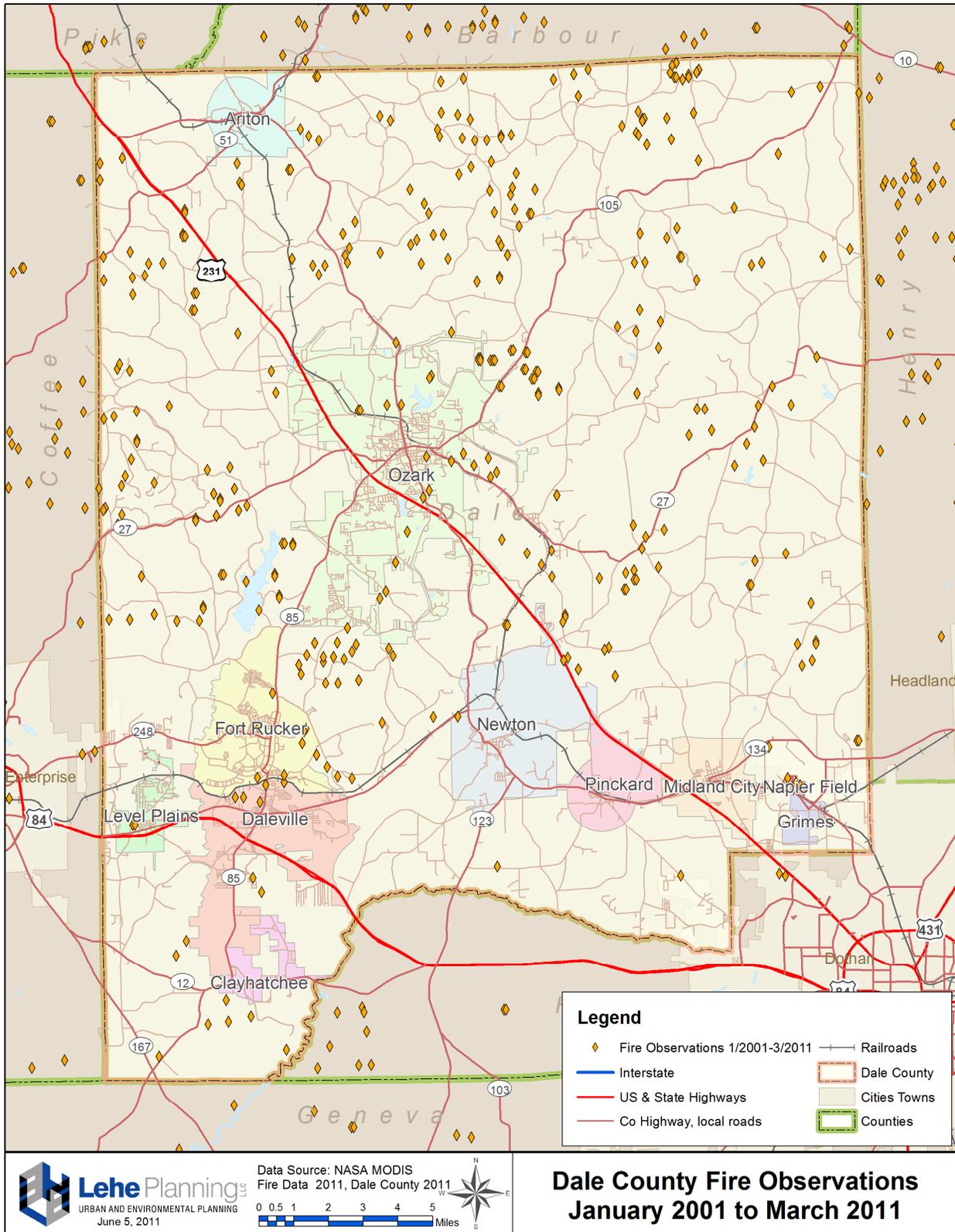
Weather is the most important natural variable in wildfire formation. Droughts increase the inflammability of vegetation and make suppressing fires more difficult. The Alabama Forestry Commission monitors weather and issues alerts when conditions are ripe for wildfires.

Firefighting resources can affect the severity of wildfires. Rural fire departments are almost exclusively made up of volunteers and usually have limited firefighting resources that are stretched during periods when numerous fires occur. These limited firefighting resources can compound the risk and extent of wildfire damages.

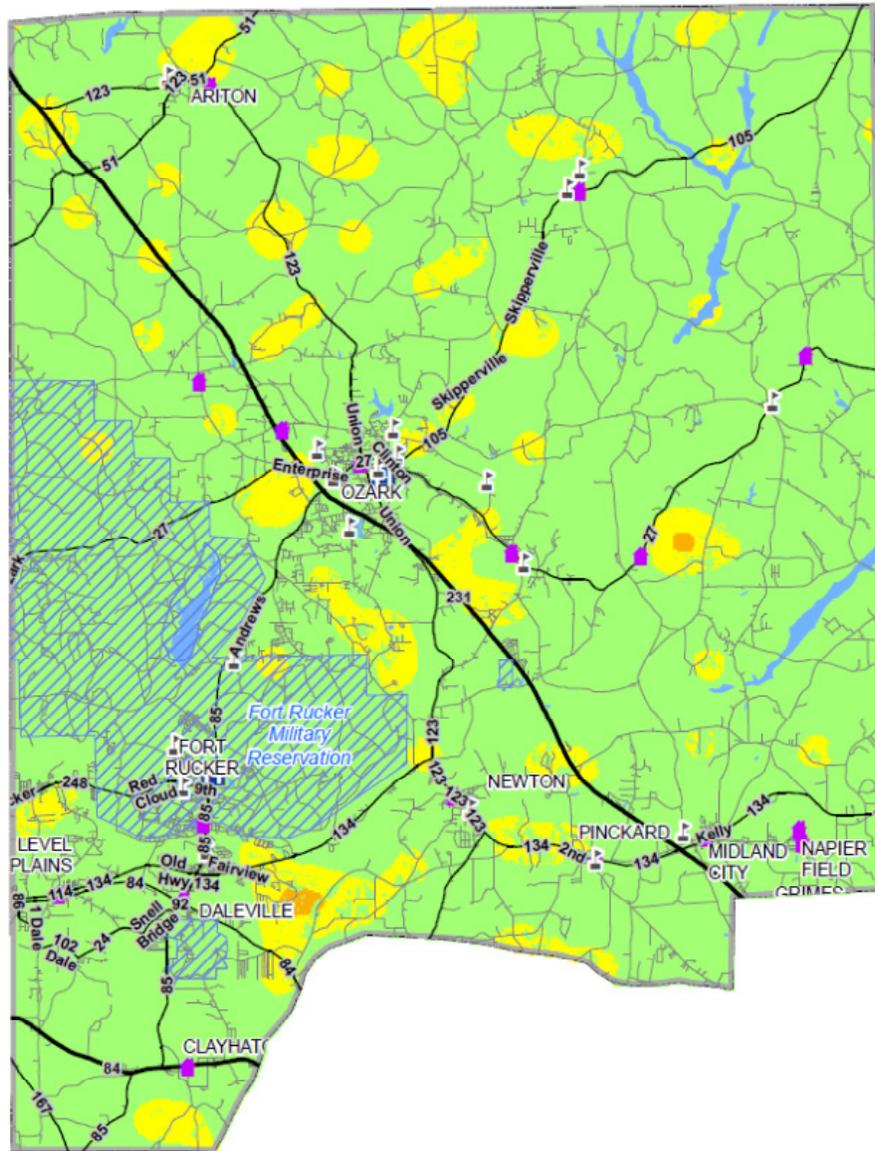
Past Occurrences

According to the Alabama Forestry Commission, Dale County averages 13 wildfires per year with an average of 74.36 acres burned. There were a total of 158 wildfires and 892.3 acres were burned during the 1997 and 2009 period. The county has had 13 wildfires year-to-date for the 2011 calendar year and 80.3 acres were burned. The county ranks 67 among 67 Alabama counties for both the number of fires and for the acres burned.

Map 5-10. Dale County Fire Observations



Map 5-11. Wildfire Occurrences
Source: Alabama Forestry Commission

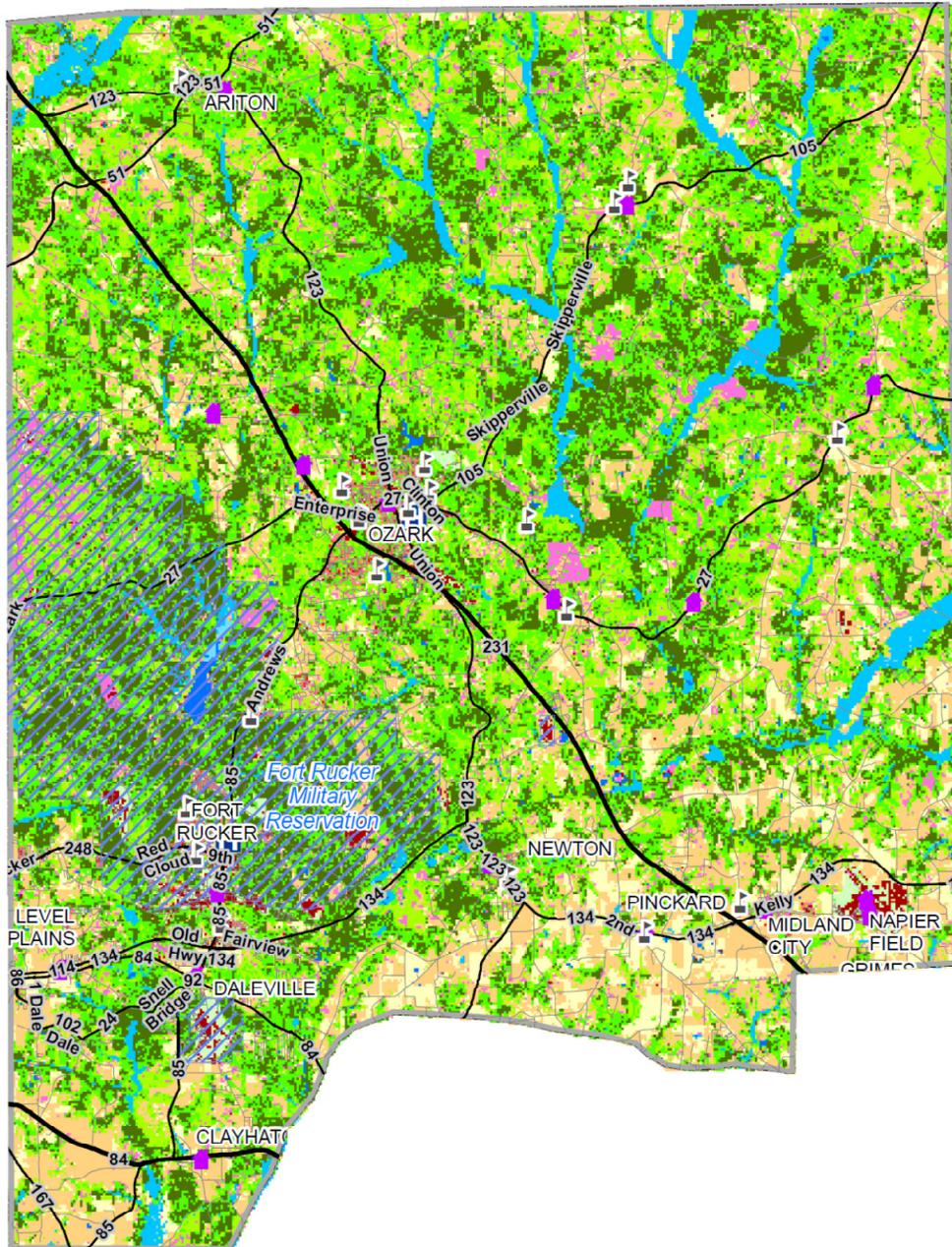


					<u>1 inch = 3.6 miles</u>
Schools	Location of Fire Fighting Resources*	Hospitals	Public Lands	County Boundary	www.forestry.alabama.gov AFC GIS (09/11/08)
<u>Fire Occurrence:</u>		 Low	 Medium	 High	 Extreme
					Sources: Sanborn (2006); AFC (2008) (* includes federal, state, local and volunteer entities)

Wildfires have been most frequent in the northern half of the County, according to the NASA MODIS. Although according to the Alabama Forestry Commission, they have been most frequent in the southwestern regions of the County located near Daleville and in the central east regions of the county located near Highway 27. These areas lie on the interface between suburban development and the county's mixed woodlands, as depicted in Map 5-12 below. Additionally, these trouble spots are located

far from Dale County's larger, incorporated communities and the accompanying fire departments and land-use controls.

Map 5-12. Wildfire Forest Fuels
Source: Alabama Forestry Commission



 Schools	 Location of Fire Fighting Resources*	 Hospitals	 Public Lands	 County Boundary	<p><u>1 inch = 3.6 miles</u></p> <p>www.forestry.alabama.gov AFC GIS (09/11/08)</p> <p>Sources: Sanborn (2006); AFC (2008) (* includes federal, state, local and volunteer entities)</p>	
Vegetation Classes	<ul style="list-style-type: none">  commercial  high intensity residential  low intensity residential 	<ul style="list-style-type: none">  pine  deciduous forest  mixed forest 	<ul style="list-style-type: none">  transitional  grasses  pasture 	<ul style="list-style-type: none">  woody wetlands  emergent wetlands  open water 		<ul style="list-style-type: none">  row crops  quarries  rock

Probability of Future Events

Based on historical data, the county can expect an average of thirteen significant wildfires per year, with the average size of each wildfire being 5.6 acres.

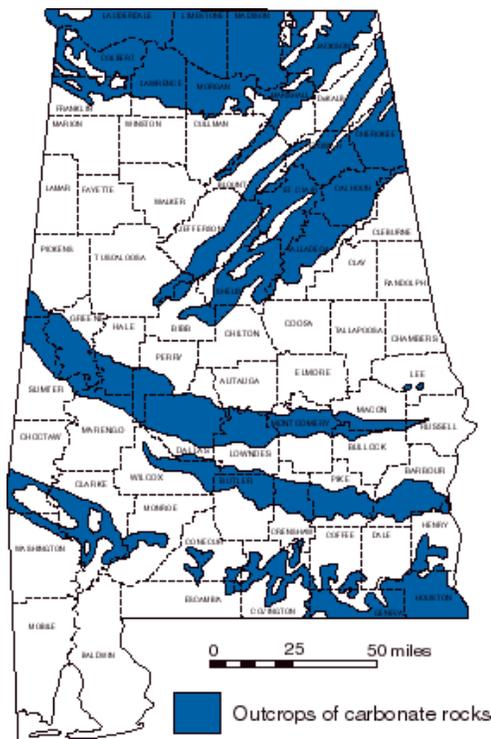
5.4.9 Sinkholes (Land Subsidence) Profile

Most sinkholes in Alabama are associated with limestone outcrops beneath the topsoil. Ground water dissolves limestone and thereby carves out caves, subterranean water corridors, and other geological features collectively known as *karst topography*. Alabama contains over 2,000 caves because of the karst topography. Sinkholes occur when holes in the limestone grow large enough to collapse under the weight of higher sediments, topsoil, foliage, or human structures. Certain activities can increase the potential for sinkholes in these areas, such as: periods of drought, excessive rainfall, well pump-age, and construction.

The primary cause of land subsidence is human activity. Mining, withdrawal of groundwater, vibrations from machinery, cars, and drilling equipment can cause sinkholes. In addition to human activity, droughts and excessive rainfall can also lead to the formation of sinkholes. During a drought, the groundwater table falls and caves that are normally filled with water may lose the support that the water provided. Eventually, cracks formed during the drought period will cause the roof of the cavity to fail.

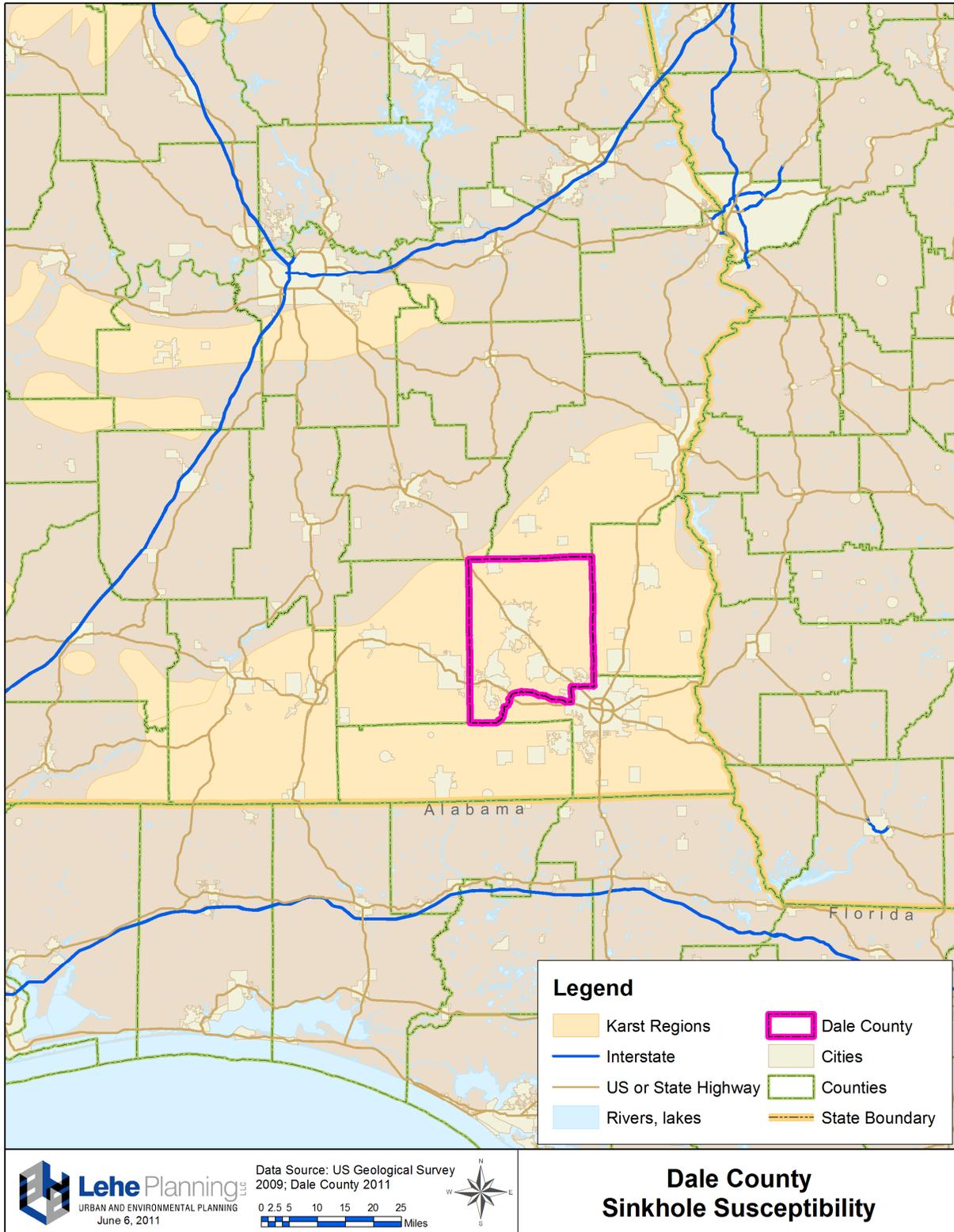
Map 5-13. Limestone Outcrops in Alabama

Source: Geological Survey of Alabama

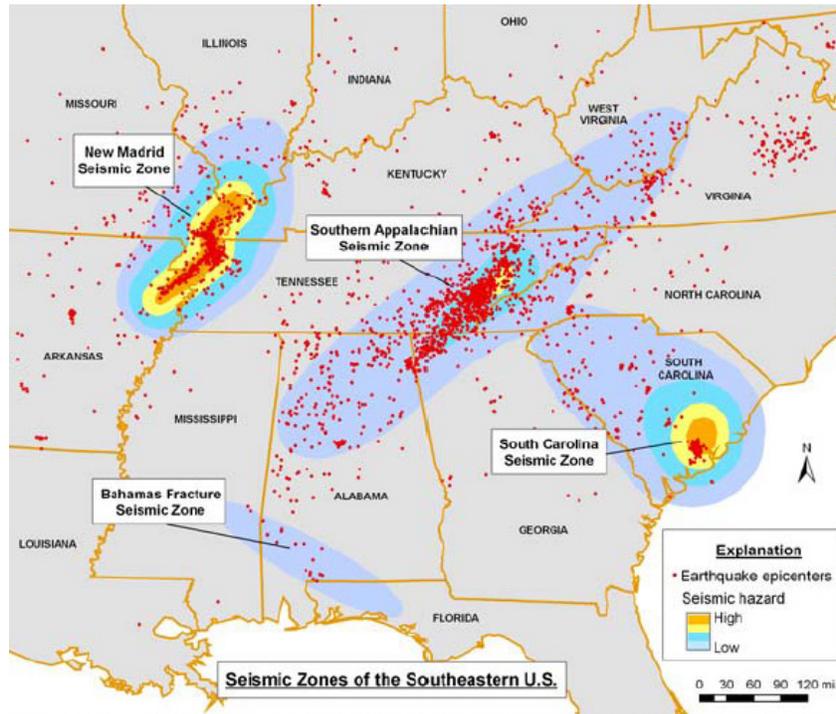


Map 5-13 shows a small section of the southwestern corner of Dale County is underlain by limestone outcrops.

Map 5-14. Dale County Sinkhole Susceptibility



Map 5-16. Seismic Zones in Southeastern United States



Source: Geological Survey of Alabama, Mapping and Hazards Program

Location

All of Dale County has a minimal degree of susceptibility to earthquakes, but the impacts can vary depending on the magnitude and epicenter location. In addition, damages to buildings and infrastructure depend not only on the energy released during an earthquake but also underlying soils and geological characteristics.

Extent

According to the Geological Survey of Alabama (GSA), recent seismograph records indicate that earthquakes in Alabama are frequent but not strong enough to be felt on the land surface. Earthquakes can occur anywhere at any time in Alabama, but most are likely to do little or no damage. As discussed in the “Earthquakes Description” included in Appendix D, the severity of an earthquake is measured according to the Modified Mercalli Intensity Scale, shown again in Figure 5-3, and the magnitude is the measure of energy released by the earthquake on a scale of 1 to 10, with magnitude 4 being felt on land and causing some damage.

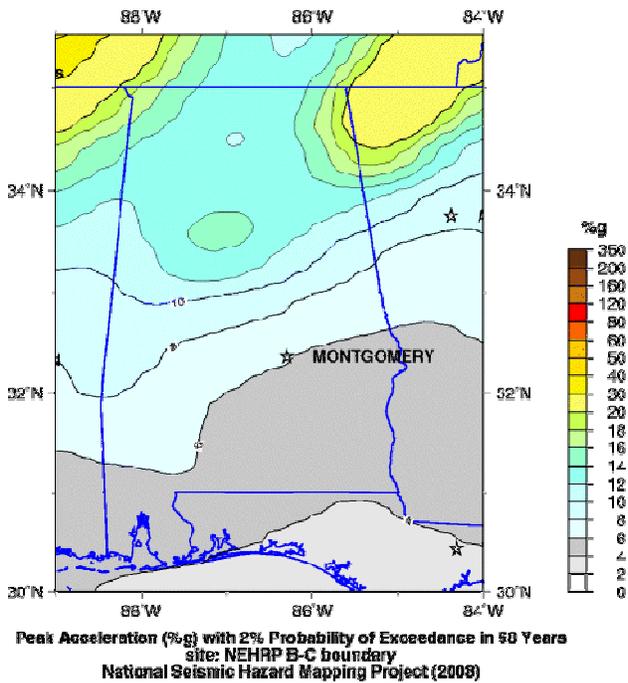
Figure 5-3. Modified Mercalli Intensity Scale

Source: Geological Survey of Alabama

Modified Mercalli Intensity Scale	
I.	Not felt.
II.	Felt by persons at rest, on upper floors, or favorably placed.
III.	Felt indoors. Vibration 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. Weak 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.

Ground motion maps are often used to assess the magnitude and frequency of seismic events. These maps measure the probability of exceeding a peak ground motion measured as peak ground acceleration (PGA) within a given period of years. The Peak Ground Acceleration (PGA) map (Map 5-17) for Alabama shows the potential severity of earthquakes in southeast Alabama. Dale County's severity for a 50 year/2% probabilistic event is extremely low at 4% g, where % g is percentage of the total horizontal ground acceleration of the earthquake event.

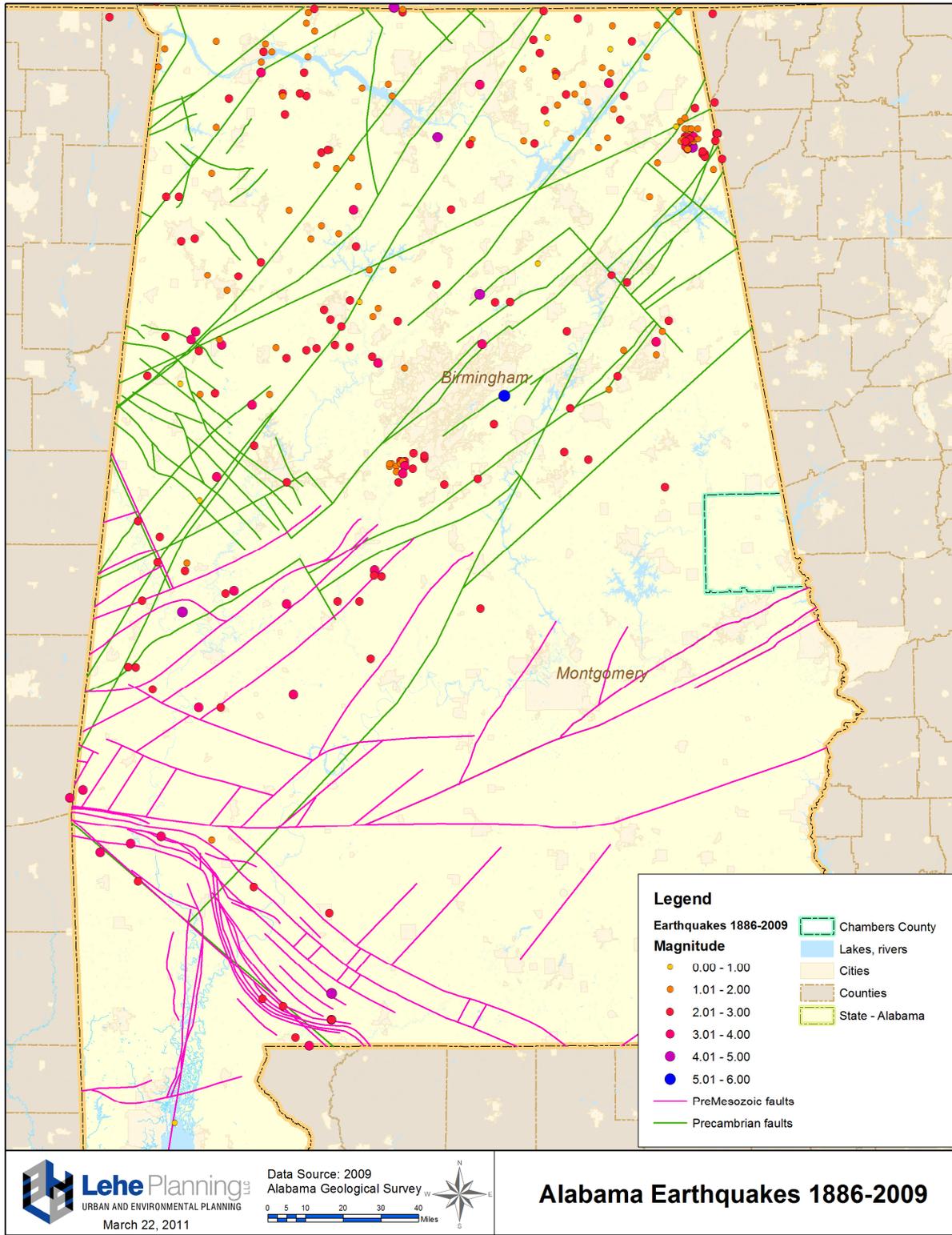
Map 5-17. Peak Ground Acceleration



Past Occurrences

Map 5-18 “Alabama Earthquake Locations” shows the location and magnitude of recorded earthquakes from 1886 through May, 2009. Very few earthquakes with a magnitude greater than 4.0 have been recorded.

Map 5-18. Alabama Earthquake Locations



Probability of Future Events

Although the GSA records show frequent earthquakes in Alabama, the probability of damaging earthquakes for Dale County is extremely low. There have been no recorded earthquakes for the County.

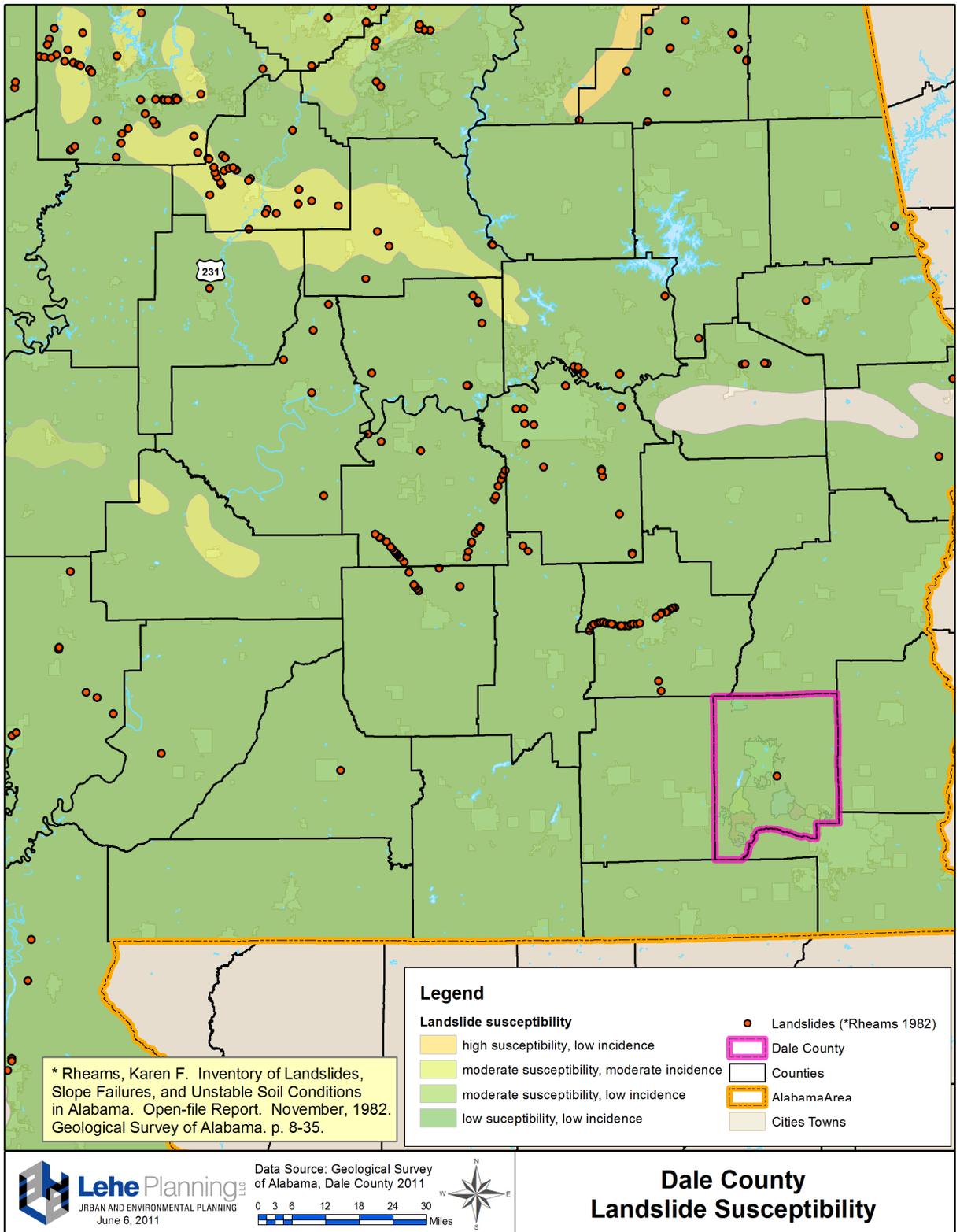
5.4.11 Landslides

The impact from a landslide can include loss of life (according to FEMA: 25 – 50 people annually in the United States), damage to buildings, lost productivity, disruption in utilities and transportation systems, and reduced property values. Dale County lies in an area with low susceptibility and low incidence for landslides. According to the Hazard Mitigation Planning Committee (see Appendix D “HMPC Hazard Identification and Ratings”) and surveys of community opinions, landslides are a minimum concern to Dale County communities.

Location

As shown on Map 5-19 “Dale County Landslide Susceptibility” the entire county has some degree of susceptibility to landslides, and incidences appear random.

Map 5-19. Dale County Landslide Susceptibility



Extent

Slope failures primarily occur due to improper excavation and failure to protect recently excavated slopes. Proper soil management and careful construction can sharply mitigate the extent of potential landslides and prevent their occurrence altogether in most cases. Heavy rainfall and flooding can precipitate and exacerbate landslides, making the extent of potential damage from landslides in an area difficult to predict.

Past Occurrences

Historical data of landslide events for Dale County are not available. The majority of landslides in the county result in the collapse of a constructed slope during a rain event.

Probability of Future Events

Since historical data of landslide events for Dale County is not available, the probability of future occurrences cannot be predicted. Although with Dale County having a level topography and a lack of steep hillsides, there is a low probability of future events.

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 Dale County hazards are county-wide, including severe storms, hurricanes, tornadoes, winter storms/freezes, droughts/heat waves, wildfires, and earthquakes. Floods, sinkholes, landslides and dam failures, 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 (release MR-3, Patch 3, as of March 2009). HAZUS-MH modeled scenarios for Dale 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 Dale County, Geologic 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 Dale 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.
- Hazardous Materials. These materials may pose a threat if disrupted by natural hazards and include hazardous industrial chemicals, explosives, flammables, toxins, and radioactive materials.

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 5-12. Population Distribution by Jurisdiction

Jurisdiction	2010 Population	% of Total
Ariton	764	1.5%
Clayhatchee	589	1.2%
Daleville	5,295	10.5%
Grimes	558	1.1%
Level Plains	2,085	4.1%
Midland City	2,344	4.7%
Napier Field	354	0.7%
Newton	1,511	3.0%
Ozark	14,907	29.7%
Pinckard	647	1.3%
Unincorporated*	21,197	42.2%
Dale County	50,251	100.0%

*includes Fort Rucker (Source: U.S. Census 2010)

The plan projects future numbers of buildings, critical facilities, and infrastructure to the year 2035 using the Alabama State Data Center’s projection of Dale County population growth. Since no projections existed for individual jurisdictions, the method described here was developed to provide a 2035 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 2010. In the case of the overall population of Dale County, the Alabama State Data Center 2035 county estimate has been used, and the unincorporated area projection is that countywide population less the total of all municipal populations.

The 2035 populations of Dale County and its jurisdictions are used to compute *growth multipliers*. The growth multiplier is equal to 1 + the 2010-2035 percentage increases for each jurisdiction. For example, if 1,000 residential buildings are presently exposed, then a 2035 Growth Multiplier of 1.35 (where a jurisdiction’s population is projected to increase 35 percent) would project 1,350 residential buildings will be exposed in 2035. 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 5-13. 1990-2010 Annual Growth Rates by Incorporated Jurisdiction

Jurisdiction	1990	2010	Number Change	Percent Change	Annual Growth Rate
Ariton	743	764	+21	+2.8%	+0.14%
Clayhatchee	411	589	+178	+43.3%	+1.82%
Daleville	5,117	5,295	+178	+3.5%	+0.17%
Grimes	443	558	+115	+26.0%	+1.16%
Level Plains	1,473	2,085	+612	+41.5%	+1.75%
Midland City	1,819	2,344	+525	+28.9%	+1.28%
Napier Field	462	354	-108	-23.4%	-1.32%
Newton	1,580	1,511	-69	-4.4%	-0.22%
Ozark	13,030	14,907	+1,877	+14.4%	+0.68%
Pinckard	618	647	+29	+4.7%	+0.23%

Table 5-14. 2035 Growth Projections and Multipliers

Jurisdiction	2010	Projected 2035	Projected Change 2010-2035	Percent Increase 2010-2035	2035 Growth Multiplier
Ariton	764	791	+27	+3.5%	1.04
Clayhatchee	589	924	+335	+56.8%	1.57
Daleville	5,295	5,526	+231	+4.4%	1.04
Grimes	558	745	+187	+33.4%	1.33
Level Plains	2,085	3,219	+1,134	+54.4%	1.54
Midland City	2,344	3,218	+874	+37.3%	1.37
Napier Field	354	254	-100	-28.3%	0.72
Newton	1,511	1,429	-82	-5.4%	0.95

Jurisdiction	2010	Projected 2035	Projected Change 2010-2035	Percent Increase 2010-2035	2035 Growth Multiplier
Ozark	14,907	17,638	+2,731	+18.3%	1.18
Pinckard	647	685	+38	+5.9%	1.06
Unincorporated	21,197	21,493	+296	+1.4%	1.01
Dale County	50,251	55,922	+5,671	+11.3%	1.11

Source: Derived from Alabama State Data Center 2035 Dale County Projection and the 2010 Census

Table 5-15. Population Distribution by Jurisdiction

Jurisdiction	2035 Population	% of Total
Ariton	791	1.4%
Clayhatchee	924	1.7%
Daleville	5,526	9.9%
Grimes	745	1.3%
Level Plains	3,219	5.8%
Midland City	3,218	5.8%
Napier Field	254	0.5%
Newton	1,429	2.6%
Ozark	17,638	31.5%
Pinckard	685	1.2%
Unincorporated	21,493	38.4%
Dale County	55,922	100.0%

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 – 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 can be found in Table 5-16 below.

Table 5-16. Hazard Exposure Rates by Jurisdiction

Identified Hazard	Ariton	Clayhatchee	Daleville	Grimes	Level Plains	Midland City	Napier Field	Newton	Ozark	Pinckard	Unincorporated	Dale County
Severe Storms	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Tornadoes	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Identified Hazard	Airton	Clayhatchee	Daleville	Grimes	Level Plains	Midland City	Napier Field	Newton	Ozark	Pinckard	Unincorporated	Dale County
Floods	<1%	<1%	5%	<1%	<1%	<1%	<1%	5%	2%	<1%	5%	5%
Droughts/Heat Wave	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Hurricanes	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Winter Storms/Freezes	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Dam/Levee Failures	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Wildfires	20%	10%	25%	5%	15%	2%	2%	5%	35%	2%	50%	40%
Sinkholes	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Earthquakes	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Landslides	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%

General Description of the Planning Region

HAZUS-MH refers to the geographic study area as the *region*, which is all of Dale County, including all unincorporated areas and ten 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 Dale County region is generally described by HAZUS-MH, as follows:

- The geographical size of the region is 563 square miles.
- The region contains 14 census tracts.
- There were 18,878 households in the region, with a total population of 49,129 persons, according to the 2000 Census.

Table 5-17. HAZUS-MH Population and Building Value Data

State	County Name	2000 Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Alabama	Dale	49,129	\$2,185	\$540	\$2,725

Table 5-18. HAZUS-MH Building Inventory by Occupancy

Occupancy	Count	Share
Agriculture	57	0.25%
Commercial	799	3.44%

Occupancy	Count	Share
Education	26	0.11%
Government	41	0.18%
Industrial	228	0.98%
Religion	84	0.36%
Single Family Residential	14,413	61.97%
Other Residential	7,611	32.72%
Total	23,259	100%

Building Inventory

- HAZUS-MH estimates that there are some 23,000 buildings in the region, which have an aggregate replacement value of \$2.7 billion.
- In terms of building construction types found in the region, wood frame construction makes up 68% percent of the building inventory. Manufactured housing accounts for 20% of buildings, a significant share.

Table 5-19. HAZUS-MH Building Inventory by Construction Type

Construction Type	Count	Share
Wood	15,800	67.93%
Steel	642	2.76%
Concrete	209	0.90%
Precast	44	0.19%
Reinforced Masonry	381	1.64%
Unreinforced Masonry	1,642	7.06%
Manufactured Housing	4,540	19.52%
Total	23,259	100.00%

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**, which 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:
 - ✓ 2 hospitals with a total bed capacity of 99 beds;
 - ✓ 25 schools;
 - ✓ 12 fire stations;
 - ✓ 8 police stations; and

- ✓ 0 emergency operations facilities.
- (2) **High potential loss facilities**, which include dams, levees, military installations, nuclear power plants and hazardous material sites. HAZUS-MH estimates the numbers and types of high potential loss facilities, as follows:
 - ✓ 18 dams, with two classified as “high hazard;”
 - ✓ 10 hazardous materials site;
 - ✓ 0 military installations (HAZUS reports 0, although there is one major facility, Fort Rucker); 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 \$2.2 billion. A more detailed breakdown is provided in Table 5-26 “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:
 - ✓ 129 miles (207 kilometers) of highways; and
 - ✓ 112 bridges.
- (2) **Utility systems**, which include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. HAZUS-MH estimates the length of pipes, as follows:
 - ✓ 2,991 miles (4,815 kilometers) of 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 Dale County is mostly residential at about 80.2 percent. This ratio should remain constant through the 2035 plan horizon, and occupancy ratios are assumed constant for the purposes of this analysis.

Table 5-20. Building Exposure by Occupancy

Occupancy	Existing Exposure (\$1,000)	Future Exposure (\$1,000)	% of Total
Agriculture	\$9,889	\$10,977	0.4%
Commercial	\$312,700	\$347,097	11.5%
Education	\$26,926	\$29,888	1.0%
Government	\$23,271	\$25,831	0.9%
Industrial	\$123,536	\$137,125	4.5%
Religious	\$45,000	\$49,950	1.7%
Residential	\$2,185,769	\$2,426,204	80.2%
Total	\$2,727,091	\$3,027,071	100.00%

Building values within each jurisdiction are expected to increase according to (a) growth in Dale 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.

Dale County is projected to grow 11.2 percent from 2010 to 2035, with increases projected as high as 54.4 percent for Level Plains and declines as sharp as 28.3% for Napier Field. 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 5-21. Building Values by Jurisdiction

Jurisdiction	Building Value (\$ 1,000's)					
	Existing Residential	Future Residential	Existing Non-Residential	Future Non-Residential	Existing Total	Future Total
Ariton	\$33,232	\$34,561	\$8,230	\$8,559	\$41,462	\$43,120
Clayhatchee	\$25,620	\$40,223	\$6,345	\$9,962	\$31,965	\$50,185
Daleville	\$230,317	\$239,529	\$57,040	\$59,321	\$287,356	\$298,851
Grimes	\$24,271	\$32,281	\$6,011	\$7,995	\$30,282	\$40,275
Level Plains	\$90,691	\$139,665	\$22,460	\$34,589	\$113,152	\$174,254
Midland City	\$101,957	\$139,681	\$25,250	\$34,593	\$127,207	\$174,274
Napier Field	\$15,398	\$11,087	\$3,813	\$2,746	\$19,211	\$13,832
Newton	\$65,724	\$62,438	\$16,277	\$15,463	\$82,001	\$77,901
Ozark	\$648,410	\$765,124	\$160,584	\$189,489	\$808,994	\$954,613
Pinckard	\$28,143	\$29,831	\$6,970	\$7,388	\$35,112	\$37,219
Unincorporated	\$922,006	\$931,227	\$228,342	\$230,625	\$1,150,348	\$1,161,852
Dale County	\$2,185,769	\$2,426,204	\$541,322	\$600,867	\$2,727,091	\$3,027,071

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

Table 5-22. 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	Existing	Future
	Agric.		Commercial		Education		Govt.		Industrial		Religion		Single Family		Other Resid.	
Ariton	1	1	12	13	0	0	1	1	3	4	1	1	219	226	116	120
Clayhatchee	1	1	9	15	0	0	0	1	3	4	1	2	169	264	89	140
Daleville	6	6	84	88	3	3	4	4	24	25	9	9	1,519	1,581	802	835
Grimes	1	1	9	12	0	0	0	1	3	3	1	1	160	213	85	112
Level Plains	2	4	33	51	1	2	2	3	9	15	3	5	598	921	316	486
Midland City	3	4	37	51	1	2	2	3	11	15	4	5	672	921	355	486
Napier Field	0	0	6	4	0	0	0	0	2	1	1	0	102	73	54	38
Newton	2	2	24	23	1	1	1	1	7	6	3	2	433	409	229	216
Ozark	17	20	237	280	8	9	12	14	68	80	25	29	4,276	5,046	2,258	2,665
Pinckard	1	1	10	11	0	0	1	1	3	3	1	1	186	196	98	104
Unincorporated	24	24	337	341	11	11	17	17	96	97	35	36	6,080	6,149	3,210	3,247
Dale County	57	63	799	887	26	29	41	46	228	253	84	93	14,413	15,998	7,611	8,448

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

Table 5-23. Building Exposure by Jurisdiction and Hazard

Identified Hazard	Building Exposure (\$ millions) by Jurisdiction																							
	Airton		Clayhatchee		Daleville		Grimes		Level Plains		Midland City		Napier Field		Newton		Ozark		Pinckard		Unincorporated		Dale County	
	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
Severe Storms	42	43	32	50	287	299	30	40	113	174	127	174	19	13	82	78	809	955	35	37	1,150	1,162	2,727	3,027
Tornadoes	42	43	32	50	287	299	30	40	113	174	127	174	19	13	82	78	809	955	35	37	1,150	1,162	2,727	3,027
Floods	>0	>0	>0	>0	14	15	>0	>0	>0	>0	>0	>0	>0	>0	4	4	>0	>0	>0	>0	58	58	136	150
Droughts/Heat Wave	42	43	32	50	287	299	30	40	113	174	127	174	19	13	82	78	809	955	35	37	1,150	1,162	2,727	3,027
Hurricanes	42	43	32	50	287	299	30	40	113	174	127	174	19	13	82	78	809	955	35	37	1,150	1,162	2,727	3,027
Winter Storms/Freezes	42	43	32	50	287	299	30	40	113	174	127	174	19	13	82	78	809	955	35	37	1,150	1,162	2,727	3,027
Dam/Levee Failures	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0
Wildfires	8	9	3	5	72	75	2	2	17	26	3	3	>0	>0	4	4	283	334	1	1	575	581	1,091	1,211
Sinkholes	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0
Earthquakes	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0
Landslides	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0	>0

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

Critical Facilities

HAZUS-MH estimates there are nearly 76 critical facilities within Dale County. Additional facilities will be added as population increases to as many as 83.

Table 5-24. HAZUS-MH Essential Facilities Data

Classification	Existing Estimate	Future Estimate
Hospitals	2 (99 total bed capacity)	2 (110 bed capacity)
Schools	25	28
Emergency Ops. Centers	0	0
Police Stations	8	9
Fire Stations	12	13

Table 5-25. HAZUS-MH High Potential Loss Facilities Data

Classification	Existing Estimate	Future Estimate
Dams	18 (2 classified "high hazard")	20 (2 classified "high hazard")
Hazard Materials Sites	10	12
Military Installations	1*	1*
Nuclear Power Plants	0	0

*HAZUS reports 0 military installations, which incorrectly does not include Fort Rucker

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 5-26. HAZUS-MH Transportation Systems Lifeline Inventory

System	Component	# Locations/Segments	Replacement Value (\$ millions)
Highway	Bridges	112	\$132.50
	Segments	69	\$1,320.90
	Tunnels	0	\$0.00
		<i>Subtotal</i>	\$1,453.30
Railways	Bridges	1	\$0.20
	Facilities	0	\$0
	Segments	37	\$82.40
	Tunnels	0	\$0.00
		<i>Subtotal</i>	\$82.60
Light Rail	Bridges	0	\$0.00
	Facilities	0	\$0.00

System	Component	# Locations/Segments	Replacement Value (\$ millions)
	Segments	0	\$0.00
	Tunnels	0	\$0.00
		<i>Subtotal</i>	\$10.00
Bus	Facilities	0	\$0.00
		<i>Subtotal</i>	\$0.00
Ferry	Facilities	0	\$0.00
		<i>Subtotal</i>	\$0.00
Port	Facilities	0	\$0.00
		<i>Subtotal</i>	\$280.60
Airport	Facilities	3	\$32.00
	Runways	4	\$151.90
		<i>Subtotal</i>	\$183.80
		Total	\$1,719.70

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 5-27. HAZUS-MH Utilities Systems Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (\$ millions)
Potable Water	Distribution Lines	NA	\$48.20
	Facilities	0	\$0.00
	Pipelines	0	\$0.00
		<i>Subtotal</i>	\$48.20
Waste Water	Distribution Lines	NA	\$28.90
	Facilities	8	\$479.50
	Pipelines	0	\$0.00
		<i>Subtotal</i>	\$508.40
Natural Gas	Distribution Lines	NA	\$19.30
	Facilities	0	\$0.00
	Pipelines	0	\$0.00
		<i>Subtotal</i>	\$19.30
Oil Systems	Facilities	0	\$0.00
	Pipelines	0	\$0.00
		<i>Subtotal</i>	\$0.00
Electrical Power	Facilities	0	\$0.00
		<i>Subtotal</i>	\$0.00
Communication	Facilities	7	\$0.60
		<i>Subtotal</i>	\$0.60

System	Component	# Locations / Segments	Replacement value (\$ millions)
		Total	\$1,520.80

Local Inventories of Critical Facilities and Infrastructure

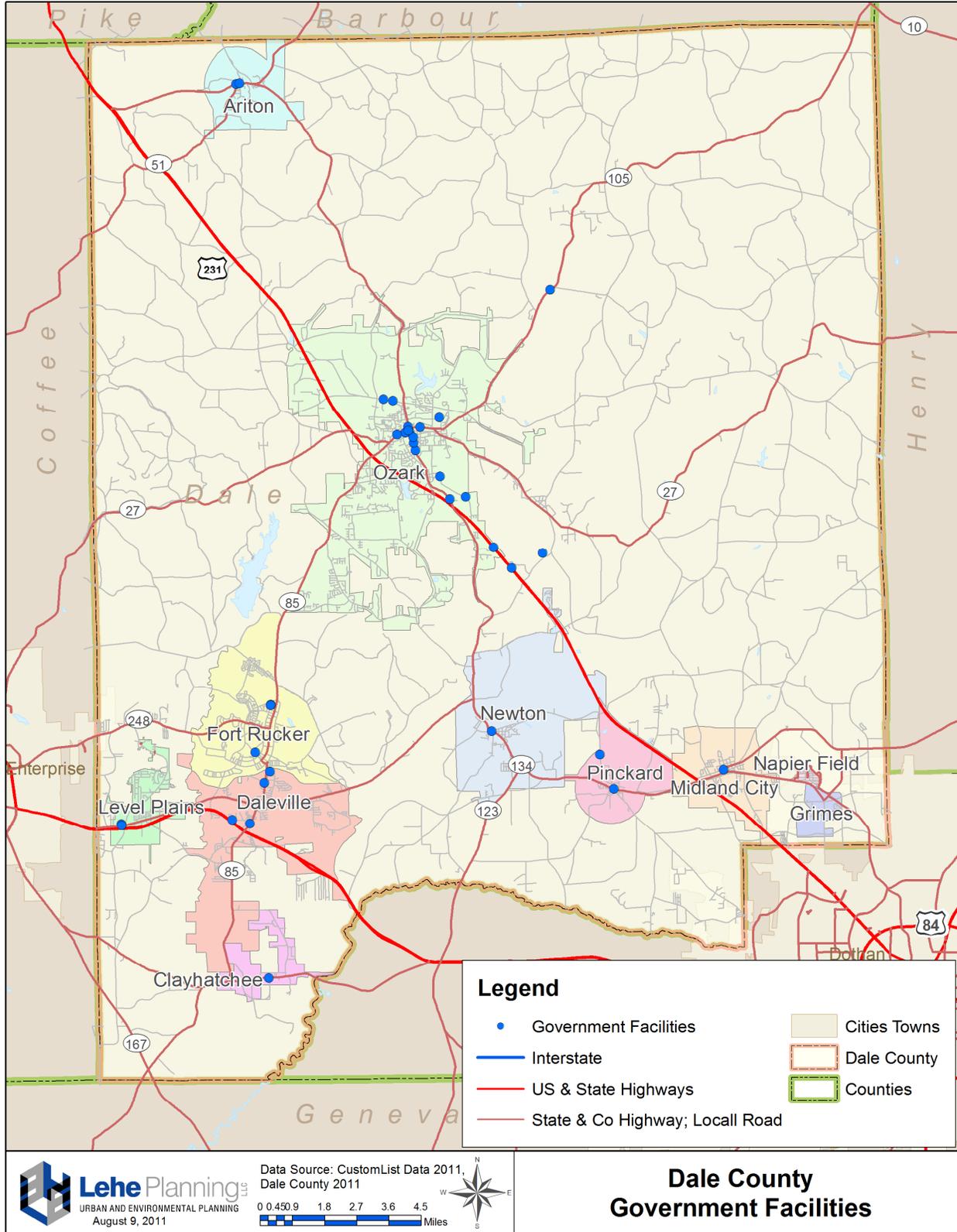
The following maps and tables show the locations of major critical facilities.

