

2015  
**MOBILE COUNTY, ALABAMA**  
Multi-Hazard Mitigation Plan

I. Comprehensive Plan

**A multi-jurisdiction plan**

**CITY OF BAYOU LA BATRE  
CITY OF CHICKASAW  
CITY OF CITRONELLE  
CITY OF CREOLA  
TOWN OF DAUPHIN ISLAND  
CITY OF MOBILE  
TOWN OF MT. VERNON  
CITY OF PRICHARD  
CITY OF SARALAND  
CITY OF SATSUMA  
CITY OF SEMMES  
MOBILE COUNTY**



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



With the support of the Mobile County EMA by:



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April 1, 2016



# 2015 Mobile County, Alabama, Multi-Hazard Mitigation Plan

## I. Comprehensive Plan

*City of Bayou La Batre, City of Chickasaw, City of Citronelle, City of Creola,  
Town of Dauphin Island, City of Mobile, Town of Mt. Vernon, City of Prichard,  
City of Saraland, City of Satsuma, City of Semmes, and Mobile County*

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April 1, 2016



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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 plans were created separately for incorporated jurisdictions by Lehe Planning, LLC, under the direction of the Mobile County EMA, and unincorporated areas by the South Alabama Regional Planning Commission, under the direction of the Mobile County Commission. The Incorporated Areas of Mobile County, Alabama, Natural Hazards Mitigation Plan was approved by FEMA effective March 29, 2005, and the Mobile County Commission Hazard Mitigation Plan was approved on July 14, 2005. Both plans were subsequently adopted by all Mobile County jurisdictions. During Hurricane Katrina recovery planning, the two Hazard Mitigation Planning Committees (HMPCs) had merged into one. The 2010 Mobile County Multi-Hazard Mitigation Plan was later prepared by Lehe Planning under the direction of the merged HMPC and the Mobile County EMA, approved by FEMA, and subsequently adopted by the County Commission and all municipalities.

### II. Organization of the Plan

The 2015 Mobile 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 the Local Mitigation Plan Review Guide, FEMA, October 1, 2011, and the Local Mitigation Planning Handbook, FEMA, March 2013. The organization of this plan is consistent with the organization of the 2013 Alabama Hazard Mitigation Plan, which also parallels the Federal requirements. The main body of the plan, Part I “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 2015 plan update is also organized similar to the previous Mobile County plans, which allows for easy cross reference. Each chapter of the 2015 plan update references the requirements of 44 CFR Section 201.6 that it addresses and includes a table that summarizes the updates to the 2010 plan.

The 2010 plan included an additional volume: Part III “Critical Facilities Assessment.” Due to funding constraints, however, this additional volume was not updated for 2015. The part III assessment applied GIS and FEMA’s HAZUS-MH software applications to create an inventory of critical facilities and infrastructure and assess their vulnerabilities to flooding and hurricane storm surge.

A supplemental 2015 plan document includes Part II “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 continues a unified approach among all Mobile 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 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 Mobile County is described in detail; the vulnerability of the County and each jurisdiction to the hazards are addressed: goals, objectives, and mitigation measures 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 Mobile County is described in detail. The overall geographic setting and history of Mobile 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 Mobile 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 April 2015 through December 2015, the Mobile County Hazard Mitigation Committee held five meetings. The Mobile 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.

Relevant planning and regulatory tools - plans, studies, reports, ordinances, regulations and technical information – were accessed through the Internet by the planning team. The team reviewed the documents for sections 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 integrated into future revisions.

The Hazard Mitigation Planning Committee solicited public input into the mitigation plan, primarily its website at [mobile.hazardmitigationplan.com](http://mobile.hazardmitigationplan.com). The public was also invited to attend committee meetings and provide their comments and concerns. The HMPC sponsored two special community meetings for additional public input into the planning process during the drafting stage of the plan. At those meetings, 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 community 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 Mobile County EMA office.

The plan review and update process resulted in a comprehensive update of the entire 2010 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;
- An update of the assessment of local capabilities to carry out mitigation measures;
- An evaluation of the status and effectiveness of Community Mitigation Action Programs adopted in the 2010 plan, which is reflected in the 2015 Action Programs for each jurisdiction;
- A reassessment of risks to include detailed research and analysis of hazards affecting the communities, as well as adding man-made hazards to the Risk Assessment;
- A complete update of the HAZUS – MH maps and analysis reports for floods, earthquakes, and hurricanes;



- A reexamination of development trends and exposure to risks;
- A review and recommitment to the vision for disaster-resistant communities; the plan goals; and support of the 2013 Alabama 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; and,
- Revisions to the plan maintenance procedures to institute streamlined amendments and better ensure continuous monitoring and implementation of mitigation actions.

### **Chapter 5. Risk Assessment**

Chapter 5 first describes the process used to identify and prioritize the hazard risks to each Mobile 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 Mobile County, followed by an explanation of the location, extents, previous occurrences, and the probabilities of future occurrences. The hazard profiles rely heavily on maps, charts, tables, and figures to communicate the profile information. The Federal requirements for repetitive loss properties are included in this chapter.

Vulnerability assessments are reported for each identified hazard. The vulnerability assessments include a summary of the impacts of each hazard on each jurisdiction. The estimates of losses are calculated in HAZUS-MH for hurricane winds, floods, and earthquakes. Further, the planning team evaluated land use and development trends.

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 assessments. .

### **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. Implementation of mitigation actions from the 2010 plans and local capabilities for carrying out mitigation measures has been assessed. The final section details the County's overall mitigation strategy. 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 2015 update to the risk assessment in Chapter 5, the update to the risk assessment in the 2013 Alabama Hazard Mitigation Plan, and the update of State goals and mitigation priorities reflected in the state plan.

The goals for this plan update are the same as in 2010, 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 and man-made 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.

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 2015 Mobile 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 Mobile 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 Mobile 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 Mobile 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 *2010 Plan Implementation Status* reports the evaluation results of implementation of mitigation measures recommended for implementation by each jurisdiction in the 2010 plan.
- D *HMPC Hazard Identification and Ratings* reports the results of the Committee exercise for identifying hazards for inclusion in the 2015 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 2015 Mitigation Strategy.
- G *Committee Meeting Documentation* documents the HMPC meetings during the drafting phase of the 2015 plan update and interim meetings over the previous five year planning cycle.
- H *Community Involvement Documentation* reports on the full scope of community involvement opportunities during the drafting phase of the 2015 plan update.
- I *Multi-Jurisdictional Participation Activities* records the scope of participation of all jurisdictions in the drafting and adoption of the 2015 plan update.
- J *Adopting Resolution* presents a model resolution for plan adoption by local governing bodies.

## Chapter 1 – Introduction

- 1.1 Background
- 1.2 Authority
- 1.3 Funding
- 1.4 Eligibility for FEMA Hazard Mitigation Assistance Grants
- 1.5 Initial Plans
- 1.6 The 2010 Mobile County Multi-Hazard Mitigation Plan Update
- 1.7 The 2015 Mobile County Multi-Hazard Mitigation Plan Update

### 1.1 Background

The 2015 Mobile County 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 the cities of Bayou La Batre, Chickasaw, Citronelle, Creola, Mobile, Prichard, Saraland, Satsuma, and Semmes, the towns of Mt. Vernon and Dauphin Island, and Mobile County, Alabama. 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. 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 Mobile County EMA was awarded a \$30,000 planning grant through the FEMA Pre-Disaster Mitigation (PDM) Program to complete the 2015 update to the 2010 plan. In addition, a \$30,000 PDM grant was awarded to the Mobile County EMA for integration of the 2015 plan with plans and regulatory tools of the local jurisdictions. In April 2008, the Alabama EMA awarded a \$538,409.00 planning grant funded through the FEMA Hazard Mitigation Grant Program (HMGP) to the Mobile County EMA to fund the 2015 merger and update of the previously-approved 2005 and 2006 plans for incorporated and unincorporated areas of Mobile County. The 2005 incorporated areas plan was funded through \$15,000 in FEMA planning funds awarded by the Alabama EMA to the Mobile County EMA. The Mobile County Commission funded the 2006 plan for unincorporated areas. FEMA planning grants cover 75% of the total costs, with the local match contributed by in-kind services by the Mobile County EMA.

### **1.4 Eligibility for FEMA Hazard Mitigation Assistance Grants**

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

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

event. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds. For FY 2013, \$23.7 million in PDM funding was available nationwide.

3. The Flood Mitigation Assistance Program (FMA). The FMA program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FEMA provides FMA funds to assist states and communities with the implementation of measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). For FY 2013, \$120 million in FMA funding was available nationwide. Two types of FMA grants are available to communities:
  - *Planning Grants* to prepare Flood Mitigation Plans
  - *Project Grants* to implement measures to reduce flood losses, such as elevation, acquisition, or relocation of NFIP-insured structures. Priority is given to properties that have incurred repetitive flood insurance losses.
4. The Public Assistance Grant Program (Categories C – G) (PA). The Public Assistance Grant Program provides assistance to State, Tribal and local governments, and certain types of Private Nonprofit organizations to quickly respond to and recover from major disasters or emergencies declared by the President. Through categories C – G of the PA Program, FEMA provides supplemental Federal disaster grant assistance for the repair, replacement, or restoration of publicly infrastructure and facilities and the facilities of certain Private Non-Profit (PNP) organizations that were damaged by the declared disaster. The PA Program can also be used to protect these damaged facilities from future events through hazard mitigation measures.
5. The Fire Management Assistance Grant Program. Fire Management Assistance Grant Program (FMAGP) provides grants to States, local and tribal governments. Funds can be used for the “mitigation, management, and control of fires on publicly or privately owned forests or grasslands,” where destruction poses such a threat that could result in a major disaster declaration. The State submits a request for assistance to FEMA at the



time a "threat of major disaster" exists. The process is expedited with a FEMA decision made within hours. The FMAG provides a 75 percent Federal cost share with the State for eligible firefighting costs, such as "expenses for field camps; equipment use, repair and replacement; tools, materials and supplies; and mobilization and demobilization activities."

## **1.5 Initial Plans**

Over the period between 2003 and 2006, Mobile County jurisdictions developed two independent plans – a plan for all incorporated jurisdictions and a separate plan for unincorporated areas. The 2005 Incorporated Areas of Mobile County, Alabama, Natural Hazards Mitigation Plan was prepared under the direction of the Mobile County EMA by Lehe Planning, LLC, with the participation of the Hazard Mitigation Planning Committee, made up of representatives from the cities of Bayou La Batre, Chickasaw, Citronelle, Creola, Mobile, Prichard, Saraland, and Satsuma, the towns of Mt. Vernon and Dauphin Island, and other stakeholders and interested agencies. All incorporated jurisdictions adopted the plan in 2004, and FEMA subsequently approved it on March 29, 2005. Developed simultaneously, the Mobile County Commission Hazard Mitigation Plan covered the unincorporated areas only. The South Alabama Regional Planning Commission prepared the plan under the direction of the Mobile County Commission with the technical advisory support of County professional staff. Local and interagency participation was conducted through a second Hazard Mitigation Planning Committee. FEMA approved the unincorporated areas plan on July 14, 2005, and the County Commission adopted it in June 2006. The Mobile County EMA was represented on both Hazard Mitigation Planning Committees and helped coordinate the parallel efforts. Both plans address all natural hazards deemed to threaten property and persons within the incorporated and unincorporated areas of Mobile County. Both short- and long-term hazard mitigation strategies are addressed, implementation tasks assigned, and funding alternatives identified.

In late 2005, all members of both committees joined to become a single Mobile County Hazard Mitigation Planning Committee in the aftermath of Hurricane Katrina, which devastated parts of Mobile County in late August 2005. The reorganized committee worked together to develop the 2006 Mobile County Long-Term Recovery Plan as an element of the initial County plans and approve major plan amendments necessitated by that catastrophic event, including the formal consolidation of plans into a unified planning process.

## **1.6 The 2010 Mobile County Multi-Hazard Mitigation Plan Update**

The Mobile County Hazard Mitigation Planning Committee (HMPC) reconvened in January 2009 to update both hazard mitigation plans as the 2010 Mobile County Multi-Hazard Mitigation Plan. The Mobile County EMA retained the firm of Lehe Planning, LLC, to prepare the plan under the direction of the HMPC with the support of the Mobile

County EMA. The EMA Director, Ronnie Adair, and the EMA Director of Plans and Operations, John Kilcullen, directed the overall effort. The firm's manager, James E. Lehe, AICP, a professional urban planner, served as the Planning Coordinator for the update and directly supervised all assignments. The 2010 HMPC represented all incorporated and unincorporated Mobile County jurisdictions, 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 established a unified approach among all Mobile 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 and mitigate potential harm.

FEMA approved the plan subject to its local adoption on December 2, 2010, and it was locally adopted on March 22, 2011.

## **1.7 The 2015 Mobile County Multi-Hazard Mitigation Plan Update**

The Mobile County HMPC reconvened in April of 2015 and continued to meet throughout the year to update the 2010 plan. Again, the EMA Director, Ronnie Adair, and Director of Plans and Operations, John Kilcullen, directed the overall effort. The firm of Lehe Planning, LLC, prepared the plan under the direction of the HMPC with the support of the Mobile County EMA. The firm's manager, James E. Lehe, AICP, a professional urban planner, again coordinated the efforts. The 2015 HMPC continued to represent all incorporated and unincorporated Mobile County jurisdictions, as well as other stakeholders and interested agencies. The plan update continued a comprehensive planning process and risk assessment through a unified approach among all Mobile County communities. It continues to guide local governments in their ongoing efforts to reduce community vulnerabilities and mitigate potential harm.

## **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), Categories C – G of the Public Assistance (PA) Grant Program, and the Fire Management Assistance Grant Program (FMAGP). Once the plan is approved pending adoption, the governing bodies of the participating jurisdictions and school districts must formally adopt the plan and submit their adopting resolutions to FEMA through the Alabama EMA to receive official FEMA approval. This process must take place within twelve months of FEMA's notification of conditional approval pending

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

### **2.3 Multi-Jurisdictional Participation**

The Mobile 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 Mobile County jurisdictions throughout the period since initial plans were first approved in 2005 and 2006. Mobile County, the cities of Bayou La Batre, Chickasaw, Citronelle, Creola, Mobile, Prichard, Saraland, Satsuma and Semmes, as well as the towns of Mt. Vernon and Dauphin Island have continued to participate in the 2015 plan update. In addition to the participating jurisdictions, other stakeholders affected by the plan contributed to the drafting of this update, including Federal, State, and regional agencies, the boards of education, the Mobile Area Water and Sewer System (MAWSS), business interests, academia, non-profits, and the general public. (See Chapter 4 – “The Planning Process” for a more detailed explanation of the organization of the HMPC and the participation of local jurisdictions and stakeholders in the planning process).

School districts are defined as local governments, according to Federal regulations at 44 CFR Section 201.2, and are therefore required to have a FEMA-approved local mitigation plan to be eligible for project grants under FEMA hazard mitigation assistance programs. A school district may choose to participate as a local government that is independent of the municipal and county governments or demonstrate their participation as a stakeholder in another local government's approved mitigation plan. The school boards for Mobile County, Saraland, and Satsuma chose the latter avenue of participation and participated as a stakeholder in all of the local jurisdictional plans.

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

- Attendance and participation in five HMPC committee meetings beginning on April 16, 2015, during the drafting phase of the plan (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 2010 mitigation actions, identifying and rating hazards, profiling hazards and hazard events, evaluating alternative mitigation measures, and updating plan goals and objectives.

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

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

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

## **2.4 Multi-Jurisdictional Plan Adoption**

All local jurisdictions in Mobile County have actively participated in the planning process. Upon completion of the plan, each of the municipalities, along with the Mobile County Commission, passed a formal resolution accepting, approving, and adopting the 2015 Mobile County Multi-Hazard Mitigation Plan. By adopting this multi-jurisdictional hazard mitigation plan, the participating local governments and other eligible entities may apply for mitigation monies through the various Hazard Mitigation Assistance programs offered by FEMA. The model Adopting Resolution can be found in Appendix J.

## Chapter 3 – Community Profiles

- 3.1 Federal Advisory Guidance for Community Profiles
- 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 2015 plan as a result of the 2010 plan update, as follows:

**Table 3-1. Summary of Plan Updates**

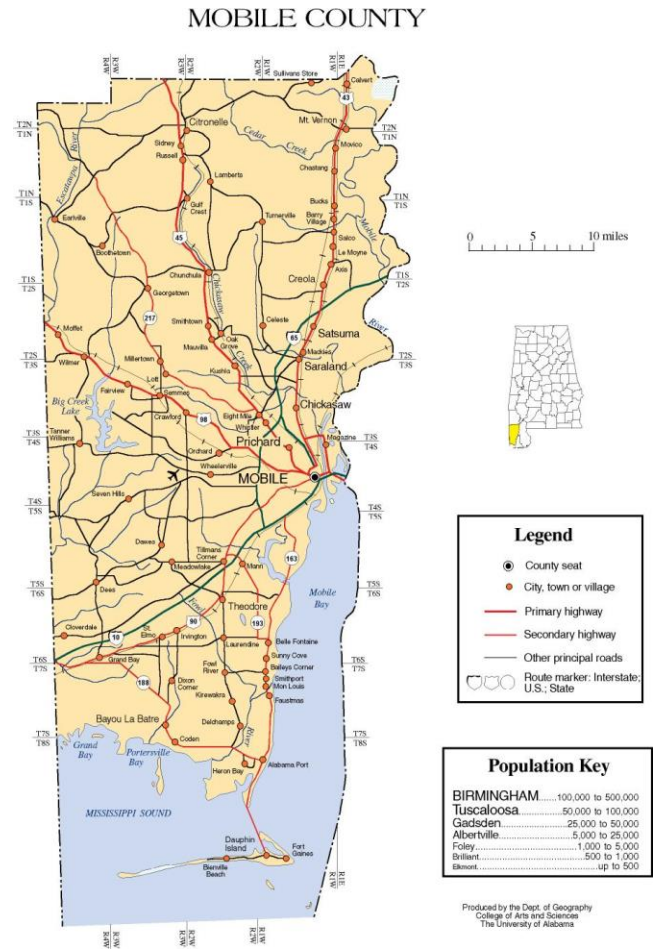
Section		Change
3.3	Geographic Setting and History	Updated descriptions, maps, and data
3.4	Government	Updated descriptions and data
3.5	Physical Features	Updated descriptions, maps, and data
3.6	Climate	Updated descriptions and data
3.7	Demographics	Updated descriptions, map, and data
3.8	Economy	Updated 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**

**Mobile County**

Mobile County was created by proclamation of Governor Holmes of the Mississippi Territory on December 18, 1812. The county forms the southwestern corner of the State of Alabama, as shown on Map 3-1 “Mobile County Location,” and is bordered by the State of Mississippi to the west, Washington County to the north, Baldwin County and Mobile Bay to the east, and the Gulf of Mexico to the south. The City of Mobile is the county seat. Mobile County’s status as one of only two Alabama counties to border the ocean fosters an identity distinct from the rest of the state. As shown on Map 3-2 “Mobile County Gulf Coast Location,” Mobile County lies at the center of the U.S. Gulf Coast. Table 3-2 “Driving Distances to Nearby Cities” shows the county’s proximity to nearby major metropolitan areas. The City of New Orleans, the other major Gulf Coast port city, lies 141 miles to the west of Mobile. The City of Mobile celebrated its 300<sup>th</sup> year of continuous settlement in 2002.

**Map 3-1. Mobile County Location**



**Table 3-2. Driving Distances to Nearby Cities**

City	Mileage
Pensacola, FL	56
New Orleans, LA	141
Montgomery, AL	174
Jackson, MS	188
Birmingham, AL	241
Atlanta, GA	332
Nashville, TN	438

Source: Mobile Area Chamber of Commerce

**Map 3-2. Mobile County Gulf Coast Location**

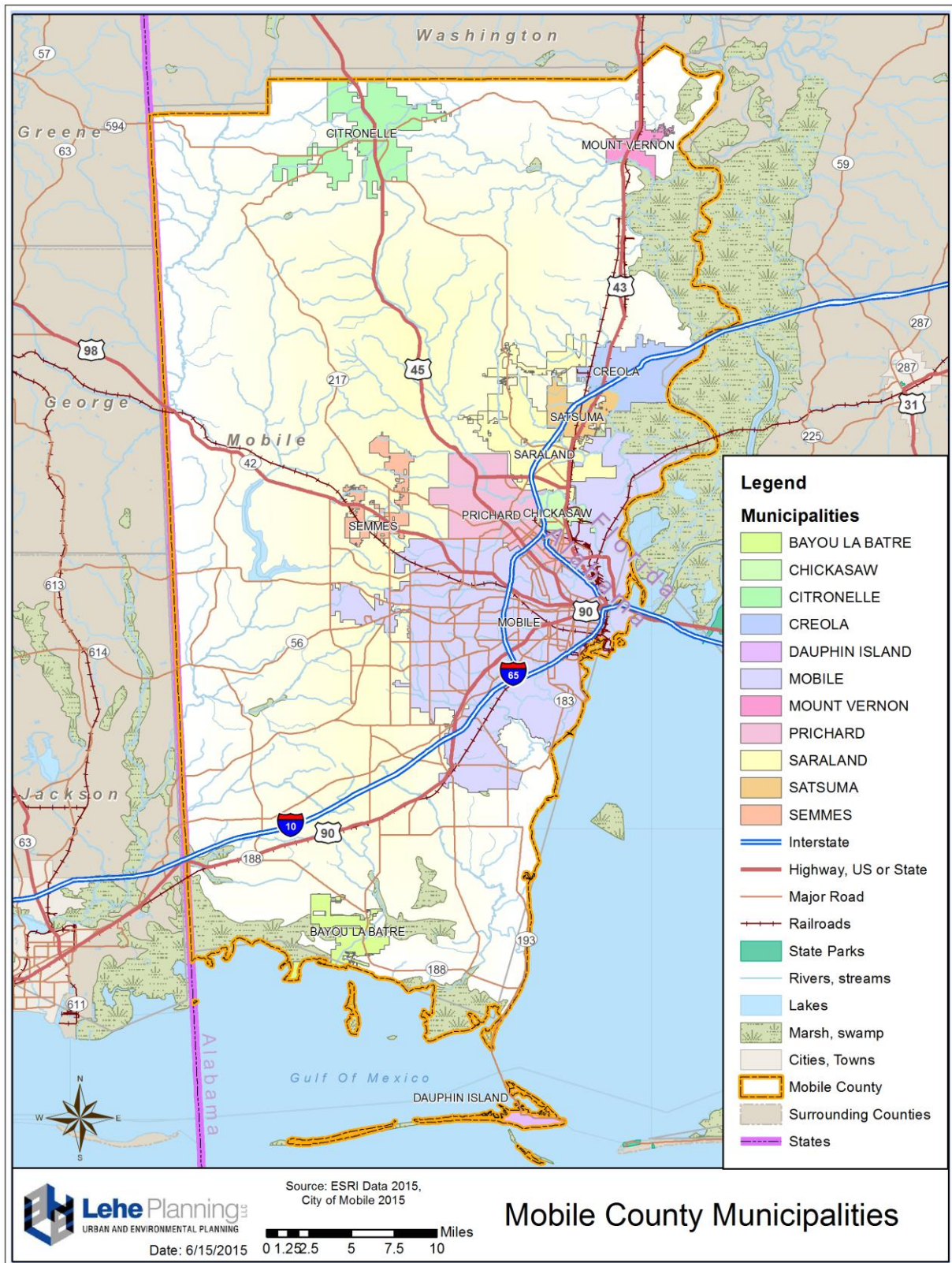


Mobile County includes eleven incorporated communities, which are shown on Map 3-3 “Mobile County Municipalities,” as follows:

- City of Bayou La Batre
- City of Chickasaw
- City of Citronelle
- City of Creola
- Town of Dauphin Island
- City of Mobile
- Town of Mount Vernon
- City of Prichard
- City of Saraland
- City of Satsuma
- City of Semmes



**Map 3-3. Mobile County Municipalities**



**City of Bayou La Batre**

The City of Bayou La Batre is located on the Gulf Coast. It has a 2014 estimated population of 2,636 and an area of approximately 4.2 square miles. Bayou La Batre is notable for having a large population of Asian Americans, who immigrated to Bayou La Batre from Vietnam, Laos and Cambodia following the Vietnam War to pursue shrimping and now comprise one third of the population. In the film *Forrest Gump*, Bayou La Batre is the location of Forrest Gump's shrimping company, mirroring Bayou La Batre's real-life status as a center for fishing and shipbuilding. The city's name translates to "bayou of the battery," because a French artillery battery once stood in the area. The city was incorporated in 1955. On August 29, 2005 Hurricane Katrina devastated the city with the largest storm surge ever recorded, reaching nearly 16 feet, and destroyed many ships in the local industry's fishing fleet.

**City of Chickasaw**

The City of Chickasaw is located in east central Mobile County. It has an estimated 2014 population of 5,981 and an area of approximately 4.21 square miles. The city was originally settled by the Chickasaw Indians. They named it Chickasha Bogue for the creek running through the city, and later renamed it Chickasaw. It was incorporated on November 12, 1946.

**City of Citronelle**

The City of Citronelle is located in northwestern Mobile County. It has an estimated 2014 population of 3,885 and an area of approximately 24.4 square miles. Citronelle is named for the citronella plant and long served as a resort destination for people seeking healing herbs and mineral springs. It was incorporated in 1892.

**City of Creola**

The City of Creola is located in east central Mobile County. Creola tops a string of municipalities extending north from the City of Mobile. It has an estimated 2014 population of 1,942 and an area of approximately 15.5 square miles. It was incorporated in 1978.

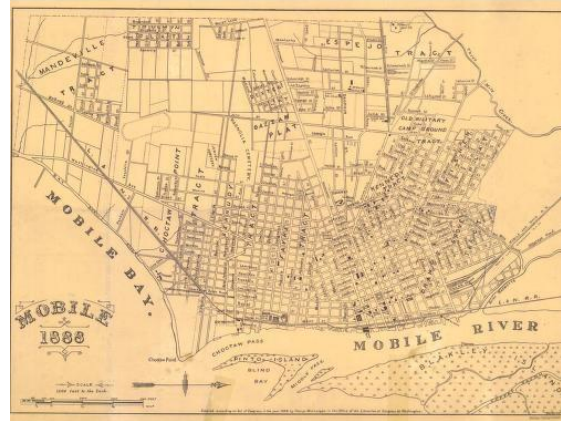
**Town of Dauphin Island**

The Town of Dauphin Island is a coastal barrier island located in southern Mobile County. It has an estimated 2014 population of 1,242 and an area of 164 acres. A bridge connects Dauphin Island to the mainland, and a ferry carries tourists and vehicles between Gulf Shores and Dauphin Island. Dauphin Island is well known as the location of the Dauphin Island Sea Lab, which serves Alabama's colleges, universities and schools with programs on marine life and hosts a public "estuarium," which is an aquarium that emphasizes the local estuary habitat.

Hurricanes have caused considerable damage to Dauphin Island with storm surge, including a powerful storm surge during Hurricane Katrina that destroyed several homes and altered the geography of the island's west end. In 1998, Hurricane Georges destroyed 41 houses on Dauphin Island. In 1979, Hurricane Frederic destroyed Dauphin Island's bridge to the mainland.

### **City of Mobile**

The City of Mobile, located along Mobile Bay, is the county seat of Mobile County. It has an estimated 2014 population of 194,675 and an area of approximately 139.11 square miles. Mobile is the third largest city in Alabama, after Birmingham and Montgomery, and the Mobile-Daphne-Fairhope metropolitan statistical area is Alabama's second largest MSA.



Mobile is Alabama's only seaport city and receives much of the cargo bound to and from Alabama's factories. It is also host to the oldest Mardi Gras celebration in the United States.

The French settlement of Fort Louis, which would become Mobile, was established in 1702. The city was incorporated as an Alabama city in 1819, when Alabama achieved statehood. Like many Gulf Coast cities, the City of Mobile has endured many powerful hurricanes during the last forty years, including Hurricane Frederic, which flooded downtown Mobile, and Hurricane Katrina hit August 29, 2005 with a surge of 11.45 feet. Alabama's oldest city is today a major Gulf Coast shipping port and growing industrial center.

### **Town of Mount Vernon**

The Town of Mount Vernon is located in northeastern Mobile County. It has an estimated 2014 population of 1,559 and an area of approximately 1.9 square miles. Mount Vernon is the site of a 3500-acre steel mill, which was built and originally operated by ThyssenKrupp and started production in 2010. In late 2014, ThyssenKrupp announced that the mill would be sold to ArcelorMittal. Mount Vernon was incorporated in 1963.

### **City of Prichard**

The City of Prichard is located immediately north of Mobile in east central Mobile County. With an estimated 2014 population of 22,312 and an area of 25.5 square miles, Prichard is the largest city in Mobile County by both population and area. Many residents of Prichard are direct descendants of a group of slaves who were brought to the area

illegally in 1850. During the ensuing litigation against the slave traders (Slave importation was prohibited at the time.), many of the slaves formed a community known as Africatown, which is now a historic district in modern-day Prichard. Prichard was incorporated in 1925.

#### **City of Saraland**

The City of Saraland is located in east central Mobile County, to the east of Interstate 65, within the Mobile metropolitan area. With an estimated 2014 population of 13,744, Saraland is the third largest city in Mobile County. It has an area of 23.2 square miles. The city was the site of the 1993 Big Cayou Canot train wreck, the worst accident in Amtrak history. Saraland was incorporated 1957.

#### **City of Satsuma**

The City of Satsuma is located in east central Mobile County. It has an estimated 2014 population of 6,167 and is approximately 7.5 square miles in size. In 1878, Mandarin Satsuma oranges were introduced to this area and gave the community its name. Satsuma was incorporated in 1959.

#### **City of Semmes**

The City of Semmes was incorporated on May 2, 2011 and became the 461<sup>st</sup> municipality in Alabama. Semmes is located almost in the center of Mobile County and covers 2,100 acres. The 2014 estimated population was 3,257.

### **3.4 Government**

The main governing body for Mobile County is the Mobile County Commission, which is composed of three members, who are elected from districts to serve four year terms. The County Administrator's office works with the county commissioners and other officials to ensure the quality of public services provided by the county. The County Administrator oversees the overall direction of the county's administrative departments and serves as the budgetary agent for all county offices.

All eleven municipalities use a mayor/council system.

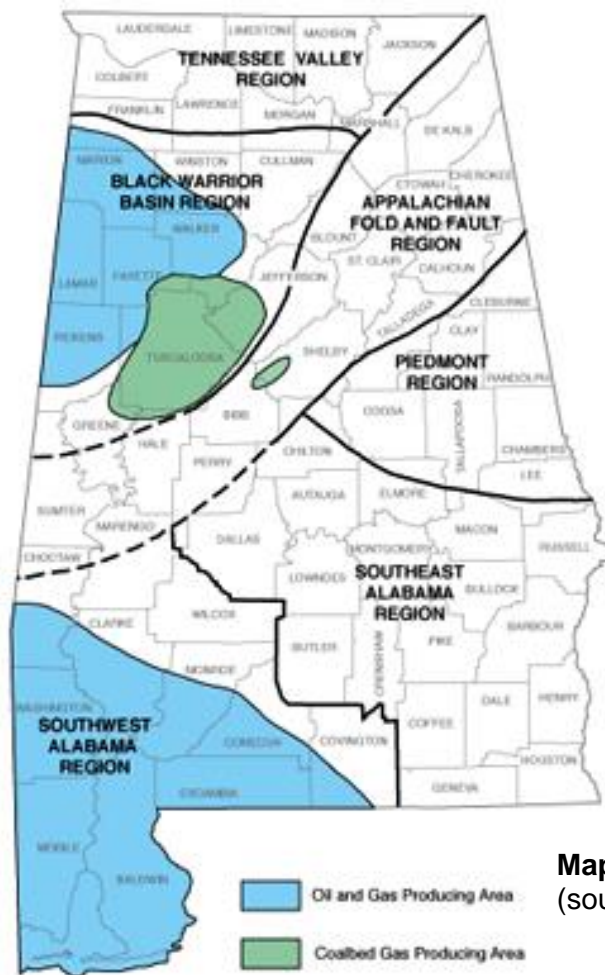
### **3.5 Physical Features**

Mobile County is located entirely within the Coastal Plain physiographic section of Alabama. It encompasses 1,233 square miles of land and 410 square miles of water.

Near Mount Vernon the Alabama River joins the Tombigbee River to form the Mobile River before emptying into Mobile Bay. The Alabama River is the fourth-largest

river system in the United States. The Mobile-Tensaw Delta is formed where the Alabama flows into Mobile Bay. It is shaped like a distorted triangle and near Creola widening to about seven miles. (Source: [Encyclopedia of Alabama](#)).

Oil and gas are significant natural resources in the Coastal Plain region (see Map 3-4 “Alabama Oil and Gas Regions”). In 2003, Alabama ranked 16<sup>th</sup> in oil production and 10<sup>th</sup> in natural gas production nationally. Oil is extracted at depths of more than 10,000 feet, and gas is extracted at depths of greater than 2,000 feet in the southern Mobile Bay field. (Source: [Encyclopedia of Alabama](#)).

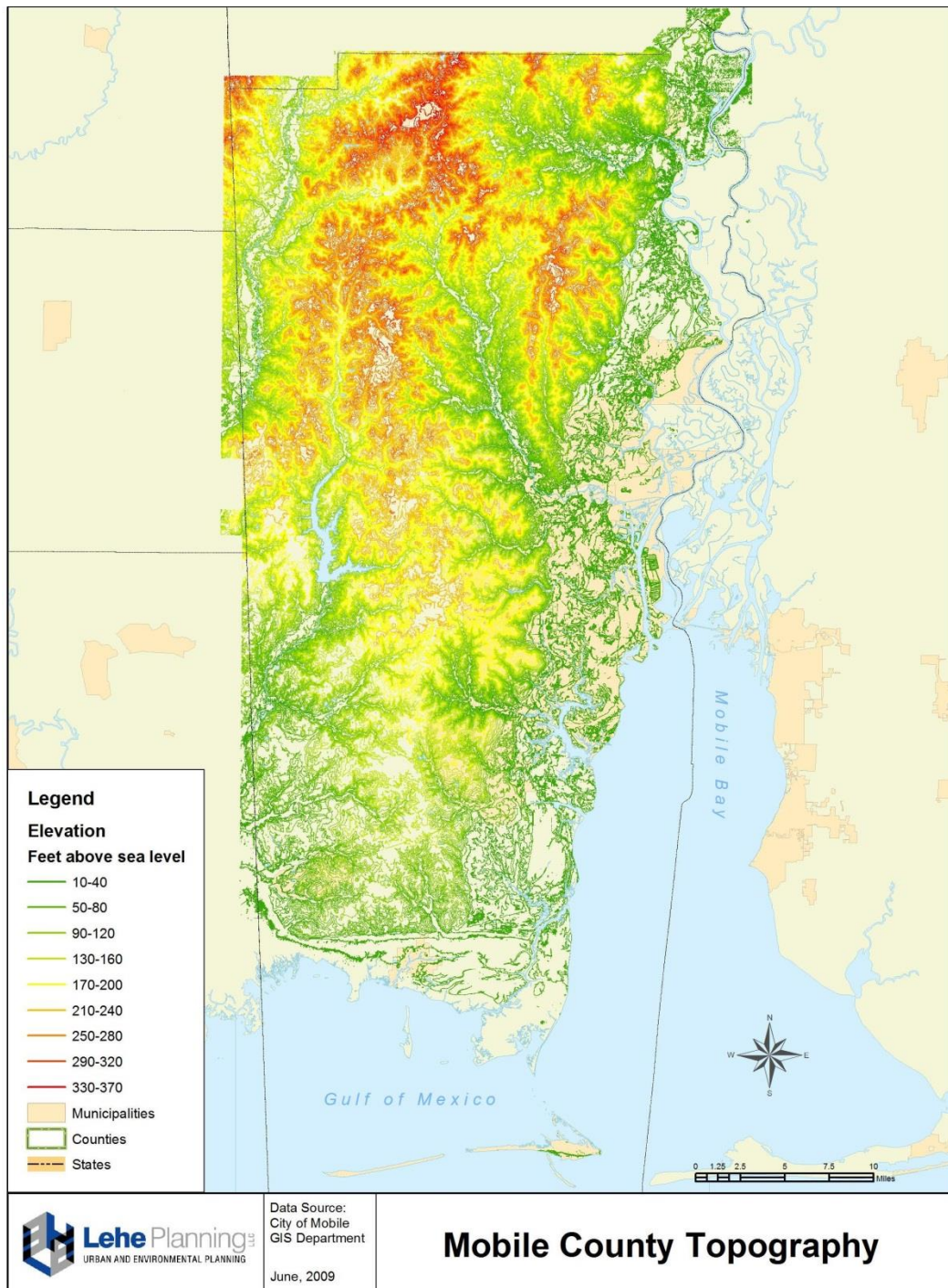


**Map 3-4. Alabama Oil and Gas Regions**  
(source: Alabama Oil and Gas Board)

The topography of Mobile County drops from elevations of over 300 feet above mean sea level (NGVD 1929) in the northern and western portions of the County, to below 20 feet in the southern portion fronting on the Gulf Coast and the eastern portion adjoining Mobile Bay. (See Map 3-5 “Mobile County Topography”). Coastal regions are subject to coastal storm surge flooding from hurricanes and tropical storms. Unusually heavy rainfalls sometimes cause flooding on the Mobile River and in areas with inadequate drainage, such as Downtown Mobile.

The City of Mobile's topography drops from rounded hills in the west to low-lying marsh areas along the rivers in the east. The City is drained by Eightmile Creek, Clear Creek, Threemile Creek, Twelvemile Creek, West Eslava Creek, Bolton Branch West, Bolton Branch East, and Halls Mill Creek.

**Map 3-5. Topography**



### 3.6 Climate

Mobile County has a maritime climate with mild winters and hot, humid summers. During winter, western cold fronts mix with warm from the Gulf of Mexico to form storms. During summer, moisture from the Gulf produces humidity and afternoon thunderstorms that may produce high winds, dangerous lightning, hail or tornadoes. Snowfall is very rare. Table 3-3 presents general climate observations:

**Table 3-3. General Climate Observations**

<b>Category</b>	<b>Average</b>
Annual Average Temperature	67.35° F
Average January Temperature	50.8° F
Average July Temperature	81.95° F
Average Annual Precipitation	65.3 inches
Average Annual Snowfall	0.4 inches

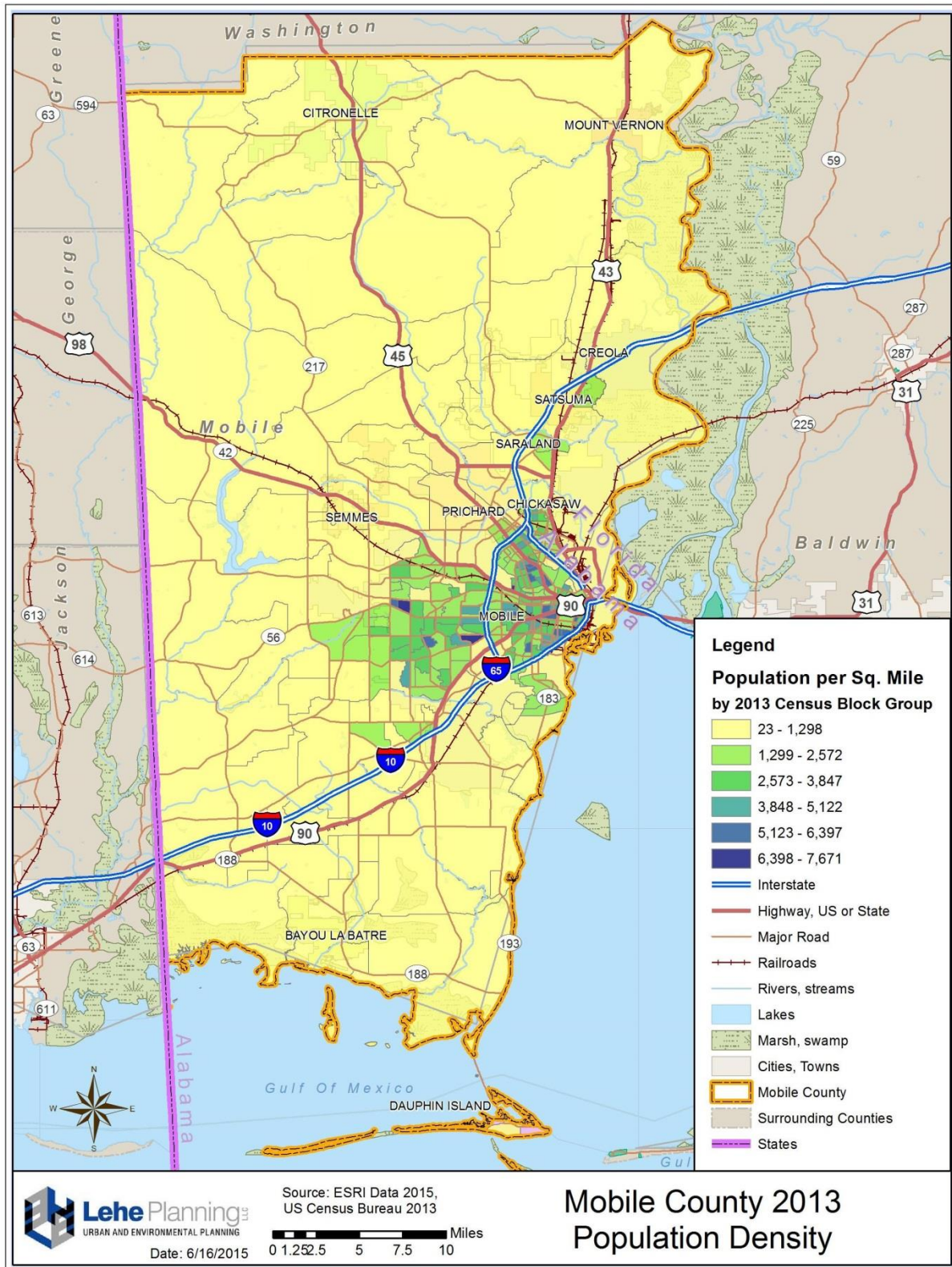
Source: National Weather Service

### 3.7 Demographics

#### 2014 Population

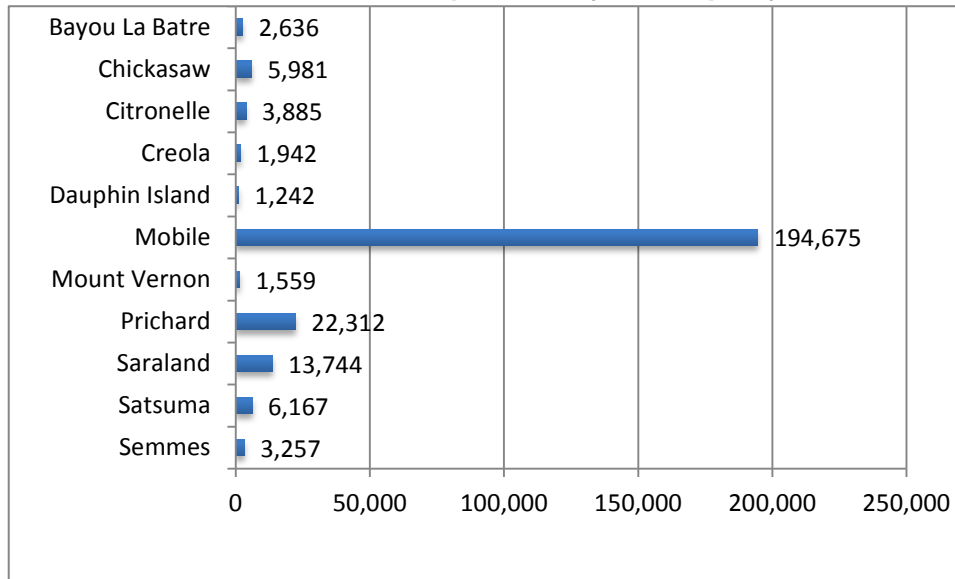
Mobile County, with a 2014 estimated population of 415,123, is the second most populous county in Alabama; the City of Mobile, with an estimated 2014 population of 194,675, is the third most populous city in Alabama. All other municipalities are small in comparison: only Prichard and Saraland have populations of more than 10,000, while other municipalities count fewer than 6,000 residents. Map 3-6 shows the population density of Mobile County.

**Map 3-6. Mobile County Population Density**





**Chart 3-1. 2014 Population by Municipality**



Source: U.S. Census Bureau, 2014 Population Estimates

**Population Growth**

Mobile County experienced population growth of 30.2 percent between 1970 and 2010. The population of the City of Mobile declined slightly between 2000 and 2010. Chickasaw, Mount Vernon, and Prichard experienced significant population losses between 1970 and 2010, while Citronelle, Saraland and Satsuma experienced steady increases. Bayou La Batre and Dauphin Island, which are the communities most damaged by Hurricane Katrina in 2005, exhibited small population decreases between 2000 and 2010. More detailed demographic data can be found in section 5.7 “General Description of Land Uses and Development Trends.” Growth numbers were unavailable for Semmes since it was incorporated in 2011.