Table 5-28. Government Facilities

Type	Name	Address	City	Zip
Govt. Offices-State	Alabama Dept Transportation	400 Valentine Street Ext	Ozark	36360
City Govt.-Executive Offices	Ariton City Hall	28 W Main St	Ariton	36311
Govt. Offices-City, Village & Twp	City Of Clayhatchee	1 W Main St	Daleville	36322
Govt. Offices-County	Dale County Bldg & Maintenance	833 S Union Ave	Ozark	36360
Govt. Offices-County	Dale County Circuit Clerk	3 E Court Sq	Ozark	36360
Govt. Offices-County	Dale County Court House	100 E Court Sq	Ozark	36360
County Govt-Transportation Programs	Dale County Driver's License	719 S Union Ave	Ozark	36360
Govt. Offices-County	Dale County Engineer's Office	202 S Highway 123	Ozark	36360
County Govt.-Environmental Programs	Dale County Garbage	1702 S Highway 123 # A	Ozark	36360
County Govt.-Public Health Programs	Dale County Health Dept Clinic	204 Catherine Ave	Ozark	36360
Govt. Offices-County	Dale County Human Resource	513 Carroll Ave	Ozark	36360
Govt. Offices-County	Dale County Mechanic Shop	1725 County Road 30	Ozark	36360
Govt. Offices-County	Dale County Rescue Mission Ofc	182 Martin St	Ozark	36360
County Govt.-Finance & Taxation	Dale County Revenue Comm Ofc	1 E Court Sq	Ozark	36360
Govt. Offices-City, Village & Twp	Daleville City Cable Dept	302 S Daleville Ave	Daleville	36322
City Govt.-Executive Offices	Daleville City Hall	740 S Daleville Ave	Daleville	36322
Govt. Offices-City, Village & Twp	Daleville Waste Dept	266 Industrial Blvd	Daleville	36322
City Govt.-Executive Offices	Midland City Hall	100 Howell St	Midland City	36350
State Govt.-National Security	National Guard Armory	3971 S US Highway 231	Ozark	36360
Federal Govt.-Conservation Depts	Natural Resources Conservation	307 Painter Ave	Ozark	36360
City Govt.-Executive Offices	Newton Town Hall	9 N College St	Newton	36352
Govt. Offices-City, Village & Twp	Ozark Animal Control Shelter	1355 Parker Drive	Ozark	36360
City Govt.-Executive Offices	Ozark City Hall	275 N Union Ave	Ozark	36360
City Govt.-Economic Program Adm	Ozark Economic Development Ofc	3269 S US Highway 231	Ozark	36360

Type	Name	Address	City	Zip
Govt. Offices-City, Village & Twp	Ozark Maintenance Shop	151 Peacock Ct	Ozark	36360
Govt. Offices-County	Ozark-Dale County E911	119 W Reynolds St	Ozark	36360
Federal Govt.-National Security	US Army Fort Rucker	453 Novosel Street	Fort Rucker	36362
Federal Govt.-National Security	US Army National Guard	Highway 84 & 134 W	Daleville	36322
Federal Govt.-National Security	Us Army Safety Ctr	5th Ave Bldg 4905	Fort Rucker	36362
Federal Govt.-General Offices	Us General Svc Adm	701 Ave M # T	Daleville	36322
Federal Govt.-National Security	US National Guard Armory	Highway 134 W	Daleville	36322
Post Offices	US Post Office	100 Virginia Ave	Daleville	36322
Post Offices	US Post Office	1313 Highway 134	Pinckard	36371
Post Offices	US Post Office	505 Andrews Ave	Ozark	36360
Post Offices	US Post Office	5093 Highway 105	Skipperville	36374
Post Offices	US Post Office	52 Pea River Rd	Ariton	36311
Post Offices	US Post Office	9000 5th Ave	Fort Rucker	36362
Post Offices	US Post Office	1783 Forest Drive	Pinckard	36371
Federal Govt-Veterans Affairs Admin	Us Veterans Affairs Dept	807 Donnell Blvd # I	Daleville	36322
Govt. Offices-Us	US Wiregrass Resource Dev	304 Painter Ave	Ozark	36360

Map 5-20. Government Facilities



Map 5-21. Water/Wastewater Facilities

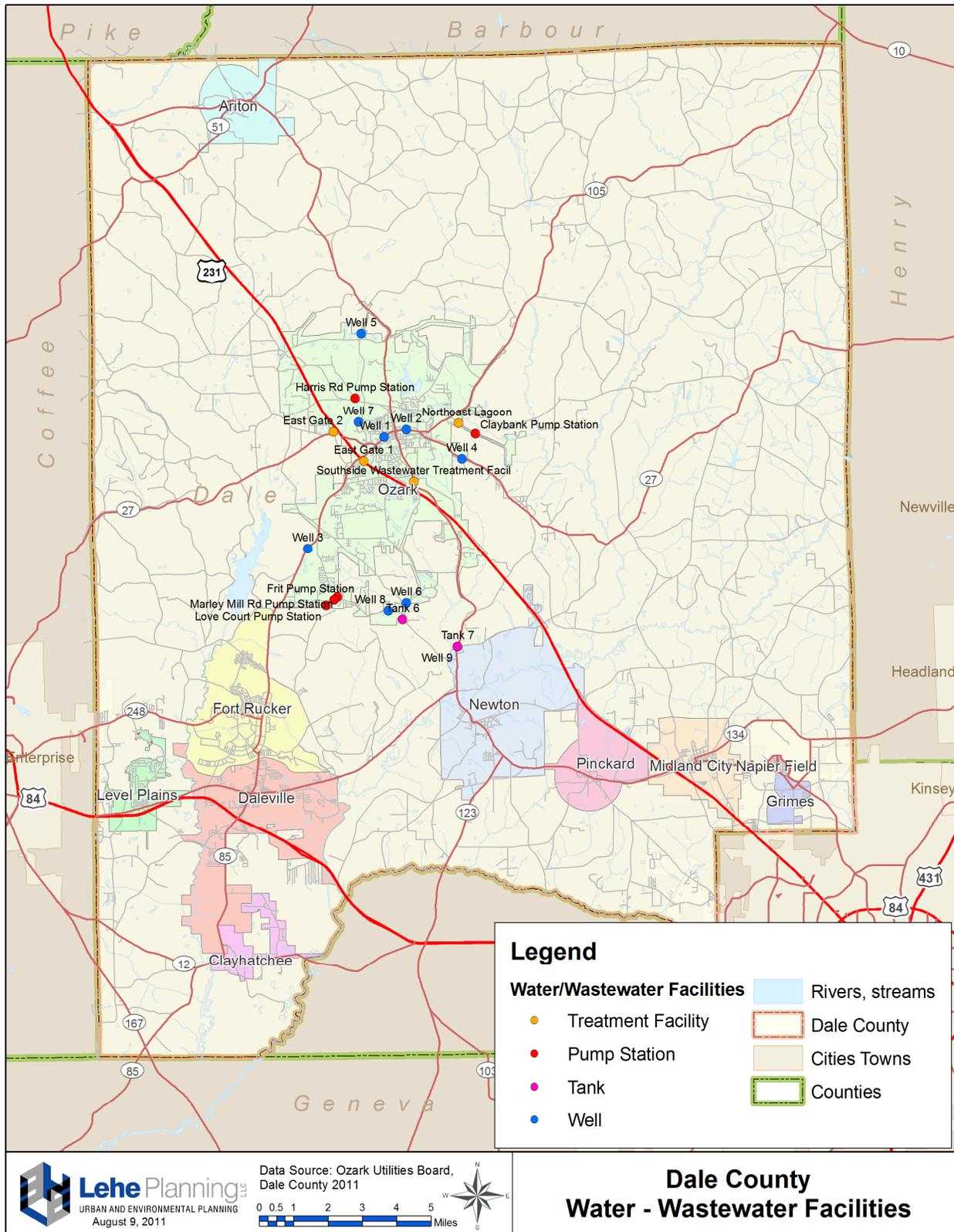


Table 5-29. Public Safety Facilities

Type	Name	Address	City	Zip
Police Departments	Ariton Police Dept	28 W Main St	Ariton	36311
County Govt.-General Offices	Dale County Communication District 911	206 W Troy St	Ozark	36360
County Govt.-Public Order & Safety	Dale County Emergency Mgmt	168 S Merrick Ave	Ozark	36360
Fire Departments	Daleville Police/Fire Dept	730 S Daleville Ave	Daleville	36322
Fire Departments	Ewell Volunteer Fire Dept	2215 E Highway 27	Ozark	36360
Fire Departments	Level Plains Police/Fire Dept	1708 Joe Bruer Rd	Daleville	36322
Fire Departments	Marley Mill Volunteer Fire	3299 N County Road 21	Ozark	36360
Police Departments	Midland City Police/Fire Dept	361 3rd St	Midland City	36350
Fire Departments	Napier Field Volunteer Fire	358 Headquarters St	Midland City	36350
Fire Departments	Ozark Fire Dept	100 Mixon School Rd	Ozark	36360
Police Departments	Ozark Police Dept	500 N Union Ave	Ozark	36360
Fire Departments	Pinckard Volunteer Fire Dept	127 E Highway 134	Pinckard	36371
Police Departments	Pinckard Police Dept	1309 Highway 134	Pinckard	36371
County Govt.-Correctional Inst.	Dale County Jail	124 Adams St	Ozark	36360

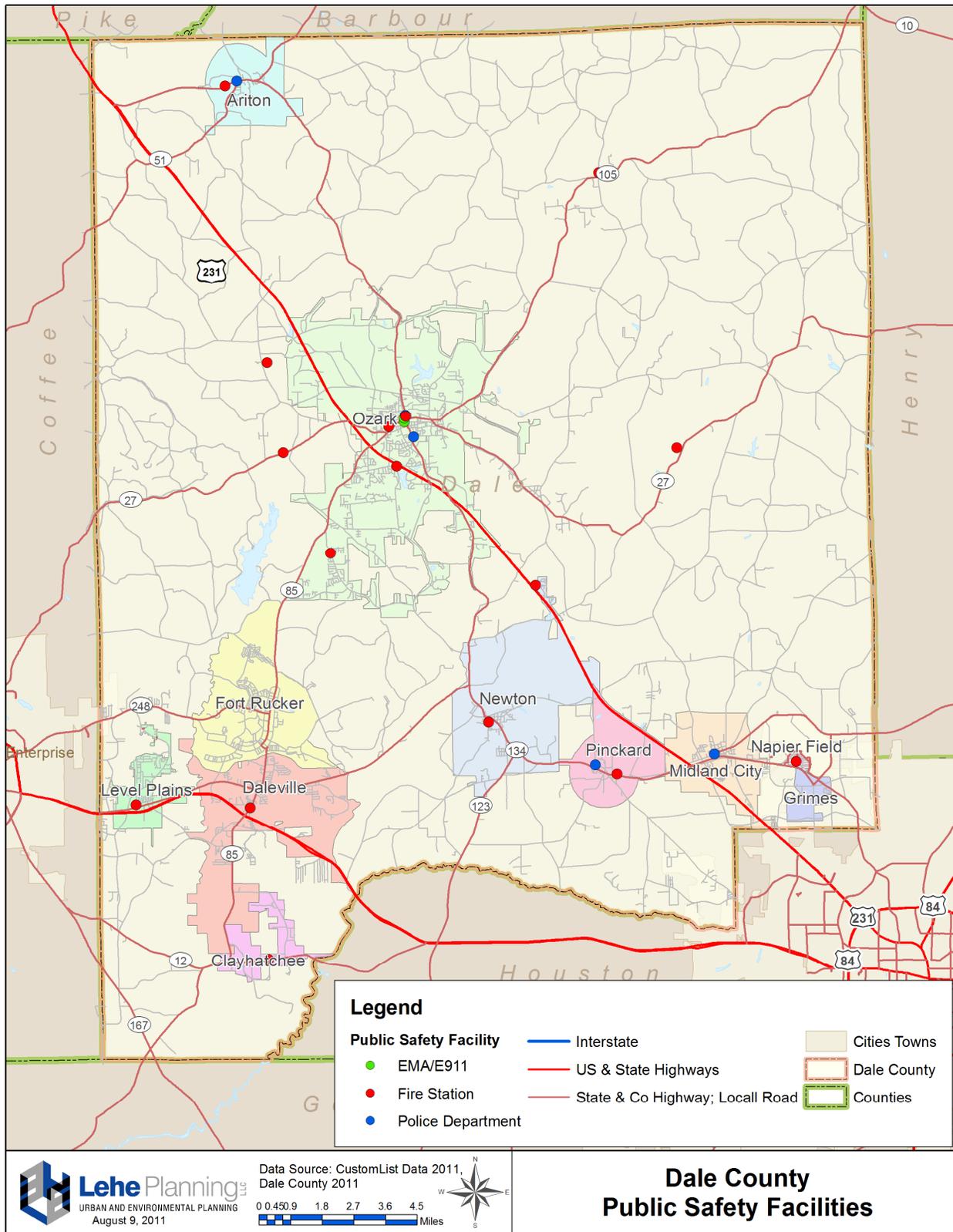


Table 5-30. Dale County Schools

School Type	Name	Address	City	Zip
College	American Aviation Academy	1110 Parker Dr	Ozark	36360
College	Embry-Riddle Aeronautical Univ	Kingsman Ave Bldg 4502 Fl # 3	Fort Rucker	36362
College	Enterprise-Ozark Community	3405 S Us Highway 231	Ozark	36360
College	Netherlands Training Detachment	107 5Th Ave	Fort Rucker	36362
College	Troy State University	Andrews Ave Bldg 4502	Fort Rucker	36362
Private	Dale County Christian School	64 Susie St	Ozark	36360
Private	Fort Rucker Elementary School	2 Red Cloud Rd, Bldg 21038	Fort Rucker	36362
Private	Fort Rucker Primary School	Artillery Rd Bldg 22210	Fort Rucker	36362
Private	Royal Melissa Christian Daycare	603 Magnolia St	Ozark	36360
Technical	Flight Safety Intl	600 Industrial Blvd	Daleville	36322
Technical	Lear Siegler Flight Training	Andrews Ave # 4509	Fort Rucker	36362
Public - Ozark City	Vivian B Adams Sch	2047 Stuart Tarter Rd	Ozark	36360
Public - Ozark City	Carroll High Sch Career Ctr	227 Faust Ave	Ozark	36360
Public - Dale Co	George W Long High Sch	2565 Co Rd 60	Skipperville	36374
Public - Dale Co	Gw Long Elem Sch	2567 Co Rd 60	Skipperville	36374
Public - Ozark City	M Thompkins Early Childhood Sch	271 Willa Cr	Ozark	36360
Public - Ozark City	Harry N Mixon Elem Sch	349 Sherrill Ln	Ozark	36360
Public - Ozark City	East Gate Sch	406 Ben Street	Ozark	36360
Public - Ozark City	Carroll High Sch	455 Forrest Ave	Ozark	36360
Public - Dale Co	Newton Elem Sch	523 South College St	Newton	36352
Public - Daleville City	Daleville High Sch	626 N Daleville Ave	Daleville	36322
Public - Daleville City	Daleville Middle Sch	626 N Daleville Ave	Daleville	36322
Public - Daleville City	Nova Learning Ctr	626 N Daleville Ave	Daleville	36322
Public - Daleville City	Windham Elem Sch	626 N Daleville Ave	Daleville	36322
Public - Ozark City	Joseph W Lisenby Elementary School	860 Faust Ave	Ozark	36360
Public - Ozark City	D A Smith Middle Sch	994 Andrews Ave	Ozark	36360
Public - Dale Co	Dale Co High Sch	11740 S County Road 59	Midland City	36350
Public - Dale Co	Ariton School	264 Creel Richardson Rd	Ariton	36311
Public - Dale Co	South Dale Middle Sch	309 Randolph St	Pinckard	36371
Public - Dale Co	Midland City Elem Sch	48 2Nd Street	Midland City	36350

Map 5-23. Schools

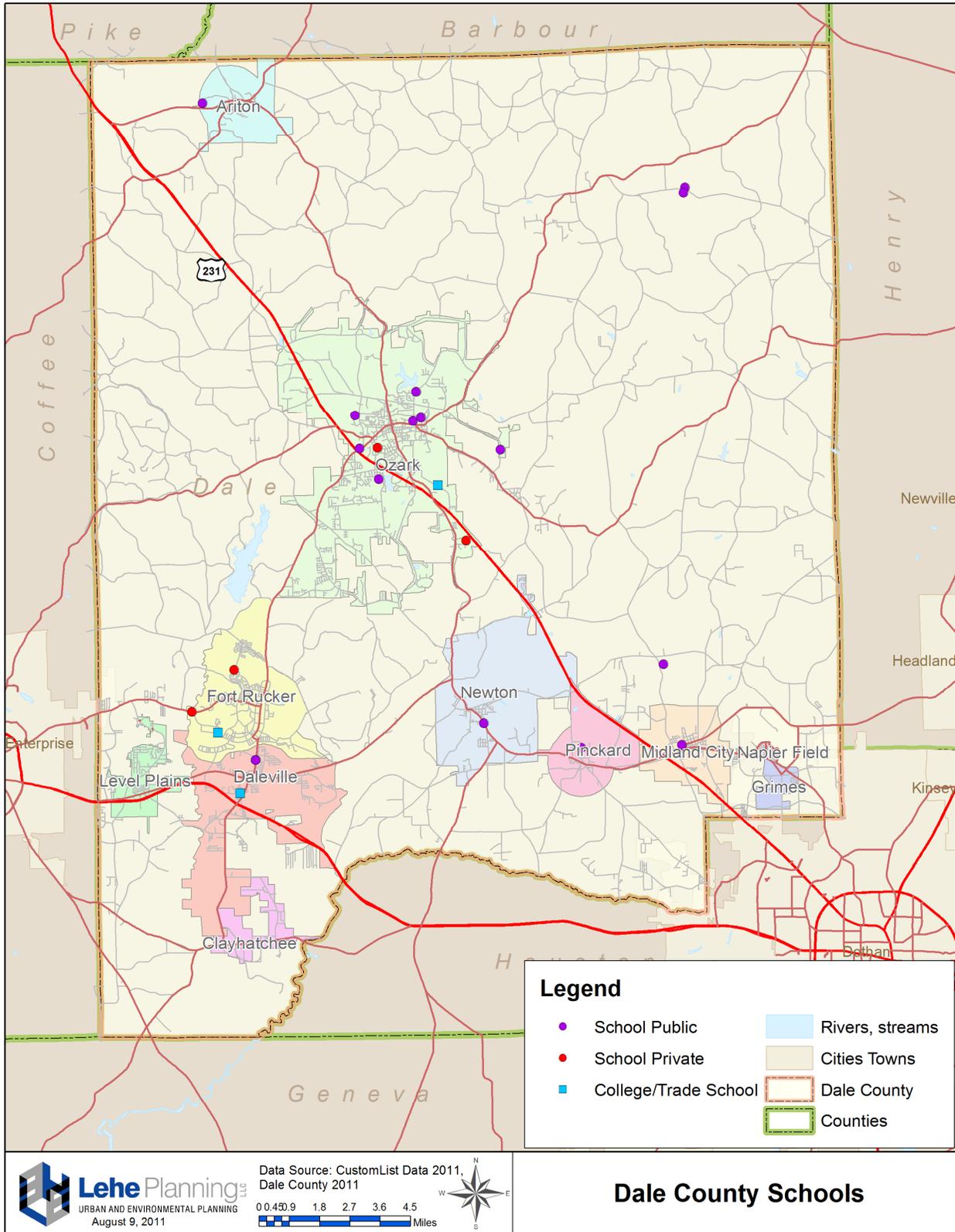
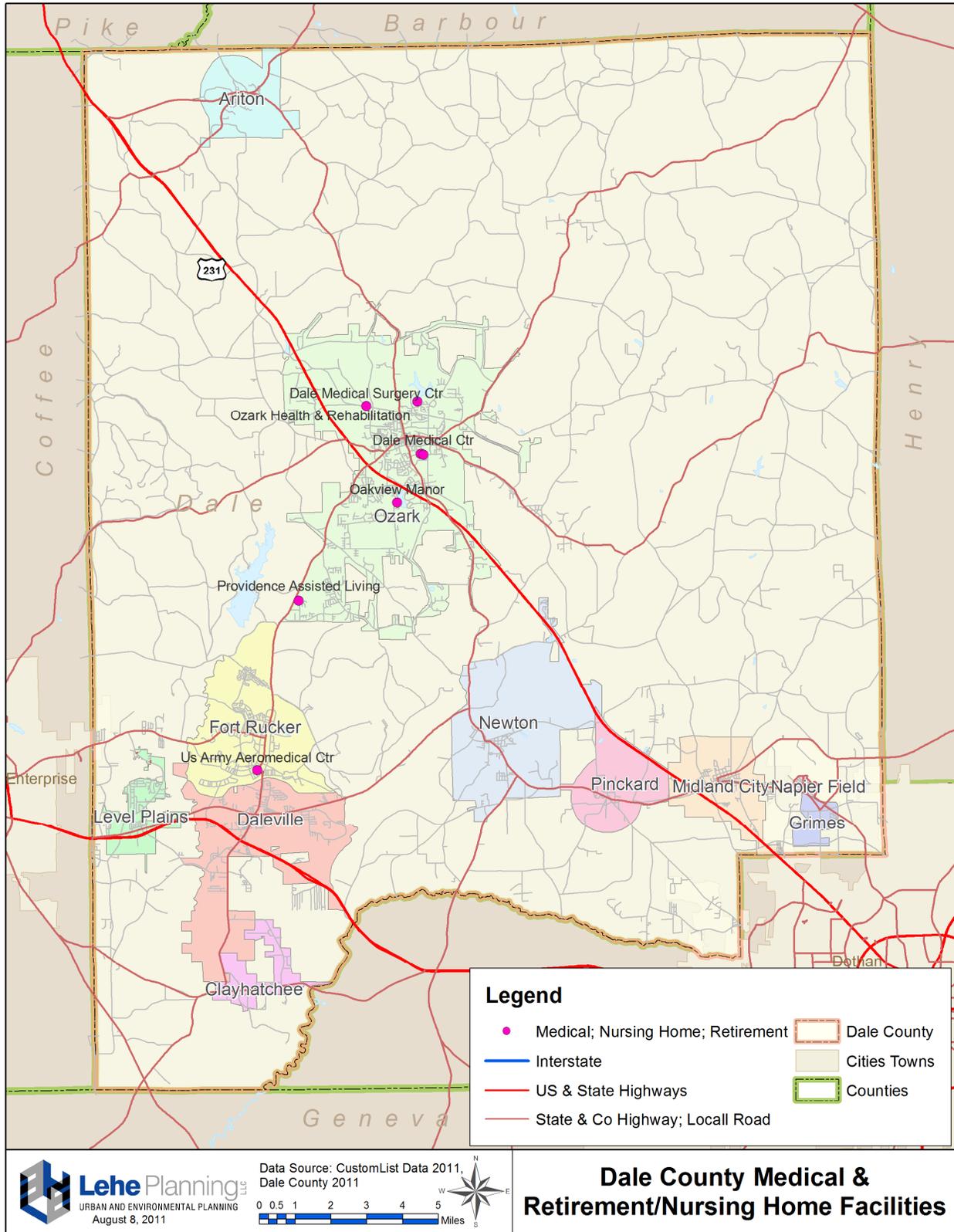


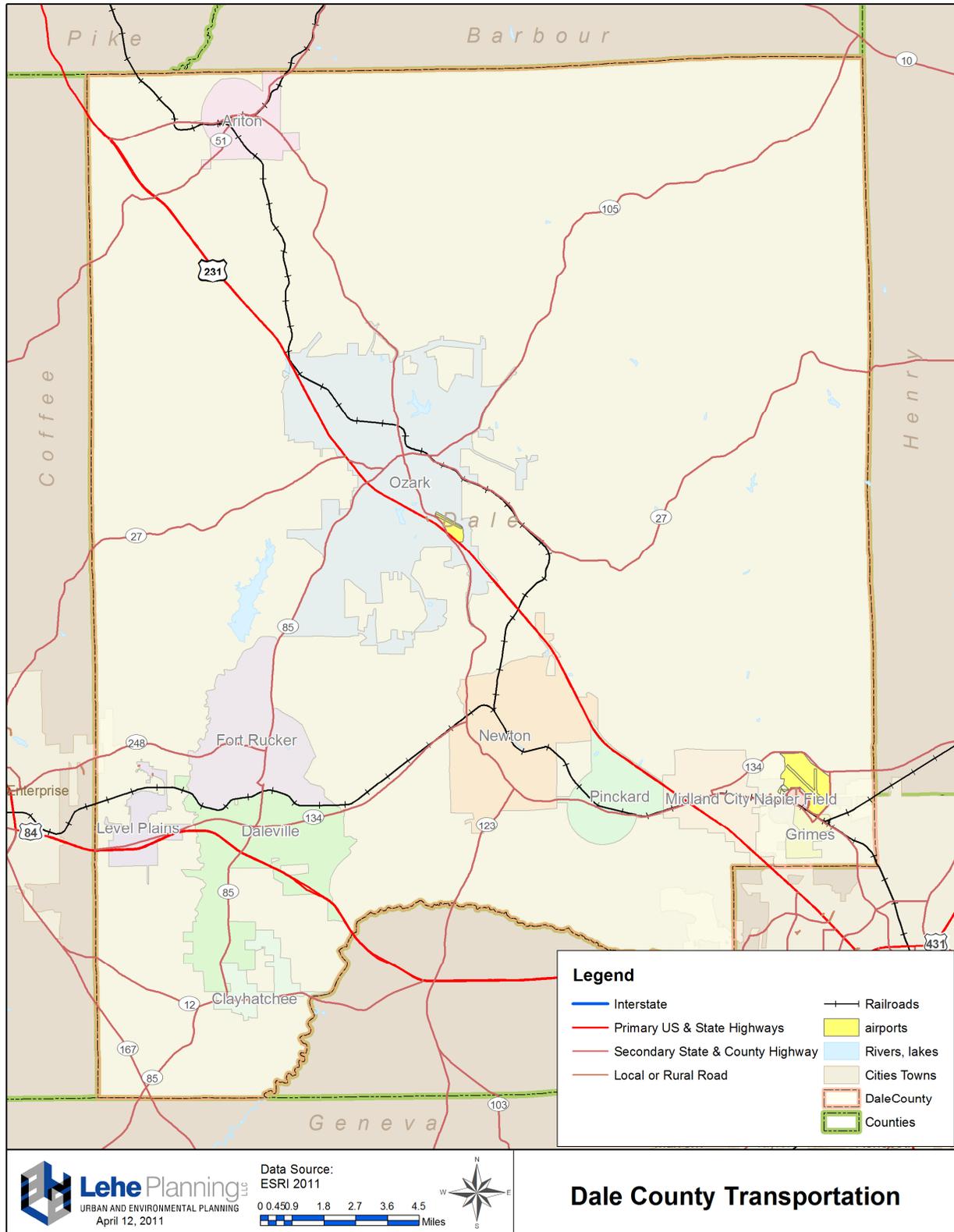
Table 5-31. Dale County Hospital and Elderly Care Facilities

Type	Name	Address	City	Zip
Hospitals	Community Hospice	415 James St	Ozark	36360
Hospitals	Dale Medical Ctr	126 Hospital Ave	Ozark	36360
Hospitals	Us Army Aeromedical Ctr	2049 Andrews Ave	Fort Rucker	36362
Nursing & Convalescent Homes	Oakview Manor	299 Mixon School Rd	Ozark	36360
Nursing & Convalescent Homes	Ozark Health & Rehabilitation	312 Bryan Dr	Ozark	36360
Residential Care Homes	Providence Assisted Living	171 Grimes Rd	Ozark	36360

Map 5-24. Hospitals and Elderly Care Facilities



Map 5-25. Transportation Infrastructure



Map 5-26. Communication Facilities

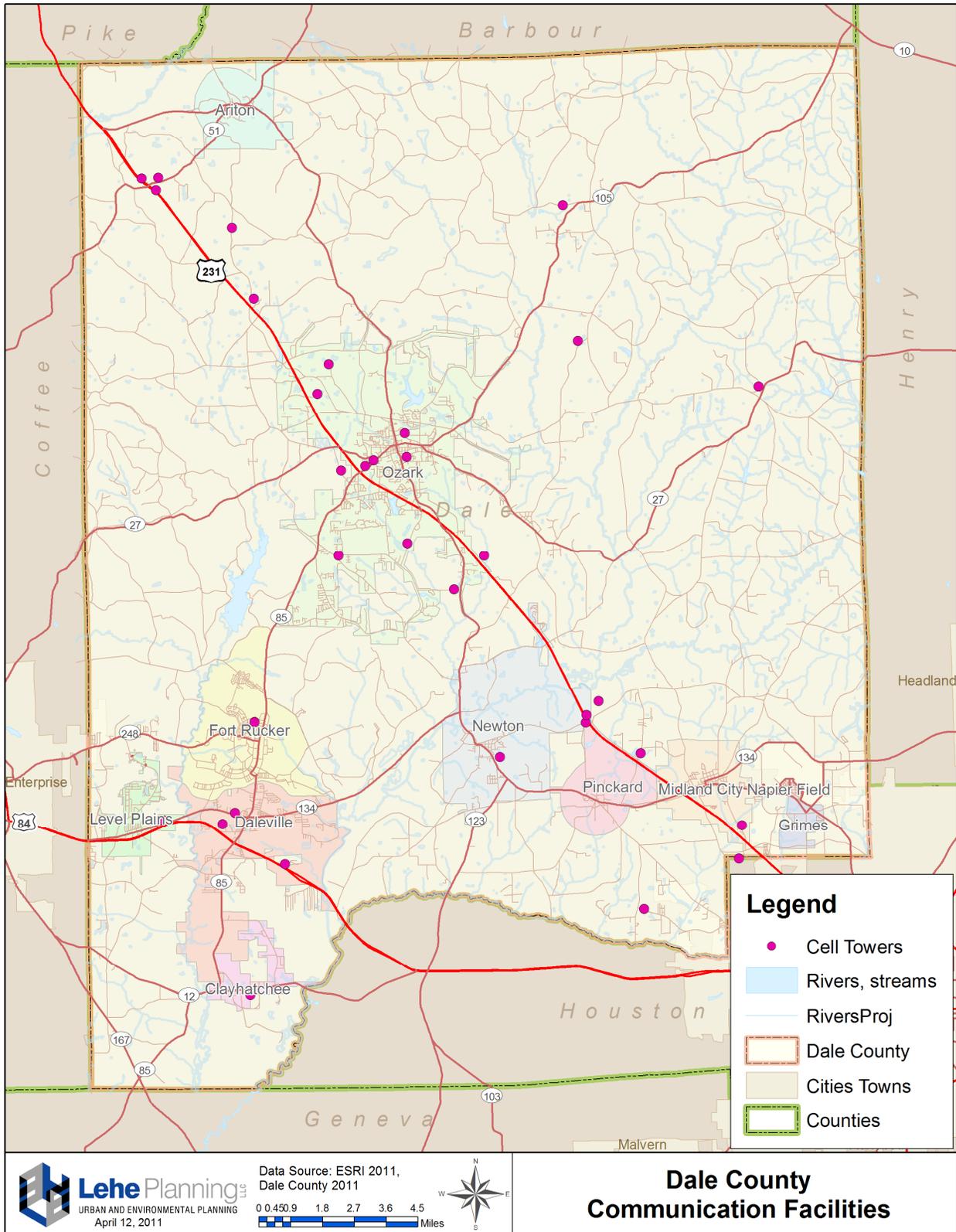


Table 5-32. Dams

Name	Purpose	Year Completed	Hazard Class
Jerry Mcdaniel Lake Dam	Recreation	1970	low
D A Delonvy	Recreation	1968	low
James Crooks Lake Dam	Recreation	0	significant
Malchom Ammons	Recreation	1973	low
Otis Barfield	Recreation	1960	low
Roy Parker Lake Dam	Recreation	1955	high
Dale County Public Lake	Recreation	1956	high
W G Barnes	Recreation	1970	low
Carver Johnson Lake Dam	Recreation	1965	low
Marvin Parker Lake Dam No 1	Recreation	1969	low
D A Deloney Lake Dam No 2	Recreation	1969	low
Marvin Parker Lake Dam No 2	Recreation	1970	low
W C Brown	Fish & wildlife pond	1979	low
Jack Snell	Irrigation; Fish & wildlife	1978	low
Ronald Grantham	Recreation; Fish & wildlife	1984	low
Milton Adams	Recreation; Fish & wildlife	1984	low
Bill Deloney	Irrigation; Stock pond; other	1984	low
Lake Tholocco	Recreation	1935	significant

Map 5-27. Dams

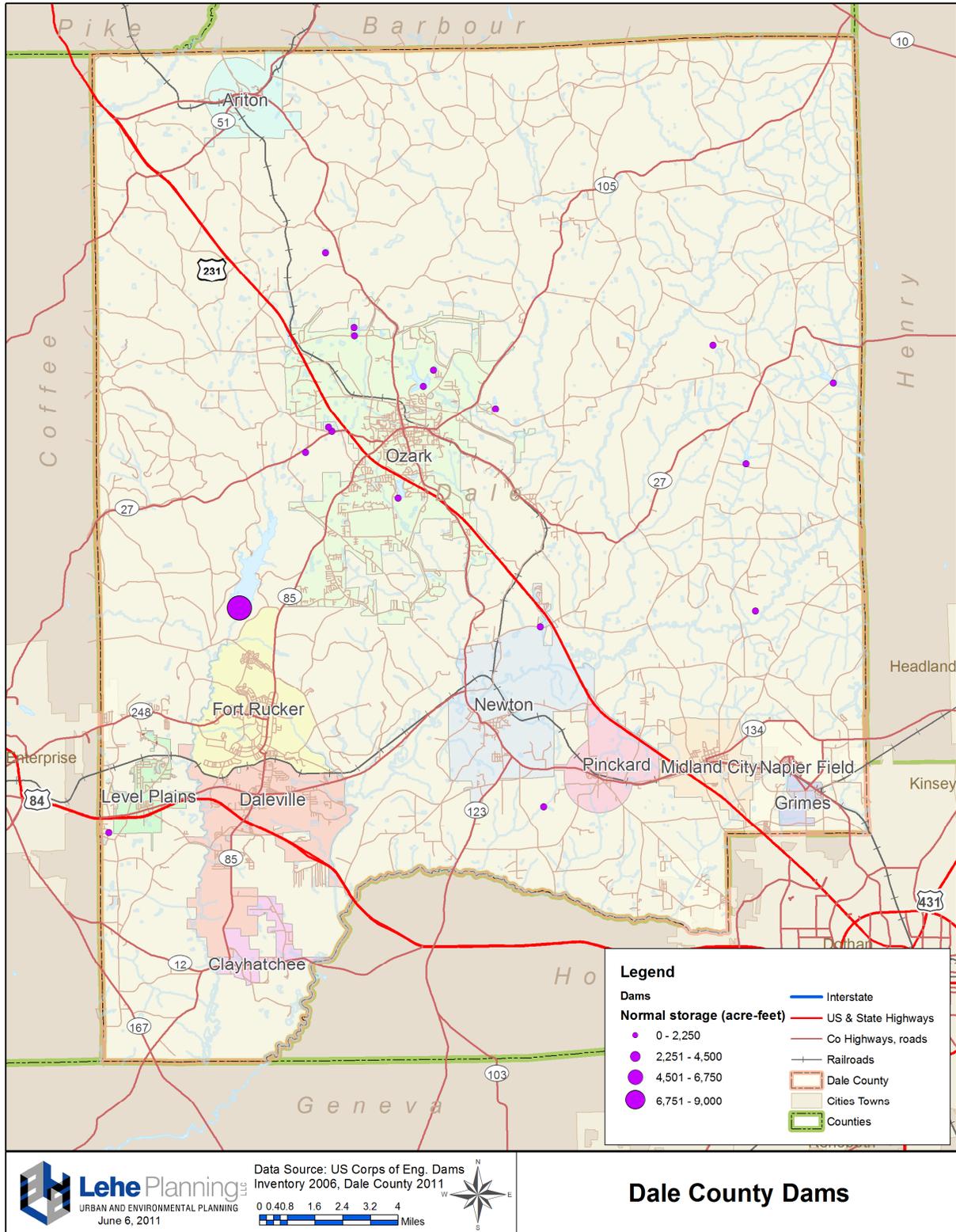
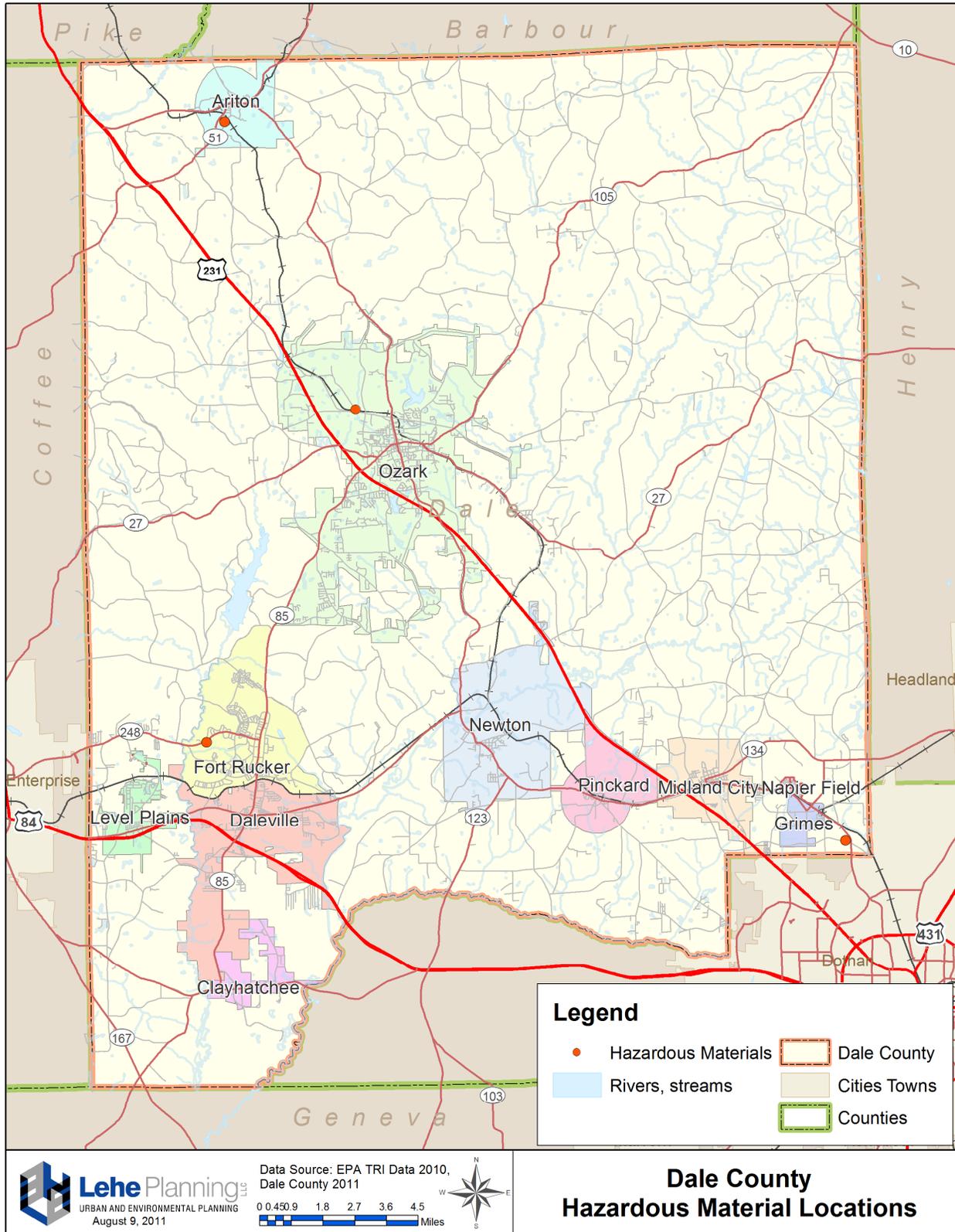


Table 5-33. Hazardous Materials

Manufacturing Type	Name	Address	City	Zip
325 Chemicals	Arichem LLC	187 Sloss Industries Rd	Ariton	36311
325 Chemicals	Arichem LLC	187 Sloss Industries Rd	Ariton	36311
326 Plastics and Rubber	Michelin Na Inc.	3792 Mance Newton Rd	Dothan	36302
NA	U.S. Army Aviation Center & Fort Rucker	Bldg. 1121 Dilly Branch Rd	Fort Rucker	36362
325 Chemicals	Arichem LLC	187 Sloss Industries Rd	Ariton	36311
NA	U.S. Army Aviation Center & Fort Rucker	Bldg. 1121 Dilly Branch Rd	Fort Rucker	36362
325 Chemicals	Arichem LLC	187 Sloss Industries Rd	Ariton	36311
NA	U.S. Army Aviation Center & Fort Rucker	Bldg. 1121 Dilly Branch Rd	Fort Rucker	36362
325 Chemicals	Arichem LLC	187 Sloss Industries Rd	Ariton	36311
326 Plastics and Rubber	Michelin Na Inc.	3792 Mance Newton Rd	Dothan	36302
325 Chemicals	Arichem LLC	187 Sloss Industries Rd	Ariton	36311
326 Plastics and Rubber	Michelin Na Inc.	3792 Mance Newton Rd	Dothan	36302

Map 5-28. Hazardous Material Locations



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 2004 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 5.6 “Hazard Profiles” and Appendix E “Hazard Profile Data.”
3. National Weather Service Alabama Tornado database.
4. Alabama State Hazard Mitigation Plan, 2007 update, section 5.5 “Vulnerability Assessment and Loss Estimation.”

Jurisdictional Estimates

To derive jurisdictional estimates, the planning team used existing (2010) and future (2035) population estimates to distribute losses among Dale County’s eleven jurisdictions. Population distribution appears in Table 5-34 below. (See Section 5.5.2 “Inventory Methodology”). The damage estimates in this section, however, only apply to existing conditions.

Table 5-34. Population Distribution by Jurisdiction

Jurisdiction	2010	% of 2010	Projected 2035	% of 2035 Projection
Ariton	764	1.5%	791	1.4%
Clayhatchee	589	1.2%	924	1.7%
Daleville	5,295	10.5%	5,526	9.9%
Grimes	558	1.1%	745	1.3%
Level Plains	2,085	4.1%	3,219	5.8%
Midland City	2,344	4.7%	3,218	5.8%
Napier Field	354	0.7%	254	0.5%
Newton	1,511	3.0%	1,429	2.6%
Ozark	14,907	29.7%	17,638	31.5%
Pinckard	647	1.3%	685	1.2%
Unincorporated*	21,197	42.2%	21,493	38.4%
Dale County	50,251	100.0%	55,922	100.0%

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 Dale County EMA and available for public review:

- HAZUS-MH Probabilistic 100-Year Hurricane Report, dated July 13, 2011
- HAZUS-MH 100-Year Flood Event Global Report, dated July 13, 2011
- HAZUS-MH 500-Year Flood Event Global Report, dated July 13, 2011
- HAZUS-MH 500-Year/6.5 Magnitude Earthquake Event Global Report, dated July 13, 2011

Flood Loss Estimates

The planning team used HAZUS-MH to assess 100-year and 500-year flood event scenarios. The following table itemizes the overall “Quick Assessment” results for the 100-year flood event:

Table 5-35. HAZUS-MH Flood Module Quick Assessment Results

Dale County 100 Year Flood Event	
Area (Square Miles)	561
Number of Residential Buildings	22,024
Number of All Buildings	23,260
Number of Persons in the Region	49,000
Residential Building Exposure (\$ millions)	\$2,186
Total Building Exposure (\$ millions)	\$2,727
Displaced Population (# of households)	390
Short Term Shelter Requirements (# of people)	488
Residential Property (Capital Stock) Losses (\$ millions)	\$26.89
Total Property (Capital Stock) Losses (\$ millions)	\$35.49
Business Interruptions (Income) Losses (\$ millions)	\$0.19
Total Economic Losses (\$ millions)	\$62.57

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 2010 county population.

Table 5-36. Total Economic Losses by Jurisdiction

Jurisdiction	Share of Losses	Total Economic Losses (\$ millions)
Ariton	1.5%	\$0.94
Clayhatchee	1.2%	\$0.75
Daleville	10.5%	\$6.57
Grimes	1.1%	\$0.69
Level Plains	4.1%	\$2.57
Midland City	4.7%	\$2.94
Napier Field	0.7%	\$0.44
Newton	3.0%	\$1.88
Ozark	29.7%	\$18.58
Pinckard	1.3%	\$0.81
Unincorporated*	42.2%	\$26.40
Dale County	100.0%	\$62.57

Building-Related Damages. HAZUS estimates that a 100-year flood event would moderately damage 73 buildings — over 14 percent of the total number of buildings at risk of flooding in Dale County. The event would destroy 27 buildings. The following tables show the detailed results, and GIS maps illustrate the HAZUS-generated damages due to flooding.

Table 5-37. Expected Building Damage by Occupancy

Occupancy	1-10		11-20		21-30		31-40		41-50		Substantially	
	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	0	0.00	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	0	0.00	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	1	1.37	14	19.18	6	8.22	25	34.25	27	36.99
Total	0		1		14		6		25		27	

Table 5-38. 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	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
ManuffHousing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	16	100.00
Masonry	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00
Steel	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	0	0.00	1	1.79	14	25.00	6	10.71	24	42.86	11	19.64

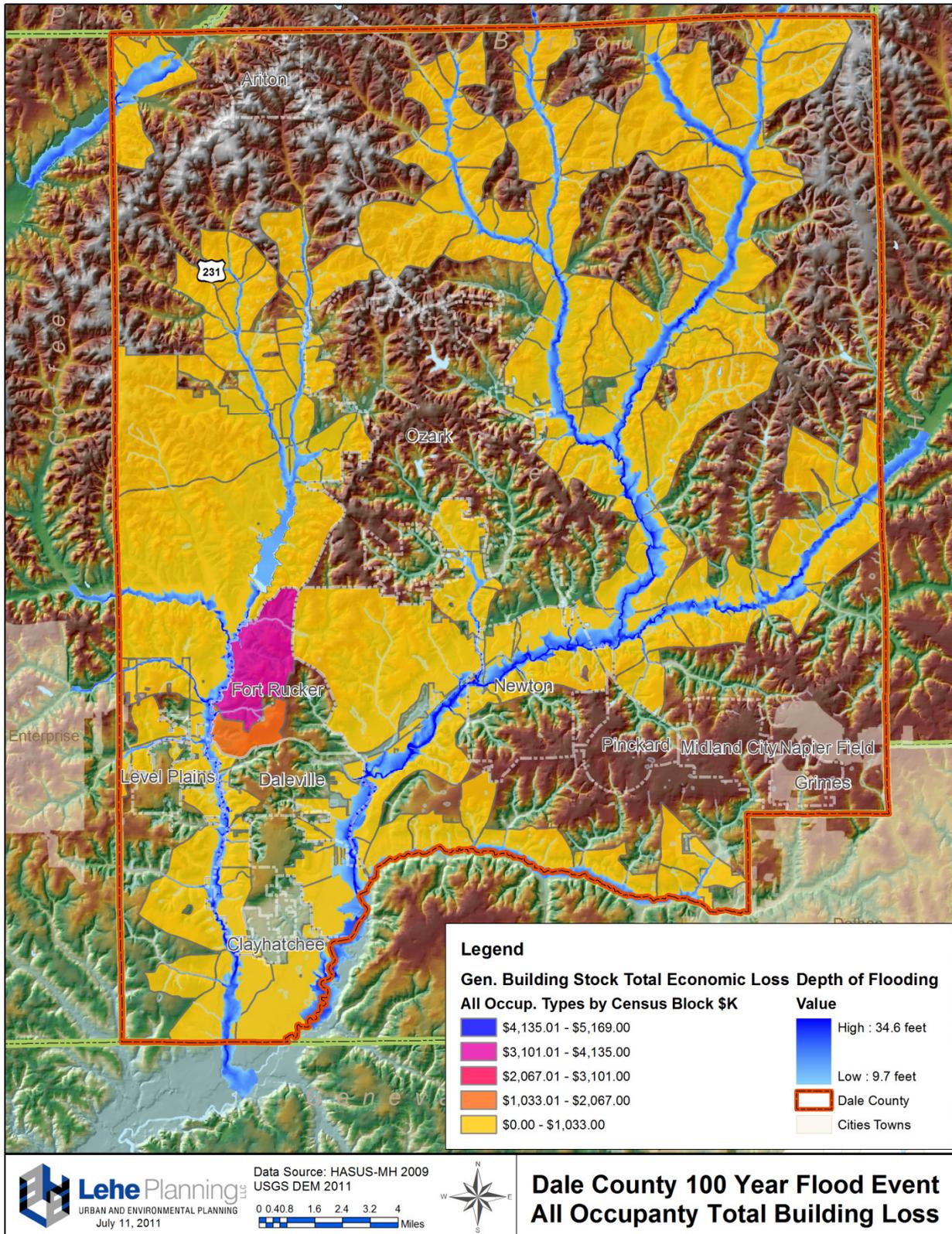
Essential Facilities Damages. HAZUS predicts that a 100-year flood event would moderately damage one school among an estimated 25 essential facilities (police stations, fire stations, hospitals, and schools) in Dale County.

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 \$35.49 million, with 1% related to business interruption. Residential occupancies account for 75% of the total loss.

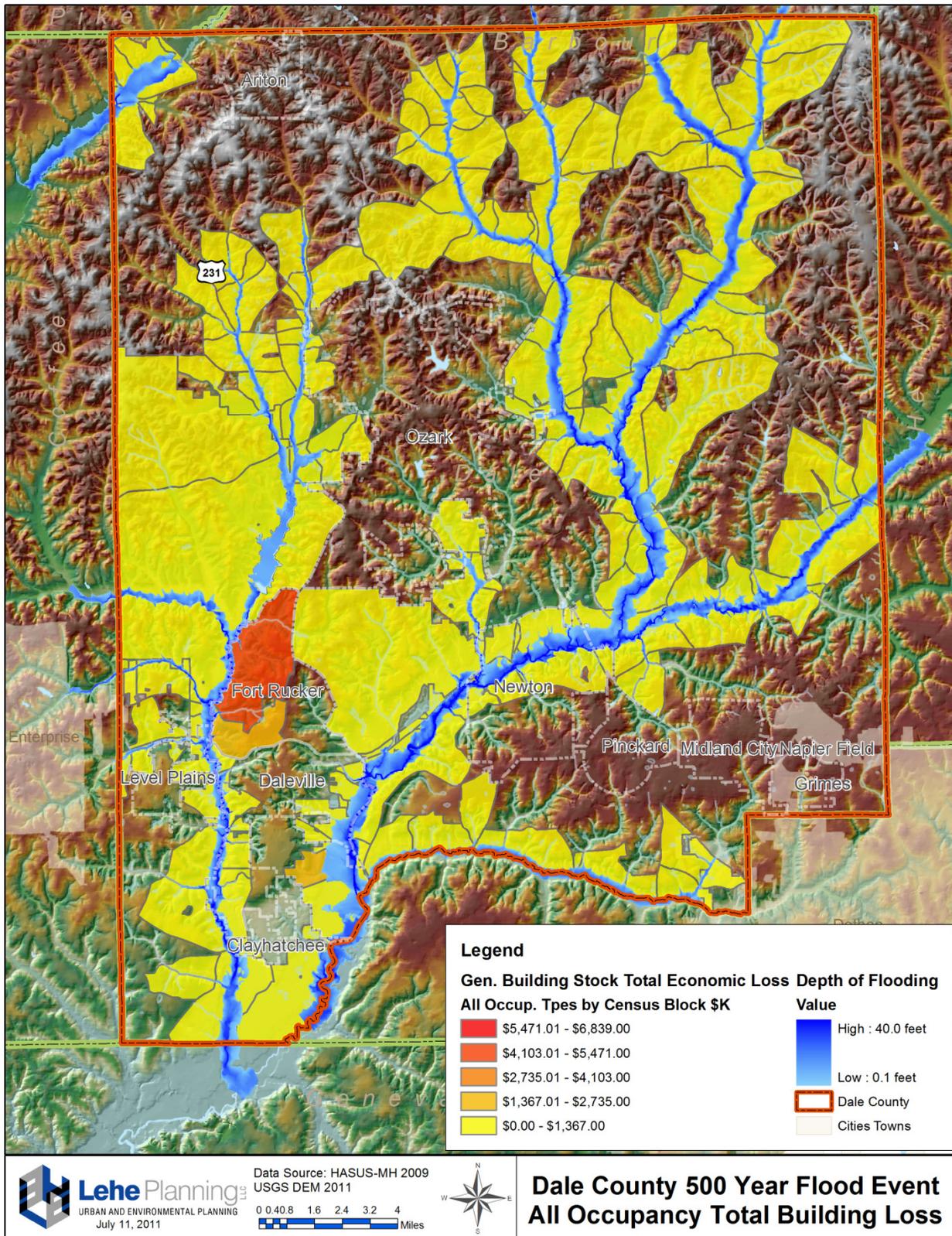
Table 5-39. Building Related Economic Loss Estimates (\$ millions)

Category	Area	Residential	Commercial	Industrial	Others	Total
<u>Building Loss</u>						
	Building	16.91	1.51	0.31	0.63	19.36
	Content	9.98	3.04	0.48	2.28	15.78
	Inventory	0.00	0.20	0.12	0.03	0.35
	Subtotal	26.89	4.75	0.91	2.94	35.49
<u>Business Interruption</u>						
	Income	0.00	0.01	0.00	0.00	0.02
	Relocation	0.02	0.00	0.00	0.00	0.03
	Rental Income	0.00	0.00	0.00	0.00	0.01
	Wage	0.00	0.01	0.00	0.13	0.15
	Subtotal	0.03	0.03	0.00	0.14	0.19
<u>ALL</u>	Total	26.92	4.78	0.91	3.08	35.69

Map 5-29. HAZUS-MH Flood Loss Estimate, 100 Year Event



Map 5-30. HAZUS-MH Flood Loss Estimate, 500 Year Event



Hurricane Loss Estimates

The planning team used HAZUS-MH to assess a 100-year hurricane event scenario. HAZUS only assesses the hurricane wind effects of each event. The following tables show the loss estimates generated by HAZUS-MH, followed by map 5-31, which show the geographic distribution of economic losses, and map 5-32, which shows the peak wind gusts.

The predicted damages would be compounded by flooding since the HAZUS model only assesses wind effects. Community impacts from hurricane winds can best be compared by a careful review of the HAZUS-generated map (map 5-31), which show the locations of estimated economic losses in relation to each municipality.