**Table 3-4. Population Changes 1970-2010**

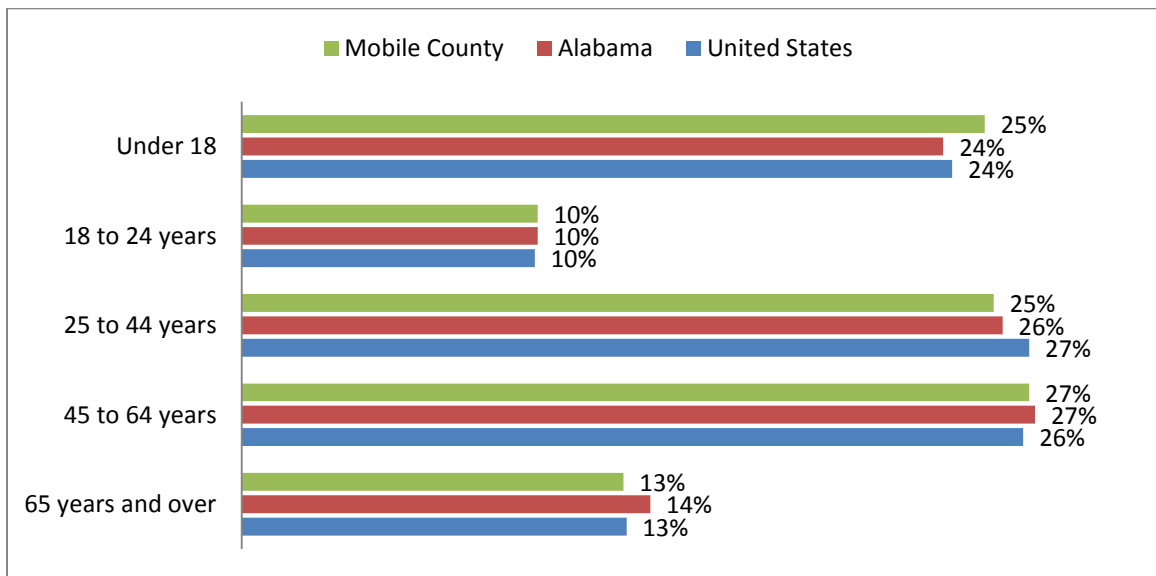
JURISDICTION	1970	1980	1990	2000	2010	Pop Change 1970-2010	% Change 1970-2010	Pop Change 2000-2010	% Change 2000-2010
State of Alabama	3,444,354	3,894,025	4,040,587	4,447,100	4,780,127	4,435,773	38.80%	333,027	7.49%
Mobile County	317,308	364,980	378,643	400,036	413,143	95,835	30.20%	13,107	3.28%
Bayou La Batre	2,664	2,005	2,456	2,313	2,558	-106	-3.90%	245	10.59%
Chickasaw	8,447	7,402	6,649	6,364	6,106	-2,341	-87.90%	-258	-4.05%
Citronelle	1,935	2,841	3,671	3,659	3,905	1,970	101.90%	246	6.72%
Creola	-	1,652	1,896	2,002	2,073	2,073		71	3.55%
Dauphin Island	-	-	824	1,371	1,238	1,238		-133	-9.70%
Mobile	190,026	200,452	196,278	198,915	195,102	5,076	2.67%	-3,813	-1.92%
Mount Vernon	1,079	1,038	902	844	820	-259	-24.00%	-24	-2.84%
Prichard	41,578	39,541	34,311	28,633	22,659	-18,919	-45.00%	-5,974	-20.86%
Saraland	7,840	9,833	11,751	12,288	13,631	5,791	74.00%	1,343	10.93%
Satsuma	2,035	3,822	5,194	5,687	6,168	4,133	203.00%	481	8.46%

Source: U.S. Census Bureau

**Age Distribution**

Data from the 2010 Census indicates that 33.9 percent of Mobile County's population is under the age of 25. Meanwhile, residents between 25 and 64 years of age composed a slim majority. The group aged 65 years and older represents 13 percent of Mobile County's population. This age group impacts considerations of community resources, such 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, 2010 American Community Survey

**Racial Composition**

Mobile County is racially diverse, although the racial composition varies considerably between communities. The white share of population ranges from 97.3 percent in Dauphin Island to 12.5 percent in Prichard, which has the highest black population at 85.8 percent. In contrast, the population of the City of Mobile is split evenly at 50.4 percent white and 46.3 percent black. Bayou La Batre, the most racially diverse community, has a very large Asian population—mostly from Vietnam and other Southeast Asian countries—who accounted for 22.8 percent of the population in 2010; this percentage has likely increased since. A small percentage of American Indians reside in Mobile County, and the highest percentage—4.9 percent is—in Citronelle. Persons of Hispanic origin of any race were a relatively small percentage previously, but have increased to 9.5 percent in Semmes. Data comes from the 2010 Census, as it is the most recent data set to measure population by race at the jurisdictional level.

**Table 3-5. Population by Race and Hispanic Origin**

Community	2010 Population	White	Black	American Indian	Asian	Other Race	Hispanic (of any race)
Mobile County	399,843	63.1%	33.4%	0.7%	1.4%	1.4%	1.2%
Bayou La Batre	2,558	60.3%	12.3%	0.4%	22.8%	1.0%	2.8%
Chickasaw	6,364	88.9%	8.1%	1.4%	0.2%	1.4%	1.1%
Citronelle	3,905	70.7%	20.2%	4.9%	0.5%	1.5%	2.6%
Creola	1,926	84.7%	9.8%	1.8%	0.1%	1.9%	1.7%
Dauphin Island	1,238	97.3%	0.4%	1.0%	0.2%	0.2%	0.7%
Grand Bay *	3,672	86.9%	9.4%	0.6%	0.7%	0.7%	2.3%
Mobile	198,915	50.4%	46.3%	0.2%	1.5%	1.5%	1.4%
Prichard	22,659	12.5%	85.8%	0.4%	0.1%	0.4%	0.8%
Saraland	13,405	83.7%	12.0%	0.8%	0.6%	1.4%	2.5%
Satsuma	6,168	88.7%	7.9%	1.2%	0.6%	0.4%	1.1%
Semmes	3,530	82.5%	11.1%	4.0%	0.0%	0.0%	9.5%
Theodore *	6,130	79.7%	13.3%	1.1%	2.4%	1.1%	3.2%
Tillmans Corner*	17,398	82.2%	11.4%	0.6%	2.1%	1.6%	3.8%
*Unincorporated Census Designated Place (CDP)							

Source: U.S. Census Bureau, 2010 American Fact Finder

**Gender**

Table 3-6 shows population distribution by gender in Mobile County jurisdictions. Nationally, women compose a larger share of the population, because women live longer than men.

**Table 3-6. Population by Gender**

Community	2010 Population	Male	Female
Mobile County	399,843	50.5%	49.5%
Bayou La Batre	2,558	50.1%	49.9%
Chickasaw	6,364	46.3%	53.7%
Citronelle	3,905	47.6%	52.4%
Creola	1,926	52.0%	48.0%
Dauphin Island	1,238	50.5%	49.5%
Grand Bay *	3,672	49.7%	50.3%
Mobile	195,111	46.1%	53.9%
Prichard	22,659	45.7%	54.3%
Saraland	13,405	49.4%	50.6%

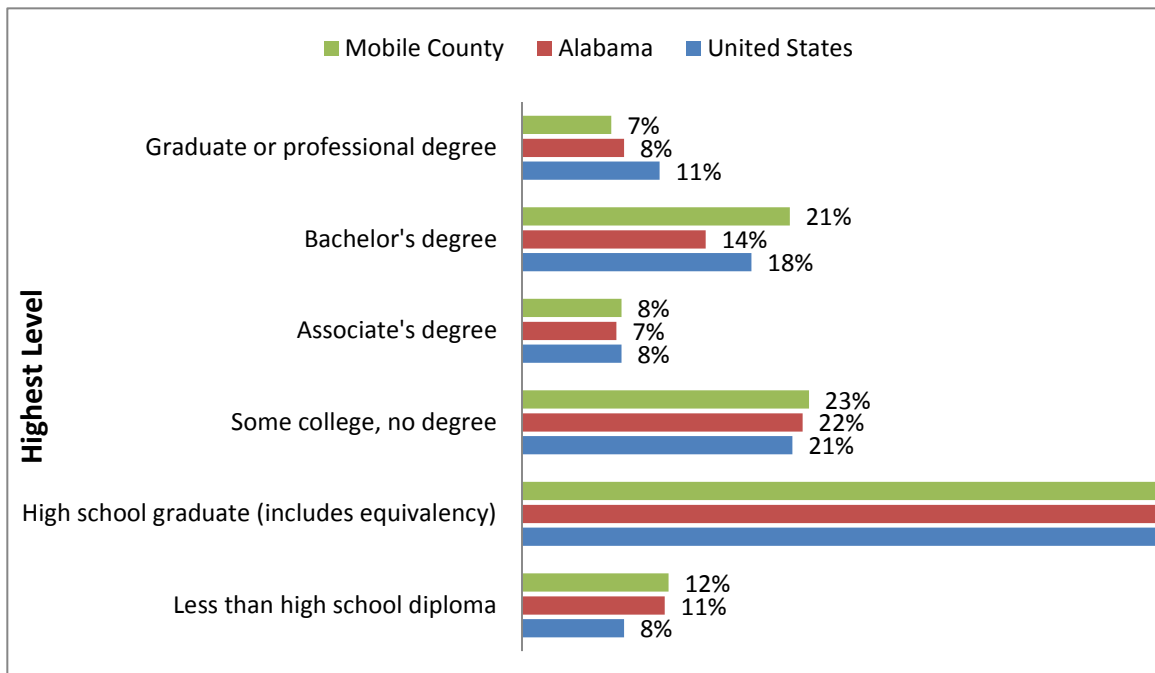
Community	2010 Population	Male	Female
Satsuma	6,168	48.2%	51.8%
Semmes	3,530	51.5%	48.5%
Theodore *	6,130	48.1%	51.9%
Tillmans Corner	17,398	48.8%	51.2%
*Unincorporated Census Designated Place (CDP)			

Source: U.S. Census Bureau, 2010

**Educational Attainment**

Chart 3-3 compares Mobile County and the U.S. population. Mobile County's high school graduate percentage is below that of the United States but above Alabama's. The percentage of Mobile County's population with a bachelor's degree or higher is lower than Alabama's and significantly lower than the proportion for the United States.

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



Source: U.S. Census Bureau, 2009-2013 American Community Survey

**3.8 Economy**

**Business and Industry**

The county’s largest employers are the Mobile County Public School System, the University of South Alabama, the City of Mobile, Mobile County, and several hospitals. The city’s major manufacturing players are AM/NS Calvert, ST Mobile Aerospace Engineering, Austal USA and Atlantic Marine. The Mobile Area Chamber of Commerce list the area’s top ten manufacturing and non-manufacturing employers and their number of employees (as of April 2014), as follows:

**Table 3-7. Largest Employers, 2014**

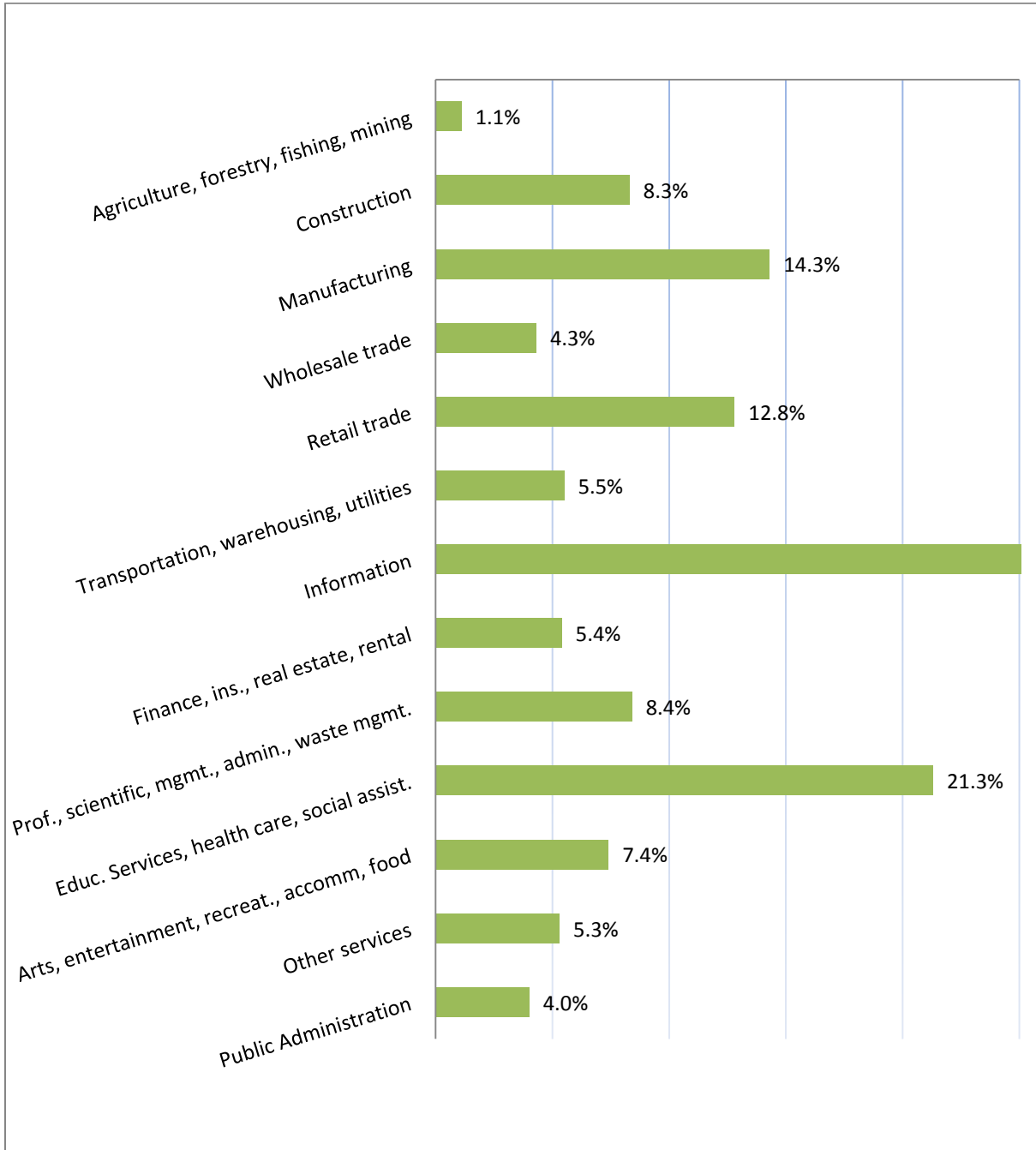
<b>MANUFACTURERS</b>	<b>EMPLOYEES</b>
Austal USA	4000
AM/NS Calvert	1490
ST Mobile Aerospace Engineering	1350
BAE Systems Southeast Shipyards	1057
Outokumpu Stainless USA	850
Evonik Industries Chemicals	715
Kimberly Clark	605
SSAB Americas (Steel)	581
Continental Motors	430
BASF	400

<b>NON-MANUFACTURERS</b>	<b>EMPLOYEES</b>
Mobile County Public School System	7280
University of South Alabama & USA Health Systems	5168
Infirmiry Health Systems	5100
City of Mobile	2323
Providence Hospital	1505
Springhill Medical Center	1200
CPSI	1200
Alta Pointe	960
Regions Bank	650
Alorica	612

**Source: Mobile Area Chamber of Commerce**

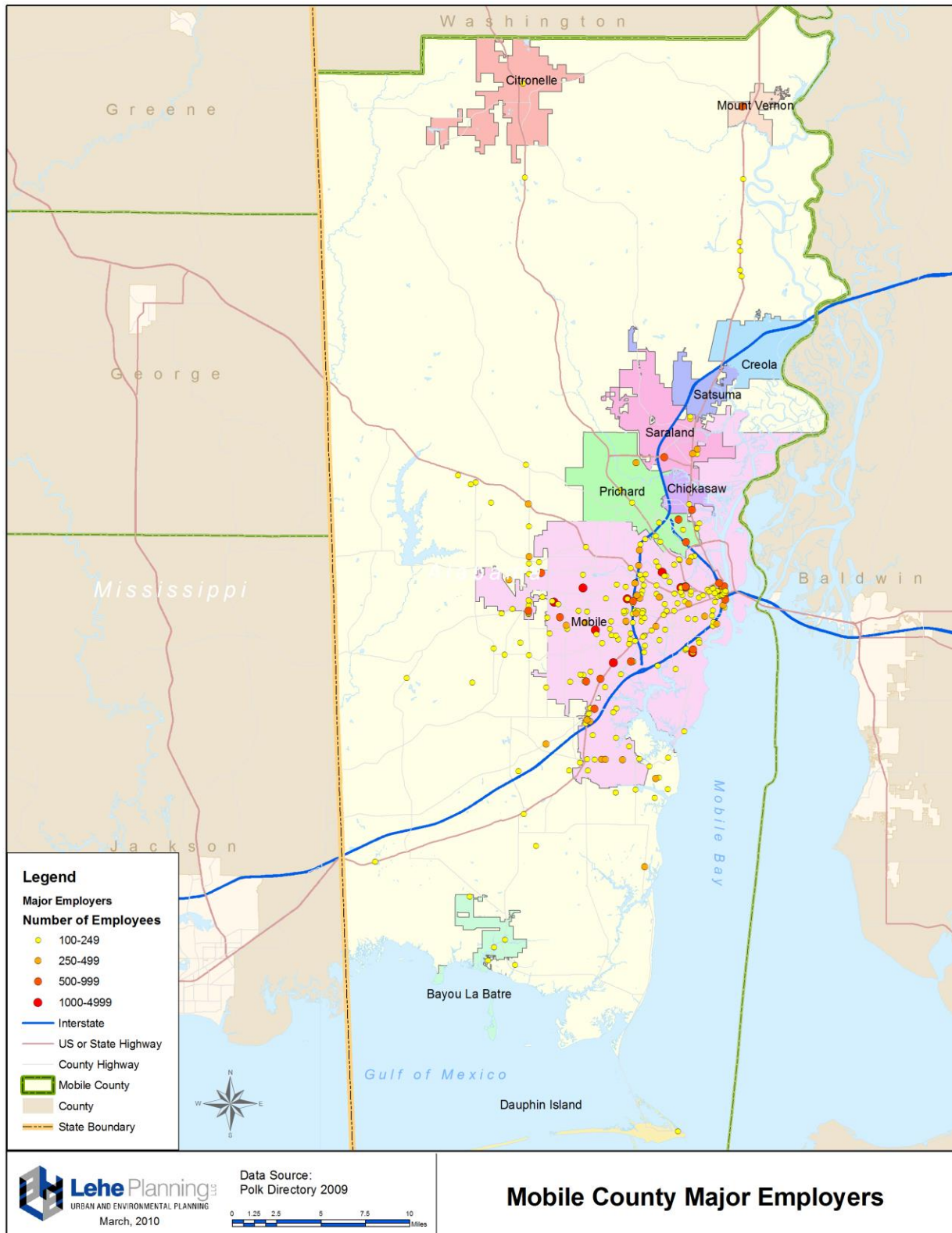
Relative to the State of Alabama, Mobile County’s workforce is employed at a higher rate in construction, transportation and professional occupations and at a significantly lower rate in manufacturing.

**Chart 3-4. Employment by Industry**



Source: U.S. Census Bureau, 2010-2013 American Community Survey

**Map 3-7. Major Employers**

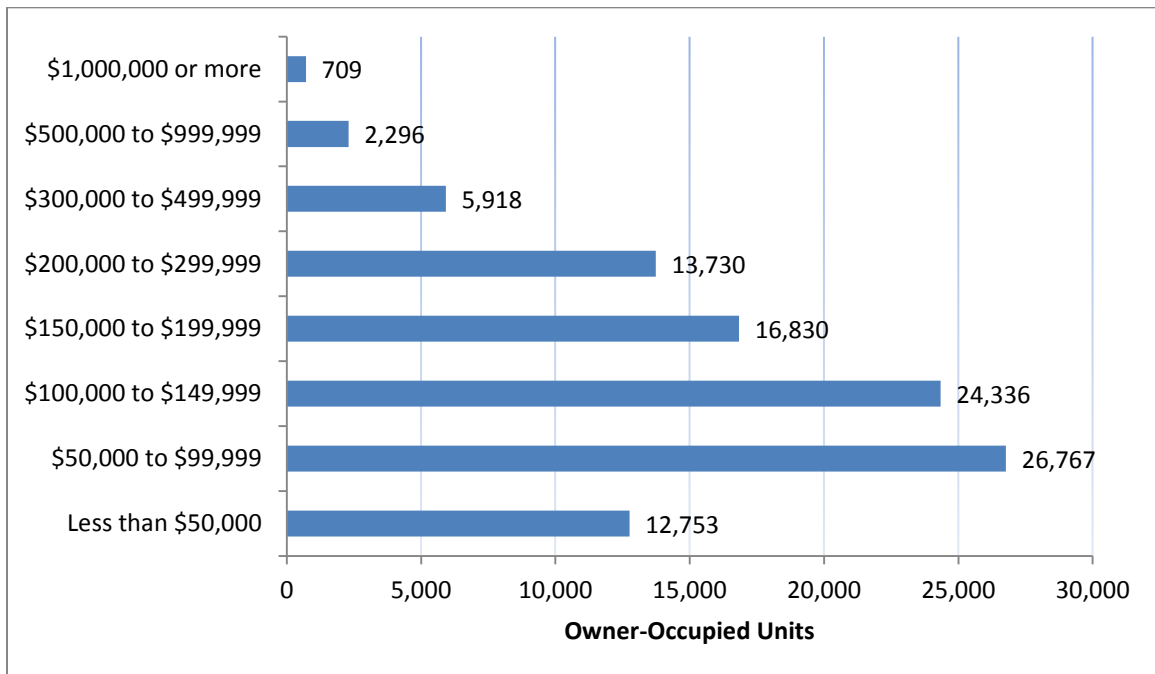




**Income and Housing**

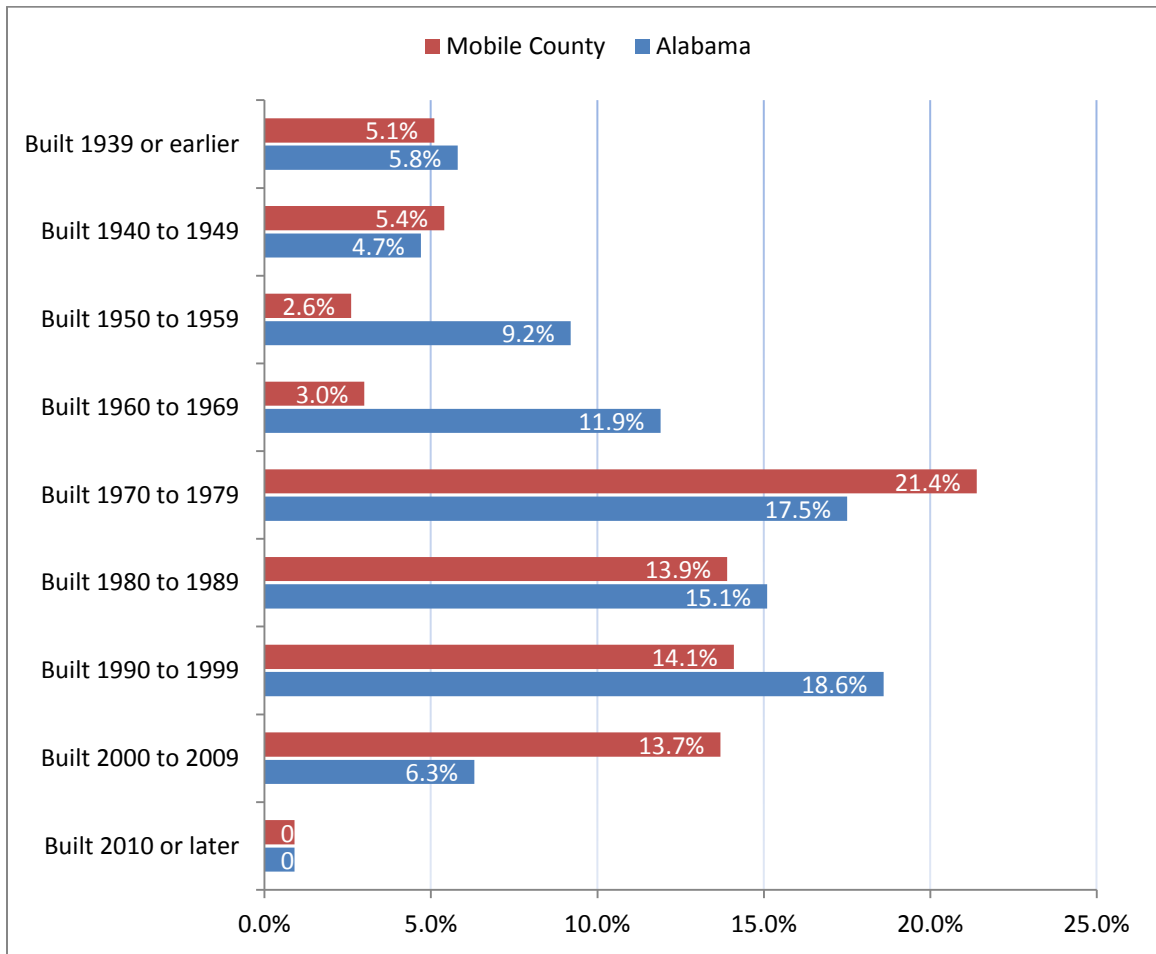
Data on income and housing are reported from the 2010-2013 3-year estimates of the American Community Survey. The median household income for Mobile County was \$43,028, which is slightly below the state median of \$43,253. Statistics indicate 21.2 percent of Mobile County residents and 20.4 percent of Alabama residents lived below the poverty line at some point in the 12 months prior to data collection. The median value for a home in Mobile County was \$124,300. The number of housing units by range of value is shown in Chart 3-5. Mobile County’s housing stock is older than Alabama’s housing stock, as shown in Chart 3-6.

**Chart 3-5. Housing Units by Value**



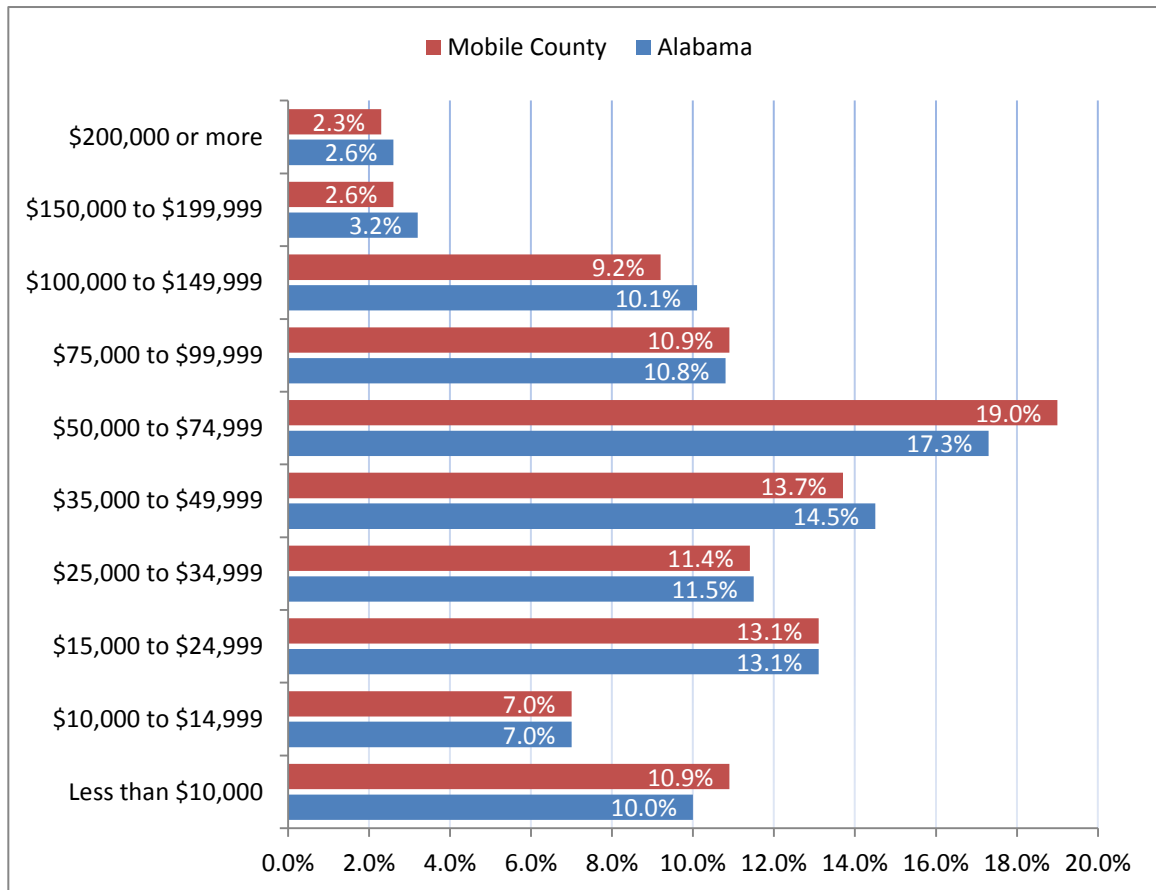
Source: U.S. Census Bureau, 2013 American Community Survey

**Chart 3-6. Housing Stock by Age**



Source: U.S. Census Bureau, 2013 American Community Survey

**Chart 3-7. Household Income Distribution**



Source: U.S. Census Bureau, 2013 American Community Survey

**Tourism**

Mobile County has many attractions and events for tourists and local residents. Tourism is a major contributor to the local economy. Major tourist attractions and events include:

- ✓ Bellingrath Gardens and Home,
- ✓ Fort Conde,
- ✓ Historic Homes Tour,
- ✓ USS Alabama Battleship Memorial Park,
- ✓ Mobile Mardi Gras,
- ✓ America’s Junior Miss Pageant,
- ✓ Azalea Trail Run Festival,
- ✓ Mobile International Festival
- ✓ Five Rivers Delta Resource Center
- ✓ College Post-Season Bowl,
- ✓ Senior Bowl,

- ✓ Alabama Deep Sea Fishing Rodeo,
- ✓ Historic Fort Gaines,
- ✓ Dauphin Island and Sea Lab,
- ✓ The Mobile Bay Bears minor league baseball,
- ✓ Greyhound Park, and
- ✓ The Mobile Tennis Center

### **3.9 Utilities**

#### **Electric Power**

Mobile County is served by Alabama Power Company for most electric power needs. Alabama Power and other suppliers have developed several co-generation facilities in Mobile to provide industrial steam to host facilities and electricity to the transmission grid.

#### **Natural Gas**

Mobile Bay and nearby areas in the Gulf of Mexico produce roughly one trillion cubic feet of natural gas per day, which are processed by three plants in Mobile County. Mobile Gas Service Corporation provides local distribution of natural gas. Gas is available under purchase and transport contracts.

#### **Water and Sewer**

Water sources/reserves include Big Creek Lake, which produces 110 million gallons per day, and Mobile River Facility, which produces 25 million gallons per day.

Sewer service is available in many parts of Mobile County. The largest treatment plant is W. Williams Plant, which has a daily capacity of 28 million gallons and an available usage of 7 million gallons per day.

Mobile Area Water & Sewer System and LeMoyne Water System Inc. provide local distribution to Mobile County. Prichard Water Works & Sewer Board provides for Prichard.

### **3.10 Media**

#### **TV and Radio**

Mobile County is served by six local TV stations, which carry all major television networks. The cable providers are Comcast Communication and Mediacom. The satellite providers are Direct TV and Dish Network. The County has 27 local radio stations.

**Newspapers**

There are four local newspapers published in Mobile County. The leading newspaper is the *Press-Register*, based in the City of Mobile.

**Telephone, Cellular, and Internet Services**

An extensive range of regional and national telephone, cellular, and internet providers serve Mobile County.

**3.11 Transportation****Interstates**

I-65, I-10 and I-165 are the three major interstate roadways serving Mobile County.

**Trucking**

Most major regional and national trucking lines serve Mobile County.

**Railway**

Mobile County is served by five major railroads: Burlington Northern Santa Fe Railway (BNSF), CSX, Canadian National IC, Norfolk Southern and Kansas City Southern. A sixth short-line railroad, the Central Gulf Railway, provides a rail ferry service to Mexico. Additionally, the Alabama State Docks operates the terminal railroad, providing linkages between all railroads and the Port of Mobile.

**Airports**

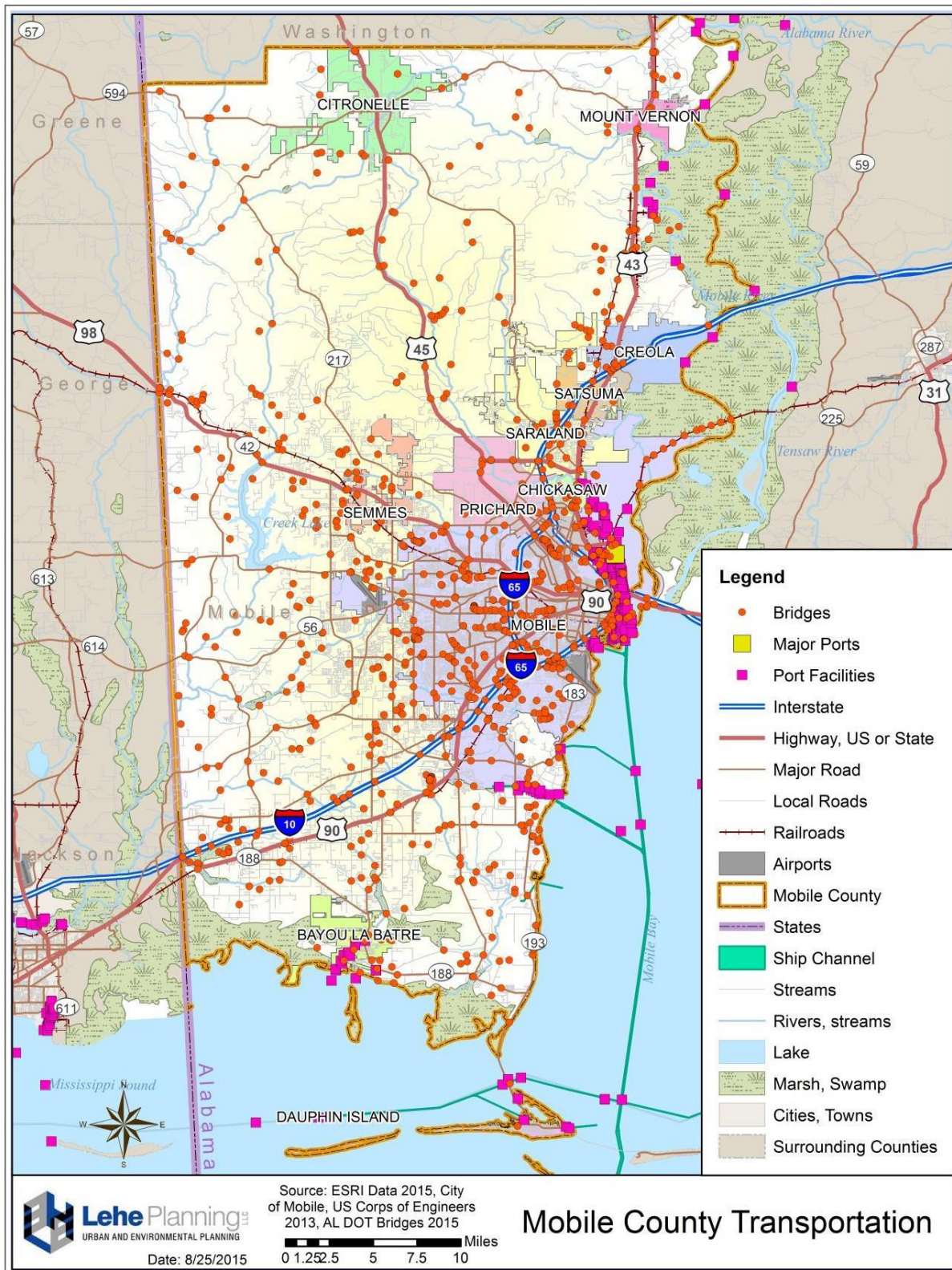
Mobile County has two airports Mobile Regional Airport that carries passengers, and Brookley Airport near Downtown Mobile is an industrial airport complex.

**Ports**

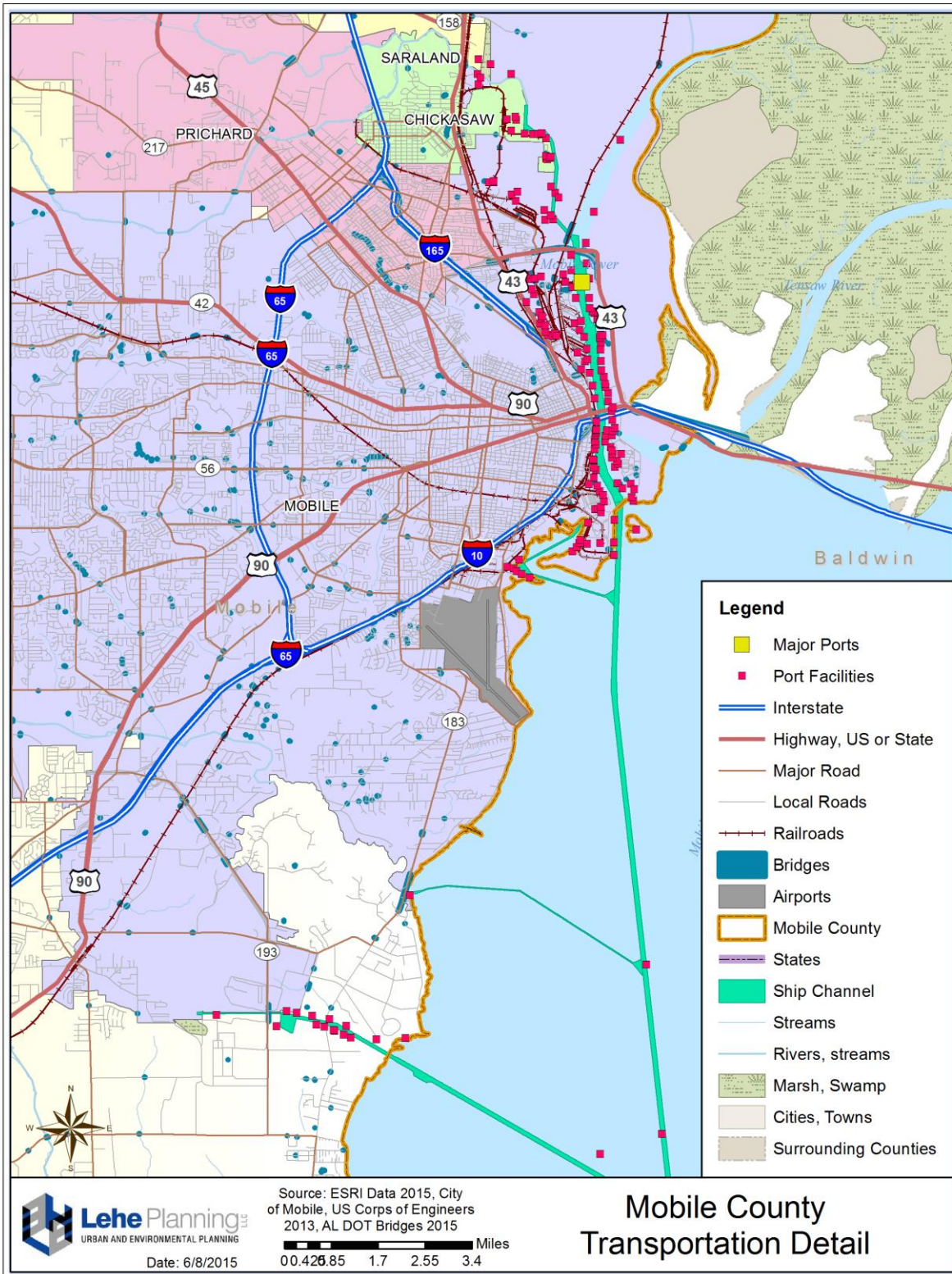
The Port of Mobile is an international deepwater gateway. The port handles a variety of cargo, including containers, forest products, metals, and bulk cargo. The Mobile ship channel has a maximum depth of 45 feet, deep enough to handle most of the ships used in world trade.

The Alabama State Docks and private waterfront terminals in the Mobile area offer liquid and dry bulk terminals, break bulk handling and specialized cargo operations. The Port of Mobile has stevedoring services operating in non-union and union environments.

**Map 3-8. Mobile County Transportation Facilities**



**Map 3-9. Mobile County Transportation Detail**



## 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 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*.

- (1) 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 2010 plan as a result of the 2015 plan update:

**Table 4-1. Summary of Plan Updates**

<b>Section</b>		<b>Change</b>
4.3	Opportunities for Public Comment on the Plan	Adds new opportunities through Facebook and Twitter and an updated community survey
4.4	Opportunities for Involvement in the Planning Process	Expanded opportunities
4.5	Review and Incorporation of Plans and Documents	Incorporated new plans and documents; 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	Reestablished HMPC and added new members
4.8	How the Public was Involved in the Planning Process	Increased involvement through social media; two community events
4.9	The Plan Review and Update Process	This is the second 5-year review and update of the plan

**4.3 Opportunities for Public Comment on the Plan**

**Figure 4-1 Website Image**



The Hazard Mitigation Planning Committee (HMPC) solicited public input into the mitigation plan throughout the drafting phase of the plan primarily through its plan website at [mobile.hazardmitigationplan.com](http://mobile.hazardmitigationplan.com). The website provided opportunities for the public to keep abreast of HMPC meetings, with meeting agendas, slide presentations, and committee exercises and handouts readily available for the public to download. The draft plan sections were continuously posted to the website and made available for public review and comment throughout the planning process. The website included a web form to send comments directly to the planning team, as well as a special email account at

[mobile@hazardmitigationplan.com](mailto:mobile@hazardmitigationplan.com). Residents were further encouraged to provide input through their jurisdiction representative on the Committee and to attend committee meetings. The Committee chair, John Kilcullen, could also be reached by telephone at the Mobile County EMA offices and by individual meetings by appointment.

During the later drafting phases, the Mobile County EMA hosted two community meetings to solicit public comments. The first meeting on October 21, 2015, was held between 4 PM and 6 PM at the Moorer Branch of the Mobile Public Library, located in a recognizable central location. It was conducted in an open house format. A meeting of the HMPC preceded this first event. A second community meeting was held between 9 AM and 1 PM on November 7, 2015, at the Creola Municipal Park, in North Mobile County, as part of the annual Community Day hosted by the LeMoyne Industrial Park and the

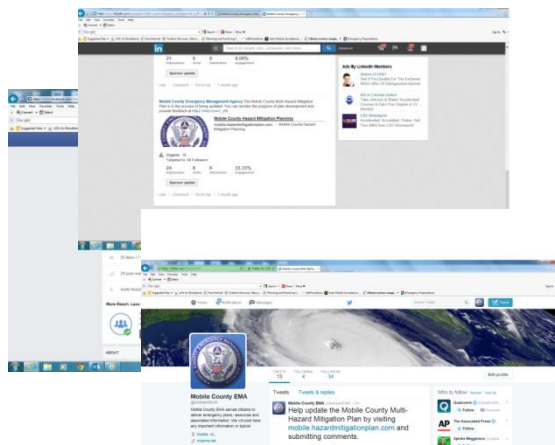


LeMoyne Community Advisory Panel. This second event was a well-attended family fun day with educational information, including games for the children, entertainment, and lunch. The HMPC booth was one of many informative exhibits and received plenty of public exposure and interest.



The community meetings included various exhibits, including maps and tables and educational handouts. Members of the HMPC and planning team were on hand to answer questions for public attendees. Copies of the draft plan and the 2010 plan, for comparison, were available for public review. A community survey questionnaire, available at the community meetings and via the project website, provided an opportunity for the public to submit their concerns in writing. (Refer to Appendix H “Community Involvement Documentation” for further explanation and documentation of community involvement, including a copy of the survey, the media release, and other supporting documentation).

**Figure 4-2 Social Media Images**



For 2015, the HMPC added social media to expand opportunities for public comment. The community meeting announcements were posted on Facebook, LinkedIn, and Twitter (search for “Mobile County Emergency Management Agency”), all of which included a link to the plan website for the public to keep abreast of the progress of the plan update and offer their concerns and suggestions.

Public hearings to receive final comments were held by all jurisdictions prior to adoption of the Plan by resolution, as required by State law.

#### **4.4 Opportunities for Involvement in the Planning Process**

The planning team mailed a notice of the draft plan and a survey requesting input from decision makers across Mobile County, neighboring jurisdictions, and other interested agencies and stakeholders. This effort targeted government agencies with interest in hazard mitigation and/or, with the authority to regulate development, and representatives of businesses, academia and other private and non-profit interests. (A copy of the notice and survey are included in Appendix H “Community Involvement Documentation”). Recipients 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 (ADOT)
- Alabama Forestry Commission
- Geological Survey of Alabama
- Alabama Historical Commission
- Coast Guard

##### Local and Regional Agencies

- South Alabama Regional Planning Commission

##### Neighboring Counties (represented by county EMA directors)

- Washington County, AL
- Baldwin County, AL
- George County, MS
- Jackson County, MS

##### Businesses (major employers in Mobile County)

- Mobile Area Chamber of Commerce

## Academia

- Mobile County School Board
- University of South Alabama
- Alabama School of Math and Science
- Bishop State Community College
- Saraland City School System

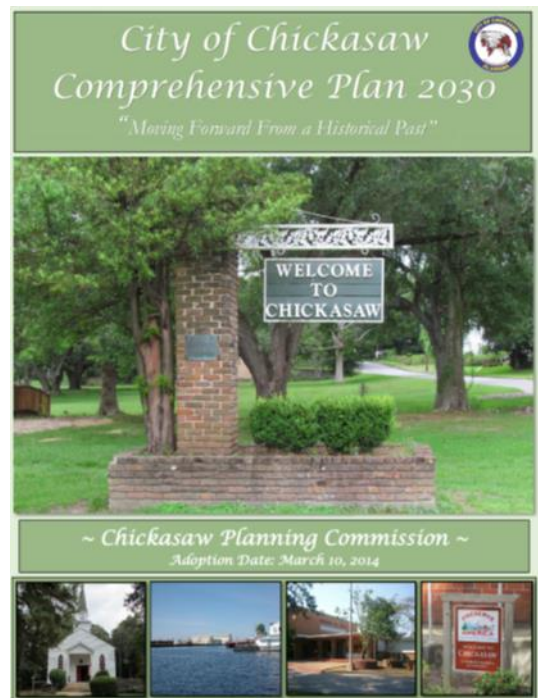
## Non-Profits and Other Agencies

- American Red Cross, Gulf Coast Chapter
- Alabama Power

## 4.5 Review and Incorporation of Applicable Plans and Documents

The planning team found that most of the communities' plans and ordinances relevant to hazard mitigation were adopted before the original mitigation plans. Except for new comprehensive planning initiatives by the City of Chickasaw, City of Semmes, and the City of Mobile, local plan and ordinance updates were primarily amendments to existing documents. Some ordinances address specific natural hazards concerns – flood plain management; storm water detention; erosion and sedimentation control; tree protection; and open space and conservation of land.

The City of Chickasaw last updated its comprehensive plan, adopting it on March 10, 2014. The Alabama Department of Conservation and Natural Resources partly funded this effort through a grant from the National Oceanic and Atmospheric Administration. Chickasaw's Comprehensive Plan 2030 was developed by the Chickasaw Planning Commission and City Council with professional planning assistance by South Alabama Regional Planning Commission. The city's plan addresses coastal hazards and encourages proactive hazard mitigation to reduce its hazard vulnerability. Among others, the plan's recommendations, includes the "update of our city's existing hazard mitigation plan for future extreme, tropical weather in order to protect our city."



The City of Semmes is a new municipality, incorporated on May 2, 2011, after the 2005 mitigation plan was completed. Since incorporating, the City has made great strides in establishing comprehensive municipal services and an effective municipal government organization. In April 2014, the City adopted its first comprehensive plan, How do we GROW from here? The plan presents a long-range community vision and framework for growth, but has not yet integrated hazard mitigation actions into the plan's implementation schedule. The City has limited regulatory tools in place, as of 2015 - subdivision regulations, sign ordinance, tree ordinance, and commercial site development standards - but plans to add a zoning ordinance. In 2012, the City adopted the International Code Series, which established a permitting and inspections process to regulate building construction.



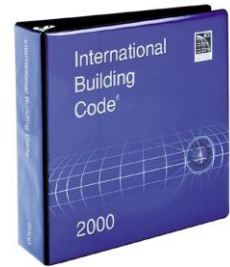
The City of Mobile was undergoing a major update of its comprehensive plan while this 2015 mitigation plan was underway. Mobile's long-range visioning process establishes long-range goals and presents a framework for the City's growth. Copies of this hazard mitigation plan were shared with the City's planning team to integrate into their new comprehensive plan.

The City of Prichard and the Town of Dauphin Island had comprehensive plans that had been updated within the previous five-years (prior to 2010), but, while these plans addressed natural hazards, they did not integrate the Community Mitigation Action Programs from the 2005 plan. The planning team also found that in 2007, Saraland had updated its comprehensive land use development codes that encompass subdivision regulations, zoning codes, soil and sediment control regulations, drainage, storm sewer and storm water detention standards, and tree protection standards.