Table 5-40. HAZUS-MH Hurricane Scenarios

<i>Occupancy</i>	<i>Building Count</i>	<i>Dollar Exposure (\$ K)</i>
Residential	22,024	2,185,769
Commercial	799	312,700
Other	437	228,622
Total	23,260	2,727,091

Number of Residential Buildings Damaged

<i>Return Period</i>	<i>Minor</i>	<i>Moderate</i>	<i>Severe</i>	<i>Destruction</i>	<i>Total</i>
10	6	0	0	0	6
20	61	2	0	0	64
50	734	45	1	0	781
100	2,133	217	5	4	2,359
200	4,143	794	49	38	5,024
500	6,682	2,360	342	215	9,600
1000	7,800	3,825	784	502	12,912

Number of Buildings Damaged

<i>Return Period</i>	<i>Minor</i>	<i>Moderate</i>	<i>Severe</i>	<i>Destruction</i>	<i>Total</i>
10	9	0	0	0	10
20	69	2	0	0	72
50	770	50	1	0	821
100	2,227	238	8	5	2,478
200	4,324	868	62	39	5,294
500	6,972	2,562	406	218	10,158
1000	8,115	4,116	915	508	13,654

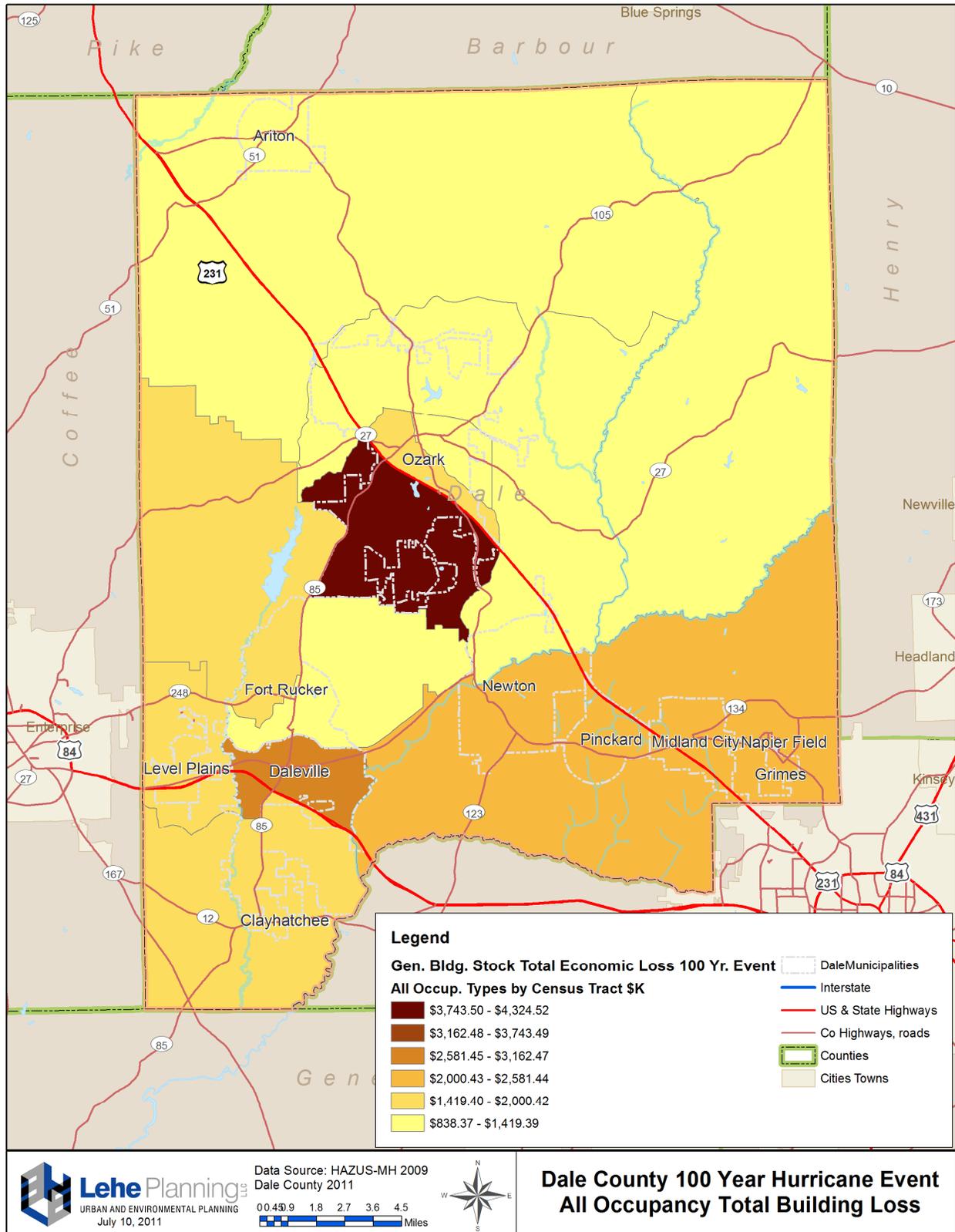
Shelter Requirements

<i>Return Period</i>	<i>Displaced Households (#Households)</i>	<i>Short Term Shelter (#People)</i>
10	0	0
20	0	0
50	4	1
100	27	7
200	102	29
500	436	123
1000	937	262

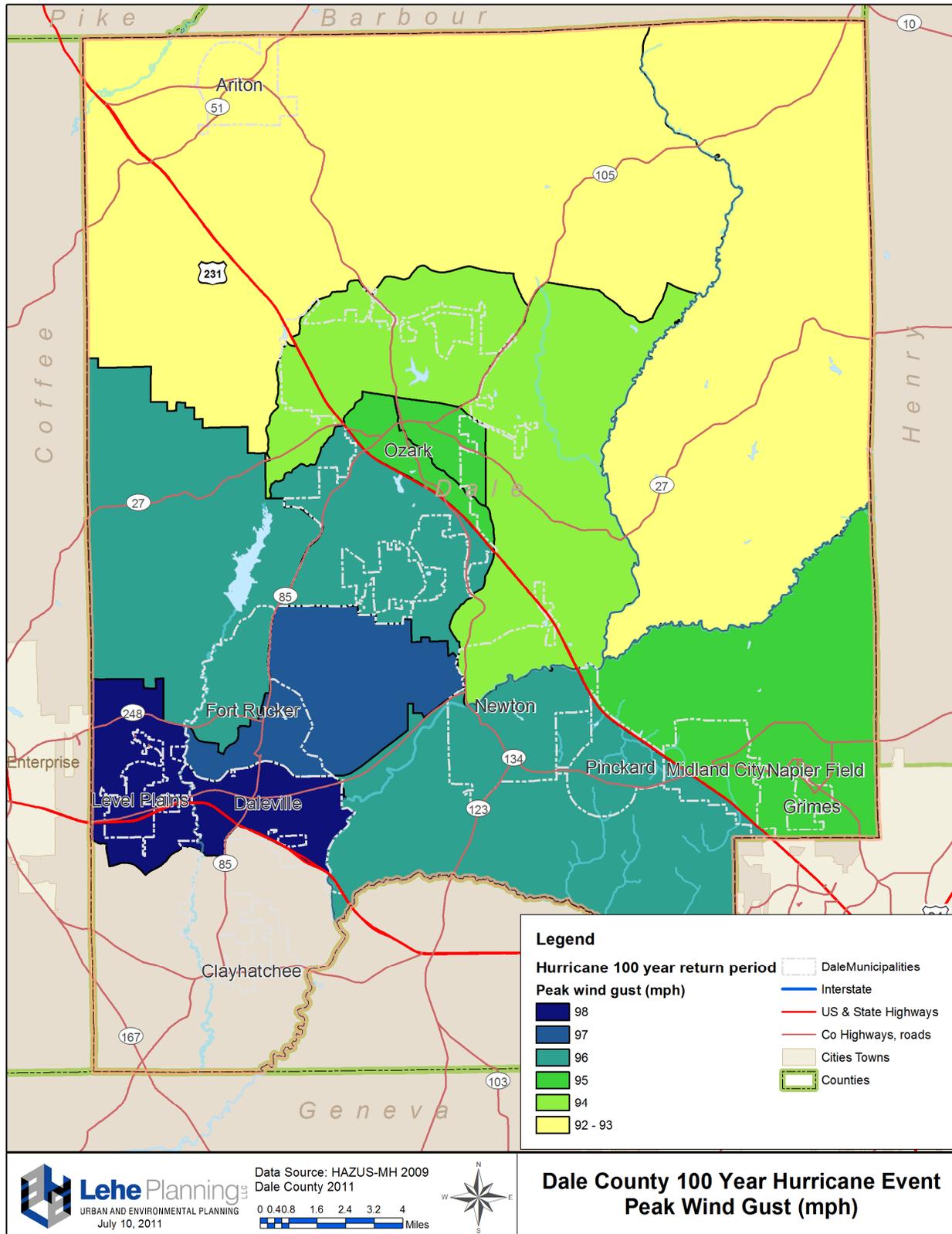
Economic Loss (x 1000)

<i>ReturnPeriod</i>	<i>Property Damage (Capital Stock) Losses</i>		<i>Business Interruption (Income) Losses</i>
	<i>Residential</i>	<i>Total</i>	
10	215	217	0
20	2,026	2,119	55
50	9,346	9,960	1,014
100	20,190	22,246	2,834
200	43,878	51,231	9,491
500	132,334	157,607	34,687
1000	231,495	282,116	62,363
Annualized	1,397	1,634	292

Map 5-31. HAZUS-MH Hurricane Loss Estimate, 100 Year Event



Map 5-32. HAZUS-MH Hurricane Peak Wind Gust, 100 Year Event



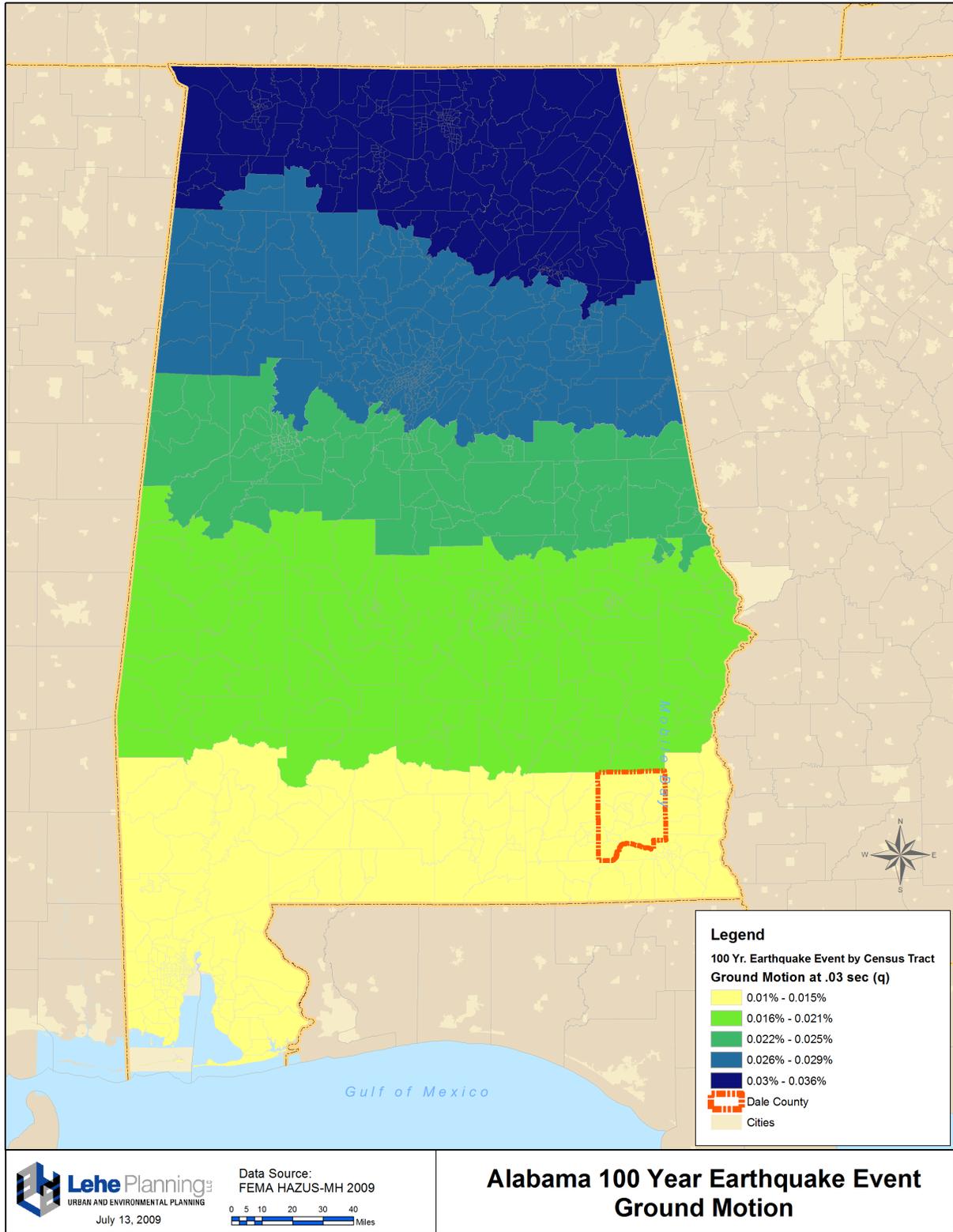
Earthquake Loss Estimates

The planning team used HAZUS-MH to estimate the losses of a 100-year earthquake event. Results indicate only minimal damage: slightly over 1% of all buildings (estimated 124 buildings) would be moderately damaged. HAZUS-MH predicts no damage to essential facilities—such as hospitals, schools, EOCs, Police and Fire Stations—although 8 percent of hospital beds would be unavailable immediately after the event, with all but 3 percent in service one week later and 100 percent of beds operational after 30 days.

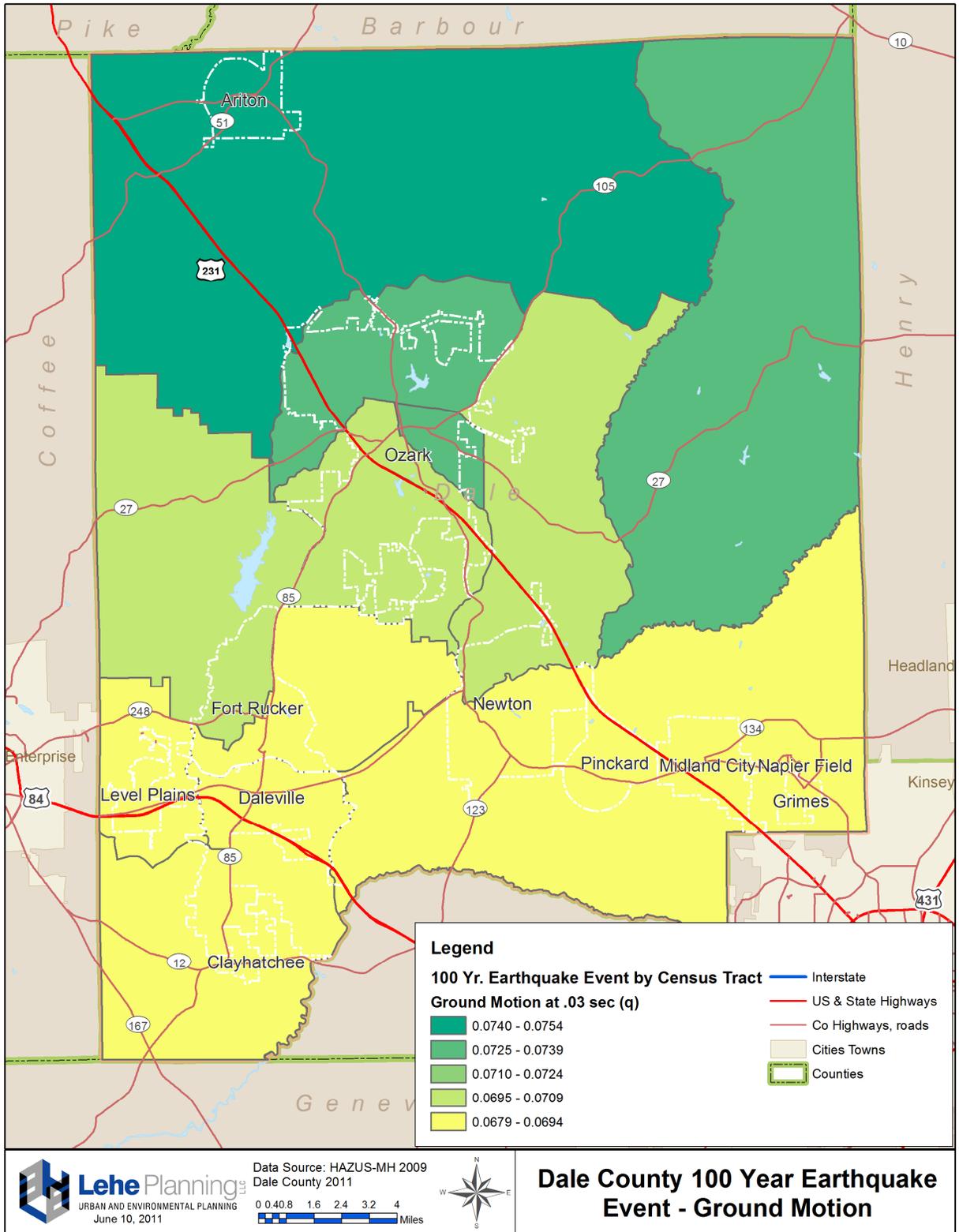
Additionally, the event report predicts that all components of the transportation system will maintain at least 50 percent functionality, because no component will suffer damage. Likewise, HAZUS predicts no disabling damage to the utility infrastructure but rather only a handful of leaks and breaks in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

No casualties are expected, and total building-related economic losses (structural, contents, inventory, income and wages, etc.) are estimated at \$2.97 million countywide, 37% of which can be attributed to business interruption losses.. Likewise, estimated damage to transportation, utilities and communications systems is minimal.

Map 5-33. Alabama 100-Year Earthquake Event



Map 5-34. 100-Year Earthquake Ground Motion



5.6.4 Loss Estimates Based on Historical Records

Severe Storms Loss Estimates

As reported in the severe storms hazard profile in Section 5.4.3, National Climatic Data Center (NCDC) records show frequent annual severe storm occurrences since 1958. The database shows nearly 166 severe storm events for Dale County—roughly three per year. The database also shows \$1.6 million in damages since 1958.

Tornado Loss Estimates

According to the NOAA National Climatic Data Center and National Weather Service (NWS) records (see Section 5.4.4 “Tornadoes Profile”), Dale County has been the site of 34 tornadoes since 1954, averaging over 0.6 annually. These tornadoes caused 161 injuries and property damages of nearly \$44 million.

Flood Loss Estimates

The National Climatic Data Center (NCDC) Storm Events Database shows infrequent flooding since 1995. There have been five floods reported for Dale County—0.4 per year—for the 1995-2010 period. It is infeasible to estimate the average annual damages, as nearly all damages are attributable to the March 8, 1998 flooding of the Chotawhatchee River, which destroyed more than 300 homes in Dale County.

Loss Estimates for Remaining Hazards

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

5.6.5 Recommended Risk Assessment Measures

The Mitigation Strategy of this Plan 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 Dale County has trailed the growth rate for the State of Alabama over the past twenty years. Between 1990 and 2000, Dale County’s population declined slightly, falling by 1.0 percent, while Alabama’s population grew by 10.1 percent. In the following decade, Dale County’s population rose 2.3 percent, while Alabama’s population gained 7.5%. Table 5-41 depicts population growth trends from 1990 to 2010.

Table 5-41. Dale County Historic Growth Trends

Jurisdiction	1990	2000	Number Change	Percent Change	2010	Number Change	Percent Change
Alabama	4,040,389	4,447,100	406,711	10.1%	4,779,736	332,636	7.5%
Dale County	49,633	49,129	-504	-1.0%	50,251	1,122	2.3%
Ariton	743	772	29	3.9%	764	-8	-1.0%
Clayhatchee	411	501	90	21.9%	589	88	17.6%
Daleville	5,117	4,648	-469	-9.2%	5,295	647	13.9%
Grimes	443	459	16	3.6%	558	99	21.6%
Level Plains	1,473	1,544	71	4.8%	2,085	541	35.0%
Midland City	1,819	1,703	-116	-6.4%	2,344	641	37.6%
Napier Field	462	404	-58	-12.6%	354	-50	-12.4%
Newton	1,580	1,708	128	8.1%	1,511	-197	-11.5%
Ozark	13,030	15,119	2,089	16.0%	14,907	-212	-1.4%
Pinckard	618	667	49	7.9%	647	-20	-3.0%

Source: US Census 2010

Distribution of Growth within Dale County

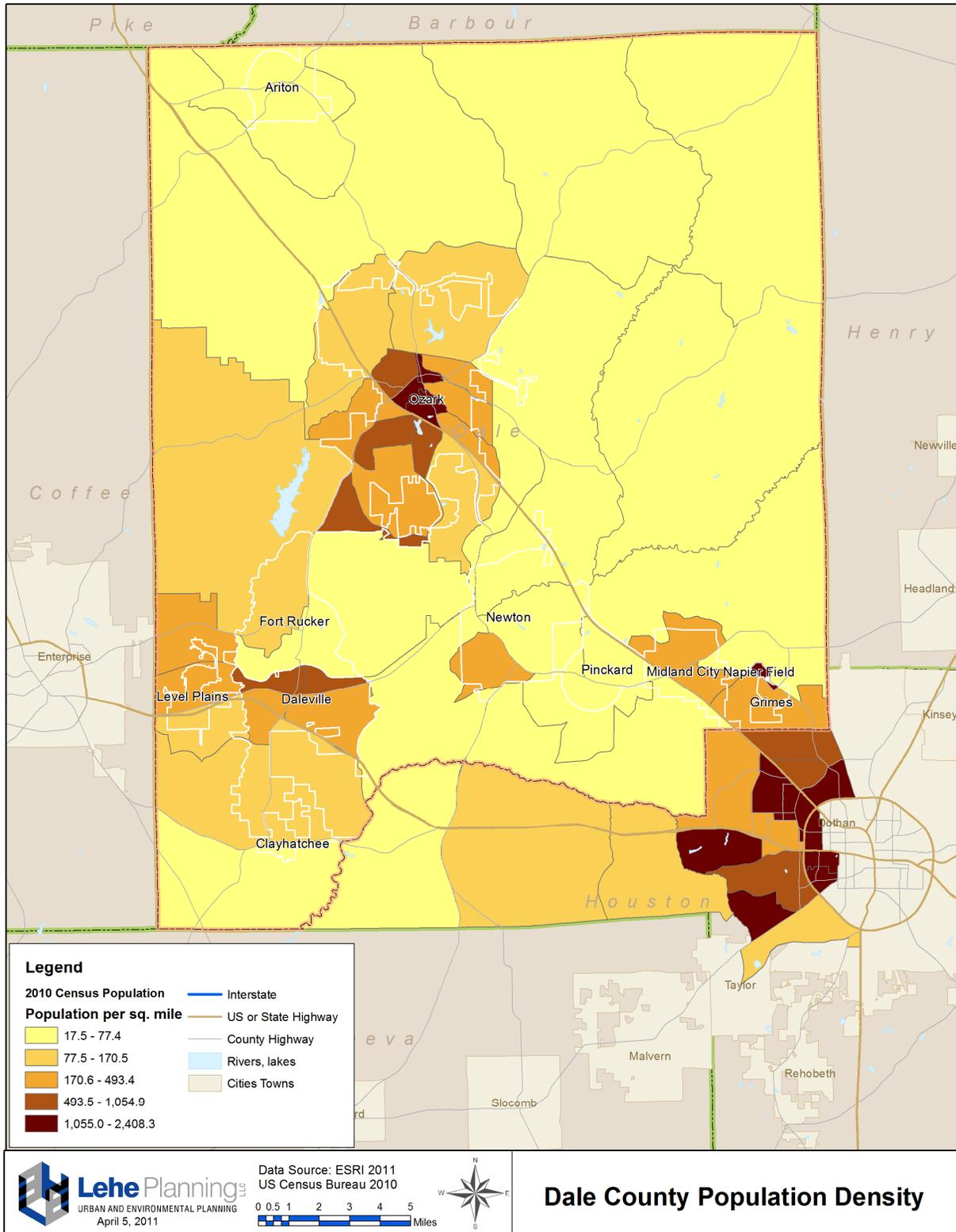
With a 2010 population of 14,907, the City of Ozark is the largest city in Dale County, and two fifths of Dale County's population resides within its borders. Between 1990 and 2000, Ozark grew by 16 percent, but over the past decade its population fell slightly. The population of unincorporated areas of Dale County rose by just 407 residents over the last decade.

Southeastern Dale County, part of the Dothan area, is home to the densest population concentration and was also the site of the fastest growth over the past decade. Midland City grew more quickly than any other municipality in both relative and absolute terms, as its population rose by 641 residents or 37.6%. The City of Dothan posted 13% 10-year growth, although most of this growth took place outside of Dale County.

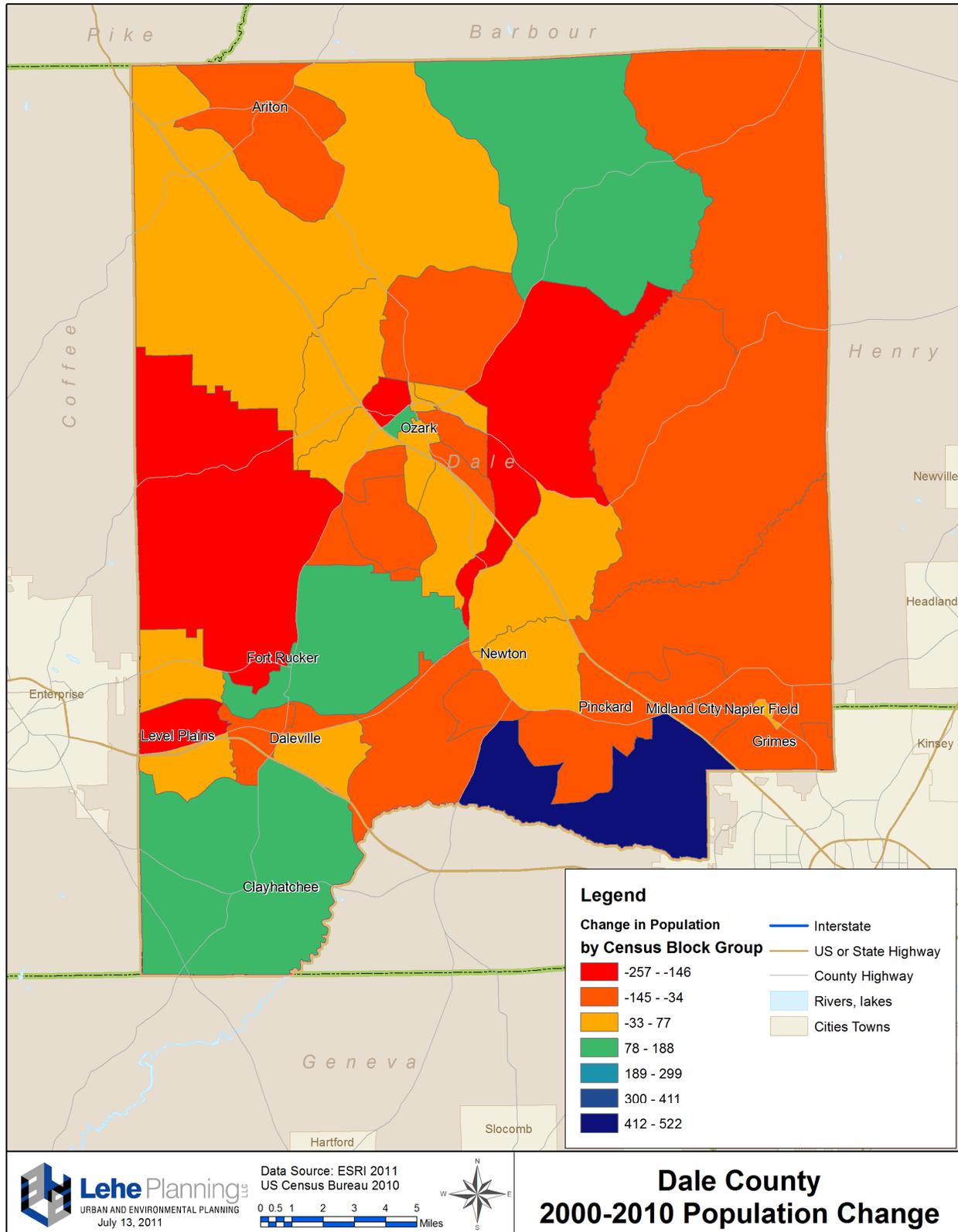
The growing population of southeastern Dale County matters for risk exposure, because the land cover in this quarter is relatively less dominated by forest and therefore less prone to high-intensity forest fires.

Map 5-35 shows population density (persons per square mile) for Dale County in 2010, by census tract. Map 5-36 shows population change by census block group.

Map 5-35. Population Density in Dale County



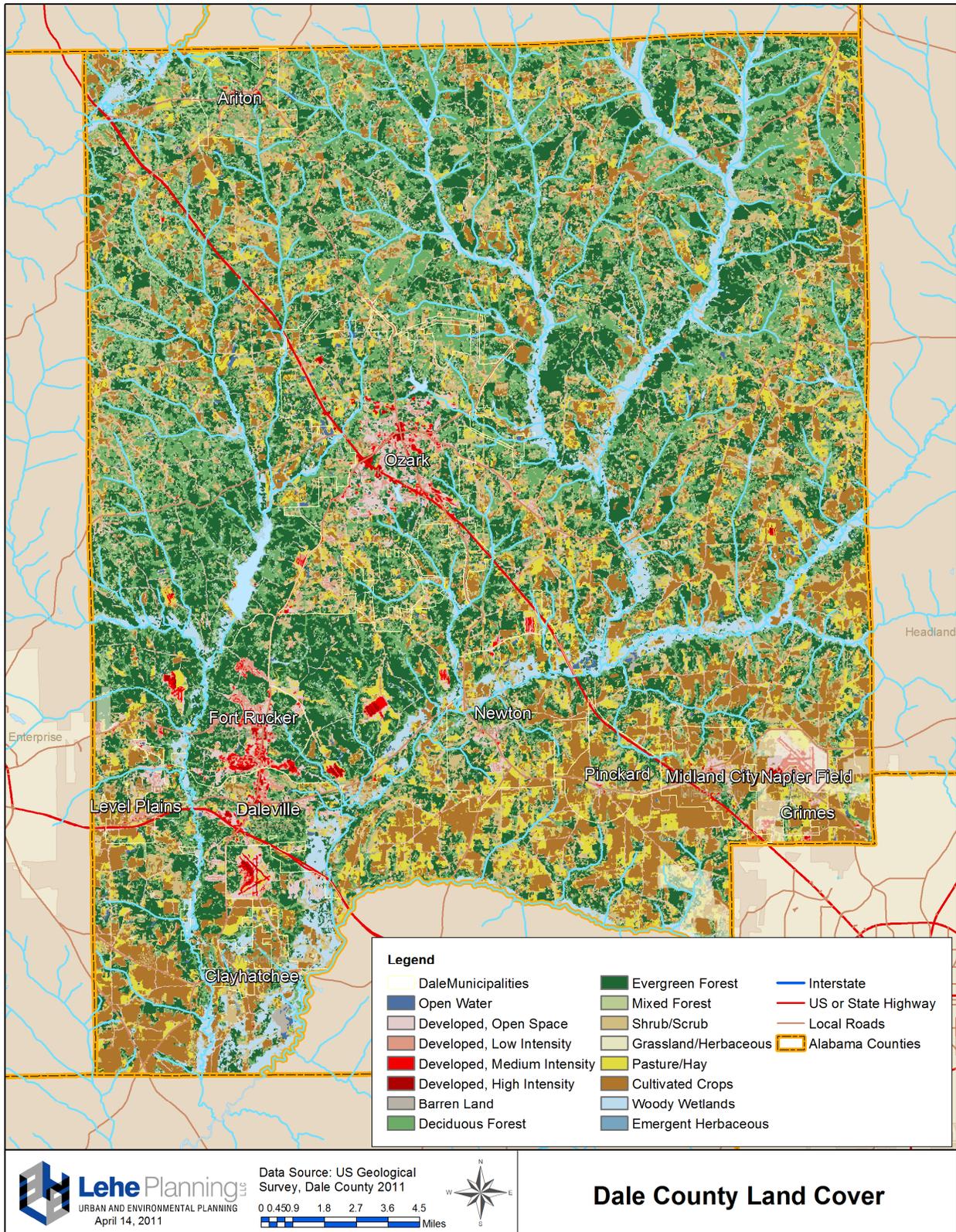
Map 5-36. Population Change 2000-2010



Land Use

Dale County is covered primarily by pine forest in the northern two thirds of the county and cultivated agricultural land in the southern third. The military installation at the center of Fort Rucker is the most intensely developed area of the county. Ozark and Daleville, on the borders of Fort Rucker, also form swaths of residential and commercial development. In the southeastern corner of Dale County, the areas of Dothan located within the county and the unincorporated areas that surround them represent the widest stretch of urban and suburban development in Dale County. Map 5-37 displays land cover in Dale County.

Map 5-37. Land Cover in Dale County



5.7.3 Future Trends

Table 5-42 presents projected growth in Dale County between 2010 and 2035 according to projections compiled by the Center for Business and Economic Research at the University of Alabama. Dale County’s population growth is expected to remain lower-than-average for Alabama counties: the CBER projects 10.7 percent growth for Dale County and 19.0 percent growth for the State of Alabama.

Table 5-42. Population 2000-2010 and Projections 2015-2035

Population Estimate/Projection							Change 2010-2035	
	2000 ^a	2005 ^a	2010 ^a	2015 ^b	2025 ^b	2035 ^b	Number	Percent
Alabama	4,447,100	4,537,299	4,779,736	4,974,386	5,362,974	5,689,407	9,909,671	19.0%
Dale	49,129	48,235	50,251	50,119	53,158	55,922	5,401	10.7%

^aUS Census Bureau. 2010 Census ^bCenter for Business and Economic Research, U. of Alabama

These projections are based on statistical inferences from historical data. Faster-than-expected economic development could induce swifter population growth. Dale County’s future development trends depend to a large extent on the future of Fort Rucker. An expansion or closure of Fort Rucker could have significant consequences for Dale County’s population and land use patterns, particularly for Daleville and Ozark.

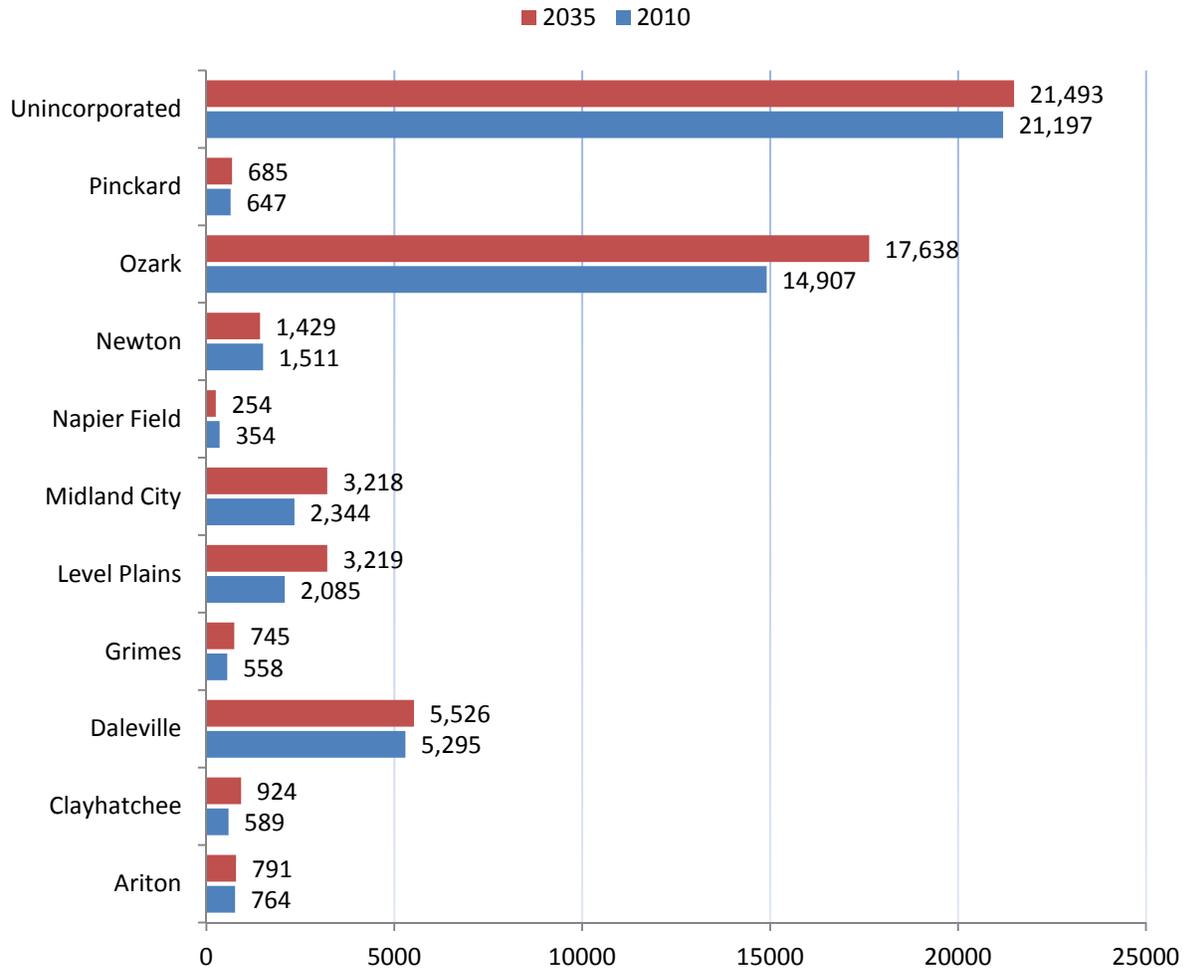
The Center of Business and Economic Research projects Houston County, Alabama—site of most of the City of Dothan—will grow more quickly than Dale County. Relatively faster growth for Houston County can be expected to accelerate population gains in southeastern Dale County communities where some residents commute to the Dothan area.

Table 5-43. Population Projections by Jurisdiction

	2010	Projected 2035	Projected Change 2010-2035	Percent Increase 2010-2035	% of Total 2035
Ariton	764	791	+27	+3.5%	1.4%
Clayhatchee	589	924	+335	+56.8%	1.7%
Daleville	5,295	5,526	+231	+4.4%	9.9%
Grimes	558	745	+187	+33.4%	1.3%
Level Plains	2,085	3,219	+1,134	+54.4%	5.8%
Midland City	2,344	3,218	+874	+37.3%	5.8%
Napier Field	354	254	-100	-28.3%	0.5%
Newton	1,511	1,429	-82	-5.4%	2.6%
Ozark	14,907	17,638	+2,731	+18.3%	31.5%
Pinckard	647	685	+38	+5.9%	1.2%
Unincorporated	21,197	21,493	+296	+1.4%	38.4%
Dale County	50,251	55,922	+5,671	+11.3%	100.0%

Source: Derived from Alabama State Data Center 2035 Dale County Projection and the 2010 Census

Chart 5-3 Projected Population Changes



5.8 Repetitively-Damaged NFIP-Insured Structures

FEMA defines *repetitive loss* properties as properties with two or more \$1,000 losses paid for by the National Flood Insurance Program (NFIP) within any 10-year period since 1978. FEMA identifies only four NFIP repetitive loss structures within Dale County and its jurisdictions as of December 2009 (the latest data supplied by the State NFIP Coordinator). Three are residential structures and one is a non-residential structure. Table 5-41 describes the number of policies in force and includes the number of repetitive loss properties by jurisdiction.

Table 5-44. NFIP Policies and Repetitive Loss Claims, as of 09/24/2009

Community Name	NFIP Policies in Force	Repetitive Loss Structures	Total RL Claims	Total RL Losses Paid	Average RL Paid
Ariton	0	1	2	\$2,858.00	\$0
Clayhatchee	1	0	0	0	\$210,000.00
Daleville	48	1	2	\$55,310.00	\$8,224,600.00
Grimes	0	0	0	\$0	\$0
Level Plains	7	0	0	\$0	\$1,435,000.00
Midland City	2	1	2	\$166,487.00	\$630,000.00
Napier Field	0	0	0	\$0	\$0
Newton	6	0	0	\$0	\$773,600.00
Ozark	28	1	4	\$87,806.00	\$5,635,500.00
Pinckard	3			\$0	\$420,000.00
Unincorporated	0	0	0	\$0	\$0
Total for Dale County	95	4	10	\$312,461.00	\$17,328,700.00

Source: NFIP State Coordinator 02/03/2010

5.9 Summary of Hazards and Community Impacts

Table 5-45 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 fewer than 1 percent of the structures in a community.

Table 5-45. Summary of Hazards and Community Impacts

Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location	Probability	Extent	Exposure	Damage Potential
Severe Storms	Ariton	Community-wide	Very High	Moderate	High	Low
	Clayhatchee	Community-wide	Very High	Moderate	High	Low
	Daleville	Community-wide	Very High	Moderate	High	Low
	Grimes	Community-wide	Very High	Moderate	High	Low
	Level Plains	Community-wide	Very High	Moderate	High	Low
	Midland City	Community-wide	Very High	Moderate	High	Low
	Napier Field	Community-wide	Very High	Moderate	High	Low
	Newton	Community-wide	Very High	Moderate	High	Low
	Ozark	Community-wide	Very High	Moderate	High	Low
	Pinckard	Community-wide	Very High	Moderate	High	Low
	Unincorporated	Community-wide	Very High	Moderate	High	Low
	Dale County	Community-wide	Very High	Moderate	High	Low
Tornadoes	Ariton	Community-wide	Moderate	Devastating	High	High
	Clayhatchee	Community-wide	Moderate	Devastating	High	High
	Daleville	Community-wide	Moderate	Devastating	High	High
	Grimes	Community-wide	Moderate	Devastating	High	High
	Level Plains	Community-wide	Moderate	Devastating	High	High
	Midland City	Community-wide	Moderate	Devastating	High	High
	Napier Field	Community-wide	Moderate	Devastating	High	High
	Newton	Community-wide	Moderate	Devastating	High	High
	Ozark	Community-wide	Moderate	Devastating	High	High
	Pinckard	Community-wide	Moderate	Devastating	High	High
	Unincorporated	Community-wide	Moderate	Devastating	High	High
	Dale County	Community-wide	Moderate	Devastating	High	High
Floods	Ariton	Partial	Low	Moderate	Low	Low
	Clayhatchee	Partial	Low	Moderate	Low	Low

Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location	Probability	Extent	Exposure	Damage Potential
	Daleville	Partial	Low	Moderate	Low	Medium
	Grimes	Minimal	Very Low	Slight	Low	Low
	Level Plains	Partial	Low	Moderate	Low	Low
	Midland City	Partial	Low	Moderate	Low	Low
	Napier Field	Minimal	Very Low	Slight	Low	Low
	Newton	Partial	Low	Moderate	Low	Low
	Ozark	Partial	Low	Moderate	Low	Low
	Pinckard	Partial	Low	Moderate	Low	Low
	Unincorporated	Partial	Low	Moderate	Low	Medium
	Dale County	Partial	Low	Moderate	Low	Medium
Drought/Heat Waves	Ariton	Community-wide	High	Moderate	High	Low
	Clayhatchee	Community-wide	High	Moderate	High	Low
	Daleville	Community-wide	High	Moderate	High	Low
	Grimes	Community-wide	High	Moderate	High	Low
	Level Plains	Community-wide	High	Moderate	High	Low
	Midland City	Community-wide	High	Moderate	High	Low
	Napier Field	Community-wide	High	Moderate	High	Low
	Newton	Community-wide	High	Moderate	High	Low
	Ozark	Community-wide	High	Moderate	High	Low
	Pinckard	Community-wide	High	Moderate	High	Low
	Unincorporated	Community-wide	High	Moderate	High	Low
	Dale County	Community-wide	High	Moderate	High	Low
Hurricanes	Ariton	Community-wide	Moderate	Significant	High	Low
	Clayhatchee	Community-wide	Moderate	Significant	High	Low
	Daleville	Community-wide	Moderate	Significant	High	Low
	Grimes	Community-wide	Moderate	Significant	High	Low
	Level Plains	Community-wide	Moderate	Significant	High	Low
	Midland City	Community-wide	Moderate	Significant	High	Low

Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location	Probability	Extent	Exposure	Damage Potential
	Napier Field	Community-wide	Moderate	Significant	High	Low
	Newton	Community-wide	Moderate	Significant	High	Low
	Ozark	Community-wide	Moderate	Significant	High	Low
	Pinckard	Community-wide	Moderate	Significant	High	Low
	Unincorporated	Community-wide	Moderate	Significant	High	Low
	Dale County	Community-wide	Moderate	Significant	High	Low
Winter Storms/Freezes	Ariton	Community-wide	Low	Moderate	High	Low
	Clayhatchee	Community-wide	Low	Moderate	High	Low
	Daleville	Community-wide	Low	Moderate	High	Low
	Grimes	Community-wide	Low	Moderate	High	Low
	Level Plains	Community-wide	Low	Moderate	High	Low
	Midland City	Community-wide	Low	Moderate	High	Low
	Napier Field	Community-wide	Low	Moderate	High	Low
	Newton	Community-wide	Low	Moderate	High	Low
	Ozark	Community-wide	Low	Moderate	High	Low
	Pinckard	Community-wide	Low	Moderate	High	Low
	Unincorporated	Community-wide	Low	Moderate	High	Low
	Dale County	Community-wide	Low	Moderate	High	Low
Dam/Levee Failures	Ariton	Minimal	Very Low	Moderate	Low	Low
	Clayhatchee	Minimal	Very Low	Moderate	Low	Low
	Daleville	Minimal	Very Low	Moderate	Low	Low
	Grimes	Minimal	Very Low	Moderate	Low	Low
	Level Plains	Minimal	Very Low	Moderate	Low	Low
	Midland City	Minimal	Very Low	Moderate	Low	Low
	Napier Field	Minimal	Very Low	Moderate	Low	Low
	Newton	Minimal	Very Low	Moderate	Low	Low
	Ozark	Minimal	Very Low	Moderate	Low	Low
	Pinckard	Minimal	Very Low	Moderate	Low	Low

Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location	Probability	Extent	Exposure	Damage Potential
	Unincorporated	Minimal	Very Low	Moderate	Low	Low
	Dale County	Minimal	Very Low	Moderate	Low	Low
Wildfires	Ariton	Partial	Moderate	Slight	Low	Low
	Clayhatchee	Partial	Moderate	Slight	Low	Low
	Daleville	Partial	Moderate	Slight	Medium	Low
	Grimes	Partial	Moderate	Slight	Low	Low
	Level Plains	Partial	Moderate	Slight	Low	Low
	Midland City	Partial	Moderate	Slight	Low	Low
	Napier Field	Partial	Moderate	Slight	Low	Low
	Newton	Partial	Moderate	Slight	Low	Low
	Ozark	Partial	Moderate	Slight	Medium	Low
	Pinckard	Partial	Moderate	Slight	Low	Low
	Unincorporated	Partial	High	Slight	Medium	Low
	Dale County	Partial	Moderate	Slight	Medium	Low
Sinkholes (Land Subsidence)	Ariton	Minimal	Very Low	Slight	Low	Low
	Clayhatchee	Minimal	Very Low	Slight	Low	Low
	Daleville	Minimal	Very Low	Slight	Low	Low
	Grimes	Minimal	Very Low	Slight	Low	Low
	Level Plains	Minimal	Very Low	Slight	Low	Low
	Midland City	Minimal	Very Low	Slight	Low	Low
	Napier Field	Minimal	Very Low	Slight	Low	Low
	Newton	Minimal	Very Low	Slight	Low	Low
	Ozark	Minimal	Very Low	Slight	Low	Low
	Pinckard	Minimal	Very Low	Slight	Low	Low
	Unincorporated	Minimal	Very Low	Slight	Low	Low
Dale County	Minimal	Very Low	Slight	Low	Low	
Earthquakes	Ariton	Community-wide	Very Low	Slight	High	Low
	Clayhatchee	Community-wide	Very Low	Slight	High	Low

Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location	Probability	Extent	Exposure	Damage Potential
	Daleville	Community-wide	Very Low	Slight	High	Low
	Grimes	Community-wide	Very Low	Slight	High	Low
	Level Plains	Community-wide	Very Low	Slight	High	Low
	Midland City	Community-wide	Very Low	Slight	High	Low
	Napier Field	Community-wide	Very Low	Slight	High	Low
	Newton	Community-wide	Very Low	Slight	High	Low
	Ozark	Community-wide	Very Low	Slight	High	Low
	Pinckard	Community-wide	Very Low	Slight	High	Low
	Unincorporated	Community-wide	Very Low	Slight	High	Low
	Dale County	Community-wide	Very Low	Slight	High	Low
Landslides	Ariton	Minimal	Very Low	Slight	Low	Low
	Clayhatchee	Minimal	Very Low	Slight	Low	Low
	Daleville	Minimal	Very Low	Slight	Low	Low
	Grimes	Minimal	Very Low	Slight	Low	Low
	Level Plains	Minimal	Very Low	Slight	Low	Low
	Midland City	Minimal	Very Low	Slight	Low	Low
	Napier Field	Minimal	Very Low	Slight	Low	Low
	Newton	Minimal	Very Low	Slight	Low	Low
	Ozark	Minimal	Very Low	Slight	Low	Low
	Pinckard	Minimal	Very Low	Slight	Low	Low
	Unincorporated	Minimal	Very Low	Slight	Low	Low
Dale County	Minimal	Very Low	Slight	Low	Low	

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 5-45 “Summary of Hazards and Community Impacts” summarizes how hazards impact each jurisdiction.

Risk may vary among jurisdictions, as described in Table 5-46 “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 5-46. Jurisdictional Risk Variations

Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
Severe Storms	Common Risks	Ariton	Not Unique	Very High	Moderate
		Clayhatchee	Not Unique	Very High	Moderate
		Daleville	Not Unique	Very High	Moderate
		Grimes	Not Unique	Very High	Moderate
		Level Plains	Not Unique	Very High	Moderate
		Midland City	Not Unique	Very High	Moderate
		Napier Field	Not Unique	Very High	Moderate
		Newton	Not Unique	Very High	Moderate
		Ozark	Not Unique	Very High	Moderate
		Pinckard	Not Unique	Very High	Moderate
		Unincorporated	Not Unique	Very High	Moderate
		Dale County	Not Unique	Very High	Moderate
		Tornadoes	Common Risks	Ariton	Not Unique
Clayhatchee	Not Unique			Moderate	Devastating
Daleville	Not Unique			Moderate	Devastating
Grimes	Not Unique			Moderate	Devastating
Level Plains	Not Unique			Moderate	Devastating
Midland City	Not Unique			Moderate	Devastating
Napier Field	Not Unique			Moderate	Devastating
Newton	Not Unique			Moderate	Devastating
Ozark	Not Unique			Moderate	Devastating
Pinckard	Not Unique			Moderate	Devastating
Unincorporated	Not Unique			Moderate	Devastating
Floods	Unique Risks	Ariton	Specific Locations	Low	Slight
		Clayhatchee	Specific Locations	Moderate	Moderate

Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
		Daleville	Specific Locations	Moderate	Moderate
		Grimes	Specific Locations	Very Low	Slight
		Level Plains	Specific Locations	Low	Slight
		Midland City	Specific Locations	Low	Slight
		Napier Field	Specific Locations	Very Low	Slight
		Newton	Specific Locations	Moderate	Significant
		Ozark	Specific Locations	Moderate	Moderate
		Pinckard	Specific Locations	Low	Slight
		Unincorporated	Specific Locations	Moderate	Moderate
		Dale County	Specific Locations	Moderate	Moderate
Drought/Heat Waves	Common Risks	Ariton	Not Unique	High	Moderate
		Clayhatchee	Not Unique	High	Moderate
		Daleville	Not Unique	High	Moderate
		Grimes	Not Unique	High	Moderate
		Level Plains	Not Unique	High	Moderate
		Midland City	Not Unique	High	Moderate
		Napier Field	Not Unique	High	Moderate
		Newton	Not Unique	High	Moderate
		Ozark	Not Unique	High	Moderate
		Pinckard	Not Unique	High	Moderate
		Unincorporated	Not Unique	High	Moderate
		Dale County	Not Unique	High	Moderate
		Hurricanes	Common Risks	Ariton	Not Unique
Clayhatchee	Not Unique			Moderate	Moderate
Daleville	Not Unique			Moderate	Moderate
Grimes	Not Unique			Moderate	Moderate
Level Plains	Not Unique			Moderate	Moderate
Midland City	Not Unique			Moderate	Moderate

Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
		Napier Field	Not Unique	Moderate	Moderate
		Newton	Not Unique	Moderate	Moderate
		Ozark	Not Unique	Moderate	Moderate
		Pinckard	Not Unique	Moderate	Moderate
		Unincorporated	Not Unique	Moderate	Moderate
		Dale County	Not Unique	Moderate	Moderate
Winter Storms/Freezes Wildfires	Common Risks	Ariton	Not Unique	Low	Moderate
		Clayhatchee	Not Unique	Low	Moderate
		Daleville	Not Unique	Low	Moderate
		Grimes	Not Unique	Low	Moderate
		Level Plains	Not Unique	Low	Moderate
		Midland City	Not Unique	Low	Moderate
		Napier Field	Not Unique	Low	Moderate
		Newton	Not Unique	Low	Moderate
		Ozark	Not Unique	Low	Moderate
		Pinckard	Not Unique	Low	Moderate
		Unincorporated	Not Unique	Low	Moderate
		Dale County	Not Unique	Low	Moderate
Dam/Levee Failures	Unique Risks	Ariton	Specific Locations	Very Low	Slight
		Clayhatchee	Specific Locations	Very Low	Slight
		Daleville	Specific Locations	Very Low	Slight
		Grimes	Specific Locations	Very Low	Slight
		Level Plains	Specific Locations	Very Low	Slight
		Midland City	Specific Locations	Very Low	Slight
		Napier Field	Specific Locations	Very Low	Slight
		Newton	Specific Locations	Very Low	Slight
		Ozark	Specific Locations	Very Low	Slight
		Pinckard	Specific Locations	Very Low	Slight

Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
		Unincorporated	Specific Locations	Very Low	Slight
		Dale County	Specific Locations	Very Low	Slight
Wildfires	Unique Risks	Ariton	Specific Locations	Moderate	Slight
		Clayhatchee	Specific Locations	Low	Slight
		Daleville	Specific Locations	High	Moderate
		Grimes	Specific Locations	Low	Slight
		Level Plains	Specific Locations	Moderate	Slight
		Midland City	Specific Locations	Low	Slight
		Napier Field	Specific Locations	Low	Slight
		Newton	Specific Locations	Moderate	Moderate
		Ozark	Specific Locations	Moderate	Moderate
		Pinckard	Specific Locations	Low	Slight
		Unincorporated	Specific Locations	Very High	Significant
		Dale County	Specific Locations	Moderate	Slight
		Sinkholes (Land Subsidence)	Unique Risks	Ariton	Specific Locations
Clayhatchee	Specific Locations			Very Low	Slight
Daleville	Specific Locations			Very Low	Slight
Grimes	Specific Locations			Very Low	Slight
Level Plains	Specific Locations			Very Low	Slight
Midland City	Specific Locations			Very Low	Slight
Napier Field	Specific Locations			Very Low	Slight
Newton	Specific Locations			Very Low	Slight
Ozark	Specific Locations			Very Low	Slight
Pinckard	Specific Locations			Very Low	Slight
Unincorporated	Specific Locations			Very Low	Slight
Dale County	Specific Locations			Very Low	Slight
Earthquakes	Common Risks	Ariton	Not Unique	Very Low	Slight
		Clayhatchee	Not Unique	Very Low	Slight

Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
		Daleville	Not Unique	Very Low	Slight
		Grimes	Not Unique	Very Low	Slight
		Level Plains	Not Unique	Very Low	Slight
		Midland City	Not Unique	Very Low	Slight
		Napier Field	Not Unique	Very Low	Slight
		Newton	Not Unique	Very Low	Slight
		Ozark	Not Unique	Very Low	Slight
		Pinckard	Not Unique	Very Low	Slight
		Unincorporated	Not Unique	Very Low	Slight
		Dale County	Not Unique	Very Low	Slight
Landslides	Unique Risks	Ariton	Specific Locations	Very Low	Slight
		Clayhatchee	Specific Locations	Very Low	Slight
		Daleville	Specific Locations	Very Low	Slight
		Grimes	Specific Locations	Very Low	Slight
		Level Plains	Specific Locations	Very Low	Slight
		Midland City	Specific Locations	Very Low	Slight
		Napier Field	Specific Locations	Very Low	Slight
		Newton	Specific Locations	Very Low	Slight
		Ozark	Specific Locations	Very Low	Slight
		Pinckard	Specific Locations	Very Low	Slight
		Unincorporated	Specific Locations	Very Low	Slight
Dale County	Specific Locations	Very Low	Slight		

Chapter 6 – Mitigation Strategy

- 6.1 Federal Requirements for the Mitigation Strategy
- 6.2 Summary of Plan Updates
- 6.3 Goals for Hazard Mitigation
- 6.4 Participation and Compliance with the National Flood Insurance Program (NFIP)
- 6.5 Implementation of Mitigation Actions
- 6.6 Multi-Jurisdictional Community Mitigation Action Programs

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

Table 6-1 summarizes changes made to the 2004 plan as a result of the 2011 update, as follows:

Table 6-1 Summary of Plan Updates

Section		Change
6.3	Goals for Hazard Mitigation	Goals and objectives from previous plans reviewed and modified based on current conditions; removed Emergency Services goal and hazard specific goals; expanded vision statement to include underlying principles and purposes; reviewed compatibility with State goals.
6.4	Participation and Compliance with the National Flood Insurance Program (NFIP)	Describes participation and ongoing commitments of NFIP participants to enhance flood plain management program activities.
6.5	Implementation of Mitigation Actions	Describes new selection criteria for mitigation actions and projects.
6.6	Multi-Jurisdictional Community Mitigation Action Programs	Creates new five-year action programs for each participating community.

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 “2004 Plan Implementation Status”);
- The 2011 update to the risk assessment in Chapter 5;
- The update to the risk assessment in the 2010 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 2004 plan and determined that most of the goals statements should be retained in the 2011 plan amendment. The previously approved plan also included objectives, and this amendment carries forward many of the same objectives. Some objectives have been modified and new objectives have been added to better identify and select among available mitigation measures that best respond to the considerations listed in the next paragraph (see Appendix F “Alternative

Mitigation Measures”). The 2004 implementation status report in Appendix C “2004 Plan Implementation Status” documents which objectives have been met.

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 2004 goals and objectives reflected the updates to the local risk assessment and the 2010 update to the State risk assessment;
- Whether the 2004 goals and objectives effectively directed mitigation actions and projects that helped reduce vulnerability to property and infrastructure;
- Whether the 2004 goals and objectives support the changed 2011 mitigation priorities established by the HMPC; and
- Whether the 2004 goals reflect the adopted goals in the 2010 Alabama State Hazard Mitigation Plan.

The updated goals are presented in Section 6.3.3 “Community Goals” and have also been incorporated into the “Multi-Jurisdictional Mitigation Action Program,” in Section 6.6 and the “Community Action Programs” in Volume II.

The previously approved plans also included objectives, and this update carries forward many of the same objectives. Some objectives have been modified and new objectives have been added to better identify and select among available mitigation measures that best respond to the considerations listed above (see Appendix F “Identification and Analysis of Mitigation Measures”). The implementation status report in Appendix C “Plan Implementation Status” documents the progress towards meeting the original objectives.

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 (again, 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 Mitigation 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 2011 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 “2011-2016 Dale County Multi-Jurisdictional Mitigation Action Program,” as presented in Table 6-3 in Section 6.6, presents all of goals, objectives and measures chosen by each of the participating jurisdictions. The Community Action Programs in Volume II, which supplements Table 6-3, breaks out the same mitigation goals, objectives, and mitigation measures by community and adds the priority, timeframe for completion, and responsibility for implementation.

6.3.2 The Vision for Disaster-Resistant Dale County Communities

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

This shared vision among all Dale 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,
- hurricanes,
- winter storms/freezes,
- dam/levee failures,
- wildfires,
- sinkholes,
- earthquakes, and
- landslides.

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 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; and

- 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 Dale County communities are presented here:

1. **Prevention Goal.** Manage the development of land and buildings to minimize risks of loss due to natural and man-made 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 2010 Alabama State Plan Goals

The 2011 Dale County Multi-Hazard Mitigation Plan vision, goals, and objectives are reflective of the goals adopted in the 2010 Alabama State Hazard Mitigation Plan. The State plan includes the following six goals for statewide hazard mitigation:

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

Alabama local governments, Dale County communities included, are the fundamental building blocks of the "comprehensive statewide hazard mitigation system." The underlying principles and purposes of the 2011 Dale County 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)

Dale County and its municipal jurisdictions, with the exception of Grimes and Napier, have been mapped and the floodplain identified. All NFIP communities in Dale 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 flood plain management requirements through the State NFIP Coordinator. All communities, except for Grimes and Napier (which have no areas of special flood hazards mapped by FEMA), have developed five-year action programs to improve local flood plain management programs (see specific action items for each community in Community Action Plans, Goal 1 Prevention, Objective 1.6 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;
- Maintaining the latest FIRM data in the County's GIS database for all communities;
- Ongoing relations by each community with the State NFIP Coordinator;
- Monitoring flooding events and damages in conjunction with the Dale 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 Dale County EMA as technical support resources to local flood plain administrators and as public education information for the general public.

The following Table 6-2 provides information on the NFIP participation status of Dale County jurisdictions:

Table 6-2 NFIP Community Status, Dale County Jurisdictions

Community ID	Jurisdiction	Date of Entry into Program	Status
010060	Dale County	07/04/1989	Participating
010411	Ariton	01/30/2008	Participating
010415	Clayhatchee	08/16/2007	Participating
010061	Daleville	09/04/1985	Participating
***	Grimes	***	Not Mapped
010416	Level Plains	07/17/2003	Participating
010248	Midland City	08/05/1986	Participating
***	Napier	***	Not Mapped
010419	Newton	07/05/1993	Participating
010062	Ozark	08/05/1985	Participating
010249	Pinckard	09/04/1985	Participating

Source: NFIP Community Status Book, 07/17/2011

Since the 2004 plan, all jurisdictions with the exception of Grimes and Napier have updated and digitized their flood maps. All maps were updated effective August 16, 2007.

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 6.3 “2011-2016 Dale County Multi-Jurisdictional Mitigation Action Program” and Volume II “Community Action Programs,” which supplements Table 6.3.

Table 6-3 2011-2016 Dale 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	
1 <u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.						
1.1 <u>Comprehensive Plans and Smart Growth.</u> 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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implement the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding
1.1.4	Review and amend existing planning documents to be certain the vulnerability and environmental suitability of lands for future development are clearly addressed; local plans should address the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	New	Action	Local Funding
1.1.5	Prepare and adopt a countywide plan, which establishes a long-range program for the protection and mitigation of properties from flood damages.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding, dam/levee failure	Both	Action	Local Funding

Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
1.2 <u>Geographic Information Systems (GIS).</u> 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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	FEMA HMA Grant
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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	FEMA HMA Grant
1.2.3 Document the extents of each hazard event using GIS.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding
1.3 <u>Planning Studies.</u> 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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	FEMA HMA Grant
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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Existing	Action	Local Funding
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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Action	Local Funding
1.3.4 Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Wildfires	Existing	Action	Local Funding

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	FEMA HMA Grant
1.4	Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	Local Funding
1.4.2	Evaluate additional land use restrictions within designated flood zones, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	Local Funding
1.4.3	Require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	Local Funding
1.4.4	Enact local ordinance that require community storm shelters within sizeable residential developments, such as, mobile home parks, apartment complexes, planned residential communities and campground/ RV parks.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Tornadoes, Hurricanes, Severe Storms	New	Action	Local Funding
1.5	Open Space Preservation. Minimize disturbances of natural land features and increased storm water runoff through regulations that maintain critical natural features such as open space for parks, conservation areas, landscaping, and drainage.					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	New	Action	Local Funding
1.6	Flood Plain Management Regulations. Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	Local Funding

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	Local Funding
1.6.3	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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	FEMA HMA Grant
1.6.4	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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	Local Funding
1.6.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Project	Local Funding
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	New	Action	Local Funding
1.7.2	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."	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Tornadoes, Hurricanes, Severe Storms	New	Action	Local Funding
1.7.3	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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Tornadoes, severe storms, winter storms/freezes, hurricanes	Both	Action	Local Funding

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Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
1.7.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Wildfires	Both	Action	Local Funding
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Existing	Action	Local Funding
1.7.6	Adopt the International Code Series.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	New	Action	Local Funding
1.7.7	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Tornadoes, Hurricanes, Severe Storms	New	Project	FEMA HMA Grant
1.8	<u>Landscape Ordinances.</u> Establish minimum standards for planting areas for trees and vegetation to reduce storm water runoff and improve urban aesthetics.					
1.8.1	Review and revise as necessary, landscaping standards for parking lots that reduce the size of impervious surfaces and encourage natural infiltration of rainwater.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	New	Action	Local Funding
1.9	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.9.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Action	Local Funding
1.9.2	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Action	Local Funding
1.9.3	Investigate the possibility of enlarging the role of the Storm Water Management Authority to address storm water drainage and flooding issues.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	Local Funding
1.10	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					

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2011 Dale County Multi-Hazard Mitigation Plan

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
1.10.1	Support legislation to establish a State dam safety program.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Dam/Levee Failure	Both	Action	Local Funding
1.10.2	Maintain a comprehensive inventory of dams and failure inundation areas within GIS.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Dam/Levee Failure	Both	Action	Local Funding
1.11	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.11.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	Local Funding
1.12	<u>Critical Facilities Assessments.</u> 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.					
1.12.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding, Tornadoes, Hurricanes, Severe Storms and Earthquakes	Existing	Action	FEMA HMA Grant
1.12.2	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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Wildfire	Both	Project	FEMA HMA Grant
2	<u>Goal for Property Protection:</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					
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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Project	FEMA HMA Grant
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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Project	FEMA HMA Grant

	Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Project	FEMA HMA Grant
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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Project	FEMA HMA Grant
2.3.2	Repair, elevate and weatherize existing homes for low- to moderate-income families.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Project	FEMA HMA Grant
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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Project	FEMA HMA Grant
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.					
2.5.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural hazards.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding, Tornadoes, Hurricanes, Severe Storms and Earthquakes	Existing	Project	FEMA HMA Grant
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding, Tornadoes, Hurricanes, Severe Storms and Earthquakes	Existing	Action	Local Funding
2.6	<u>Hazard Insurance Awareness.</u> 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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Existing	Action	Local Funding
2.7	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					

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2011 Dale County Multi-Hazard Mitigation Plan

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Severe storms	Existing	Project	Local Funding
2.7.2	Conduct ongoing tree trimming programs along power lines.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Severe storms	Existing	Project	Local Funding
2.8	<u>Back Up Power:</u> Assure uninterrupted power supplies during emergency events.					
2.8.1	Install backup power generators for critical facilities.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Hurricanes, Tornadoes, Severe Storms	Existing	Project	FEMA HMA Grant
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day and Severe Weather Week.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding
3.2.2	Conduct materials distribution, 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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Existing	Action	Local Funding
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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding

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2011 Dale County Multi-Hazard Mitigation Plan

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	Local Funding
3.3	<u>Real Estate Disclosure.</u> 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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flood	Both	Action	Local Funding
3.3.2	Consider the enactment of a local ordinance or state law to require floodplain location disclosure when a property is listed for sale.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Action	Local Funding
3.4	<u>Library.</u> 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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding
3.4.2	Maintain repositories of FEMA hazard information publications at local public and school libraries.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding
3.5	<u>Education Programs.</u> 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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding
3.6	<u>Community Hazard Mitigation Plan Distribution.</u> 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 2011 plan to local officials, stakeholders, and interested individuals through internet download.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding
3.7	<u>Technical Assistance.</u> Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.					

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2011 Dale County Multi-Hazard Mitigation Plan

	Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
3.7.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	Local Funding
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.					
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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding
3.9	Weather Radios. Improve public access to weather alerts.					
3.9.1	Promote the use of weather radios in households and businesses.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding
3.9.2	Require the installation of weather radios in all public buildings and places of public assembly.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Action	Local Funding
3.9.3	Distribute weather radios and emergency response instructions to municipal residents.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Project	FEMA HMA Grant
3.10	Disaster Warning. Improve public warning systems.					
3.10.1	Increase and enhance the county's ability to coordinate and disseminate public information regarding threats, evacuations and shelters through a variety of media.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Project	FEMA HMA Grant
3.10.2	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Project	FEMA HMA Grant
3.10.3	Upgrade critical communications infrastructure.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	All	Both	Project	FEMA HMA Grant
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.					

CHAPTER 6

2011 Dale County Multi-Hazard Mitigation Plan

Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
4.1 <u>Open Space Easements and Acquisitions.</u> 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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Project	FEMA HMA Grant
4.2 <u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	Local Funding
4.2.1 Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Action	Local Funding
4.2.2 Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Action	Local Funding
4.2.3 Support Land Trust programs for stream corridor restoration and protection.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Action	Local Funding
4.3 <u>Urban Forestry Programs.</u> Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Existing	Action	Local Funding
4.4 <u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Droughts/heat waves, wildfires	Both	Action	Local Funding
5 <u>Goal for Structural Projects.</u> 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.	5.1 <u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.				

CHAPTER 6

2011 Dale County Multi-Hazard Mitigation Plan

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	Local Funding
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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Project	FEMA HMA Grant
5.2.2	Evaluate the feasibility of publicly owned and maintained detention facilities to retard storm water flows in critical sub-basins of severe flood hazard areas.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Flooding	Both	Action	Local Funding
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.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Hurricanes, Tornadoes, Severe Storms	New	Project	FEMA HMA Grant
5.3.2	Establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Tornadoes, Hurricanes, Severe Storms	Existing	Project	FEMA HMA Grant
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Dale County, Ariton, Clayhatchee, Daleville, Grimes, Level Plains, Midland City, Napier, Newton, Ozark and Pinckard	Tornadoes, Hurricanes, Severe Storms	Both	Project	FEMA HMA Grant

Chapter 7 – Plan Maintenance Process

- 7.1 Federal Requirements for the Plan Maintenance Process
- 7.2 Summary of Plan Updates
- 7.3 Monitoring, Evaluating and Updating the Mitigation Plan
- 7.4 Incorporation of the Mitigation Plan into Other Planning Mechanisms
- 7.5 Continuing Public Participation in the 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

Table 7-1 summarizes changes made to the plan as a result of the 2011 plan update:

Table 7-1. Summary of Plan Updates

Section		Change
7.3	Monitoring, Evaluating, and Updating the Mitigation Plan	More active monitoring and streamlined plan amendment process; revised guidance for annual evaluation of plan status; refined and updated process.
7.4	Incorporation of the Mitigation Plan into Other Planning Mechanisms	Five-year compilation and review of all local planning mechanisms.

Section		Change
7.5	Continuing Public Participation in the Plan Maintenance Process	New public participation opportunities to be continuously monitored and annually evaluated.

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 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 man-made disaster. A copy of the plan amendments will be submitted by the Dale 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 Dale 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 Strategy. 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 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?

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 or man-made hazard 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 Dale 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 Dale County Emergency Operations Plan, which is administered through the Dale 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 2011 Dale County Multi-Hazard Mitigation Plan is a multi-jurisdictional plan, the mechanism for implementation of the various mitigation measures through existing programs may vary by jurisdiction. Each jurisdiction’s

unique needs and capacities 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 Dale 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. 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 2011 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 Dale 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 2011 Dale County Multi-Hazard Mitigation Plan will be maintained in the offices of the Dale 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. The Dale County EMA website at <http://www.dalecountyyema.com> contains

a link to download an on-line copy of the plan. Public comments can be received by the Dale 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 and five-year plan updates and to present the final plan and amendments to the plan to the public before adoption. Public opinion surveys are conducted during the community meetings and public involvement activities required for the five-year update and may be periodically administered by the Dale County EMA.

Extensive public involvement activities initiated by the 2011 planning process are well documented in Appendix H - "Community Involvement Documentation." Many of these activities will continue throughout the five-year implementation cycle and be evaluated for effectiveness at least annually by the Hazard Mitigation Planning Committee. Moreover, 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.

DALE COUNTY, ALABAMA

MULTI-HAZARD MITIGATION PLAN

II. Community Action Programs



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



With the support of the Dale County EMA by:



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Community Action Programs

- 1.0 Development of Community Action Programs
- 2.0 Community Action Programs for Each Jurisdiction

1.0 Development of Community Action Programs

The Community Action Programs supplement Table 6-4 “2011-2016 Dale County Multi-Jurisdictional Action Program” found in chapter 6, section 6.7. These Community Action Programs break out the same mitigation goals, objectives, and mitigation measures by community and add the priority, timeframe for completion, and lead responsibility for implementation.

In developing a list of mitigation measures for potential loss reduction, the planning team utilized three main sources: the 2004 Dale County, Alabama, Natural Hazard Mitigation Plan, the 2007 and 2010 Alabama State Hazard Mitigation Plan, and the Hazard Mitigation Planning Committee. First, the planning team took the mitigation measures presented to the HMPC in 2004 and used them as base measures for the HMPC to consider for the plan update (see Appendix C “2004 Plan Implementation Status”). Second, the team added the action items that are listed in the 2007 Alabama State Hazard Mitigation Plan mitigation strategy, in which the State assigned implementation responsibility to local jurisdictions. Third, mitigation actions the HMPC developed through various exercises that were not covered by either the 2004 plan or the 2010 state plan were added to the list (see Appendix F “Alternative Mitigation Measures”).

In addition to those main sources listed above, various mitigation guides and publications published by FEMA in its “How-to” series were consulted for inclusion in the list. Mitigation measures that resulted in loss reduction to existing and new buildings and infrastructure were chosen for the final list of considered measures.

Each identified measure was entered into a table, which listed the hazard(s) addressed, the effects on new or existing buildings or infrastructure, whether the measure is an action or a project, if any project had the potential for FEMA HMA funding, and the origin or source of the measure. Each item was categorized with other measures that fulfilled common goals and objectives. The final comprehensive list is presented in Table 6-2 “Range of Mitigation Actions and Projects Considered.”

2.0 Community Action Programs for Each Jurisdiction

The section presents the Community Action Programs adopted by each of the participating jurisdictions. The following key explains the components of the Community Action Programs:

Key

- Action programs are in alphabetical order by jurisdiction.
- The action programs assign lead responsibility for implementation to a specific department or agency or position within the organization.
- The Local Floodplain Manager is an administrator designated to enforce the local flood hazard prevention ordinance, as required by the National Flood Insurance Program (NFIP), and may be the Local Engineer, Local Building Official, or other individual appointed by the local government.
- Priorities are *High, Medium, and Low*.
- Timelines are *Short-Range* (less than 2 years), *Mid-Range* (2-5years), *Long-Range* (more than 5 years) or *Ongoing*.
- General cost estimates and potential funding sources are identified. FEMA Hazard Mitigation Assistance funds, where noted as a possible funding source, are subject to final eligibility determination, including, among other eligibility criteria, a positive benefit/cost analysis, and the availability of funds.
- *TBD* is "To Be Determined."

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> 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.	County Commission	High	Ongoing	Local	TBD
1.1.2	Prepare a five-year capital improvements plan (CIP) to include capital projects that implements the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	County Commission	Medium	Long-Range	Local	Local
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	Dale County EMA and E911	High	Ongoing	FEMA HMA Funds	TBD
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.	Dale County EMA and E911	Medium	Long-Range	FEMA HMA Funds	TBD
1.2.3	Document the depths of flooding immediately after each event. Enter and maintain these historical records in GIS.	Dale County EMA, E911, and Local Engineer	High	Ongoing	Local	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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.2	Identify existing culturally or socially significant structures and critical facilities that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Local Engineer	Medium	Mid-Range	TBD	TBD
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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Fire Department	Medium	Short-Range	Local	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.4	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.4.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	County Commission, Local Floodplain Manager	High	Ongoing	Local	TBD

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	County Commission, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.3	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.	County Commission, Local Floodplain Manager	High	Ongoing	FEMA HMA Funds	TBD
1.4.4	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.	County Commission, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.5	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps. Amend the local flood zone ordinance.	County Commission, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.6	Evaluate additional flood zone restrictions on land use, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	County Commission, Local Floodplain Manager	Low	Long-Range	Local	TBD

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.7	Amend flood zone ordinance to require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	County Commission, Local Floodplain Manager	Medium	Mid-Range	Local	TBD
1.5	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.5.1	Enact the International Code Series building and technical codes and appoint a Local Building Official to administer and enforce the codes.	County Commission	Medium	Ongoing	Local	TBD
1.5.2	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	County Commission	Medium	Ongoing	Local	No additional cost
1.5.3	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."	County Commission	Medium	Short-Range	Local	No additional cost
1.5.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	County Commission	High	Mid-Range	Local	TBD

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	County Commission	High	Mid-Range	Local	TBD
1.5.6	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	County Commission	High	Short-Range	Local	No additional cost
1.5.7	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	County Commission	High	Short-Range	FEMA HMA Funds	TBD
1.6	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.6.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager, Local Engineer	Medium	Mid-Range	Local	TBD
1.7	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.7.1	Support legislation to establish a State dam safety program.	County Commission	High	Ongoing	Local	No additional cost
1.8	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.8.1	Apply for membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Ongoing	Local	No additional cost
1.9	<u>Critical Facilities Assessments.</u> 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.					
1.9.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Local Engineer	Medium	Long-Range	FEMA HMA Funds	TBD
1.9.2	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.	Fire Department	Low	Long-Range	FEMA HMA Funds	TBD

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2	<u>Goal for Property Protection:</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					
2.1.1	Pursue FEMA grant funds to 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.	County Commission, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	County Commission, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.	County Commission, Dale County EMA, Local Floodplain Manager	High	Short-Range	FEMA HMA Funds	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.1	Pursue grant funds to subsidize the elevation of 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.	County Commission, Dale County EMA	Medium	Ongoing	FEMA HMA Funds	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	County Commission, Dale County EMA	Low	Mid-Range	FEMA HMA Funds	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	County Commission, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.					
2.5.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	County Commission, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Local Engineer	Medium	Short-Range	Local	TBD
2.6	<u>Hazard Insurance Awareness.</u> 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.	Dale County EMA, Local Engineer	Low	Ongoing	Local	TBD
2.7	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	County Commission, Local Engineer	High	Short-Range	FEMA HMA Funds	TBD
2.7.2	Conduct ongoing tree trimming programs along power lines.	County Commission	High	Ongoing	TBD	TBD
2.8	<u>Back Up Power:</u> Assure uninterrupted power supplies during emergency events.					

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.8.1	Install backup power generators for critical facilities.	County Commission, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to 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.	Dale County EMA	Medium	Mid-Range	Local	TBD

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.2	Conduct materials distribution, 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.2.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	County Commission, Local Floodplain Manager	High	Ongoing	Local	TBD
3.3	<u>Real Estate Disclosure.</u> 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.	Local Floodplain Manager	Low	Long-Range	Local	TBD

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.3.2	Consider the enactment of a local ordinance or state law to require floodplain location disclosure when a property is listed for sale.	County Commission	Low	Long-Range	Local	TBD
3.4	<u>Library.</u> 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.	Dale County EMA	Medium	Long-Range	Local	TBD
3.5	<u>Education Programs.</u> 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.	Dale County EMA	Low	Long-Range	Local	TBD
3.6	<u>Community Hazard Mitigation Plan Distribution.</u> 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 2011 plan to local officials, stakeholders, and interested individuals through internet download.	Dale County EMA	High	Short-Range	Local	TBD

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated 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.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	Local	TBD
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.					
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.	Dale County EMA	Medium	Ongoing	Local	TBD
3.9	Weather Radios. Improve public access to weather alerts.					
3.9.1	Promote the use of weather radios in households and businesses.	Dale County EMA	High	Ongoing	Local	TBD
3.9.2	Require the installation of weather radios in all public buildings and places of public assembly.	County Commission, Dale County EMA	High	Ongoing	Local	TBD

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.9.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	County Commission, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10	<u>Disaster Warning.</u> Improve public warning systems.					
3.10.1	Increase and enhance the county's ability to coordinate and disseminate public information regarding threats, evacuations and shelters through a variety of media.	Dale County EMA	High	Ongoing	TBD	TBD
3.10.2	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10.3	Upgrade critical communications infrastructure.	County Commission, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
4	<u>Goal for Natural Resources Protection.</u> 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.					

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
4.1	<u>Open Space Easements and Acquisitions.</u> 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.	County Commission, Dale County EMA	Medium	Long-Range	FEMA HMA Funds	TBD
4.2	<u>River/Stream Corridor Restoration and Protection.</u> 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.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	TBD	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	County Commission, Local Engineer, Local Floodplain Manager	High	Ongoing	Local	TBD
4.3	<u>Urban Forestry Programs.</u> 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).	Local Engineer	Low	Long-Range	Local	TBD

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	County Commission, Dale County EMA	Medium	Ongoing	Local	TBD
5	<u>Goal for Structural Projects.</u> 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.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Local Engineer	High	Long-Range	Local	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> 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.	Local Engineer, County Commission	High	Short-Range	FEMA HMA Funds	TBD

Dale County Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5.3	<u>Community Shelters and Safe Rooms:</u> 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.	County Commission, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	County Commission, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	County Commission, Dale County EMA	High	Ongoing	Local	TBD

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> 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.	Mayor and Town Council	High	Ongoing	Local	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implements the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Mayor and Town Council	Medium	Long-Range	TBD	TBD
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	Dale County EMA and E911	High	Ongoing	FEMA HMA Funds	TBD
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.	Dale County EMA and E911	Medium	Long-Range	FEMA HMA Funds	TBD
1.2.3	Document the depths of flooding immediately after each event. Enter and maintain these historical records in GIS.	Dale County EMA, E911, and Local Engineer	High	Ongoing	Local	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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD

Town of Ariton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.2	Identify existing culturally or socially significant structures and critical facilities that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Local Engineer	Medium	Mid-Range	TBD	TBD
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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Fire Department	Medium	Short-Range	Local	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.4	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					

Town of Ariton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.3	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.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	FEMA HMA Funds	TBD
1.4.4	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.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.5	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps. Amend the local flood zone ordinance.	Mayor and Town Council, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.6	Evaluate additional flood zone restrictions on land use, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	Mayor and Town Council, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.7	Amend flood zone ordinance to require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.5	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.5.1	Enact the International Code Series building and technical codes and appoint a Local Building Official to administer and enforce the codes.	Mayor and Town Council	Medium	Ongoing	Local	TBD

Town of Ariton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.2	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Mayor and Town Council	Medium	Ongoing	Local	No additional cost
1.5.3	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."	Mayor and Town Council	Medium	Short-Range	Local	No additional cost
1.5.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.5.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.5.6	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and Town Council	High	Short-Range	Local	No additional cost

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.7	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
1.6	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.6.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager, Local Engineer	Medium	Mid-Range	Local	TBD
1.7	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.7.1	Support legislation to establish a State dam safety program.	Mayor and Town Council	High	Ongoing	Local	No additional cost
1.8	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					

Town of Arifton Mitigation Action Program						
	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.8.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Ongoing	Local	No additional cost
1.9	<u>Critical Facilities Assessments.</u> 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.					
1.9.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Local Engineer	Medium	Long-Range	FEMA HMA Funds	TBD
1.9.2	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.	Fire Department	Low	Long-Range	FEMA HMA Funds	TBD
2	<u>Goal for Property Protection:</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.1.1	Pursue FEMA grant funds to 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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.	Mayor and Town Council, Dale County EMA, Local Floodplain Manager	High	Short-Range	FEMA HMA Funds	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.1	Pursue grant funds to subsidize the elevation of 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.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	FEMA HMA Funds	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Mayor and Town Council, Dale County EMA	Low	Mid-Range	FEMA HMA Funds	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.					
2.5.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Local Engineer	Medium	Short-Range	Local	TBD
2.6	<u>Hazard Insurance Awareness.</u> 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.	Dale County EMA, Local Engineer	Low	Ongoing	Local	TBD
2.7	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
2.7.2	Conduct ongoing tree trimming programs along power lines.	Mayor and Town Council, Local Engineer	High	Ongoing	TBD	TBD

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
2.8	<u>Back Up Power:</u> Assure uninterrupted power supplies during emergency events.					
2.8.1	Install backup power generators for critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.1	Continue to 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.2.2	Conduct materials distribution, 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
3.3	<u>Real Estate Disclosure.</u> 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.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.3.2	Consider the enactment of a local ordinance or state law to require floodplain location disclosure when a property is listed for sale.	Mayor and Town Council	Low	Long-Range	Local	TBD
3.4	<u>Library.</u> 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.	Dale County EMA	Medium	Long-Range	Local	TBD

Town of Arton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.5	<u>Education Programs.</u> 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.	Dale County EMA	Low	Long-Range	Local	TBD
3.6	<u>Community Hazard Mitigation Plan Distribution.</u> 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 2011 plan to local officials, stakeholders, and interested individuals through internet download.	Dale County EMA	High	Short-Range	Local	TBD
3.7	<u>Technical Assistance.</u> 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.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	Local	TBD
3.8	<u>Mass Media Relations.</u> 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.					

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	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.	Dale County EMA	Medium	Ongoing	Local	TBD
3.9	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.9.1	Promote the use of weather radios in households and businesses.	Dale County EMA	High	Ongoing	Local	TBD
3.9.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD
3.9.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10	<u>Disaster Warning.</u> Improve public warning systems.					

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.10.1	Increase and enhance the county's ability to coordinate and disseminate public information regarding threats, evacuations and shelters through a variety of media.	Dale County EMA	High	Ongoing	TBD	TBD
3.10.2	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10.3	Upgrade critical communications infrastructure.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> 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.	Mayor and Town Council, Dale County EMA	Medium	Long-Range	FEMA HMA Funds	TBD

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.2	<u>River/Stream Corridor Restoration and Protection.</u> 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.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	TBD	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Local Engineer, Local Floodplain Manager	High	Ongoing	Local	TBD
4.3	<u>Urban Forestry Programs.</u> 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).	Local Engineer	Low	Long-Range	Local	TBD
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					

Town of Arifton Mitigation Action Program						
	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	Local	TBD
5	<u>Goal for Structural Projects.</u> 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.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Local Engineer	High	Long-Range	Local	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> 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.	Local Engineer, Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
5.3	<u>Community Shelters and Safe Rooms:</u> Provide shelters from natural hazards for the safety of community residents.					

Town of Arifton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> 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.	Mayor and Town Council	High	Ongoing	Local	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implements the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Mayor and Town Council	Medium	Long-Range	TBD	TBD
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	Dale County EMA and E911	High	Ongoing	FEMA HMA Funds	TBD
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.	Dale County EMA and E911	Medium	Long-Range	FEMA HMA Funds	TBD
1.2.3	Document the depths of flooding immediately after each event. Enter and maintain these historical records in GIS.	Dale County EMA, E911, and Local Engineer	High	Ongoing	Local	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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.2	Identify existing culturally or socially significant structures and critical facilities that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Local Engineer	Medium	Mid-Range	TBD	TBD
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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Fire Department	Medium	Short-Range	Local	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.4	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.3	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.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	FEMA HMA Funds	TBD
1.4.4	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.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.5	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps. Amend the local flood zone ordinance.	Mayor and Town Council, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.6	Evaluate additional flood zone restrictions on land use, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	Mayor and Town Council, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.7	Amend flood zone ordinance to require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.5	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.5.1	Enact the International Code Series building and technical codes and appoint a Local Building Official to administer and enforce the codes.	Mayor and Town Council	Medium	Ongoing	Local	TBD

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.2	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Mayor and Town Council	Medium	Ongoing	Local	No additional cost
1.5.3	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."	Mayor and Town Council	Medium	Short-Range	Local	No additional cost
1.5.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.5.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.5.6	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and Town Council	High	Short-Range	Local	No additional cost

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.7	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
1.6	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.6.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager, Local Engineer	Medium	Mid-Range	Local	TBD
1.7	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.7.1	Support legislation to establish a State dam safety program.	Mayor and Town Council	High	Ongoing	Local	No additional cost
1.8	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					

Town of Clayhatchee Mitigation Action Program						
	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.8.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Ongoing	Local	No additional cost
1.9	<u>Critical Facilities Assessments.</u> 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.					
1.9.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Local Engineer	Medium	Long-Range	FEMA HMA Funds	TBD
1.9.2	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.	Fire Department	Low	Long-Range	FEMA HMA Funds	TBD
2	<u>Goal for Property Protection:</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.1.1	Pursue FEMA grant funds to 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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.	Mayor and Town Council, Dale County EMA, Local Floodplain Manager	High	Short-Range	FEMA HMA Funds	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.1	Pursue grant funds to subsidize the elevation of 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.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	FEMA HMA Funds	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Mayor and Town Council, Dale County EMA	Low	Mid-Range	FEMA HMA Funds	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.					
2.5.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Local Engineer	Medium	Short-Range	Local	TBD
2.6	<u>Hazard Insurance Awareness.</u> 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.	Dale County EMA, Local Engineer	Low	Ongoing	Local	TBD
2.7	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
2.7.2	Conduct ongoing tree trimming programs along power lines.	Mayor and Town Council, Local Engineer	High	Ongoing	TBD	TBD

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
2.8	<u>Back Up Power:</u> Assure uninterrupted power supplies during emergency events.					
2.8.1	Install backup power generators for critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.1	Continue to 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.2.2	Conduct materials distribution, 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
3.3	<u>Real Estate Disclosure.</u> 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.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.3.2	Consider the enactment of a local ordinance or state law to require floodplain location disclosure when a property is listed for sale.	Mayor and Town Council	Low	Long-Range	Local	TBD
3.4	<u>Library.</u> 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.	Dale County EMA	Medium	Long-Range	Local	TBD

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.5	<u>Education Programs.</u> 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.	Dale County EMA	Low	Long-Range	Local	TBD
3.6	<u>Community Hazard Mitigation Plan Distribution.</u> 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 2011 plan to local officials, stakeholders, and interested individuals through internet download.	Dale County EMA	High	Short-Range	Local	TBD
3.7	<u>Technical Assistance.</u> 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.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	Local	TBD
3.8	<u>Mass Media Relations.</u> 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.					

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	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.	Dale County EMA	Medium	Ongoing	Local	TBD
3.9	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.9.1	Promote the use of weather radios in households and businesses.	Dale County EMA	High	Ongoing	Local	TBD
3.9.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD
3.9.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10	<u>Disaster Warning.</u> Improve public warning systems.					

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.10.1	Increase and enhance the county's ability to coordinate and disseminate public information regarding threats, evacuations and shelters through a variety of media.	Dale County EMA	High	Ongoing	TBD	TBD
3.10.2	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10.3	Upgrade critical communications infrastructure.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> 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.	Mayor and Town Council, Dale County EMA	Medium	Long-Range	FEMA HMA Funds	TBD

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.2	<u>River/Stream Corridor Restoration and Protection.</u> 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.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	TBD	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Local Engineer, Local Floodplain Manager	High	Ongoing	Local	TBD
4.3	<u>Urban Forestry Programs.</u> 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).	Local Engineer	Low	Long-Range	Local	TBD
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	Local	TBD
5	<u>Goal for Structural Projects.</u> 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.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Local Engineer	High	Long-Range	Local	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> 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.	Local Engineer, Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
5.3	<u>Community Shelters and Safe Rooms:</u> Provide shelters from natural hazards for the safety of community residents.					

Town of Clayhatchee Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> 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.	Mayor and City Council	High	Ongoing	Local	TBD
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.	Mayor and City Council	Medium	Ongoing	Local	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implements the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Mayor and City Council	Medium	Long-Range	TBD	TBD
1.2	<u>Geographic Information Systems (GIS)</u>. 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, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
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.	Dale County EMA	Medium	Long-Range	FEMA HMA Funds	TBD
1.2.4	Document the depths of flooding immediately after each event. Enter and maintain these historical records in GIS.	Dale County EMA	High	Ongoing	TBD	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated 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.	City Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
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.	City Engineer	Medium	Mid-Range	TBD	TBD
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.	City Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Fire Department	Medium	Short-Range	Local	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4	Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	City Engineer, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.2	Evaluate additional land use restrictions within designated flood zones, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	City Engineer, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.3	Require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	City Engineer, Local Floodplain Manager	Medium	Mid-Range	Local	TBD
1.4.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	City Engineer, Mayor and City Council	High	Short-Range	Local	No additional cost
1.5	Open Space Preservation. Minimize disturbances of natural land features and increased storm water runoff through regulations that maintain critical natural features such as open space for parks, conservation areas, landscaping, and drainage.					

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	City Engineer	Medium	Long-Range	Local	TBD
1.6	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Mayor and City Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Mayor and City Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.6.3	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.	Mayor and City Council, Local Floodplain Manager	High	Ongoing	FEMA HMA Funds	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.6.4	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.	Mayor and City Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.6.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Mayor and City Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Enact the International Code Series building and technical codes and appoint a Local Building Official to administer and enforce the codes.	Mayor and City Council	Medium	Ongoing	Local	TBD
1.7.2	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	City Engineer, Mayor and City Council	Medium	Ongoing	Local	No additional cost
1.7.3	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."	City Engineer	Medium	Short-Range	Local	No additional cost

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.7.4	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.	Mayor and City Council, City Engineer	Medium	Long-Range	FEMA HMA Funds	TBD
1.7.5	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Mayor and City Council	High	Mid-Range	Local	TBD
1.7.6	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Mayor and City Council	High	Mid-Range	Local	TBD
1.7.7	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and City Council	High	Short-Range	FEMA HMA Funds	TBD
1.8	<u>Landscape Ordinances.</u> Establish minimum standards for planting areas for trees and vegetation to reduce storm water runoff and improve urban aesthetics.					
1.8.1	Review and revise as necessary, landscaping standards for parking lots that reduce the size of impervious surfaces and encourage natural infiltration of rainwater.	Mayor and City Council	Low	Long-Range	Local	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.9	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.9.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager, City Engineer	Medium	Mid-Range	Local	TBD
1.9.2	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	Local Floodplain Manager, City Engineer	High	Short-Range	Local	TBD
1.10	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.10.1	Support legislation to establish a State dam safety program.	Mayor and City Council	High	Ongoing	Local	No additional cost
1.11	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.11.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Ongoing	Local	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.12	<u>Critical Facilities Assessments.</u> 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.					
1.12.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	City Engineer	Medium	Long-Range	FEMA HMA Funds	TBD
1.12.2	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.	Fire Department	Low	Long-Range	FEMA HMA Funds	TBD
2	<u>Goal for Property Protection:</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					
2.1.1	Pursue FEMA grant funds to 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.	Mayor and City Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Mayor and City Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.	Mayor and City Council, Dale County EMA, Local Floodplain Manager	High	Short-Range	FEMA HMA Funds	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					
2.3.1	Pursue grant funds to subsidize the elevation of 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.	Mayor and City Council, Dale County EMA	Medium	Ongoing	FEMA HMA Funds	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Mayor and City Council, Dale County EMA	Low	Mid-Range	FEMA HMA Funds	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Mayor and City Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.					
2.5.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Mayor and City Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	City Engineer	Medium	Short-Range	Local	TBD
2.6	<u>Hazard Insurance Awareness.</u> 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.	Dale County EMA, City Engineer	Low	Ongoing	Local	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.7	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Mayor and City Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
2.7.2	Conduct ongoing tree trimming programs along power lines.	Mayor and City Council, City Engineer	High	Ongoing	TBD	TBD
2.8	<u>Back Up Power:</u> Assure uninterrupted power supplies during emergency events.					
2.8.1	Install backup power generators for critical facilities.	Mayor and City Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	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.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.2.2	Conduct materials distribution, 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.3	<u>Real Estate Disclosure.</u> 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.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.3.2	Consider the enactment of a local ordinance or state law to require floodplain location disclosure when a property is listed for sale.	Mayor and City Council	Low	Long-Range	Local	TBD
3.4	<u>Library.</u> 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.	Dale County EMA	Medium	Long-Range	Local	TBD
3.5	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.5.1	Distribute hazard mitigation brochures to students through area schools.	Dale County EMA	Low	Long-Range	Local	TBD
3.6	<u>Community Hazard Mitigation Plan Distribution.</u> 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 2011 plan to local officials, stakeholders, and interested individuals through internet download.	Dale County EMA	High	Short-Range	Local	TBD
3.7	<u>Technical Assistance.</u> 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.	City Engineer, Local Floodplain Manager	Medium	Ongoing	Local	TBD
3.8	<u>Mass Media Relations.</u> 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.					
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.	Dale County EMA	Medium	Ongoing	Local	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.9	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.9.1	Promote the use of weather radios in households and businesses.	Dale County EMA	High	Ongoing	Local	TBD
3.9.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor and City Council, Dale County EMA	High	Ongoing	Local	TBD
3.9.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and City Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10	<u>Disaster Warning.</u> Improve public warning systems.					
3.10.1	Increase and enhance the county's ability to coordinate and disseminate public information regarding threats, evacuations and shelters through a variety of media.	Dale County EMA	High	Ongoing	TBD	TBD
3.10.2	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.10.3	Upgrade critical communications infrastructure.	Mayor and City Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> 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.	Mayor and City Council, Dale County EMA	Medium	Long-Range	FEMA HMA Funds	TBD
4.2	<u>River/Stream Corridor Restoration and Protection.</u> 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.	City Engineer, Local Floodplain Manager	Medium	Ongoing	TBD	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	City Engineer, Local Floodplain Manager	High	Ongoing	Local	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
4.3	<u>Urban Forestry Programs.</u> 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).	City Engineer	Low	Long-Range	Local	TBD
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and City Council, Dale County EMA	Medium	Ongoing	Local	TBD
5	<u>Goal for Structural Projects.</u> 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.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	City Engineer	High	Long-Range	Local	TBD

City of Daleville Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5.2	<u>Reservoirs and Drainage System Improvements.</u> 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.	City Engineer, Mayor and City Council	High	Short-Range	FEMA HMA Funds	TBD
5.3	<u>Community Shelters and Safe Rooms:</u> 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.	Mayor and City Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	Mayor and City Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and City Council, Dale County EMA	High	Ongoing	Local	TBD

Town of Grimes Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> 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.	Mayor and Town Council	High	Ongoing	Local	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implements the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Mayor and Town Council	Medium	Long-Range	TBD	TBD
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					

Town of Grimes Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	Dale County EMA and E911	High	Ongoing	FEMA HMA Funds	TBD
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.	Dale County EMA and E911	Medium	Long-Range	FEMA HMA Funds	TBD
1.2.3	Document the depths of flooding immediately after each event. Enter and maintain these historical records in GIS.	Dale County EMA, E911, and Local Engineer	High	Ongoing	Local	No additional cost
1.3	Planning Studies. Conduct special studies, as needed, to identify hazard risks and mitigation measures.					

Town of Grimes Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.2	Identify existing culturally or socially significant structures and critical facilities that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Local Engineer	Medium	Mid-Range	TBD	TBD
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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Fire Department	Medium	Short-Range	Local	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.4	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					

Town of Grimes Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.1	Enact the International Code Series building and technical codes and appoint a Local Building Official to administer and enforce the codes.	Mayor and Town Council	Medium	Ongoing	Local	TBD
1.4.2	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Mayor and Town Council	Medium	Ongoing	Local	No additional cost
1.4.3	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."	Mayor and Town Council	Medium	Short-Range	Local	No additional cost
1.4.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.4.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Mayor and Town Council	High	Mid-Range	Local	TBD

Town of Grimes Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.6	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and Town Council	High	Short-Range	Local	No additional cost
1.4.7	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
1.5	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.5.1	Support legislation to establish a State dam safety program.	Mayor and Town Council	High	Ongoing	Local	No additional cost
1.6	<u>Critical Facilities Assessments.</u> 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.					
1.6.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Local Engineer	Medium	Long-Range	FEMA HMA Funds	TBD

Town of Grimes Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.6.2	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.	Fire Department	Low	Long-Range	FEMA HMA Funds	TBD
2	<u>Goal for Property Protection:</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.1.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
2.1.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Local Engineer	Medium	Short-Range	Local	TBD
2.2	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					

Town of Grimes Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.2.1	Install lightning and/or surge protection on existing critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
2.2.2	Conduct ongoing tree trimming programs along power lines.	Mayor and Town Council, Local Engineer	High	Ongoing	TBD	TBD
2.3	<u>Back Up Power:</u> Assure uninterrupted power supplies during emergency events.					
2.3.1	Install backup power generators for critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					

Town of Grimes Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.1.1	Continue to 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.1.2	Conduct materials distribution, 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.1.3	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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.1.4	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	Dale County EMA	Medium	Mid-Range	Local	TBD

Town of Grimes Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.1.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
3.2	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.2.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Dale County EMA	Medium	Long-Range	Local	TBD
3.3	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					
3.3.1	Distribute hazard mitigation brochures to students through area schools.	Dale County EMA	Low	Long-Range	Local	TBD
3.4	<u>Community Hazard Mitigation Plan Distribution.</u> Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.4.1	Distribute the 2011 plan to local officials, stakeholders, and interested individuals through internet download.	Dale County EMA	High	Short-Range	Local	TBD

Town of Grimes Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
3.5	<u>Mass Media Relations.</u> 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.					
3.5.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Dale County EMA	Medium	Ongoing	Local	TBD
3.6	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.6.1	Promote the use of weather radios in households and businesses.	Dale County EMA	High	Ongoing	Local	TBD
3.6.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD
3.6.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.7	<u>Disaster Warning.</u> Improve public warning systems.					

Town of Grimes Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.7.1	Increase and enhance the county's ability to coordinate and disseminate public information regarding threats, evacuations and shelters through a variety of media.	Dale County EMA	High	Ongoing	TBD	TBD
3.7.2	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.7.3	Upgrade critical communications infrastructure.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> 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 acquisition efforts.	Mayor and Town Council, Dale County EMA	Medium	Long-Range	FEMA HMA Funds	TBD

Town of Grimes Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
4.2	<u>River/Stream Corridor Restoration and Protection.</u> 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.	Local Engineer	Medium	Ongoing	TBD	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Mayor and Town Council	High	Ongoing	Local	TBD
4.3	<u>Urban Forestry Programs.</u> 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).	Local Engineer	Low	Long-Range	Local	TBD
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					

Town of Grimes Mitigation Action Program						
	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	Local	TBD
5	<u>Goal for Structural Projects.</u> 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.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Local Engineer	High	Long-Range	Local	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> 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.	Local Engineer, Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
5.3	<u>Community Shelters and Safe Rooms:</u> Provide shelters from natural hazards for the safety of community residents.					

Town of Grimes Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> 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.	Mayor and Town Council	High	Ongoing	Local	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implements the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Mayor and Town Council	Medium	Long-Range	TBD	TBD
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	Dale County EMA and E911	High	Ongoing	FEMA HMA Funds	TBD
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.	Dale County EMA and E911	Medium	Long-Range	FEMA HMA Funds	TBD
1.2.3	Document the depths of flooding immediately after each event. Enter and maintain these historical records in GIS.	Dale County EMA, E911, and Local Engineer	High	Ongoing	Local	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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.2	Identify existing culturally or socially significant structures and critical facilities that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Local Engineer	Medium	Mid-Range	TBD	TBD
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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Fire Department	Medium	Short-Range	Local	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.4	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.3	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.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	FEMA HMA Funds	TBD
1.4.4	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.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.5	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps. Amend the local flood zone ordinance.	Mayor and Town Council, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.6	Evaluate additional flood zone restrictions on land use, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	Mayor and Town Council, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.7	Amend flood zone ordinance to require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.5	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.5.1	Enact the International Code Series building and technical codes and appoint a Local Building Official to administer and enforce the codes.	Mayor and Town Council	Medium	Ongoing	Local	TBD

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.2	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Mayor and Town Council	Medium	Ongoing	Local	No additional cost
1.5.3	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."	Mayor and Town Council	Medium	Short-Range	Local	No additional cost
1.5.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.5.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.5.6	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and Town Council	High	Short-Range	Local	No additional cost

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.7	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
1.6	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.6.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager, Local Engineer	Medium	Mid-Range	Local	TBD
1.7	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.7.1	Support legislation to establish a State dam safety program.	Mayor and Town Council	High	Ongoing	Local	No additional cost
1.8	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					

Town of Level Plains Mitigation Action Program						
	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.8.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Ongoing	Local	No additional cost
1.9	<u>Critical Facilities Assessments.</u> 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.					
1.9.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Local Engineer	Medium	Long-Range	FEMA HMA Funds	TBD
1.9.2	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.	Fire Department	Low	Long-Range	FEMA HMA Funds	TBD
2	<u>Goal for Property Protection:</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.1.1	Pursue FEMA grant funds to 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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.	Mayor and Town Council, Dale County EMA, Local Floodplain Manager	High	Short-Range	FEMA HMA Funds	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.1	Pursue grant funds to subsidize the elevation of 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.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	FEMA HMA Funds	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Mayor and Town Council, Dale County EMA	Low	Mid-Range	FEMA HMA Funds	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.					
2.5.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Local Engineer	Medium	Short-Range	Local	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.	Dale County EMA, Local Engineer	Low	Ongoing	Local	TBD
2.7	Critical Facilities Protection. Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
2.7.2	Conduct ongoing tree trimming programs along power lines.	Mayor and Town Council, Local Engineer	High	Ongoing	TBD	TBD

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
2.8	<u>Back Up Power:</u> Assure uninterrupted power supplies during emergency events.					
2.8.1	Install backup power generators for critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.1	Continue to 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.2.2	Conduct materials distribution, 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
3.3	<u>Real Estate Disclosure.</u> 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.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.3.2	Consider the enactment of a local ordinance or state law to require floodplain location disclosure when a property is listed for sale.	Mayor and Town Council	Low	Long-Range	Local	TBD
3.4	<u>Library.</u> 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.	Dale County EMA	Medium	Long-Range	Local	TBD

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.5	<u>Education Programs.</u> 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.	Dale County EMA	Low	Long-Range	Local	TBD
3.6	<u>Community Hazard Mitigation Plan Distribution.</u> 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 2011 plan to local officials, stakeholders, and interested individuals through internet download.	Dale County EMA	High	Short-Range	Local	TBD
3.7	<u>Technical Assistance.</u> 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.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	Local	TBD
3.8	<u>Mass Media Relations.</u> 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.					

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	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.	Dale County EMA	Medium	Ongoing	Local	TBD
3.9	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.9.1	Promote the use of weather radios in households and businesses.	Dale County EMA	High	Ongoing	Local	TBD
3.9.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD
3.9.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10	<u>Disaster Warning.</u> Improve public warning systems.					

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.10.1	Increase and enhance the county's ability to coordinate and disseminate public information regarding threats, evacuations and shelters through a variety of media.	Dale County EMA	High	Ongoing	TBD	TBD
3.10.2	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10.3	Upgrade critical communications infrastructure.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> 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.	Mayor and Town Council, Dale County EMA	Medium	Long-Range	FEMA HMA Funds	TBD

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.2	<u>River/Stream Corridor Restoration and Protection.</u> 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.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	TBD	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Local Engineer, Local Floodplain Manager	High	Ongoing	Local	TBD
4.3	<u>Urban Forestry Programs.</u> 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).	Local Engineer	Low	Long-Range	Local	TBD
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	Local	TBD
5	<u>Goal for Structural Projects.</u> 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.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Local Engineer	High	Long-Range	Local	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> 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.	Local Engineer, Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
5.3	<u>Community Shelters and Safe Rooms:</u> Provide shelters from natural hazards for the safety of community residents.					