To complete its assessment of planning and regulatory tools, the planning team reviewed the following plans and ordinances:

- Comprehensive plans of the cities of Chickasaw, Semmes, and Mobile;
- Zoning ordinances of the cities of Bayou La Batre, Chickasaw, Citronelle, Creola, Mobile, Mt. Vernon, Prichard, and Satsuma and the Town of Dauphin Island;
- Subdivision regulations of the cities of Bayou La Batre, Citronelle, Creola, Mobile, Mt. Vernon, Prichard, Satsuma, and Semmes and the Town of Dauphin Island, and Mobile County;

- Land Use Development Ordinance of the City of Saraland;
- Building codes of all the participating jurisdictions;
- Flood plain management ordinances for all the municipalities and Mobile County;
- Flood Insurance Studies and Flood Insurance Rate Maps;
- U.S. Census Bureau and Alabama Data Center demographic and economic reports;
- NOAA and NWS storm events records;
- Mobile County Comprehensive Emergency Management Plan; and
- Alabama State Hazard Mitigation Plan 2013.



As recommended in the 2010 plan, this update’s mitigation strategies should be integrated into revisions of existing comprehensive plans and future planning documents. Specific actions for integration are included in the Community Mitigation Action Programs, which are discussed in Chapter 6 of this Plan and Part II “Community Action Programs.” (Refer to Appendix B – “Community Mitigation Capabilities” for documentation of planning and regulatory tools). Despite this recommendation in 2010, the planning team generally found that participating jurisdictions did not implement the recommendations from the 2010 plans in recent plans and ordinances.

To help bridge the gap between county-wide hazard mitigation planning and local planning, a very detailed assessment will be completed in 2016 as a follow up to this 2015 mitigation plan. A companion effort for “Plan Integration” has been funded through the FEMA Pre-Disaster Mitigation (PDM) grant program to examine opportunities for integrating the risk assessment findings and mitigation action program recommendations into local plans and regulatory tools.

## 4.6 How the Plan was Prepared



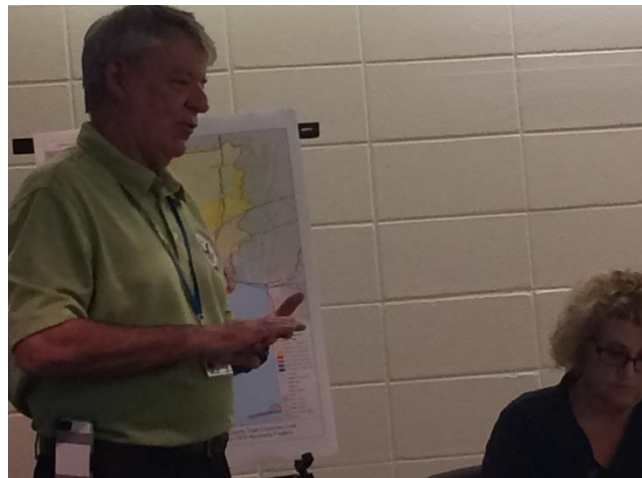
On April 16, 2015, the Hazard Mitigation Planning Committee (HMPC) was reconvened to begin the plan update process. Between April and December, 2015, the HMPC held five meetings. The printed agendas and sign-in sheets are on file in the Mobile County EMA office, and copies of these documents are included in Appendix G “Committee Meeting Documentation.” Throughout the planning process, to inform committee members and engage the public, the committee

promoted use of the website [mobile.hazardmitigationplan.com](http://mobile.hazardmitigationplan.com), which listed meeting times and displayed sections of the draft plan as they were completed. If a committee member could not attend a meeting, all of the meeting materials were available to download on the website, review, and submit comments to the HMPC Chair.

The kick-off meeting was held on April 16, 2015. The meeting was a refresher for those HMPC members who had participated in previous years and an introduction to those who were new to the process. The presentation included the definition of hazard mitigation and examples of the cost of previous hazard events throughout the United States. A discussion of the federal requirements in regard to the plan and the planning process occurred along with an outline of the new plan. The drafts of Chapters 1 “Introduction,” 2 “Prerequisites,” and 7 “Plan Maintenance” and Appendices A “Federal Requirement for Local Mitigation Plans” and J “Adopting Resolution” were reviewed. The HMPC also completed the “Hazard Identification and Ratings Exercise.”

The second HMPC meeting facilitated by the planning team was held on June 18, 2015. During that meeting, Chapter 3 “Community Profiles,” the first half of Chapter 5 “Risk Assessment,” and Appendices D “Hazard Ratings and Descriptions” and E “Hazard Profile Data” were reviewed. The committee members were asked about corrections to the profile information about their communities in Chapter 3 “Community Profiles.” The Chapter 5 review included a discussion of the various hazards that affect their jurisdictions and the actual events that had occurred since the 2010 plan update.

The committee convened again on August 13, 2015. The second part of Chapter 5, including the vulnerability assessment, was reviewed. This section discusses the types of structures and potential losses throughout the jurisdictions. It also covers future land development and potential impacts of hazards. HMPC members were asked to complete exercises to update their capabilities assessments and their plan implementation status as homework.



On October 21, 2015, the HMPC met for the fourth time. Topics discussed during this meeting included Chapter 6 “Mitigation Strategies” and Appendices B “Community Mitigation Capabilities,” C “2010 Plan Implementation Status” and F “Identification and Analysis of Mitigation Measures.” During the review of Chapter 6, the HMPC discussed goals and objectives that guide the selection of strategies.



Emphasized was the value of thoroughly evaluating each measure for their jurisdictions. Appendix B, “Community Mitigation Capabilities” was reviewed to determine if any information needed to be updated. Appendix C “2010 Plan Implementation Status” was reviewed to help the HMPC better understand and grasp the measures from the last plan update and their progress towards implementation. Appendix F “Identification and Analysis of Mitigation Measures” made the HMPC aware of the various ways to mitigate their hazards. The planning team distributed the “Community Action Program Exercise” to help each jurisdiction develop their 2015 Community Action Programs.



The final meeting was conducted on December 10, 2015. During this meeting, the HMPC reviewed Chapter 4 “Planning Process” and Volume II, “Community Action Programs.” The HMPC reviewed documentation of the entire planning process taken during the eight month update period. The planning team discussed the importance of the individual programs and the responsibilities of the HMPC to oversee the implementation progress of their jurisdiction’s plan. Related Appendices G “Committee Meeting Documentation,” H “Community Involvement Documentation,” and I “Multi-Jurisdictional Participation Activities” were also reviewed. The subsequent FEMA approval steps were outlined, from the AEMA review and recommendation to FEMA’s final approval pending local adoption. It was stressed that each community must adopt the plan in order to be eligible for consideration of future mitigation projects for funding under FEMA’s HMA grant programs. The HMPC committed to meet at least annually to review the plan, as explained in Chapter 7 “Plan Maintenance Process.”

The planning team assembled the final draft of the plan and submitted it to the AEMA for FEMA review and approval, prior to local adoption. The final approved plan was adopted by resolutions of all participating jurisdictions at public hearings of their governing bodies.

## **4.7 Who was Involved in the Planning Process**

### **4.7.1 The Hazard Mitigation Planning Committee**

The Mobile County Hazard Mitigation Planning Committee (HMPC) was comprised of representatives from all political jurisdictions. Other individuals from stakeholder organizations also participated in the preparation of this 2015 update but

were not directly represented on the HMPC. Ronnie Adair, Director of the Mobile County EMA, in consultation with John Kilcullen, the Director of Plans and Operations, appointed members to serve on the HMPC. Members were allowed to designate alternates or proxies to committee meetings. Many of the same members have served since the first 2005 plan was prepared. The 2015 membership and political jurisdictions represented are listed below:

- Mr. John Kilcullen, Chair, Director of Plans and Operations, Mobile County EMA
- Mr. Brett Dungan, Mayor, City of Bayou La Batre
- Mr. Glen Wickell, City of Chickasaw
- Ms. Lorrie Bryan, City Clerk, City of Citronelle
- Ms. Kim Pettway, City Clerk, City of Creola
- Mr. Corey Moore, Public Works Director, Town of Dauphin Island
- Mr. Janic Terry, Engineer, City of Mobile
- Mr. Bill Melton, Director of Environmental Services, Mobile County
- Ms. Theresa Weaver, Town Clerk, Town of Mount Vernon
- Ms. Darlene Lewis, City Clerk, City of Prichard
- Mr. Shane Lovette, Fire Captain, City of Saraland
- Mr. Thomas Briand, Building Inspector, City of Satsuma
- Ms. Laticia Fultz, Administrative Assistant, City of Semmes

*Notes:*

- (1) *The Town of Mt. Vernon and the cities of Prichard and Creola, were indirectly represented in the HMPC meetings and planning process by Mr. John Kilcullen of the Mobile County EMA. The governing bodies of these jurisdictions adopted resolutions to authorize representation. Copies of the resolutions can be found in Appendix G "Community Meeting Documentation." Their representatives listed above provided required information as needed to their authorized representative.*
- (2) *The Mobile 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 Mobile County jurisdictions and agencies, including school boards and utilities.*
- (3) *Mobile County has jurisdiction within all incorporated and unincorporated areas of the County and, through normal business practices, performs services authorized by intergovernmental agreement, to support municipal operations. The Mobile County Committee members represent all municipalities within Mobile County as well as unincorporated communities within the County.*

#### **4.7.2 The Mission of the Hazard Mitigation Planning Committee**

The HMPC reaffirmed the mission statement from the 2010 plan, as follows:

*The mission of the Mobile 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,*
- *Concludes with programmed actions with specific results.*

### **4.7.3 Preparation of the Plan Update**

This 2015 plan update was prepared under the direction of the HMPC with the support of the Mobile County EMA. The Mobile County EMA retained the consulting firm of Lehe Planning, LLC, the same firm that assisted with the 2005 and 2010 plans, to prepare the 2015 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**

As previously mentioned in other sections of this chapter, the public received many opportunities to participate in the plan update. These public involvement opportunities included: (1) active participation in any of the five committee meetings; (2) submitting comments through the internet via the plan website, Facebook, Twitter, and LinkedIn; (3) attending one or both of the two community meetings; (4) completing the community survey; (5) submitting comments by postal mail or email; and, (6) consulting with the planning team by telephone or in-person.

All Hazard Mitigation Planning Committee (HMPC) meetings were publicly announced and open to the public. All meeting dates appeared publicly on the plan website at [mobile.hazardmitigationplan.com](http://mobile.hazardmitigationplan.com). The posting of meeting agendas, slide presentations, committee exercises, meeting handouts, and draft sections of the plan provided the public with full access to the planning process.

The HMPC sponsored two special community meetings on October 21, and November 7, 2015, during the drafting stages of the plan. At these meetings, the draft plan was publicly presented, and the hazards and alternative mitigation measures were discussed among participants. Map displays and handouts of FEMA publications regarding various hazards and mitigation measures were made available to the public. Additionally, the public was encouraged to fill out a survey about the risks and threats of hazards and offer any suggestions. The community survey results were compiled and posted on the plan website and distributed to HMPC members.

At the end of the planning process, individuals were afforded one last opportunity for comments on the 2015 plan update. Each governing body held a public hearing prior to adoption. For more detailed documentation and discussion of public involvement, see Appendix H “Community Involvement Documentation.”

#### **4.9 The Plan Review and Update Process**

The 2015 plan review and update process resulted in a comprehensive update of the entire 2010 Plan, 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;
- An update of the assessment of local capabilities to carry out mitigation measures;
- An evaluation of the status and effectiveness of Community Mitigation Action Programs adopted in the 2010 plan, which is reflected in the 2015 Action Programs for each jurisdiction;
- A reassessment of risks to include detailed research and analysis of hazards affecting the communities, as well as adding man-made hazards to the Risk Assessment;
- A complete update of the HAZUS – MH maps and analysis reports for floods, earthquakes, and hurricanes;
- A reexamination of development trends and exposure to risks;
- A review and recommitment to the vision for disaster-resistant communities, the plan goals, and support of the 2013 State goals for hazard mitigation;
- Identification and analysis of a comprehensive range of mitigation alternatives;
- A reprioritization of mitigation actions and projects;
- Revised mitigation action programs for each jurisdiction to better reflect the results of the plan update; and,
- Revisions to the plan maintenance procedures to institute streamlined amendments and better ensure continuous monitoring and implementation of mitigation actions.

During the period between approval of the 2010 plan and the drafting of the 2015 plan, the HMPC held eight interim meetings to review plan implementation measures and projects, in accordance with Chapter 7 “Plan Maintenance.” Documentation of those meetings can be found in Appendix G “Committee Meeting Documentation.”

## Chapter 5 – Risk Assessment

- 5.1 Federal Requirements for Risk Assessments
- 5.2 Summary of Plan Updates
- 5.3 Identification of Hazards Affecting Each Jurisdiction
- 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 of the Plan 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 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.”

**5.2 Summary of Plan Updates**

Table 5-1 summarizes updates to the 2015 plan:

**Table 5-1. Plan Updates**

Section		Change
5.3	Identification of Hazards Affecting Each Jurisdiction	Adds Tsunamis to Table 5.2
5.4	Hazard Profiles	Adds Tsunamis to Section 5.4; improves descriptions of locations and extents; updates Past Events; improves mapping
5.5	Vulnerability of Structures within Each Jurisdiction	Provides HAZUS-MH inventory data and population estimates
5.6	Estimate of Dollar Losses to Vulnerable Structures	Provides HAZUS-MH loss estimates and losses from historical records
5.7	General Description of Land Uses and Development Trends	Reserved.
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**

Hazards affecting each jurisdiction are listed in Table 5-2 “Identified Mobile County Hazards”. This table highlights the relationships between hazards. In addition to the natural hazards listed in the 2010 Mobile County Multi-Hazard Mitigation Plan, this 2015 plan includes tsunamis. Detailed descriptions appear in Appendix D, “Hazard Identification, Ratings and Descriptions.”

**Table 5-2. Identified Mobile County Hazards**

Hazards	Associated Hazards	Jurisdictions Affected
<p style="text-align: center;"><b>Hurricanes</b></p>	<p>Tropical Storms Tropical Depressions Severe Storms High Winds Floods Storm Surge Tornadoes</p>	Mobile County
		Bayou La Batre
		Chickasaw
		Citronelle
		City of Mobile
		Creola
		Dauphin Island
		Mt. Vernon
		Prichard
		Saraland
		Satsuma
		Semmes
<p style="text-align: center;"><b>Flooding</b></p>		Mobile County
		Bayou La Batre
		Chickasaw
		Citronelle
		City of Mobile
		Creola
		Dauphin Island
		Mt. Vernon
		Prichard
		Saraland
		Satsuma
		Semmes
<p style="text-align: center;"><b>Severe Storms</b></p>	<p>Thunderstorms Hail Lightning High Winds/Straight-line Winds Tornadoes Floods Landslides Wildfires</p>	Mobile County
		Bayou La Batre
		Chickasaw
		Citronelle
		City of Mobile
		Creola
		Dauphin Island
		Mt. Vernon
		Prichard
		Saraland
		Satsuma
		Semmes

Hazards	Associated Hazards	Jurisdictions Affected
<p style="text-align: center;"><b>Tornadoes</b></p>	<p>High Winds Severe Storms</p>	Mobile County
		Bayou La Batre
		Chickasaw
		Citronelle
		City of Mobile
		Creola
		Dauphin Island
		Mt. Vernon
		Prichard
		Saraland
		Satsuma
		Semmes
<p style="text-align: center;"><b>Wildfires</b></p>		Mobile County
		Bayou La Batre
		Chickasaw
		Citronelle
		City of Mobile
		Creola
		Dauphin Island
		Mt. Vernon
		Prichard
		Saraland
		Satsuma
		Semmes
<p style="text-align: center;"><b>Drought/Heat Waves</b></p>	<p>Extreme Heat Wildfires Sinkholes</p>	Mobile County
		Bayou La Batre
		Chickasaw
		Citronelle
		City of Mobile
		Creola
		Dauphin Island
		Mt. Vernon
		Prichard
		Saraland
		Satsuma
		Semmes



Hazards	Associated Hazards	Jurisdictions Affected
<p align="center"><b>Winter Storms/Freezes</b></p>	<p>Snow Storms Ice Storms Extreme Cold</p>	Mobile County
		Bayou La Batre
		Chickasaw
		Citronelle
		City of Mobile
		Creola
		Dauphin Island
		Mt. Vernon
		Prichard
		Saraland
		Satsuma
		Semmes
<p align="center"><b>Earthquakes</b></p>	<p>Landslides</p>	Mobile County
		Bayou La Batre
		Chickasaw
		Citronelle
		City of Mobile
		Creola
		Dauphin Island
		Mt. Vernon
		Prichard
		Saraland
		Satsuma
		Semmes
<p align="center"><b>Landslides</b></p>		Mobile County
		Bayou La Batre
		Chickasaw
		Citronelle
		City of Mobile
		Creola
		Dauphin Island
		Mt. Vernon
		Prichard
		Saraland
		Satsuma
		Semmes

Hazards	Associated Hazards	Jurisdictions Affected
<p style="text-align: center;"><b>Dam/Levee Failures</b></p>	<p style="text-align: center;">Flooding</p>	Mobile County
		Bayou La Batre
		Chickasaw
		Citronelle
		City of Mobile
		Creola
		Dauphin Island
		Mt. Vernon
		Prichard
		Saraland
		Satsuma
		Semmes
<p style="text-align: center;"><b>Sinkholes (Land Subsidence)</b></p>		Mobile County
		Bayou La Batre
		Chickasaw
		Citronelle
		City of Mobile
		Creola
		Dauphin Island
		Mt. Vernon
		Prichard
		Saraland
		Satsuma
		Semmes
<p style="text-align: center;"><b>Tsunamis</b></p>		Mobile County
		Bayou La Batre
		Chickasaw
		Citronelle
		City of Mobile
		Creola
		Dauphin Island
		Mt. Vernon
		Prichard
		Saraland
		Satsuma
		Semmes

Hazards	Associated Hazards	Jurisdictions Affected
<b>Manmade/Technological</b>		Mobile County
		Bayou La Batre
		Chickasaw
		Citronelle
		City of Mobile
		Creola
		Dauphin Island
		Mt. Vernon
		Prichard
		Saraland
		Satsuma
		Semmes

**5.3.2 Sources for Identifying Mobile County Hazards**

The planning team used the following sources to identify hazards:

1. HMPC Hazard Identification and Ratings Exercise. The Hazard Mitigation Planning Committee began the 2015 hazard identification process by completing an exercise to evaluate the list of hazards identified in the 2010 plan, which is reported in Appendix D “HMPC Hazard Identification and Ratings.”
2. 2013 Alabama State Plan. The 2013 update of the Alabama State Plan served as an additional resource for identifying local hazards. The planning team compared the list of hazards identified in the State Plan with the local list of hazards and noted the differences. Table 5-3 highlights these differences.

**Table 5-3. Comparison of Identified Mobile County Hazards to State Plan**

Hazards Identified in 2013 Alabama State Plan	Equivalent 2015 Mobile County Identified Hazards	Differences
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 Mobile County plan.
Floods (storm surge, riverine, flash floods, etc.)	Flooding	Coastal and riverine flooding; Mobile County plan associates storm surge with hurricanes.
Hail	Severe Storms – Hail	Included as a component of severe storms in Mobile County plan.
Lightning	Severe Storms – Lightning	Included as a component of severe storms in Mobile County plan.
Wildfires	Wildfires	Mobile County plan associates wildfires with droughts/heat waves.

Hazards Identified in 2013 Alabama State Plan	Equivalent 2015 Mobile County Identified Hazards	Differences
Droughts	Droughts/Heat Waves	Included as a component of droughts/heat waves in Mobile County plan. Mobile County plan identifies sinkholes as a consequence of 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 Mobile County plan.
Winter/Ice Storms	Winter Storms/Freezes	Mobile County plan identifies extreme cold as an associated hazard.
Earthquakes	Earthquakes	Mobile County plan identifies landslides as an associated natural hazard.
Landslides	Landslides	Mobile County plan identifies mudslides as an associated natural hazard.
Dam/Levee Failures	Dam/Levee Failures	Mobile County plan associates floods with dam/levee failures.
Sinkholes & Land Subsidence	Sinkholes (Land Subsidence)	No difference.
Tsunamis	Tsunamis	Newly identified natural hazard in Mobile County plan.
Sea Level Rise	Tsunamis – Sea Level Rise	Included as a component of Tsunamis in Mobile County plan.

3. List of Federally-Declared Disasters. Federal disaster declarations were an additional source for hazard identification. Mobile County was included in 61 federal disaster declarations from 1973-2014. However, it should be noted that not all of these disasters occurred within Mobile County’s borders, as FEMA often includes a "buffer" area of adjoining counties in its disaster declarations in case damage is more widespread than initially reported. All declarations that have been issued since 1973 are included in Table 5-4.

**Table 5-4. 1973-2014 Federal Disaster Declarations Affecting Mobile County**

Disaster No.	Description	Date of Declaration	Declaration Type
369	Tornado	5/3/1973	IA, PA-ABCDEFGF, DH, DUA, IFG, HM
388	Severe Storms, Flooding	5/29/1973	HM
422	Tornadoes	4/4/1974	HM
458	Severe Storms, Flooding	3/14/1975	HM
464	Severe Storms, Flooding	4/23/1975	HM
488	Severe Storms, Tornadoes, Flooding	10/2/1975	HM
532	Severe Storms, Flooding	4/9/1977	HM
3045	Drought	7/20/1977	PA-AB
563	Severe Storms, Flooding	8/9/1978	PA-ABCDEFGF, HM

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Disaster No.	Description	Date of Declaration	Declaration Type
578	Storms, Wind, Flooding	4/18/1979	HM
598	Hurricane Frederic	9/13/1979	IA, PA-ABCDEFGF, DH, DUA, IFG, HM
619	Severe Storms	4/20/1980	IA, PA-ABCDEFGF, DH, DUA, IFG, HM
638	Severe Storms, Tornadoes, Flooding	4/10/1981	HM
639	Flood	5/14/1981	IA, PA-ABCDEFGF, DH, DUA, IFG, HM
695	Severe Storms, Flooding, Tornadoes	12/13/1983	HM
742	Hurricane Elena	9/7/1985	IA, PA-ABCDEFGF, DH, DUA, IFG, HM
848	Severe Storms, Tornadoes	11/17/1989	HM
856	Flooding, Severe Storm, Tornado	2/17/1990	HM
861	Severe Storms	3/23/1990	IA, PA-ABCDEFGF, DH, DUA, IFG, HM
890	Flooding, Severe Storm	1/4/1991	HM
3096	Severe Snowfall, Winter Storm	3/15/1993	PA-AB
1013	Winter Storm, Severe Storm, Freezing, Flooding	3/3/1994	HM
1019	Severe Storm, Flooding, Tornado	3/30/1994	HM
1034	Severe Storm, Flooding, Tropical Storm Alberto	7/8/1994	HM
1047	Severe Storms, Tornadoes, Flooding	4/21/1995	HM
1070	Hurricane Opal	10/10/1995	IA, PA-ABCDEFGF, DH, DUA, IFG, HM
1104	Storms, Flooding	2/23/1996	HM
1108	Storms, Tornadoes, Floods	3/20/1996	HM
1185	Severe Storms	7/25/1997	IA, PA-ABCDEFGF, DH, DUA, IFG, HM
1208	Severe Storms, Flooding	3/9/1998	HM
1214	Tornadoes, Severe Storms	4/9/1998	HM
3133	Hurricane Georges	9/28/1998	PA-AB, HM
1250	Hurricane Georges	10/6/1998	IA, PA-ABCDEFGF, DH, DUA, IFG, HM
1261	Freezing Rain, Ice Storm	1/15/1999	HM
1317	Winter Storm	2/18/2000	HM
1322	Severe Storms, Flooding	3/17/2000	HM
1352	Tornadoes	12/18/2000	HM
1362	Severe Storms, Flooding	3/5/2001	HM
1399	Severe Storms, Tornadoes	12/7/2001	HM
1438	Tropical Storm Isidore	10/9/2002	PA-ABCDEFGF, HM
1442	Severe Storms, Tornadoes	11/9/2002	HM
1466	Severe Storms, Tornadoes and Flooding	5/12/2003	IA, HM
1549	Hurricane Ivan	9/15/2004	IA, PA-ABCDEFGF, DH, DUA, IFG, HM

Disaster No.	Description	Date of Declaration	Declaration Type
1593	Hurricane Dennis	7/10/2005	IA, PA-ABCDEFGF, DH, DUA, IFG, HM
3214	Hurricane Katrina	8/28/2005	PA-AB
1605	Hurricane Katrina	8/29/2005	IA, PA-ABCDEFGF, DH, DUA, IFG, HM
3237	Hurricane Katrina Evacuation	9/10/2005	PA-B
1687	Severe Storms, Tornadoes	3/3/2007	HM
3292	Hurricane Gustav	8/30/2008	PA-B
1789	Hurricane Gustav	9/10/2008	IA, PA-ABCDEFGF, DH, DUA, IFG, HM
1797	Hurricane Ike, Severe Storms, Flooding	9/26/2008	PA-AB, HM
1835	Severe Storms, Flooding, Tornadoes	4/28/2009	HM
1836	Severe Storms, Flooding, Tornadoes, Straight-line Winds	5/8/2009	HM
1842	Severe Storms, Tornadoes, Flooding, Straight-line Winds	6/3/2009	HM
1866	Tropical Storm Ida	12/22/2009	PA-AB, HM
1870	Severe Storms, Flooding	12/31/2009	HM
1908	Severe Storms, Tornadoes, Straight-line Winds, Flooding	5/3/2010	HM
1971	Severe Storms, Tornadoes, Straight-line Winds, Flooding	4/28/2011	HM
4052	Severe Storms, Tornadoes, Straight-line Winds, Flooding	2/1/2012	HM
4082	Hurricane Isaac	9/21/2012	PA-ABCDEFGF, HM
4176	Severe Storms, Tornadoes, Straight-line Winds, Flooding	5/2/2014	IA, PA-ABCDEFGF, HM
<b>* Declaration Type / Description Key:</b>			
IA – Individual assistance		PA-A – Debris removal	
PA – Public assistance		PA-B – Protective measures	
DH – Disaster housing		PA-C – Roads and bridges	
CC – Crisis counseling		PA-D – Water control facilities	
DFA – Direct federal assistance		PA-E – Public buildings	
DUA – Disaster unemployment assistance		PA-F – Public utilities	
HM – Hazard mitigation		PA-G – Recreation	
IFG – Individual and family grant		SA – Stafford Act	
SBA – Small Business Administration		403C – Department of Defense	

Source: FEMA, Region IV

**4. Other Hazard Identification Sources.**

- Local expertise provided by Mobile County EMA staff and local government professionals
- Discussions with residents who served on the HMPC and participated in community events and surveys

- The National Weather Service
- The NOAA Storm Events Database
- Southeast Regional Climate Center
- U.S. Geological Survey
- Southern Wildfire Risk Assessment Portal
- Alabama Forestry Commission
- U.S. Department of Transportation, HAZMAT Intelligence Portal
- Extensive internet research

## **5.4 Hazard Profiles**

### **5.4.1 Hurricanes Profile**

The advantages of Mobile County's proximity to the Gulf of Mexico are sometimes offset by the threat of powerful hurricanes, which can ruin private property, public infrastructure, and citizens' lives. Hurricanes combine other hazards—winds, flooding, lightning, storm surges, and even tornadoes—into a single event that strains local governments' capacities. Fortunately, decision-makers at all levels of government in Mobile County can anticipate and plan for the inevitable arrival of the Gulf's annual hurricane season in such a way as to protect the public against this threat. The 2015 Mobile County Multi-Hazard Mitigation plan is one step on the path to effectively safeguarding Mobile County against hurricanes.

Seventeen Federal disaster declarations for hurricanes have included Mobile County from 1973 to 2014. The most recent hurricane event affecting Mobile County was Hurricane Isaac, which made landfall on August 28, 2013 in Louisiana as a Category 1 hurricane. Though most of the severe damage occurred in neighboring states, Mobile County was inundated by rainfall, tornado threats, and experienced power outages in downtown Mobile, West Mobile, Prichard and south Mobile County. In addition, storm surge tides of 4 to 6 feet were witnessed in the Mobile Bay region and the highest wind gusts for the area were observed at the east end of Dauphin Island at 60 mph. The photo to the right shows flooding issues in downtown Mobile (credit: National Weather Service).



#### **Location of Potential Hurricanes**

The hurricanes that pose a threat to Mobile County typically form as tropical storms in the oceans southeast of the Gulf of Mexico, and then build in size and intensity until making landfall between Texas and the Florida panhandle. Mobile County is located directly on the Gulf Coast, so hurricanes that strike Mobile County typically have not dissipated over land.

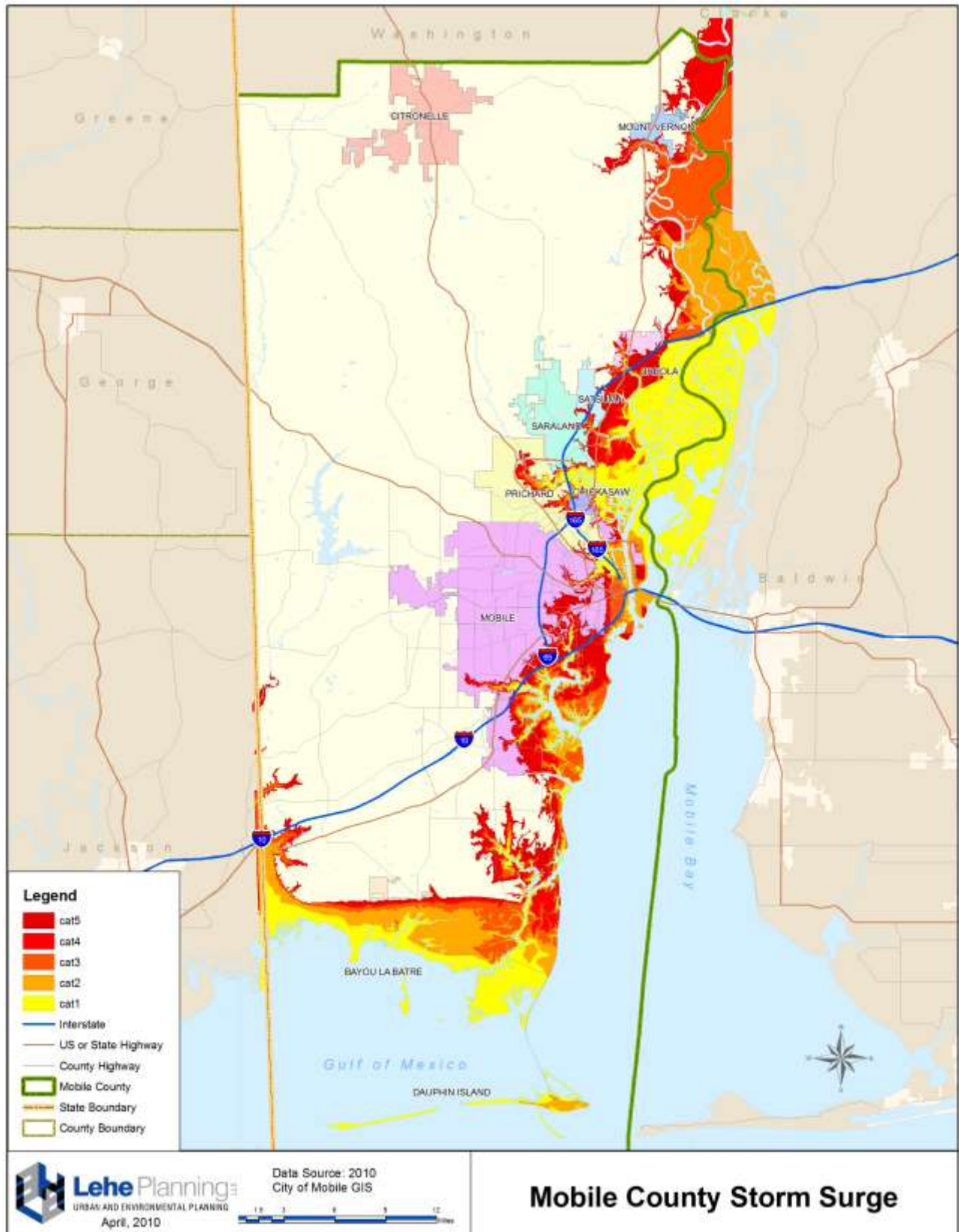
Location partially determines the risk that hurricanes pose to a region. Coastal communities and low-lying areas bordering Mobile Bay are more susceptible to storm surges and high winds. In particular, Dauphin Island is a barrier island in the Gulf of Mexico, so a storm surge can wash over the entire Town of Dauphin Island. Inland communities, such as Citronelle and Mount Vernon, on the other hand, face a negligible risk of storm surge and lower risk of high winds. All areas of Mobile County face the risk of extensive damage from even a light tropical storm, which can induce countywide riverine flooding through heavy rainfall.

**Extent and Intensity of Hurricanes**

Among all hazards affecting Mobile County, hurricanes pose the greatest risk and historically have caused the most property damage. Shoreline communities are most vulnerable, because they are exposed to *storm surge*. *Storm surge* is said to occur when the steady forward progress of powerful winds laterally compresses ocean water into high waves. The heights of these waves — and, hence, an area’s exposure to storm surges — depends on the ocean depth along the coastline and whether the continental shelf is wide or narrow. Map 5-1 delineates areas subject to inundation due to storm surge according to Saffir-Simpson category hurricane strength. The map shows that communities along the Gulf coastline and along Mobile Bay are subject to Category 5 storm surges.

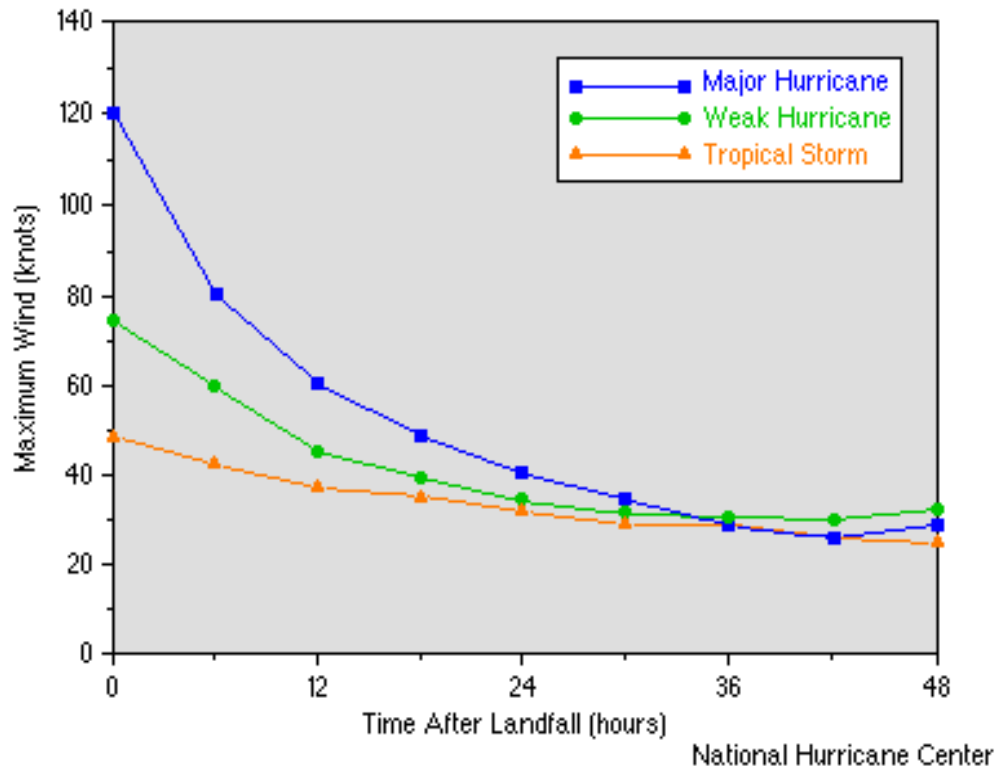


Map 5-1. Storm Surge, Mobile County



After a hurricane makes landfall, wind velocity declines non-linearly (first declining rapidly, then tapering off slowly). Chart 5-1 illustrates how a hurricane’s wind speed decreases over time, typically losing about half of its intensity in the first 24 hours. As the chart shows, a major hurricane can expose inland communities to the same wind speeds (60-80 knots) that coastal communities face during weak hurricanes. ([National Hurricane Center](#)).

**Chart 5-1. Wind Speed Decay**



Source: National Hurricane Center

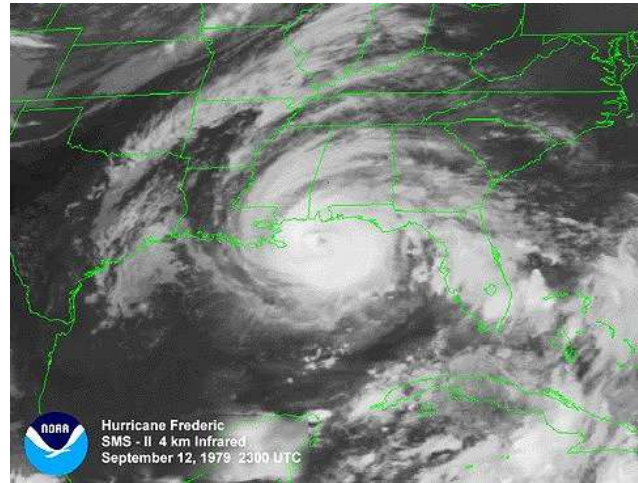
Tropical storms of all wind intensities can carry torrential rains that may outlive the storm itself by several days. A relatively weak tropical depression may cause more damage than a high-intensity, fast-moving hurricane if the tropical depression lingers long enough to saturate flood plains.

Tornadoes also form as a by-product of hurricanes. 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. Tornadoes cause ten percent of hurricane-related deaths in the United States.

**Previous Occurrences of Hurricanes**

Mobile County's location at the center of the Gulf Coast makes the county a target for hurricanes traveling northwest from the equatorial Atlantic Ocean. Records dating back to 1893 show 17 major hurricanes affecting Mobile County, several of which are described below.

On September 12, 1979, Hurricane Frederic, a Category 3 hurricane with 130 mph winds, made landfall at Dauphin Island, where it destroyed Dauphin Island's bridge to the mainland before advancing through southwest Alabama. At the time, Frederic was the costliest hurricane in U.S. history, causing an estimated \$6-9 billion (2008 US\$) in damage.



**Figure 5-1 Hurricane Frederic Approaching the Alabama Coast**

National Oceanic and Atmospheric Administration

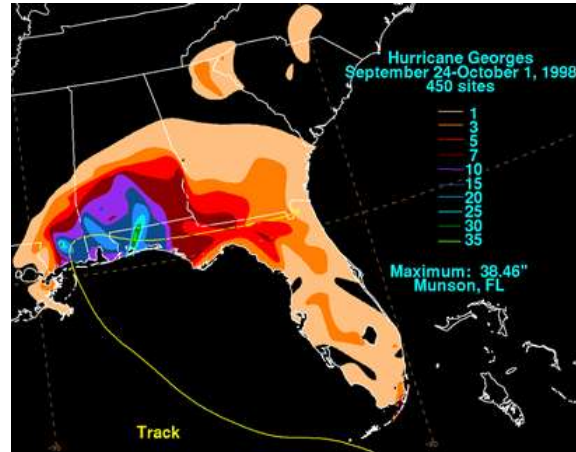


**Figure 5-2. Hurricane Opal Track**

Source: National Hurricane Center

In September 1995, Hurricane Opal struck Alabama with Category 4 winds and extensive rainfall. The hurricane moved quickly enough to maintain hurricane status across the entire state of Alabama before devolving into a tropical storm as the storm crossed into Tennessee. Mobile recorded sustained wind speeds of 55 miles per hour and 7.5 inches of rainfall.

In September 1998, Hurricane Georges, a Category 4 hurricane with wind speeds of 105 mph, made landfall near Biloxi, Mississippi before crawling eastward over Mobile and Baldwin counties. Fort Morgan reported a storm surge of 11.9 feet, and Bay Minette reported rainfall of 29.66 inches. In the City of Mobile, the storm's heavy rainfall induced freshwater flooding, which caused Hurricane Georges' only US fatality. On Dauphin Island, the storm destroyed fifty houses.



**Figure 5-3. Hurricane Georges Rainfall**

Source: Hydrometeorological Prediction Center



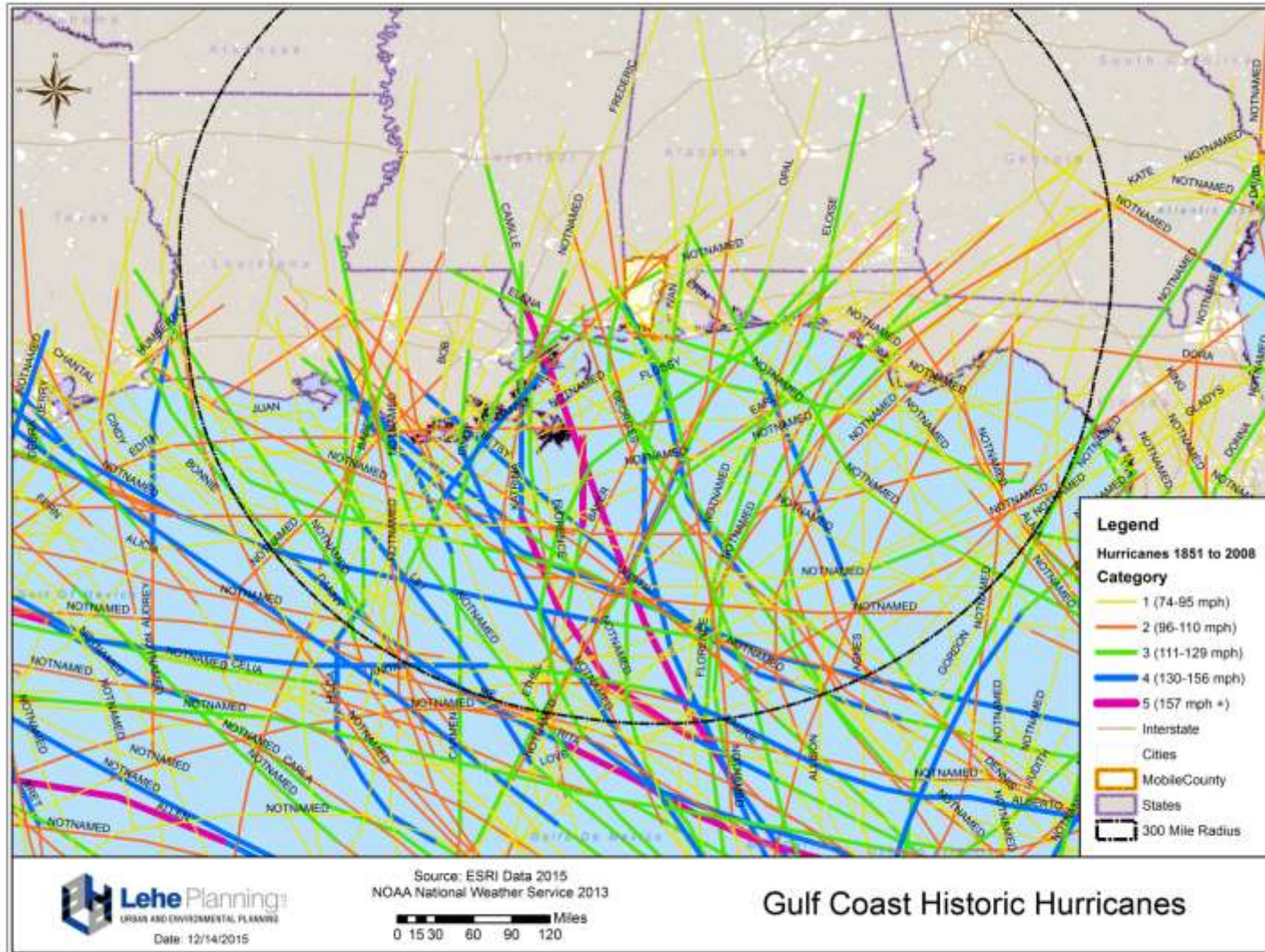
**Figure 5-4. Hurricane Katrina Approaching the Gulf Coast**

Source: National Oceanic and Atmospheric Administration

washed ashore in Bayou La Batre, a major fishing town. Dauphin Island lost many homes, and the surge was strong enough to cut a canal through the western part of the island. In addition, several oil rigs collapsed and washed ashore in Mobile County's coastal communities. Twenty-two Alabama counties were declared disaster areas, and damage estimates totaled \$1 billion in Alabama alone. Katrina was the second major hurricane to cause major damage within a year, following Hurricane Ivan (2004).

Map 5-2, which follows, shows Gulf Coast hurricane strikes in relation to Mobile County from 1851 through 2008. Next, Map 5-3 illustrates hurricane paths through Mobile County, from 1900-2015.

**Map 5-2. Gulf Coast Hurricanes 1851-2008**



**Map 5-3. Hurricane Paths, 1900-2015**

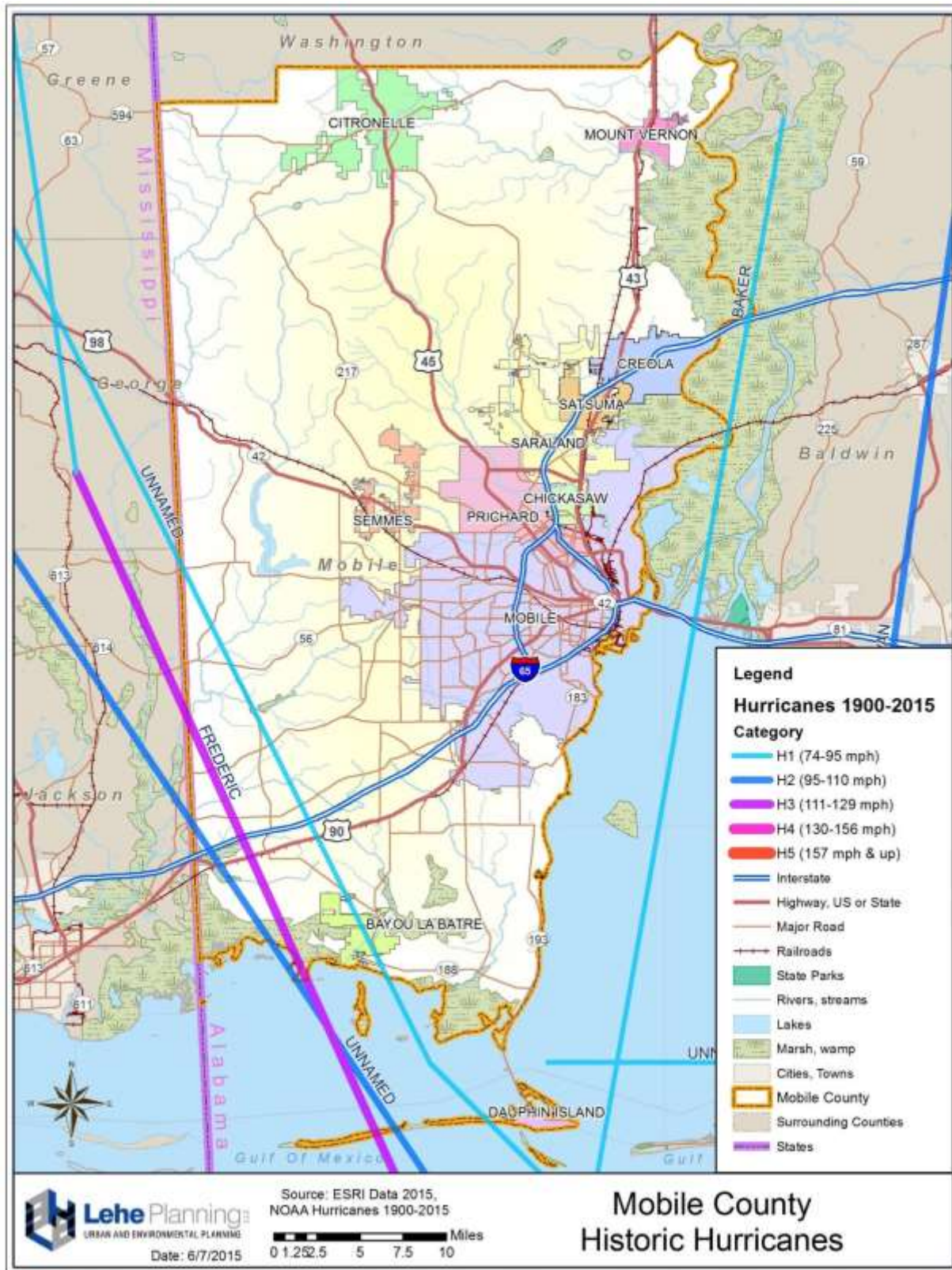


Table 5-5 portrays the history of hurricanes impacting Mobile County since 1893. Table 5-6 summarizes hurricane and tropical storms damage estimates over the last twenty years, as recorded by the National Climatic Data Center (NCDC). Mobile County has seen 29 hurricanes/tropical storms at an average of 1.5 per year. Damage estimates total near \$4 billion, with \$877 million average per year.