Town of Level Plains Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> 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.	Mayor and Town Council	High	Ongoing	Local	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implements the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Mayor and Town Council	Medium	Long-Range	TBD	TBD
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	Dale County EMA and E911	High	Ongoing	FEMA HMA Funds	TBD
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.	Dale County EMA and E911	Medium	Long-Range	FEMA HMA Funds	TBD
1.2.3	Document the depths of flooding immediately after each event. Enter and maintain these historical records in GIS.	Dale County EMA, E911, and Local Engineer	High	Ongoing	Local	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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.2	Identify existing culturally or socially significant structures and critical facilities that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Local Engineer	Medium	Mid-Range	TBD	TBD
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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Fire Department	Medium	Short-Range	Local	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.4	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.3	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.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	FEMA HMA Funds	TBD
1.4.4	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.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.5	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps. Amend the local flood zone ordinance.	Mayor and Town Council, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.6	Evaluate additional flood zone restrictions on land use, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	Mayor and Town Council, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.7	Amend flood zone ordinance to require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.5	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.5.1	Enact the International Code Series building and technical codes and appoint a Local Building Official to administer and enforce the codes.	Mayor and Town Council	Medium	Ongoing	Local	TBD

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.2	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Mayor and Town Council	Medium	Ongoing	Local	No additional cost
1.5.3	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."	Mayor and Town Council	Medium	Short-Range	Local	No additional cost
1.5.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.5.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.5.6	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and Town Council	High	Short-Range	Local	No additional cost

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.7	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
1.6	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.6.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager, Local Engineer	Medium	Mid-Range	Local	TBD
1.7	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.7.1	Support legislation to establish a State dam safety program.	Mayor and Town Council	High	Ongoing	Local	No additional cost
1.8	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
1.8.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Ongoing	Local	No additional cost
1.9	<u>Critical Facilities Assessments.</u> 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.					
1.9.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Local Engineer	Medium	Long-Range	FEMA HMA Funds	TBD
1.9.2	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.	Fire Department	Low	Long-Range	FEMA HMA Funds	TBD
2	<u>Goal for Property Protection:</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.1.1	Pursue FEMA grant funds to 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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.	Mayor and Town Council, Dale County EMA, Local Floodplain Manager	High	Short-Range	FEMA HMA Funds	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.1	Pursue grant funds to subsidize the elevation of 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.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	FEMA HMA Funds	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Mayor and Town Council, Dale County EMA	Low	Mid-Range	FEMA HMA Funds	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.					
2.5.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Local Engineer	Medium	Short-Range	Local	TBD
2.6	<u>Hazard Insurance Awareness.</u> 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.	Dale County EMA, Local Engineer	Low	Ongoing	Local	TBD
2.7	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
2.7.2	Conduct ongoing tree trimming programs along power lines.	Mayor and Town Council, Local Engineer	High	Ongoing	TBD	TBD

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
2.8	<u>Back Up Power:</u> Assure uninterrupted power supplies during emergency events.					
2.8.1	Install backup power generators for critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.1	Continue to 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.2.2	Conduct materials distribution, 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
3.3	<u>Real Estate Disclosure.</u> 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.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.3.2	Consider the enactment of a local ordinance or state law to require floodplain location disclosure when a property is listed for sale.	Mayor and Town Council	Low	Long-Range	Local	TBD
3.4	<u>Library.</u> 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.	Dale County EMA	Medium	Long-Range	Local	TBD

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.5	<u>Education Programs.</u> 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.	Dale County EMA	Low	Long-Range	Local	TBD
3.6	<u>Community Hazard Mitigation Plan Distribution.</u> 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 2011 plan to local officials, stakeholders, and interested individuals through internet download.	Dale County EMA	High	Short-Range	Local	TBD
3.7	<u>Technical Assistance.</u> 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.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	Local	TBD
3.8	<u>Mass Media Relations.</u> 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.					

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	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.	Dale County EMA	Medium	Ongoing	Local	TBD
3.9	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.9.1	Promote the use of weather radios in households and businesses.	Dale County EMA	High	Ongoing	Local	TBD
3.9.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD
3.9.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10	<u>Disaster Warning.</u> Improve public warning systems.					

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.10.1	Increase and enhance the county's ability to coordinate and disseminate public information regarding threats, evacuations and shelters through a variety of media.	Dale County EMA	High	Ongoing	TBD	TBD
3.10.2	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10.3	Upgrade critical communications infrastructure.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> 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.	Mayor and Town Council, Dale County EMA	Medium	Long-Range	FEMA HMA Funds	TBD

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.2	<u>River/Stream Corridor Restoration and Protection.</u> 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.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	TBD	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Local Engineer, Local Floodplain Manager	High	Ongoing	Local	TBD
4.3	<u>Urban Forestry Programs.</u> 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).	Local Engineer	Low	Long-Range	Local	TBD
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					

Town of Midland City Mitigation Action Program						
	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	Local	TBD
5	<u>Goal for Structural Projects.</u> 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.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Local Engineer	High	Long-Range	Local	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> 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.	Local Engineer, Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
5.3	<u>Community Shelters and Safe Rooms:</u> Provide shelters from natural hazards for the safety of community residents.					

Town of Midland City Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD

Town of Napier Field Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> 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.	Mayor and Town Council	High	Ongoing	Local	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implements the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Mayor and Town Council	Medium	Long-Range	TBD	TBD
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					

Town of Napier Field Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	Dale County EMA and E911	High	Ongoing	FEMA HMA Funds	TBD
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.	Dale County EMA and E911	Medium	Long-Range	FEMA HMA Funds	TBD
1.2.3	Document the depths of flooding immediately after each event. Enter and maintain these historical records in GIS.	Dale County EMA, E911, and Local Engineer	High	Ongoing	Local	No additional cost
1.3	Planning Studies. Conduct special studies, as needed, to identify hazard risks and mitigation measures.					

Town of Napier Field Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.2	Identify existing culturally or socially significant structures and critical facilities that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Local Engineer	Medium	Mid-Range	TBD	TBD
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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Fire Department	Medium	Short-Range	Local	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.4	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					

Town of Napier Field Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.1	Enact the International Code Series building and technical codes and appoint a Local Building Official to administer and enforce the codes.	Mayor and Town Council	Medium	Ongoing	Local	No additional cost
1.4.2	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Mayor and Town Council	Medium	Ongoing	Local	No additional cost
1.4.3	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."	Mayor and Town Council	Medium	Short-Range	Local	No additional cost
1.4.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.4.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Mayor and Town Council	High	Mid-Range	Local	TBD

Town of Napier Field Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.6	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and Town Council	High	Short-Range	Local	No additional cost
1.4.7	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
1.5	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.5.1	Support legislation to establish a State dam safety program.	Mayor and Town Council	High	Ongoing	Local	No additional cost
1.6	<u>Critical Facilities Assessments.</u> 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.					
1.6.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Local Engineer	Medium	Long-Range	FEMA HMA Funds	TBD

Town of Napier Field Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.6.2	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.	Fire Department	Low	Long-Range	FEMA HMA Funds	TBD
2	<u>Goal for Property Protection:</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.1.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
2.1.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Local Engineer	Medium	Short-Range	Local	TBD
2.2	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					

Town of Napier Field Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.2.1	Install lightning and/or surge protection on existing critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
2.2.2	Conduct ongoing tree trimming programs along power lines.	Mayor and Town Council, Local Engineer	High	Ongoing	TBD	TBD
2.3	<u>Back Up Power:</u> Assure uninterrupted power supplies during emergency events.					
2.3.1	Install backup power generators for critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					

Town of Napier Field Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.1.1	Continue to 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.1.2	Conduct materials distribution, 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.1.3	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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.1.4	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	Dale County EMA	Medium	Mid-Range	Local	TBD

Town of Napier Field Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.1.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
3.2	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.2.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Dale County EMA	Medium	Long-Range	Local	TBD
3.3	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					
3.3.1	Distribute hazard mitigation brochures to students through area schools.	Dale County EMA	Low	Long-Range	Local	TBD
3.4	<u>Community Hazard Mitigation Plan Distribution.</u> Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.4.1	Distribute the 2011 plan to local officials, stakeholders, and interested individuals through internet download.	Dale County EMA	High	Short-Range	Local	TBD

Town of Napier Field Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
3.5	<u>Mass Media Relations.</u> 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.					
3.5.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Dale County EMA	Medium	Ongoing	Local	TBD
3.6	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.6.1	Promote the use of weather radios in households and businesses.	Dale County EMA	High	Ongoing	Local	TBD
3.6.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD
3.6.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.7	<u>Disaster Warning.</u> Improve public warning systems.					

Town of Napier Field Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.7.1	Increase and enhance the county's ability to coordinate and disseminate public information regarding threats, evacuations and shelters through a variety of media.	Dale County EMA	High	Ongoing	TBD	TBD
3.7.2	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.7.3	Upgrade critical communications infrastructure.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> 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 acquisition efforts.	Mayor and Town Council, Dale County EMA	Medium	Long-Range	FEMA HMA Funds	TBD

Town of Napier Field Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
4.2	<u>River/Stream Corridor Restoration and Protection.</u> 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.	Local Engineer	Medium	Ongoing	TBD	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Mayor and Town Council	High	Ongoing	Local	TBD
4.3	<u>Urban Forestry Programs.</u> 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).	Local Engineer	Low	Long-Range	Local	TBD
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					

Town of Napier Field Mitigation Action Program						
	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	Local	TBD
5	<u>Goal for Structural Projects.</u> 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.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Local Engineer	High	Long-Range	Local	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> 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.	Local Engineer, Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
5.3	<u>Community Shelters and Safe Rooms:</u> Provide shelters from natural hazards for the safety of community residents.					

Town of Napier Field Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> 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.	Mayor and Town Council	High	Ongoing	Local	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implements the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Mayor and Town Council	Medium	Long-Range	TBD	TBD
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	Dale County EMA and E911	High	Ongoing	FEMA HMA Funds	TBD
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.	Dale County EMA and E911	Medium	Long-Range	FEMA HMA Funds	TBD
1.2.3	Document the depths of flooding immediately after each event. Enter and maintain these historical records in GIS.	Dale County EMA, E911, and Local Engineer	High	Ongoing	Local	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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.2	Identify existing culturally or socially significant structures and critical facilities that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Local Engineer	Medium	Mid-Range	TBD	TBD
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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Fire Department	Medium	Short-Range	Local	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.4	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.3	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.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	FEMA HMA Funds	TBD
1.4.4	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.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.5	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps. Amend the local flood zone ordinance.	Mayor and Town Council, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.6	Evaluate additional flood zone restrictions on land use, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	Mayor and Town Council, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.7	Amend flood zone ordinance to require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.5	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.5.1	Enact the International Code Series building and technical codes and appoint a Local Building Official to administer and enforce the codes.	Mayor and Town Council	Medium	Ongoing	Local	TBD

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.2	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Mayor and Town Council	Medium	Ongoing	Local	No additional cost
1.5.3	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."	Mayor and Town Council	Medium	Short-Range	Local	No additional cost
1.5.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.5.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.5.6	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and Town Council	High	Short-Range	Local	No additional cost

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.7	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
1.6	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.6.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager, Local Engineer	Medium	Mid-Range	Local	TBD
1.7	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.7.1	Support legislation to establish a State dam safety program.	Mayor and Town Council	High	Ongoing	Local	No additional cost
1.8	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.8.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Ongoing	Local	No additional

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
						cost
1.9	<u>Critical Facilities Assessments.</u> 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.					
1.9.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Local Engineer	Medium	Long-Range	FEMA HMA Funds	TBD
1.9.2	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.	Fire Department	Low	Long-Range	FEMA HMA Funds	TBD
2	<u>Goal for Property Protection:</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.1.1	Pursue FEMA grant funds to 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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.	Mayor and Town Council, Dale County EMA, Local Floodplain Manager	High	Short-Range	FEMA HMA Funds	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.1	Pursue grant funds to subsidize the elevation of 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.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	FEMA HMA Funds	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Mayor and Town Council, Dale County EMA	Low	Mid-Range	FEMA HMA Funds	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.					
2.5.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Local Engineer	Medium	Short-Range	Local	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.	Dale County EMA, Local Engineer	Low	Ongoing	Local	TBD
2.7	Critical Facilities Protection. Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
2.7.2	Conduct ongoing tree trimming programs along power lines.	Mayor and Town Council, Local Engineer	High	Ongoing	TBD	TBD

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
2.8	<u>Back Up Power:</u> Assure uninterrupted power supplies during emergency events.					
2.8.1	Install backup power generators for critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.1	Continue to 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.2.2	Conduct materials distribution, 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
3.3	<u>Real Estate Disclosure.</u> 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.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.3.2	Consider the enactment of a local ordinance or state law to require floodplain location disclosure when a property is listed for sale.	Mayor and Town Council	Low	Long-Range	Local	TBD
3.4	<u>Library.</u> 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.	Dale County EMA	Medium	Long-Range	Local	TBD

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.5	<u>Education Programs.</u> 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.	Dale County EMA	Low	Long-Range	Local	TBD
3.6	<u>Community Hazard Mitigation Plan Distribution.</u> 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 2011 plan to local officials, stakeholders, and interested individuals through internet download.	Dale County EMA	High	Short-Range	Local	TBD
3.7	<u>Technical Assistance.</u> 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.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	Local	TBD
3.8	<u>Mass Media Relations.</u> 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.					

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	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.	Dale County EMA	Medium	Ongoing	Local	TBD
3.9	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.9.1	Promote the use of weather radios in households and businesses.	Dale County EMA	High	Ongoing	Local	TBD
3.9.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD
3.9.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10	<u>Disaster Warning.</u> Improve public warning systems.					

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.10.1	Increase and enhance the county's ability to coordinate and disseminate public information regarding threats, evacuations and shelters through a variety of media.	Dale County EMA	High	Ongoing	TBD	TBD
3.10.2	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10.3	Upgrade critical communications infrastructure.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> 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.	Mayor and Town Council, Dale County EMA	Medium	Long-Range	FEMA HMA Funds	TBD

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.2	<u>River/Stream Corridor Restoration and Protection.</u> 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.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	TBD	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Local Engineer, Local Floodplain Manager	High	Ongoing	Local	TBD
4.3	<u>Urban Forestry Programs.</u> 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).	Local Engineer	Low	Long-Range	Local	TBD
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	Local	TBD
5	<u>Goal for Structural Projects.</u> 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.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Local Engineer	High	Long-Range	Local	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> 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.	Local Engineer, Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
5.3	<u>Community Shelters and Safe Rooms:</u> Provide shelters from natural hazards for the safety of community residents.					

Town of Newton Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> 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.	Mayor and City Council	High	Ongoing	Local	TBD
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.	Mayor and City Council	Medium	Ongoing	Local	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implements the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Mayor and City Council	Medium	Long-Range	TBD	TBD

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.2	<u>Geographic Information Systems (GIS).</u> 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, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
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.	Dale County EMA	Medium	Long-Range	FEMA HMA Funds	TBD
1.2.4	Document the depths of flooding immediately after each event. Enter and maintain these historical records in GIS.	Dale County EMA	High	Ongoing	TBD	TBD
1.3	Planning Studies. Conduct special studies, as needed, to identify hazard risks and mitigation measures.					

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	City Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
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.	City Engineer	Medium	Mid-Range	TBD	TBD
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.	City Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Fire Department	Medium	Short-Range	Local	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4	Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	City Engineer, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.2	Evaluate additional land use restrictions within designated flood zones, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	City Engineer, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.3	Require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	City Engineer, Local Floodplain Manager	Medium	Mid-Range	Local	TBD
1.4.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	City Engineer, Mayor and City Council	High	Short-Range	Local	No additional cost
1.5	Open Space Preservation. Minimize disturbances of natural land features and increased storm water runoff through regulations that maintain critical natural features such as open space for parks, conservation areas, landscaping, and drainage.					

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	City Engineer	Medium	Long-Range	Local	TBD
1.6	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Mayor and City Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Mayor and City Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.6.3	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.	Mayor and City Council, Local Floodplain Manager	High	Ongoing	FEMA HMA Funds	TBD

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.6.4	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.	Mayor and City Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.6.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Mayor and City Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	City Engineer, Mayor and City Council	Medium	Ongoing	Local	No additional cost
1.7.2	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."	Local Building Official, City Engineer	Medium	Short-Range	Local	No additional cost

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.7.3	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.	Local Building Official, City Engineer	Medium	Long-Range	FEMA HMA Funds	TBD
1.7.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Local Building Official	High	Mid-Range	Local	TBD
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Local Building Official	High	Mid-Range	Local	TBD
1.7.6	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and City Council	High	Short-Range	FEMA HMA Funds	TBD
1.8	<u>Landscape Ordinances.</u> Establish minimum standards for planting areas for trees and vegetation to reduce storm water runoff and improve urban aesthetics.					
1.8.1	Review and revise as necessary, landscaping standards for parking lots that reduce the size of impervious surfaces and encourage natural infiltration of rainwater.	Mayor and City Council	Low	Long-Range	Local	TBD

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.9	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.9.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager, City Engineer	Medium	Mid-Range	Local	TBD
1.9.2	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	Local Floodplain Manager, City Engineer	High	Short-Range	Local	TBD
1.10	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.10.1	Support legislation to establish a State dam safety program.	Mayor and City Council	High	Ongoing	Local	No additional cost
1.11	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.11.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Ongoing	Local	TBD

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
1.12	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.					
1.12.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Local Building Official, City Engineer	Medium	Long-Range	FEMA HMA Funds	TBD
1.12.2	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.	Fire Department	Low	Long-Range	FEMA HMA Funds	TBD
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.					
2.1.1	Pursue FEMA grant funds to 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.	Mayor and City Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Mayor and City Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.	Mayor and City Council, Dale County EMA, Local Floodplain Manager	High	Short-Range	FEMA HMA Funds	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					
2.3.1	Pursue grant funds to subsidize the elevation of 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.	Mayor and City Council, Dale County EMA	Medium	Ongoing	FEMA HMA Funds	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Mayor and City Council, Dale County EMA	Low	Mid-Range	FEMA HMA Funds	TBD

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.4	Flood Proofing. Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Mayor and City Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
2.5	Building Retrofits. Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.5.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Mayor and City Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Local Building Official, City Engineer	Medium	Short-Range	Local	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.	Dale County EMA, City Engineer	Low	Ongoing	Local	TBD

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
2.7	Critical Facilities Protection. Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Mayor and City Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
2.7.2	Conduct ongoing tree trimming programs along power lines.	Local Building Official, City Engineer	High	Ongoing	TBD	TBD
2.8	Back Up Power: Assure uninterrupted power supplies during emergency events.					
2.8.1	Install backup power generators for critical facilities.	Mayor and City Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	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.					

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	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.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.2.2	Conduct materials distribution, 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.3	<u>Real Estate Disclosure.</u> 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.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.3.2	Consider the enactment of a local ordinance or state law to require floodplain location disclosure when a property is listed for sale.	Mayor and City Council	Low	Long-Range	Local	TBD
3.4	<u>Library.</u> 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.	Dale County EMA	Medium	Long-Range	Local	TBD
3.5	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.5.1	Distribute hazard mitigation brochures to students through area schools.	Dale County EMA	Low	Long-Range	Local	TBD
3.6	<u>Community Hazard Mitigation Plan Distribution.</u> 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 2011 plan to local officials, stakeholders, and interested individuals through internet download.	Dale County EMA	High	Short-Range	Local	TBD
3.7	<u>Technical Assistance.</u> 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.	City Engineer, Local Floodplain Manager	Medium	Ongoing	Local	TBD
3.8	<u>Mass Media Relations.</u> 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.					
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.	Dale County EMA	Medium	Ongoing	Local	TBD

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.9	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.9.1	Promote the use of weather radios in households and businesses.	Dale County EMA	High	Ongoing	Local	TBD
3.9.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor and City Council, Dale County EMA	High	Ongoing	Local	TBD
3.9.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and City Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10	<u>Disaster Warning.</u> Improve public warning systems.					
3.10.1	Increase and enhance the county's ability to coordinate and disseminate public information regarding threats, evacuations and shelters through a variety of media.	Dale County EMA	High	Ongoing	TBD	TBD
3.10.2	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.10.3	Upgrade critical communications infrastructure.	Mayor and City Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	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.					
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.	Mayor and City Council, Dale County EMA	Medium	Long-Range	FEMA HMA Funds	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.	City Engineer, Local Floodplain Manager	Medium	Ongoing	TBD	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	City Engineer, Local Floodplain Manager	High	Ongoing	Local	TBD

City of Ozark Mitigation Action Program						
	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.3	<u>Urban Forestry Programs.</u> 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).	Local Building Official, City Engineer	Low	Long-Range	Local	TBD
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and City Council, Dale County EMA	Medium	Ongoing	Local	TBD
5	<u>Goal for Structural Projects.</u> 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.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Local Building Official, City Engineer	High	Long-Range	Local	TBD

City of Ozark Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5.2	<u>Reservoirs and Drainage System Improvements.</u> 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.	City Engineer, Mayor and City Council	High	Short-Range	FEMA HMA Funds	TBD
5.3	<u>Community Shelters and Safe Rooms:</u> 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.	Mayor and City Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	Mayor and City Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and City Council, Dale County EMA	High	Ongoing	Local	TBD

Town of Pinckard Mitigation Action Program						
	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> 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.	Mayor and Town Council	High	Ongoing	Local	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implements the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Mayor and Town Council	Medium	Long-Range	TBD	TBD

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
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, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	Dale County EMA and E911	High	Ongoing	FEMA HMA Funds	TBD
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.	Dale County EMA and E911	Medium	Long-Range	FEMA HMA Funds	TBD
1.2.3	Document the depths of flooding immediately after each event. Enter and maintain these historical records in GIS.	Dale County EMA, E911, and Local Engineer	High	Ongoing	Local	No additional cost
1.3	Planning Studies. Conduct special studies, as needed, to identify hazard risks and mitigation measures.					

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.3.2	Identify existing culturally or socially significant structures and critical facilities that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Local Engineer	Medium	Mid-Range	TBD	TBD
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.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Fire Department	Medium	Short-Range	Local	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	Local Engineer	Medium	Mid-Range	FEMA HMA Funds	TBD

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.4.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.4.3	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.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	FEMA HMA Funds	TBD
1.4.4	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.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4.5	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps. Amend the local flood zone ordinance.	Mayor and Town Council, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.6	Evaluate additional flood zone restrictions on land use, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	Mayor and Town Council, Local Floodplain Manager	Low	Long-Range	Local	TBD
1.4.7	Amend flood zone ordinance to require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
1.5	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.5.1	Enact the International Code Series building and technical codes and appoint a Local Building Official to administer and enforce the codes.	Mayor and Town Council	Medium	Ongoing	Local	TBD

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.2	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Mayor and Town Council	Medium	Ongoing	Local	No additional cost
1.5.3	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."	Mayor and Town Council	Medium	Short-Range	Local	No additional cost
1.5.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.5.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Mayor and Town Council	High	Mid-Range	Local	TBD
1.5.6	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and Town Council	High	Short-Range	Local	No additional cost

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.7	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
1.6	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.6.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager, Local Engineer	Medium	Mid-Range	Local	TBD
1.7	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.7.1	Support legislation to establish a State dam safety program.	Mayor and Town Council	High	Ongoing	Local	No additional cost
1.8	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
1.8.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Ongoing	Local	No additional cost
1.9	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.					
1.9.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Local Engineer	Medium	Long-Range	FEMA HMA Funds	TBD
1.9.2	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.	Fire Department	Low	Long-Range	FEMA HMA Funds	TBD
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.					

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.1.1	Pursue FEMA grant funds to 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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.	Mayor and Town Council, Dale County EMA, Local Floodplain Manager	High	Short-Range	FEMA HMA Funds	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.1	Pursue grant funds to subsidize the elevation of 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.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	FEMA HMA Funds	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Mayor and Town Council, Dale County EMA	Low	Mid-Range	FEMA HMA Funds	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	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.					
2.5.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Local Engineer	Medium	Short-Range	Local	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.	Dale County EMA, Local Engineer	Low	Ongoing	Local	TBD
2.7	Critical Facilities Protection. Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
2.7.2	Conduct ongoing tree trimming programs along power lines.	Mayor and Town Council, Local Engineer	High	Ongoing	TBD	TBD

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost	
2.8	<u>Back Up Power:</u> Assure uninterrupted power supplies during emergency events.					
2.8.1	Install backup power generators for critical facilities.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.1	Continue to 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
3.2.2	Conduct materials distribution, 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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD
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.	Dale County EMA	Medium	Mid-Range	Local	TBD

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Mayor and Town Council, Local Floodplain Manager	High	Ongoing	Local	TBD
3.3	<u>Real Estate Disclosure.</u> 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.	Local Floodplain Manager	Low	Long-Range	Local	TBD
3.3.2	Consider the enactment of a local ordinance or state law to require floodplain location disclosure when a property is listed for sale.	Mayor and Town Council	Low	Long-Range	Local	TBD
3.4	<u>Library.</u> 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.	Dale County EMA	Medium	Long-Range	Local	TBD

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.5	<u>Education Programs.</u> 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.	Dale County EMA	Low	Long-Range	Local	TBD
3.6	<u>Community Hazard Mitigation Plan Distribution.</u> 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 2011 plan to local officials, stakeholders, and interested individuals through internet download.	Dale County EMA	High	Short-Range	Local	TBD
3.7	<u>Technical Assistance.</u> 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.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	Local	TBD
3.8	<u>Mass Media Relations.</u> 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.					

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	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.	Dale County EMA	Medium	Ongoing	Local	TBD
3.9	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.9.1	Promote the use of weather radios in households and businesses.	Dale County EMA	High	Ongoing	Local	TBD
3.9.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD
3.9.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10	<u>Disaster Warning.</u> Improve public warning systems.					

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.10.1	Increase and enhance the county's ability to coordinate and disseminate public information regarding threats, evacuations and shelters through a variety of media.	Dale County EMA	High	Ongoing	TBD	TBD
3.10.2	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
3.10.3	Upgrade critical communications infrastructure.	Mayor and Town Council, Dale County EMA	High	Short-Range	FEMA HMA Funds	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> 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.	Mayor and Town Council, Dale County EMA	Medium	Long-Range	FEMA HMA Funds	TBD

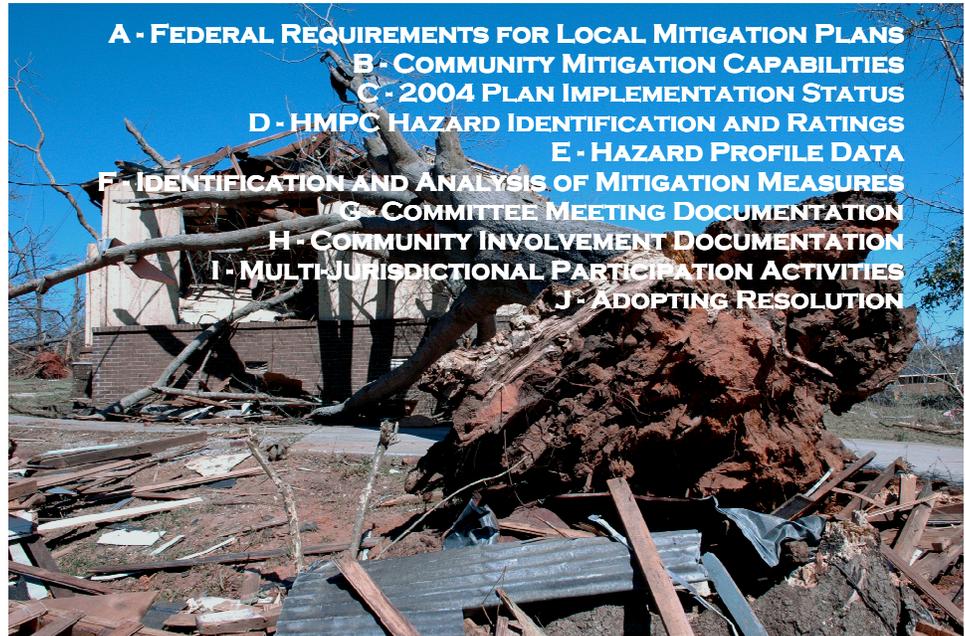
Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.2	<u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.					
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	Local Engineer, Local Floodplain Manager	Medium	Ongoing	TBD	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Local Engineer, Local Floodplain Manager	High	Ongoing	Local	TBD
4.3	<u>Urban Forestry Programs.</u> 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).	Local Engineer	Low	Long-Range	Local	TBD
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					

Town of Pinckard Mitigation Action Program						
	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and Town Council, Dale County EMA	Medium	Ongoing	Local	TBD
5	<u>Goal for Structural Projects.</u> 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.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Local Engineer	High	Long-Range	Local	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> 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.	Local Engineer, Mayor and Town Council	High	Short-Range	FEMA HMA Funds	TBD
5.3	<u>Community Shelters and Safe Rooms:</u> Provide shelters from natural hazards for the safety of community residents.					

Town of Pinckard Mitigation Action Program						
Goal, Objectives and Mitigation Measures		Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	Mayor and Town Council, Dale County EMA	High	Ongoing	FEMA HMA Funds	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and Town Council, Dale County EMA	High	Ongoing	Local	TBD

2011
DALE COUNTY, ALABAMA
Multi-Hazard Mitigation Plan

Appendices



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



With the support of the Dale County EMA by:



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**Appendix A
Federal Requirements for
Local Mitigation Plans**

App. A – Federal Requirements for Local Mitigation Plans

- 1.0 Compliance
- 2.0 44 CFR Sec. 201.6 (2008)

1.0 Compliance

The 2011 Dale County Multi-Hazard Mitigation Plan addresses the Local Mitigation Plans requirements of 44 CFR Sec. 201.6.

2.0 44 CFR Sec. 201.6 (2008)

Section 201.6 Local Mitigation Plans. The local mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding.

(a) *Plan requirements.*

- (1) A local government must have a mitigation plan approved pursuant to this section in order to receive HMGP project grants. The Administrator may, at his discretion, require a local mitigation plan for the Repetitive Flood Claims Program. A local government must have a mitigation plan approved pursuant to this section in order to apply for and receive mitigation project grants under all other mitigation grant programs.
- (2) Plans prepared for the FMA program, described at part 79 of this chapter, need only address these requirements as they relate to flood hazards in order to be eligible for FMA project grants. However, these plans must be clearly identified as being flood mitigation plans, and they will not meet the eligibility criteria for other mitigation grant programs, unless flooding is the only natural hazard the jurisdiction faces.
- (3) Regional Directors may grant an exception to the plan requirement in extraordinary circumstances, such as in a small and impoverished community, when justification is provided. In these cases, a plan will be completed within 12 months of the award of the project grant. If a plan is not provided within this timeframe, the project grant will be terminated, and any costs incurred after notice of the grant's termination will not be reimbursed by FEMA.
- (4) Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan. State-wide plans will not be accepted as multi-jurisdictional plans.

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

- (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

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

- (1) Documentation of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.
- (2) A *risk* assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include:
 - (i) A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.
 - (ii) A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. All plans approved after October 1, 2008 must also address NFIP insured structures that have been repetitively damaged by floods. The plan should describe vulnerability in terms of:
 - A. The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;

- B. An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(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.
- (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)(2)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.
 - (iv) For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.
- (4) A *plan maintenance process that includes:*
- (i) A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

- (ii) A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.
 - (iii) Discussion on how the community will continue public participation in the plan maintenance process.
- (5) *Documentation* that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council). For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.
- (d) *Plan review.*
- (1) Plans must be submitted to the State Hazard Mitigation Officer (SHMO) for initial review and coordination. The State will then send the plan to the appropriate FEMA Regional Office for formal review and approval. Where the State point of contact for the FMA program is different from the SHMO, the SHMO will be responsible for coordinating the local plan reviews between the FMA point of contact and FEMA.
 - (2) The Regional review will be completed within 45 days after receipt from the State, whenever possible.
 - (3) A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding.
 - (4) Managing States that have been approved under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c) will be delegated approval authority for local mitigation plans, and the review will be based on the criteria in this part. Managing States will review the plans within 45 days of receipt of the plans, whenever possible, and provide a copy of the approved plans to the Regional Office. [67 FR 8848, Feb. 26, 2002, as amended at 67 FR 61515, Oct. 1, 2002; 68 FR 61370, Oct. 28, 2003; 69 FR 55096, Sept. 13, 2004; 72 FR 61748, Oct. 31, 2007]

Appendix B
Community Mitigation Capabilities

App. B – Community Mitigation Capabilities

1.0 Scope and Methodology

1.0 Scope and Methodology

This report assesses community mechanisms that can affect hazard mitigation activities in a jurisdiction. This assessment provides an overview of the capabilities of Dale County jurisdictions to implement mitigation strategies, and it identifies any existing gaps or weaknesses that could hinder mitigation activities under consideration in this plan. The results of this assessment help determine the types of mitigation activities a local government can realistically undertake over its five-year action program framework included in Chapter 6 Mitigation Strategy.

The following **Table B-1 Community Capabilities Assessment** lists each jurisdiction in Dale County and shows the results of a comprehensive questionnaire that was distributed by the planning team to all participating jurisdictions. The survey results show whether or not certain indicators of a community's capabilities to carry out mitigation actions are in place. These indicators examine planning and regulatory tools, mitigation project experience, and staffing.

Table B-1 Community Capabilities Assessment

JURISDICTION	enforce zoning ordinance	administer subdivision regulations	enforce building and technical codes	up-to-date comprehensive plan adopted in last 5 years	5-6 year capital improvements plan updated annually	experience with FEMA grant programs for hazard mitigation projects	professional urban planner on staff	professional engineer on staff	Certified Floodplain Manager on staff	full-time building inspector on staff
Daleville	Y	Y	N	N	N	Y	N	N	N	N
Midland City	N	N	N	N	N	N	N	N	N	N
Ozark	Y	Y	Y	Y	Y	Y	N	N	N	Y
Dale County Unincorporated	N	N	N	N	N	N	N	Y	N	N
Ariton	N	N	N	N	N	Y	N	N	N	N
Clayhatchee	N	N	N	N	N	N	N	N	N	N
Grimes	N	N	N	N	N	N	N	N	N	N
Level Plains	N	N	N	N	N	Y	N	N	N	N
Napier Field	N	N	N	N	N	N	N	N	N	N
Newton	N	N	N	N	N	N	N	N	N	N
Pinckard	N	N	N	N	N	N	N	N	N	N

KEY: Y = Yes N = No

Appendix C
2004 Plan Implementation Status

App. C - 2004 Plan Implementation Status

- 1.0 Scope and Methodology
- 2.0 Summary of Results

1.0 Scope and Methodology

As part of the 2011 plan update, each jurisdiction that participated in the 2004 planning process revisited its original five-year mitigation action program from the 2004 Chambers County, Alabama, Natural Hazard Mitigation Plan. FEMA guidance requires this review of previous mitigation actions. Each action or project must be identified as completed or carry over to 2011.

This appendix includes the Community Mitigation Action Programs adopted by Dale County and its participating jurisdictions in the 2004 plan. Actions identified in the 2004 plan were evaluated to obtain the current implementation status. Each jurisdiction or agency responsible for implementing a mitigation measure in 2004 was asked to provide a status update by classifying each action as completed or carried over to 2011 plan. Agencies were asked to provide comments on any milestones achieved or impediments to implementation of the mitigation measures.

To accomplish this status assessment, a questionnaire based on the mitigation action program from the 2004 plan was sent to all members of the Hazard Mitigation Planning Committee. The survey provided each jurisdiction with a mechanism to provide feedback on the implementation status of the mitigation measures along with any relevant comments.

2.0 Summary of Results

- ✓ The 2004 Dale County Multi-Hazard Mitigation Plan contained 31 mitigation measures, most of which were completed.
- ✓ Of the 31 measures, the communities will carry over 22 measures.

The Key for Table C-1 is as follows:

X = Completed **NC** = Not completed **C** = Carry over to 2011 Plan **NA** = Not Applicable

Table C-1. 2004 Plan Implementation Status

Mitigation Number	Mitigation Measure	Status
1.1.1	Enact flood hazard prevention ordinances and establish the Town of Level Plains as a regular member of the NFIP. Participation in the NFIP by the Towns of Midland City, Ariton, Pinckard, Clayhatchee, Grimes, and Napier Field is encouraged.	C
1.1.2	Train local flood plain managers through programs offered through the State Flood Plain Manager.	X C
1.1.3	Maintain a library of technical assistance and guidance materials to support the local flood plain manager.	X C
1.2.1	Promote good construction practices and proper code enforcement to eliminate most structural problems during natural hazard events.	X
1.2.2	Encourage the use of seismic codes to enhance the ability of structures and utilities to resist earth movement.	NC
1.3.1	Obtain \$20,000 in local funds to install emergency generators to the Daleville Community Center and All Purpose Building.	X
1.3.2	Encourage the construction of safe rooms within new public buildings, libraries, community centers, and other public buildings where feasible.	C
1.3.3	Retrofit public schools with community shelters.	C
1.3.4	Encourage the construction of safe rooms in new and existing construction.	C
1.4.1	Seek a countywide update of all FIRMs in digital format, with an emphasis on detailed studies of developed and developing areas with elevations provided and floodways delineated.	C

Mitigation Number	Mitigation Measure	Status
1.4.2	Conduct a countywide survey of all dams to determine structural integrity and potential for catastrophe in the event of failure.	C
1.5.1	Integrate the findings and recommendations of this plan into comprehensive plan and zoning ordinance updates for the City of Ozark.	C
1.6.1	Maintain risk assessment data in GIS, including flood zones, tornado tracks, sinkhole threat areas, disaster events, and a comprehensive inventory of critical facilities within all jurisdictions.	C
1.6.2	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.	X C
2.1.1	Seek funding sources, such as Community Development Block Grant funds, to assist low income home owners with building retrofits to protect against flood damage.	X C
2.2.1	Promote flood insurance coverage in the Towns of Clayhatchee and Ariton, once these towns enter the NFIP (Two towns that are particularly prone to riverine flooding). Promote the purchase of flood insurance coverage by property owners and renters in other high-risk flooding areas.	C
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	X C
3.2.1	Promote mitigation and severe weather awareness, through an annual severe weather awareness event.	X C
3.3.1	Obtain free publications from FEMA, NWS, USGS, and other federal and state agencies and deposit these materials with local libraries.	C

Mitigation Number	Mitigation Measure	Status
3.4.1	Distribute hazard mitigation brochures to area schools for distribution to students.	C
4.1.1	Seek technical assistance through the Alabama Cooperative Extension System with Best Management Practices (BMPs) for channel and drainage system maintenance.	C
5.1.1	Pursue an estimated \$30,000 in grants from state and federal sources to combine with local funds to implement an emergency telephone notification system utilizing reverse 9-1-1.	NC
5.1.2	Pursue an estimated \$60,000 in grants from state and federal sources to combine with local funds for outdoor warning sirens in Newton, Ariton, and two sites in Ozark.	X
5.1.3	Upgrade/establish outdoor warning sirens for coverage throughout the County.	X C
5.1.4	Provide additional early warning through use of outdoor warning sirens and reverse 911.	X C
5.1.5	Provide for better communications with E-911.	X C
5.2.1	Support the Alabama Skywarn Foundation's efforts to distribute weather radios to low-income households, especially in rural areas outside of siren coverage areas.	NC
5.2.2	Promote the use of weather radios in households and businesses.	X C
6.1.1	Pursue an estimated \$100,000 in grants from state and federal sources to combine with local funds to implement stream channel clearing projects in the City of Ozark. Highest priority is the Marley Mill channel.	X

Mitigation Number	Mitigation Measure	Status
6.1.2	Prepare and implement standard operating procedures for drainage system maintenance.	X C
6.2.1	Obtain the services of commercial power companies to maintain a clear-right-of-way around major electric transmission lines.	X

Appendix D
HMPC Hazard Identification and Ratings

App. D - HMPC Hazard Identification and Ratings

- 1.0 Scope and Methodology
- 2.0 Hazard Descriptions

1.0 Scope and Methodology

1.1 The HMPC Hazard Identification Exercises

The tables in this Appendix show the results of the Hazard Mitigation Planning Committee (HMPC) responses to hazard identification exercises presented at its April 7, 2011, committee meeting. These results are not necessarily supported by other resources evaluated in Chapter 5 – Risk Assessment, but are, nonetheless, indicators of the location, probability, and extent of natural and man-made hazards affecting Dale County jurisdictions. These responses are those perceived by the HMPC membership, based on local knowledge and experience of the members. These exercises serve as a resource to help identify the hazards affecting each jurisdiction and determine the probability and extents (severity or magnitude) and how these measures of community impacts vary among Dale County jurisdictions. The averages of the ratings compare how the location and impacts of hazards could vary among the jurisdictions. The same exercise was administered during the drafting of the 2004 plan for natural hazards, and the results are compared. The 2011 and 2004 results are very similar, on average.

Key.

The following key to the tables describes the hazard ratings:

LOCATION - WHETHER THE JURISDICTION IS AFFECTED BY THE HAZARD
1 = YES
0 = NO
PROBABILITY - THE LIKELIHOOD THAT THE HAZARD WOULD OCCUR IN THIS JURISDICTION
5 - VERY HIGH
4 - HIGH
3 - MEDIUM
2 - LOW
1 - MINIMUM
EXTENT - THE SEVERITY OR MAGNITUDE OF THE HAZARD SHOULD IT OCCUR IN THIS JURISDICTION
5 - VERY HIGH
4 - HIGH
3 - MEDIUM
2 - LOW
1 - MINIMUM

1.2 Summary of Results**Location of natural hazards**

- ✓ The HMPC has identified that all of the natural hazards, flooding, hurricanes, severe storms, tornadoes, wildfires, droughts/heat waves, winter storms/freezes, dam/levee failures, landslides, sinkholes, and earthquakes, could occur in all the jurisdictions in Dale County.

Probability of natural hazards

- ✓ According to the HMPC the most likely natural hazards to occur are severe storms with a rating of 4.3, followed by tornadoes with a rating of 3.4, flooding with a rating of 3.3, and droughts/heat waves with a rating of 3.2.
- ✓ The natural hazards that have some likelihood of occurring (less than 3.0 but greater than 2.0) are hurricanes.
- ✓ The least likely natural hazards are winter storms/freezes, dam/levee failures, wildfires, sinkholes, earthquakes, and landslides, all with ratings of less than 2.0.

Extents of natural hazards

- ✓ The most potentially severe natural hazards are tornadoes, with a rating of 4.6.
- ✓ Severe storms (3.5), hurricanes (3.4), and flooding (3.2), all could be moderately high in severity.
- ✓ Droughts/heat waves (2.8), winter storms/freezes (2.5), dam/levee failures and earthquakes (2.2 each), are considered by the HMPC to have a potential severity of low to medium in extent.
- ✓ The least severe impacts could be caused by wildfires and landslides (1.7 each) and sinkholes (1.6).

Table D-1. Dale County HMPC Identification and Ratings of Natural Hazards

Hazard	Geographic Area	Location (2004)	Location (2011)	Extent (2004)	Extent (2011)	Probability (2004)	Probability (2011)
Flooding	Dale County	1	1	4	4	2	4
	Ariton	1		4		4	
	Clayhatchee	1		4		3	
	Daleville	1		4		4	
	Grimes	1		5		4	
	Level Plains	1	1	4	2	4	3
	Midland City	1		5		4	
	Napier Field	1		5		4	
	Newton	1		5		5	
	Ozark	1	1	3	3.5	2	3
Pinckard	1		5		4		
	<i>AVERAGE</i>	<i>1</i>	<i>1</i>	<i>4.4</i>	<i>3.2</i>	<i>3.6</i>	<i>3.3</i>
Hurricane	Dale County	1	1	4	3	2	3
	Ariton	1		4		4	
	Clayhatchee	1		4		4	
	Daleville	1		4		4	
	Grimes	1		4		4	
	Level Plains	1	1	4	3	4	2
	Midland City	1		4		4	
	Napier Field	1		4		4	
	Newton	1		4		4	
	Ozark	1	1	3	4.3	2	3.5
Pinckard	1		4		4		
	<i>AVERAGE</i>	<i>1</i>	<i>1</i>	<i>3.9</i>	<i>3.4</i>	<i>3.6</i>	<i>2.8</i>
Severe Storms	Dale County	1	1	4	4	5	5
	Ariton	1		4		5	
	Clayhatchee	1		4		5	
	Daleville	1		4		5	
	Grimes	1		4		5	
	Level Plains	1	1	4	2	5	3
	Midland City	1		4		5	
	Napier Field	1		4		5	
	Newton	1		4		5	
	Ozark	1	1	3	4.5	5	4.8
Pinckard	1		4		5		
	<i>AVERAGE</i>	<i>1</i>	<i>1</i>	<i>3.9</i>	<i>3.5</i>	<i>5</i>	<i>4.3</i>
Tornadoes	Dale County	1	1	4	5	3	4
	Ariton	1		5		5	
	Clayhatchee	1		5		5	
	Daleville	1		5		5	
	Grimes	1		5		5	
	Level Plains	1	1	5	4	5	2
	Midland City	1		5		5	
	Napier Field	1		5		5	
	Newton	1		5		5	
	Ozark	1	1	3	4.8	4	4.3
Pinckard	1		5		5		
	<i>AVERAGE</i>	<i>1</i>	<i>1</i>	<i>4.7</i>	<i>4.6</i>	<i>4.7</i>	<i>3.4</i>

APPENDICES

2011 Dale County Multi-Hazard Mitigation Plan

Hazard	Geographic Area	Location (2004)	Location (2011)	Extent (2004)	Extent (2011)	Probability (2004)	Probability (2011)
Wildfires	Dale County	1	1	3	2	1	2
	Ariton	1		3		1	
	Clayhatchee	1		3		1	
	Daleville	1		2		3	
	Grimes	1		2		1	
	Level Plains	1	1	2	1	1	1
	Midland City	1		2		1	
	Napier Field	1		2		1	
	Newton	1		2		1	
	Ozark	1	1	3	2	5	1.5
	Pinckard	1		2		1	
	AVERAGE	1	1	2.4	1.7	1.5	1.5
Droughts/Heat Waves	Dale County	1	1	3	2	2	2
	Ariton	1		5		5	
	Clayhatchee	1		4		3	
	Daleville	1		4		3	
	Grimes	1		3		3	
	Level Plains	1	1	5	3	4	3
	Midland City	1		4		5	
	Napier Field	1		4		5	
	Newton	1		4		4	
	Ozark	1	1	3	3.3	3	4.5
	Pinckard	1		1		1	
	AVERAGE	1	1	3.6	2.8	3.5	3.2
Winter Storms/Freezes	Dale County	1	1	3	2	1	2
	Ariton	1		3		2	
	Clayhatchee	1		3		1	
	Daleville	1		4		2	
	Grimes	1		3		1	
	Level Plains	1	1	3	3	1	2
	Midland City	1		3		1	
	Napier Field	1		3		1	
	Newton	1		3		1	
	Ozark	1	1	3	2.5	2	1.8
	Pinckard	1		3		1	
	AVERAGE	1	1	3.1	2.5	1.3	1.9
Dam/levee Failures	Dale County	1	1	5	1	1	1
	Ariton	1		1		1	
	Clayhatchee	1		2		1	
	Daleville	1		3		1	
	Grimes	1		1		1	
	Level Plains	1	1	1	2	1	2
	Midland City	1		1		1	
	Napier Field	1		1		1	
	Newton	1		2		1	
	Ozark	1	1	3	3.7	3	2
	Pinckard	1		1		1	
	AVERAGE	1	1	1.9	2.2	1.2	1.7
Landslides	Dale County	1	1	2	1	1	1
	Ariton	1		2		1	
	Clayhatchee	1		2		1	
	Daleville	1		2		1	
	Grimes	1		1		1	
	Level Plains	1	1	1	1	1	1
	Midland City	1		1		1	
	Napier Field	1		1		1	

APPENDICES

2011 Dale County Multi-Hazard Mitigation Plan

Hazard	Geographic Area	Location (2004)	Location (2011)	Extent (2004)	Extent (2011)	Probability (2004)	Probability (2011)
	Newton	1		3		1	
	Ozark	1	1	1	3	1	1
	Pinckard	1		1		1	
	<i>AVERAGE</i>	<i>1</i>	<i>1</i>	<i>1.5</i>	<i>1.7</i>	<i>1</i>	<i>1</i>
Sinkholes	Dale County	N/A	1	N/A	1	N/A	1
	Ariton	N/A		N/A		N/A	
	Clayhatchee	N/A		N/A		N/A	
	Daleville	N/A		N/A		N/A	
	Grimes	N/A		N/A		N/A	
	Level Plains	N/A	1	N/A	1	N/A	1
	Midland City	N/A		N/A		N/A	
	Napier Field	N/A		N/A		N/A	
	Newton	N/A		N/A		N/A	
	Ozark	N/A	1	N/A	2.8	N/A	2
	Pinckard	N/A		N/A		N/A	
	<i>AVERAGE</i>	<i>N/A</i>	<i>1</i>	<i>N/A</i>	<i>1.6</i>	<i>N/A</i>	<i>1.3</i>
Earthquakes	Dale County	1	1	3	1	1	1
	Ariton	1		1		2	
	Clayhatchee	1		2		1	
	Daleville	1		3		2	
	Grimes	1		2		2	
	Level Plains	1	1	1	1	2	1
	Midland City	1		2		2	
	Napier Field	1		2		2	
	Newton	1		1		2	
	Ozark	1	1	3	4.5	2	1.5
	Pinckard	1		2		1	
	<i>AVERAGE</i>	<i>1</i>	<i>1</i>	<i>2</i>	<i>2.2</i>	<i>1.7</i>	<i>1.2</i>

2.0 Hazard Descriptions

2.1 Hurricanes Description

Hurricanes, as referred to in this plan, include all types of tropical cyclones: hurricanes, tropical storms, and tropical depressions. A tropical cyclone is a rotating weather system that develops in the tropics. A tropical depression is an organized system of persistent clouds and thunderstorms with low level closed circulation and maximum sustained winds of 38 mph or less. A tropical storm is an organized system of strong thunderstorms with a well-defined circulation and maximum sustained winds of 39 to 73 mph. All of these tropical cyclones begin as a disturbance. A disturbance may result from a number of different weather events including Easterly Waves, West African Disturbance Line, Tropical Upper Tropospheric Trough or an Old Frontal Boundary. In

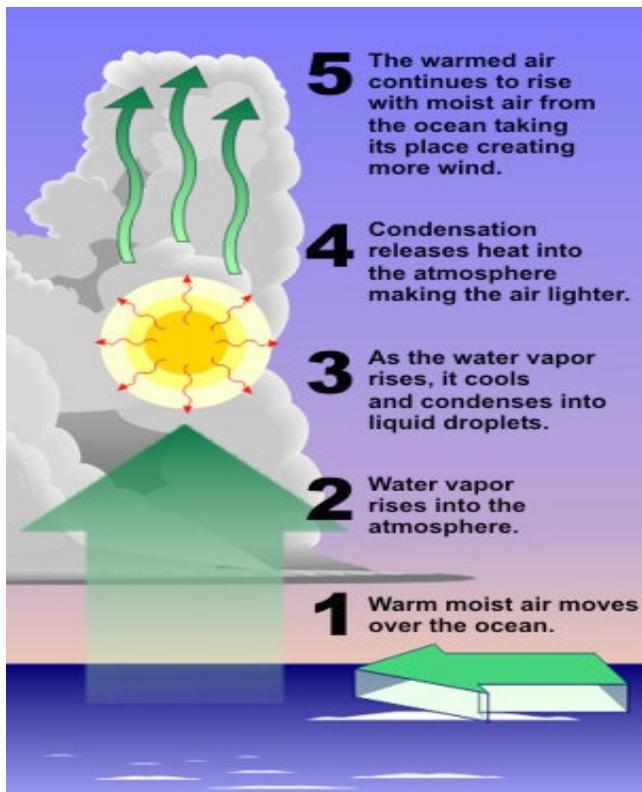


Figure D-1. How a Hurricane Forms

Source: National Hurricane Center (www.nhc.noaa.gov)

order for a tropical disturbance to develop into a hurricane, three things must occur. First, the disturbance must gather energy and heat through contact with warm ocean waters. Next, added moisture evaporated from the sea surface provides power to the tropical storm. And last, the seedling storm forms a wind pattern near the ocean surface that spirals inward. Warm water is the most important of the three, as it provides the fuel for a disturbance to eventually develop into a hurricane. A hurricane is a tropical weather system with a well defined circulation and sustained winds of 74 mph or higher. Even inland areas, well away from the coastline, can experience destructive winds, tornadoes and floods from tropical storms and hurricanes.

The Atlantic hurricane season begins on June 1 and lasts through November. Within the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico annually there are an average of 11 tropical storms, 6

of which become hurricanes. In a typical three-year span, the US coastline is struck an average of five times, two that are major hurricanes (category 3 or higher.) Hurricanes pose the greatest threat to life and property, but tropical depressions and storms can also cause extensive damage and loss of life. Hurricanes are categorized on a scale of 1 to 5 based on their sustained wind speed. Herbert Saffir, a consulting engineer in Coral Gables, Florida, and Dr. Robert Simpson, then director of the National Hurricane Center, developed this scale in the 1970's. Category 3-5 hurricanes are considered to be major storms. The Saffir-Simpson scale

is based primarily on wind speeds and includes estimates of barometric pressure and storm surge associated with each of the five categories.

Table D-2. Saffir-Simpson Scale

Category	Wind Speed	Storm Surge (feet above normal sea level)	Expected Damage
1	74-95 mph	4-5 ft	Minimal: Damage is done primarily to shrubbery and trees, unanchored mobile homes are damaged, some signs are damaged, no real damage is done to structures
2	96-110 mph	6-8 ft	Moderate: Some trees are toppled, some roof coverings are damaged, major damage is done to mobile homes
3	111-130 mph	9-12 ft	Extensive: Large trees are toppled, some structural damage is done to roofs, mobile homes are destroyed, structural damage is done to small homes and utility buildings.
4	131-155 mph	13-18 ft	Extreme: Extensive damage is done to roofs, windows, and doors; roof systems on small buildings completely fail, some curtain walls fail
5	>155 mph	>18 ft	Catastrophic: Roof damage is considerable and widespread, window and door damage is severe, there are extensive glass failures and entire buildings could fail.

Source: National Hurricane Center

The main parts of a hurricane are the eye, the eye wall, and rain bands. The **eye** of a hurricane is the calmest part. The eye is typically 20-40 miles across and has light winds that don't exceed 15 mph. An eye will usually develop when the maximum sustained wind speed is more than 74 mph. The strong rotation around the cyclone balances inflow to the center, causing air to ascend about 10-20 miles from the center forming the eye wall. A vacuum of air at the center is caused due to the strong rotation, the vacuum allows air flowing out of the top of the eye wall to turn inward and sink to replace the loss of air mass near the center. Due to the sinking air, cloud formation is suppressed. The passage of the eye is the calmest part of the hurricane. Since there is a light wind and fair weather, many believe that the storm has passed, which can prove dangerous. Immediately after the passage of the eye, the eye wall winds return but in an opposite direction.

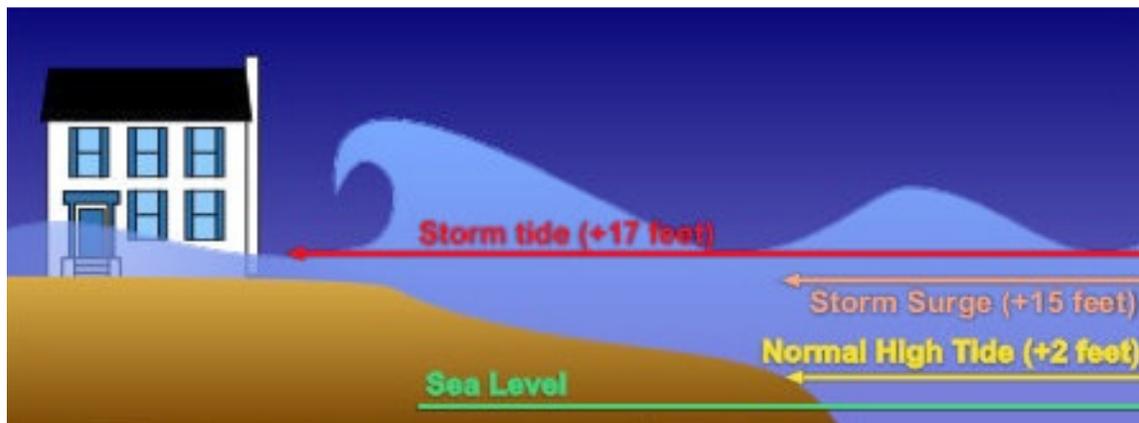
The **eye wall** is the part of a hurricane where the strong winds meet the eye. The eye wall is a group of tall thunderstorms that produce heavy rain and the strongest winds within the storm. Changes in the structure of the eye and eye wall can cause

changes in the wind speed, which is an indicator of the storm's intensity. An eye may grow or shrink in size and additional eye walls can form.

The **rain bands** are the outermost part of the hurricane. They are bands of clouds and thunderstorms that trail away from the eye wall in a spiral fashion. These bands produce heavy rain and strong winds, as well as potentially tornadoes.

A hurricane also has additional hazards associated with it, both direct and indirect. The secondary hazards include storm surge, wind gusts, squalls, inland flooding and tornadoes. **Storm surge** is water that is pushed toward the shore by the winds around the storm. Storm surge combines with the normal tides to create the hurricane storm tide. Wind driven waves also combine into hurricane storm tide. The rise in water level can cause severe flooding in coastal areas. The level of surge is dependent upon the slope of the continental shelf. A shallow slope off of the coast allows a higher surge to inundate the area.

Figure D-2. Storm Surge



Source: NWS Jet Stream- Online School for Weather at www.srh.noaa.gov/srh/jetstream/tropics/tc_hazards.htm

In addition to storm surge, hurricanes are also known for **damaging winds**. They are rated according to their sustained wind speed. This scale does not account for gusts and squalls. **Gusts** are short and rapid bursts in wind speed. They are caused by turbulence over land mixing faster air aloft to the surface. **Squalls** are longer period of increased wind speeds; they are normally located within the outer rain bands.

Hurricanes, tropical storms, and depressions many times bring torrential rains and flooding. This flooding may last many days after the storm has passed. The strength of the storm does not always affect the level of flooding. A slow, weak tropical storm can cause more damage due to flooding than a more powerful fast moving hurricane.

Tornadoes also may occur within a tropical cyclone. They are most likely to occur in the right-front quadrant of the storm, but can be embedded within the rain bands well away from the center of the storm. Some hurricanes produce no tornadoes, while others develop numerous ones. According to NOAA studies, half of all land falling hurricanes

produce at least one tornado. The effects of a tornado, in addition to hurricane force winds, can produce substantial wind damages. A tornado can develop at any point during landfall, but normally occur within 12 hours after landfall, during daylight hours. Due to the likelihood of a tornado within a hurricane, a tornado watch is normally issued along the anticipated path of a hurricane before landfall.

(The description of hurricanes presented in this section is based upon information extracted from the NOAA publication Hurricanes Unleashing Nature's Fury, A Preparedness Guide, Revised January 2007 at <http://www.nws.noaa.gov/om/hurricane/pdfs/HurricanesUNF07.pdf> and the NWS Jet Stream Online School for Weather at http://www.srh.noaa.gov/srh/jetstream/tropics/tropics_intro.htm).

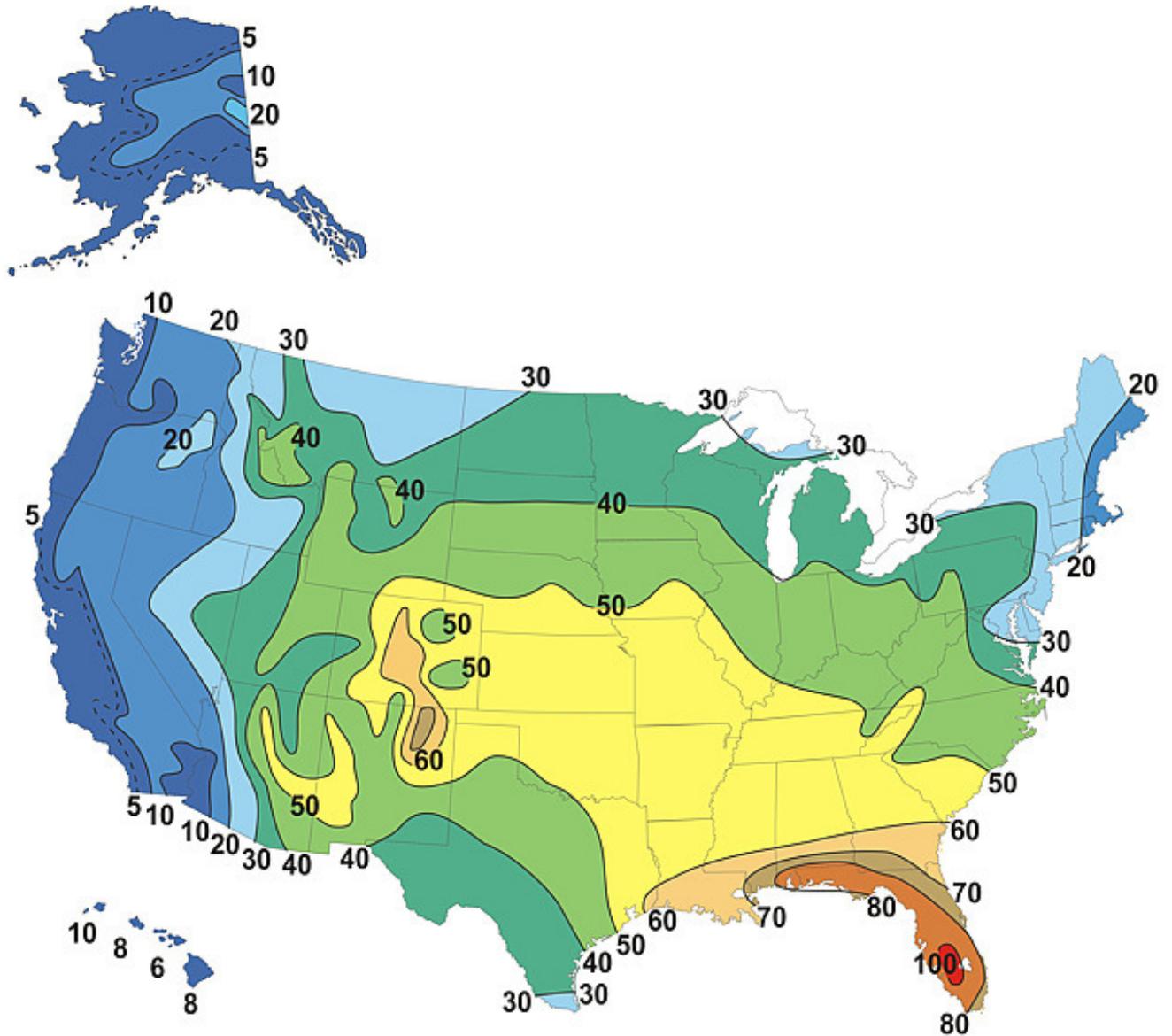
2.2 Severe Storms Description

Severe storms, as referred to in this plan, include severe thunderstorms with damaging lightning, hail, and straight-line winds. Severe storms are also associated with tornadoes, hurricanes, and floods, which are described separately in this plan.

Thunderstorms affect relatively small areas when compared with hurricanes and winter storms. The typical thunderstorm is 15 miles in diameter and lasts an average of 30 minutes. Despite their small size, thunderstorms can be dangerous. Of the estimated 100,000 thunderstorms that occur each year in the United States, about 10 percent are classified as severe. The National Weather Service considers a thunderstorm severe if it produces hail at least 3/4-inch in diameter, winds of 58 mph or stronger, or a tornado.

The National Weather Service estimates over 40,000 thunderstorms occur each day worldwide or close to 16 million annually. In the U.S., roughly 100,000 thunderstorms occur each year. The following map shows the average number of thunderstorm days each year throughout the U.S. The most frequent occurrence is in the southeastern states, with Florida having the highest incidence at 80 to 100+ thunderstorm days per year. Alabama's incidence is high at 50 to 80 thunderstorm days per year. Warm, moist air from the Gulf of Mexico and the Atlantic Ocean is most readily available to fuel thunderstorm development in this region of the country.

Map D-1. U.S. Average Thunderstorm Days per Year



Source: National Weather Service

Figure D-3. Life Cycle of a Thunderstorm

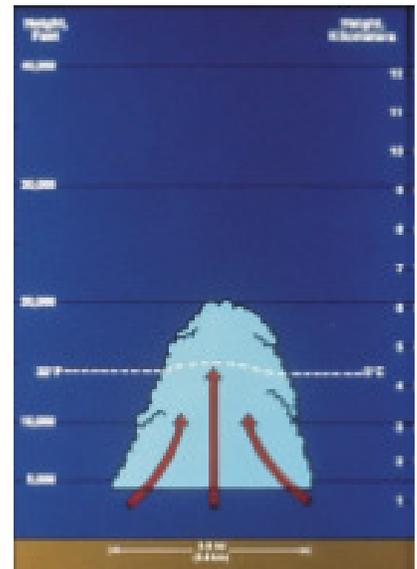


Developing Stage

- Towering cumulus cloud indicates rising air.
- Usually little if any rain during this stage.
- Lasts about 10 minutes.
- Occasional lightning.

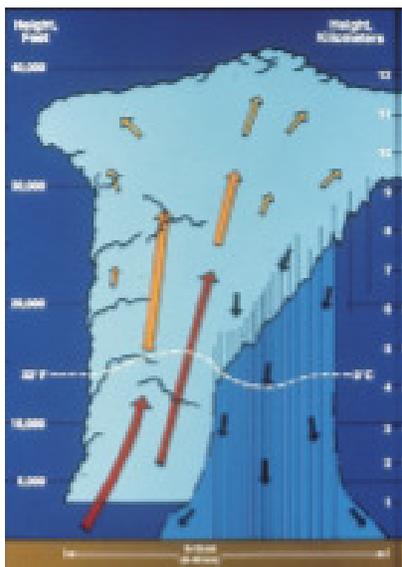
Mature Stage

- Most likely time for hail, heavy rain, frequent lightning, strong winds, and tornadoes.
- Storm occasionally has a black or dark green appearance.
- Lasts an average of 10 to 20 minutes but may last much longer in some storms.



Dissipating Stage

- Rainfall decreases in intensity.
- Can still produce a burst of strong winds.
- Lightning remains a danger



Source: National Weather Service

Lightning results from the buildup and discharge of electrical energy between positively and negatively charged areas. Rising and descending air within a thunderstorm separates these positive and negative charges. Water and ice particles also affect charge distribution. A cloud-to-ground lightning strike begins as an invisible channel of electrically charged air moving from the cloud toward the ground. When one channel nears an object on the ground, a powerful surge of electricity from the ground moves upward to the clouds and produces the visible lightning strike.

Here are some facts about lightning from the National Weather Service:

- Lightning causes an average of 80 fatalities and 300 injuries each year.
- Lightning occurs in all thunderstorms.
- Each year lightning strikes the earth 20 million times. The energy from one lightning flash could light a 100-watt light bulb for more than three months.
- Most lightning fatalities and injuries occur when people are caught outdoors in the summer months during the afternoon and evening.
- Lightning can occur from cloud-to-cloud, within a cloud, cloud-to-ground, or cloud-to-air.
- Lightning starts many fires in the western United States and Alaska.
- The air near a lightning strike is heated to 50,000°F--hotter than the surface of the sun!
- The rapid heating and cooling of the air near the lightning channel causes a shock wave that results in thunder.

Another damaging effect of severe storms is **hail**. Hail stones are large ice particles produced by intense thunderstorms. Strong rising currents of air within a storm, called updrafts, carry water droplets to a height where freezing occurs. Ice particles grow in size, becoming too heavy to be supported by the updraft, and fall to the ground. Large stones can fall at speeds faster than 100 mph. Hail causes substantial damage to property and crops each year in the U.S.



Figure D-4. Hail Stones.

Most thunderstorm wind damage is caused by straight-line winds, which can exceed 100 mph. One type of straight-line wind, the downburst, is a small area of rapidly descending air beneath a thunderstorm. A downburst can cause damage equivalent to a strong tornado.

(The description of severe storms presented in this section is based upon information extracted from National Weather Service on-line publications at <http://www.srh.noaa.gov/jetstream/tstorms/>).

2.3 Tornadoes Description

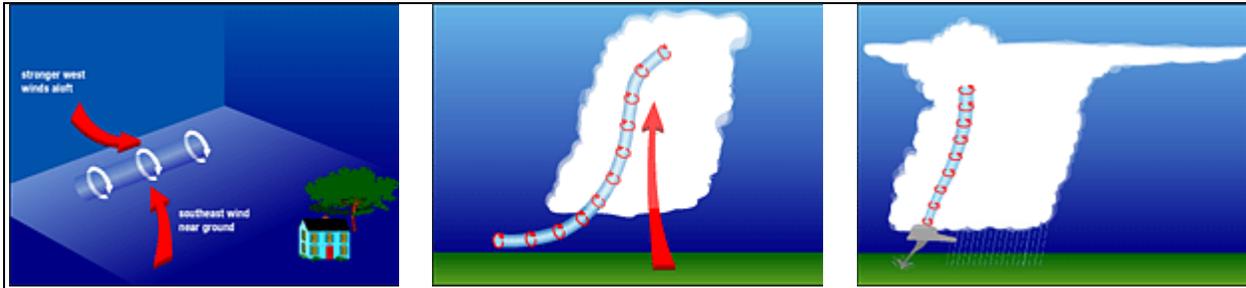
Tornadoes are one of nature's most violent storms, which are characterized by a rapidly rotating column of air extending from the base of a thunderstorm to the ground. In an average year, approximately 1,000 tornadoes are reported across the United States, resulting in over 1,500 injuries and 80 deaths, the greatest number of wind-related deaths. The most violent tornadoes, with wind speeds of 250 mph or more, are capable of tremendous destruction. Damage paths can be more than one mile wide and 50 miles long. Tornadoes can occur anywhere and come in all shapes and sizes.

In Alabama, peak tornado season is generally March through May with a secondary season in late fall; however, tornadoes can strike at any time of the year if the essential conditions are present. Tornadoes in the peak season are often associated with strong, frontal systems that form in central states and move east. Occasionally, large outbreaks of tornadoes occur with this type of weather pattern. Several states may be affected by numerous severe storms and tornadoes.

Tornadoes can occur in thunderstorms that develop in warm, moist air masses in advance of eastward-moving cold fronts. These thunderstorms often produce large hail and strong winds, in addition to tornadoes. Thunderstorms spawn tornadoes when cold air overrides a layer of warm air, causing the warm air to rise rapidly. Tornadoes occasionally accompany tropical storms and hurricanes that move over land. They are most common to the right and ahead of the path of the storm center as it comes onshore. The winds produced from wildfires have also been known to produce tornadoes.

The following graphic describes the formation of a tornado:

Figure D-5. How a Tornado Forms



▲ Before thunderstorms develop, a change in wind direction and an increase in wind speed with increasing height create an invisible, horizontal spinning effect in the lower atmosphere.

▲ Rising air within the thunderstorm updraft tilts the rotating air from horizontal to vertical.

▲ An area of rotation, 2-6 miles wide, now extends through much of the storm. Most strong and violent tornadoes form within this area of strong rotation.



Woodward OK (Ron Przybylinski)

▲ A lower cloud base in the center of the photograph identifies an area of rotation known as a rotating wall cloud. This area is often nearly rain-free. Note rain in the background.



Woodward OK (Ron Przybylinski)

▲ Moments later a strong tornado develops in this area. Softball-size hail and damaging "straight-line" winds also occurred with this storm.

Source: Tornadoes – A Preparedness Guide, National Weather Service, February 1995.

Meteorologists rely on weather radar to provide information on developing storms. The National Weather Service is strategically locating Doppler radars across the country, which can detect air movement toward or away from the radar. Early detection of increasing rotation aloft within a thunderstorm can allow life-saving warnings to be issued before the tornado forms.

When conditions are favorable for severe weather to develop, a severe thunderstorm or tornado WATCH is issued. Weather Service personnel use information from weather radar, spotters, and other sources to issue severe thunderstorm and tornado WARNINGS for areas where severe weather is imminent. Severe thunderstorm warnings are passed to local radio and television stations and are broadcast over local NOAA Weather Radio stations serving the warned areas. These warnings are also relayed to local emergency management and public safety officials who can activate local warning systems to alert communities.

In 1971, Dr. T. Theodore Fujita of the University of Chicago developed the original F-scale for wind damages, including tornadoes. The original F-scale, however, was recently replaced by an enhanced version effective February 1, 2007. The Enhanced F-scale is a more precise method of tornado damage assessment that classifies damage according to calibrations developed by engineers and meteorologists across 28 different types of damage indicators. The underlying premise is that a tornado scale needs to take into account the varying strengths and weaknesses of different types of construction. As with the original F-scale, the enhanced version rates the tornado as a whole based on most intense damage within the path. Historical tornadoes before February 1, 2007, will not be re-evaluated using the Enhanced F-scale.

Table D-3. Enhanced F Scale for Tornado Damage

FUJITA SCALE			DERIVED EF SCALE		OPERATIONAL EF SCALE	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	4D-78	0	6D-85	0	6D-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165
4	208-260	210-261	4	168-199	4	166-200
5	261-318	262-317	5	200-234	5	Over 200

Source: NOAA Storm Prediction Center's On-Line Frequently Asked Questions about Tornadoes (<http://www.spc.noaa.gov/faq/tornado/#f-scale3>)

Table D-4. Fujita Tornado Damage Scale

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

Source: NOAA Storm Prediction Center's On-Line Frequently Asked Questions about Tornadoes
<http://www.spc.noaa.gov/faq/tornado/#f-scale3>

(The description of tornadoes presented in this section is based upon information extracted from the FEMA How to Guides Understanding Your Risks (FEMA 386-2), FEMA, August 2001, and Using HAZUS-MH for Risk Assessment (FEMA 433), FEMA, August 2004, Tornadoes – A Preparedness Guide, National Weather Service, February 1995, and the NOAA Storm Prediction Center's On-Line Frequently Asked Questions about Tornadoes (<http://www.spc.noaa.gov/faq/tornado/#f-scale3>).

2.4 Floods Description

A flood is a natural event for rivers and streams. Excess water from snowmelt, rainfall, or storm surge accumulates and overflows onto the banks and adjacent floodplains. Floodplains are lowlands, adjacent to rivers, lakes, and oceans that are subject to recurring floods.

Hundreds of floods occur each year, making it one of the most common hazards in all 50 states and U.S. territories. Floods kill an average of 150 people a year nationwide. They can occur at any time of the year, in any part of the country, and at any time of day or night. Floodplains in the U.S. are home to over nine million households. Most injuries and deaths occur when people are swept away by flood currents, and most property damage results from inundation by sediment-filled water.

Several factors determine the severity of floods, including rainfall intensity, other water source and duration. A large amount of rainfall over a short time span can result in flash flood conditions. A small amount of rain can also result in floods in locations where the soil is saturated from a previous wet period or if the rain is concentrated in an area of

impermeable surfaces such as large parking lots, paved roadways, or other impervious developed areas. Topography and ground cover are also contributing factors for floods. Water runoff is greater in areas with steep slopes and little or no vegetative ground cover. Frequency of inundation depends on the climate, soil, and channel slope. In regions where substantial precipitation occurs in a particular season each year, or in regions where annual flooding is derived principally from snowmelt, the floodplains may be inundated nearly every year. In regions without extended periods of below-freezing temperatures, floods usually occur in the season of highest precipitation. In areas where flooding is caused by melting snow, and occasionally compounded by rainfall, the flood season is spring or early summer.

Fortunately, most of the known floodplains in the United States have been mapped by FEMA, which administers the NFIP (National Flood Insurance Program). When a flood study is completed for the NFIP, the information and maps are assembled into a Flood Insurance Study (FIS). An FIS is a compilation and presentation of flood risk data for specific watercourses, lakes, and coastal flood hazard areas within a community and includes causes of flooding. The FIS report and associated maps delineate Special Flood Hazard Areas (SFHAs), designate flood risk zones, and establish base flood elevations (BFEs), based on the flood that has a 1% chance of occurring annually, or the 100-year flood. Paper FIRMs and FIS reports are gradually being replaced by DFIRMs (digital FIRMs).

The **100-year flood** designation applies to the area that has a 1 percent chance, on average, of flooding in any given year. However, a 100-year flood could occur two years in a row, or once every 10 years. The 100-year flood is also referred to as the **base flood**. The base flood is the standard that has been adopted for the NFIP. It is a national standard that represents a compromise between minor floods and the greatest flood likely to occur in a given area and provides a useful benchmark.

Base Flood Elevation (BFE), as shown on the FIRM, is the elevation of the water surface resulting from a flood that has a 1% chance of occurring in any given year. The BFE is the height of the base flood, usually in feet, in relation to the National Geodetic Vertical Datum (NGVD) of 1929, the North American Vertical Datum (NAVD) of 1988, or other datum referenced in the FIS report.

Special Flood Hazard Area (SFHA) is the shaded A-Zone or V-Zone area on a FIRM that identifies an area that has a 1% chance of being flooded in any given year or the **100-year floodplain**. FIRMs show different floodplains with different zone designations, as shown on Table D-5 “Flood Zone Designations.” These are used for insurance rating purposes, but are also necessary for flood permitting and flood hazard mitigation planning purposes. The **500-Year Floodplain** is the shaded X-Zone area shown on a FIRM that has a 0.2% chance of being flooded in any given year.

Table D-5. Flood Zone Designations

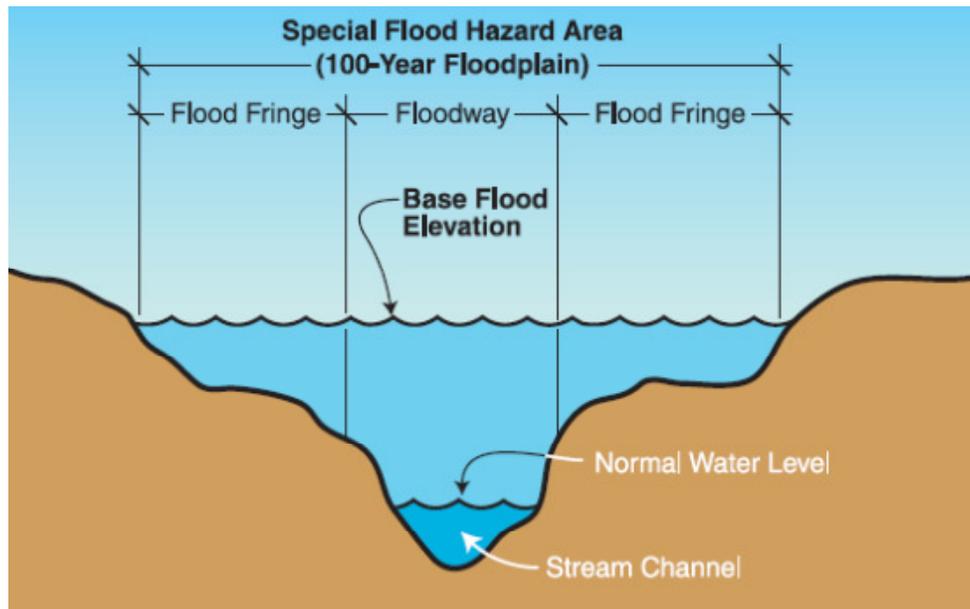
A Zones	100-year floodplain areas of high risk.	
	A	The base floodplain mapped by approximate methods, i.e., BFEs are not determined. This is often called an unnumbered A zone or an approximate A zone.
	AE	The base floodplain where base flood elevations are provided.
	AO	The base floodplain with sheet flow, ponding, or shallow flooding. Base flood depths (feet above ground) are provided.
	AH	Shallow flooding base floodplain. BFEs are provided.
	A99	Area to be protected from base flood by levees or Federal flood protection systems under construction. BFEs are not determined.
	AR	The base floodplain that results from the de-certification of a previously accredited flood protection system that is in the process of being restored to provide a 100-year or greater level of flood protection.
V Zones	100-year coastal floodplain areas of high risk	
	V	The coastal area subject to a velocity hazard (wave action) where BFEs are not determined on the FIRM.
	VE	The coastal area subject to a velocity hazard (wave action) where BFEs are provided on the FIRM.
X Zones	Areas of minimal to moderate risk outside the 100-year floodplain.	
	Shaded	Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. Also includes areas protected by levees from the 100-year flood and shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.
	Unshaded	Area of minimal flood hazard determined to be outside the 500-year floodplain.
D Zone	Area of undetermined but possible flood hazards.	

Source: FEMA

Floodway is the stream channel and that portion of the adjacent floodplain that must remain open to permit passage of the base flood without substantial increases in flood heights. The **Flood Fringe** is the remainder of the 100-year floodplain.

The following graphic shows the components of a floodplain along a stream:

Figure D-6. Flood Plain Cross Section



Source: FEMA

A range of floods, other than just the 100-year flood, could happen within an area. Buildings in very close proximity to a stream or shoreline, for example, might experience flooding much more frequently.

(The description of floods presented in this section is based upon information extracted from the FEMA How to Guide Understanding Your Risks (FEMA 386-2), FEMA, August 2001).

2.5 Wildfires Description

Wildfires are a serious and growing hazard over much of the United States, posing great threats to life and property, particularly when moving from rural forest or rangeland into developed urban areas. Millions of acres burn every year in the United States as a result of wildfires, causing millions of dollars in damage. Each year more than 100,000 wildfires occur in the United States, almost 90 percent of which are started by humans; the rest are caused by natural causes, primarily lightning, other natural causes include sparks from falling rocks and volcanic activity. Weather is one of the most significant factors in determining the severity of wildfires. The intensity of fires and the rate with which they spread is directly related to wind speed, temperature, and relative humidity. Climatic conditions, such as long-term drought, also play a major role in the number and the intensity of wildfires.

A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures. They often begin unnoticed and spread quickly and are usually signaled by dense smoke that fills the area for miles around.

Most wildfires fall within two categories: Wildland Fire and Wildland-Urban Interface fires. **Wildland fires** occur in areas where there is little development except for roads, railroads, power lines and other basic infrastructure. **Wildland-urban interface fires** occur in areas where development, primarily residential, meet wildland areas. Areas with a large amount of wooded, brush and grassy areas are at highest risk from wildfires.

The primary cause of wildfires is human activity, either intentional or accidental. Intentional fires may be started as prescribed burns, to drive game or arson. Accidental fires are caused by the carelessness of hikers or others traveling through wildland areas. The severity and duration of the fire is based upon numerous factors including available fuel, topography and weather conditions. Through efforts of the Alabama Forestry Commission, wildfires are decreasing. They have a fleet of airplanes available to patrol vulnerable areas. There is also a toll-free number in place for the public to call and report wildfires. The forestry commission does have firefighters available to respond to fires, but the effort is largely accomplished through a network of volunteer fire departments.

(The description of wildfires presented in this section is based upon information extracted from the FEMA How to Guides Understanding Your Risks (FEMA 386-2), August 2001, Using HAZUS-MH for Risk Assessment How to Guide (FEMA 433), August 2004, and the Alabama Forestry Commission at <http://www.forestry.alabama.gov>).

2.6 Droughts/Heat Waves Description

A drought can occur almost anywhere, and its features vary from place to place depending on culture and geography. According to the National Drought Mitigation Center (NDMC), there are four ways of measuring drought. First is a **meteorological drought**, which is a decrease in precipitation in some period of time. These are usually region-specific, and based on a thorough understanding of regional climatology. Meteorological measurements are the first sign of drought. An **agricultural drought** occurs when there is not enough soil moisture to meet the needs of a particular crop at a particular time. Agricultural drought occurs after a meteorological drought, but before hydrological drought. **Hydrological drought** is deficiencies in surface and subsurface water supplies. It is measured as stream flow and at lake, reservoir and groundwater levels. There is a time lag between lack of rain and less water in rivers, streams, reservoirs and lakes. When precipitation is deficient over time, it will show in these water levels. The last type of drought defined by NDMC is a **socioeconomic drought**, which occurs when water shortages begin to affect people. In addition to the impacts discussed above, water level decline due to drought can also cause sinkholes to form.

The draft Alabama Drought Management Plan (2004) by the Office of Water Resources of the Alabama Department of Economic and Community Affairs (ADECA) explains the potential threats of droughts to Alabama and the need for effective drought planning and management, as follows:

In recent years, drought conditions have endangered Alabama's water resources and adversely affected the livelihood of many people. Drought is a natural event that, unlike floods or tornadoes, does not occur in a violent burst but gradually happens; furthermore, the duration and extent happens; furthermore, the duration and extent of drought conditions are unknown because rainfall is unpredictable in amount, duration and location. The devastation (environmental, social, and economic) experienced in recent years due to drought conditions has not been successfully mitigated because previous responses to drought conditions at all levels of government has been slow and fragmented, with little focus on preparedness and mitigation. In an effort to be more proactive, the Office of Water Resources worked closely with numerous local, state, and federal agencies and other water resources professionals to develop and implement this statewide approach to drought planning and management.

The State drought plan establishes four phases of drought conditions – drought watch, advisory, warning, and emergency – identified by a compilation of drought indices, which include Crop Moisture Index, Palmer Drought Severity Index, Stream Flow, Reservoir Elevation Level, and Groundwater. Each of these phases requires varying levels of management. The U.S. Drought Monitor by the National Drought Mitigation Center (NDMC) uses a four-tier system to continuously monitor drought intensity based on another combination of drought indices. “D0” includes drought watch areas that are abnormally dry and on the verge of drought or recovering from drought. “D1” is the first drought stage with severe conditions, and “D4” is most intense drought stage with exceptional drought conditions. The primary adverse physical effects of drought are classified as “A” (adverse impacts to agricultural crops, pastures, and grasslands) or “H” (adverse impacts to hydrologic resources for water supply, including rivers, reservoirs, and groundwater).

According to NOAA, extreme heat is the number one weather related killer taking an average of 1,500 people in the U.S. annually. The National Weather Service issues watches and warnings when the heat index is expected to exceed 105°-110° F for at least two consecutive days. The heat index is given in degrees Fahrenheit and is a measure of how hot it really feels when the relative humidity is added to the actual air temperature.

Table D-6. NOAA's National Weather Service Heat Index

Temperature (°F)

	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity
■ Caution ■ Extreme Caution ■ Danger ■ Extreme Danger

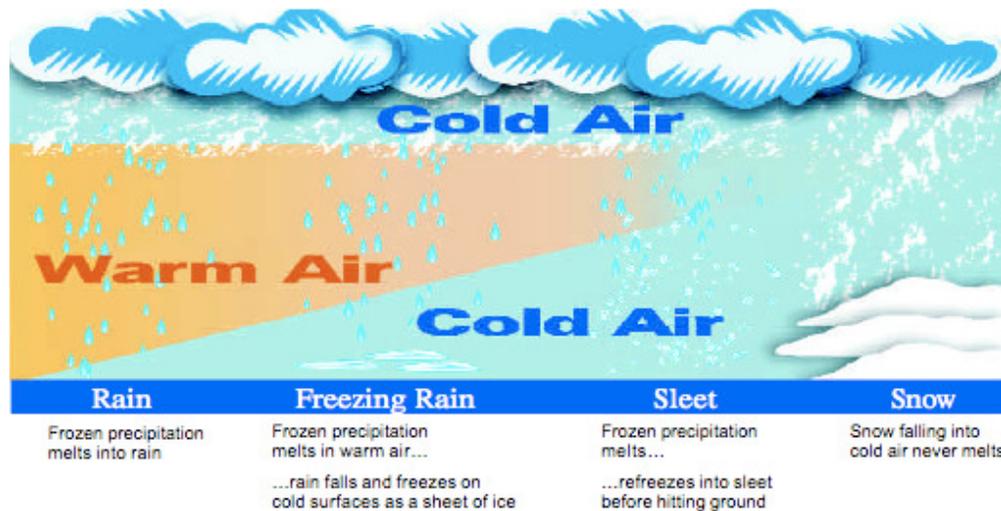
Source: NOAA at <http://www.weather.gov/om/heat/index.shtml>

(The description of droughts/extreme heat presented in this section is extracted from: National Drought Mitigation Center, Defining Drought: Overview at <http://drought.unl.edu/whatis/define.htm> and NOAA, Heat Wave: A Major Summer Killer at <http://www.noaa.gov/themes/heat.php>).

2.7 Winter Storms/Freezes Description

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

Figure D-7. Types of Winter Precipitation



Source: National Weather Service, Winter Storms, The Deceptive Killers at <http://www.weather.gov/os/winter/resources/winterstorm.pdf>

Types of events that occur within a winter storm include freezing rain, sleet, blizzards, and frost/freeze. **Freezing rain** is rain that freezes when it hits the ground which coats roads, trees and power lines. **Sleet** is rain that turns into ice pellets before hitting the ground. A **blizzard** is snowfall with sustained winds or frequent gusts up to 35mph and considerable amounts of blowing snow. The expectation is that blizzard conditions will last 3 or more hours. Freezes occur when the temperatures will go below freezing. Many times frost/freezes cause substantial damage to crops.

(The description of winter storms/freezes presented in this section is extracted from NOAA/NWS's publication Winter Storms, The Deceptive Killers, A Preparedness Guide at <http://www.weather.gov/os/winter/resources/winterstorm.pdf>).

2.8 Earthquakes Description

An earthquake is the shaking and vibration at the surface of the earth resulting from underground movement along a fault plane. Earthquakes are caused by the release of built-up stress within rocks along geologic faults or by the movement of magma in volcanic areas. They usually occur without warning and are usually followed by aftershocks. Earthquakes can affect hundreds of thousands of square miles and cause tens of billions of dollars of damage to property. An earthquake event can cause injury and loss of life to hundreds of thousands of persons and can greatly disrupt the social and economic functioning of the affected area. Secondary hazards during an earthquake may occur, such as surface faulting, sinkholes, and landslides.

The rupture or sudden movement of a fault causes earthquakes where stresses have accumulated along opposing fault planes of the earth's outer crust. These fault planes are usually found along the borders of the earth's tectonic plates, which generally follow the outlines of the continents. However, fault planes may occur at the interior of the plates. The plates range from 50 to 60 miles in thickness and move slowly and

continuously over the earth's interior. Where the plates move past each other, they continually bump, slide, catch, and hold. When the stress exceeds the elastic limit of the rock, an earthquake occurs. Generally, the larger the earthquake, the greater the potential for surface fault rupture.

The area of greatest seismic activity in the United States is along the Pacific coast in California and Alaska, but as many as forty states can be characterized as having at least moderate earthquake risk. For example, seismic activity has been recorded in Boston, Massachusetts; New Madrid, Missouri; and Charleston, South Carolina, places not typically thought of as earthquake zones. Areas prone to



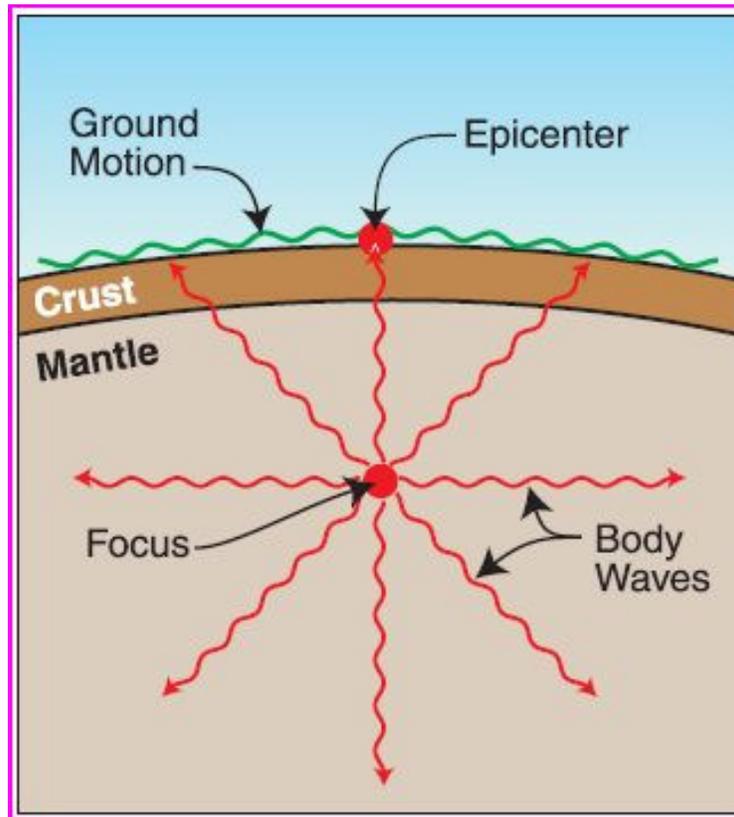
earthquakes are relatively easy to identify in the Western United States based on known geologic formations; however, predicting exactly when and where earthquakes will occur is very difficult everywhere. Records show that building inventories in 39 states are vulnerable to earthquake damage.

Most property damage and earthquake-related deaths result from the

failure and collapse of structures caused by **ground shaking or ground motion**. Ground shaking is the motion felt on the earth's surface caused by seismic waves generated by an earthquake. The strength of the ground shaking is determined by the magnitude of the earthquake, the surface distance from the earthquake's epicenter and type of fault, and by the site and regional geology.

Ground shaking causes waves in the earth's interior, known as **seismic waves**, and along the earth's surface, known as **surface waves**. There are two types of seismic waves: *primary waves* which are longitudinal that cause back-and-forth oscillation along the direction of travel (vertical motion); and *secondary waves or shear waves* which are slower than primary waves and cause structures to vibrate from side-to-side (horizontal motion). Surface waves travel more slowly than and are usually significantly less damaging than seismic waves, illustrated by Figure D-8, below.

Figure D-8. Seismic and Surface Waves



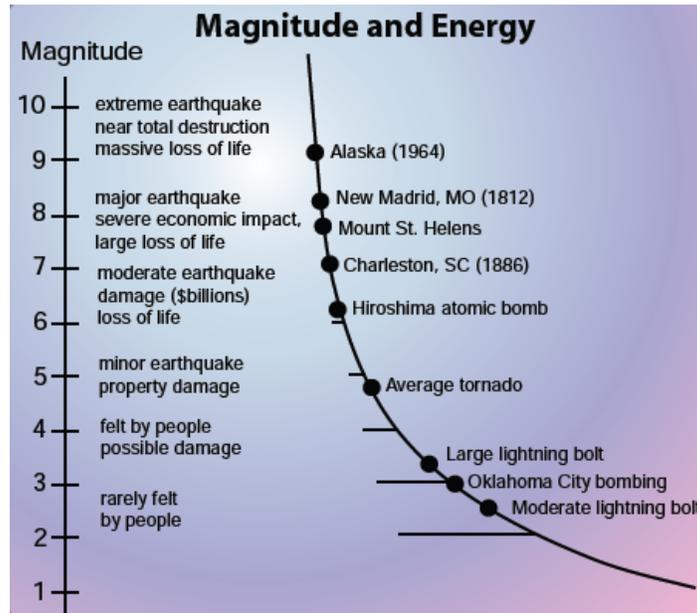
Source: FEMA

Additional earthquake related hazards include landslides, liquefaction, and amplification. Earthquake-induced **landslides** are secondary earthquake hazards that occur from ground shaking. They can destroy roads, buildings, utilities, and other critical facilities necessary to respond to or recover from an earthquake. As sloped lands are developed, earthquake-induced landslides pose additional threats to homes and infrastructure.

Soil type can substantially increase earthquake risk. **Liquefaction** occurs when ground-shaking causes saturated soft soils to change from a solid to a liquid state. Liquefaction results in the loss of soil strength and three potential types of ground failure: lateral spreading, flow failure, and loss of bearing strength. Buildings and their occupants are at risk when the ground can no longer support buildings and structures. Areas susceptible to liquefaction include areas with high ground water tables and sandy soils. The extreme earthquake damage to San Francisco in 1989 was due to liquefaction of the soil used to fill in waterfront properties.

Amplification (strengthening) of shaking also results in areas of soft soils, which includes fill, loose sand, waterfront, and lakebed clays. Amplification increases the magnitude of the seismic waves generated by the earthquake.

Chart D-1. Earthquake Magnitude Scale



Source: USGS

Seismic activity is described in terms of magnitude and intensity. **Magnitude** describes the total energy released and **intensity** describes the effects at a particular location. Magnitude is defined as the measure of the amplitude of the seismic wave and is expressed by the Richter scale. The **Richter scale** is a logarithmic measurement where an increase in the scale by one whole number represents a tenfold increase in the measured amplitude of the earthquake. Geologists use other measures of magnitude and intensity such as Moment Magnitude, Energy Magnitude and others as described at http://neic.usgs.gov/neis/phase_data/mag_formulas.html.

Intensity is defined as the measure of the strength of the shock at a particular location and is expressed by the **Modified Mercalli Intensity (MMI) scale**. It was developed in 1931 by the American seismologists Harry Wood and Frank Neumann. The scale consists of a series of certain key responses such as people awakening, movement of furniture, the damage to structures, and total destruction. The *lower* numbers of the intensity scale generally deal with the manner in which the earthquake is felt by people. The *higher* numbers of the scale are based on observed structural damage. This scale, composed of 12 increasing levels of intensity that range from imperceptible shaking to catastrophic destruction, is designated by Roman numerals. It does not have a mathematical basis; instead it is an arbitrary ranking based on observed effects. Table D-7 compares the Modified Mercalli Intensity scale with the Richter scale.

Table D-7. Earthquake Scales Comparison

Modified Mercalli Intensity and Richter Scale Comparison			
SCALE	INTENSITY	DESCRIPTION OF EFFECTS	CORRESPONDING RICHTER SCALE MAGNITUDE
I	Instrumental	Detected only on seismographs	
II	Feeble	Some people feel it	<4.2
III	Slight	Felt by people resting; like a truck rumbling by	
IV	Moderate	Felt by people walking	
V	Slightly Strong	Sleepers awake; church bells ring	<4.8
VI	Strong	Trees sway; suspended objects swing, objects fall off shelves	<5.4
VII	Very Strong	Mild Alarm; walls crack; plaster falls	<6.1
VIII	Destructive	Moving cars uncontrollable; masonry fractures, poorly constructed buildings damaged	
IX	Ruinous	Some houses collapse; ground cracks; pipes break open	<6.9
X	Disastrous	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread	<7.3
XI	Very Disastrous	Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards	<8.1
XII	Catastrophic	Total destruction; trees fall; ground rises and falls in waves	>8.1

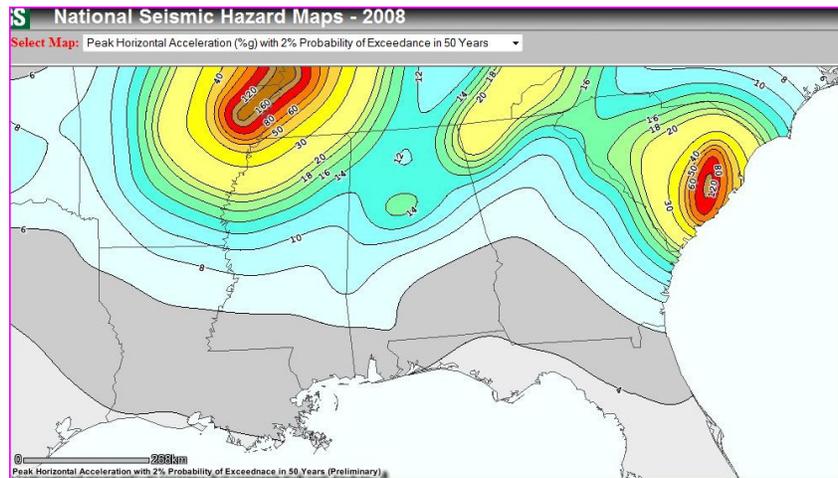
Source: FEMA

Another measurement of seismic activity is **Peak Ground Acceleration (PGA)**, which measures the rate of change of motion relative to the rate of acceleration due to gravity. An object falling to earth will fall faster and faster, until it reaches terminal velocity. This principle is known as **acceleration** and represents the rate at which speed is increasing. This movement can be described by its changing position as a function of time, or by its acceleration as a function of time. The peak acceleration is the maximum acceleration experienced by the object during the course of the earthquake motion. Peak ground acceleration can be measured in *g* (the acceleration due to gravity at the earth's surface is 9.8 meters per second squared). For example, acceleration of the ground surface of 244 cm/sec/sec (where *g* equals 9.8 meters per second squared) equals a PGA of 25.0 percent.

Map D-2 shows the 2008 Peak Ground Acceleration (PGA) values for the southeastern United States with a 2% chance of being exceeded over 50 years. This is a common earthquake measurement that shows three things: the geographic area

affected (the areas shown in color), the probability of an earthquake at each given level of severity, and the severity (the PGA is indicated by color).

**Map D-2. 2008 PGA for Southeast
Peak Ground Acceleration with 2% Probability of Exceedance in 50 Years**



Source: U.S. Geological Survey Earthquake Hazards Program

(The description of earthquakes presented in this section is based upon information extracted from the FEMA How to Guides Understanding Your Risks (FEMA 386-2), August 2001, Using HAZUS-MH for Risk Assessment How to Guide (FEMA 433), August 2004, 2007 Alabama State Hazard Mitigation Plan, U.S. Geological Survey Earthquakes Hazard Program, and various FEMA-adopted plans).

2.9 Dam/Levee Failures Description

Dam failure or levee failure can occur with little warning. Strong storms may produce a flood in a few hours or minutes for upstream locations, which can cause a dam or levee failure. Flash floods occur within six hours of the beginning of heavy rainfall and dam failure may occur within hours of the first sign of a breach. Dam failures are potentially



the worst flood event. There are more than 80,000 dams in the United States according to the 2007 update of the National Inventory of Dams. According to FEMA, one third of these pose a high or significant hazard to life and property if failure occurs. 56% of

dams are privately owned, and the dam owner is responsible for the safety and liability of the dam as well for upkeep, upgrade and repair. This compounds the risk that is posed due to dam or levee failure.

(The description of dam/levee failures presented in this section is extracted from FEMA, Disaster Types, Dam Failure at <http://www.fema.gov/hazard/damfailure/index.shtm>).

2.10 Landslides Description

Landslides occur and can cause damage in all 50 States, at an annual cost of about \$3.5 billion per year (*FEMA 2005*). Between 25 and 50 deaths per year in the U.S. are attributable to landslides. Landslides cause damage to the natural environment and economic losses, due to reduced real estate values, decreased agricultural and forestry productivity, among other adverse economic effects.

Severe storms, earthquakes, coastal wave attack, and wildfires can cause widespread slope instability and result in landslides. Landslide danger may be high, even as emergency personnel are providing rescue and recovery services for these other hazard events.

A landslide is a downward and outward movement of slope-forming soil, rock, and vegetation under the influence of gravity, which includes a wide range of ground movement. Numerous types of events, including natural and man-made changes within the environment, can trigger landslides. Examples of these changes that cause weaknesses in the composition or structures of the rock or soil include heavy rain, changes in ground water level, seismic activity, or construction activity. Man-made landslides may result from activities such as terracing, cut and fill construction, building construction, mining operations, and changes in irrigation or surface runoff.

There are three different types of landslides: rock falls, slides, and flows. **Rock falls** are rapid movement of bedrock characterized by free-fall, bouncing and rolling. **Slides** are movements of soil or rock along a distinct surface of rupture that separates the slide material from the more stable underlying material. There are two major types of slides:



rotational and translational slides. In a **rotational slide** the surface of rupture is curved concavely upward and the slide block rotates around an axis parallel to the slope contours. A **translational slide** is a mass that moves down and outward along a relatively planar surface with little rotational movement or backward tilting. **Flows** are

mass movements of water-saturated material. The movement of flows can be extremely rapid (debris avalanche), very rapid (debris flow) or very slow (earth flow).

Here are some significant landslide facts from the USGS:

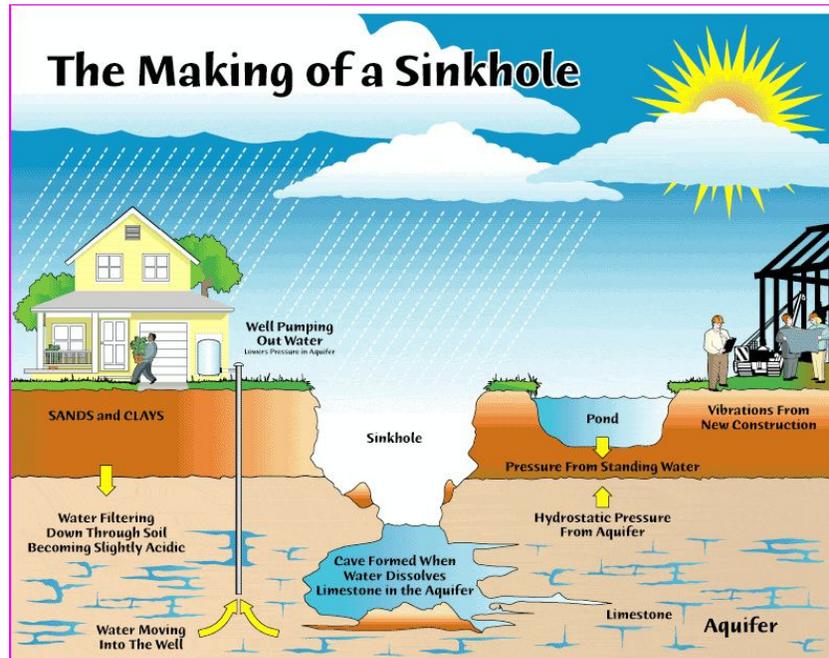
- *Landslides often accompany earthquakes, floods, storm surges, hurricanes, wildfires, or volcanic activity. They are often more damaging and deadly than the triggering event (examples: the 1964 Alaska earthquake-induced landslides and the 1980 Mount St. Helens volcanic debris flow).*
- *Human activities and population expansion are major factors in increased landslide damage and costs.*
- *The May 1980 eruption of Mount St. Helens caused the largest landslide in history— a rock slide-debris avalanche large enough to fill 250 million dump trucks to the brim traveled about 14 miles, destroying nine highway bridges, numerous private and public buildings, and many miles of highways, roads, and railroads. The debris avalanche also formed several new lakes by damming the North Fork Toutle River and its tributaries. These lakes posed hazards to downstream communities because of the possible failure of the dams, which could have resulted in catastrophic flooding.*
- *Although the National Flood Insurance Act covers certain damage from “mudflows,” insurance against landslides is generally unavailable in most areas of the United States. As a result, many victims of landslides resort to litigation in order to recover damages.*

(The description of landslides presented in this section is extracted from the Geological Survey of Alabama, Geologic Hazards Section at <http://www.gsa.state.al.us/gsa/geologichazards/landslides/index.html> and the U.S.G.S. Landslides Hazards Program at <http://landslides.usgs.gov>).

2.11 Sinkholes (Land Subsidence) Description

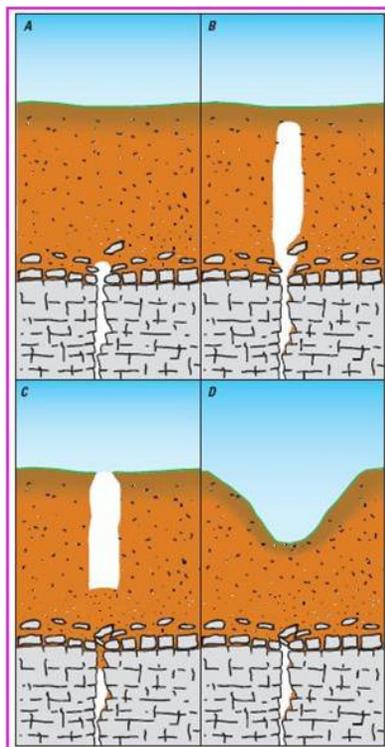
Sinkholes are a naturally occurring geologic feature that can be hazardous to property and the environment. Their formation is due to water dissolving rock below the land surface. The types of rock most susceptible to sinkhole formation are limestone, carbonate rock and salt beds. As the rock dissolves, spaces and caverns develop underground, when large enough, the ground dramatically collapses leaving a visible sinkhole at the surface. Although normally no more than a nuisance, some sinkholes can become very large and a house or road may be on top when the collapse occurs. See Figure D-9, which shows the making of a sinkhole. Figure D-10 illustrates the formation of a collapse.

Figure D-9. The Making of a Sinkhole



Source: Southwest Florida Water Management District

Figure D-10. Formation of a Collapse



A - Soil bridges gap where sediment has been washing into a solution enlarged fracture.