**Table 5-5. Mobile County Area Hurricane History**

DATE	CATEGORY	NAME	NOTES
10/3/1893	unknown		Mobile deluged. Water Driven in from the Bay Far Up in the City. Winds of 75 miles per hour.
9/27/1906	unknown		Moved inland in Pensacola, strongest to hit Pensacola since 1736
7/5/1916	3		The pressure measured at Fort Morgan was 28.38 inches, or 961 Mb. The Hurricane made landfall just west of Mobile.
10/18/1916	3		Winds reached 114 mph at landfall. It moved inland over Pensacola.
9/20/1926	3		The pressure at Perdido Beach measured 28.20 inches, or 955 Mb. Significant flooding occurred in South Mobile and Baldwin Counties.
8/17/1969	5	Camille	The strongest known land-falling hurricane in recorded history. Winds were estimated at 190 mph at landfall. Hurricane Camille was extremely small, and moved inland near Bay St. Louis, MS. Great damage occurred throughout coastal Mississippi, with a recorded pressure of 26.84 inches, or 909 Mb. The storm surge was estimated at 22-25 feet. The devastation of Camille inspired the Saffir-Simpson Hurricane Scale.
9/12/1979	3	Frederic	Frederic strengthened from a category one to a category four storm in 30 hours while in the Gulf of Mexico, but weakened before landfall. The sustained winds reached 100 mph at landfall with gusts near 145 mph. Frederic moved inland near Mobile Bay and the Dauphin Island Bridge. The wind resulted in incredible damage to Mobile. Frederic was the first major hurricane to affect Mobile since 1926.
9/2/1985	3	Elena	Hurricane Elena, with sustained winds of 124 mph, made landfall on September 2, 1985 near Biloxi, causing extensive damage along the Florida, Mississippi and Alabama coasts. The eye passed 30 miles south of Mobile, battering Gulf Shores and Dauphin Island. Wind gusts were estimated at up to 132 miles per hour on Dauphin Island. Storm surge reached 6 to 8 feet in an area from Dauphin Island west to Gulfport. The rainfall amounts were light, averaging about 2.5 inches in the Mobile area.
8/3/1995	2	Erin	Hurricane Erin had winds of 100 mph at landfall, and it moved inland near Pensacola, FL. Hurricane Erin was the first of two local Hurricanes in 1995.

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DATE	CATEGORY	NAME	NOTES
10/4/1995	3	Opal	Hurricane winds were estimated near 115 mph at landfall, and Opal moved inland near Santa Rosa Island, FL. Opal reached category four strength, rapidly intensifying from a category one hurricane in only 18 hours. Hurricane Opal attained category four status 200 miles south of Pensacola. Before landfall, Opal weakened to a category three, but still caused major damage in Pensacola. The storm surge reached 12-20 feet. The highest rain total near Pensacola in the Ellyson community reached 15.45 inches.
7/19/1997	1	Danny	Hurricane Danny had wind gusts reaching 80 mph at landfall as it crossed Mullet Point south of Point Clear in Baldwin County. Hurricane Danny then stalled over Mobile Bay and brought record flooding to south Alabama. Rain totals at the Dauphin Island Sea Lab reached 36.71 inches with 25.98 inches of that in seven hours.
9/28/1998	2	Georges	Hurricane Georges delivered sustained winds of 103 mph at landfall, and then it moved inland near Biloxi MS. Georges produced 16.7 inches of rain in Pascagoula. The storm surge reached 12 feet near Fort Morgan, and Georges produced 25 foot waves in the Gulf of Mexico. Georges slowed in forward speed once it approached Alabama. This led to huge rain amounts. In Bay Minette, a rain total of nearly 30 inches was recorded.
9/16/2004	3	Ivan	Hurricane Ivan had winds around 120 mph at landfall, and it moved inland near Gulf Shores. Ivan was the strongest Hurricane from Baldwin to Santa Rosa Counties in more than 100 years. 160 miles inland, near Demopolis, AL, a wind gust near 90 mph was recorded. Rain totals reached 15.75 inches in Pensacola, with a storm surge in Escambia Bay of 12 feet.
7/10/2005	3	Dennis	Hurricane Dennis carried winds of 121 mph at landfall, as it moved inland near Navarre Beach. Dennis had an extremely small eye, and was only significant in a localized area. Dennis prompted a large scale evacuation as it reached category four status in the Gulf of Mexico before it weakened near the central Gulf coast.
8/29/2005	3	Katrina	Hurricane Katrina had winds at landfall estimated at 120 mph. It moved inland near Waveland MS. Katrina was the costliest and one of the deadliest U.S. disasters. Hurricane Katrina produced a 27 ft. storm surge in Hancock County, MS, and breached levees in New Orleans. The highest storm surge along Mobile Bay reached 12 feet at the USS Alabama along I-10. The death toll was over 1,800.
9/01/2008	2	Gustav	Gustav moved erratically through the Greater Antilles into the Gulf of Mexico, eventually making landfall on the coast of Louisiana. It briefly became a category 4 hurricane on the Saffir-Simpson Hurricane Scale and caused many deaths and considerable damage in Haiti, Cuba, and Louisiana. In the United States, the Insurances Services Office reports that the hurricane caused an estimated \$2.15 billion in damages to insured property, of which \$2.045 billion occurred in Louisiana. Gustav is known to have produced 41 tornadoes – 21 in Mississippi, 11 in Louisiana, 6 in Florida, 2 in Arkansas, and 1 in Alabama.



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DATE	CATEGORY	NAME	NOTES
9/13/2008	2	Ike	Ike, with its associated storm surge, caused extensive damage across parts of the northwestern Gulf Coast when it made landfall on September 13, 2008, along the north end of Galveston Island on the Texas coast at the upper end of Category 2 intensity.
11/10/2009	2	Ida	Ida was a late season hurricane that had a large impact on the east coast of Nicaragua and the adjacent islands. It was the first November hurricane in the Gulf of Mexico since Kate of 1985. It made landfall as a tropical storm near Dauphin Island, AL, and quickly dissipated over the Florida Panhandle by the next day.
8/28/2012	1	Isaac	Isaac spared Alabama the worst, leading to flooding and storm surge tides in Mobile County. Scattered blackouts occurred with the greatest impact to Dauphin Island where about 2,400 residences were without electricity. Isaac made landfall in Louisiana as a Category 1.

Source: National Hurricane Center

**Table 5-6. Mobile County Hurricane/Tropical Storm Events, 1995-2014**

Year	Hurricane/Tropical Storm	Deaths	Injuries	Total Damages
1995	Hurricane Opal	*	*	*
1996	Tropical Storm	0	0	\$150,000
1997	Hurricane	0	0	\$0
1998	Tropical Storm	0	0	\$0
1998	Hurricane (2)	1	0	\$85,005,000
1999	-	-	-	-
2000	Tropical Storm (2)	0	0	\$10,000
2001	Tropical Storm (3)	0	0	\$13,000
2002	Tropical Storm (2)	0	0	\$4,550,000
2002	Hurricane	0	0	\$100,000
2003	Tropical Storm	0	0	\$0
2004	Tropical Storm (2)	0	0	\$0
2004	Hurricane	0	0	\$2,525,000,000
2005	Tropical Storm	0	0	\$0
2005	Hurricane (2)	0	0	\$1,120,100,000
2006	-	-	-	-
2007	Tropical Storm	0	0	\$100,000
2008	Tropical Depression	0	0	\$0
2008	Tropical Storm (3)	0	0	\$4,500,000
2009	Tropical Storm	0	0	\$0
2010-2011	-	-	-	-
2012	Tropical Storm	0	0	\$0
2013	Tropical Storm	0	0	\$15,000
2014	-	-	-	-
<b>TOTAL</b>	<b>29</b>	<b>1</b>	<b>0</b>	<b>\$3,739,543,000</b>
<b>Annual Average</b>	<b>1.5</b>	<b>0.1</b>	<b>0</b>	<b>\$186,977,150</b>

Source: National Climatic Data Center

\*Data for Hurricane Opal not available

**Probability of Future Hurricane Events**

Past records do not guarantee the probability of any future hazards facing Mobile County. However, given Mobile County’s location on the Gulf of Mexico and a consistent record of hurricane activity, all jurisdictions can expect a powerful hurricane at least once per decade and tropical storm events annually. Storm surges, heavy rains and tornadoes may strike Mobile County even if the hurricane makes landfall hundreds of miles away. Mobile County, on average, endures over one storm and more than \$180 million per year.

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

### 5.4.2 Floods Profile

A significant flash flooding event occurred on April 28-29, 2014, producing upwards of 10 to 15 inches of rain in Mobile County, Baldwin County, and three counties in the Northwest Florida Panhandle.

The highest precipitation amount was recorded at Mobile 5.1 South station at 17.2 inches in one day. It is worth noting that rainfall totals in the two weeks leading up to this event were 200-600% of normal (NOAA). The excessive amounts of rainfall led to localized flooding, street flooding, including collapse of roadways, and sinkholes. Photo to the right shows downtown Mobile (credit: AL.com/Casey Toner) and photo below shows water covering a section of Bellingrath Road (credit: AL.com/Mike Kittrell). Flooding, including coastal flooding, is a significant concern to Mobile County communities. NOAA records support public perceptions.



### Location of Potential Floods

The Flood Insurance Rate Maps (FIRMs) of the National Flood Insurance Program (NFIP) indicate extensive areas of Mobile County are prone to flooding, due to the county's low-lying, estuarine geography. Map 5-4 shows the risk is greatest for low-lying areas on the Gulf, including Bayou La Batre, Dauphin Island and adjacent

unincorporated communities, which are vulnerable to coastal flooding caused by storm surges.

Additionally, Mobile County's rivers and streams threaten inland communities such as Citronelle, Mount Vernon, Prichard, Chickasaw, Saraland, Creola, Satsuma, Mobile and unincorporated areas. Riverine flooding strikes these areas when spring storms or tropical systems oversaturate the natural drainage system. Water levels rise and then inundate the slow-draining, low-lying, flat terrain of Mobile County's flood plains. High tides and storm surge can further inhibit drainage by forcing water backwards into freshwater channels, since nearly all of Mobile County's water channels drain into the Gulf of Mexico or Mobile Bay.

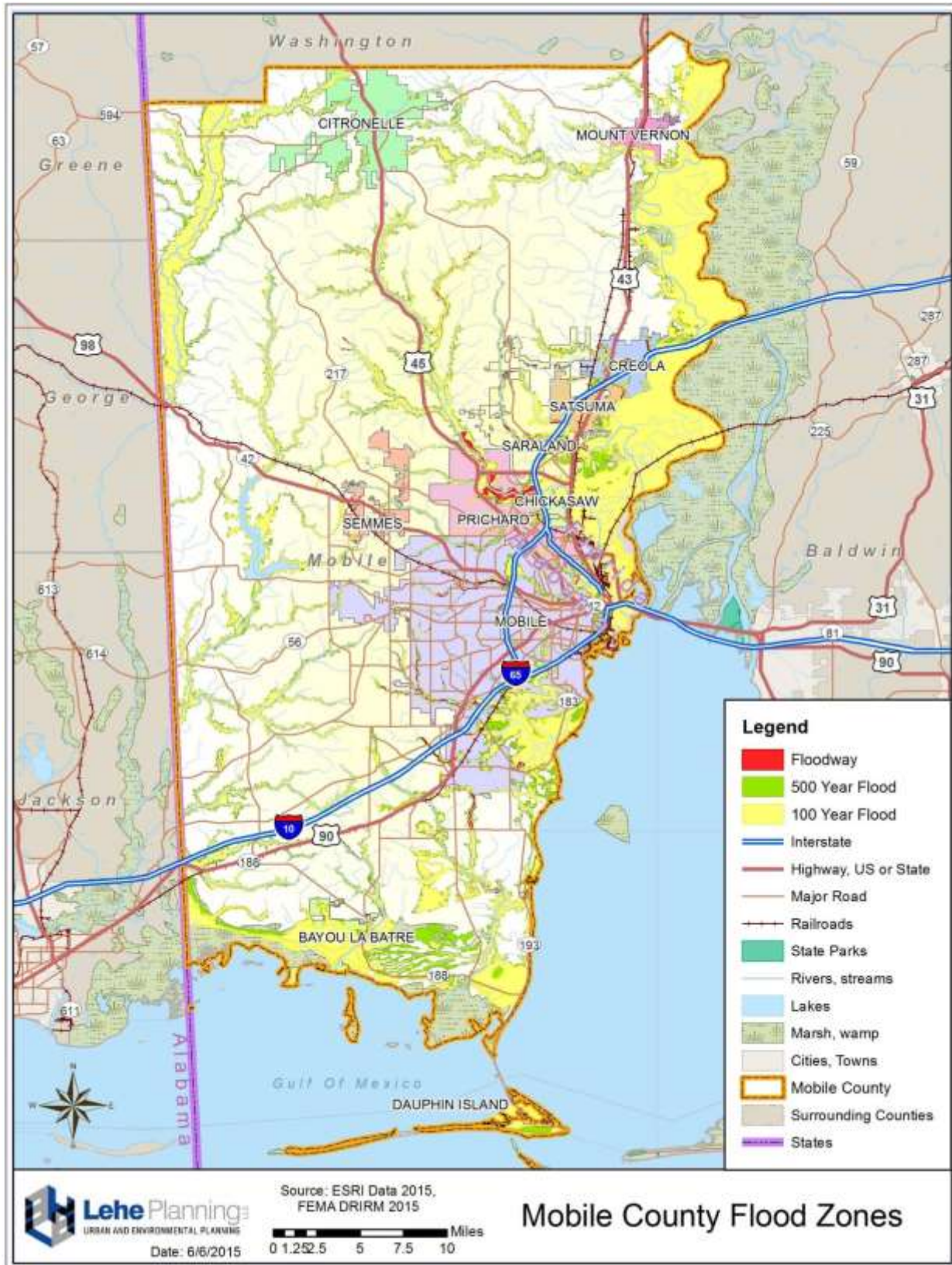
The City of Prichard is at risk from the eastern bed of the Toulmins Spring Branch and the Gun Tree Branch. Saraland has low-lying areas subject to periodic flooding caused by overflow of Bayou Sara River and Chickasaw Creek and its tributaries. Unincorporated areas of the county are subject to flooding by the Fowl River. The entire coastline is subject to storm surges (see Map 5-4).

#### **Extent and Intensity of Potential Floods**

Mobile County experiences riverine, coastal and flash flooding. The extent of each flood varies according to rainfall, the flow of storm water, and the capacity of the receiving channel to discharge. Areas throughout the City of Mobile are at high flood risk, and extensive buyouts have taken place to reduce exposure of buildings to flooding.

For a given rainfall, the extent of flooding depends on the amount of rainfall and the capacity of natural water channels and local drainage infrastructure to discharge floodwaters. Channel maintenance, a robust drainage infrastructure system, and hazard mitigation—such as buyouts, building retrofits, advanced warning, and sound construction practices—can greatly diminish the threat flooding poses. Construction along coastal zones increases exposure to flooding, where strict construction standards must be met by coastal zone flood hazard prevention ordinances.

Map 5-4. Mobile County Flood Zones



**Previous Occurrences of Floods**

The National Climatic Data Center (NCDC) indicates frequent flooding since 1995. There have been 100 floods reported for Mobile County—5 per year—as summarized in Table 5-7 “Mobile County Flood Events, 1995-2014”. NCDC estimates indicate nearly \$8.5 million in total damages and \$422,750 per year incurs as a result of flood events.

**Table 5-7. Mobile County Flood Events, 1995-2014**

<b>Year</b>	<b>Floods</b>	<b>Deaths</b>	<b>Injuries</b>	<b>Total Damages</b>
1995	-	-	-	-
1996	1	0	0	\$300,000
1997	3	0	0	\$11,000
1998	7	0	0	\$1,115,000
1999	6	0	0	\$45,000
2000	2	0	0	\$25,000
2001	6	0	0	\$19,000
2002	5	0	0	\$0
2003	5	0	0	\$0
2004	2	0	0	\$10,000
2005	7	0	0	\$80,000
2006	3	0	0	\$50,000
2007	4	0	0	\$0
2008	9	0	0	\$290,000
2009	10	0	0	\$0
2010	10	0	0	\$0
2011	6	0	0	\$0
2012	4	0	0	\$5,000
2013	5	0	0	\$0
2014	5	0	0	\$6,505,000
<b>TOTAL</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>\$8,455,000</b>
<b>Annual Average</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>\$422,750</b>

Source: National Climatic Data Center

**Probability of Future Flood Events**

Historical data indicates Mobile County averages 5 floods per year. Because floods are closely associated with hurricanes, expectations for hurricane season should be closely monitored to create expectations for severe flooding. With respect to climate change, an increase in temperature and moisture in the air can lead to heavier precipitation events. However, the causes of flooding are varied, including improper land uses on floodplains, surface paving, quality of flood forecasting, settlement patterns, and warning systems.

**5.4.3 Severe Storms Profile**

Severe storms are dangerous, because they are accompanied by high winds, lightning, tornadoes, hail and flooding. Like hurricanes, severe storms represent a combination of hazards, but, unlike hurricanes, severe storms occur during every season and strike with little advance warning. Severe storms are a significantly dangerous natural hazard affecting Mobile County.

**Location of Potential Severe Storms**

All areas of Mobile County have equal exposure to severe storms on a frequent basis. However, because severe storms form without precise geographic borders, it is difficult to map their precise locations. Accompanying hazards, such as flooding and wildfires help identify target areas.

**Extent and Intensity of Potential Severe Storms**

The extent of severe storm damages depends upon the inches of precipitation, hail size, lightning intensity, wind speed and other factors. Large amounts of rainfall in short time periods induce flash and riverine flooding. Hail can cause major property damage, mostly resulting in damages to automobiles and buildings (cracked windows and roof damage). Lightning is most commonly responsible for wildfires and can also electrocute persons. By toppling trees, high winds cause power outages, damages to structures and road closures.

**Previous Occurrences of Severe Storms**

National Climatic Data Center (NCDC) data indicates frequent annual severe storm occurrences since 1995 (Table 5-8). The database shows 370 severe storm events for Mobile County—roughly 19 per year. The database also shows \$9 million in damages since 1995, averaging about \$451,865 per year.

**Table 5-8. Mobile County Severe Storm Events, 1995-2014**

Year	Type	Number	Deaths	Injuries	Total Damages
1995	Hail	6	0	0	\$300
	Lightning	-	-	-	-
	Thunderstorm/High Wind	17	0	0	\$66,500
1996	Hail	10	0	0	\$0
	Lightning	3	0	0	\$325,000
	Thunderstorm/High Wind	6	0	0	\$38,000
1997	Hail	14	0	0	\$1,000
	Lightning	4	1	5	\$90,000
	Thunderstorm/High Wind	15	0	0	\$47,000
1998	Hail	13	0	0	\$0
	Lightning	3	1	0	\$20,000
	Thunderstorm/High Wind	5	0	0	\$211,500

Year	Type	Number	Deaths	Injuries	Total Damages
1999	Hail	7	0	0	\$0
	Lightning	1	0	0	\$5,000
	Thunderstorm/High Wind	11	0	0	\$174,000
2000	Hail	15	0	0	\$5,000
	Lightning	5	0	2	\$110,000
	Thunderstorm/High Wind	16	0	0	\$149,000
2001	Hail	4	0	0	\$0
	Lightning	6	0	3	\$205,000
	Thunderstorm/High Wind	12	0	0	\$398,000
2002	Hail	3	0	0	\$0
	Lightning	4	0	5	\$85,000
	Thunderstorm/High Wind	15	0	0	\$119,000
2003	Hail	12	0	0	\$10,000
	Lightning	4	0	1	\$100,000
	Thunderstorm/High Wind	3	0	0	\$32,000
2004	Hail	2	0	0	\$0
	Lightning	8	0	2	\$645,000
	Thunderstorm/High Wind	4	0	0	\$30,000
2005	Hail	10	0	0	\$4,000
	Lightning	3	0	0	\$35,000
	Thunderstorm/High Wind	5	0	0	\$181,000
2006	Hail	9	0	0	\$0
	Lightning	7	0	1	\$1,630,000
	Thunderstorm/High Wind	11	0	0	\$160,000
2007	Hail	7	0	0	\$0
	Lightning	4	0	0	\$181,000
	Thunderstorm/High Wind	5	0	0	\$3,570,000
2008	Hail	6	0	0	\$22,000
	Lightning	3	0	0	\$15,000
	Thunderstorm/High Wind	6	0	8	\$122,000
2009	Hail	7	0	0	\$0
	Lightning	-	-	-	-
	Thunderstorm/High Wind	6	0	0	\$82,000
2010	Hail	4	0	0	\$0
	Lightning	-	-	-	-
	Thunderstorm/High Wind	1	0	0	\$5,000
2011	Hail	8	0	0	\$0



Year	Type	Number	Deaths	Injuries	Total Damages
	Lightning	-	-	-	-
	Thunderstorm/High Wind	16	0	0	\$42,000
2012	Hail	4	0	0	\$0
	Lightning	-	-	-	-
	Thunderstorm/High Wind	3	0	0	\$9,000
2013	Hail	-	-	-	-
	Lightning	4	0	0	\$40,000
	Thunderstorm/High Wind	1	0	0	\$5,000
2014	Hail	4	0	0	\$10,000
	Lightning	-	-	-	-
	Thunderstorm/High Wind	8	0	0	\$50,000
<b>TOTAL</b>		<b>370</b>	<b>2</b>	<b>27</b>	<b>\$9,037,300</b>
<b>Annual Average</b>		<b>18.5</b>	<b>0.1</b>	<b>1.4</b>	<b>\$451,865</b>

Source: National Climatic Data Center

**Probability of Future Severe Storms**

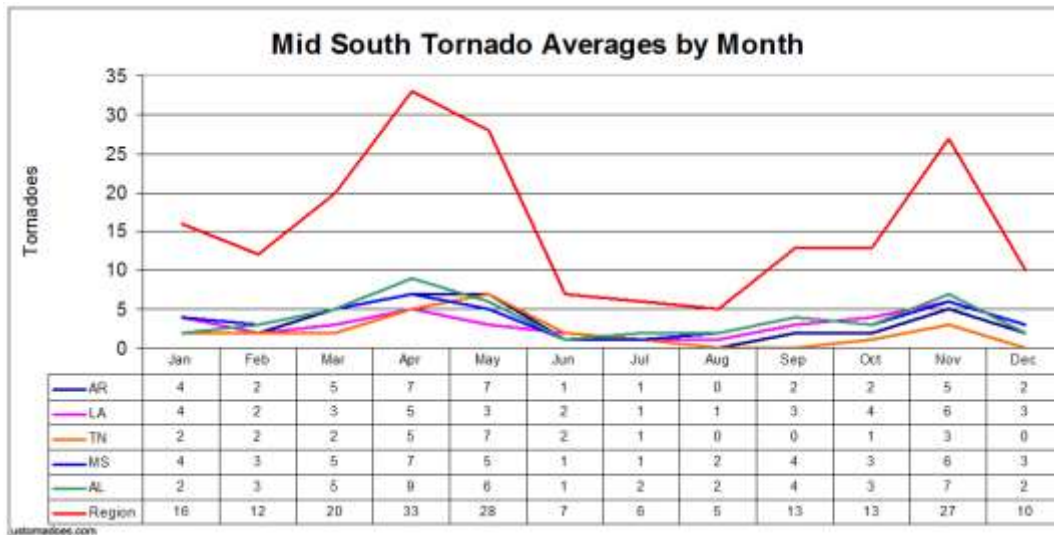
Severe storms will continue to strike Mobile County every year and in every jurisdiction. Past trends average 19 storms per year. High winds and hail infrequently accompany severe storms in Mobile County, but can cause significant property damage.

**5.4.4 Tornadoes Profile**

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. It forms alongside thunderstorms and hurricanes when cool air suddenly forces a band of warm air to rise rapidly. Tornadoes can occur in thunderstorms that develop in warm, moist air masses in advance of eastward-moving cold fronts. Tornadoes occasionally accompany tropical storms and hurricanes that move over land.

Tornadoes are accompanied by winds in excess of 300 miles per hour. They are highly localized events, most of which last for a short period of time and have a limited destruction path. In Alabama, the peak tornado season extends from March through early June, with April and May being peak months for tornado activity. Additionally, Alabama experiences a secondary tornado season from September through November. Chart 5-2 depicts the monthly tornado frequency for the mid-south region.

**Chart 5-2. Monthly Tornado Frequency, Mid-South Region**



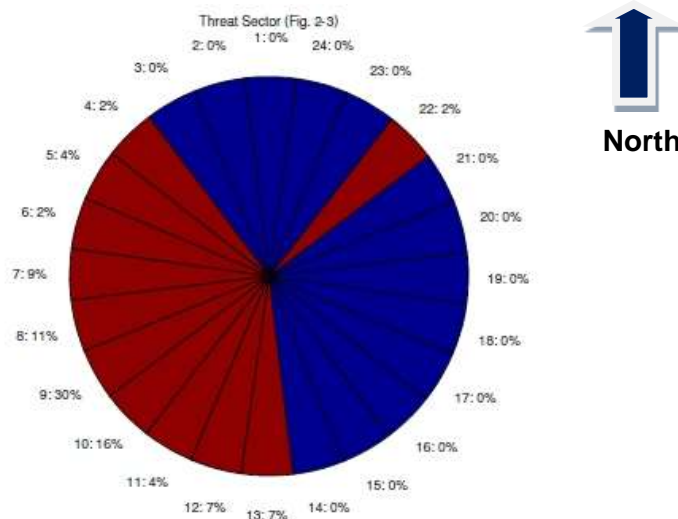
Source: ustornadoes.com, 2013

**Location of Potential Tornadoes**

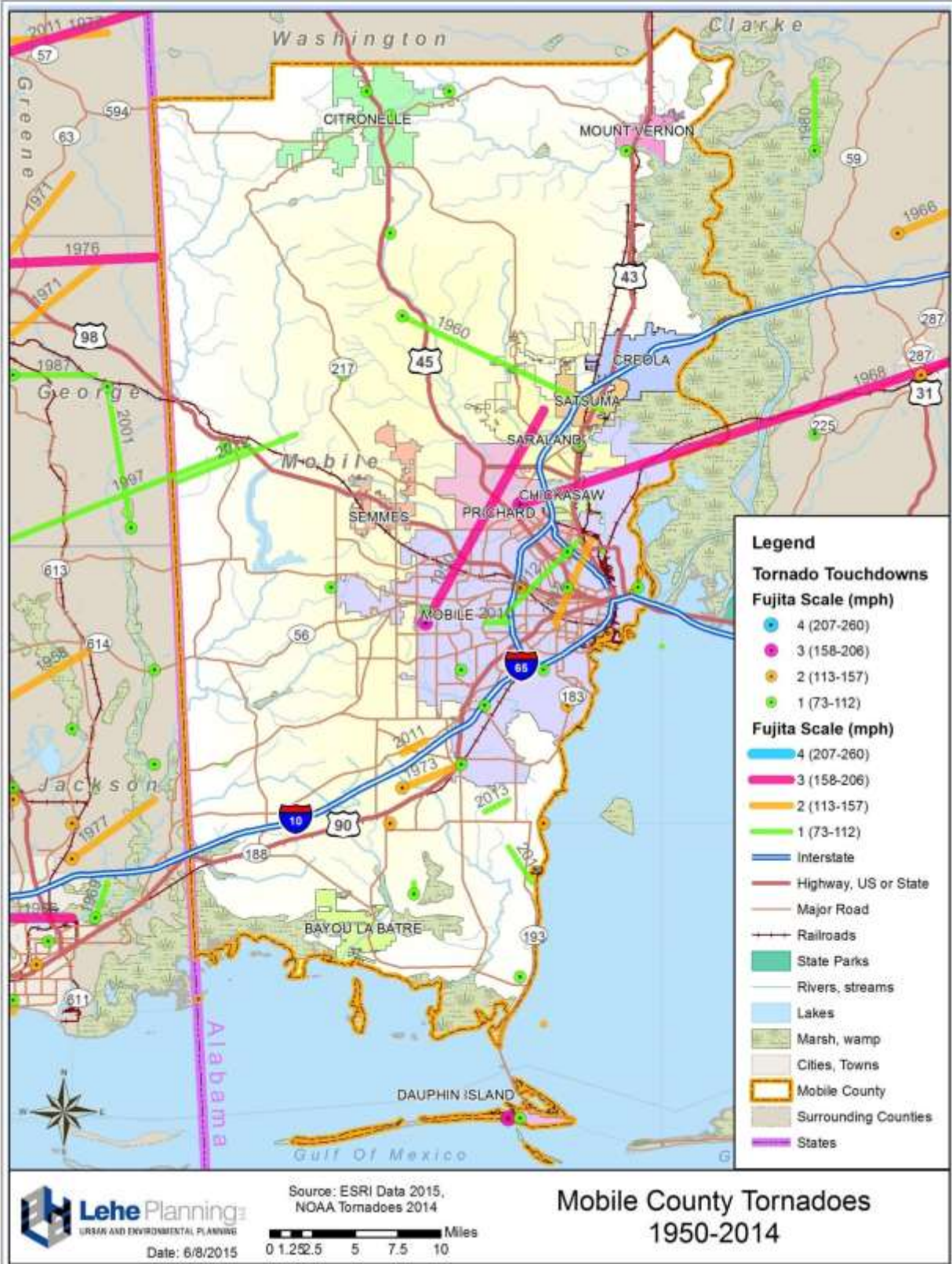
Tornadoes are generally not location-specific hazards. All Mobile County locations and jurisdictions bear an equal risk. Map 5-5 shows touchdown locations and paths of tornadoes since 1950. Some of the tornado paths are too short to be visible at this map scale. The map indicates that tornadoes can occur anywhere.

The direction of tornadoes is shown in Chart 5-3 “Tornado Threat Sectors”. The threat sectors are color coded. Red sectors have had tornadic activity over the 1950-2006 time periods and blue sectors have had zero activity. The chart indicates that most tornadoes travel from a southwesterly direction.

**Chart 5-3. Tornado Threat Sectors**



**Map 5-5. Mobile County Tornado Locations, 1950-2014**



**Extent and Intensity of Potential Tornadoes**

Tornadoes pose a significant threat: hazard exposure, risk severity, and the probability of future events are high for tornadoes compared to all identified natural hazards.

Tornadoes are now measured using the enhanced Fujita Tornado Scale by examining the damage caused by the tornado after it passes over manmade structures and vegetation. The new scale was put into use in February 2007. Table 5-9 (below) compares the estimated winds in the original F-scale and the operational EF-scale that is currently in use by the National Weather Service. Like the original scale there are six categories from zero to five that represent damage in increasing degrees.

**Table 5-9. Comparison of F-Scale to EF-Scale**

<b>EF-Scale</b>	<b>Old F-Scale</b>	<b>Typical Damage</b>
EF-0 (65-85 mph)	F0 (65-73 mph)	<a href="#">Light damage</a> . Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF-1 (86-110 mph)	F1 (73-112 mph)	<a href="#">Moderate damage</a> . Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF-2 (111-135 mph)	F2 (113-157 mph)	<a href="#">Considerable damage</a> . Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF-3 (136-165 mph)	F3 (158-206 mph)	<a href="#">Severe damage</a> . Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF-4 (166-200 mph)	F4 (207-260 mph)	<a href="#">Devastating damage</a> . Whole frame houses Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.

EF-Scale	Old F-Scale	Typical Damage
EF-5 (>200 mph)	F5 (261-318 mph)	<a href="#">Incredible damage</a> . Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yds.); high-rise buildings have significant structural deformation; incredible phenomena will occur.
EF No rating	F6-F12 (319 mph to speed of sound)	Inconceivable damage. Should a tornado with the maximum wind speed in excess of EF-5 occur, the extent and types of damage may not be conceived. A number of missiles such as iceboxes, water

**Previous Occurrences of Tornadoes**

On Christmas Day, 2012 an EF2 tornado developed just southwest of downtown Mobile. The wedge tornado was 200 miles wide and its path was over 5 miles long, on a northeastward track. Damages were estimated at \$1.4 million and included downed power lines, uprooted trees, widespread power outages, roof damage to homes and businesses, as well as significant damage to residential areas. Photo to right shows damage to a home in midtown Mobile (credit: NOAA).



NOAA National Climatic Data Center (NCDC) records indicate that 34 tornadoes have affected Mobile County since 1995, averaging \$318,000 annually. These tornadoes caused 1 death and 9 injuries and property damages of \$6.4 million.

**Table 5-10. Mobile County Tornado Events, 1995-2014**

Year	Number	Deaths	Injuries	Total Damages
1995	2	0	0	\$2,000
1996	1	1	3	\$100,000
1997	2	0	0	\$2,015,000
1998	-	-	-	-
1999	2	0	0	\$140,000

Year	Number	Deaths	Injuries	Total Damages
2000	3	0	2	\$310,000
2001	1	0	0	\$20,000
2002	3	0	0	\$14,000
2003	1	0	0	\$0
2004	2	0	0	\$5,000
2005	4	0	0	\$80,000
2006	-	-	-	-
2007	2	0	0	\$750,000
2008	1	0	0	\$5,000
2009	-	-	-	-
2010	1	0	0	\$0
2011	5	0	4	\$75,000
2012	3	0	0	\$1,350,000
2013	1	0	0	\$1,500,000
2014	-	-	-	-
<b>TOTAL</b>	<b>34</b>	<b>1</b>	<b>9</b>	<b>\$6,366,000</b>
<b>Annual Average</b>	<b>1.7</b>	<b>0.1</b>	<b>0.5</b>	<b>\$318,300</b>

Source: National Climatic Data Center

**Probability of Future Tornadoes**

It is impossible to accurately predict the location or frequency of tornadoes in a given year, since past trends do not guarantee the likelihood of future events. However, over the long term, Mobile County can expect about 1.7 tornadoes annually with minimal damages. The risk of tornadoes is evenly distributed across all areas of Mobile County. Importantly, trends indicate tornadoes often accompany hurricanes. From 1995 to 2014, property damage due to tornadoes has totaled over \$6 million.

According to climatologists, the effect of climate change on tornadic activity is inconclusive. Jeff Trapp, a professor of atmospheric science at Purdue University indicates that, “while it’s unclear how the intensity or frequency of tornadoes will increase, there may be more days featuring conditions ripe for twisters. We would see an increase in the number of days that could be favorable for severe thunderstorm and tornado formation. The tornado season, which varies by region, could be expanded.”

**5.4.5 Wildfires Profile**

There are two types of wildfires experienced in Mobile County: *wildland* wildfires and *interface* wildfires. *Wildland* fires burn only on vegetation and therefore occur in strictly rural areas. *Interface* wildfires burn on a mix of vegetation and human structures and therefore occur at the interface of human development and rural landscapes. Like wildland fires, interface fires can start due to lightning strikes. More commonly, though,

interface wildfires are started by human activities, such as debris burning. Non-permitted burns are a major cause of interface wildfires. Mobile County has vast forested lands, grass lands, and brush to fuel wildfires.

Measures for limiting underbrush vegetation through prescribed burns and herbicides reduce the fuel supply of potential wildfires. Public campaigns to spread fire safety strategies can reduce dangerous behavior such as leaving campfires unattended or burning trash in forests.

#### **Location of Potential Wildfires**

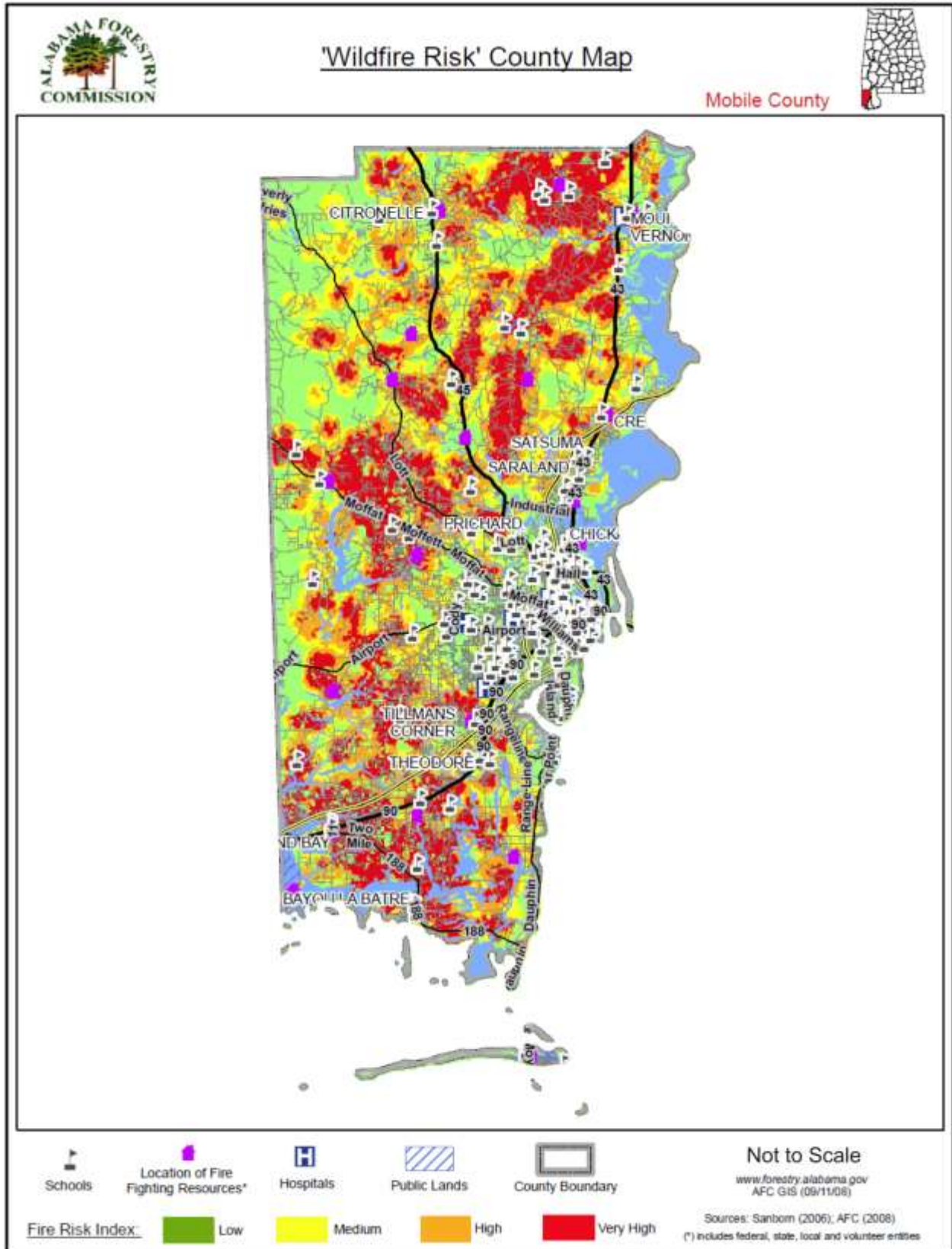
Unincorporated, rural areas of Mobile County (e.g., Citronelle) are most susceptible to wildfires. However, due to sparse development, the risks to life and property are lower in these areas. The risks are greatest for sprawl areas where human development coexists with conditions amenable to wildfires. Wildfires can occur anywhere there is an adequate mix of weather, topography, and fuel sources. Map 5-6 shows risk levels for wildfires by area. This map and additional maps from the Alabama Forestry Commission have not changed from the last plan update, due to data unavailability.

#### **Extent and Intensity of Potential Wildfires**

Mobile County's weather conditions, drought, and lightning from severe storms, increase the severity and frequency of wildfires. Mobile County's 500,000 acres of forestland are an abundant fuel source. The wildland-urban interface, where urban development and humans interact with forested wildlands compound, the extent of wildfires in Mobile County. Map 5-7 "Mobile County Forest Fuels" (Alabama Forestry Commission) shows the coverage of forest fuels, as well as developed areas in proximity to forest fuels. Mobile County has various forest fuel types, such as bottom hardwood, southern rough, forest with grass, and pine/hardwood.

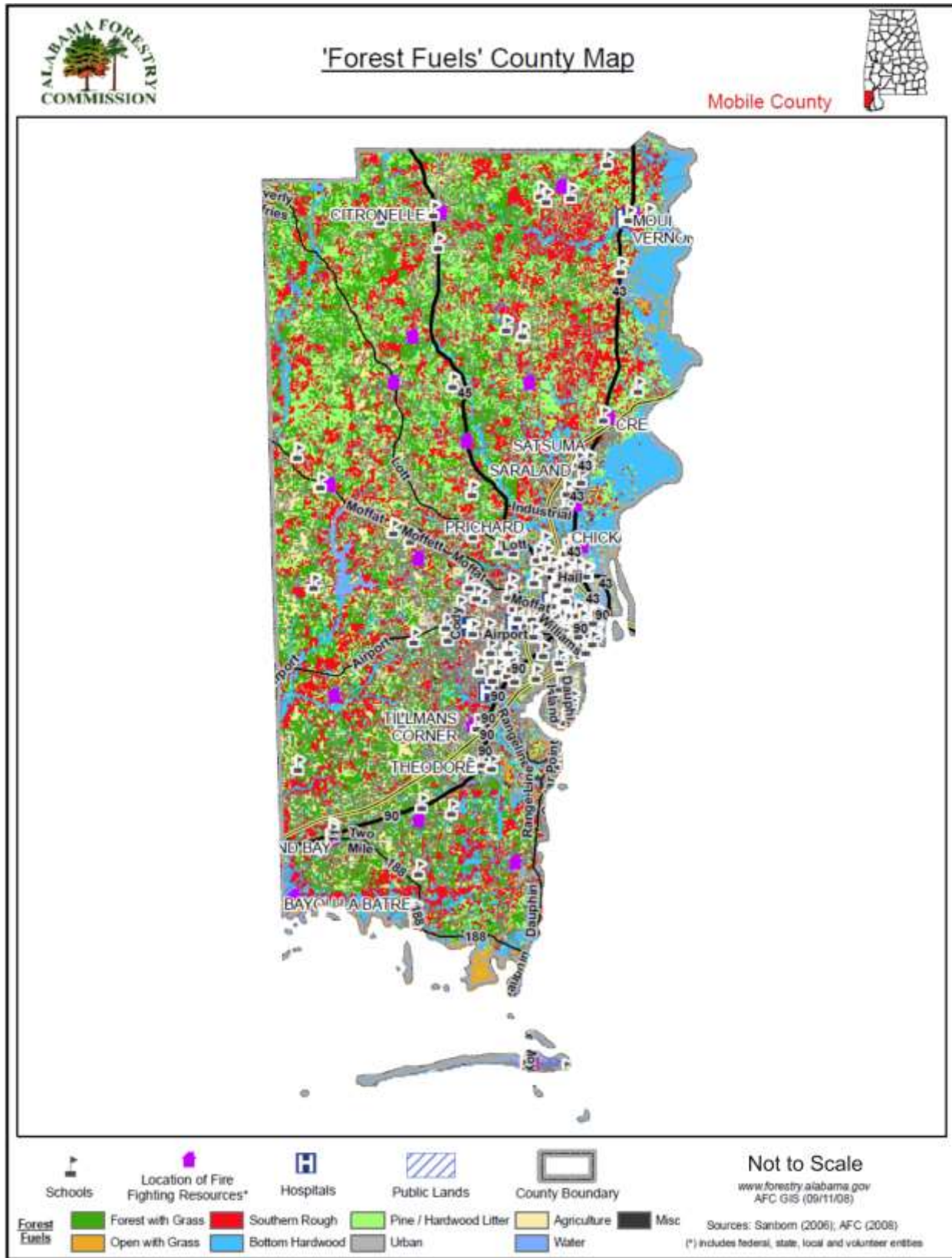
According to the Wildfire Risk Assessment Portal (Southern Group of State Foresters), Mobile County has a low to moderate fire intensity risk, depending on the area. Heavily populated areas, such as Mobile are less at-risk and more rural areas, such as Citronelle and Semmes are more at-risk. Local resources can affect the severity of wildfires and local capabilities for firefighting. Rural volunteer fire departments with limited resources often cannot handle firefighting demands when multiple fires break out.