B - Over time, the void migrates upward through the soil.

C - After the bridge thins, a sudden collapse occurs.

D - The collapse often plugs the drain and erosion will, after many years, transform the collapse into a more bowl-shaped sinkhole.

Source: U.S. Geological Survey Mid-Centiment Geographic Science Center

Sinkholes range in size from several square yards to hundreds of acres. They may be quite shallow or may extend hundreds of feet deep. The most damage from sinkholes tends to occur in Florida, Texas, Alabama, Missouri, Kentucky, Tennessee, and Pennsylvania. The picture in Figure D-11 shows a sinkhole that quickly opened up causing major damage to a house and yard.

Figure D-11. Sinkhole Collapse of House



Photo courtesy of Doug Gouzie, 2006

Source: U.S. Geological Survey, Water Science for Schools

Sinkholes are triggered by a change in the local environment affecting the soil mass. Water is the most important agent effecting environmental changes; examples include water level decline, increased loading and ground water flow changes. Areas become more susceptible to sinkholes when new water-diversion systems are developed, the land surface is changed and when storage ponds are created. The weight of the new material can cause a collapse of the supporting rock resulting in a sinkhole.

Lowering water levels is one of the most significant triggering mechanisms for subsidence in a karst terrain. Water-level decline may occur naturally or be induced by man. Factors leading to a decline in water levels include the pumping of water from wells, localized drainage from construction, dewatering from mining, and periods of drought.

Sinkholes also threaten water and environmental resources by draining streams, lakes, and wetlands, and creating pathways for transmitting surface waters directly into underlying aquifers. Where these pathways are developed, movement of surface contaminants into the underlying aquifer systems can persistently degrade ground-water resources. In some areas, sinkholes are used as storm drains, and because they are a direct link with the underlying aquifer systems it is important that their drainage areas be kept free of contaminants. Conversely, when sinkholes become plugged, they can cause flooding by capturing surface-water flow and can create new wetlands, ponds, and lakes.

(The description of sinkholes presented in this section is based upon information extracted from the FEMA How to Guide Understanding Your Risks (FEMA 386-2), FEMA, August 2001, and other sources from the Geological Survey of Alabama Geological Hazards Program, Southwest Florida Water Management District, and the U.S. Geological Survey Mid-Continent Geographic Science Center).

2.12 Man-Made Hazards Description

Man-made hazards are hazards that originate from human activity. The two categories of man-made hazards are **technological hazards** and **terrorism**. Technological hazards are accidental with unintended consequences. They often include the manufacture, transportation, storage and use of hazardous materials. The definition of terrorism has been established by Federal law, as follows: *“Terrorism includes the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.” 28 CFR Section 0.85.* In comparison to technological hazards, acts of terrorism are not accidental and the consequences are intentional.

Technological hazards are divided into three categories: fixed facility industrial accident, transportation industrial accident, and the failure of a supervisory control system. For an industrial accident, the hazard will either exist at a fixed location such as a manufacturing plant or storage facility, or while in transport, i.e. in a vehicle that is transporting it from one location to another or while it is moving through a pipeline from one location to another. Supervisory control system failure will affect which ever component within the system it is directing and the extents of the damage possible due to failure are usually easy to predict.

Terrorism includes: the use of weapons of mass destruction – biological, chemical, nuclear, and radiological weapons, explosives, and incendiary devices; arson; armed attacks; agriterrorism; an intentional hazardous materials release; industrial sabotage; and cyber-terrorism. It can be carried out domestically or internationally, by known or unknown assailants, locally or from a distance.

Man-made hazards are very difficult to assess, terrorism more so than technological hazards. Since terrorism involves the human mind and what actions a person may chose to take, the what, where, how and when is largely unpredictable. On the other hand, with technological hazards, since they primarily involve hazardous materials, the assessment of the manufacture, storage, transportation and use of the materials can at least answer to some degree the where, what and how and those answers can aid in the mitigation of some possible technological disasters. For this reason: ***the scope of man-made hazards addressed by the Mitigation Strategy in this plan is limited to mitigation of fixed location technological hazards involving hazardous materials.***

The extent of the effects of a man-made hazard can range from localized to widespread, depending on the type of incident, the mode of application, duration, dynamic/static characteristic and mitigating conditions. A conventional bomb could

damage a building in which it was placed or an entire city can be in danger if a hazardous material is released into the water supply. Three noted modes of force to the built environment involved by man-made hazards are: contamination, energy, and failure or denial of service. If a hazard remains for an extended period of time, the damage can be far reaching; however, if the hazard lasts for only a short time, the damage can usually be quickly determined and response can be swift and the disaster contained. A dynamic hazard is more damaging and unpredictable than a static hazard. Mitigating conditions can be deterrents or they can at least lessen the effects of a hazard at a certain location which also affects the extent of a disaster. The following table shows the different possible man-made hazards and their corresponding application mode, hazard duration, extent of effects - static/dynamic, mitigating and exacerbating conditions.

When trying to mitigate man-made hazards, measures must address security, unknown risks and civil liberties; concerns not raised by natural disasters. The events will usually occur in specific locations and mitigation measures can usually aid in the alleviation of man-made disasters. Those specific locations are known as critical facilities. In addition to the facilities usually addressed in vulnerability assessments for natural hazards, the following critical infrastructure is usually assessed: agriculture and food, water, public health, emergency services, defense industrial base, telecommunications, energy, transportation, banking and finance, chemicals and hazardous materials, and postal and shipping. Threats to infrastructure can be carried out by anyone who has the knowledge, opportunity and desire to do harm. They can be anyone from terrorists to upset employees and are therefore largely unidentifiable.

Table D-8 “Event Profiles for Terrorism and Technological Hazards,” (from the FEMA “How to Guide” for man-made hazards) explains the ways in which man-made hazards can interact with the built environment. As presented in the FEMA Guide, for each type of hazard, the following factors are addressed:

- **Application mode** describes the human act(s) or unintended event(s) necessary to cause the hazard to occur.
- **Duration** is the length of time the hazard is present on the target. For example, the duration of a tornado may be just minutes, but a chemical warfare agent such as mustard gas, if not remediated, can persist for days or weeks under the right conditions.
- The **dynamic/static characteristic** of a hazard describes its tendency, or that of its effects, to either expand, contract, or remain confined in time, magnitude, and space. For example, the physical destruction caused by an earthquake is generally confined to the place in which it occurs, and it does not usually get worse unless there are aftershocks or other cascading failures; in contrast, a cloud of chlorine gas leaking from a storage tank can change location by drifting with the wind and can diminish in danger by dissipating over time.
- **Mitigating conditions** are characteristics of the target and its physical environment that can reduce the effects of a hazard. For example, earthen berms can provide

protection from bombs; exposure to sunlight can render some biological agents ineffective; and effective perimeter lighting and surveillance can minimize the likelihood of someone approaching a target unseen. In contrast, *exacerbating conditions* are characteristics that can enhance or magnify the effects of a hazard. For example, depressions or low areas in terrain can trap heavy vapors, and a proliferation of street furniture (trash receptacles, newspaper vending machines, mail boxes, etc.) can provide concealment opportunities for explosive devices.

Table D-8. Event Profiles for Terrorism and Technological Hazards

Man-Made Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Conventional Bomb/ Improvised Explosive Device	Detonation of explosive device on or near target; delivery via person, vehicle, or projectile.	Instantaneous; additional "secondary devices" may be used, lengthening the time duration of the hazard until the attack site is determined to be clear.	Extent of damage is determined by type and quantity of explosive. Effects generally static other than cascading consequences, incremental structural failure, etc.	Overpressure at a given standoff is inversely proportional to the cube of the distance from the blast; thus, each additional increment of standoff provides progressively more protection. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting energy and debris. Exacerbating conditions include ease of access to target; lack of barriers/shielding; poor construction; and ease of concealment of device.

Man-Made Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Chemical Agent	Liquid/aerosol contaminants can be dispersed using sprayers or other aerosol generators; liquids vaporizing from puddles/containers; or munitions.	Chemical agents may pose viable threats for hours to weeks depending on the agent and the conditions in which it exists.	Contamination can be carried out of the initial target area by persons, vehicles, water and wind. Chemicals may be corrosive or otherwise damaging over time if not remediated.	Air temperature can affect evaporation of aerosols. Ground temperature affects evaporation of liquids. Humidity can enlarge aerosol particles, reducing inhalation hazard. Precipitation can dilute and disperse agents but can spread contamination. Wind can disperse vapors but also cause target area to be dynamic. The micro-meteorological effects of buildings and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects.

Man-Made Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Arson/ Incendiary Attack	Initiation of fire or explosion on or near target via direct contact or remotely via projectile.	Generally minutes to hours.	Extent of damage is determined by type and quantity of device/accelerant and materials present at or near target. Effects generally static other than cascading consequences, incremental structural failure, etc.	Mitigation factors include built-in fire detection and protection systems and fire-resistive construction techniques. Inadequate security can allow easy access to target, easy concealment of an incendiary device and undetected initiation of a fire. Non-compliance with fire and building codes as well as failure to maintain existing fire protection systems can substantially increase the effectiveness of a fire weapon.
Armed Attack	Tactical assault or sniping from remote location.	Generally minutes to days.	Varies based upon the perpetrators' intent and capabilities.	Inadequate security can allow easy access to target, easy concealment of weapons and undetected initiation of an attack.
Biological Agent	Liquid or solid contaminants can be dispersed using sprayers/aerosol generators or by point or line sources such as munitions, covert deposits and moving sprayers.	Biological agents may pose viable threats for hours to years depending on the agent and the conditions in which it exists.	Depending on the agent used and the effectiveness with which it is deployed, contamination can be spread via wind and water. Infection can be spread via human or animal vectors.	Altitude of release above ground can affect dispersion; sunlight is destructive to many bacteria and viruses; light to moderate wind will disperse agents but higher winds can break up aerosol clouds; the micrometeorological effects of buildings and terrain can influence aerosolization and travel of agents.

Man-Made Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Cyber-terrorism	Electronic attack using one computer system against another.	Minutes to days.	Generally no direct effects on built environment.	Inadequate security can facilitate access to critical computer systems, allowing them to be used to conduct attacks.
Agriterrorism	Direct, generally covert contamination of food supplies or introduction of pests and/or disease agents to crops and livestock.	Days to months.	Varies by type of incident. Food contamination events may be limited to discrete distribution sites, whereas pests and diseases may spread widely. Generally no effects on built environment.	Inadequate security can facilitate adulteration of food and introduction of pests and disease agents to crops and livestock.
Radiological Agent	Radioactive contaminants can be dispersed using sprayers/aerosol generators, or by point or line sources such as munitions, covert deposits and moving sprayers.	Contaminants may remain hazardous for seconds to years depending on material used.	Initial effects will be localized to site of attack; depending on meteorological conditions, subsequent behavior of radioactive contaminants may be dynamic.	Duration of exposure, distance from source of radiation, and the amount of shielding between source and target determine exposure to radiation.

Man-Made Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Nuclear Bomb	Detonation of nuclear device underground, at the surface, in the air or at high altitude.	Light/heat flash and blast/shock wave last for seconds; nuclear radiation and fallout hazards can persist for years. Electromagnetic pulse from a high altitude detonation lasts for seconds and affects only unprotected electronic systems.	Initial light, heat and blast effects of a subsurface, ground or air burst are static and are determined by the device's characteristics and employment; fallout of radioactive contaminants may be dynamic, depending on meteorological conditions.	Harmful effects of radiation can be reduced by minimizing the time of exposure. Light, heat and blast energy decrease logarithmically as a function of distance from seat of blast. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting radiation and radioactive contaminants.
Hazardous Material Release (fixed facility or transportation)	Solid, liquid and/or gaseous contaminants may be released from fixed or mobile containers.	Hours to days.	Chemicals may be corrosive or otherwise damaging over time. Explosion and/or fire may be subsequent. Contamination may be carried out of the incident area by persons, vehicles, water and wind.	As with chemical weapons, weather conditions will directly affect how the hazard develops. The micrometeorological effects of buildings and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects. Non-compliance with fire and building codes as well as failure to maintain existing fire protection and containment features can substantially increase the damage from a hazardous materials release.

(The information presented in this section was extracted from the FEMA How to Guide Integrating Manmade Hazards into Mitigation Planning, FEMA 386-7 Version 2.0, FEMA, September 2003).

**Appendix E
Hazard Profile Data**

App. E – Hazard Profile Data

1.0 Records of Previous Occurrences of Hazard Events

1.0 Records of Previous Occurrences of Hazard Events

This appendix contains the detailed records of previous occurrences of hazard events reported in Section 5.4 “Hazard Profiles,” for events reported by the National Weather Service and National Climatic Data Center.

Past Occurrences of Tornadoes

Table E-1. Dale County Tornadoes, 1950 - 2009 (NWS)

Year	Month	Day	Time (CST)	County	Damage Scale	Path Length (Miles)	Fatalities	Injuries	Location
2009	12	14	1625	Dale	F0	0.15	0	0	0.9 NW Rocky Head - 0.8 NW Rocky Head The same supercell thunderstorm which spawned the F0 tornado southeast of Java in Coffee County moved east and produced another F0 tornado near Rocky Head in Dale County. It downed numerous trees just northwest of the town.
2008	10	8	1217	Dale	F0	0.36	0	0	1.1 ESE Pinckard The same supercell that spawned the tornado north of Wicksburg in western Houston County produced a brief EF-0 tornado just east of Pinckard in southeastern Dale County. No damage was reported.
2008	10	8	1125	Dale	F0	2.43	0	0	5 S Ozark - 1.1 NW Klondyke Hill The parent supercell which spawned the EF-0 and EF-1 tornadoes, produced another tornado about 5 miles south of Ozark near Logan Road, where it tore the roof off a barn and a home. It then moved east-northeast toward State Road 123 before lifting. The tornado was rated an EF-0 with winds estimated at 80 mph.
2008	10	8	1115	Dale	F0	1.1	0	0	1 NW Arguta A tornado touched down near the intersection of County Roads 19 and 15, about three miles northwest of Skipperville. Several trees were uprooted and a barn was heavily damaged.
2008	8	25	720	Dale	F1	0.44	0	0	3.0 NW Ozark - 5.0 NE Ozark A tornado touched down on County Road 38 producing minor damage to a barn. It then traveled east across Marley Mill Road and destroyed a barn, shed and greenhouse. A residential gable collapsed and several pines were snapped. A few homes on Hawridge Road in the Post Oak community suffered moderate damage. Also, a carport and shed were destroyed. A portion of County Road 50 was closed due to debris. Also, a home on Robin Parker Road was damaged when several pines snapped, with one landing on the roof. Several areas, especially along Roy Parker Road, were without power for several hours until crews could repair lines taken down by fallen trees.
2007	4	14	1805	Dale	F1	5.83	0	0	3.9 NW Ozark - 3.4 NW Ozark A weak tornado touched down briefly near Marley Mill. It damaged two structures and uprooted several trees on Marley Mill Road.
2006	1	13	1200	Dale	F0	1	0	0	Level Plains Crossroads - 1 NE Level Plains Crossroads A severe thunderstorm spawned a weak tornado which heavily damaged four chicken houses. It also damaged a rental house on the northeast side of Dale County 1. Debris was strewn across a field east of Dale County 1. Power lines were down across U.S. Highway 84. Residents along Joe Bruer Road, northeast of the chicken houses, reported broken limbs. Reported by the Dale County EMA.

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Year	Month	Day	Time (CST)	County	Damage Scale	Path Length (Miles)	Fatalities	Injuries	Location
2002	11	5	1715	Dale	F1	2	0	3	<p>2 N Echo - 2 S Bertha</p> <p>A tornado touched down just north of the intersection of County Road 69 and Highway 27 in northeast Dale County. It damaged several homes, an automobile, and several storage sheds. Three people suffered minor injuries. Two goats were killed by the flying debris. Dale County was declared a state disaster area.</p>
2001	11	25	30	Dale	F1	0.1	0	2	<p>Ewell</p> <p>An F1 tornado touched down just south of Ewell and destroyed a double wide mobile home. Its two occupants were seriously injured.</p>
2001	11	25	12	Dale	F1	2	0	25	<p>Daleville</p> <p>A strong F1 tornado touched down just southwest of Daleville, near the northwest corner of Cairns Army Airfield at Fort Rucker. Several maintenance buildings sustained minor roof damage. One aircraft suffered minor damage from flying sheet metal. The tornado tracked northeast into Daleville and damaged 25 businesses along Highway 85, including a church, gas station, two supermarkets, a bank and several homes. It destroyed a restaurant and two industrial park buildings. The tornado lifted the roof off of the Daleville Inn and Landing Zone Lounge, causing its walls to collapse. Of the 125 patrons inside, 23 suffered minor injuries and two serious injuries. One restaurant was destroyed. Nearly 40 businesses and 1,000 residential customers lost power after the tornado toppled numerous power poles. The intersection of Highways 85 and 134 in Daleville was closed and a curfew was imposed for 24 hours.</p>
2000	12	16	1100	Houston Dale Henry	F2	29	0	0	<p>Wicksburg-Pinckard-Abbeville</p> <p>The supercell thunderstorm which spawned the F2 tornado in Geneva County moved northeast across extreme western Houston County and caused minor roof damage to 5 homes, blew out windows and overturned lawn furniture. The tornado tracked northeastward into southeastern Dale County. The tornado rapidly intensified producing F2 damage. A Midland City church annex lost parts of its roof and walls. Several homes in the Doe Run Subdivision south of Pinckard were destroyed. Numerous other structures were damaged. In Pinckard, numerous trees and power lines were blown down. Many homes and businesses were significantly damaged. The tornado continued into western Henry County just north of Murphy Station along Highway 27. The tornado completely destroyed the Murphy Feed & Seed Warehouse and numerous peanut trailers. The West Point Stevens Textile Plant and numerous vehicles were also damaged.</p>
1998	9	28	1935	Dale	F0	0.3	0	0	<p>Echo</p> <p>An F0 tornado briefly touched down at the intersection of CR 40 and 7 near the Dale-Henry County line. Numerous trees were uprooted and a pump house was destroyed.</p>
1998	9	28	1430	Dale	F0	0.3	0	0	<p>Ozark</p> <p>An F0 tornado briefly touched down on the north side of Ozark off Marvin Parker Rd and CR 68 uprooting trees and power poles.</p>

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Year	Month	Day	Time (CST)	County	Damage Scale	Path Length (Miles)	Fatalities	Injuries	Location
1997	12	24	726	Dale	F1	1.5	0	4	Newton Tornado touchdown in Currytown community trailer park along Dale County Road 49, Dean Road, and Alabama 134 between Pinckard and Midland City. Three mobile homes were destroyed and four were heavily damaged. 16-18 residences sustained structural damage. Six barns were leveled and four were damaged. Numerous large trees and power poles down.
1997	10	25	1738	Dale	F0	0.2	0	0	Daleville A brief F0 tornado touchdown south of Alabama Highway 84 near Daleville.
1997	10	24	1030	Dale	F1	0.5	0	0	Echo F1 tornado struck a chicken farm at Alabama Highway 27 and Dale County Road 67. Six of eight chicken houses were destroyed. Approximately 25,000 chickens were killed.
1997	10	24	1000	Dale	F1	0.3	0	0	Clayhatchee A small F1 tornado destroyed a barn on Alabama Highway 92. A neighboring house sustained minor damage. Several trees were uprooted.
1988	9	16	1210	Dale	F1	4	0	0	Fort Rucker - Lowe Field Several trees were uprooted.
1986	11	26	140	Coffee-Dale	F1	21	0	2	2 SW Enterprise - Ozark Numerous homes and mobile homes were damaged. Two people were injured in a mobile home. One helicopter was damaged at Fort Rucker.
1986	11	25	2206	Barbour Coffee Dale	F3	44	0	4	Elamville-Clio-Clayton Numerous homes and businesses sustained damage along the path.
1984	5	3	1156	Dale	F2	5.5	0	0	Midland City A high school campus was heavily damaged and a few buildings were actually destroyed. Several other buildings and homes suffered damage along the path.
1984	5	3	1156	Dale	F0	NA	0	0	SE Daleville A small tornado briefly touched down in an open field with little or no damage.
1984	3	5	1250	Dale	F2	8	0	14	Fort Rucker - Ozark One mobile home park was heavily damaged. A shopping center was severely damaged and several cars were damaged. Several buildings in downtown Ozark were damaged. Numerous homes were damaged or destroyed.
1974	4	4	1525	Dale	F0	0.3	0	0	Near Midland City No tornado details were available
1973	12	30	1658	Dale	F3	1.5	0	23	Fort Rucker - Ozark 30 buildings and homes sustained heavy damage. 5 were completely demolished.
1973	12	29	1625	Coffee-Dale	F3	8	0	11	W Enterprise - N Coppinville - Fort Rucker 8 homes were destroyed and 23 homes were damaged in the Enterprise area. 7 trailers and a service station were damaged or destroyed.
1973	5	25	1308	Dale Houston	F1	2	0	0	Midland City - Kelly Springs No tornado details were available.

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Year	Month	Day	Time (CST)	County	Damage Scale	Path Length (Miles)	Fatalities	Injuries	Location
1972	1	13	100	Coffee-Dale	F2	6	4	88	3 E Enterprise - Fort Rucker - Lake Tholocco The tornado struck two trailer parks destroying at least 68 mobile homes and 15 vehicles. Several other trailers and cars were damaged. All the deaths were army dependents. At Fort Rucker, 2 buildings were damaged and 15 helicopters were damaged.
1968	1	23	1630	Barbour Dale	F1	10	0	0	Near New Hope Approximately 12 homes damaged. 1 house and numerous barns and utility sheds damaged or destroyed. Timber damaged in several spots.
1955	10	16	1815	Coffee-Dale	F2	20	0	0	Elba - New Brocton - NE Enterprise - S Ozark 2 barns were destroyed and 2 homes were unroofed.
1954	4	16	800	Coffee-Dale	F2	17	0	1	2 E Enterprise - 3 E Ozark 4 barns were destroyed.
1937	3	24	1045	Dale	F2	0.1	2	0	Ozark One small home was leveled. Both fatalities occurred in the home.
1936	1	18	1800	Dale	F2	2	1	7	Skipperville One person died as 5 homes were destroyed.
1935	5	20	1030	Dale	F2	5	3	0	2 E Midland City One home and several barns were destroyed. 3 members of one family were killed when their home was demolished.
1907	4	5	1600	Coffee-Dale	F2	15	1	20	Central City - N Clayhatchee Most of the village of Central City was destroyed.

Source: National Weather Service

Past Occurrences of Tornadoes

Table E-2. Dale County Tornado Events, 1950-2010 (NCDC)

34 TORNADO(s) were reported in **Dale County, Alabama** between **01/01/1950** and **09/30/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

*Click on **Location or County** to display Details.*

Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 DALE	04/16/1954	0800	Tornado	F2	0	1	25K	0
2 DALE	10/16/1955	0800	Tornado	F	0	0	3K	0
3 DALE	10/16/1955	1840	Tornado	F2	0	5	2.5M	0
4 DALE	01/23/1968	1630	Tornado	F1	0	0	250K	0
5 DALE	01/13/1972	0100	Tornado	F2	4	88	250K	0
6 DALE	05/25/1973	1308	Tornado	F1	0	0	25K	0
7 DALE	12/29/1973	1625	Tornado	F3	0	0	2.5M	0
8 DALE	12/30/1973	1658	Tornado	F3	0	14	3K	0
9 DALE	04/04/1974	1525	Tornado	F0	0	0	25K	0
10 DALE	03/05/1984	1250	Tornado	F2	0	14	25.0M	0
11 DALE	05/03/1984	1149	Tornado	F0	0	0	0K	0
12 DALE	05/03/1984	1156	Tornado	F2	0	0	25K	0
13 DALE	11/25/1986	2148	Tornado	F3	0	1	2.5M	0
14 DALE	11/26/1986	0156	Tornado	F1	0	0	250K	0
15 DALE	09/16/1988	1205	Tornado	F1	0	0	0K	0
16 Clayhatchee	10/24/1997	10:00 AM	Tornado	F1	0	0	150K	0
17 Echo	10/24/1997	10:30 AM	Tornado	F1	0	0	1.0M	0
18 Daleville	10/25/1997	05:38 PM	Tornado	F0	0	0	0	0
19 Newton	12/24/1997	08:26 AM	Tornado	F1	0	4	250K	0

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20 Ozark	09/28/1998	03:30 PM	Tornado	F0	0	0	25K	0
21 Echo	09/28/1998	08:35 PM	Tornado	F0	0	0	150K	0
22 Pinckard	12/16/2000	12:08 PM	Tornado	F2	0	0	2.0M	0
23 Daleville	11/25/2001	01:12 AM	Tornado	F1	0	25	3.0M	0
24 Ewell	11/25/2001	01:30 AM	Tornado	F1	0	2	75K	0
25 Echo	11/05/2002	06:15 PM	Tornado	F1	0	3	150K	0
26 Level Plains Xrds	01/13/2006	01:00 PM	Tornado	F0	0	0	500K	0
27 Ozark	01/07/2007	19:50 PM	Tornado	F0	0	0	25K	0K
28 Echo	03/01/2007	13:48 PM	Tornado	F1	0	4	2.5M	0K
29 Ozark	04/14/2007	18:05 PM	Tornado	F1	0	0	250K	0K
30 Arguta	08/25/2008	07:20 AM	Tornado	F1	0	0	30K	0K
31 (ozr)ft Rucker Aaf	10/08/2008	11:15 AM	Tornado	F0	0	0	150K	0K
32 Ozark	10/08/2008	11:25 AM	Tornado	F0	0	0	50K	0K
33 Pinckard	10/08/2008	12:17 PM	Tornado	F0	0	0	0K	0K
34 Rocky Head	12/14/2009	16:25 PM	Tornado	F0	0	0	0K	0K
TOTALS:					4	161	43.660M	0

Source: National Climatic Data Center

Past Occurrences of Thunderstorms and High Wind

Table E-3. Dale County Thunderstorm and High Wind Events, 1950-2010

127 THUNDERSTORM WINDS event(s) were reported in Dale County, Alabama between **01/01/1950** and **09/30/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 DALE	11/23/1961	0315	Tstm Wind	0 kts.	0	0	0	0
2 DALE	07/20/1962	1300	Tstm Wind	50 kts.	0	0	0	0
3 DALE	02/13/1966	0200	Tstm Wind	52 kts.	0	0	0	0
4 DALE	01/23/1968	1715	Tstm Wind	0 kts.	0	0	0	0
5 DALE	08/08/1968	1413	Tstm Wind	52 kts.	0	0	0	0
6 DALE	08/21/1968	1500	Tstm Wind	0 kts.	0	0	0	0
7 DALE	04/29/1971	1319	Tstm Wind	53 kts.	0	0	0	0
8 DALE	03/02/1972	1028	Tstm Wind	64 kts.	0	0	0	0
9 DALE	03/16/1972	1930	Tstm Wind	55 kts.	0	0	0	0
10 DALE	06/25/1972	1545	Tstm Wind	0 kts.	0	0	0	0
11 DALE	04/26/1973	1050	Tstm Wind	0 kts.	0	0	0	0
12 DALE	05/26/1973	1110	Tstm Wind	0 kts.	0	0	0	0
13 DALE	05/29/1973	0205	Tstm Wind	0 kts.	0	0	0	0
14 DALE	05/29/1973	0220	Tstm Wind	70 kts.	0	0	0	0
15 DALE	06/21/1974	1200	Tstm Wind	0 kts.	0	0	0	0
16 DALE	07/20/1974	1630	Tstm Wind	0 kts.	0	0	0	0

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Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
17 DALE	05/26/1975	1326	Tstm Wind	50 kts.	0	0	0	0
18 DALE	06/14/1975	1500	Tstm Wind	68 kts.	0	0	0	0
19 DALE	06/24/1977	1300	Tstm Wind	51 kts.	0	0	0	0
20 DALE	06/08/1978	1100	Tstm Wind	0 kts.	0	0	0	0
21 DALE	03/08/1980	1155	Tstm Wind	0 kts.	0	0	0	0
22 DALE	02/10/1981	1326	Tstm Wind	53 kts.	0	0	0	0
23 DALE	03/25/1982	1615	Tstm Wind	0 kts.	0	0	0	0
24 DALE	02/01/1983	1945	Tstm Wind	0 kts.	0	0	0	0
25 DALE	02/01/1983	2000	Tstm Wind	0 kts.	0	0	0	0
26 DALE	02/01/1983	2020	Tstm Wind	0 kts.	0	0	0	0
27 DALE	02/27/1984	0240	Tstm Wind	0 kts.	0	0	0	0
28 DALE	05/03/1984	0855	Tstm Wind	0 kts.	0	0	0	0
29 DALE	06/13/1984	1515	Tstm Wind	0 kts.	0	0	0	0
30 DALE	08/11/1984	1101	Tstm Wind	55 kts.	0	0	0	0
31 DALE	08/11/1984	1720	Tstm Wind	55 kts.	0	0	0	0
32 DALE	02/05/1985	1835	Tstm Wind	0 kts.	0	0	0	0
33 DALE	02/06/1986	0350	Tstm Wind	0 kts.	0	0	0	0
34 DALE	07/20/1986	1500	Tstm Wind	0 kts.	0	0	0	0
35 DALE	07/23/1986	1314	Tstm Wind	60 kts.	0	0	0	0
36 DALE	11/26/1986	0230	Tstm Wind	0 kts.	0	0	0	0
37 DALE	07/28/1987	1340	Tstm Wind	0 kts.	0	0	0	0
38 DALE	07/28/1987	1400	Tstm Wind	0 kts.	0	0	0	0
39 DALE	07/28/1987	1420	Tstm Wind	0 kts.	0	0	0	0

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Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
40 DALE	06/26/1988	1521	Tstm Wind	67 kts.	0	0	0	0
41 DALE	09/16/1988	1300	Tstm Wind	0 kts.	0	0	0	0
42 DALE	02/21/1989	0155	Tstm Wind	0 kts.	0	0	0	0
43 DALE	07/19/1989	1650	Tstm Wind	0 kts.	0	0	0	0
44 DALE	02/16/1990	1110	Tstm Wind	0 kts.	0	0	0	0
45 DALE	02/16/1990	1120	Tstm Wind	0 kts.	0	0	0	0
46 DALE	02/22/1990	0630	Tstm Wind	0 kts.	0	0	0	0
47 DALE	02/22/1990	0742	Tstm Wind	0 kts.	0	0	0	0
48 DALE	03/16/1990	1930	Tstm Wind	0 kts.	0	0	0	0
49 DALE	12/02/1990	1105	Tstm Wind	0 kts.	0	0	0	0
50 DALE	12/03/1990	1055	Tstm Wind	0 kts.	0	0	0	0
51 DALE	05/01/1991	1250	Tstm Wind	0 kts.	0	0	0	0
52 DALE	07/01/1992	1345	Tstm Wind	0 kts.	0	0	0	0
53 DALE	11/02/1992	0245	Tstm Wind	0 kts.	0	0	0	0
54 Ozark	06/30/1995	1737	Thunderstorm Winds	0 kts.	0	0	2K	0
55 Ozark	07/01/1995	1830	Thunderstorm Winds	0 kts.	0	0	0	0
56 Ozark	08/19/1995	1940	Thunderstorm Wind	0 kts.	0	0	0K	0
57 Level Plains	12/07/1995	0020	Thunderstorm Winds	0 kts.	0	0	20K	0
58 Pinckard	01/11/1996	07:05 PM	Tstm Wind	0 kts.	0	0	5K	0
59 Western	05/24/1996	03:15 PM	Tstm Wind	0 kts.	0	0	0	0
60 Ft Rucker	12/01/1996	05:05 AM	Tstm Wind	51 kts.	0	0	0	0
61 Midland City	10/24/1997	10:30 AM	Tstm Wind	52 kts.	0	0	150K	0

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Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
62 Ozark	03/05/1998	04:15 PM	Tstm Wind	0 kts.	0	0	70K	0
63 Countywide	03/08/1998	11:00 AM	Tstm Wind	0 kts.	0	0	1K	0
64 Countywide	06/05/1998	05:15 PM	Tstm Wind	0 kts.	0	0	30K	0
65 Ariton	06/24/1998	04:50 PM	Tstm Wind	0 kts.	0	0	2K	0
66 Ozark	01/10/2000	04:00 AM	Tstm Wind	0 kts.	0	0	1K	0
67 Skipperville	04/03/2000	08:45 PM	Tstm Wind	0 kts.	0	0	50K	0
68 Southeast Portion	07/23/2000	02:40 PM	Tstm Wind	0 kts.	0	0	25K	0
69 Ariton	07/30/2000	01:40 PM	Tstm Wind	0 kts.	0	0	5K	0
70 Browns Xrds	08/09/2000	07:45 PM	Tstm Wind	0 kts.	0	0	1K	0
71 Northwest Portion	08/19/2000	06:02 PM	Tstm Wind	0 kts.	0	0	20K	0
72 Countywide	01/19/2001	10:40 AM	Tstm Wind	0 kts.	0	0	1K	0
73 Daleville	03/03/2001	08:40 PM	Tstm Wind	0 kts.	0	0	1K	0
74 Ozark	06/21/2001	06:30 PM	Tstm Wind	0 kts.	0	0	1K	0
75 Ozark	07/10/2001	06:15 PM	Tstm Wind	0 kts.	0	0	1K	0
76 Echo	05/30/2002	02:35 PM	Tstm Wind	0 kts.	0	0	5K	0
77 Ozark	06/03/2002	09:45 PM	Tstm Wind	0 kts.	0	0	1K	0
78 Skipperville	07/21/2002	07:09 PM	Tstm Wind	0 kts.	0	0	1K	0

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Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
79 Newton	12/19/2002	09:00 PM	Tstm Wind	50 kts.	0	0	20K	0
80 Midland City	12/24/2002	07:40 AM	Tstm Wind	50 kts.	0	0	5K	0
81 Ozark	02/22/2003	06:00 AM	Tstm Wind	50 kts.	0	0	3K	0
82 Ozark	04/25/2003	11:00 PM	Tstm Wind	50 kts.	0	0	20K	0
83 Echo	08/03/2003	05:20 PM	Tstm Wind	50 kts.	0	0	1K	0
84 Cairns Afb	02/06/2004	10:35 AM	Tstm Wind	60 kts.	0	0	0	0
85 (ozr)ft Rucker Aaf	04/08/2004	10:39 AM	Tstm Wind	52 kts.	0	0	0	0
86 Ozark	04/12/2004	08:55 PM	Tstm Wind	55 kts.	0	0	10K	0
87 Countywide	06/02/2004	12:50 PM	Tstm Wind	50 kts.	0	0	5K	0
88 Countywide	06/27/2004	04:25 PM	Tstm Wind	55 kts.	0	0	5K	0
89 Ewell	07/15/2004	06:40 PM	Tstm Wind	50 kts.	0	0	1K	0
90 Ozark	04/22/2005	09:30 PM	Tstm Wind	50 kts.	0	0	1K	0
91 Countywide	04/30/2005	08:10 AM	Tstm Wind	55 kts.	0	0	15K	0
92 Ariton	08/14/2005	07:20 PM	Tstm Wind	50 kts.	0	0	1K	0
93 Ariton	08/15/2005	05:30 PM	Tstm Wind	55 kts.	0	0	1K	0
94 Echo	08/15/2005	05:50 PM	Tstm Wind	55 kts.	0	0	15K	0
95 Ozark	08/15/2005	05:55 PM	Tstm Wind	55 kts.	0	0	30K	0

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Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
96 Midland City	06/25/2006	06:40 PM	Tstm Wind	50 kts.	0	0	10K	0
97 Countywide	08/08/2006	06:30 PM	Tstm Wind	60 kts.	0	0	500K	0
98 Level Plains Xrds	08/15/2006	07:55 PM	Tstm Wind	50 kts.	0	0	15K	0
99 Ewell	08/30/2006	05:30 PM	Tstm Wind	50 kts.	0	0	15K	0
100 Ozark	08/30/2006	05:30 PM	Tstm Wind	50 kts.	0	0	5K	0
101 Newton	11/15/2006	13:35 PM	Thunderstorm Wind	60 kts.	0	0	3K	0K
102 Ozark	04/14/2007	18:10 PM	Thunderstorm Wind	60 kts.	0	0	10K	0K
103 Ozark	06/30/2007	15:07 PM	Thunderstorm Wind	50 kts.	0	0	10K	0K
104 (dhn)dothan Arpt	07/01/2007	14:32 PM	Thunderstorm Wind	51 kts.	0	0	25K	0K
105 Ozark	08/31/2007	17:00 PM	Thunderstorm Wind	50 kts.	0	0	10K	0K
106 Ozark	01/31/2008	21:25 PM	Thunderstorm Wind	50 kts.	0	0	1K	0K
107 Ariton	02/17/2008	16:11 PM	Thunderstorm Wind	60 kts.	0	0	100K	0K
108 Newton	03/07/2008	05:00 AM	Thunderstorm Wind	50 kts.	0	0	0K	0K
109 Cairns Afb	06/09/2008	16:30 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
110 Ozark	07/05/2008	14:50 PM	Thunderstorm Wind	55 kts.	0	0	5K	0K
111 Marley Mill	07/11/2008	14:31 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
112 Daleville	08/25/2008	06:40 AM	Thunderstorm Wind	55 kts.	0	0	50K	0K

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Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
113 Ewell	01/07/2009	00:00 AM	Thunderstorm Wind	50 kts.	0	0	0K	0K
114 (ozr)ozark Fort Rucke	02/28/2009	11:50 AM	Thunderstorm Wind	50 kts.	0	0	0K	0K
115 Daleville	03/28/2009	06:30 AM	Thunderstorm Wind	55 kts.	0	0	0K	0K
116 Ariton	04/14/2009	05:30 AM	Thunderstorm Wind	55 kts.	0	0	25K	0K
117 Dillard	06/14/2009	14:09 PM	Thunderstorm Wind	55 kts.	0	0	100K	0K
118 Skipperville	06/14/2009	14:10 PM	Thunderstorm Wind	55 kts.	0	0	25K	0K
119 (dhn)napier Field	06/14/2009	14:18 PM	Thunderstorm Wind	53 kts.	0	0	0K	0K
120 Skipperville	06/23/2009	16:00 PM	Thunderstorm Wind	50 kts.	0	0	10K	0K
121 Ozark	07/09/2009	15:45 PM	Thunderstorm Wind	40 kts.	0	0	0K	0K
122 Ozark	07/29/2009	13:05 PM	Thunderstorm Wind	50 kts.	0	0	1K	0K
123 Lowe Army Heliport	06/19/2010	15:03 PM	Thunderstorm Wind	62 kts.	0	0	0K	0K
124 (dhn)napier Field	06/20/2010	17:14 PM	Thunderstorm Wind	55 kts.	0	0	0K	0K
125 Roberts Crossroads	06/27/2010	17:06 PM	Thunderstorm Wind	50 kts.	0	0	1K	0K
126 Ozark	07/20/2010	17:15 PM	Thunderstorm Wind	50 kts.	0	0	2K	0K
127 Ozark	07/21/2010	17:15 PM	Thunderstorm Wind	50 kts.	0	0	3K	0K
TOTALS:					0	0	1.450M	0

Source: National Climatic Data Center

Past Occurrences of Lightning

Table E-4. Dale County Lightning Events, 1950-2010

4 LIGHTNING event(s) were reported in **Dale County, Alabama** between **01/01/1950** and **09/30/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 Newton	08/15/2006	07:45 PM	Lightning	N/A	0	0	50K	0
2 Fort Rucker	02/28/2009	11:50 AM	Lightning	N/A	0	0	50K	0K
3 Ewell	07/06/2009	03:00 AM	Lightning	N/A	0	0	75K	0K
4 Echo	02/22/2010	06:00 AM	Lightning	N/A	0	0	5K	0K
TOTALS:					0	0	180K	0

Source: National Climatic Data Center

Past Occurrences of Hail

Table E-5. Dale County Hail Events, 1950-2010

36 HAIL event(s) were reported in **Dale County, Alabama** between **01/01/1950** and **09/30/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 DALE	02/26/1958	1530	Hail	1.75 in.	0	0	0	0
2 DALE	04/19/1965	1250	Hail	1.00 in.	0	0	0	0
3 DALE	03/02/1972	1035	Hail	0.75 in.	0	0	0	0
4 DALE	03/02/1972	1035	Hail	0.75 in.	0	0	0	0
5 DALE	03/30/1972	0545	Hail	0.75 in.	0	0	0	0
6 DALE	06/05/1973	1415	Hail	1.75 in.	0	0	0	0
7 DALE	03/22/1981	0325	Hail	0.75 in.	0	0	0	0
8 DALE	03/22/1981	1655	Hail	1.00 in.	0	0	0	0
9 DALE	03/25/1982	1615	Hail	1.75 in.	0	0	0	0
10 DALE	02/13/1984	1810	Hail	1.75 in.	0	0	0	0
11 DALE	03/24/1984	1800	Hail	1.75 in.	0	0	0	0
12 DALE	06/21/1989	1220	Hail	0.75 in.	0	0	0	0
13 DALE	04/01/1990	1810	Hail	1.00 in.	0	0	0	0
14 DALE	08/30/1990	1520	Hail	0.75 in.	0	0	0	0
15 Daleville	04/22/1997	08:00 PM	Hail	0.75 in.	0	0	0	0
16 Ft Rucker	02/22/1998	08:30 AM	Hail	0.75 in.	0	0	0	0
17 Ozark	04/08/1998	11:10 AM	Hail	0.75 in.	0	0	0	0
18 Ozark	04/17/1998	09:46 PM	Hail	0.75 in.	0	0	0	0

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Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
19 Ariton	05/03/1998	11:15 PM	Hail	1.75 in.	0	0	0	0
20 Midland City	05/04/1998	12:15 AM	Hail	0.88 in.	0	0	0	0
21 Newton	03/11/2000	01:30 PM	Hail	1.75 in.	0	0	0	0
22 (ozr)ft Rucker Aaf	03/12/2001	09:45 AM	Hail	0.75 in.	0	0	0	0
23 Daleville	05/30/2002	01:15 PM	Hail	0.75 in.	0	0	0	0
24 Echo	05/30/2002	02:35 PM	Hail	1.75 in.	0	0	0	0
25 Daleville	07/20/2002	06:40 PM	Hail	0.75 in.	0	0	0	0
26 Clopton	07/21/2002	06:10 PM	Hail	0.75 in.	0	0	0	0
27 Daleville	04/12/2004	08:50 PM	Hail	1.75 in.	0	0	0	0
28 Ozark	04/12/2004	08:55 PM	Hail	1.75 in.	0	0	0	0
29 Ozark	03/26/2005	03:10 PM	Hail	0.88 in.	0	0	0	0
30 Daleville	03/26/2005	05:20 PM	Hail	1.75 in.	0	0	0	0
31 Ozark	03/26/2005	05:25 PM	Hail	1.75 in.	0	0	0	0
32 Ariton	04/22/2005	07:40 PM	Hail	1.75 in.	0	0	0	0
33 Level Plains Xrds	04/08/2006	02:37 PM	Hail	1.00 in.	0	0	0	0
34 Midland City	05/10/2006	09:25 PM	Hail	0.88 in.	0	0	0	0
35 Ozark	03/01/2007	13:15 PM	Hail	1.75 in.	0	0	OK	OK

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2011 Dale County Multi-Hazard Mitigation Plan

Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
36 Newton	03/01/2007	13:35 PM	Hail	1.00 in.	0	0	0K	0K
TOTALS:					0	0	0	0

Source: National Climatic Data Center

Past Occurrences of Precipitation

Table E-6. Dale County Precipitation Events, 1950-2010

1 PRECIPITATION event(s) were reported in **Dale County, Alabama** between **01/01/1950** and **09/30/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 Daleville	12/15/2007	16:00 PM	Heavy Rain	N/A	0	0	0K	0K
TOTALS:					0	0	0	0

Source: National Climatic Data Center

Past Occurrences of Floods

Table E-7. Dale County Flood Events, 1950-2010

5 FLOOD event(s) were reported in **Dale County, Alabama** between **01/01/1950** and **09/30/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 ALZ066>069	03/08/1998	12:00 PM	Flood	N/A	0	0	230.0M	0
2 Pinckard	03/03/2001	09:25 PM	Flood	N/A	0	0	5K	0
3 Midland City	03/03/2001	10:00 PM	Flood	N/A	0	0	5K	0
4 Countywide	03/27/2005	01:30 PM	Flash Flood	N/A	0	0	0	0
5 Waterford	12/15/2009	01:10 AM	Flood	N/A	0	0	0K	0K
TOTALS:					0	0	230.010M	0

Source: National Climatic Data Center

Past Occurrences of Hurricanes and Tropical Storms

Table E-8. Dale County Hurricane and Tropical Storm Events, 1950-2010

6 HURRICANE & TROPICAL STORM event(s) were reported in **Dale County, Alabama** between **01/01/1950** and **09/30/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 Southeast Alabama	10/04/1995	0000	Hurricane Opal	N/A	0	0	20m	10m
2 ALZ065>069	09/02/1998	09:00 PM	Tropical Storm	N/A	0	0	120K	0
3 ALZ065>069	08/05/2001	06:00 PM	Tropical Storm	N/A	0	0	250K	0
4 ALZ065>069	09/15/2004	12:00 PM	Tropical Storm	N/A	0	0	3.5M	0
5 ALZ065>069	07/09/2005	06:00 PM	Hurricane/typhoon	N/A	0	0	1.5M	0
6 ALZ065>069	08/23/2008	00:00 AM	Tropical Storm	N/A	0	0	30K	0K
TOTALS:					0	0	25.400M	10.000M

Source: National Climatic Data Center

Past Occurrences of Extreme Cold

Table E-9. Dale County Extreme Cold Events, 1950-2010

2 COLD TEMPERATURE EXTREMES event(s) were reported in **Dale County, Alabama** between **01/01/1950** and **09/30/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

*Click on **Location or County** to display Details.*

Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 ALZ001>050	02/03/1996	06:00 PM	Extreme Cold	N/A	0	0	0	0
2 ALZ001>050	03/07/1996	08:00 AM	Extreme Cold	N/A	0	0	0	52.0M
TOTALS:					0	0	0	52.000M

Past Occurrences of Snow and Ice

Table E-10. Dale County Snow and Ice Events, 1950-2010

1 SNOW & ICE event(s) were reported in **Dale County, Alabama** between **01/01/1950** and **9/30/2010**.

*Click on **Location or County** to display Details.*

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 ALZ065>069	02/12/2010	06:00 AM	Heavy Snow	N/A	0	0	0K	0K
TOTALS:					0	0	0	0

Source: National Climatic Data Center

Past Occurrences of Extreme Heat

Table E-11. Dale County Extreme Heat Events, 1950-2010

2 TEMPERATURE EXTREMES event(s) were reported in Dale County, Alabama between **01/01/1950** and **09/30/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 ALZ066 - 069	08/01/2010	15:00 PM	Heat	N/A	0	0	0K	0K
2 ALZ066 - 069	08/02/2010	13:00 PM	Heat	N/A	0	0	0K	0K
TOTALS:					0	0	0	0

Source: National Climatic Data Center

Past Occurrences of Drought

Table E-12. Dale County Drought Events, 1950-2010

1 DROUGHT event(s) were reported in **Dale County, Alabama** between **01/01/1950** and **09/30/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Alabama								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 ALZ065>069	09/14/2010	00:00 AM	Drought	N/A	0	0	0K	0K
TOTALS:					0	0	0	0

Source: National Climatic Data Center

Appendix F
Alternative Mitigation Measures

App. F – Identification and Analysis of Mitigation Measures

- 1.0 Alternative Mitigation Measures
- 2.0 Types of Mitigation Measures

1.0 Alternative Mitigation Measures

This appendix documents the range of alternative mitigation measures considered by the Hazard Mitigation Planning Committee (HMPC) in the development of its mitigation strategy and its selection of final action programs for each participating community. This documentation supports the Federal requirement that the plan must identify and analyze “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” (44 CFR Section 201.6 (c)(3)(ii)). Included here are the following supporting documents:

1. Committee Exercise – Alternative Mitigation Measures. This is the exercise administered by the planning team to the HMPC used to gather information on the priority issues to be addressed by the mitigation strategy, the recommended mitigation measures, and the recommended projects for potential funding under the FEMA hazard mitigation assistance programs.
2. Types of Mitigation Measures. This list describes the comprehensive range of mitigation measures by program area type (Prevention, Protection, Public Outreach and Awareness, Natural Resources Protection, and Structural Projects types), which was one resource to the HMPC in completing the exercise listed above.
3. Table of Alternative Mitigation Measures. This summary table identifies a measure as an action or project, whether new or existing buildings and infrastructure are affected, and the hazard effects that would be reduced by the measure.

The alternative measures described here are all intended to affect the built environment and thereby reduce loss of life and damages to buildings and infrastructure. Excluded from these alternatives are measures which might propose to establish disaster response procedures. The mitigation plan is not an emergency response, recovery, or preparedness plan. Consequently, all emergency services measures designed to prepare emergency operations plans, train or equip emergency personnel, programs to reduce mobile technological hazards, plans to counter terrorism and the like are not included in the range of alternatives considered for adoption in this plan. Rather, the purpose of these mitigation measures is to decrease the need for response and recovery through long-term mitigation actions and projects; the intent is not to increase capabilities for response to disasters and recovery from the effects.

According to recent FEMA guidance (Local Multi-Hazard Mitigation Planning Guidance, FEMA, July 1, 2008, page 59), “hazard mitigation is defined as any sustained action taken to

reduce or eliminate long-term risk to people and property from hazards and their effects.” All of the mitigation measures presented here have been evaluated for compatibility with this recent FEMA definition.

**Committee Exercise
Alternative Hazard Mitigation Measures**

Completed by: _____ Community: _____

PART I: PRIORITY HAZARD MITIGATION ISSUES. List or briefly describe the most critical hazard issues within the community. These are the priority issues that the mitigation measures should address. You may describe general hazard conditions or specific problems:

PART II: RECOMMENDATIONS FOR MITIGATION MEASURES. What priority mitigation measures do you prefer for your community? Keep in mind the benefits in reducing economic losses, the priority (low, high), and the potential funding source (e.g., existing funds or FEMA mitigation assistance grants), Please place your recommendations in the spaces provided or continue on a separate sheet or the reverse side.

1. Prevention measures. *Adopting and administering ordinances, regulations, and programs that manage the development of land and buildings to minimize risks of loss due to hazards.*

Types: Comprehensive Plans, Geographic Information Systems (GIS), Technical Studies, Capital Improvements Plans (CIP). Zoning, Open Space Preservation, Floodplain Management Regulations, Subdivision Regulations, Building and Technical Codes, Safe Room/ Shelter Requirements, Landscape Ordinances, Open Fire Regulations, Storm Water Regulations, Public Right-of-Way Maintenance, Dam Safety Management, Community Rating System (CRS) Program.

2. Property Protection Measures. *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.*

Types: Relocation, Acquisition, Building Elevation, Flood Proofing, Building Retrofits

3. Public Education and Awareness. *Educating and informing the public about the risks of hazards and the techniques available to reduce threats to life and property.*

Types: Map Information, Outreach Projects, Real Estate Disclosure, Library, Technical Assistance, Environmental Education

4. Natural Resources Protection Measures. *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.*

Types: Wetlands Protection, Open Space Easements and Acquisitions, River/Stream Corridor Restoration and Protection, Urban Forestry Programs.

5. Structural Projects Measures. Engineering structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of a hazard on a community.

Types: Reservoirs, Levees/Floodwalls, Diversions, Channel Modifications, Dredging, Drainage Modifications, Storm Sewers, Dam Modifications, Ground Stabilization

2.0 Types of Mitigation Measures

Prevention Measures. Prevention measures involve adopting and administering ordinances, regulations, programs, and plans that can influence the development of land and buildings to minimize risks of loss due to natural and man-made hazards.

- *Comprehensive Plans and Smart Growth.* Comprehensive plans guide future development over a long-range framework through land use, community facilities, economic development, environmental conservation, public infrastructure, and related planning. Effective comprehensive planning can help create safer and more sustainable communities with improved disaster resistance. By incorporating “Smart Growth” principles in a community’s comprehensive plan, a community can improve the effectiveness and responsiveness of its comprehensive plan to hazards identified in the mitigation planning process. Smart Growth can result in safe growth through these fundamental principles of sustainable community development: (a) promote compact infill development vs. urban sprawl, (b) preserve open space and protect the natural and beneficial functions of flood plains, coastal zones, wetlands, hillsides, and other vulnerable locations; and (c) steer growth away from hazardous areas. A comprehensive plan can designate vulnerable lands for open space uses that would not be incompatible with occasional hazard events. For instance, vulnerable areas subject to flooding, dam failure inundation, landslide risk, and land subsidence could be planned for parks, greenways, wildlife refuges, and other open space uses. For a comprehensive plan to be truly effective, the hazard vulnerability of lands and buildings assessed through the mitigation planning process should influence a community’s comprehensive plan for future land use and development patterns, community facilities, and infrastructure. The comprehensive plan should direct growth toward the most suitable land areas and avoid exposure of new buildings and infrastructure to high risk hazard locations assessed in the mitigation plan. Equally important to the effectiveness of a comprehensive plan, is the integration of planning strategies. A community’s mitigation strategy should be carried over into the goals, objectives and policies of its comprehensive plan.
- *Capital Improvements Plans (CIP).* A CIP can recommend the setting aside of funds for public improvements, including water and sewer service extensions, new community facilities, land acquisitions for open space, emergency service facilities, improvements to retrofit or relocate vulnerable critical facilities, and other capital improvements that can be tied to both the comprehensive plan and the mitigation plan. The CIP schedules capital projects over a 5-6 year time frame, with funding identified. The capital expenditure requirements of high priority projects within a hazard mitigation plan may be included in a CIP. A CIP for public infrastructure improvements, when combined with zoning and land development controls, can establish a growth management program to direct the

location and timing of new development in accordance with a comprehensive plan and smart growth principles to avoid hazard areas.

- *Zoning and Land Development Controls.* The zoning ordinance is the primary tool to regulate development in vulnerable areas by limiting development. Zoning can be combined with a variety of related land development controls and special purpose ordinances. Growth management controls of density and infrastructure improvements may reduce risks in areas exposed to severe hazards, such as flooding, landslides, sinkholes, and other location specific hazards. Limited density controls could be applied to certain zones to discourage future development, or vulnerable areas could be zoned for recreation or agricultural uses or other uses that are compatible with the natural restrictions of the location. Landscaping standards can be incorporated into zoning ordinances to set aside minimum areas for tree and vegetation plantings. Planting areas can be used for drainage and help cool urban environments, as well as improve appearances. Tolerant species can be used to mitigate the effects of drought conditions, often referred to as “xeriscapes.” Other special purpose ordinances might address hillside development by placing limits or setting minimum standards for building construction in steeply-sloped areas that are prone to landslides. Transfer of development rights (TDR) programs are another tool for growth management by allowing landowners to transfer the right to develop one parcel of land to a different parcel of land. This could benefit the developer if incentives are given for building in suitable land areas and not building in hazardous areas.
- *Subdivision Regulations.* These regulations govern how land can be divided into separate lots or sites. Subdivision plats can be required to show hazard areas, such as flood zones, areas subject to landslides, and potential sinkhole locations. The regulations should establish minimum buildable lot areas that are sufficient to meet property protection objectives. Requiring new subdivisions to space buildings, install fire hydrants, and provide adequate access are some of the measures available to reduce the risks of fires.
- *Building and Technical Codes.* Standards can be incorporated into building and technical codes that address resistance against natural hazard threats for all new and substantially improved or repaired buildings. The International Code Series are the latest available codes. Building codes can prohibit loose masonry, overhangs, etc. that might be affected by earthquakes. Building code standards for roof materials and spark arrestors can mitigate fires. Standards can be set for roof construction to protect against wind damage from hurricanes, tornadoes, and severe storms. Performance standards for foundation supports, utility protection, also add to building protection. Design standards can mandate that quality building products and construction applications are used. These codes can better assure quality constructed structures, which are more likely to withstand high winds, severe storms, and other natural hazards. A site plan review process as part of local building permitting can ensure that site elements are organized and planned to lessen the effects of potential hazards on new development.

- *Flood Plain Management Programs.* Participation in the NFIP (National Floodplain Insurance Program) is based on a community agreement with FEMA to meet minimum program requirements, including the adoption and continuing enforcement of a flood plain management ordinance. Flood Insurance Rate Maps (FIRM) are not only a tool for managing flood plain development, but the maps also create broad-based awareness of flood hazards. Flood Insurance Studies and accompanying FIRMs provide the data needed to administer floodplain management programs and to establish flood insurance rates for new and existing buildings. Often, Flood Insurance Rate Maps need updates to reflect changing developing in a given watershed. This may require comprehensive and detailed hydrologic and hydraulic modeling and improved topographic mapping to modernize existing maps. Updated FIRMs may also be needed in “Approximate” flood zones where no flood elevations or profiles are available. DFIRMS or Digital FIRMS can be created for computer and on-line access to maps and data. The Community Rating System (CRS) Program of the (NFIP) is an option that covers all flood hazard mitigation program elements. The CRS rewards communities for conducting a full range of flood mitigation programs that exceed the minimum NFIP requirements by awarding points to achieve a rating classification. Total points determine the class of a community. The higher the class, the more savings to flood insurance holders and more recognition to the successes of the local flood plain management program. With or without CRS participation, a community can establish “Higher Regulatory Standards” for flood plain management. Floodplain management regulations do not prohibit development in the special flood hazard area; instead, the regulations impose construction standards to minimize damages. Communities may adopt more stringent standards than those set forth by the NFIP, such as additional building elevation requirements, additional limitations on building enclosures, and other standards designed to better mitigate flood damages. Another method to improve the effectiveness of flood plain management programs is to appoint a Certified Floodplain Manager (CFM) who has passed minimum criteria of the Association of State Floodplain Managers to administer the community’s ordinance and program.
- *Storm Water Management Regulations.* Development outside of a floodplain can contribute significantly to flooding by creating impervious surfaces or altering natural drainage management systems, which increase storm water runoff. Storm water management is usually addressed in subdivision regulations or other land development controls. Developers are typically required to build retention or detention basins to minimize any increase in runoff rates caused by new or expanded impervious surfaces, or new drainage systems. Generally, there is a prohibition against storm water leaving the site at a rate higher than it did before the development based on a given design storm. One technique is to use wet basins as part of the landscaping plan of a development. It might even be possible to site these basins based on a watershed analysis. Since detention only controls the runoff rates and not volumes, other measures may be applied

for storm water infiltration, such as, swales, infiltration trenches, vegetative filter strips, and permeable paving blocks for parking areas. Erosion and sedimentation control regulations not only assure improved water quality but help preserve the carrying capacity of drainage ways and reduce localized flooding. These regulations are typically a component of a larger storm water management program or included in a storm water management ordinance.

- *Dam Safety Management.* A comprehensive dam safety program should begin with dam failure inundation maps. These areas should be kept clear of new development and preserved as open space to prevent future damages. Flood plain regulations could establish minimum building elevations based on predicted flood elevation in the event of dam failure. Regular dam safety inspections identify risks of failures.
- *Coastal Zone Management Regulations.* The physical factors that have the greatest influence on coastal land loss are reductions in sediment supply, relative sea level rise, and frequent storms. The most important human activities are sediment excavation, river modification, and coastal construction. As a result of these agents and activities, coastal land loss is manifested most commonly as beach/bluff erosion and coastal submergence. Implementation of Coastal Zone Management Plans helps to alleviate some of these problems.
- *Open Space Requirements.* Preserving open space is the most effective method for preventing damages. Open space preservation for flood control should not, however, be limited to the flood plain, since other areas within the watershed may contribute to runoff that exacerbates flooding. Comprehensive plans can identify areas to be preserved by acquisition. Other means, such as purchasing easements or accepting donations of land are also available. Open space can also be protected through maintenance agreements with the landowners, or by requiring developers to dedicate land for parks, public facilities, and drainage.
- *Open Burning Regulations.* Open burning restrictions can be enforced to prevent the spread of wild fires, especially during times of drought when emergency measures could be enacted.
- *Safe Room/Shelter Requirements.* Some communities have enacted safe room or shelter requirements for new housing construction and require community shelters for manufactured home parks, apartment complexes, and other planned residential communities.
- *Public Right-of-Way Maintenance Regulations.* An effective drainage system maintenance program should also include regulations that prevent dumping and littering in ditches and stream channels and require adjoining property owners to keep these areas clear of fallen trees, limbs, dead brush, and any other debris. These efforts not only prevent obstructions to drainage but can also help mitigate wild fires.
- *Critical Facilities Assessments.* Assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) can address building and site vulnerabilities to hazards and

identify damage control measures in the event of severe weather and other natural hazards. This type of assessment can result in a plan to identify a variety of mitigation retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.

- *Geographic Information Systems (GIS)*. GIS applies computer technology to hazard mitigation planning by linking data to maps. Detailed property information, socioeconomic data, critical facilities inventories, and hazard locations, among other relevant information, can be continuously updated to provide a complete assessment resource for mitigation planning and other planning studies. HAZUS-MH is a risk assessment tool developed by FEMA to apply loss estimation models for earthquakes, hurricane winds, and flooding within a GIS framework.
- *Technology Programs*. Modern technology has created new opportunities for improving planning systems to support hazard mitigation. These systems can serve dual functions - to monitor hazard events as they happen for disaster warning purposes and to forecast and simulate events for advance planning purposes. The U.S. Geologic Survey (USGS) ALERT gage networks for select rivers and streams allow the National Weather Service (NWS) to handle early recognition of flooding. Local gages to cover high risk flood areas can be integrated into these systems with local EMA access. New technology has become available to monitor tornado activities. A comprehensive system can tie a variety of gages into a single automated network to monitor rainfall, river/stream stages, icy bridges and highways, tornadoes, winds, water quality, chemical spills into water ways, and hazardous air emissions. Remote cameras can enhance the monitoring capabilities of the system. These systems when used to simulate events can test a variety of mitigation alternatives, such as flood simulations, evaluation of structural alternatives on flood levels, and damage estimates from simulated events.
- *Planning Studies*. Planning for areas of special consideration might be considered in certain situations. These planning studies might evaluate the feasibility of various mitigation alternatives to address a specific hazard concern, such as a detailed flood hazard mitigation plan for a stream that updates hydrology, generates new flood profiles, and evaluates economic feasibility of structural and non-structural alternatives using sophisticated economic models. Another example would be geologic investigations to identify areas subject to landslides and recommendations for corrective measures.

Property Protection Measures. Property protection measures protect 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.

- *Acquisition Projects.* Acquisition of land in a highly vulnerable zone protects against damages and casualties and converts problem areas into community assets, with accompanying environmental benefits. Acquisition, followed by demolition and conversion of land to permanent open space, is the most appropriate strategy for those buildings that have experienced recurring flood damages and flood insurance claims. This method might also be considered for older buildings with finish floor elevations several feet below predicted flood elevation. Often buildings are too expensive to move or are dilapidated and not worth saving or protecting. Acquisition, like relocation, can be very expensive. Benefit-cost analysis must be used to be certain the damages avoided outweigh the acquisition costs. Less costly alternatives might also be investigated.
- *Building Elevations.* Elevating a flood-prone building above the base flood elevation is sometimes the best flood mitigation strategy. The building could be raised above the flood elevation to prevent interior water damage. This approach could be less costly than relocation or acquisition, and if properly designed the elevated buildings could be less disruptive than creating vacant lots as a result of relocations or acquisitions. Elevation is required by local flood plain regulations for new and substantially improved buildings in a floodplain, and is a commonly-practiced flood hazard prevention method.
- *Flood Proofing.* If a building cannot be elevated, it may be flood proofed. This approach works well in areas of low flood threat and with nonresidential buildings. Flood proofing can be accomplished through barriers to flooding, or by treatment to the structure itself.
 - ✓ *Dry flood proofing* seals a building against the water by coating the walls with waterproofing compounds or plastic sheeting. Openings, such as doors, windows, etc. are closed. Sometimes, manual intervention may be required to implement dry flood proofing, such as installing removable flood shields at doorways.
 - ✓ *Wet flood proofing* is usually considered a last resort measure, since water is intentionally allowed into the building in order to minimize pressure on the structure. This is best applied to unfinished areas, such as warehouses and garages where contents are elevated.
 - ✓ *Barriers*, such as small levees, floodwalls, and berms can keep floodwaters from reaching a building. These are most useful in areas subject to shallow flooding.
 - ✓ *Other flood proofing approaches* range from moving valuable items to higher floors to rebuilding the floodable area. An advantage over other approaches is that simply by moving household goods out of the range of floodwaters, thousands of dollars can be saved in damages.
- *Building Retrofits.* Existing buildings can be retrofitted to safeguard against possible damages. In addition to flood proofing or elevating existing buildings in a flood plain, other retrofits could protect buildings against natural hazards. Retrofitting to add braces/ roof straps and remove overhangs protects against high winds. Storm shutters and applying Mylar to windows and glass surfaces

protects from shattering glass during hurricanes and severe storms. Tie downs of major appliances and other contents may reduce earthquake damage.

- *Building Relocations.* Moving structures out of vulnerable areas, such as high-risk flood plains, dam inundation areas, landslide zones, and land subsidence areas, is a sure way to protect against damage. Relocation is expensive, however, so this approach should not be used except in extreme circumstances, where there are no practical alternatives.
- *Critical Facilities Protection.* Protecting critical facilities is vital. Efforts should be made to retrofit or relocate existing facilities located in high-risk zones or construct new facilities for maximum protection from hazards. Protection of facilities includes not only buildings but also utilities, bridges, and other critical infrastructure.
- *Emergency Power Generation.* Maintaining power in the event of loss during severe storms and other natural hazards is vital for the continuing operation of critical facilities, especially, emergency services, hospitals, elderly housing, water distribution, sewer treatment, and other facilities. Power shut downs could cause major disruptions and consequential damages. Relatively low cost portable generations can supply temporary power to small critical facilities, households, and small businesses.
- *Sewer Backup Protection.* Storm water overloads can cause backup into basements through sanitary sewer lines. Houses that have any kind of connection to a sanitary sewer system - whether it is downspouts, footing drain tile, and/or sump pumps, can be flooded during a heavy rain event. To prevent this, there should be no such connections to the system, and all rain and ground water should be directed onto the ground, away from the building. Floor drain plugs and floor drain standpipes keep water from flowing out of the lowest opening in the house. Overhead sewer keeps water in the sewer line during a backup. Backup valves allow sewage to flow out while preventing backups from flowing into the house.

Public Education and Awareness. Public education and awareness methods educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.

- *Community Hazard Mitigation Plan Distribution.* Internet downloads and CDs are some of the means for mass distribution of the mitigation plan to the public. A fold-out, poster-size summary document could be printed for mass mailings or a special summary document could be published in the Sunday edition of the local newspaper.
- *Flood Map Information.* Flood Insurance Rate Maps (FIRM) developed by FEMA outline the boundaries of the flood hazard areas and provide other valuable information on flooding conditions. These maps can be used by anyone interested in a particular property to determine if it is flood-prone. NFIP

communities can provide this information to the real estate agents, builders, developers and homeowners as a public service.

- *Outreach Projects.* Outreach projects are proactive; they give the public information even if they have not asked for it. Outreach projects are designed to encourage people to seek out more information and take steps to protect themselves and their properties. Outreach programs work, although awareness is not enough. People need to know what they can do about the hazards, so projects should include information on protection measures. Locally designed and run programs are often more effective than national advertising. The following are just a few of the examples of outreach activities:
 - ✓ City or county government newsletters with articles on hazard mitigation.
 - ✓ Notices directed to floodplain residents encouraging the purchase of flood insurance.
 - ✓ Displays in public buildings, malls, festivals, fairs, and other public assembly places, including colorful GIS maps, brochures, and information handouts.
 - ✓ Newspaper articles and special sections addressing hazards.
 - ✓ Radio and TV news releases and interviews shows.
 - ✓ A flood proofing video for cable TV programs and for loan to organizations.
 - ✓ A detailed property owner handbook tailored for local conditions.
 - ✓ Presentations at meetings of neighborhood groups.
- *Hazard Insurance Awareness.* Above and beyond standard property insurance, coverage may be available to property owners for protection against flood damages, if the property is in a community that participates in the National Flood Insurance Program. Any local insurance agent is able to sell flood insurance policies under rules and rates set by FEMA. Flood insurance may also be advisable for properties located in dam inundation areas. Flood insurance is also available for areas outside of mapped flood zones. Flood damage may still occur outside of a flood plain as a result of poor drainage or other causes. Property owners may also purchase additional insurance riders for specific hazard coverages, such as insurance riders for earthquake, landslides, or sinkhole damage.
- *Real Estate Disclosure.* Disclosure of information regarding flood-prone properties is important if potential buyers are to be in a position to mitigate damage. Federally regulated lending institutions are required to advise applicants that a property is in the floodplain. However, this requirement needs to be met only days prior to closing, and by that time, the applicant is typically committed to the purchase. State laws and local real estate practice can help by making this information available to prospective buyers early in the process.
- *Library.* Your local library can serve as a repository for pertinent information on hazards and methods of protection. Some libraries also maintain their own public information campaigns, augmenting the activities of the various governmental agencies involved in hazard mitigation.

- *Technical Assistance.* Certain types of technical assistance are available from the local technical and professional staff to advise on various mitigation alternatives to property owners. Community officials can also set up a service delivery program to provide one-on-one sessions with property owners. An example of technical assistance is the hazard audit, in which a specialist visits a property. The specialist advises the owner of alternative protection measures.
- *Education Programs.* Education can be a great mitigation tool. The earlier education begins the better. Education programs for children can be taught in the schools, park and recreation departments, conservation associations, or youth organizations. An activity can be as involved as course curriculum development or as simple as an explanatory sign near a river. Education programs do not have to be limited to children. Adults can benefit from knowledge of hazards and mitigation measures, and local officials, loaded with this knowledge, can make more informed decisions on mitigation actions.
- *Mass Media Relations.* Newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking are some of the ever changing mass media tools available for increasing public awareness and distributing public information on hazard mitigation topics. Effective media relations are essential to a comprehensive outreach program.
- *NOAA Weather Radio Programs.* The use of inexpensive weather radios in homes and businesses are another means for advance warning and can be promoted as a public service. Some localities may choose to purchase these radios in bulk and distribute them to residents at little or no cost. A corporate sponsor can bear some or all of the costs.

Natural Resources Protection Measures. Natural resources protection measures 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.

- *Wetlands Protection.* Wetlands are capable of storing large amounts of floodwaters, slowing and reducing downstream flows, and filtering the water. Any development that is proposed in a wetland is regulated by either federal and/or state agencies. Depending on the location, the project might fall under the jurisdiction of the U.S. Army Corps of Engineers, which in turn, calls upon several other agencies to review the proposal. Communities may also have local wetland ordinances. Generally, the goal is to protect wetlands by preventing development that would adversely affect them. Mitigation techniques are often employed, which might consist of creating a wetland on another site to replace what would be lost through the development.
- *Open Space Easements and Acquisitions.* Acquiring easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands, assures permanent protection. Acquisitions can be made by a land

trust or a public agency to benefit the public welfare. Often, property owners may be willing to dedicate lands and easements for tax advantages.

- *River/Stream Corridor Restoration and Protection.* Restoration and protection of stream or river banks and riparian zones help restore the natural and beneficial functions to manage floods and filter runoff. Streams should also be protected from dumping. Often, greenways or linear parks along these corridors provide amenities that are compatible with natural functions.
- *Urban Forestry Programs.* A number of cities nationwide have participated in formal urban forestry programs. Urban forestry programs which follow Tree City USA guidelines for public lands and rights-of-way help maintain healthy tree cover for multiple mitigation purposes. Protection and maintenance of the urban forest is especially helpful for the mitigation of wild fires, hillside erosion and landslides, and restoration of stream and river corridors. Combined with effective landscaping regulations, both private and public spaces can be addressed.
- *Water Resources Conservation Programs.* Protection of water quantity and quality through water conservation programs can help mitigate the effects of droughts.
- *Dune and Beach Restoration.* Dune and beach restoration and maintenance can alleviate flooding from hurricanes or severe storms in coastal areas. The dunes provide a natural barrier from the waves and wind which can travel inward causing flooding and major damage to structures.

Structural Projects Measures. Structural projects measures are engineering structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of a hazard on a community.

- *Reservoirs.* Reservoirs control flooding by holding water behind dams or in storage basins. After a flood peaks, water is released or pumped out slowly at a rate the river downstream can handle. Reservoirs are suitable for protecting existing development, and they may be the only flood control measure that can protect development close to a watercourse. They are most efficient in deeper valleys or on smaller rivers where there is less water to store. Reservoirs might consist of man-made holes dug to hold the approximate amount of floodwaters, or even abandoned quarries. As with other structural projects, reservoirs projects have drawbacks, as follows:
 - expensive
 - occupy a lot of land
 - require periodic maintenance
 - may fail to prevent damage from floods that exceed design levels
 - may eliminate the natural and beneficial functions of the floodplain.

Reservoirs should only be used after a thorough watershed analysis that identifies the most appropriate location, and ensures that they would not cause flooding somewhere else. Because they are so expensive and usually involve

more than one community, they are typically implemented with the help of state or federal agencies, such as the Army Corps of Engineers.

- *Levees/Floodwalls.* A commonly known structural flood control measure is either a levee (a barrier of earth) or a floodwall made of steel or concrete erected between the watercourse and the land.
- *Diversions.* A diversion is simply a new channel that sends floodwater to a different location, thereby reducing flooding along an existing watercourse. Diversions can be surface channels, overflow weirs, or tunnels. During normal flows, the water stays in the old channel. During flood flows, the stream spills over the diversion channel or tunnel, which carries the excess water to the receiving water body.
- *Channel Modifications.* Channel modifications include making a channel wider, deeper, smoother, or straighter. These techniques will result in more water being carried away, but as with other structural techniques, it is important to ensure that the modifications do not create or increase a flooding problem downstream.
- *Dredging.* Dredging involves removal of sediment and other deposits in a river or stream bed to restore flood conveyance. It can be costly because the dredged material must be hauled away and disposed of in another location, and the stream or river bed could quickly fill back in with sediment.
- *Drainage Modifications.* These include man-made ditches and storm sewers that help drain areas where the surface drainage system is inadequate or where underground drainage ways may be safer or more attractive. These approaches are usually designed to carry the runoff from smaller, more frequent storms.
- *Storm Sewers.* Mitigation techniques for storm sewers include installing new sewers, enlarging small pipes, street improvements, and preventing back flow. Because drainage ditches and storm sewers convey water faster to other locations, improvements are only recommended for small local problems where the receiving body of water can absorb the increased flows without increased flooding. In many developments, streets are used as part of the drainage system, to carry or hold water from larger, less frequent storms. The streets collect runoff and convey it to a receiving sewer, ditch, or stream. Allowing water to stand in the streets and then draining it slowly can be a more effective and less expensive measure than enlarging sewers and ditches.
- *Drainage System Maintenance.* Ongoing maintenance of streams and drainage channels is necessary if these facilities are to function effectively and efficiently over time. Maintenance of channel growth within or near stream and river channels is important for bank stabilization and to prevent obstructions of drainage flows. Often sediment buildup can impede stream flow. Regular maintenance is necessary for public drainage systems, including constructed components, such as, ditches, culverts, and bridges and natural components, such as swales, intermittent and perennial streams, and stream and river overbank areas. Maintenance assures adequate conveyance of storm and flood

waters. Other maintenance programs to clear dead and dry brush and fallen trees can not only prevent obstructions to drainage but also mitigate wild fires.

- *Dam Modifications.* Unsafe dams can be removed or modified to lessen the risks of dam failure, such as spillway enlargements to lessen hydraulic loads.
- *Ground Stabilization.* Unstable areas susceptible landslides or sinkholes may be stabilized to lessen risk of failure.
- *Community Storm Shelter/Safe Room Construction.* Freestanding, single-purpose community storm shelters or safe rooms within a building used for other purposes can be constructed to provide temporary shelter from hurricanes, tornadoes, and severe storms.

Table F-1. Alternative Types of Mitigation Measures

TYPES OF MITIGATION MEASURES	Action or Project	Affects New or Existing Buildings and Infrastructure	Tornadoes	Flooding	Severe Storms	Winter Storms/Freezes	Hurricanes	Droughts/Heat Waves	Earthquakes	Wildfires	Dam/Levee Failures	Landslides	Sinkholes	Man Made Hazards
PREVENTION MEASURES														
<i>Comprehensive Plans and Smart Growth</i>	Action	Both		X			X			X	X	X	X	X
<i>Capital Improvements Plans</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X
<i>Zoning and Land Development Controls</i>	Action	Both		X			X			X	X	X	X	X
<i>Subdivision Regulations</i>	Action	Both		X			X			X	X	X	X	X
<i>Building & Technical Codes</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X
<i>Flood Plain Management Programs</i>	Action	Both		X							X			
<i>Storm Water Management Regulations</i>	Action	Both		X	X									
<i>Dam Safety Management</i>	Action	Both		X							X			
<i>Coastal Zone Management Regulations</i>	Action	Both		X	X		X							
<i>Open Space Requirements</i>	Action	Both		X			X			X		X	X	
<i>Open Burning Regulations</i>	Action	Both								X				
<i>Safe Room/Shelter Requirements</i>	Action	Both	X		X		X		X					
<i>Public Right-of-Way Maintenance Regulations</i>	Action	Both		X	X					X				
<i>Critical Facilities Assessments</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X
<i>Geographic Information Systems</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X
<i>Technology Programs</i>	Action	Both	X	X			X		X					X
<i>Planning Studies</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X

APPENDICE

2011 Dale County Multi-Hazard Mitigation Plan

TYPES OF MITIGATION MEASURES	Action or Project	Affects Existing or New Buildings and Infrastructure	Tornadoes	Flooding	Severe Storms	Winter Storms/Freezes	Hurricanes	Droughts/Heat Waves	Earthquakes	Wildfires	Dam/Levee Failures	Landslides	Sinkholes	Man Made Hazards
PROPERTY PROTECTION MEASURES														
<i>Acquisitions Projects</i>	Project	Existing		X			X					X	X	
<i>Building Elevations</i>	Project	Existing		X										
<i>Flood Proofing</i>	Project	Existing		X										
<i>Building Retrofits</i>	Project	Existing	X	X	X	X	X	X	X	X				
<i>Building Relocations</i>	Project	Existing		X			X					X	X	
<i>Critical Facilities Protection</i>	Project	Existing	X	X	X	X	X	X	X	X				
<i>Emergency Power Generation</i>	Project	Both	X		X	X	X		X					
<i>Sewer Backup Protection</i>	Project	Both		X										
PUBLIC EDUCATION AND AWARENESS MEASURES														
<i>Community Hazard Mitigation Plan Distribution</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X
<i>Flood Map Information</i>	Action	Both		X			X							
<i>Outreach Projects</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X
<i>Hazard Insurance Awareness</i>	Action	Both	X	X			X		X	X		X	X	
<i>Real Estate Disclosure</i>	Action	Both		X										
<i>Library</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X
<i>Technical Assistance</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X
<i>Education Programs</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X
<i>Mass Media Relations</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X
<i>NOAA Weather Radio Programs</i>	Action	Existing	X	X	X	X	X	X	X					

TYPES OF MITIGATION MEASURES	Action or Project	Affects New or Existing Buildings and Infrastructure	Tornadoes	Flooding	Severe Storms	Winter Storms/Freezes	Hurricanes	Droughts/Heat Waves	Earthquakes	Wildfires	Dam/Levee Failures	Landslides	Sinkholes	Man Made Hazards
NATURAL RESOURCES PROTECTION MEASURES														
<i>Wetlands Protection</i>	Both	Both		X				X					X	
<i>Open Space Easements and Acquisitions</i>	Both	Both		X			X			X		X	X	
<i>River/Stream Corridor Restoration and Protection</i>	Both	Both		X										
<i>Urban Forestry Programs</i>	Both	Both								X				
<i>Water Resources Conservation Programs</i>	Action													
<i>Dune and Beach Restoration</i>	Project	Both		X			X							
STRUCTURAL MEASURES														
<i>Reservoirs</i>	Project	Both		X										
<i>Levees/Floodwalls</i>	Project	Both		X						X				
<i>Diversions</i>	Project	Both		X										
<i>Channel Modifications</i>	Project	Both		X										
<i>Dredging</i>	Project	Both		X										
<i>Drainage Modifications</i>	Project	Both		X										
<i>Storm Sewers</i>	Project	Both		X										
<i>Drainage System Maintenance</i>	Project	Both		X						X				
<i>Dam Modifications</i>	Project	Both		X							X			
<i>Ground Stabilization</i>	Project	Both										X	X	
<i>Community Shelter/Safe Room Construction</i>	Project	Both	X		X		X							

Appendix G
Committee Meeting Documentation

App. G - Committee Meeting Documentation

- 1.0 Establishment of Hazard Mitigation Planning Committee
- 2.0 Committee Meetings
- 3.0 Meeting Agendas and Sign-in Sheets

1.0 Establishment of Hazard Mitigation Planning Committee

The Hazard Mitigation Planning Committee (HMPC) was first established to oversee the development of the 2005 plan and was reorganized for the plan update. It provides opportunities for direct involvement by participating jurisdictions and interested organizations and agencies in the planning process. The HMPC convened regularly throughout the drafting phase of the 2011 plan update. The HMPC meetings served as open public forums for discussing hazard risks to Dale County communities and developing effective strategies to respond to those risks. HMPC membership included representatives from all participating jurisdictions. Membership and meeting participation was expanded to also include other agencies. This enlarged membership created additional opportunities for interagency coordination among other stakeholders in the mitigation planning process. All meetings were open to public participation. This appendix documents the HMPC's meeting activities during the drafting phase of this plan, including who was involved in these meetings. Included here are the meeting agendas and sign-in sheets.

2.0 Committee Meetings

The Hazard Mitigation Planning Committee held five meetings from March through August 2011 to complete the updates to the 2005 Dale County, Alabama, Natural Hazards Mitigation Plan. During these meetings the attendees were informed about mitigation planning and the various steps required for preparing the plan update. During these interactive meetings, members completed a series of written exercises related to the various components of this plan and discussed a range of issues, among other meeting activities. These activities and discussions addressed identifying hazards, profiling hazards, examining the locations of hazards, rating the probability and extents of each hazard, assessing risk and vulnerabilities of buildings and populations, updating goals, reviewing mitigation action alternatives, and updating each community's action program. The completed exercises and results of meeting discussions were used in the formation of this plan update. All of the completed exercises are maintained on file in the Dale County EMA offices. The agendas and sign-in sheets are included in this appendix. For a more in-depth discussion of the composition and role of the HMPC, see "Chapter 4 - The Planning Process."

3.0 Meeting Agendas and Sign-in Sheets

This section documents the HMPC's meeting activities during the drafting phase of this plan, including who was involved in these meetings. Included here are the meeting agendas and sign-in sheets.

Dale County Hazard Mitigation

Kick-off Meeting

March 3, 2011

1. Call to Order
2. Welcome and Opening Remarks
3. Introduction
(Chapter 1 and App. A)
4. Prerequisites
(Chapter 2 and App. J)
5. Plan Maintenance
(Chapter 7)
6. Roles and Responsibilities of the HMPC
7. Questions and Answers
8. Other Business
9. Adjourn

Dale County
 Hazard Mitigation Planning Committee Meeting
 March 3, 2011

Name	Jurisdiction/Organization	Email Address	Phone Number
ROBERT MARSH	DALE CO. EMA	DALE.EM@DALECOUNTY.GOV	387-220-2700
Charles Kerola	Clayhatchers	charleskerola@aol.com	386-588-1501
JEFF MAY	ALABAMA STATE DEFENSE FORCE	cmay@army.gco.army.mil	334-719-6598
Tom Jones	EQ11	tom.jones@comcast.net	734-495-8444
Sharr Russell	Sharr Russell Char Org	Sharr.Russell@panol.com	361-719-1982
Yvonne Stumpf	Ozark City Square	stumpf.yvonne@citysquare.com	357-374-5577
Bill Barkshire	Ozark Civic	bbarkshire@ozarkcivic.com	384-784-3444
STEVE PRICE	OSHA PUBLIC WORKS	price.steve@osha-slc.gov	339-774-7032
LOU LYONS	OSHA PUBLIC WORKS	lyons.lou@osha-slc.gov	339-774-7032
Greg Bradwell	Ozark Fire Department	gbradwell@ozarkfire.com	334-432-0032
Janet Johnson	OSHA PUBLIC WORKS	janetjohnson@osha-slc.gov	(334) 347-2922
Paula Simmons	Ozark Dale City EQ11	Paula.Simmons@comcast.net	334-445-9414
Wes Fisher	DQ11	wfisher@comcast.net	334-585-2345
Charles L. Sapp	Daleville	csapp@daleville.com	334-584-9925
Harvie A. Parks	Lea Farms	hparks@leafarms.com	349-0122

AGENDA

Dale County Hazard Mitigation Planning Committee
2011 Dale County Multi-Hazard Hazard Mitigation Plan
10 A.M., April 7, 2011, Dale County EMA Offices

1. Call to Order
2. Welcome and Opening Remarks
3. Chapter 3 - Community Profiles Review
4. Hazard Identification – FEMA Guidance Requirements
5. Hazard Identification and Ratings Exercise
6. Hazard Profiles – FEMA Guidance Requirements
7. Hazard Profile Data Review
 - a. List of Disaster Declarations
 - b. Appendix E – Hazard Profile Data
8. Hazard Profile Exercise
9. Other Business
10. Adjourn

Dale County
 Hazard Mitigation Planning Committee Meeting
~~March 3, 2011~~ April 7, 2011

Name	Jurisdiction/Organization	Email Address	Phone Number
Robert Mash	DALE CO. EMA	daleema@centurylink.net	334-774-2214
JEFF MAY	304th St ASDC	COMWELMAY@CENTURYLINK.NET	334-774-6948
Curt Duvv	CITY OF OZARK	FRANSPECTOR@OZARKGAZONLINE.US	351-774-2032
Rick McIn turf	OZARK City Schools	rmeinturf@dale.k12.mo.us	884-294-5199
Steve Sketz	OZARK Fire Dept		334-774-1684
STEVE PRICE	CITY OF OZARK	pudirector@ozarkolehome.us	334-774-7032
Bobby Blankenship	OZARK Police	bblankens@ozarklehome.us	334-774-2644
TYRIS WATKINS	LEWIS & CLARK		334-347-0422
Thomas G. Ayers	ACES/DALE	Rayette@aces.org	774-2329
Ernie Hingler	DALE County	ehingler@smackall.com	774-6060
Kathy Walker	OZARK Dale County E-911 Representative		
Robert Mash	NAHEP Field	NFVD@YAHOO.COM	

AGENDA

Dale County Hazard Mitigation Planning Committee
2011 Chambers County Multi-Hazard Mitigation Plan
10:00 A.M., June 16, 2011, Dale County EMA Office

1. Call to Order
2. Welcome and Opening Remarks
3. Review Chapter 5, Part A, Risk Assessment
 - a. Federal Requirements
 - b. Hazard Identification
 - i. Types of Hazards
 - ii. Hazard Identification and Ratings: Review of Exercise Results
 - iii. 2010 State Plan
 - iv. Federal Disaster Declarations
 - c. Hazard Profiles - Location, Extents, Past Occurrences, and Probability of Future Events
General Nature of Hazard
 - i. Severe Storms
 - ii. Tornadoes
 - iii. Winter Storms/Freezes
 - iv. Droughts/Heat Waves
 - v. Hurricanes
 - vi. Flooding
 - vii. Dam/Levee Failures
 - viii. Wildfires
 - ix. Sinkholes
 - x. Earthquakes
 - xi. Landslides
 - d. Documentation and Supporting Evidence
 - i. Appendix D HMPC Hazard Identification and Ratings
 - ii. Appendix E Hazard Profile Data
4. Complete HMPC Exercises:
 - a. Community Capabilities Assessment
 - b. Implementation Status
5. Other Business
6. Adjourn

Dale County
Hazard Mitigation Planning Committee Meeting
Cell # _____, 2011

Name	Jurisdiction/Organization	Email Address	Phone Number
ROBERT MATH	DALE CO. EMA	dalecma@centralark.net	774-2214
Paula Simmons	Ozark Dale County E-911	Paula.Simmons@ozarkdale911.org	774-5111
Kathy Walker	OZARK-DALE CO E-911	Rwalker@tda911.org	701-7285
Rick MeJantuff	Ozark City Schools	rmeiantuff@osds.k12.ark.us	774-5199
Tommy Dean	Ozark Fire Dept.	tommyd@ozarkfire.com	774-1684
STEVE PRICE	OZARK PUBLIC WORKS	pudirector@ozarkpubworks.com	(934) 774-7052
WESS FLETCHER	DALE CO. CITY	wessf@ocw.com	(334) 598-2345
Charles & SAPP SR.	Daleville City/DBS	jerry.sapp@daleville.com	334-588-4442
Eunice Hagler	Dale County, AL.	ehagler@ameritile.com	334-774-6060
Jim Lehe	Lehe Planning	jlehe@leheplanning.com	205-578-3633
Celeste Boydston	Lehe Planning	cboydston@leheplanning.com	205-821-1024

AGENDA

Dale County Hazard Mitigation Planning Committee
2011 Dale County Multi-Hazard Mitigation Plan
10:00 A.M., July 21, 2011, Dale County EMA Office
Meeting Four

1. Call to Order
2. Welcome and Opening Remarks
3. HAZUS-MH - What It Is and What It Does
4. Vulnerability Assessment (Chapter 5 – Part Two)
 - a. Vulnerability of Structures within Each Jurisdiction
 - b. Estimate of Dollar Losses to Vulnerable Structures
 - c. General Description of Land Uses and Development Trends
 - d. Repetitively-Damaged NFIP-Insured Structures
 - e. Summary of Hazards and Community Impacts
 - f. Risks that Vary Among the Jurisdictions
5. Mitigation Strategy (Chapter 6 -Part One)
 - a. Federal requirements
 - b. Goals for Hazard Mitigation
 - i. How the goals were developed
 - ii. The vision for disaster-resistant communities
 - iii. Community goals
 - iv. Compatibility with 2010 State goals
 - c. NFIP Participation and Compliance
 - d. Implementation of Mitigation Actions (the STAPLEE method)
6. Discussion of local plans, studies, ordinances, and regulations addressing hazards. HMPC members should make these available for review by the planning team.
7. Review Appendix F Alternative Mitigation Measures and Complete HMPC Exercise.
8. Next meeting date.
9. Other Business
10. Adjourn

Dale County
 Hazard Mitigation Planning Committee Meeting
 July 21, 2011

Name	Jurisdiction/Organization	Email Address	Phone Number
Celeste Boylston	Levee Planning	cboylston@leveeplanning.com	(205) 821-1024
ALBERT MARSH	DALE CO EMA	dale.ema@courtwalk.net	334-774-2214
E Yvonne Hagland	State County	ehagland@smcworld.com	334-994-6060
Charles G. SABB JR	Daleville	jerry.sabb@dalevilleal.com	334-947-0025
Curt Duvor	CITY OF OZARK	R.Russell@ozark-tx.com	5534-774-7032
STEWIE PRICE	CITY OF OZARK	pudirector@ozarkalabama.us	334-774-7032
Shari Russell	Mr. Citizen Corps	Shari.Russell@ymail.com	334-714-1982
RATNY WALKER	E-911		701-7285
Jim Leke	Leke Planning	jpleke@lekeplanning.com	205-978-8333

AGENDA

Dale County Hazard Mitigation Planning Committee
2011 Dale County Multi-Hazard Mitigation Plan
Immediately Following the 6:30 PM Community Meeting, August 11, 2011
Dale County Government Building
Meeting Five, Final Meeting

1. Call to Order
2. Welcome and Opening Remarks
3. Discussion of Community Meeting
4. Review Chapter 6B Mitigation Strategy and Community Action Programs
5. Review Chapter 4 The Planning Process
6. FEMA approval and local adoption
7. Other Business
8. Adjourn

Dale County
 Hazard Mitigation Planning Committee Meeting
 August 11, 2011

Name	Jurisdiction/Organization	Email Address	Phone Number
Celeste Boddison	Levi Plunings	cboddison@leviplunings.com	905-921-1021
KORIN MAYS	DALE CO. EM9	daleem9@gmail.com	334-774-2214
Steve Russell	Dale O Hazard Corps	Steve.Russell@gmail.com	
Bobby Blankenhorn	Dade Police	treining@marketplace.us	334-988-3235
Stacy Skeets	Ozark Fire	opschief@ozarkfire.com	334-482-0032
Jeff May	AL STATE DEFENSE FORCE	AMMUNO@GMAIL.COM	334-791-6544
MARLES G. SHIP	Daleville	Marles.Ship@DaleCo.Needs.com	447-0025
WESS ETHEREIDGE	DALEVILLE	wetheridge@CEN-TALK-TEL.NET	447-0348

Appendix H
Community Involvement Documentation

App. H - Community Involvement Documentation

- 1.0 Community Involvement Opportunities
- 2.0 Documentation

1.0 Community Involvement Opportunities

This Appendix includes additional documentation of the community involvement opportunities in the planning process for the Dale County 2011 plan update, which are summarized as follows (see Chapter 4 – The Planning Process for a complete discussion of community involvement in the planning process):

1. The Dale County Hazard Mitigation Planning Committee (HMPC). This Committee, which was first established in 2004 to oversee the original plan, was reorganized in March 2011 to prepare for the 2011 update. Its primary purposes are to oversee all hazard mitigation planning activities and ensure the plan's ongoing monitoring and implementation. The HMPC represents all Dale County jurisdictions, as well as interested stakeholder organizations, and meets at least annually. (For complete documentation of HMPC meetings, refer to Appendix G – “Committee Meeting Documentation”, and for a more detailed discussion of the HMPC, refer to Chapter 4 – “The Planning Process”).
2. The 2011 Dale County Multi-Hazard Mitigation Plan Web Site. This Web site – dale.hazardmitigationplan.com was active during the drafting phase of the 2011 update. Its purpose, as presented on the Web site, was “to encourage 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 2011 Dale County Hazard Mitigation Plan.” This Web site maintained the most recent draft sections of the plan and encouraged public comments through a dedicated email account at dale@hazardmitigationplan.com. The Web site provided background information to the public and interested agencies on mitigation planning and the Federal requirements. It also provide public information on the HMPC membership, meeting announcements, and contact information for the Dale County EMA and the consulting team, including a toll-free hotline at 1-866-978-3633, for calling in comments and suggestions. The most recently adopted plan is maintained on the Dale County EMA Web site at <http://www.dalecountyema.com>.
3. Community Meeting. A general community meeting was held in Dale County in August 2011 during the drafting stage of this plan. The community meeting included a display of the hazards that had been identified in the planning

process. The display showed the threats that exist and what could be done to help prevent or at least lessen the impact of each hazard. Also, in addition to the draft plan publication, other materials were provided to educate the public.

4. Public Outreach Questionnaire. A questionnaire was available during the community meeting. The questionnaire provided an opportunity for the public to record their comments on the draft plan.
5. Interagency Involvement. Invitations were delivered to agencies and organizations representing neighboring counties, Federal and State governmental agencies, businesses, educational institutions and school boards, and other interested private and non-profit stakeholders in the hazard mitigation planning process. A survey form to report written comments on the plan accompanied each invitation. A copy of the invitation and survey are included in this Appendix.
6. Public Hearings Prior to Adoption. A final opportunity for public comment was afforded immediately before adoption by each local governing body as required by Alabama public hearing and notice laws.

2.0 Documentation

This Appendix includes the following documentation of community involvement activities and opportunities:

- An image of the 2011 plan update Web site at dale.hazardmitigationplan.com
- The public invitation by the Dale County EMA to attend the August 11, 2011 community meeting.
- Sign in sheets documenting attendance at the community meetings.
- The public outreach survey form.
- The invitation to interested agencies, organizations, and stakeholders, including the survey form.

Figure H-1. Portion of website at dale.hazardmitigationplan.com



**Figure H-2. Public Invitation from Dale County EMA
to Attend Community Meeting**

2011 Dale County Multi-Hazard Mitigation Plan

Community Meeting

Dale County Government Building
202 S Highway 123, Ozark, AL 36330
6:30 P.M., Thursday, August 11, 2011

The Dale County Hazard Mitigation Planning Committee will hold a meeting with residents and others interested in the draft 2011 Dale County Multi-Hazard Mitigation Plan. Attendees will be able to review the results of a county-wide assessment of risks affecting all of Dale County and its municipalities. Participants may also recommend specific actions and projects to mitigate or lessen risks. The draft plan may be viewed at *dale.hazardmitigationplan.com*. The consulting team of planners will also be on hand to discuss the plan.

You are encouraged to attend this important and informative meeting.

If you have any questions, please contact Robert Marsh, Director, Dale County EMA, at 334-774-2214 or daleEMA@centurylink.net

Figure H-3. Sign-in Sheet for Community Meeting

Dale County
Community Meeting
August 11, 2011

Name	Jurisdiction/Organization	Email Address	Phone Number
ROBERT MARSH	Dale Co. EMA	dale.ema@emergencylink.net	774-2214
Celeste Boydston	Lehr Planning	cboydston@lehrplanning.com	805-821-1024
Chamique Hayles	Baldwin T. Hunt	chayles@smackit.com	334-774-6060
Carl Lynn	City of Stark	Presidents@starkalabama.us	774-7052
Steve Sklar	Dale Co. Vol Fire	R.Stevens@PSB(AL).Org	445-0037
Eric Blankenship	Echo Fire Department	edob155@centurytel.net	334-619-8206
Don Spotts	Doylesdale Fire Department	baunspotts@att.net	334-467-0576
Steve Sklar	Stark Fire	sklar@centurytel.net	334-452-0049
JEFF MAY	AL STATE DEFENSE FORCE	RMAY@G4CER4.NST	334-791-6948
Ben Chandler	Midland City Fire	MHC1972@yghai.com	334-983-5591
Edward Snow	Newton Vol. Fire	rvf1570@yahoo.com	334-790-1021
Mari Russell	Dale Co. 4700 Hwy	Mari.Russell@gmail.com	334-714-1982

*

Figure H-4. Public Outreach Questionnaire



Public Outreach Questionnaire

If you have any comments on the Dale County draft plan, please make them below. Thank you for your participation in the 2011 Dale County Multi-Hazard Mitigation Plan.

Figure H-5. The Invitation to Interested Agencies, Organizations, and Stakeholders, Including the Survey Form

Dale County, Alabama, 2011 Multi-Hazard Mitigation Plan Update

Dale County and all of its cities and towns are in the process of completing a five-year update to its multi-hazard mitigation plan. The original plan was approved by FEMA in 2005 and has expired. The [2011 Dale County, Alabama, Multi-Hazard Mitigation Plan](#), funded in part through a FEMA planning grant, will become a strategic planning guide in fulfillment of requirements of the Federal Disaster Mitigation Act of 2000 (DMA 2000), as administered by FEMA. The 2011 plan provides the framework for Dale County communities and agencies to assess the local risks of natural hazards and develop a coordinated strategy to mitigate potential losses to property and lives. FEMA requires all jurisdictions to have an approved plan adopted by the governing bodies as a condition to receiving future FEMA hazard mitigation assistance grants. The planning consulting firm of Lehe Planning, LLC, has been retained by the Dale County Commission to work with the Dale County Emergency Management Agency to prepare the plan under the direction of its Hazard Mitigation Planning Committee, which represents all localities. This is the same firm that helped develop the 2005 plan for Dale County cities and towns.

Essential to developing an effective plan is “open public involvement” in the planning process, according to the DMA 2000 requirements. In order to “develop a more comprehensive approach to reducing the effects of ... disasters, the planning process shall include: ***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.***”

The Dale County Hazard Mitigation Planning Committee has created a number of public participation and coordination alternatives for interested stakeholders, such as your organization. These alternative opportunities not only increase public involvement but also facilitate improved interagency and inter-jurisdictional coordination. Among the range of alternatives, is this personal invitation for your direct involvement in the planning process. Please take the time to review the draft plan on the website at: dale.hazardmitigationplan.com and submit your comments and suggestions. The website provides some additional background information on the plan and presents the ongoing activities of the Planning Committee. A link allows you to e-mail comments directly to the planning team, and a toll-free number at 1-866-978-3633 has been set up for you to discuss your ideas with the planning consultants. Finally, you can make an appointment to stop by the Dale County EMA offices located at 168 N. Merrick Avenue, Ozark, AL 36361 to meet with Robert Marsh, the EMA Director. The website will be maintained throughout the drafting phase of the plan and for a period after local adoption. These public involvement opportunities have been established to inform the general public and interested parties of the planning process and to allow a convenient means to comment on the plan as it is drafted. You may forward this message to any other agency or individual that might have an interest in the mitigation plan. Please complete the attached survey and return it to us.

On behalf of the Dale County Hazard Mitigation Planning Committee, your participation is greatly appreciated. Your involvement will certainly make the 2011 plan a more effective guide to mitigating the potential damages associated with natural hazards.



2011 Dale County, Alabama Multi-Hazard Mitigation Plan
ORGANIZATION INVOLVEMENT SURVEY

This survey provides an opportunity for your organization to become involved in the planning process for the 2011 Dale County, Alabama, Multi-Hazard Mitigation Plan, a five year update to the 2005 plan. Here you can express your comments and help coordinate mitigation activities. Before completing this survey, however, please take the time to first visit our website at <http://dale.hazardmitigationplan.com>, where you will find information on the scope and purposes of the plan, the 2011 draft plan for download, and contact information for the planning team. Your participation is important to a successful 2011 plan update.

1. Organization/agency: _____

2. Interest(s) represented: Neighboring County or Municipality Federal or State Government
 Regional or Local Public Agency Business Private Interest: _____
 Non-Profit Interest: _____ Other: _____

3. Is your organization involved in hazard mitigation activities?
 Yes No If yes, please explain: _____

4. Does your organization have authority to regulate land development in Dale County?
 Yes No If yes, please explain: _____

5. Have you reviewed the plan documents available at <http://dale.hazardmitigationplan.com>?
 Yes No

6. Are any of the following sections and related appendices draft plan of particular concern to your organization?
The Planning Process? Yes No If yes, please explain: _____

Risk Assessment? Yes No If yes, please explain: _____

Mitigation Strategy? Yes No If yes, please explain: _____

Plan Maintenance? Yes No If yes, please explain: _____

7. Which hazards are of most concern to your organization?

- Tornadoes Severe Storms Floods Winter Storms/Freezes Hurricanes
Droughts/Heat Wave Wildfires Dam/Levee Failures Landslides Earthquakes
Sinkholes Other: _____

8. After review of the draft plan sections, do you have any suggested improvements? Yes No

If yes, please explain: _____

9. Is your agency prepared for the probable impacts from the natural hazards identified by the plan?

- Yes No If no, please explain: _____
-

10. Does your organization have any mitigation actions or projects that should be included in the plan?

- Yes No If yes, please describe: _____
-

11. Additional comments: _____

12. Name/title of person completing this form: _____

Address: _____

Email: _____ Phone: _____

Thank you for your organization's involvement in the

2011 Dale County Multi-Hazard Mitigation Planning Process

Please send your completed survey form by

Email to: Dale@leheplanning.com or

Fax to: 205-978-3634 or

Mail to: Dale Plan, Lehe Planning, LLC, 300 Century Park South, Suite 216, Birmingham, AL 35226

Appendix I
Multi-Jurisdictional Participation Activities

App. I - Multi-Jurisdictional Participation Activities

- 1.0 Participation Requirements
- 2.0 Participation Documentation

1.0 Participation Requirements

According to 44 CFR Section 201.6(a)4, “Multi-jurisdictional plans may be accepted, as appropriate, as long as each jurisdiction has participated in the process...” The table in this Appendix illustrates each jurisdiction’s participation within Dale County in the plan update; qualifying it as a Multi-Jurisdictional Plan.

Each jurisdiction was given the opportunity to participate in every step of the plan update, from the kick-off meeting on March 3, 2011 to the adoption of the resolutions.

2.0 Participation Documentation

Table I-1 included in this Appendix lists each jurisdiction within Dale County and the various meetings and activities that each jurisdiction could participate in. An X indicates the events in which the jurisdiction chose to participate. Examples and conclusions of the activities are shown in Appendices B through F, and information on the meetings is included in Appendices G and H.

Table I-1. Multi-Jurisdictional Participation Activities

Table I-1 Multi-Jurisdictional Participation Activities Dale County 2011 Plan Update		Dale Co.	Ariton	Clayhatchee	Daleville	Grimes	Level Plains	Midland City	Napier Field (1)	Newton	Ozark	Pinckard
HMPC Meeting 1 - March 3, 2011		X		X	X		X				X	
HMPC Meeting 2 - April 7, 2011		X					X		X		X	
	Natural Hazard Identification and Rating	X					X				X	
	Natural Hazard Profile											
HMPC Meeting 3 - June 16, 2011		X			X				X		X	
	Community Capabilities Assessment											
	2004 Plan Implementation Status				X						X	
HMPC Meeting 4 - July 21, 2011		X			X				X		X	
	Review of Goals and Alternative Mitigation Measures											
HMPC Meeting 5 - August 11, 2011		X			X				X		X	
	Community Action Programs											
	Final Plan Approval by HMPC											
Community Meeting and Exhibits - August 11, 2011		X	X	X	X		X	X	X	X	X	X
	Public Survey											
Presentation of Plan to Governing Body for Review (1)		X	X	X	X	X	X	X	X	X	X	X
Public Hearing Prior to Adoption		X	X	X	X	X	X	X	X	X	X	X
X	Denotes participation in activity											
(1) Napier Field was represented by the EMA in accordance with the Resolution for Representation.												
(2) All jurisdictions are expected to review the plan prior to the EMA submitting it to AEMA for approval.												

**Appendix J
Adopting Resolution**

App. J – Adopting Resolution

- 1.0 Purpose
- 2.0 Sample Adopting Resolution

1.0 Purpose

The sample resolution presented here serves as a model for the governing bodies of the participating jurisdictions to adopt the 2011 plan update following a public hearing. Each jurisdiction may modify the sample to fit their particular legal form.

2.0 Sample Adopting Resolution

RESOLUTION OF THE (insert name of governing body)**A RESOLUTION ADOPTING THE 2011 DALE COUNTY MULTI-HAZARD MITIGATION PLAN, IN FULFILLMENT OF THE FEDERAL DISASTER MITIGATION ACT OF 2000 AND THE LOCAL MITIGATION PLAN REQUIREMENTS OF 44 C.F.R. SECTION 201.6 AND FEMA LOCAL MULTI-HAZARD MITIGATION PLANNING GUIDANCE**

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

WHEREAS, the DMA 2000 requirements for local mitigation plans are set forth in 44 C.F.R. Section 201.6 and the Local Multi-Hazard Mitigation Planning Guidance, FEMA, July 1, 2008 (Federal planning criteria); and,

WHEREAS, as a prerequisite for each Dale County to continue to qualify for FEMA mitigation grant assistance programs, the DMA 2000 requires the five year update of the 2004 Dale County, Alabama, Natural Hazards Mitigation Plan, which was approved by FEMA on March 1, 2005; and,

WHEREAS, the AEMA had awarded a planning grant funded through the FEMA Hazard Mitigation Grant Program (HMGP) to the Dale County EMA to fund 75% of the total cost of the five year plan update for all jurisdictions within Dale County; and,

WHEREAS, the 2011 Dale County Multi-Hazard Mitigation Plan has been prepared in accordance with DMA 2000 requirements under the direction of the Dale County Hazard Mitigation Planning Committee with the support of the Dale County EMA, on behalf of all of the jurisdictions within Dale County; and,

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

WHEREAS, the Federal planning criteria require formal adoption of the FEMA-approved plan update by each participating jurisdiction.

NOW THEREFORE, BE IT RESOLVED that the 2011 Dale County Multi-Hazard Mitigation Plan is hereby adopted and immediately made effective.

APPENDICES

2011 Dale County Multi-Hazard Mitigation Plan

ADOPTED this the _____ day of _____,
2011.

APPROVED: _____

ITS: _____

ATTEST: _____

ITS: _____