**Map 5-6. Mobile County Wildfire Risk**





**Map 5-7. Mobile County Forest Fuels**

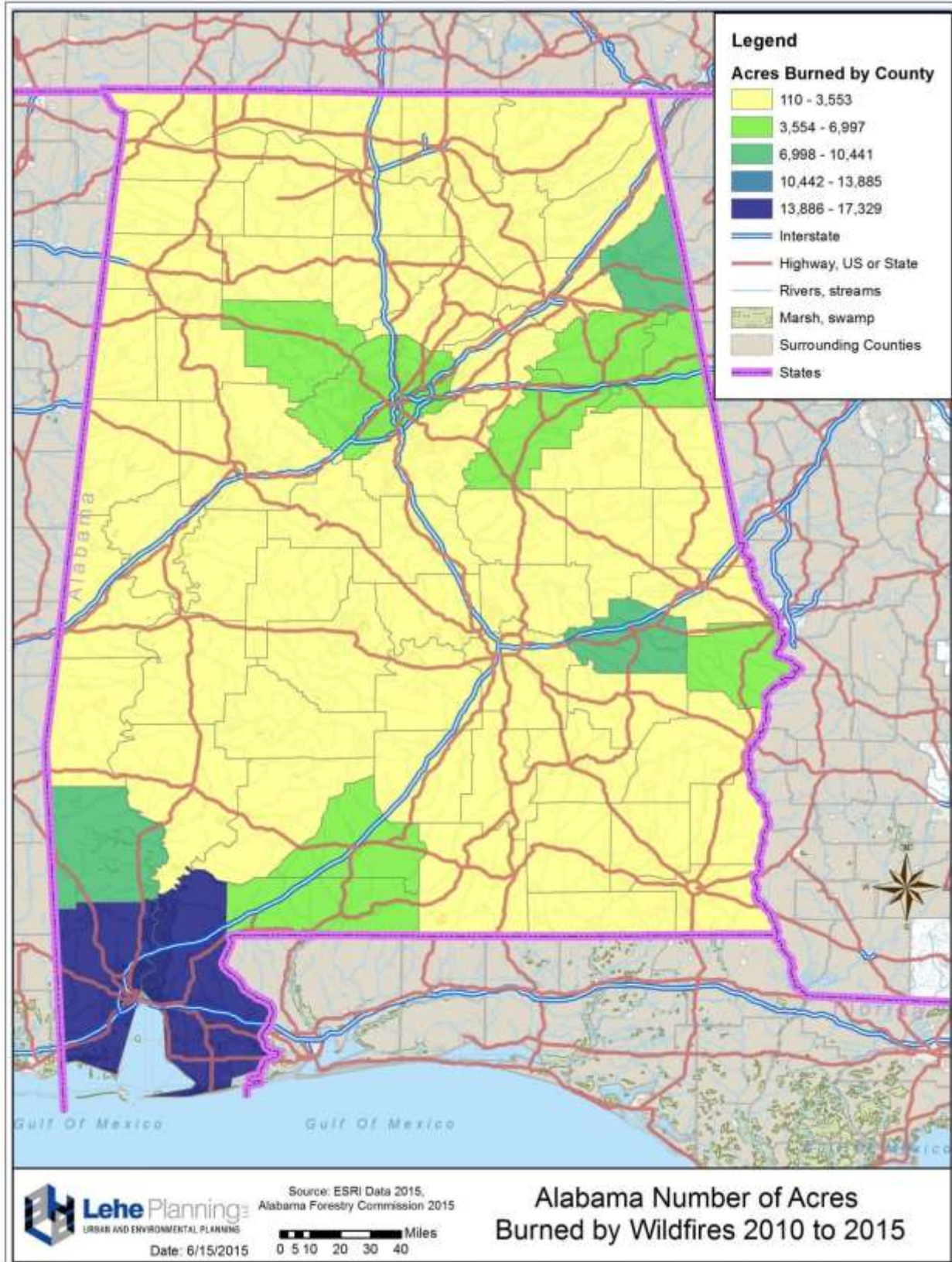


**Previous Occurrences of Wildfires**

Among Alabama counties, Mobile County is annually ranked in the top two in number of acres burned by wildfires from 2010 to 2015 (Map 5-8). Over this 5-year period, Mobile County incurred 597 wildfires, burning approximately 16,000 acres. According to the Alabama Forestry Commission, from January 1, 2015 to date (June 13, 2015), Mobile County has experienced 53 wildfires burning a total of 1,114 acres.

Mobile County leads Alabama's counties in wildfire extent and frequency, partly because the county encloses the ninth largest area of forested acres. The number of fires has decreased in recent years due to public education about wildfire prevention and a rise in the number and effectiveness of volunteer fire departments. Map 5-9 shows fire observations in Mobile County from 2001 to 2015 and indicates wildfires can occur anywhere.

**Map 5-8. Alabama Total Acres Burned 2010-2015**



Map 5-9. Mobile County Fire Observations, 2001-2015



**Probability of Future Wildfire Events**

The average number of fires over the last five years for Mobile County (2010-2015) is 119. The average number of acres burned annually over the last five years is 3,119, with an average of 26.2 acres consumed per fire. Factors affecting this trend include potential growth in rural areas of Mobile County, as well as unpredictable weather patterns.

**5.4.6 Droughts/Heat Waves Profile**

Drought occurs when there is a deficiency of precipitation over an extended period of time. Climatic factors, such as high temperature, high winds, and low relative humidity can contribute to the severity of a drought. There are two primary types of drought: meteorological and hydrological droughts. These events can result in agricultural and socioeconomic droughts.

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

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

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

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

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

Mobile County may occasionally experience short droughts and extreme summer heat. The drought affecting a large part of Alabama from 2006 to 2008 had little impact on Mobile County.

**Location of Potential Droughts/Heat Waves**

Droughts and heat waves affect all areas of Mobile County equally. However, wildfires fostered by drought conditions are most dangerous for residents living at the rural/urban interface.

**Extent and Intensity of Potential Droughts/Heat Waves**

Damages due to drought are experienced mostly in rural and agricultural areas, where droughts increase the risk of wildfires. Farmers and other citizens who depend on rainfall economically may incur material damages during a drought. Heat waves are frequently dangerous for senior citizens, especially those whose homes lack air conditioning.

**Previous Occurrences of Droughts/Heat Waves**

According to National Climatic Data Center (NCDC), two drought events were recorded in Mobile County between 1995 and 2014 (Table 5-11). The NCDC database includes 12 recorded instances of extreme heat. One occurred in 1996 with one death, 1 in 1998 with one death, 2 in 1999 with one death, 4 in 2000 with two deaths, and one in 2005 with one death. The most recent three events occurred in August 2007, when the entire state and much of the nation was in the midst of a two year drought, and Mobile County reached “Drought Watch Status”, one step below “Full Drought.” It should be noted that the 2007 drought event does not show up in the NCDC database.

**Table 5-11. Mobile County Drought/Extreme Heat Events, 1995-2014**

Year	Type	Number	Deaths	Injuries	Total Damages
1995	-	-	-	-	-
1996	Heat	1	1	0	\$0
1997	-	-	-	-	-
1998	Heat	1	1	0	\$0
1999	Heat	2	1	0	\$0
2000	Heat	4	2	0	\$0
2001-2003	-	-	-	-	-
2004	Drought	2	0	0	\$0
2005	Heat	1	1	0	\$0
2006	-	-	-	-	-
2007	Heat	3	0	1	\$0
2008-2014	-	-	-	-	-
<b>Total</b>		<b>14</b>	<b>6</b>	<b>1</b>	<b>\$0</b>
<b>Annual Average</b>		<b>0.7</b>	<b>0.3</b>	<b>0.1</b>	<b>\$0</b>

Source: National Climatic Data Center

**Probability of Future Droughts/Heat Waves**

Although there are no events recorded since 2007, extreme heat events are likely in a subtropical location like Mobile County. Significant droughts are rare in Mobile County, but possible. According to the National Climatic Data Center, “scientists know that atmospheric moisture plays an important role in heat waves. They tend to occur more frequently in dry conditions with low humidity, but heat waves in high humidity can take their toll on the population, livestock, and wildlife”.

**5.4.7 Winter Storms/Freezes Profile**

The risks of winter storms and freezes include frostbite and deaths from freezing, crop failure, power failure, and dangerously slippery roads. Snowfalls of over two inches and long-lasting freezes, although rare, present the most serious threats. Mobile County’s semi-tropical location makes severe winter storms unlikely. Winter storms in Mobile County are typically characterized by a light snow dusting and/or freezing rain. Table 5-12 portrays winter weather observations from the Southeast Regional Climate Center, based on data for the City of Mobile. Snowfall accumulation is low and winter temperatures are mild, with an average minimum winter temperature of 42 degrees Fahrenheit. The lowest recorded temperature of 3 degrees Fahrenheit was recorded on January 11, 1949.

**Table 5-12. Winter Weather Observations, Mobile County**

<b>Category</b>	<b>Observation</b>
Average Winter Temperature	67.4°F
Average Winter Minimum Temperature	42.4°F
Lowest Temperature (January 11, 1949)	3°F
Average Season Snowfall	0.3 in
Largest Snowfall (1973)	3.6 in

Source: SE Regional Climate Center, 2012

**Location of Potential Winter Storms/Freezes**

Mobile County and its participating jurisdictions are all equally unlikely to experience winter storms. Areas farther from the coast are more susceptible to freezes, although the risk is still slight.

**Extent and Intensity of Potential Winter Storms/Freezes**

In Mobile County, winter storms are infrequent and relatively mild when they occur, because the county is located so far to the south. However, in the event a winter storm takes place, the risk is commensurately greater, because residents and authorities are not equipped to handle the unfamiliar conditions.

**Previous Occurrences of Winter Storms/Freezes**

Mobile County occasionally experiences winter storms and extreme colds. The National Climatic Data Center (NCDC) reports 3 winter storms, 2 wind chill events (one

death), and four ice storm events. Table 5-13 summarizes winter storm and extreme cold events and damages associated with those.

**Table 5-13. Mobile County Winter Storm Damages, 1995-2014**

Year	Type	Number	Deaths	Injuries	Total Damages
1995	-	-	-	-	-
1996	Cold/Wind Chill	1	1	0	\$0
1996-2001	-	-	-	-	-
2002	Winter Storm	1	0	0	\$0
2003	Cold/Wind Chill	1	0	0	\$0
2004-2009	-	-	-	-	-
2010	Winter Storm	1	0	0	\$0
2011	Winter Weather	1	0	0	\$5,000
2012-2013	-	-	-	-	-
2014	Ice Storm	4	0	0	0
<b>Total</b>		<b>9</b>	<b>1</b>	<b>0</b>	<b>\$5,000</b>
<b>Annual Average</b>		<b>0.5</b>	<b>0.1</b>	<b>0</b>	<b>\$250</b>

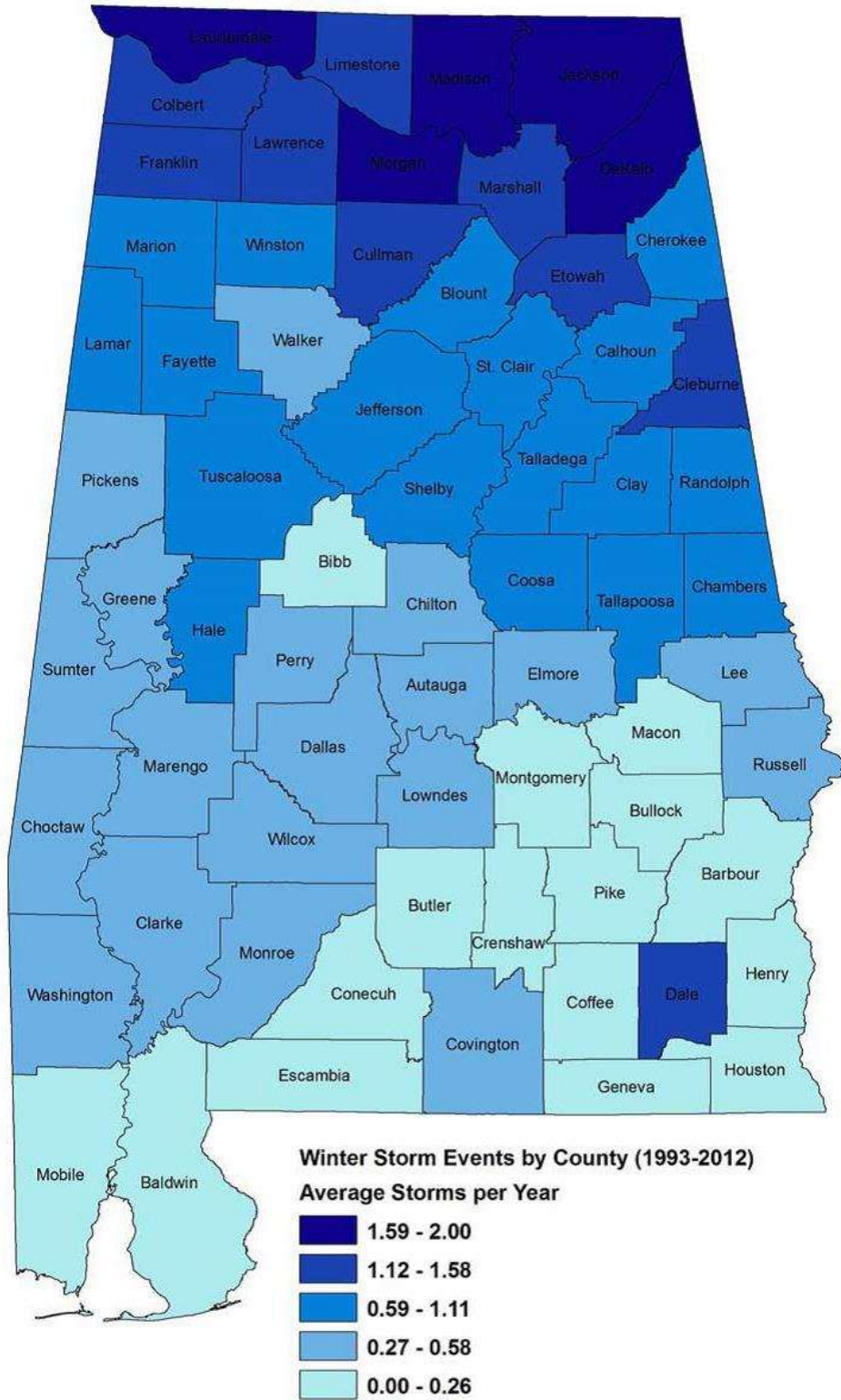
Source: National Climatic Data Center

**Probability of Future Winter Storms/Freezes**

Winter storms/ice storms should continue to affect Mobile County at a rate of about one every two years. Mobile County is not at significant risk of winter storms. Map 5-10 shows that Mobile County has experienced fewer winter storms than most Alabama counties, about 2.5 every 10 years.



**Map 5-10. Alabama Winter Storm Interval, 1993-2012**



Source: State of Alabama Hazard Mitigation Plan, 2013

**5.4.8 Earthquakes Profile**

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

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

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

**Location of Potential Earthquakes**

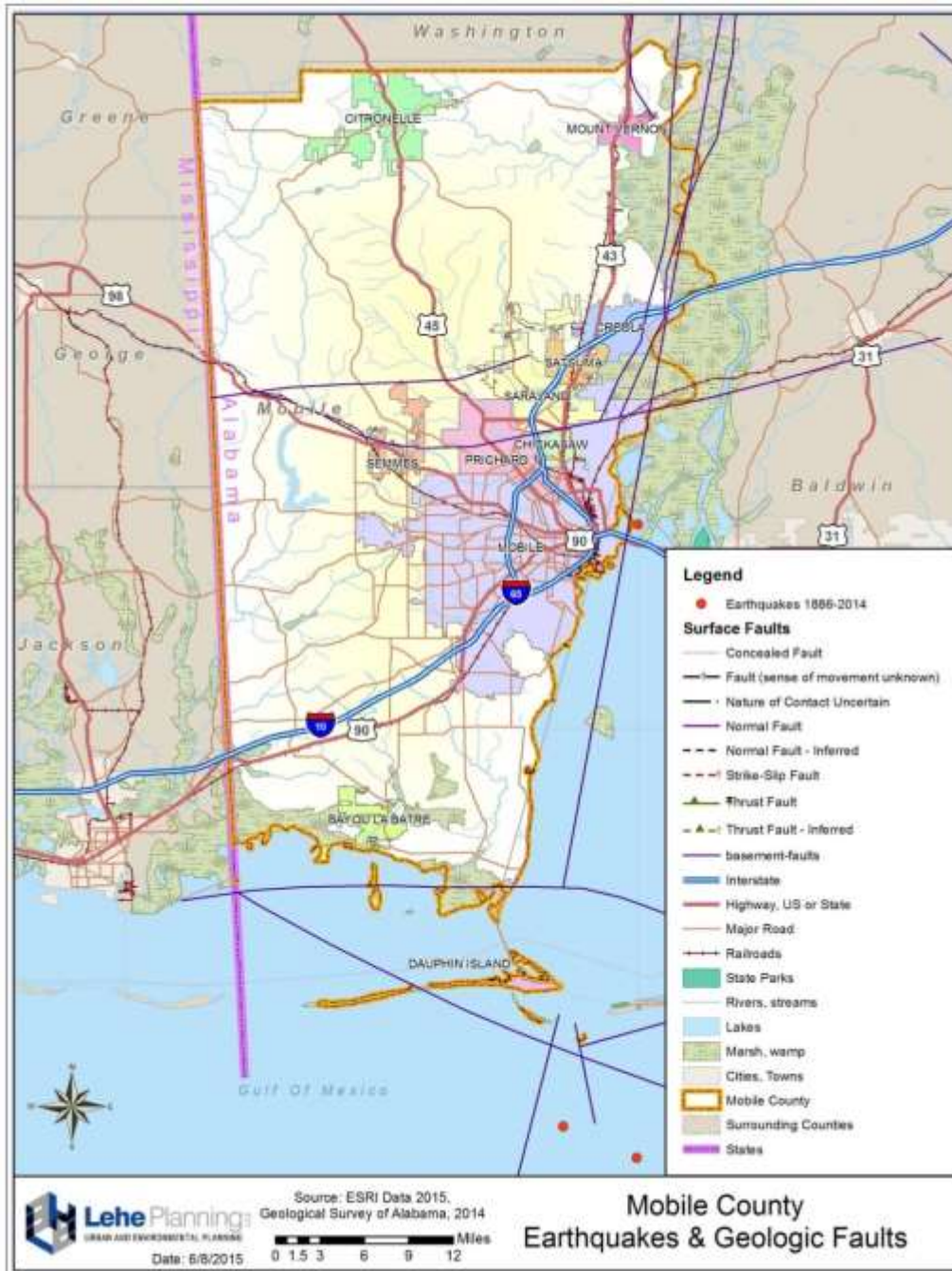
When earthquakes strike a region, it is impossible to predict which area will be affected the most at a sub-county level. The following maps (Map 5-11, 5-12 & 5-13), generated from 2014 GIS data supplied by the Geological Survey of Alabama (GSA), show locational variations in ground shaking and soil liquefaction throughout Mobile County. Map 5-11 portrays earthquake locations from 1886 to 2014, as well as geologic faults in the county. According to this map, only one earthquake occurred and it was along the coastline of Mobile County in Mobile Bay.

Mobile County has a low to very high degree of seismic liquefaction susceptibility, depending on proximity to water bodies. Map 5-12 shows communities in and around Mobile Bay and Mobile County's streams and tributaries are rated at very high seismic liquefaction susceptibility. However, even in areas with very high susceptibility, impacts can vary depending on the magnitude and epicenter location.

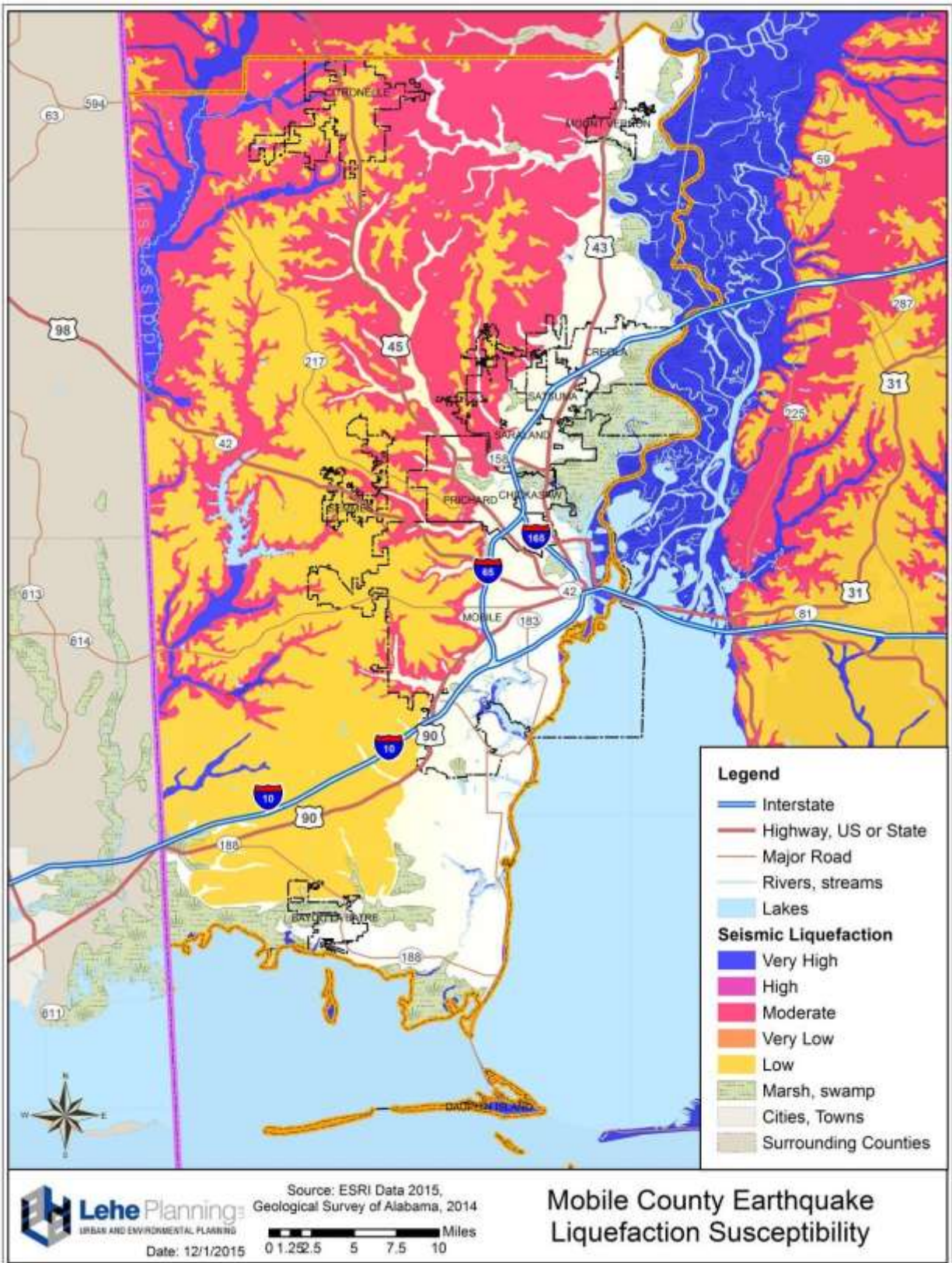
Damages to buildings and infrastructure depend not only on the energy released during an earthquake but also underlying soils and geological characteristics. Soil type and site amplification contribute to the velocity at which rock or soil transmits shear

waves (USGS). Of the five soil types identified by the National Earthquake Hazards Reduction Program, Mobile County contains Soil Type A and Soil Type E (shown on Map 5-13). Soil Type A, which can be seen in communities along the Gulf Coast and Mobile Bay, includes unweathered intrusive igneous rock; does not contribute greatly to soil amplification. Soil Type E, which can be seen throughout the majority of Mobile County, is characterized by water-saturated mud and artificial fill. The strongest amplification of shaking due is expected for this type of soil.

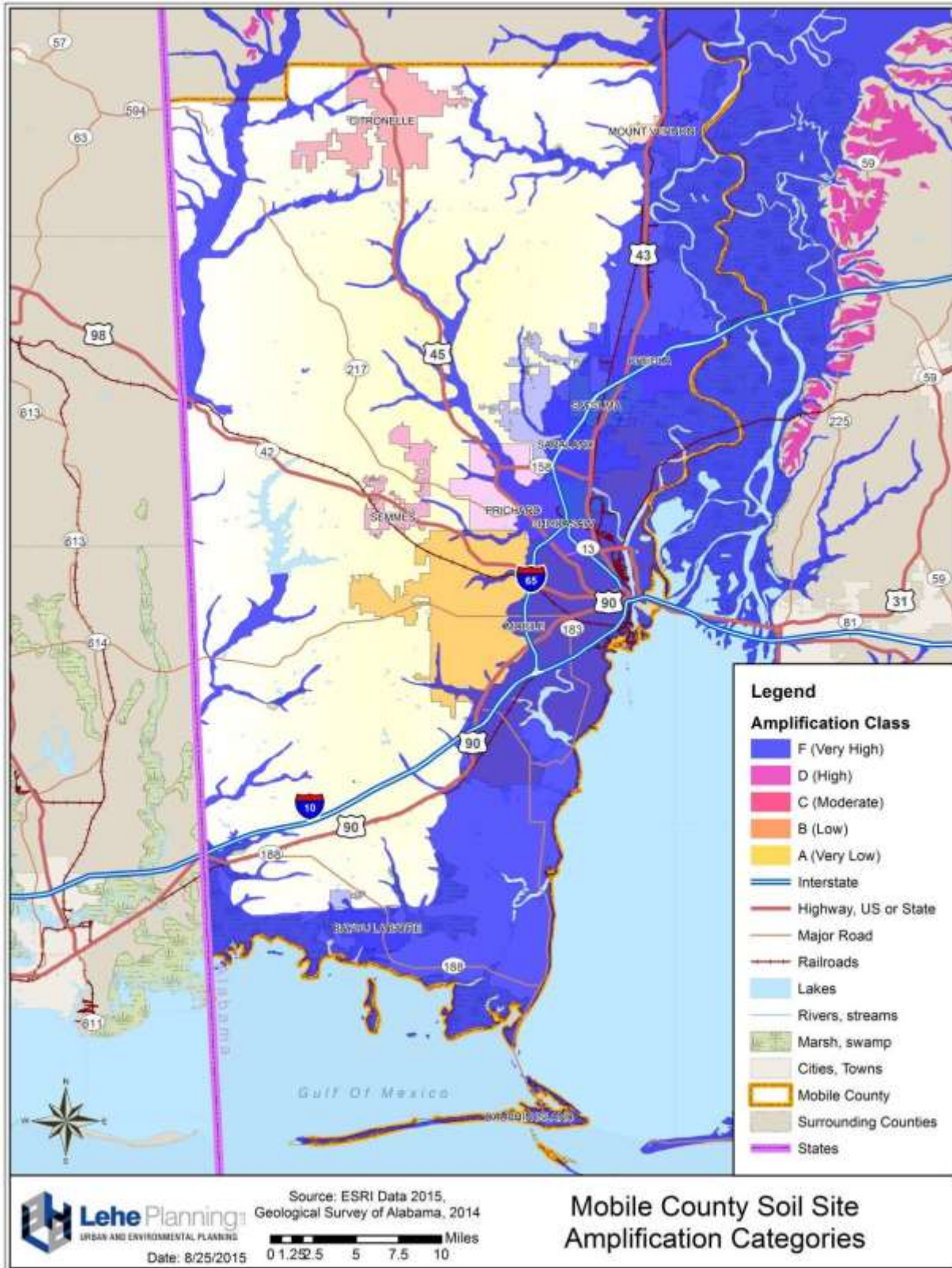
**Map 5-11. Mobile County Earthquakes and Geologic Faults**



**Map 5-12. Mobile County Seismic Liquefaction Susceptibility**



**Map 5-13. Mobile County Soil Amplification Seismic Shaking Potential**



**Extent and Intensity of Potential Earthquakes**

According to the Geological Survey of Alabama (GSA), recent seismograph records indicate that earthquakes in the state are frequent but not strong enough to be felt on the land surface. Earthquakes can occur anywhere in the state, but are unlikely to cause damage.

As discussed in the “Earthquakes Description” found in Appendix D, the intensity of shaking from an earthquake is measured according to the Modified Mercalli Intensity Scale, for which numbers relate to observed effects of shaking on a scale of 1 to 12 (see Figure 5-5).

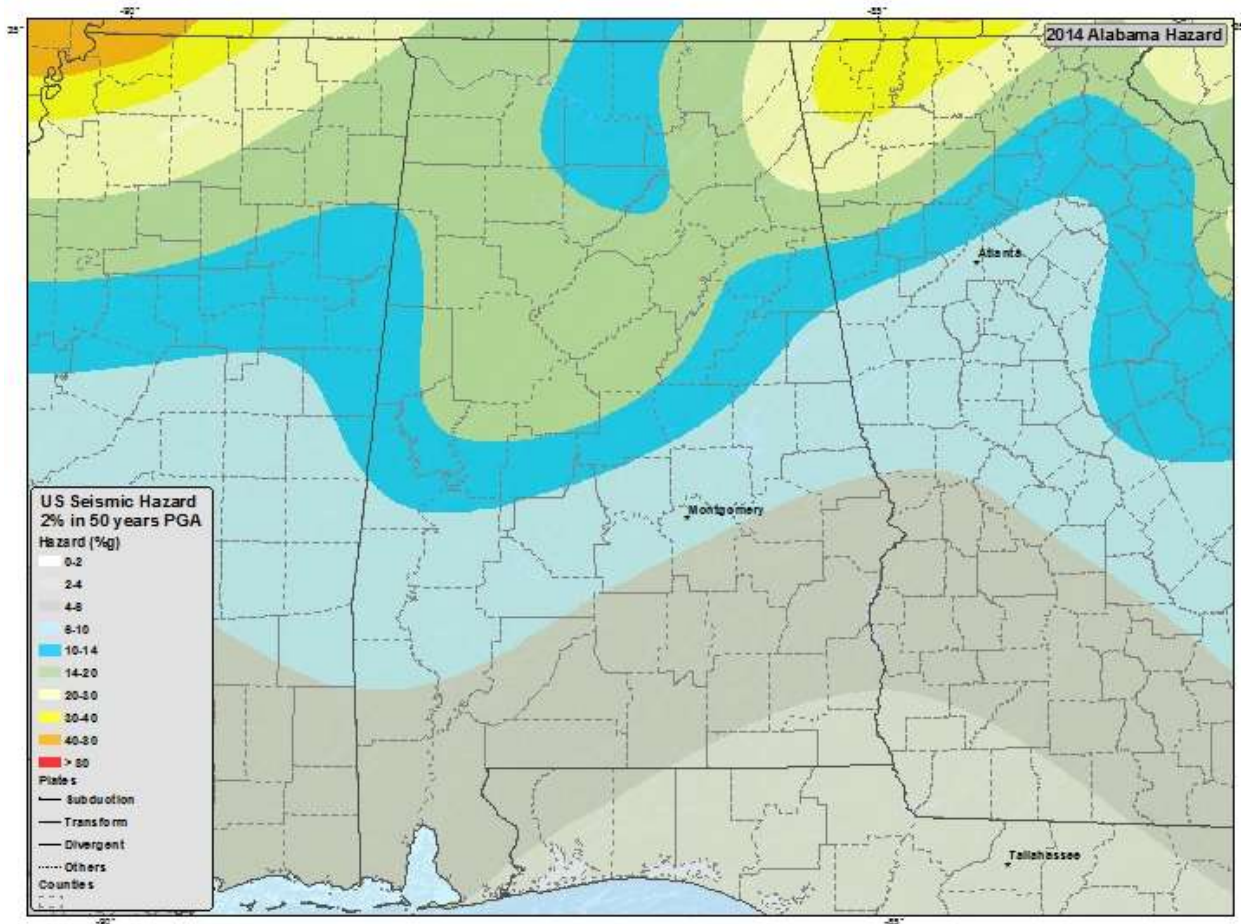
**Figure 5-5. Modified Mercalli Intensity Scale**

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

Source: Geological Survey of Alabama

The USGS publishes national seismic hazard maps which show likelihood of exceeding a level of earthquake shaking in a given time period. The shaking intensity is measured in peak ground acceleration (PGA) which is acceleration (shaking) of the ground expressed as a percentage of gravity (%g), or as a percentage of 9.8 meters per second squared. Map data from the USGS Earthquake Hazards Program 2014 seismic hazard map (Map 5-14) shows Mobile County has only a 4-6% chance of exceeding shaking above 16%g in the next 50 years.

**Map 5-14. State of Alabama Seismic Hazard Map, 2014**

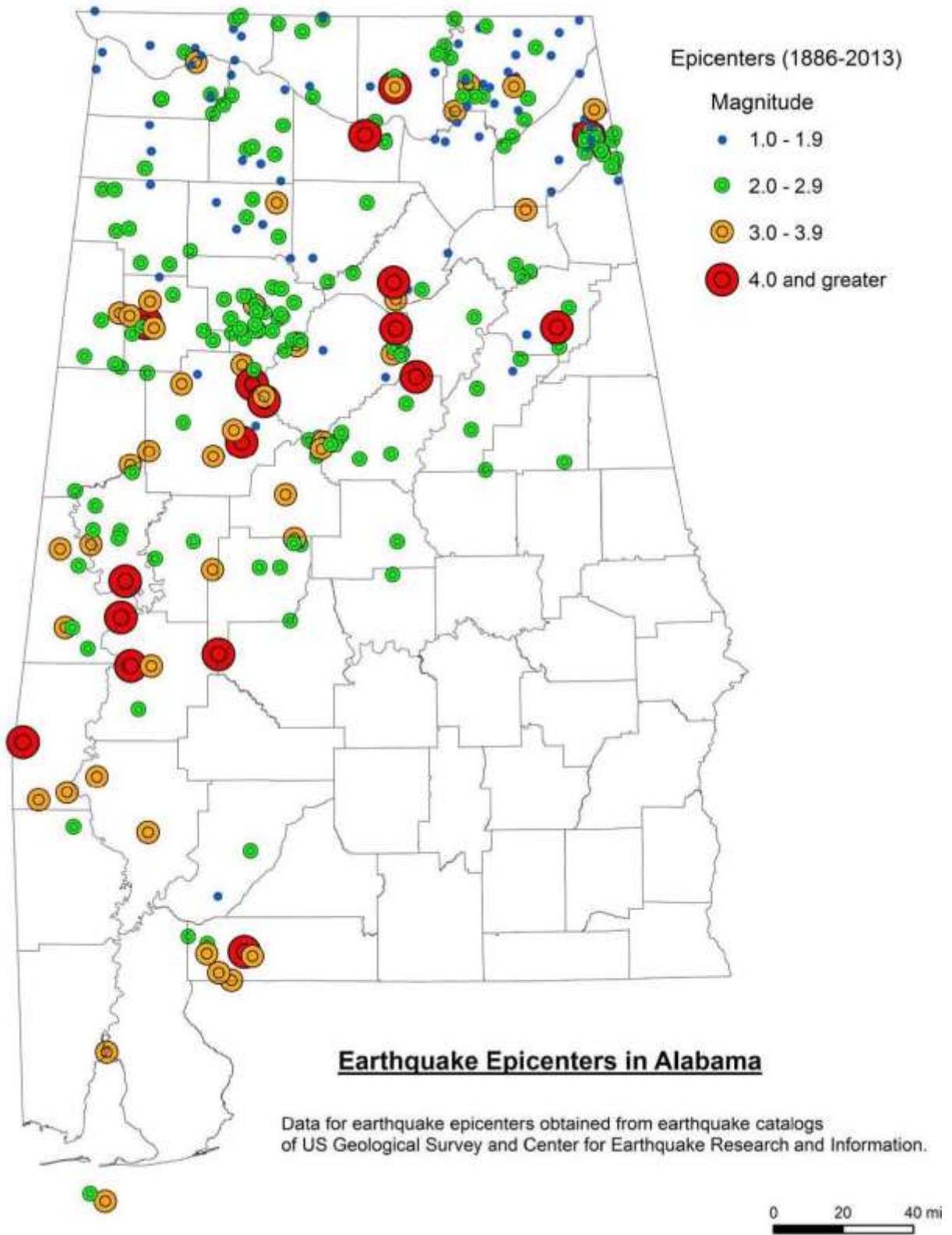


Source: United States Geological Survey, Earthquakes Hazards Program, 2014

**Previous Occurrences of Earthquakes**

Map 5-15 “Alabama Earthquake Locations” shows the location and magnitude of recorded earthquakes from 1886 through 2013. Mobile County has only experienced one earthquake, which occurred in 1929 and is estimated to have exhibited a magnitude between 1.0 and 1.9 on the Richter Scale. Another earthquake near Brewton was felt at a Level III on the Modified Mercalli Intensity Scale in Mobile. Sixteen earthquakes with a magnitude greater than 4.0 have been recorded in Alabama.

**Map 5-15. Alabama Earthquake Locations**

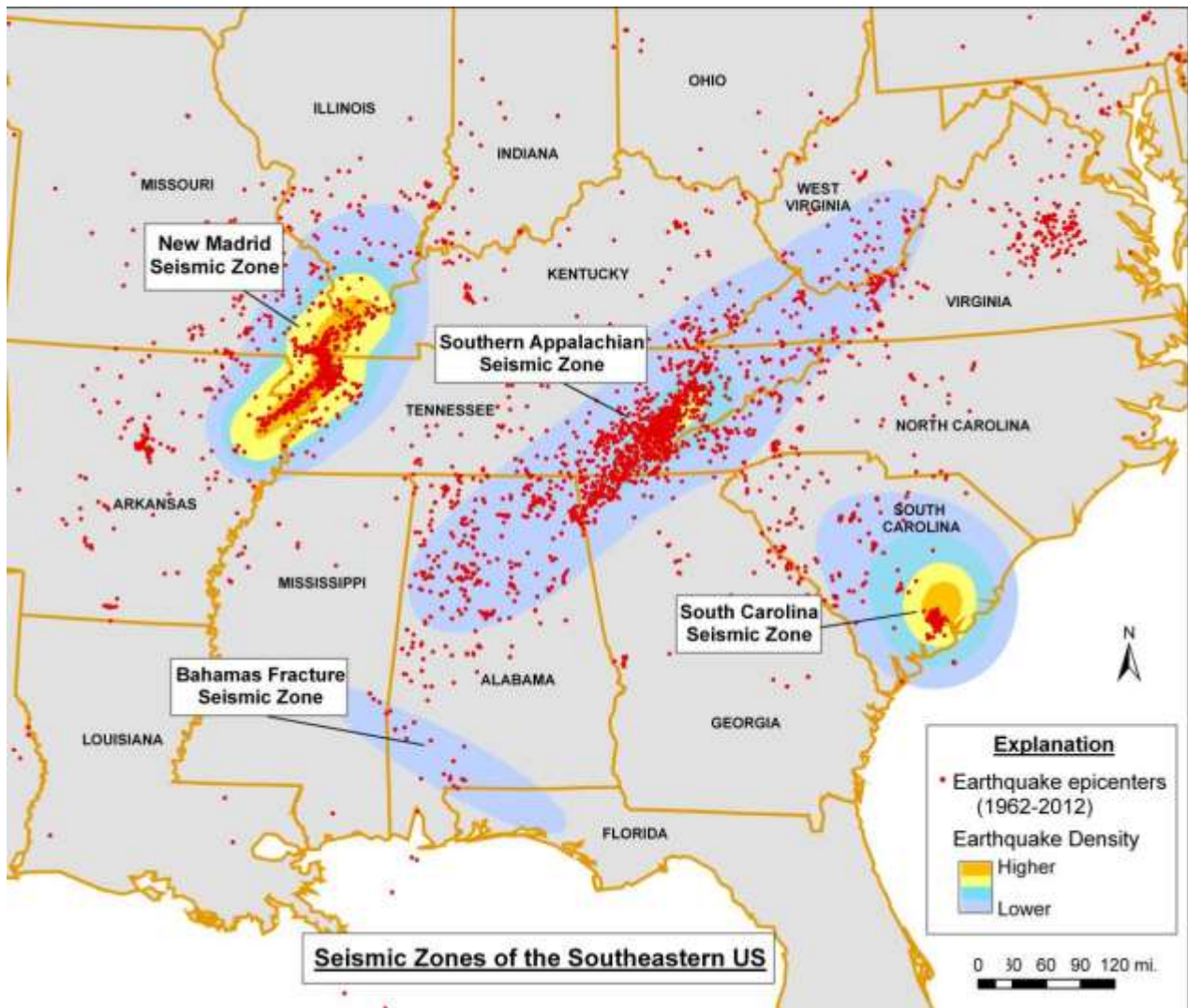




**Probability of Future Earthquakes**

Geologic Survey of Alabama (GSA) records and analysis suggest the likelihood of a damaging earthquake is extremely low. Map 5-16 “Seismic Zones in Southeastern United States” shows that Alabama’s boundaries enclose two seismic zones: the Southern Appalachian and the Bahamas Fracture. Most Alabama earthquakes have been associated with the Southern Appalachian Seismic Zone. Mobile County borders the less active Bahamas Fracture Seismic Zone.

**Map 5-16. Seismic Zones in Southeastern United States**



Source: Geological Survey of Alabama, Mapping and Hazards Program

**5.4.9 Landslides**

A landslide is defined by the United States Geological Survey as the movement of rock, debris, or earth down a slope. Various natural and man-induced triggers can cause a landslide. Naturally induced landslides occur as a result of weakened rock composition, heavy rain, changes in groundwater levels, and seismic activity. Geologic formations in a given area are key factors when determining landslide susceptibility. Due to its generally level topography, Mobile County is not susceptible to landslides.

The Geologic Survey of Alabama (GSA) has studied the potential for landslides throughout Alabama. Geographic Information Systems (GIS) data provided by the GSA for this plan, classifies landslide incident and susceptibility shown on Map 5-17 “Mobile County Landslide Susceptibility”, as follows:

1. Landslide susceptibility. Susceptibility is the probable degree of response to landslide triggers, that is, the response to cutting or excavation, loading of slopes, or to unusually high rainfall. Generally, unusually high rainfall or changes in existing conditions can initiate landslide movement in areas where rocks and soils have experienced numerous landslides in the past. The potential for landslides is classified into one of the following categories:
  - High susceptibility – greater than 15% of a given area is susceptible to land sliding;
  - Medium susceptibility – 1.5% to 15% of a given area is susceptible to land sliding; or
  - Low susceptibility – less than 1.5% of a given area is susceptible to land sliding.
  - No susceptibility indicated – susceptibility is the same as or lower than incidence.
2. Landslide incidence. Landslide incidence is the number of landslides that have occurred. These areas are classified according to the percentage of the area affected by landslides, as follows:
  - High incidence – greater than 15% of a given area has previously experienced land sliding;
  - Medium incidence – 1.5% to 15% of a given area has previously experienced land sliding; or
  - Low incidence – less than 1.5% of a given area has previously experienced land sliding.

**Location of Potential Landslides**

All jurisdictions in Mobile County are equally unlikely to experience landslides, barring new studies, data, or changed conditions.

**Extent and Intensity of Potential Landslides**

As shown on Map 5-17, a majority of Mobile County has a low degree of susceptibility to landslides, with areas in and around Mt. Vernon, Satsuma, Chickasaw, Creola, Saraland, and Bayou La Batre representing a high degree of landslide susceptibility.

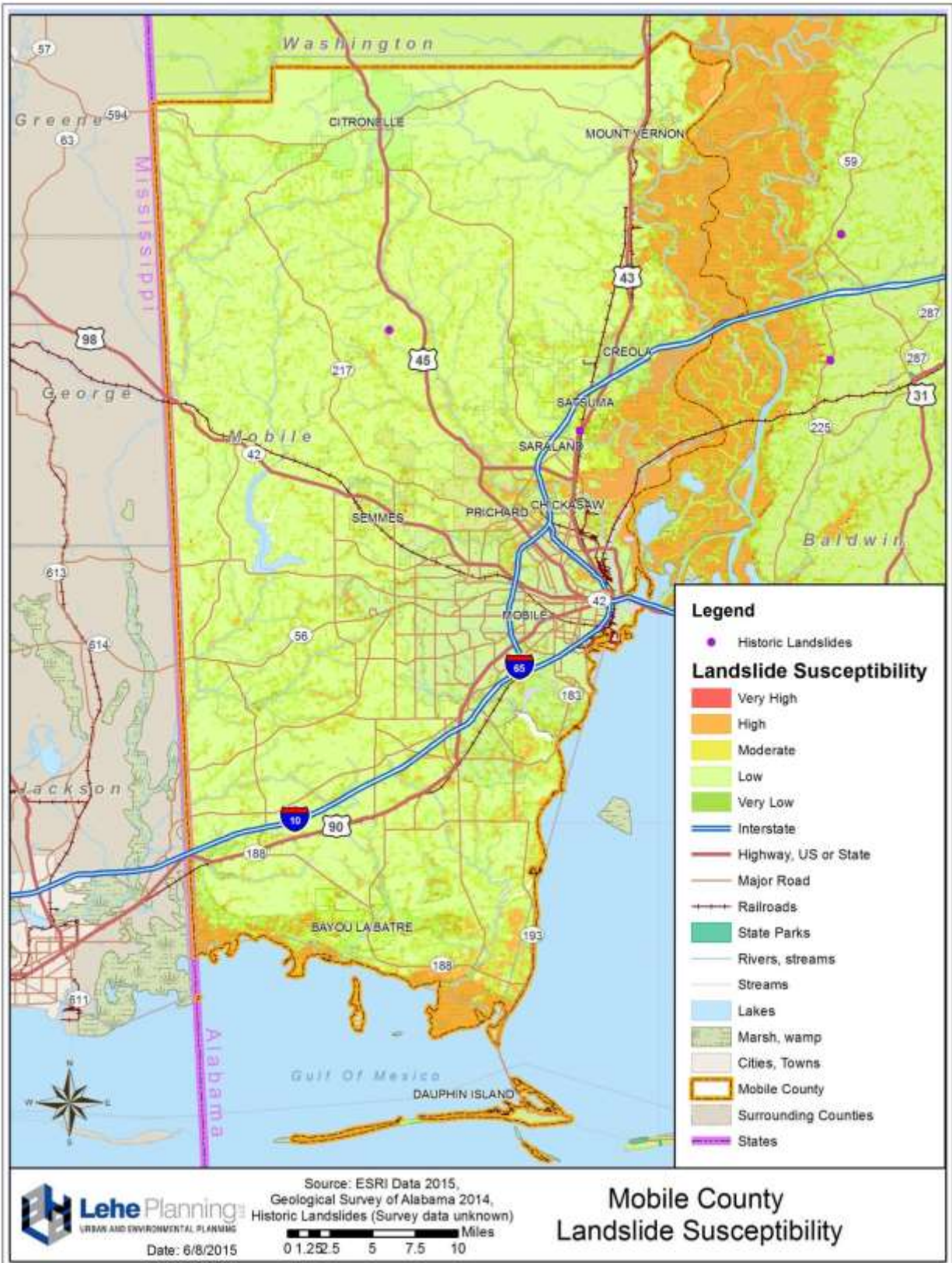
**Previous Occurrences of Landslides**

No record of previous landslides in Mobile County could be found.

**Probability of Future Landslides**

Although the GSA map data (Map 5-17) locates the general degrees of risk for landslide in Mobile County, the actual probability varies according to specific site locations and the presence of activities or conditions that might trigger a landslide. Such conditions include rock type, slope, excavation, hillside development, deforestation, heavy rainfall, or seismic activity. Relative to other natural hazards identified in this plan, probability for landslides is low.

**Map 5-17. Mobile County Landslide Susceptibility**



**5.4.10 Dam/Levee Failures Profile**

Dam/levee failure is typically attributed to faulty engineering, neglect, or a natural hazard such as an earthquake. Dams and levees in Mobile County primarily serve to impound reservoirs for local water supplies. Reservoirs are much smaller than the lakes created for hydroelectric power in areas such as northeastern Alabama, and Mobile County’s dams are located on flat, coastal terrain, rather than valleys. Therefore, a dam/levee failure in Mobile County would not cause as much damage as a failure in other regions.

Alabama is still without a statewide dam safety and inspection program, which makes permitting and certification of dams difficult. Additionally, a full inventory of dams in Alabama is not available. However, the Army Corps of Engineers maintains a National Inventory of Dams (though not exhaustive for the state of Alabama).

**Location of Potential Dam/Levee Failures**

According to the National Inventory of Dams, there are 31 dams in Mobile County. See Table 5-14 and Map 5-18 for location information.

**Table 5-14. Mobile County Dams**

<b>Dam Name</b>	<b>River</b>	<b>Year Completed</b>	<b>NID Height (ft.)</b>	<b>Max Discharge</b>	<b>Max Storage</b>
Pratt Turner	TR-Bull Branch Creek	1969	26	1,300	75
GC Outlaw	TR-Chickasaw Creek	1965	12	1,600	72
Smith Pond	TR- Fowl River	1962	15	2,200	126
MC Farmer	TR- Franklin Creek	1967	15	5,200	90
Cole Lake	TR- Fowl River/Headwater	1961	19	500	182
Big Creek Lake	Big Creek	1952	75	35,000	136,500
Municipal Park Lake No. 1	Three Mile Creek	1957	13	2,000	130
Fred Hildesheim	Silver Creek- Offstream	1965	24	1,200	58
Joe McDavid #1	TR-Miller Creek	1964	17	1,600	105
Maples Lake	Gunnison Creek- Headwater	1966	17	1,400	68
Bermuda Run Dam	Campground Branch	1970	19	1,312	242
Joe McDavid #2	TR-Miller Creek	1972	19	336	190

Dam Name	River	Year Completed	NID Height (ft.)	Max Discharge	Max Storage
Cloverdale Lake	TR-Franklin Creek	1968	19	2,000	121
Echo Lake	TR-Little Creek	1936	20	4,400	150
RL Lambert	TR-Big Creek	1965	20	1,900	184
Red Nichols	TR-Escata WPA River	1960	19	950	91
Clay Bassett	Bennett TS Creek-Offstream	1966	25	1,000	90
Citronelle Municipal Park Lake	Lotts Mill Creek	1975	33	1,800	1,320
Rascoe Farm Pond	TR-Bennett/TS Creek	1978	19	950	91
Bernard Brooks Pond	TR-Halls Mill Creek	1973	23	796	120
HG Quinnelly	TR-Chickasaw Creek	1950	23	2,000	200
Bahlman Lake	TR-Muddy Creek	1967	14	1,000	78
Optimist Lake	Milkhouse Creek	1936	17	500	116
Red Nichols - No. 1	TR-Escata WPA River	1945	16	650	70
Howard E. Smith	TR-Escata WPA River	1960	16	200	80
Cold Creek	Cold Creek	1968	22	11,500	1,000
Duboise Lake	Bayou Sara Creek	1975	15	255	50
Cochran Lake	TR-Eight Mile Creek	1946	17	40	50
Wayne Roscoe Pond	TR-Bennett Creek	1978	19	402	119
Davis Pilot	Pierce Creek	2000	28	14	134
George Radcliff Pond	TR-Sawmill Creek	1986	23	349	145

Source: Army Corps of Engineers, 2015

**Extent and Intensity of Potential Dam/Levee Failures**

According to the Army Corps of Engineers data (1999, which is latest available data), Mobile County has 1 dam in the high hazard category, 3 in the significant category, and 26 in the low category (Table 5-15). High hazard potential means failure or faulty operation would probably result in the loss of human life. Significant risk

indicates failure or faulty operation would probably not result in loss of life, but would result in economic loss, environmental damage, and disruption of lifeline facilities. Low risk indicates failure/faulty operation would not result in loss of life and only low economic or environmental damage.

**Table 5-15. Mobile County Dams Risk**

<b>Hazard Categories</b>	<b>Number of Dams</b>
High	1
Significant	3
Low	26
Undetermined	0
<b>Total</b>	<b>30</b>

Source: Army Corps of Engineers, 1999

Map 5-18. Mobile County Dams





**Previous Occurrences of Dam/Levee Failures**

No known dams or levee failures have occurred in Mobile County.

**Probability of Future Dam/Levee Failures**

The probability of a catastrophic dam failure in Mobile County is very slight. Detailed data about dam construction does not exist to rate the dams, but none of the dams would cause severe damage to developed areas in the event of failure.

**5.4.11 Sinkholes (Land Subsidence) Profile**

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

**Location of Potential Sinkholes**

Sinkholes are geological phenomenon characterized by a sudden collapse of the topsoil, which occurs when water bores channels in a sub-soil layer of limestone. Map 5-19 shows Karst Geography across the state and indicates that Mobile County contains units with minor carbonates. Map 5-20 shows USGS sinkhole distribution, indicating that Mobile County has a higher density of sinkholes relative to the state.

**Extent and Intensity of Potential Sinkholes**

It is unlikely that any county jurisdiction or community will be significantly impacted by sinkholes.

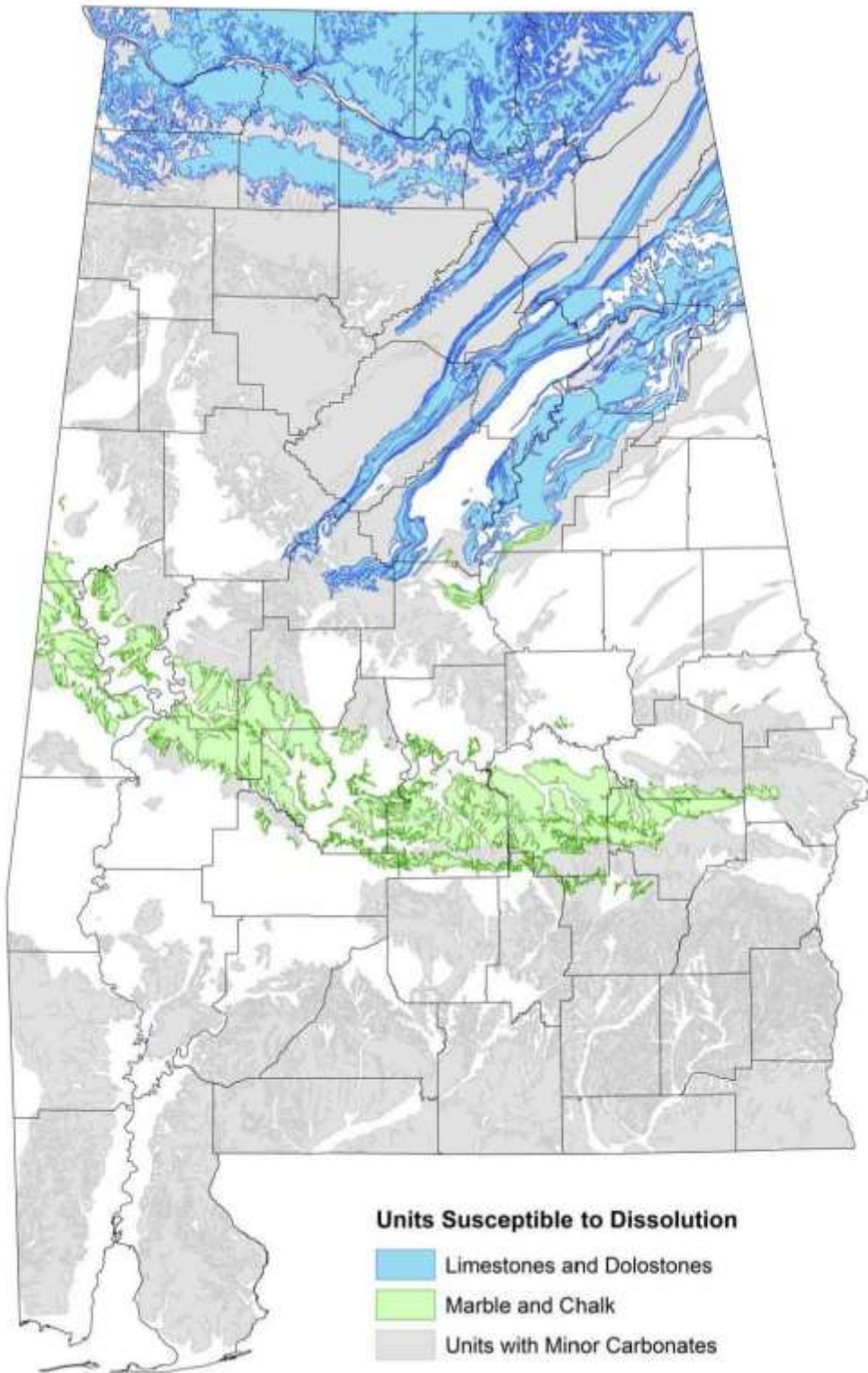
**Previous Occurrences of Potential Sinkholes**

Data from the Geological Survey of Alabama counts over 6,400 sinkhole events in Alabama. Map 5-21 shows various sinkhole occurrences throughout Mobile County, mostly in the southern portion of the county.

**Probability of Future Sinkholes**

Map 5-21 "Mobile County Sinkhole Susceptibility" shows a lack of dolostone and limestone rock types, which indicates future probability for sinkholes is low. The probability of future sinkholes is equally small for all Mobile County jurisdictions. Sinkhole formation is random to some degree, however; and new development, ground water withdrawals, and droughts can cause sinkholes in areas not otherwise susceptible. Ongoing data collection by the Geological Survey of Alabama might reveal unknown conditions that raise the likelihood of sinkholes within Mobile County.

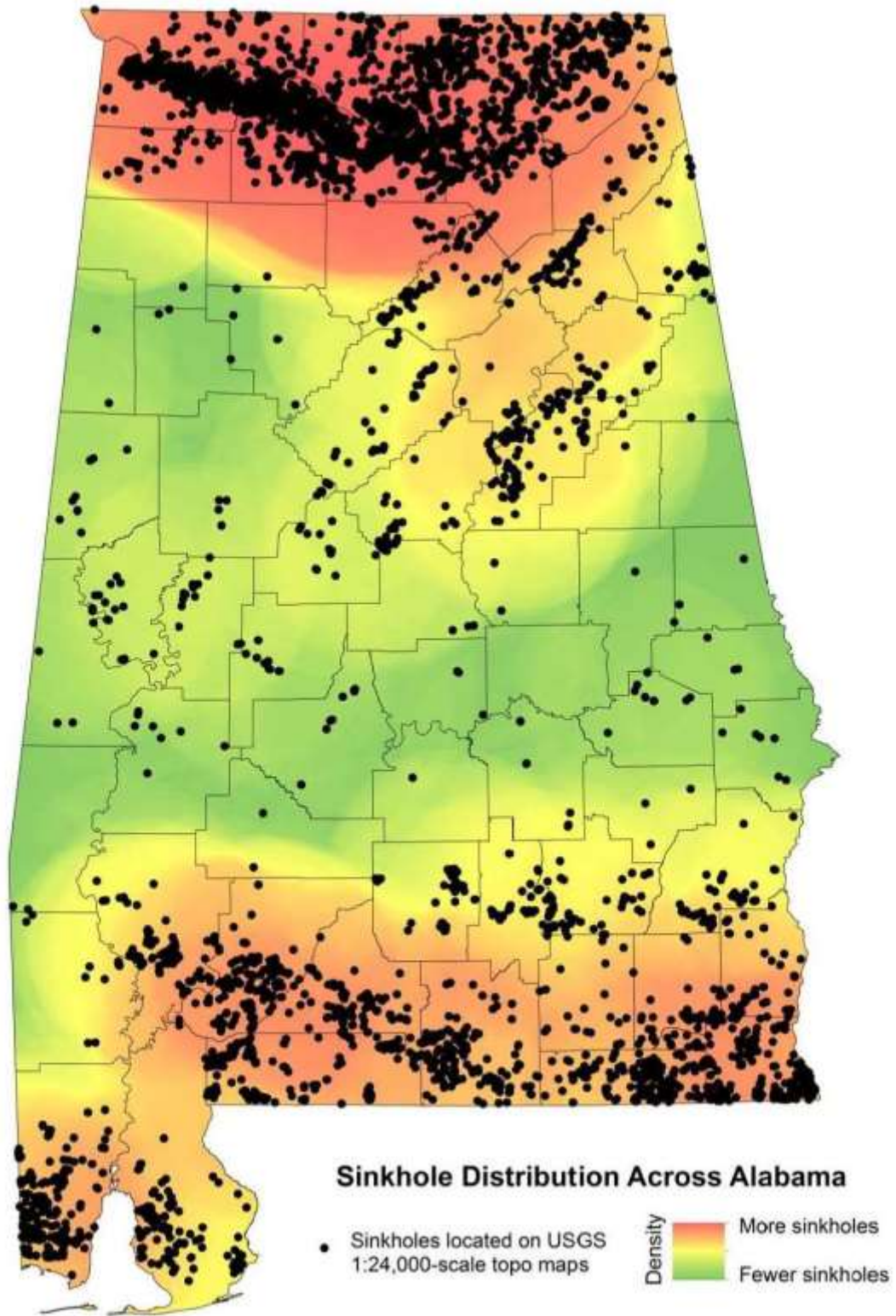
**Map 5-19. Karst Geography, Alabama**



0 10 20  
Miles

Rock types from 1:250,000-scale digital surface geology of Alabama.

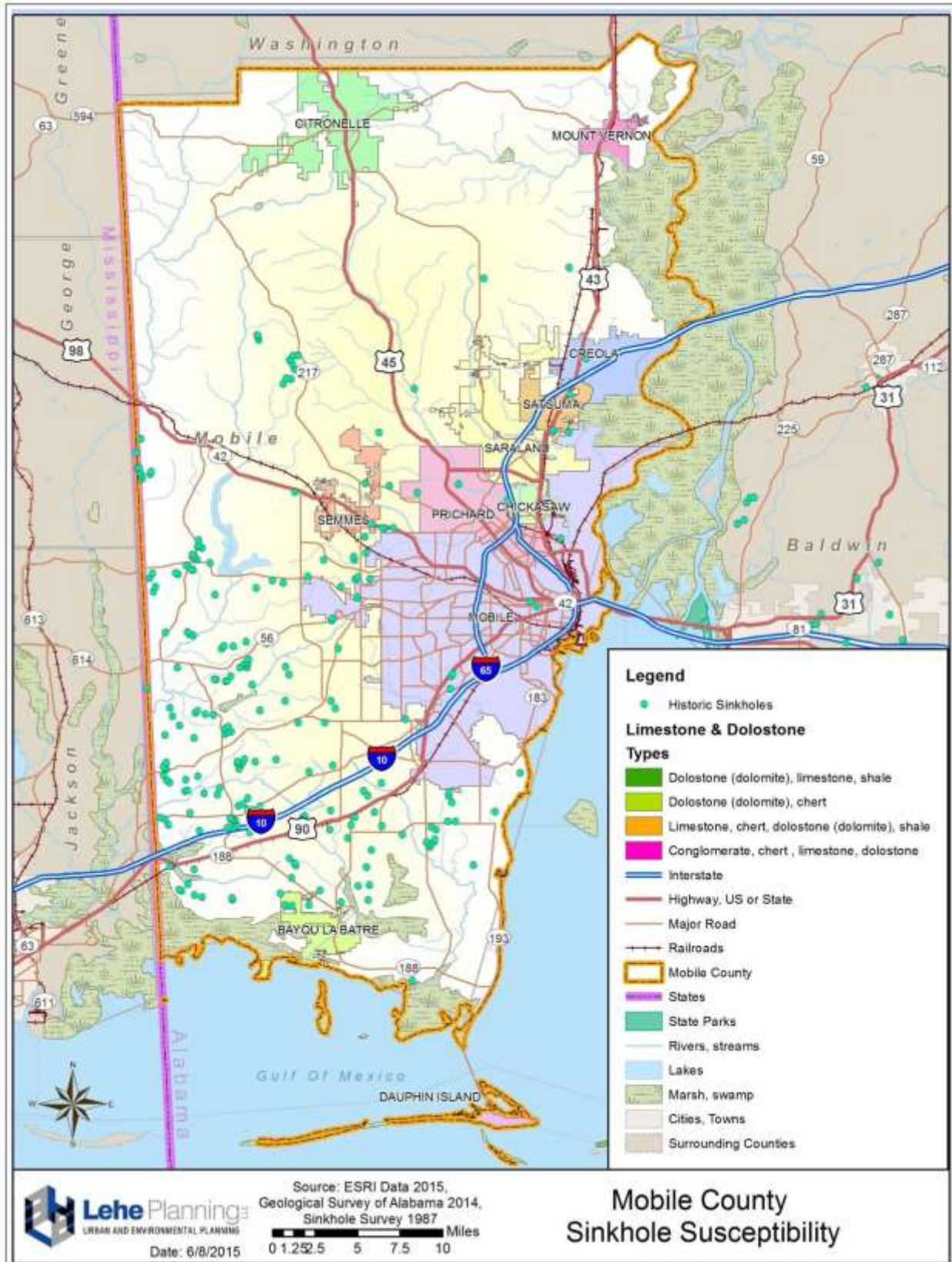
**Map 5-20. Alabama Sinkhole Density**



0 10 20  
Miles

USGS topographic maps used in creating the above map were published from 1938 to 1987. The map above does not include more recent sinkholes that formed after the latest publication date.

**Map 5-21. Mobile County Sinkhole Susceptibility**



**5.4.12 Tsunamis**

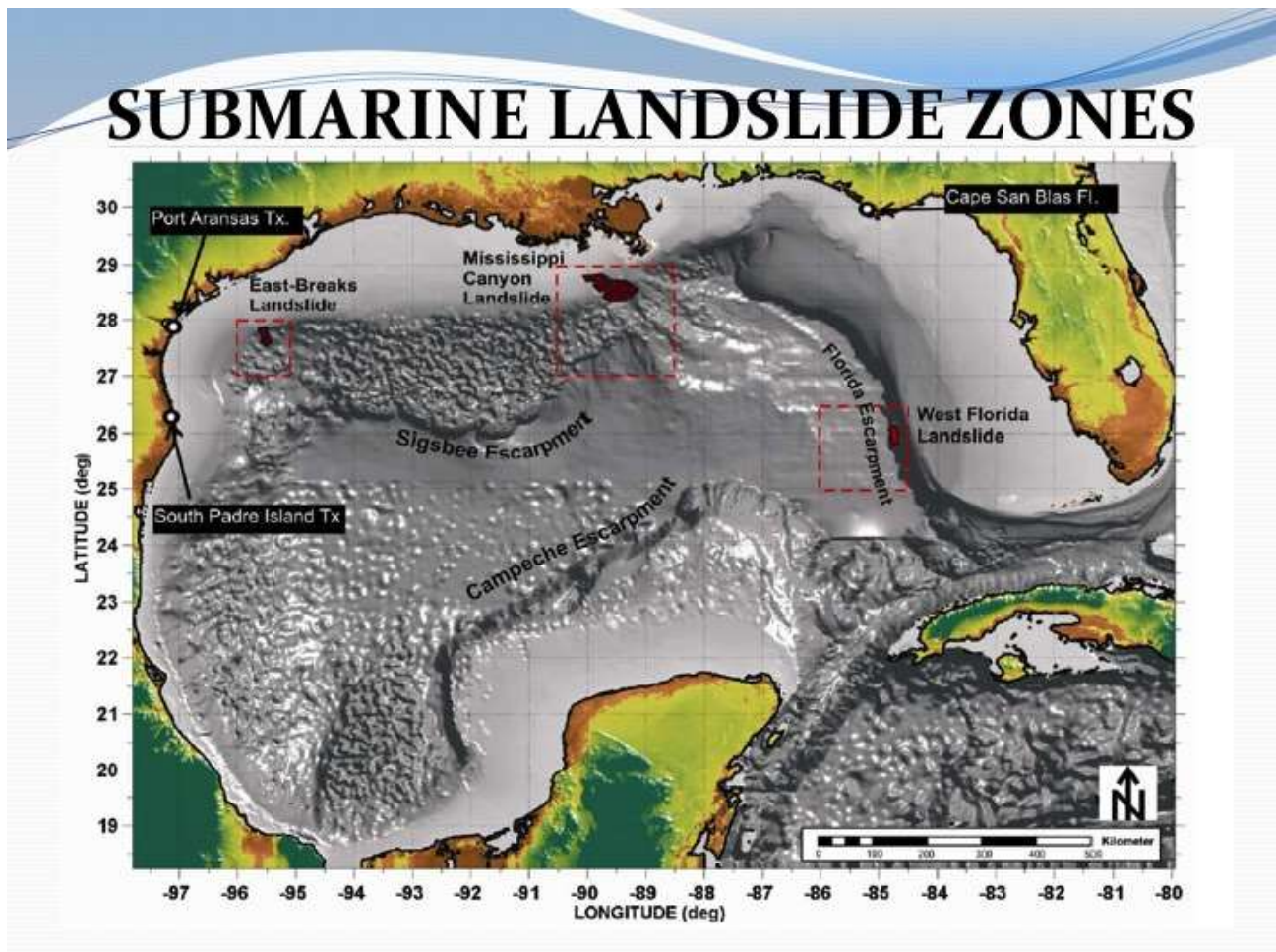
Tsunamis are large ocean waves triggered by earthquakes, volcanic eruptions, submarine landslides, and onshore landslides. However, the tsunami threat to Mobile County is largely a result of submarine landslides.

There are no records of any tsunamis along the Gulf Coast, but the *Regional Assessment of Tsunami Potential in the Gulf of Mexico* (USGS, 2009) report finds there are some risks, although minimal. The risk is from “submarine landslides”, not earthquakes. The report also states that the vulnerability of the Gulf Coast is high due to the concentrations of population, industrial facilities, and infrastructure should a significant landslide trigger a tsunami. Tsunamis caused by earthquakes are not likely within the Gulf of Mexico.

**Location of Potential Tsunamis**

The three geologic landslide provinces in the Gulf of Mexico are the Northwest Gulf of Mexico, the Mississippi Canyon and fan, and the Florida/Campeche Margin (Map 5-22). Submarine landslides, of sufficient volume, in the Gulf of Mexico are present “along the continental margin of the gulf”.

**Map 5-22. Submarine Landslide Zones**



**Extent and Intensity of Potential Tsunamis**

Communities in Mobile County at low-lying elevations are especially vulnerable to tsunami damage, due to the amount of people and industrial activity occurring in these areas.

**Previous Occurrences of Tsunamis**

There are no previous occurrences of tsunamis affecting Mobile County.

**Probability of Future Tsunamis**

Due to the lack of historical evidence for tsunami activity, the probability of future occurrences is low.

**5.4.13 Man-made/Technological Hazards Profile**

Man-made hazards are beginning to play a prominent role in hazard mitigation planning. These hazards include chemical spills, radiation leaks, and acts of terrorism. Hazardous material accidents are the main type of man-made hazards. These accidents can occur at any stage of a hazardous material's lifecycle, from extraction to manufacturing to storage to delivery.

**Location of Potential Man-made/Technological Hazards**

According to the EPA Toxic Release Inventory (2015), Mobile County has 98 locations where hazardous materials are stored. See Map 5-23 for locations of hazardous materials.

In addition to the fixed facilities listed by EPA, there are trains and tractor trailers that transport hazardous materials through Mobile County, particularly on Interstate 10.

**Extent and Intensity of Potential Man-Made/Technological Hazards**

The extent of technological hazards impacts and terrorist attacks can be quite severe, with potential for widespread damage to property and infrastructure and major loss of life and casualties, within any jurisdiction.

**Previous Occurrences of Man-Made/Technological Hazards**

The most recent significant hazardous materials incident occurred on April 20, 2010 when the Deepwater Horizon oil rig (BP Corporation) exploded and collapsed. The petroleum oil spill has been noted as the worst oil spill in U.S. history, dumping 4.9 million barrels of oil in the Gulf of Mexico between April 20 and July 15, 2010. The coast of Mobile County was severely affected by the spill with tar balls covering miles of beaches and an oil sheen on the water's surface. Tourism suffered as a result.

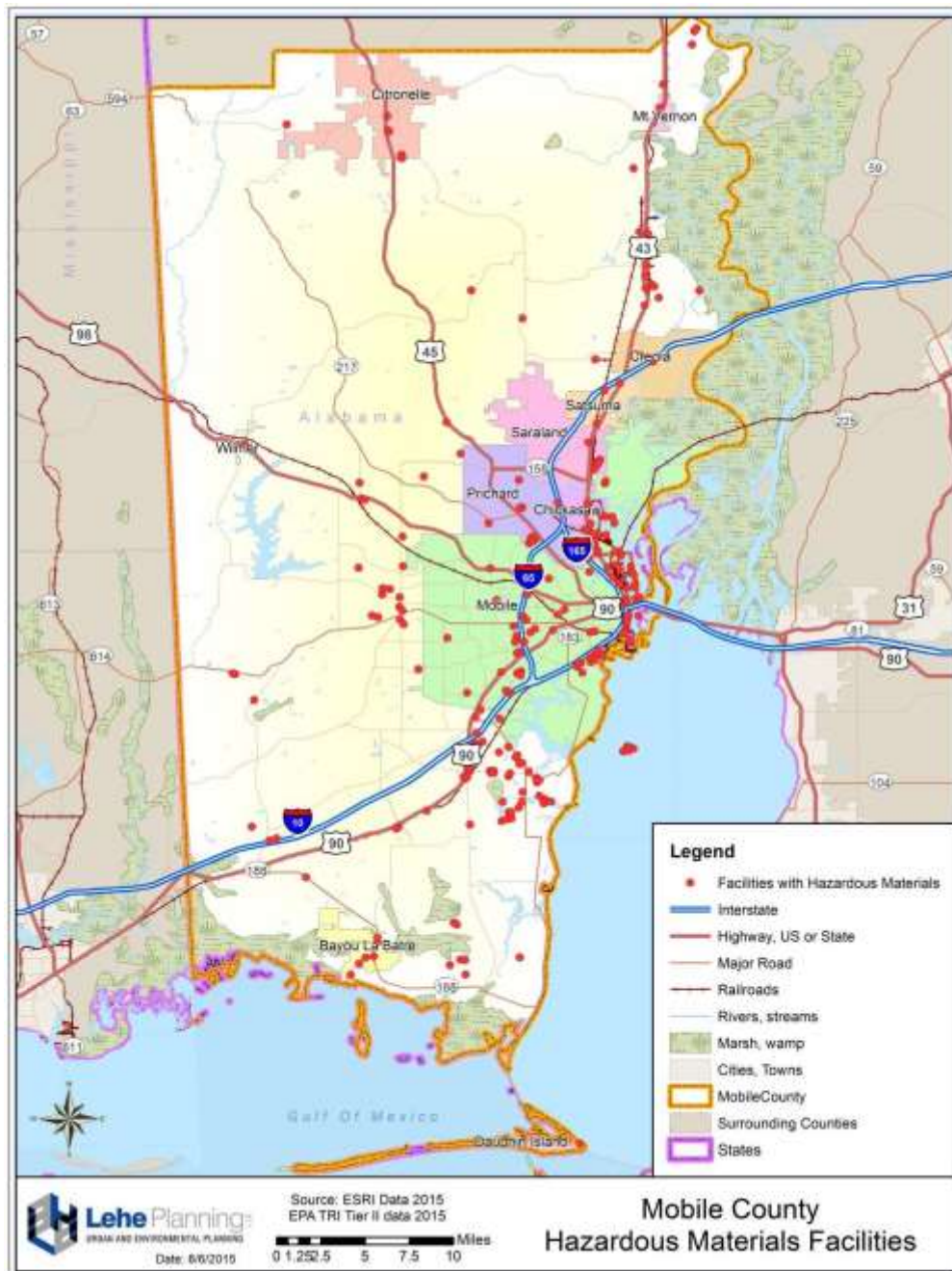
The principal man-made hazard events that have occurred in Mobile County are hazardous materials accidents. These have occurred at manufacturing sites, storage sites, and even during transport. The U.S. Department of Transportation's HAZMAT Intelligence Portal indicates that 359 transportation-related hazardous materials incidents occurred in Mobile County from 1995 to 2014 (twenty years). Total amount of

damages is \$1.5 million. Units of hazardous materials are liquid gallons, unless otherwise noted (Table E-7 in Appendix E).

**Probability of Future Man-Made/Technological Hazards**

Unpredictability is a vexing feature of man-made hazards. Earthquakes and tornadoes generally occur during specific seasons. Floods and earthquakes recur in fixed areas. Severe storms can be tracked through meteorology. Man-made hazards, however, can happen anytime and virtually anywhere.

**Map 5-23. Hazardous Materials Storage**



## 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 Mobile 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

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 (2015). HAZUS-MH modeled hurricane winds, earthquake, and flood scenarios for Mobile 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.

Local GIS data was used to create maps and lists of critical facilities located in vulnerable areas. The GIS data came from the Mobile County EMA, Mobile County Information Technology Department, Mobile County Tax Assessor, 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.

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 Mobile 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 can be apportioned to each jurisdiction on the basis of population distribution, as follows:

**Table 5-16. 2014 Population Distribution by Jurisdiction**

Jurisdiction	2014 Estimate	% of Total
Bayou La Batre	2,636	0.6%
Chickasaw	5,981	1.4%
Citronelle	3,885	0.9%
Creola	1,942	0.5%
Dauphin Island	1,242	0.3%
Mobile	194,675	46.9%
Mount Vernon	1,559	0.4%
Prichard	22,312	5.4%
Saraland	13,744	3.3%
Satsuma	6,167	1.5%
Semmes	3,257	0.8%
Unincorporated	157,723	38.0%
Mobile County	415,123	<b>100%</b>

Source: U.S. Census 2014 Population Estimates

The plan projects future number of buildings, critical facilities, and infrastructure to the year 2035 using the Alabama State Data Center’s projection of Mobile 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 2014. In the case of the overall population of Mobile 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 Mobile County and its jurisdictions are used to compute *growth multipliers*. The growth multiplier is equal to 1 + the 2014-2035 percentage increases for each jurisdiction. For example, if 1,000 residential buildings are presently exposed, then a 2035 Growth Multiplier of 1.24 (where a jurisdiction’s population is projected to increase 24 percent) would project 1,240 residential buildings will be exposed in 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 5-17. 2035 County Growth Projection**

Projected County Growth 2014-2035				
	2014	2035	Number	Percent
Mobile County	415,123	437,228	22,105	5.3%

Source: Alabama State Data Center

**Table 5-18. Annual Growth Rates by Jurisdiction**

Jurisdiction	1990	2010	Est. 2014	1990-2014 Growth*	% Change 1990-2014	Annual Growth Rate
Bayou La Batre	2,456	2,558	2,636	180	7.3%	0.30%
Chickasaw	6,649	6,106	5,981	-668	-10.0%	-0.44%
Citronelle	3,671	3,905	3,885	214	5.8%	0.24%
Creola	1,896	1,926	1,942	46	2.4%	0.10%
Dauphin Island	n/a	1,238	1,242	4	0.3%	0.08%
Mobile	196,278	195,111	194,675	-1,603	-0.8%	-0.03%
Mount Vernon	n/a	1,574	1,559	-15	-1.0%	-0.24%
Prichard	34,311	22,659	22,312	-11,999	-35.0%	-1.78%
Saraland	11,751	13,405	13,744	1,993	17.0%	0.65%
Satsuma	5,194	6,168	6167	973	18.7%	0.72%
Semmes	n/a	2,987	3,257	270	9.0%	2.19%
Unincorporated	n/a	158,342	157,723	-619	-0.4%	-0.10%
Mobile Co	378,643	412,992	415,123	36,480	9.6%	0.38%

Source: U.S. Census, 1990-2014

\*Dauphin Island, Mount Vernon, Semmes & Unincorporated growth are based on 2010-2014 population changes, due to unavailability of 1990 Census data. 2010 Semmes population is an estimate Semmes was not incorporated until 2011.

**Table 5-19. 2035 Growth Projections and Multipliers**

Jurisdiction	Est. 2014	Annual Growth Rate	Projected 2035	Projected Change 2014-2035	% Change 2014-2035	2035 Growth Multiplier
Bayou La Batre	2,636	0.30%	2,807	171	6.49%	1.06
Chickasaw	5,981	-0.44%	5,452	-529	-8.84%	0.91

Jurisdiction	Est. 2014	Annual Growth Rate	Projected 2035	Projected Change 2014-2035	% Change 2014-2035	2035 Growth Multiplier
Citronelle	3,885	0.24%	4,085	201	5.16%	1.05
Creola	1,942	0.10%	1,983	41	2.12%	1.02
Dauphin Island	1,242	0.08%	1,263	21	1.69%	1.02
Mobile	194,675	-0.03%	193,452	-1,223	-0.63%	0.99
Mount Vernon	1,559	-0.24%	1,482	-77	-4.92%	0.95
Prichard	22,312	-1.78%	15,301	-7,010	-31.42%	0.69
Saraland	13,744	0.65%	15,747	2,003	14.57%	1.15
Satsuma	6167	0.72%	7,169	1,003	16.26%	1.16
Semmes	3,257	2.19%	5,133	1,876	57.61%	1.58
Unincorporated	157,723	-0.10%	154,443	-3,279	-2.08%	0.98
Mobile Co	415,123	0.38%	437,228	22,105	5.32%	1.05

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

**Table 5-20. 2035 Population Distribution by Jurisdiction**

Jurisdiction	2035 Population	% of Total
Bayou La Batre	2,807	0.64%
Chickasaw	5,452	1.25%
Citronelle	4,086	0.93%
Creola	1,983	0.45%
Dauphin Island	1,263	0.29%
Mobile	193,452	44.25%
Mount Vernon	1,482	0.34%
Prichard	15,302	3.50%
Saraland	15,747	3.60%
Satsuma	7,170	1.64%
Semmes	5,133	1.17%
Unincorporated	154,444	35.32%
Mobile Co	437,228	100.00%

Source: Derived from Alabama State Data Center

**5.5.3 HAZUS-MH Structure Inventory**

The percent exposure can be applied to the structure inventories to derive a general estimate of vulnerable structures by hazard. Most hazards are county-wide, but location-specific hazards – flooding, dam/levee failures, sinkholes and landslides – can vary from minimal vulnerability to as much as 100% of a community’s total geographic area. In cases where exposure is 1% or less, a 1% exposure rate has been applied. Although this does not yield a precise estimate, it provides a general indication

of the number and types of structures exposed to each hazard within each jurisdiction. This data is shown in Table 5-21 below.

**Table 5-21. Hazard Exposure Rates by Jurisdiction**

Jurisdiction	Identified Hazard												
	Hurricanes	Flooding	Severe Storms	Tornadoes	Wildfires	Droughts/Heat Waves	Winter Storms/Freezes	Earthquakes	Landslides	Dam/Levee Failures	Sinkholes/Land Subsidence	Tsunamis	Manmade/ Technological
Bayou La Batre	100%	100%	100%	100%	50%	100%	100%	5%	5%	0%	5%	1%	100%
Chickasaw	100%	75%	100%	100%	5%	100%	100%	5%	5%	0%	1%	1%	100%
Citronelle	100%	25%	100%	100%	5%	100%	100%	5%	1%	1%	<1%	1%	100%
Creola	100%	75%	100%	100%	5%	100%	100%	5%	5%	0%	1%	1%	100%
Dauphin Island	100%	100%	100%	100%	1%	100%	100%	5%	1%	0%	<1%	1%	100%
Mobile	100%	50%	100%	100%	5%	100%	100%	5%	1%	1%	1%	1%	100%
Mount Vernon	100%	50%	100%	100%	25%	100%	100%	5%	5%	0%	<1%	1%	100%
Prichard	100%	75%	100%	100%	5%	100%	100%	5%	1%	1%	5%	1%	100%
Saraland	100%	75%	100%	100%	5%	100%	100%	5%	5%	0%	<1%	1%	100%
Satsuma	100%	50%	100%	100%	25%	100%	100%	5%	5%	0%	5%	1%	100%
Semmes	100%	25%	100%	100%	25%	100%	100%	5%	1%	0%	5%	1%	100%
Unincorporated	100%	25%	100%	100%	100%	100%	100%	5%	1%	1%	5%	1%	100%
Mobile Co	100%	50%	100%	100%	100%	100%	100%	5%	5%	1%	5%	1%	100%

**General Description of the Planning Region**

HAZUS-MH refers to the geographic study area as the *region*, which is all of Mobile County, including all unincorporated areas and fourteen 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 Report for Hurricane Frederic. The Mobile County region is generally described by HAZUS-MH, as follows:

- The geographical size of the region is 1,252 square miles.
- The region contains 114 census tracts.
- There were over 158,000 households in the region, with a total population of 412,992 persons, according to the 2010 Census.

**Table 5-22. HAZUS-MH Population and Building Value Data**

State	County Name	2010 Population	Building Value (thousands of dollars)		
			Residential	Non-Residential	Total
Alabama	Mobile	412,992	\$31,740,022	\$11,810,737	\$43,550,759

**Building Inventory**

- HAZUS estimates that there are 166,541 buildings in the region which have an aggregate total replacement value of \$43,551 million (2010 dollars).
- Approximately 91.1% of the buildings (and 72.9% of the building value) are associated with residential housing (Table 5-23).
- In terms of building construction types found in the region, wood frame construction comprises the majority of the building inventory, at 77.8%. Manufactured housing comprises approximately 10% of buildings, a considerable amount (Table 5-24).

**Table 5-23. HAZUS-MH Building Inventory by Occupancy**

Occupancy	Count	Share
Agriculture	768	0.5%
Commercial	9,492	5.7%
Education	359	0.2%
Government	236	0.1%
Industrial	2,592	1.6%
Religious	1,318	0.8%
Residential	151,776	91.1%
<b>Total</b>	<b>166,541</b>	<b>100%</b>

**Table 5-24. HAZUS-MH Building Inventory by Construction Type**

<b>Construction Type</b>	<b>Count</b>	<b>Share</b>
Concrete	1,539	0.9%
Masonry	12,442	7.5%
Manufactured Housing	16,294	9.8%
Steel	6,627	4.0%
Wood	129,571	77.8%
<b>Total</b>	<b>166,473</b>	<b>100%</b>

\*Discrepancies in total # of buildings exist due to rounding in HAZUS-MH software

**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:

- ✓ 8 hospitals with a total bed capacity of 2,296 beds;
- ✓ 176 schools;
- ✓ 19 fire stations;
- ✓ 23 police stations; and
- ✓ 1 emergency operations center.

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

- ✓ 31 dams, with 1 dam classified as "high hazard" (USACE, 1999 data);
- ✓ 278 hazardous materials sites;
- ✓ 0 military installations; and
- ✓ 0 nuclear power plants.

**Transportation and Utility Lifeline Inventories**

HAZUS-MH breaks lifeline inventories into the two groups described below and estimates the number of each type of facility. HAZUS-MH estimates the total value of the lifeline inventory at \$6.9 million. A more detailed breakdown is provided in Tables 5-31 and 5-32.

(1) **Transportation systems**, which include highways, railways, light rail, bus, ports, ferry and airports. HAZUS-MH estimates this information, as follows:

- ✓ 334 miles (537 kilometers) of highways;
- ✓ 381 highway bridges;
- ✓ 1 ferry facility;

- ✓ 160 port facilities;
  - ✓ 4 airports with 6 runways.
- (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:
- ✓ 21,856 miles (35,178 kilometers) of potable water, waste water, and natural gas pipes.

**5.5.4 Existing and Future Structure Vulnerabilities by Hazard and Jurisdiction**

**Buildings**

The building exposure totals generated by HAZUS-MH are gross estimates that show relative vulnerability. 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 present value dollars.

Building exposure in Mobile County is mostly residential at about 72.9 percent. Commercial building exposure comprises approximately 15 percent (Table 5-25). This ratio should remain constant through the 2035 plan horizon and occupancy ratios are assumed constant for the purposes of this analysis.

**Table 5-25. Building Exposure by Occupancy**

<b>Occupancy</b>	<b>Existing Exposure (\$1,000)</b>	<b>Future Exposure (\$1,000)</b>	<b>% of Total (Future)</b>
Agriculture	\$1,095,882	\$1,150,676	2.5%
Commercial	\$6,568,616	\$6,897,047	15.1%
Education	\$594,428	\$624,149	1.3%
Government	\$201,849	\$211,941	0.5%
Industrial	\$2,268,929	\$2,382,375	5.2%
Religious	\$1,081,033	\$1,135,085	2.5%
Residential	\$31,740,022	\$33,327,023	72.9%
<b>Total</b>	<b>\$43,550,759</b>	<b>\$45,728,297</b>	<b>100%</b>

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

Mobile County is projected to increase in growth approximately 5.3% from 2014 to 2035, with the highest growth rates in Semmes, Satsuma, and Saraland. Many of the jurisdictions are expected to decline in population, including Chickasaw, Mobile, Mount Vernon, Prichard, and unincorporated areas of the county. 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. See Tables 5-26 to 5-28 for



estimated building values by jurisdiction, building count by occupancy and jurisdiction, and building exposure by jurisdiction.

**Table 5-26. Building Values by Jurisdiction**

Jurisdiction	Building Value					
	Existing Residential	Future Residential	Existing Non-Residential	Future Non-Residential	Existing Total	Future Total
Bayou La Batre	\$1,428,301	\$1,449,046	\$531,483	\$152,856	\$1,959,784	\$1,601,902
Chickasaw	\$3,967,503	\$6,238,679	\$1,476,342	\$658,101	\$5,443,845	\$6,896,780
Citronelle	\$253,920	\$646,722	\$94,486	\$68,221	\$348,406	\$714,943
Creola	\$2,856,602	\$4,570,817	\$1,062,966	\$482,163	\$3,919,568	\$5,052,980
Dauphin Island	\$2,570,942	\$6,005,276	\$956,670	\$633,480	\$3,527,611	\$6,638,756
Mobile	\$1,745,701	\$4,128,323	\$649,591	\$458,568	\$2,395,292	\$4,586,891
Mount Vernon	\$285,660	\$316,067	\$106,297	\$33,341	\$391,957	\$349,408
Prichard	\$126,960	\$1,556,023	\$47,243	\$16,414	\$174,203	\$1,572,437
Saraland	\$920,461	\$1,721,350	\$342,511	\$181,581	\$1,262,972	\$1,902,931
Satsuma	\$95,220	\$116,702	\$35,432	\$12,311	\$130,652	\$129,012
Semmes	\$920,461	\$1,619,236	\$342,511	\$170,809	\$1,262,972	\$1,790,045
Unincorporated	\$15,044,770	\$10,080,110	\$5,598,289	\$1,063,323	\$20,643,060	\$11,143,434
Mobile Co	\$31,740,022	\$48,625,714	\$11,810,737	\$5,129,393	\$43,550,759	\$53,755,107
Note: Totals of all municipalities and unincorporated areas may not equal Mobile County totals due to rounding.						

**Table 5-27. Building Count by Occupancy and Jurisdiction**

Jurisdiction	Building Count by Occupancy													
	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
	Agric.		Commercial		Education		Govt.		Industrial		Religion		Residential	
Bayou La Batre	35	5	427	64	16	2	11	2	117	17	59	9	6,830	1,023
Chickasaw	96	10	1,187	125	45	5	30	3	324	34	165	17	18,972	1,998
Citronelle	6	8	76	93	3	4	2	2	21	25	11	13	1,214	1,487
Creola	69	36	854	450	32	17	21	11	233	123	119	62	13,660	7,193
Dauphin Island	62	2	769	29	29	1	19	1	210	8	107	4	12,294	464
Mobile	42	358	522	4,424	20	167	13	110	143	1,208	72	614	8,348	70,734
Mount Vernon	7	3	85	34	3	1	2	1	23	9	12	5	1,366	543
Prichard	3	28	38	350	1	13	1	9	10	96	5	49	607	5,595
Saraland	22	29	275	360	10	14	7	9	75	98	38	50	4,402	5,755
Satsuma	2	13	28	164	1	6	1	4	8	45	4	23	455	2,622
Semmes	4	9	47	117	2	4	1	3	13	32	7	16	759	1,870
Unincorporated	364	286	4,499	3,531	170	134	112	88	1,229	964	625	490	71,942	56,459
Mobile Co	768	809	9,492	9,997	359	378	236	249	2,592	2,730	1,318	1,388	151,776	159,850

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

**Table 5-28. Building Exposure by Jurisdiction and Hazard, Part A**

Identified Hazard	Building Exposure (\$1000s) by Jurisdiction													
	Bayou La Batre		Chickasaw		Citronelle		Creola		Dauphin Island		Mobile		Mount Vernon	
	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
Hurricanes	\$1,960	\$1,602	\$5,444	\$6,897	\$348	\$715	\$3,920	\$5,053	\$3,528	\$6,639	\$2,395	\$4,587	\$392	\$349
Flooding	\$1,960	\$1,602	\$4,083	\$1,035	\$261	\$36	\$2,940	\$3,790	\$176	\$332	\$2,156	\$4,128	\$20	\$17
Severe Storms	\$1,960	\$1,602	\$5,444	\$6,897	\$348	\$715	\$3,920	\$5,053	\$3,528	\$6,639	\$2,395	\$4,587	\$392	\$349
Tornadoes	\$1,960	\$1,602	\$2,893	\$3,917	\$185	\$406	\$2,083	\$2,870	\$1,875	\$3,771	\$1,273	\$2,610	\$208	\$198
Wildfires	\$980	\$801	\$272	\$345	\$17	\$36	\$196	\$253	\$35	\$66	\$120	\$229	\$98	\$87
Droughts/Heat Waves	\$1,960	\$1,602	\$5,444	\$6,897	\$348	\$715	\$3,920	\$5,053	\$3,528	\$6,639	\$2,395	\$4,587	\$392	\$349
Winter Storms/ Freezes	\$1,960	\$1,602	\$5,444	\$6,897	\$348	\$715	\$3,920	\$5,053	\$3,528	\$6,639	\$2,395	\$4,587	\$392	\$349
Earthquakes	\$98	\$80	\$272	\$345	\$174	\$357	\$196	\$253	\$176	\$332	\$120	\$229	\$20	\$17
Landslides	\$98	\$80	\$272	\$345	\$3	\$7	\$196	\$253	\$35	\$66	\$24	\$46	\$20	\$17
Dam/Levee Failures	\$0	\$0	\$0	\$0	\$3	\$7	\$0	\$0	\$0	\$0	\$24	\$46	\$0	\$0
Sinkholes (Land Subsidence)	\$98	\$80	\$54	\$69	\$3	\$7	\$39	\$51	\$35	\$66	\$24	\$46	\$4	\$3
Tsunamis	\$20	\$16	\$54	\$69	\$3	\$7	\$39	\$51	\$35	\$66	\$24	\$46	\$4	\$3
Manmade/ Technological	\$1,960	\$1,602	\$5,444	\$6,897	\$348	\$715	\$3,920	\$5,053	\$3,528	\$6,639	\$2,395	\$4,587	\$392	\$349

**Table 5-28. Building Exposure by Jurisdiction and Hazard, Part B**

Identified Hazard	Building Exposure (\$1000s) by Jurisdiction											
	Prichard		Saraland		Satsuma		Semmes		Unincorporated		Mobile Co	
	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
Hurricanes	\$174	\$1,572	\$1,263	\$1,903	\$131	\$129	\$1,263	\$1,790	\$20,643	\$11,143	\$43,551	\$53,755
Flooding	\$44	\$393	\$1,137	\$1,713	\$118	\$116	\$63	\$90	\$15,482	\$8,358	\$32,663	\$40,316
Severe Storms	\$174	\$1,572	\$1,263	\$1,903	\$131	\$129	\$1,263	\$1,790	\$20,643	\$11,143	\$43,551	\$53,755
Tornadoes	\$93	\$865	\$671	\$1,081	\$69	\$73	\$671	\$1,017	\$10,970	\$6,329	\$23,143	\$30,553
Wildfires	\$9	\$79	\$63	\$95	\$33	\$32	\$316	\$448	\$10,970	\$6,329	\$23,143	\$30,553
Droughts/Heat Waves	\$174	\$1,572	\$1,263	\$1,903	\$131	\$129	\$1,263	\$1,790	\$20,643	\$11,143	\$43,551	\$53,755
Winter Storms/ Freezes	\$174	\$1,572	\$1,263	\$1,903	\$131	\$129	\$1,263	\$1,790	\$20,643	\$11,143	\$43,551	\$53,755
Earthquakes	\$9	\$79	\$63	\$95	\$7	\$6	\$63	\$90	\$1,032	\$557	\$21,775	\$26,878
Landslides	\$2	\$16	\$63	\$95	\$7	\$6	\$13	\$18	\$206	\$111	\$2,178	\$2,688
Dam/Levee Failures	\$2	\$16	\$0	\$0	\$0	\$0	\$0	\$0	\$206	\$111	\$436	\$538
Sinkholes (Land Subsidence)	\$9	\$79	\$13	\$19	\$7	\$6	\$63	\$90	\$1,032	\$557	\$2,178	\$2,688
Tsunamis	\$2	\$16	\$13	\$19	\$1	\$1	\$13	\$18	\$206	\$111	\$436	\$538
Manmade/ Technological	\$174	\$1,572	\$1,263	\$1,903	\$131	\$129	\$1,263	\$1,790	\$20,643	\$11,143	\$43,551	\$53,755

**Critical Facilities**

HAZUS-MH estimates there are 227 critical facilities within Mobile County, classifications listed in Table 5-29. The number of critical facilities will increase to approximately 239, according to future estimates.

**Table 5-29. HAZUS-MH Essential Facilities Data**

<b>Classification</b>	<b>Existing Estimate</b>	<b>Future Estimate</b>
Hospitals	8 (2,296 beds)	8.4 (2,418 beds)
Fire Stations	19	20.0
Police Stations	23	24.2
Schools	176	185.4
EOC	1	1.1

**Infrastructure**

Infrastructure inventories appear below. Infrastructure expansion is not directly related to population growth; consequently, no projections are given here. Most of the at-risk transportation system components are highway road segments and bridges, which are most vulnerable to flooding (Table 5-30).

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

<b>System</b>	<b>Component</b>	<b># Locations/Segments</b>	<b>Replacement Value (\$ millions)</b>
<b>Highway</b>	Bridges	381	\$1626.5
	Segments	155	\$3,211.1
	Tunnels	0	\$0
	<i>Subtotal</i>		<b>\$4,837.7</b>
<b>Railways</b>	Bridges	3	\$0.4
	Facilities	7	\$18.6
	Segments	169	\$248.7
	Tunnels	0	\$0
	<i>Subtotal</i>		<b>\$267.7</b>
<b>Light Rail</b>	Bridges	0	\$0
	Facilities	0	\$0
	Segments	0	\$0
	Tunnels	0	\$0
	<i>Subtotal</i>		<b>\$0</b>
<b>Bus</b>	Facilities	1	\$1.0
	<i>Subtotal</i>		<b>\$1.0</b>
<b>Ferry</b>	Facilities	1	\$1.3
	<i>Subtotal</i>		<b>\$1.3</b>
<b>Port</b>	Facilities	160	\$319.5
	<i>Subtotal</i>		<b>\$319.5</b>

System	Component	# Locations/Segments	Replacement Value (\$ millions)
Airport	Facilities	4	\$42.6
	Runways	6	\$227.8
		<i>Subtotal</i>	<b>\$270.4</b>
		<b>Total</b>	<b>\$5,697.6</b>

The types of utilities most vulnerable to hazards are wastewater treatment plants, water treatment and distribution facilities, and electric power lines and substations. Hurricanes, severe storms, and flooding pose the greatest threat to these facilities (Table 5-31).

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

System	Component	# Locations / Segments	Replacement value (\$ millions)
Potable Water	Distribution Lines	n/a	\$351.8
	Facilities	0	\$0
	Pipelines	0	\$0
		<i>Subtotal</i>	<b>\$351.8</b>
Waste Water	Distribution Lines	n/a	\$211.1
	Facilities	12	\$719.3
	Pipelines	0	\$0
		<i>Subtotal</i>	<b>\$930.3</b>
Natural Gas	Distribution Lines	n/a	\$140.7
	Facilities	7	\$6.9
	Pipelines	0	\$0
		<i>Subtotal</i>	<b>\$147.6</b>
Oil Systems	Facilities	8	\$0.7
	Pipelines	0	\$0
		<i>Subtotal</i>	<b>\$0.7</b>
Electrical Power	Facilities	5	\$495.0
		<i>Subtotal</i>	<b>\$495.0</b>
Communication	Facilities	12	\$1.1
		<i>Subtotal</i>	<b>\$1.1</b>
		<b>Total</b>	<b>\$1,926.5</b>

**Local Inventories of Critical Facilities and Infrastructure**

The following maps and tables show the locations of major critical facilities, including Government Facilities, Public Safety Facilities, Schools, Medical Care Facilities, Elderly Care Facilities, Utilities, Communication Facilities, Communication Towers, Warning Sirens, Community Shelters/Safe Rooms, Dams/Levees, and Transportation Network.

**Table 5-32. Mobile County Government Facilities**

<b>Agency</b>	<b>Address</b>	<b>City</b>	<b>Zip</b>
AL Dept. of Rehab Svc	2419 Gordon Smith Dr	Mobile	36617
AL Dept. of Transportation	1701 W I65 Service Rd N	Mobile	36618
AL DHR Admin	3103 Airport Blvd	Mobile	36606
AL DHR Assist-Families	501 Bel Air Blvd	Mobile	36606
AL DHR Food Stamps	1075 S. Bessemer	Prichard	36610
AL DHR Mobile Food Stamps	272 N. Broad Street	Mobile	36603
AL State Docks	7611 Lake Rd S	Mobile	36605
AL State of Rehab Svc	1610 Center St	Mobile	36604
Alabama Cooperative Ext	1070 Schillinger Rd N	Mobile	36608
Alabama Cooperative Ext	4170 Commanders Dr	Mobile	36615
Alabama State Docks	250 N Water St	Mobile	36602
Battleship Park	2703 Battleship Pkwy	Mobile	36602
Bayou La Batre Town Hall	13785 South Wintzell Avenue	Bayou La Batre	36509
Chickasaw City Admin	224 N Craft Hwy	Chickasaw	36611
Citronelle City Hall	19135 S Main St	Citronelle	36522
Citronelle City of Gas Division	8100 Joy St	Citronelle	36522
Convention Visitors Bureau	451 Government St	Mobile	36602
Creola Town Office	190 Dead Lake Rd	Creola	36525
Dauphin Island Sewer Authority	908 Alabama Ave	Dauphin Island	36528
Dauphin Island Town City Hall	1011 Bienville Blvd	Dauphin Island	36528
FBI Building	200 N Royal St	Mobile	36602
GM&O Transportation Center	110 Beauregard St	Mobile	36602
Hank Aaron Stadium	755 Bolling Brothers Blvd	Mobile	36606
Harbormaster	1400 Alabama St	Mobile	36604
Mobile Animal Shelter	855 Owens St	Mobile	36604
Mobile City Hall	205 Government St	Mobile	36602
Mobile City MIT Dept.	651 Church St	Mobile	36602
Mobile City Motor Pool	745 S Broad St	Mobile	36603
Mobile City Parks Rec Admin	2301 Airport Blvd	Mobile	36606
Mobile Civic Center	401 Civic Center Dr	Mobile	36602
Mobile Co Animal Shelter	2402 W Rebel Rd	Mobile	36610
Mobile Co Board-Equalization	3925 Michael Blvd # H	Mobile	36609



**CHAPTER 5****2015 Mobile County Multi-Hazard Mitigation Plan**

<b>Agency</b>	<b>Address</b>	<b>City</b>	<b>Zip</b>
Mobile Co Commission	5745 Dawes Rd	Grand Bay	36541
Mobile Co Commission	12611 US Highway 90	Grand Bay	36541
Mobile Co Community Corrections	111 Canal St	Mobile	36603
Mobile Co Constables Office	200 S Ann St	Mobile	36604
Mobile Co Inspection Svc	1110 Schillinger Rd N	Mobile	36608
Mobile Co Personnel Board	1809 Government St	Mobile	36606
Mobile Co Probate Records	304 Government St	Mobile	36602
Mobile Co Roadway Maintenance	18325 S 3Rd St	Citronelle	36522
Mobile Co Roadway Maintenance	7075 McDonald Rd	Irvington	36544
Mobile Co Roadway Maintenance	1150 Schillinger Rd N	Mobile	36608
Mobile Co Vehicle Maintenance	1200 Schillinger Rd N	Mobile	36608
Mobile Convention Center	1 S Water St	Mobile	36602
Mobile County Admin.	205 Government St	Mobile	36602
Mobile County Building Maintenance	554 S Royal St	Mobile	36603
Mobile County Garage #4	560 Virginia St	Mobile	36603
Mobile County Health Dept.	251 N Bayou St	Mobile	36603
Mobile County Metro Jail	450 St Emanuel St	Mobile	36603
Mobile County Revenue Commission	109 Government St	Mobile	36602
Mobile Electrical Dept.	854 Gayle St	Mobile	36604
Mobile Electrical Inspectors	324 University Blvd S	Mobile	36609
Mobile Housing Board	151 S Claiborne St	Mobile	36602
Mobile Landscaping Division	440 Pat Ryan Dr	Mobile	36608
Mobile Library Admin	700 Government St	Mobile	36602
Mobile Mechanical Maintenance	1768 6Th St	Mobile	36615
Mobile Metro Transit	1224 W I-65 Service Rd S	Mobile	36609
Mobile Municipal Garage	770 Gayle St	Mobile	36604
Mobile Public Buildings Dept.	850 Owens St	Mobile	36604
Mobile Special Events	2900 Dauphin St	Mobile	36607
Mobile Telecom Dept.	107 S Royal St	Mobile	36602
Mobile Traffic Engineering	852 Gayle St	Mobile	36604
Mobile Work Release Center	2423 E I65 Service Rd N	Prichard	36610
Mowa Band of Choctaw Indians	1080 Red Fox Rd W	Mount Vernon	36560
Mt Vernon Town Hall	1565 Boyles Avenue	Mt Vernon	36560
Parks Dept. Eastern Division	652 S Broad St	Mobile	36603

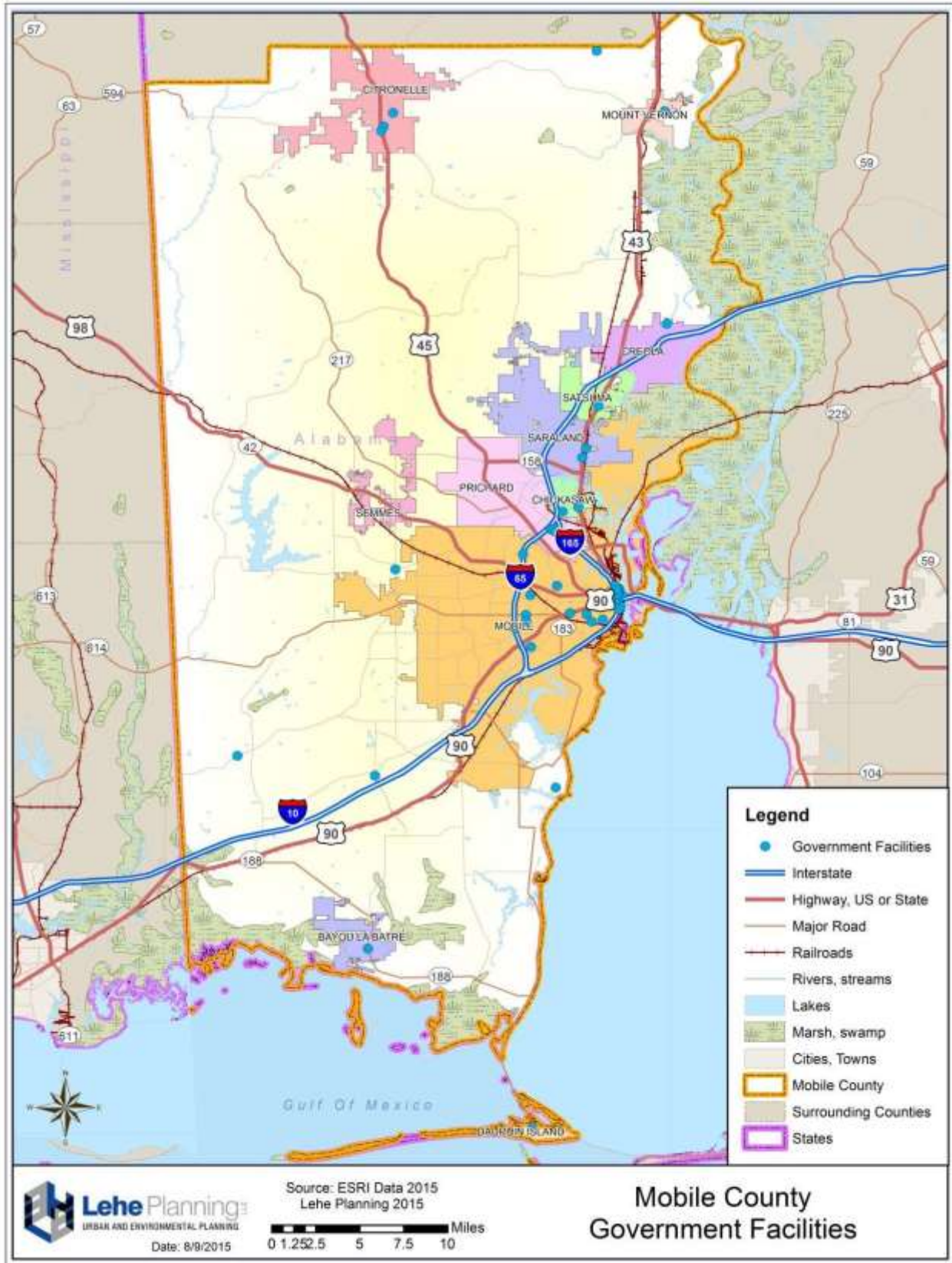
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## 2015 Mobile County Multi-Hazard Mitigation Plan

Agency	Address	City	Zip
Parks Dept. Mowing Division	603 S Broad St	Mobile	36603
Parks Dept. West Division	5201 Museum Dr	Mobile	36608
Prichard City Hall	216 E Prichard Ave	Mobile	36610
Public Buildings Storage 2	610 St Anthony St	Mobile	36603
Public Buildings Storage	650 St Anthony St	Mobile	36603
Public Works Paint & Body	901 Kelly St	Mobile	36608
Sage Ave Armory	48 N Sage Ave	Mobile	36602
Saraland Animal Control	104 Station St	Saraland	36571
Saraland Building Inspector	933 Saraland Blvd S	Saraland	36571
Saraland City Hall	716 Saraland Blvd S	Saraland	36571
Saraland Drainage Dept.	716 Saraland Blvd S	Saraland	36571
Satsuma City Hall	5464 Old Highway 43	Satsuma	36572
Strickland Youth Center	2315 Costarides St	Mobile	36617
Urban Dev Code Enforce Division	324 S University Blvd	Mobile	36609
US Bureau of ATF	110 Beauregard St	Mobile	36602
US Congressman Jo Bonner	11 N Water St	Mobile	36602
US Customs Service	150 N Royal St	Mobile	36602
US District Court	113 Saint Joseph St	Mobile	36602
US Federal Building	109 St Joseph St	Mobile	36602
US Postal Service	250 St Joseph St	Mobile	36601
US Social Security Office	550 Government St # 200	Mobile	36602

Source: Derived from US Company Database, 2013

Map 5-24. Mobile County Government Facilities



**Table 5-33. Mobile County Public Safety Facilities**

<b>Name</b>	<b>Address</b>	<b>City</b>
1st Precinct	850 Virginia St	Mobile
2nd Precinct	4851 Museum Dr	Mobile
3rd Precinct	2165 St Stephens Rd	Mobile
4th Precinct	8100 Airport Blvd	Mobile
Alabama Port Fire Dept. (Non-EM)	3321 Hwy 188	Coden
Bayou La Batre Fire Dept.	13785 S Wintzell Ave	Bayou La Batre
Bayou La Batre Police Dept.	13785 S Wintzell Ave	Bayou La Batre
Bayou La Batre Station #2	12741 Padgett Switch	Bayou La Batre
Calcedeaver Volunteer Fire Dept.	2125 W Coy Smith Hwy	Mount Vernon
Chickasaw Fire Dept.	224 N Craft Hwy	Chickasaw
Chickasaw Police Dept.	224 N Craft Hwy	Chickasaw
Citronelle Police Dept.	19180 N Mobile St	Citronelle
Citronelle Volunteer Fire Dept.	19135 S Mobile St	Citronelle
Citronelle Volunteer Fire Dept.	18155 Prine Rd	Citronelle
Creola Fire Dept.	190 A Dead Lake Rd	Creola
Creola Police Dept.	190 A Dead Lake Rd	Creola
Dauphin Island Fire Dept.	1020 Chaumont Ave	Dauphin Island
Fairview Water & Fire Protection	4615 Vacu Maid Dr	Semmes
Fire Central	701 St. Francis St	Mobile
Fire Dept. Warehouse	2851 Old Shell Rd	Mobile
Fire Station 1 Lloyd J Freeman	6801 Overlook Rd	Mobile
Fire Station 11 Willett	1004 S Broad St	Mobile
Fire Station 12 Ashland	2407 Old Shell Rd	Mobile
Fire Station 14 Toulminville	2062 Dr MLK Jr Ave	Mobile
Fire Station 15 Gus Rehm	3200 Moffett Rd	Mobile
Fire Station 16 Lathan	1951 Maryvale St S	Mobile
Fire Station 18 Springhill	700 Museum Dr	Mobile
Fire Station 19 McCoske	1275 Azalea Rd	Mobile
Fire Station 20 Petrey	3471 Dauphin Island Pkwy	Mobile
Fire Station 21 Reid	512 Stimrad Rd	Mobile
Fire Station 22 Tapia	4710 Airport Blvd	Mobile
Fire Station 23 Sirmon	2711 Airport Blvd	Mobile

**CHAPTER 5****2015 Mobile County Multi-Hazard Mitigation Plan**

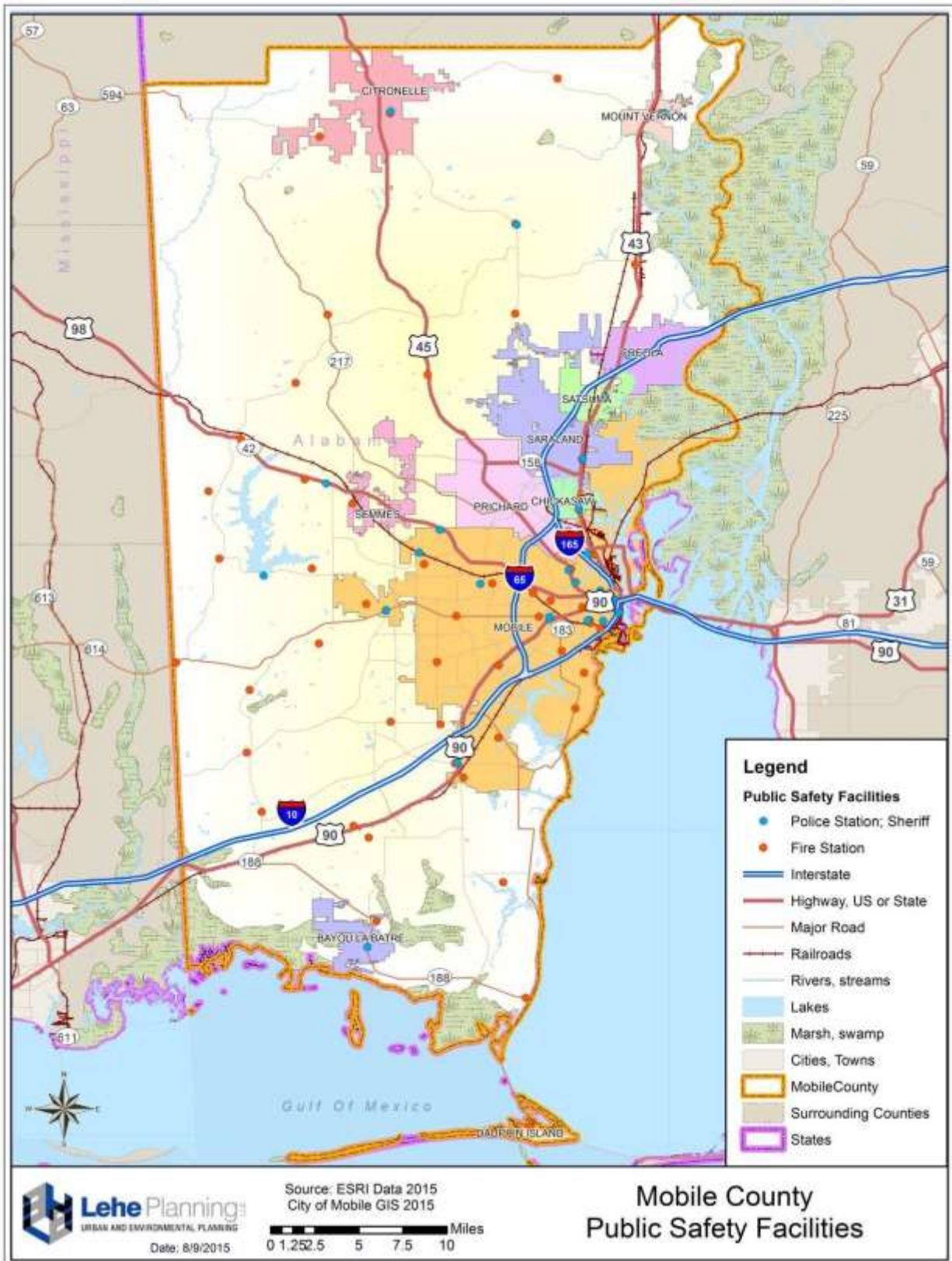
<b>Name</b>	<b>Address</b>	<b>City</b>
Fire Station 26	8100 B Airport Blvd	Mobile
Fire Station 28 Berger	7050 Old Military Rd	Mobile
Fire Station 6 Edwards	2525 Hillcrest Rd	Mobile
Fire Station 7 Seelhorst	5525 Commerce Blvd E	Mobile
Fire Station 8 Melton	57 S Lafayette St	Mobile
Fire Station 9 Husband	1000 Houston St	Mobile
Fire Station Bates Field	8839 Flave Pierce Rd	Mobile
Fire Station Brookley	2520 Aero Space Dr	Mobile
Fire Training	860 Owens St	Mobile
Fowl River Volunteer Fire Dept.	4115 River Rd	Theodore
Georgetown Volunteer Fire Dept.	11180 Lott Rd	Chunchula
Grand Bay Fire Dept.	8425 Grand Bay Wilmer	Grand Bay
Grand Bay Volunteer Fire Dept.	10384 Potter Tract Rd	Grand Bay
Metro Firearms Training Facility	12251 Tanner Williams Rd	Mobile
Mobile Co Sheriffs HQ	510 S Royal St	Mobile
Mobile Co Sheriff's Substation	12611 US Hwy 90 W	Grand Bay
Mobile Co Sheriff's Substation	3630 Henry Davis Rd	Turnerville
Mobile Co Sheriff's Substation	5808 US Hwy 90 W	Theodore
Mobile Co Sheriff's Substation	10121 Moffett Rd	Semmes
Mobile Co Sheriff's Training	6189 Moffett Rd	Mobile
Mount Vernon Police Dept.	1565 Boyles Ave	Mount Vernon
Mount Vernon Fire Dept. (Non-EM)	19100 Ducloux St	Mount Vernon
Oak Grove Volunteer Fire Dept.	US Hwy 45 at Arden Rd	Chunchula
Police Academy	1251 Virginia St	Mobile
Police Central Events	320 Dauphin St	Mobile
Police Crime Prevention	2407 Airport Blvd	Mobile
Police HQ	2460 Government Blvd	Mobile
Police Impound Lot	1251 Virginia St	Mobile
Police - Josephine Allen Station	708 A Phillips Ave	Mobile
Police Mounted Unit	1251 Virginia St	Mobile
Police Offices	850 St. Anthony St	Mobile
Police Pistol & Rifle Range	1818 Myland Ave	Mobile
Police Roger Williams Station	350 D Brazier Dr N	Mobile
Police Special Operations	880 Dr MLK Jr Ave	Mobile

**CHAPTER 5****2015 Mobile County Multi-Hazard Mitigation Plan**

<b>Name</b>	<b>Address</b>	<b>City</b>
Prichard Fire Dept.	303 Turner Rd W	Prichard
Prichard Police Dept.	216 E Prichard Ave	Prichard
Saraland Fire Dept.	716 US Hwy 43 S	Saraland
Saraland Police Dept.	716 US Hwy 43 S	Saraland
Satsuma Fire Dept.	5668 2nd St	Satsuma
Satsuma Police Dept.	5668 2nd St	Satsuma
Semmes Volunteer Fire Dept.	3751 Wulff Rd E	Semmes
Seven Hills Fire District, Station #2	12900 Fort Lake Rd	Seven Hills
Seven Hills Volunteer Fire Dept.	3650 Newman Rd	Mobile
Seven Hills Volunteer Fire Dept.	10351 Garris Dr	Mobile
St. Elmo Irvington VF District #1	9041 Half Mile Rd	Irvington
St. Elmo Irvington VF District #2	9130 Dodge Rd	Irvington
Tanner Williams VFD #2	1225 Rigby Rd	Tanner Williams
Tanner Williams VFD #3	4225 Palestine Rd	Tanner Williams
Tanner Williams VFD #4	12265 Airport Blvd	Tanner Williams
Tanner Williams VFD	13745 Tanner Williams Rd	Wilmer
Theodore Tillmans Corner VFD Phillips	5780 Theodore Dawes Rd	Theodore
Theodore Tillmans Corner VFD Taylor	7956 Three Notch Rd	Tillmans Corner
Theodore Tillmans Corner VFD	5008 S Freeway Ct	Mobile
Turnerville Volunteer Fire Dept. #3	131145 Hwy 43	Turnerville
Turnerville Volunteer Fire Dept. #1	11230 Celeste Rd	Chunchula
Turnerville Volunteer Fire Dept. #2	14740 Celeste Rd	Saraland
Wilmer Volunteer Fire Dept.	13433-E Moffett Rd	Wilmer
Wilmer Volunteer Fire Station	6831 Lott Rd	Wilmer

Source: Info USA, 2001

Map 5-25. Mobile County Public Safety Facilities



**Table 5-34. Mobile County Schools**

<b>Name</b>	<b>Address</b>	<b>City</b>	<b>Zip</b>
100 Black Men of Greater Mobile Phoenix Program	838 W Main St	Prichard	36610
ABC Kindergarten	3618 Oaktree Dr	Semmes	36575
Al Iman Academy	63 East Dr	Mobile	36608
Alabama Education and Tech Academy	1975 Avenue C	Mobile	36615
Alabama School of Mathematics and Science	1255 Dauphin St	Mobile	36604
Alba Middle	14180 S Wintzell Ave	Bayou La Batre	36509
Allentown Elementary	10330 Howells Ferry Rd	Semmes	36575
Alma Bryant High	14001 Hurricane Rd	Irvington	36544
Alpha & Omega Christian	2901 N Schillinger Rd	Semmes	36575
Angela Davis Christian Academy	166 Meaher St	Prichard	36610
Anna Booth Elementary	1701 Hurricane Blvd	Irvington	36544
Ariel Holloway Elementary	625 Stanton Rd	Mobile	36617
Arnold School of Alabama, Inc.	4308 Downtowner Loop N	Mobile	36609
Augusta Evans School	100 N Florida St	Mobile	36607
B C Rain School	3125 Dauphin Island Pkwy	Mobile	36605
Baker High	8901 Airport Blvd	Mobile	36695
Belsaw Mt. Vernon Middle	1650 Gartman Cir	Mt. Vernon	36560
Bernice Causey Middle	2205 McFarland Rd	Mobile	36695
Bishop State Baker Gains - Central Campus	1365 Dr Martin Luther King Jr Ave	Mobile	36603
Bishop State Community College - Carver Campus	414 Stanton Rd	Mobile	36617
Bishop State Community College - Main Campus	351 N Broad St	Mobile	36603
Bishop State Community College - SW Campus	925 Dauphin Island Pkwy	Mobile	36603
Booker T Washington Middle	1961 Andrews St	Mobile	36617
Bryant Vocational Center	8950 Padgett Switch Rd	Irvington	36544
CF Vigor High	913 N Wilson Ave	Prichard	36610
CL Scarborough Middle	1800 Phillips Ln	Mobile	36618
Calcedeaver Elementary	20185 Richard Weaver Rd	Mt. Vernon	36560
Calloway Smith Middle	350 N Lawrence St	Mobile	36603
Calvary Christian School	6800 Three Notch Rd	Tillman's Corner	36619
Castlen Elementary	9960 School House Rd	Grand Bay	36541
Cedar Preparatory Academy	650 W Clark Ave	Prichard	36610
Chickasaw City School	50 Chieftain Way	Chickasaw	36611



**CHAPTER 5****2015 Mobile County Multi-Hazard Mitigation Plan**

<b>Name</b>	<b>Address</b>	<b>City</b>	<b>Zip</b>
Chickasaw Elementary	50 Chieftain Way	Chickasaw	36611
Citronelle High	19325 Rowe St	Citronelle	36522
Clark-Shaw Magnet School	5960 Arlberg St	Mobile	36608
Collins Rhodes Elementary	5110 St. Stephens St	Eight Mile	36613
Continuous Learning Center	1870 Pleasant Ave	Mobile	36617
Corpus Christi Catholic School	6300 McKenna Dr	Mobile	36608
Cottage Hill Christian Academy	4255 Cottage Hill Rd	Mobile	36609
Cottage Hill Christian Academy - West	7355 Creekwood Dr	Mobile	36695
Council Traditional Elementary Magnet School	751 Wilkinson St	Mobile	36603
Covenant Christian School	7150 Hitt Rd	Mobile	36695
Craighead Elementary	1000 S Ann St	Mobile	36605
Cranford H Burns Middle	6175 Girby Rd	Mobile	36693
Dauphin Island Elementary	1501 Bienville Blvd	Dauphin Island	36528
Dauphin Island Sea Lab	101 Bienville Blvd	Dauphin Island	36528
Dawes Intermediate	10451 West Lake Rd	Mobile	36695
Dixon Elementary	8650 Four Mile Rd	Irvington	36544
Dixon's Total Tough Child Development Center	821 S Wilson Ave	Prichard	36610
Dr. Robert W. Gilliard Elementary	2757 Dauphin Island Pkwy	Mobile	36605
Dunbar Middle	500 St. Anthony St	Mobile	36603
E R Dickson Elementary	4645 Bit & Spur Rd	Mobile	36608
Eichold Mertz Elementary	2815 Government Blvd	Mobile	36606
Elizabeth Fonde Elementary	3956 Cottage Hill Rd	Mobile	36609
Elizabeth S. Chastang Middle	2800 Berkley Ave	Mobile	36617
Ella Grant Elementary	535 Easterling St	Prichard	36610
Elsie Collier Elementary	601 Snow Rd N	Mobile	36608
Emmanuel Seventh Day Adventist	2000 Dr Martin Luther King Jr Ave	Mobile	36617
Environmental Studies Center	6101 Girby Rd	Mobile	36693
Evangel Christian School	1277 Jubilee Dr	Saraland	36613
Faith Academy	8650 Tanner Williams Rd	Mobile	36608
Faulkner University	3943 Airport Blvd	Mobile	36609
Faulkner Vocational School	33 W Elm St	Prichard	36610
First Church of Nazarene School	669 Azalea Rd	Mobile	36609
Florence Howard Elementary	957 Dr Martin Luther King Jr Ave	Mobile	36603
Fonvielle Head Start	461 Donald St	Mobile	36617

# CHAPTER 5

# 2015 Mobile County Multi-Hazard Mitigation Plan

Name	Address	City	Zip
Forest Hill Elementary	4501 Moffett Rd	Mobile	36618
Fortis College	3590 Pleasant Valley Rd	Mobile	36609
Fortis College	300 Azalea Rd, Ste S	Mobile	36609
Frank W Breitling Elementary	8350 S Grand Wilmer Rd	Mobile	36541
George Hall Elementary	1108 Antwerp St	Mobile	36605
Good Shepherd Church & Academy	5851 Plantation Rd	Theodore	36582
Government Street Baptist School	3401 Government St	Mobile	36693
Grace Baptist Academy	8780 Howells Ferry Rd	Semmes	36575
Grace Tabernacle Baptist Church	2001 Dawes Rd	Dawes	36695
Grace Temple Christian Academy	159 Hemley Ave	Mobile	36607
Grand Bay Middle	12800 Cunningham Rd	Grand Bay	36541
Haven Woods Christian School	7050 Lott Rd	Semmes	36575
Highpoint Christian School	2421 Lott Rd	Eight Mile	36613
Hillcrest Road Kindercare	2258 Hillcrest Rd	Mobile	36695
Hollingers Island Elementary	2400 Hammock Rd	Mobile	36605
Hutchens Elementary	10005 West Lake Rd	Mobile	36693
Indian Springs Elementary	4550 Highpoint Blvd	Eight Mile	36613
JE Turner Elementary	8361 Lott Rd	Wilmer	36587
Jackson Creek Christian Academy	10431 Old Pascagoula Rd	Grand Bay	36541
Jeremiah A Denton Middle	3800 Pleasant Valley Rd	Mobile	36609
John L Leflore Magnet High School	700 Donald St	Mobile	36617
Just 4 Development Laboratory	2263 St. Stephens Rd	Mobile	36617
Kate Shepard Elementary	3980-B Burma Rd	Mobile	36693
Katherine Hankins Middle	5750 Katherine Hankins Dr	Theodore	36582
Kingdom Academy	1060 Government St	Mobile	36604
Knollwood Christian School	1501 Knollwood Dr	Mobile	36609
Lighthouse Baptist Academy	6905 Nan Gray Davis Rd	Theodore	36582
Lillie B Williamson High	1567 Dublin St E	Mobile	36605
Littler Flower Catholic School	2103 Government St	Mobile	36606
Living Word Academy	2900 Dawes Rd	Mobile	36695
Lott Middle	776 Celeste Rd	Citronelle	36522
Mae Eanes Middle	1901 Hurtel St	Mobile	36605
Magnolia Springs Christian School	6058 Theodore Dawes Rd	Theodore	36582
Mary B Austin Elementary	150 Provident Ln	Mobile	36608

**CHAPTER 5****2015 Mobile County Multi-Hazard Mitigation Plan**

<b>Name</b>	<b>Address</b>	<b>City</b>	<b>Zip</b>
Mary G Montgomery High	4275 Snow Rd N	Semmes	36575
Mary W Burroughs Elementary	6875 Burroughs Ln	Theodore	36582
Maryvale Elementary	1901 Maryvale St N	Mobile	36605
Mattie T Blount High	5480 Lott Rd	Eight Mile	36613
McDavid Jones Elementary	16250 US Hwy 45 S	Citronelle	36522
McGill Toolen Catholic High School	1501 Old Shell Rd	Mobile	36604
Meadowlake High	8251 Three Notch Rd	Mobile	36619
Mobile Christian School	5900 Cottage Hill Rd	Mobile	36609
Mobile County Training Center	800 Whitley St	Mobile	36610
Mobile Junior Academy	1900 Cody Rd S	Mobile	36695
Moffett Road Christian School	6159 Moffett Rd	Mobile	36618
Moffett Road Baptist Child Development Center	5555 Moffett Rd	Mobile	
Montesorri Academy of Mobile	18 Pierpoint Dr W	Mobile	36606
Montessori World School	2061 Leroy Stevens Rd	Mobile	36695
Morningside Elementary	2700 Greenbrier Dr S	Mobile	36605
Most Pure of Heart Mary Catholic School	310 Sengstak St	Mobile	36603
Mt. Calvary Lutheran School	1660 Dominick St	Mobile	36605
Muhammad Clara Elementary	1559 Duval St	Mobile	36605
Nan Gray Davis Elementary	6900 Nan Gray Davis Rd	Theodore	36582
Nazaree Christian	1675 W I-65 Service Rd N	Mobile	36618
New Bayside Christian Academy	1755 Dublin St	Mobile	36605
North Mobile Christian School	1255 Industrial Pkwy	Saraland	36571
North Mobile County Middle	251 Baker Rd	Satsuma	36572
North Mobile County Middle	1950 Salco Rd W	Axis	36505
Northway Christian Academy	4480 Lott Rd	Eight Mile	36613
Oak Park Christian School	3321 Sollie Rd	Mobile	36695
Old Shell Road Elementary Magnet School	1706 Old Shell Rd	Mobile	36604
Olive J Dodge Elementary	2615 Longleaf Rd	Mobile	36693
Orchard Elementary	6400 Howells Ferry Rd	Mobile	36618
O'Rourke Elementary	1975 Leroy Stevens Rd	Mobile	36695
Palmer Pillans Middler	2051 Military Rd	Mobile	36605
Pathway Star Academy Preparatory	800 1/2 Whitley St	Mobile	36610
Pearl Haskew Elementary	7001 White Oak Dr	Irvington	36544
Phillips Preparatory Magnet School	3255 Old Shell Rd	Mobile	36607

**CHAPTER 5****2015 Mobile County Multi-Hazard Mitigation Plan**

<b>Name</b>	<b>Address</b>	<b>City</b>	<b>Zip</b>
Preschool Center for the Sensory Impaired	1050 Government St	Mobile	36604
Regional School for the Deaf and Blind	3980 Burma Rd	Mobile	36693
Remington College	828 Downtowner Loop W	Mobile	36609
Revelation Christian School	1711 Taylor Ln	Mobile	36605
Robert E Lee Intermediate	251 Baker Rd	Satsuma	36572
Robert E Lee Primary	220 Baker Rd	Satsuma	36572
S S Murphy High	100 S Carlen St	Mobile	36606
Safe Haven Christian Academy	803 N Dr Martin Luther King Jr Ave	Prichard	36610
Saraland Elementary	229 McKeough Ave	Saraland	36571
Saraland High		Saraland	
Saraland Middle	401 Baldwin Rd	Saraland	36571
Satsuma Christian School	5600 Old Hwy 43	Satsuma	36572
Semmes Elementary	10100 Blackwell Nursery Rd	Semmes	36575
Semmes Middle	4566 Ed George Rd	Semmes	36575
Shelton Academy	1050 Hillcrest Rd	Mobile	36695
Shelton Beach Rd Baptist Kindergarten	401 Shelton Beach Rd	Saraland	36571
Shiloh Christian School	723 Cleveland Rd	Saraland	36571
Spencer-Westlawn Elementary	3071 Ralston St	Mobile	36606
Springhill College	4000 Dauphin St	Mobile	36608
St. Dominics Catholic School	4160 Burma Rd	Mobile	36693
St. Elmo Catholic Elementary	8666 McDonald Ave	Irvington	36568
St. Ignatius Catholic School	3650 Spring Hill Ave	Mobile	36608
St. John's Deliverance School	1624 Boykin Blvd	Mobile	36605
St. Luke's Episcopal Lower	3975 Japonica Ln	Mobile	36693
St. Luke's Episcopal Middle/Upper	1400 S University Blvd	Mobile	36609
St. Mary's Catholic School	107 N Lafayette St	Mobile	36604
St. Paul's Episcopal School	161 Dogwood Ln	Mobile	36608
St. Pius Tenth Catholic School	217 S Sage Ave	Mobile	36606
St. Vincent De Paul Catholic School	6571 Larkspur Dr	Mobile	36619
Stanford Christian Academy	8780 Moffett Rd	Semmes	36575
Strickland Youth Center	2315 Costarides St	Mobile	36617
Tanner Williams Elementary	13700 Tanner Williams Rd	Wilmer	36587
Taylor White Elementary	476 Eliza Jordan Rd N	Mobile	36608
The Learning Tree	4979 Lott Rd	Eight Mile	36613

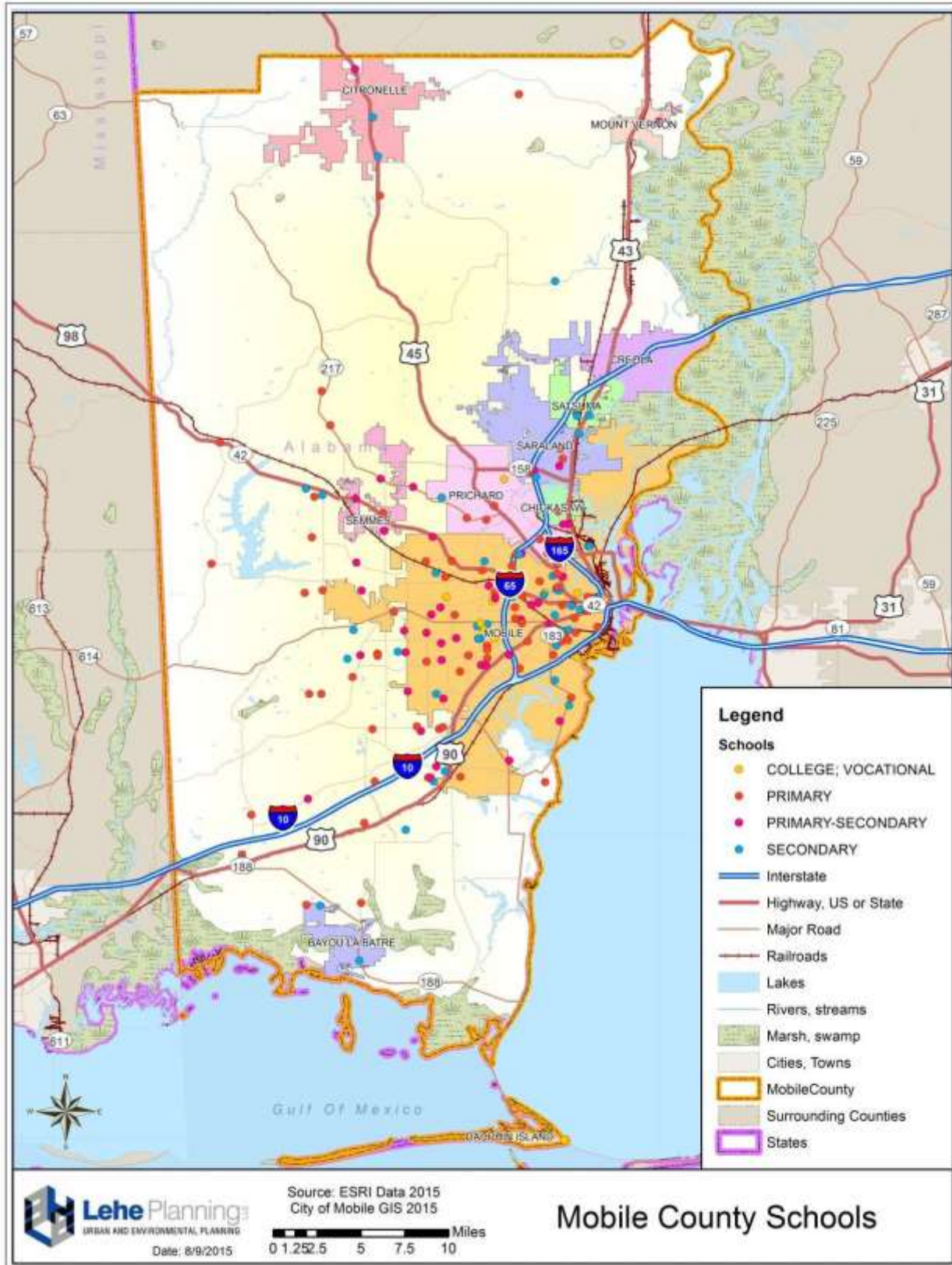
## CHAPTER 5

## 2015 Mobile County Multi-Hazard Mitigation Plan

Name	Address	City	Zip
The Rock School	6245 Old Rangeline Rd	Theodore	36582
Theodore High	6201 Swedetown Rd N	Theodore	36582
Tillman's Corner Assembly of God Academy	5860 Three Notch Rd	Tillman's Corner	36619
Trinity Evangelical Lutheran Elementary	2668 Berkley Ave	Mobile	36617
UMS Wright Preparatory School	65 Mobile St	Mobile	36607
University of Mobile	5735 College Pkwy	Mobile	36613
University of South Alabama - Main Campus	307 N University Blvd	Mobile	36688
W C Griggs Elementary	6001 Three Notch Rd	Mobile	36619
W D Robbins Elementary	2416 W Main	Prichard	36610
W H Leinkauf Elementary	1410 Monroe St	Mobile	36604
W P Davidson High	3900 Pleasant Valley Rd	Mobile	36609
Wesleyan Christian Academy	21276 US Hwy 45	Citronelle	36522
West Mobile Baptist Christian School	7501 Airport Blvd	Mobile	36608
Westminster Early Childhood Program	2921 Airport Blvd	Mobile	36606
Whitley Elementary	528 Sipsey St	Prichard	36610
Will Elementary	5750 Summit Ave	Mobile	36608
William Henry Brazier Elementary	2161 Butler St	Mobile	36617
Wilmer Elementary	6383 Second St	Wilmer	36587
Word of Life Institute	351 S Craft Hwy	Chickasaw	36611

Source: US Department of Education, 2000

**Map 5-26. Mobile County Schools**

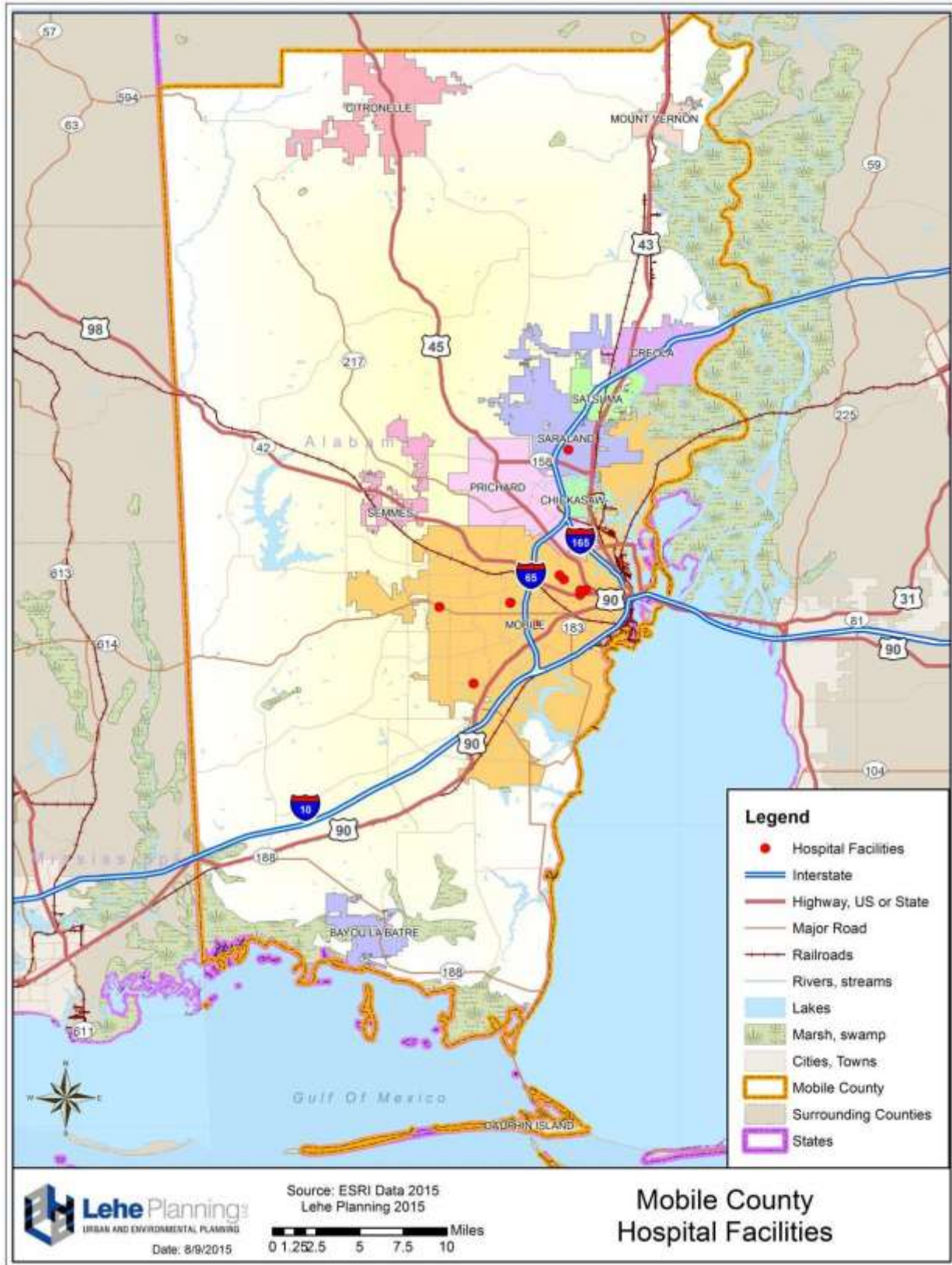


**Table 5-35. Mobile County Medical Facilities**

<b>Facility</b>	<b>Address</b>	<b>City</b>	<b>Zip</b>
Mobile Infirmiry Medical Center	801 Shelton Beach Rd	Saraland	36571
USA Children's & Women's Hospital	1700 Center St	Mobile	36604
Children's Hospital Satellite	3100 Cottage Hill Rd	Mobile	36606
Mobile Infirmiry Medical Center	1761 Spring Hill Ave	Mobile	36607
Mobile Infirmiry Medical Center	5 Mobile Infirmiry Cir	Mobile	36607
Providence Hospital	6801 Airport Blvd	Mobile	36608
Springhill Medical Center	3719 Dauphin St	Mobile	36608
Bay Pointe Hospital	2400 Gordon Smith Dr	Mobile	36617
USA Medical Center	2451 Fillingim St	Mobile	36617
Infirmiry West Hospital	5600 Girby Rd	Mobile	36693

Source: Alabama Hospital Association, 2000

**Map 5-27. Mobile County Medical Facilities**





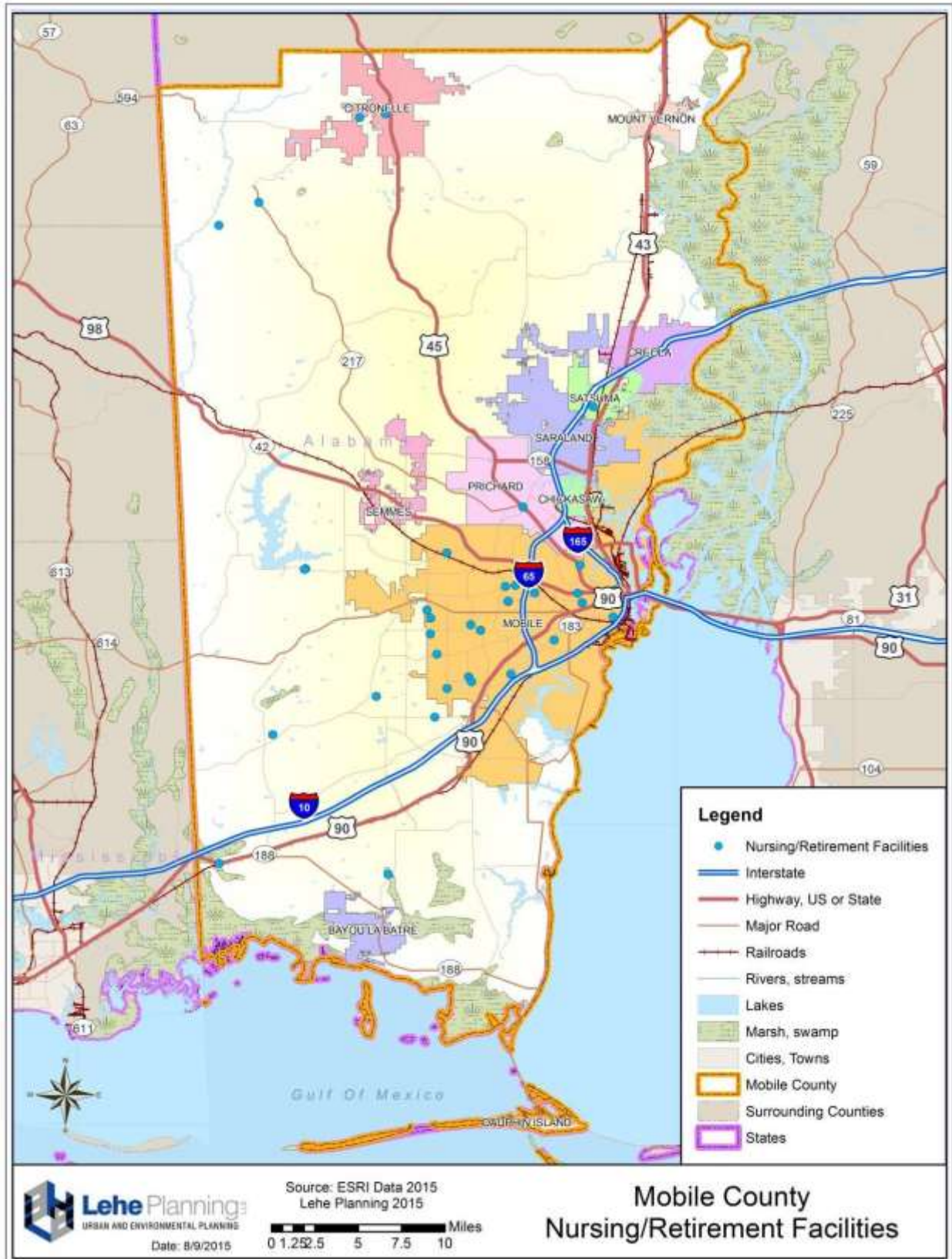
**Table 5-36. Mobile County Elderly Care Facilities**

<b>Facility</b>	<b>Address</b>	<b>City</b>	<b>Zip</b>
Whittens Country Haven	14800 Lott Rd	Citronelle	36522
Citronelle Assisted Living	8525 State St	Citronelle	36522
Citronelle Convalescent Center	19225 N 4th St	Citronelle	36522
Turner's Magnolia Manor Elderly	15074 Earlville Rd	Citronelle	36522
Grand Bay Convalescent Home	13750 Highway 90	Grand Bay	36541
Country Gables Assisted Living	12250 Hi Fields Rd	Grand Bay	36541
Mackey's Home	8571 Three Mile Rd	Irvington	36544
North Mobile Retirement	300 Baker Rd	Satsuma	36572
Allen Memorial Home	735 S Washington Ave	Mobile	36603
Sea Breeze Nursing Home	550 Congress St	Mobile	36603
Little Sisters of the Poor	1655 McGill Ave	Mobile	36604
Murray House	1257 Government St	Mobile	36604
Crowne Health Care-Mobile, LLC	954 Navco Rd	Mobile	36605
Kindred Health Care Center-Mobile	1758 Spring Hill Ave	Mobile	36607
Our Southern Home-the Orchard	3085 Dauphin Square Connector	Mobile	36607
Springhill Senior Residence	3717 Dauphin St	Mobile	36608
Portier Place Lifecare Community	4363 Old Shell Rd	Mobile	36608
Spring Hill Manor	3900 Old Shell Rd	Mobile	36608
Abundant Life Assisted Living	11220 Tanner Williams Rd	Mobile	36608
McAuley Place	3720 Dauphin St	Mobile	36608
Stacey's Manor	1045 Novatan Rd N	Mobile	36608
Atria Regency	4720 Morrison Dr	Mobile	36609
University Oaks Retirement	650 University Blvd S	Mobile	36609
Eight Mile Nursing and Rehab Center	4525 Saint Stephens Rd	Eight Mile	36613
Twin Oaks Nursing Home Inc.	857 Crawford Ln	Mobile	36617
Orchard Retirement Community	6411 Howells Ferry Rd	Mobile	36618
Carrington Southern Home	6801 Three Notch Rd	Mobile	36619

<b>Facility</b>	<b>Address</b>	<b>City</b>	<b>Zip</b>
Home Sweet Home South	4030 Dawes Ln E	Mobile	36619
Gordon Oaks Senior Living	3145 Knollwood Dr	Mobile	36693
Knollwood Pointe Assisted Living	5601 Girby Rd	Mobile	36693
Lynwood Nursing Home	4164 Halls Mill Rd	Mobile	36693
Brookside Retirement Community	2260 Pesnell Ct	Mobile	36695
Hearthstone	3440 Hillcrest Rd	Mobile	36695
Mobile Nursing & Rehab	7020 Bruns Dr	Mobile	36695
Somerby At West Mobile	901 Somerby Dr	Mobile	36695
Southern Oaks	680 Cody Rd S	Mobile	36695

Source: Derived from US Company Database, 2013

**Map 5-28. Mobile County Elderly Care Facilities**



**Table 5-37. Mobile County Utilities**

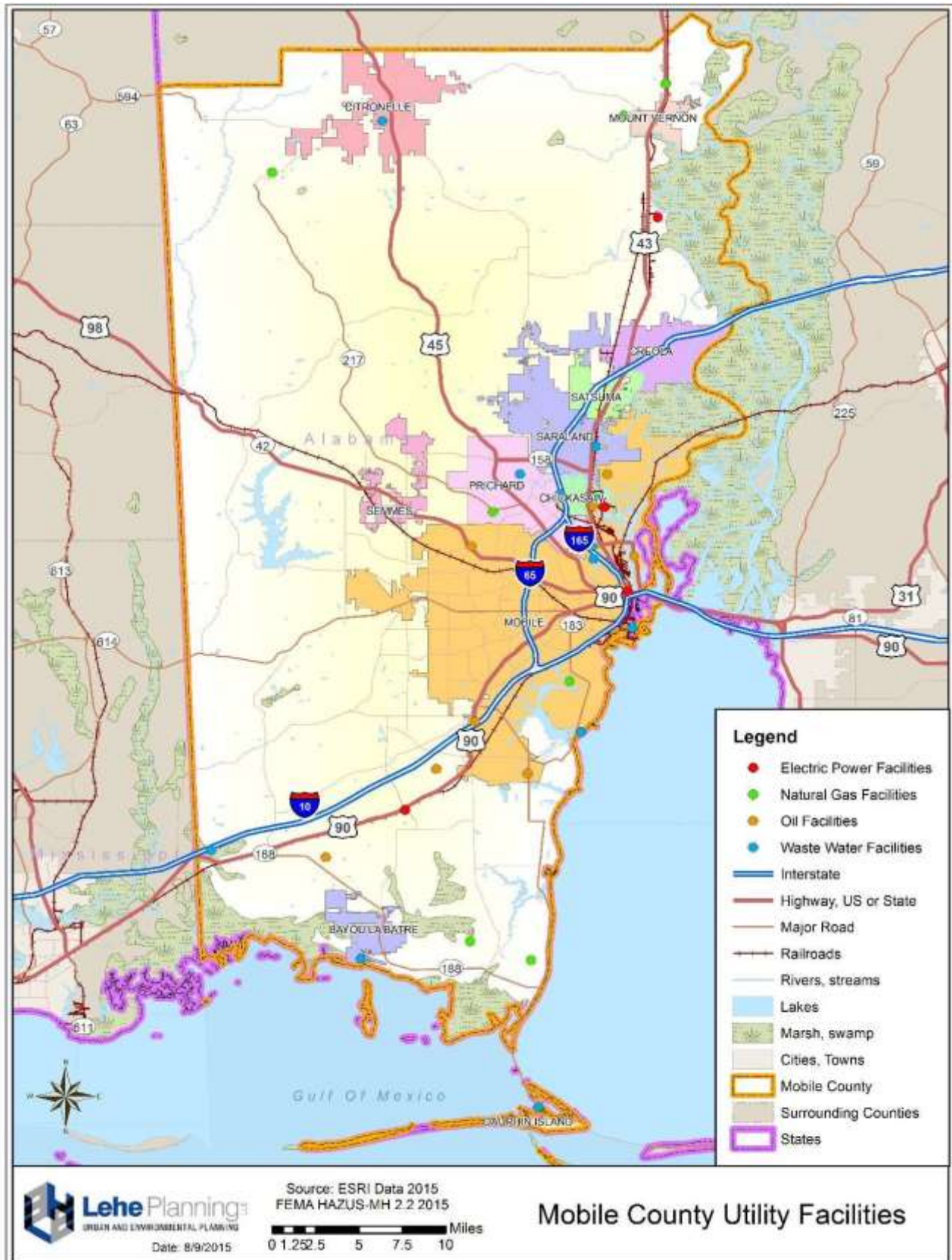
<b>Name</b>	<b>City</b>	<b>Zip</b>	<b>Latitude</b>	<b>Longitude</b>
ALDOT t I-10 Welcome Center Lagoon	Grand Bay	36541	30.47731	-88.388
Alabama Power Company	Bucks	36512	31.00433	-88.0163
Alabama Power Company	Chickasaw	36611	30.76333	-88.0606
Alabama Power-Chickasaw Steam Plant	Chickasaw	36611	30.76339	-88.0615
American Waste Oil Processors	Grand Bay	36541	30.47154	-88.2927
Apco Irvington Crew Hqs.	Irvington	36544	30.51083	-88.2267
Bayou La Batre Utilities Board	Bayou La Batre	36509	30.38686	-88.2635
Bill Ziebach Waste Water Treatment Plant	Mobile	36605	30.57589	-88.0801
Carlos A Morris Wastewater Treatment Plant	Prichard	36610	30.73033	-88.0711
Clifton C Williams Wastewater Treatment	Mobile	36603	30.66269	-88.0377
Coastal Mobile Refining Company	Chickasaw	36611	30.764	-88.0702
Dauphin Island W And S Authority	Dauphin Island	36528	30.26344	-88.1159
Florida Ga Trans Phase III Exp.			31.04167	-88.3375
Florida Gas Trans Co Com St II	Mount Vernon	36560	31.11542	-88.0098
Florida Gas Transmission Co.	Mount Vernon	36560	31.08909	-88.0445
Gamxx Energy, Inc.	Theodore	36582	30.54111	-88.1247
Gulf South - Mobile	Mobile	36613	30.75905	-88.1537
LL & E Mobile River Terminal	Mobile	36610	30.72222	-88.0361
Midstream Fuel Service	Mobile	36618	30.73056	-88.1717
University of Mobile Wastewater Treatment Plant	Mobile	36613	30.79056	-88.1309
Petroleum Energy Prods. Company- Tillman	Mobile	36619	30.58444	-88.1683
S&D Oil Services	Theodore	36582	30.54498	-88.2007
Saraland WWTP	Saraland	36571	30.81375	-88.0681
Shell Chemical Company	Saraland	36571	30.79056	-88.0584
So Al Utility Citronelle Lagoon	Citronelle	36522	31.0845	-88.2458
Stanley Brooks Wastewater Treatment Plant	Prichard	36610	30.77367	-88.0977
Tenneco Gas Co Mobile Bay 916			30.38595	-88.1218
Transco Gas Pipe Line Coden	Coden	36523	30.40139	-88.1725

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<b>Name</b>	<b>City</b>	<b>Zip</b>	<b>Latitude</b>	<b>Longitude</b>
Transcontinental Gas Pipe Line Corporation	Mobile	36523	30.61793	-88.0898
Utilities Board Of Chickasaw, Inc.	Chickasaw	36611	30.77169	-88.0707
Wright Smith Jr Wastewater Treatment Facility	Mobile	36603	30.71997	-88.0701

Source: Environmental Protection Agency, 2001

**Map 5-29. Mobile County Utilities**

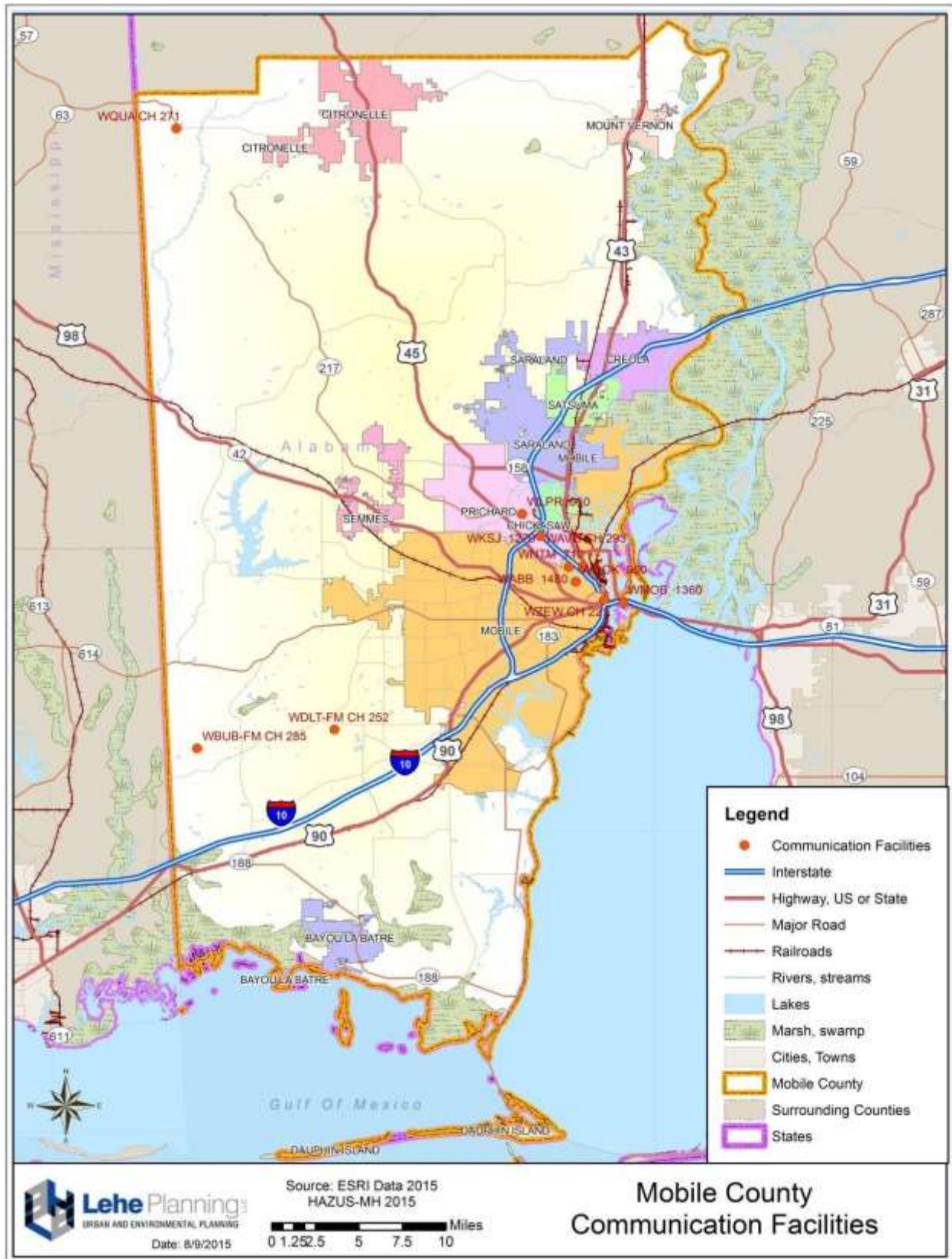


**Table 5-38. Mobile County Communication Facilities**

<b>Name</b>	<b>Owner</b>	<b>City</b>	<b>Latitude</b>	<b>Longitude</b>
WMOB 1360	Buddy Tucker Association	Mobile	30.69075	-88.02583
WNTM 710	Clear Channel Broadcasting	Mobile	30.72047	-88.05944
WBHY 840	Goforth Media, Inc.	Mobile	30.76408	-88.11
WLPR 960	Goforth Media, Inc.	Prichard	30.76408	-88.11
WGOK 900	Cumulus Licensing Corp.	Mobile	30.70769	-88.06528
WKSJ 1270	Clear Channel Broadcasting	Prichard	30.74574	-88.09445
WABB 1480	WABB-FM, INC.	Mobile	30.71991	-88.07111
WAVH CH 293	Baldwin Broadcasting Co.	Daphne	30.74574	-88.09444
WBUB-FM CH 285	Clear Channel Broadcasting	Moss Point	30.56908	-88.38001
WQUA CH 271	Lyn Communications Inc.	Citronelle	31.08462	-88.39751
WDLT-FM CH 252	Cumulus Licensing Corp.	Chickasaw	30.58492	-88.26584
WZEW CH 221	Baldwin Broadcasting Co.	Fairhope	30.69269	-88.04139

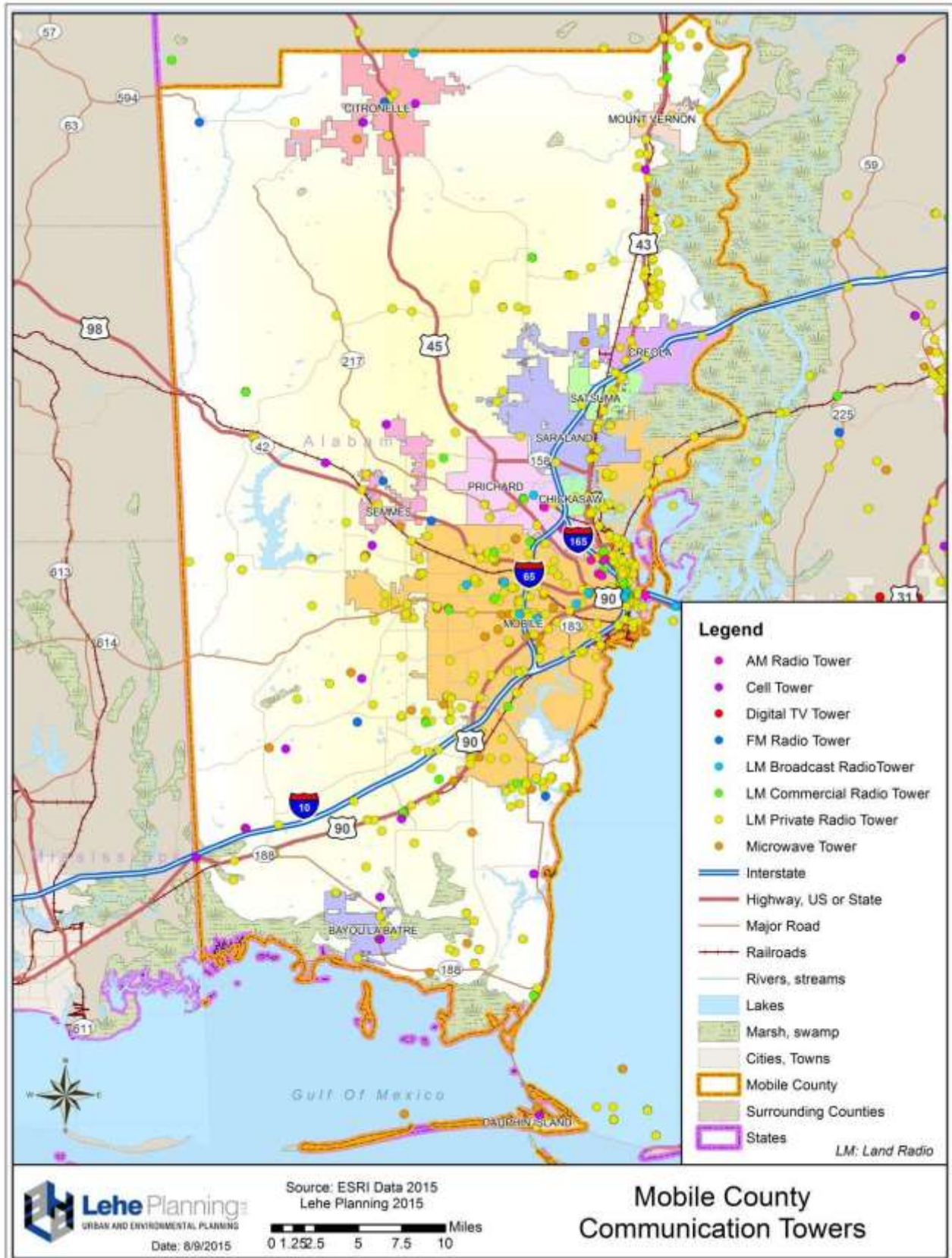
Source: Federal Communication Commission, 2001

**Map 5-30. Mobile County Communication Facilities**





**Map 5-31. Mobile County Communication Towers**



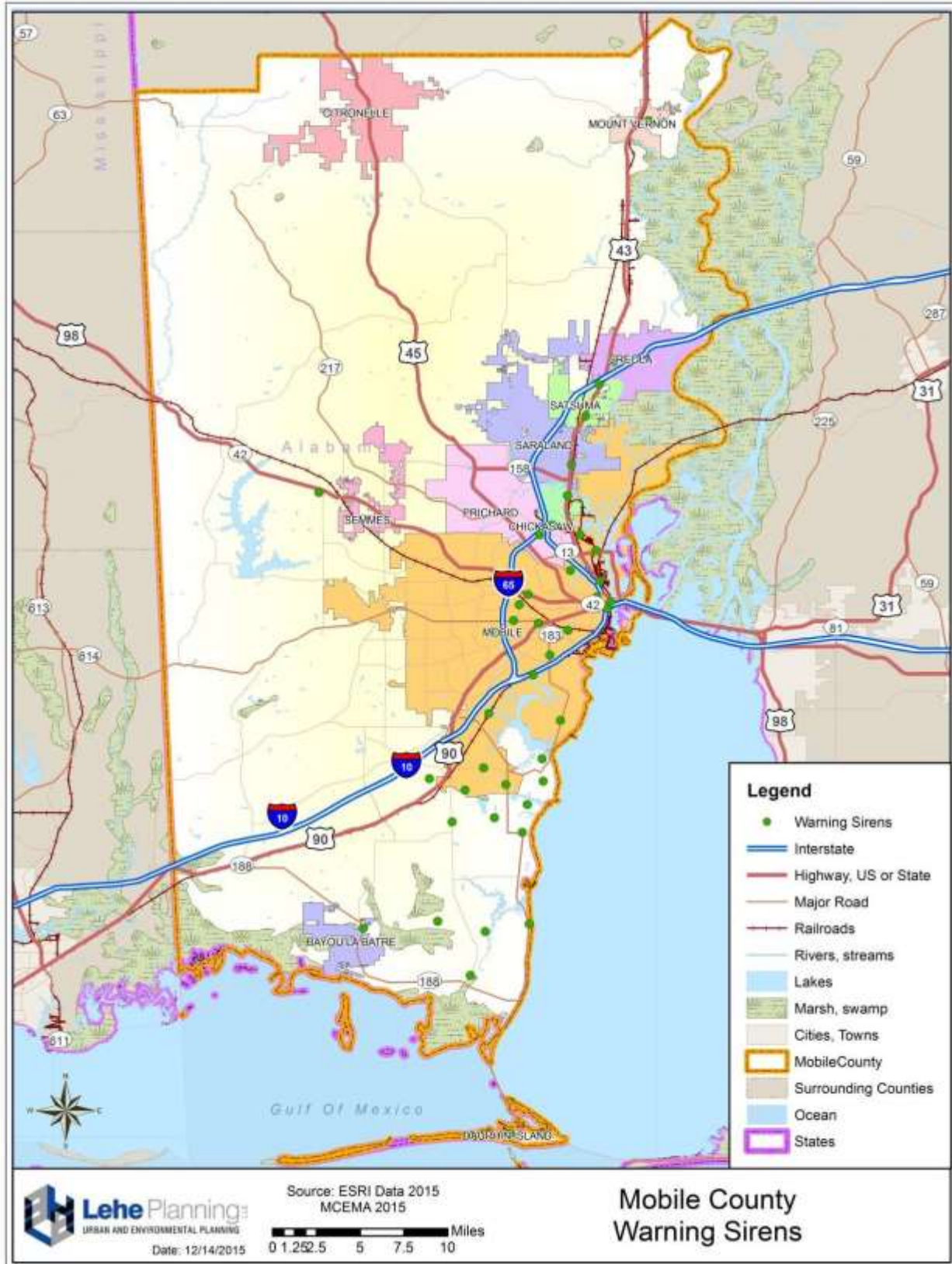
**Table 5-39. Mobile County Warning Sirens**

Siren No.	Location	WAIL ID
1	Mount Vernon	AB11
2	Creola	AB21
3	Citronelle	CC11
4	Satsuma #1	AB31
5	Satsuma #2	AB51
6	Saraland	AB41
7	Chickasaw Park	DB41
8	12th Ave and Escambia St	DB51
9	IP Aeration Pond	DB31
10	Prichard Water	DB61
11	Prichard Stadium	DB81
12	Kimberly Clark	DB21
13	Ashland Chemical	DC51
14	Mobile Water at Conception St Rd	DB71
15	Alabama State Docks	DB11
16	Spring Hill Ave at Bayshore	CA51
17	Sage Ave at Dauphin St	CA61
18	Mobile Convention Center	DA21
19	Mathews Park	DC41
20	Springdale Mall	DC31
21	Ladd Stadium	DA31
22	Mobile Police Headquarters	
23	DIP and Boykin Blvd	CA81
24	Maryvale School	DC11
25	Lusher Park	DC61
26	Shipyards Rd	DC21
27	Theodore High School	1005
28	Hamilton Blvd	1008
29	Bayou Rd	1004
30	Bowers Ln	1003
31	Rangeline Rd	1001
32	Hollingers Island School	1007
33	Bellingrath Rd	1007
34	Degussa Rd	1006
35	DIP at Laurendine Rd	1002
36	DIP at Baker Sorrel Rd	1010
37	Deakle Rd at Exxon Gate	1013
38	Rebel Rd at Bellingrath Rd	1011
39	DIP at Alabama Port	1012
40	Dauphin Island -West	AC31

<b>Siren No.</b>	<b>Location</b>	<b>WAIL ID</b>
41	Dauphin Island -Central	AC21
42	Dauphin Island -East	AC11
43	Bayou La Batre	BB11
44	Coden	BB21
45	Semmes Park	DD11
46	Mobile City North	1014
47	Mobile City South	1015

Source: MCEMA, 2015

**Map 5-32. Mobile County Warning Sirens**

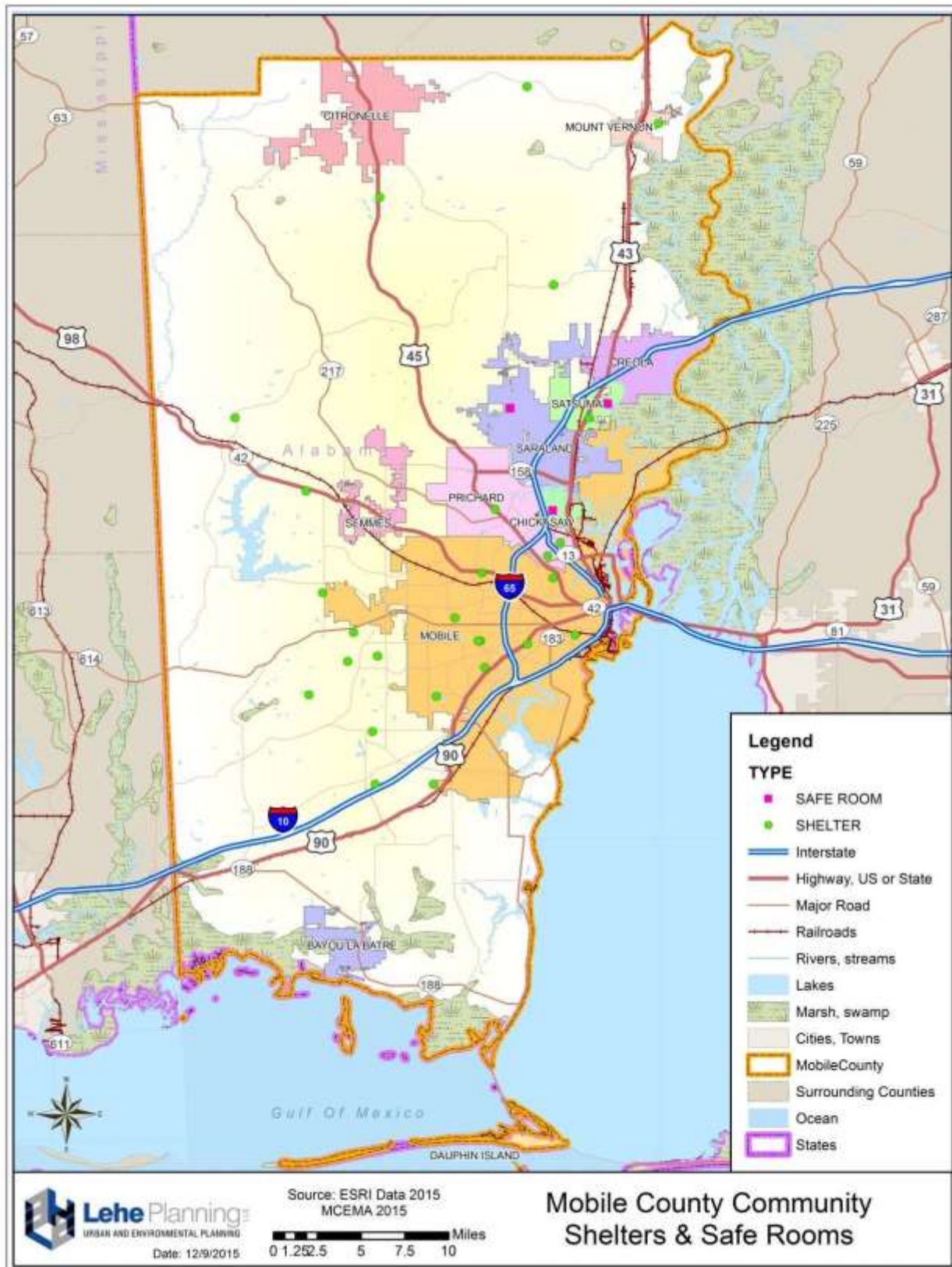


**Table 5-40. Mobile County Emergency Shelters**

<b>Name</b>	<b>Address</b>	<b>City</b>	<b>Zip</b>
Baker High School	8901 Airport Blvd	Mobile	36695
Kate Shepard Elementary	3980-B Burma Rd	Mobile	36693
O'Rourke Elementary	1975 Leroy Stevens Rd	Mobile	36695
Craighead Elementary	1000 S Ann St	Mobile	36605
Meadowlake Elementary	8251 Three Notch Rd	Mobile	36619
Grant Elementary	535 Easterling St	Prichard	36610
Satsuma High	1 Gator Cir	Satsuma	36572
Theodore High	6201 Swedetown Rd N	Theodore	36582
Leflore High	700 Donald St	Mobile	36617
Belsaw Elementary	1560 Gartman Cir	Mt. Vernon	36560
Burns Middle	6175 Girby Rd	Mobile	36693
McDavid Jones Elementary	16250 US Hwy 45 S	Citronelle	36522
Mertz Elementary	2815 Government St	Mobile	36606
Semmes Middle	4566 Ed George Rd	Semmes	36575
Collins-Rhodes Elementary	5110 St. Stephens Rd	Eight Mile	36613
Collier Elementary	601 Snow Rd N	Mobile	36608
Forest Hills Elementary	4501 Moffett Rd	Mobile	36618
Haskew Elementary	7001 White Oak Dr	Irvington	36544
Denton Middle	3800 Pleasant Valley Rd	Mobile	36609
Vigor High	913 N Wilson Ave	Prichard	36610
Davidson High	3900 Pleasant Valley Rd	Mobile	36609
Wilmer Elementary	7456 Wilmer Georgetown Rd	Wilmer	36587
Causey Middle	2205 McFarland Rd	Mobile	36695
ER Dickson Elementary	4645 Bit and Spur Rd	Mobile	36608
North Mobile Middle	1950 Salco Rd	Axis	36505
Calcedaveer Elementary	20500 Patillo Rd	Mt. Vernon	36560
Dawes Elementary	10451 West Lake Rd	Mobile	36695

Source: Mobile County Emergency Management Agency, 2015

**Map 5-33. Mobile County Emergency Shelters**

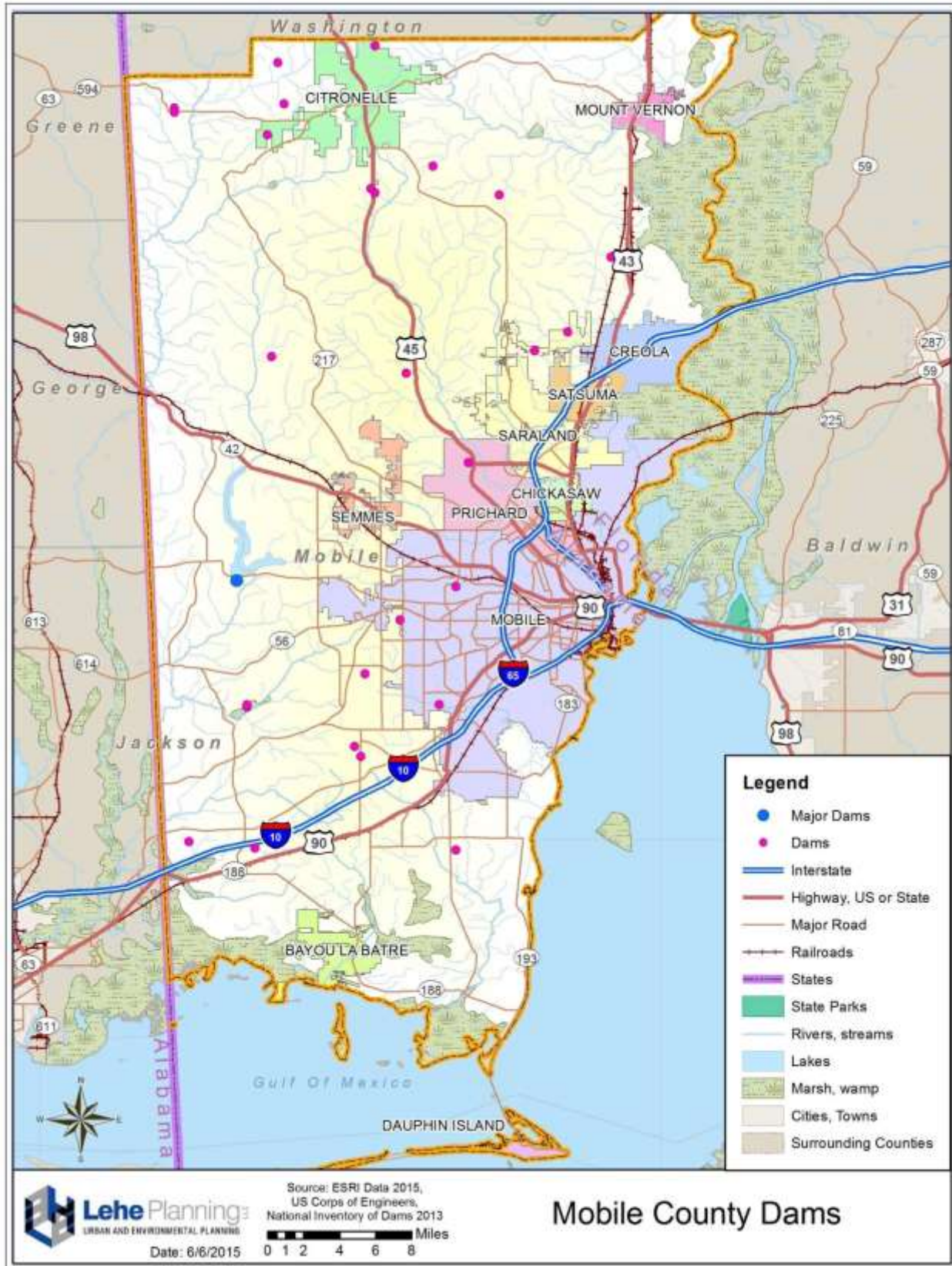


**Table 5-41. Mobile County Dams**

Dam Name	River	Year Completed	NID Height (ft.)	Max Discharge	Max Storage
Pratt Turner	TR-Bull Branch Creek	1969	26	1,300	75
GC Outlaw	TR-Chickasaw Creek	1965	12	1,600	72
Smith Pond	TR- Fowl River	1962	15	2,200	126
MC Farmer	TR- Franklin Creek	1967	15	5,200	90
Cole Lake	TR- Fowl River/Headwater	1961	19	500	182
Big Creek Lake	Big Creek	1952	75	35,000	136,500
Municipal Park Lake No. 1	Three Mile Creek	1957	13	2,000	130
Fred Hildesheim	Silver Creek-Offstream	1965	24	1,200	58
Joe McDavid #1	TR-Miller Creek	1964	17	1,600	105
Maples Lake	Gunnison Creek-Headwater	1966	17	1,400	68
Bermuda Run Dam	Campground Branch	1970	19	1,312	242
Joe McDavid #2	TR-Miller Creek	1972	19	336	190
Cloverdale Lake	TR-Franklin Creek	1968	19	2,000	121
Echo Lake	TR-Little Creek	1936	20	4,400	150
RL Lambert	TR-Big Creek	1965	20	1,900	184
Red Nichols	TR-Escata WPA River	1960	19	950	91
Clay Bassett	Bennett TS Creek-Offstream	1966	25	1,000	90
Citronelle Municipal Park Lake	Lotts Mill Creek	1975	33	1,800	1,320
Rascoe Farm Pond	TR-Bennett/TS Creek	1978	19	950	91
Bernard Brooks Pond	TR-Halls Mill Creek	1973	23	796	120
HG Quinnelly	TR-Chickasaw Creek	1950	23	2,000	200
Bahlman Lake	TR-Muddy Creek	1967	14	1,000	78
Optimist Lake	Milkhouse Creek	1936	17	500	116
Red Nichols - No. 1	TR-Escata WPA River	1945	16	650	70
Howard E. Smith	TR-Escata WPA River	1960	16	200	80
Cold Creek	Cold Creek	1968	22	11,500	1,000
Duboise Lake	Bayou Sara Creek	1975	15	255	50
Cochran Lake	TR-Eight Mile Creek	1946	17	40	50
Wayne Roscoe Pond	TR-Bennett Creek	1978	19	402	119
Davis Pilot	Pierce Creek	2000	28	14	134
George Radcliff Pond	TR-Sawmill Creek	1986	23	349	145

Source: US Army Corps of Engineers, National Inventory of Dams, 1999

Map 5-34. Mobile County Dams





**Table 5-42. Mobile County Port Facilities**

<b>Port Facility</b>	<b>City</b>	<b>Waterway</b>
Able Marine Service	Mobile	Mobile Bay Ship Channel
AL State Dock Dept. Bulk-Materials Handling	Mobile	Mobile River Channel
AL State Dock Dept. Bulk-Materials Handling	Mobile	Three Mile Creek, AL
AL State Dock Dept. McDuffie Term BGE Unload Wharf	Mobile	Arlington & Garrows Bend Channels, AL
AL State Dock Dept. Mobile Middle Bay Port Pier	Theodore	Mobile Bay Ship Channel
AL Bulk Terminal Co Blakely Island Wharf	Mobile	Mobile River Channel
AL Power Co., Barry Electric Generating Plant	Mount Vernon	Mobile River Channel
Alabama Power Co., Barry Electric Generating Plant Coal Dock	Bucks	Mobile River Channel
Alabama Power Co., Barry Electric Generating Plant Fuel Oil Dock	Bucks	Mobile River Channel
Alabama Power Co., Chickasaw Wharf	Chickasaw	Chickasaw Creek, AL
Alabama Shipyard, Pier L	Mobile	Mobile Bay Ship Channel
Alabama State Docks Department, Choctaw Point	Mobile	Mobile Bay Ship Channel
Alabama State Docks Department, BERTH E.	Mobile	Mobile River Channel
Alabama State Docks Department, Berth No. 2.	Mobile	Mobile River Channel
Alabama State Docks Department, Berths Nos. 3, 4, and 5.	Mobile	Mobile River Channel
Alabama State Docks Department, Berths Nos. 6, 7, and 8 Roll-on/Roll-off Ramp.	Mobile	Mobile River Channel
Alabama State Docks Department, Industrial Canal North Wharf	Mobile	Three Mile Creek, AL
Alabama State Docks Department, Industrial Canal South Wharf	Mobile	Three Mile Creek, AL
Alabama State Docks Department, McDuffie Terminal Barge Mooring	Mobile	Arlington & Garrows Bend Channels, AL
Alabama State Docks Department, McDuffie Terminal Barge Unloader No. 3 Wharf.	Mobile	Arlington & Garrows Bend Channels, AL
Alabama State Docks Department, McDuffie Terminal Barge Unloaders Nos. 1 and 2 Docks.	Mobile	Arlington & Garrows Bend Channels, AL
Alabama State Docks Department, McDuffie Terminal Ship Wharf No. 1.	Mobile	Mobile Bay Ship Channel

<b>Port Facility</b>	<b>City</b>	<b>Waterway</b>
Alabama State Docks Department, Pier A North Wharf and Slip B End Wharf.	Mobile	Mobile River Channel
Alabama State Docks Department, Pier A South Wharf.	Mobile	Mobile River Channel
Alabama State Docks Department, Pier B and Slip C End Wharf.	Mobile	Mobile River Channel
Alabama State Docks Department, Pier C.	Mobile	Mobile River Channel
Alabama State Docks Department, Pier D South Grain Elevator Wharf.	Mobile	Mobile River Channel
Alabama State Docks Department, Pier D, River End Grain Elevator Wharf.	Mobile	Mobile River Channel
Alabama State Docks Department, Barge Loading Wharf	Mobile	Mobile Bay Ship Channel
Alabama State Docks Department, Blakeley Terminal Wharf	Chickasaw	Mobile River Channel
Alabama State Docks Department, Industrial Canal Mooring	Mobile	Three Mile Creek, AL
Alabama State Port Authority, Pinto Island Terminal	Mobile	Mobile Bay Ship Channel
Alatex Boat Builders	Coden	Bayou La Batre, AL
American Commercial Lines, Blakeley Island Fleet	Mobile	Mobile River Channel
Anadarko Petroleum Corp.	Mobile	Mobile River Channel
Apalachicola, FL	Bayou La Batre	Bayou La Batre, AL
ARC Terminals LP	Mobile	Mobile River Channel
ARC Terminals LP, Chickasaw	Mobile	Chickasaw Creek, AL
Atlantic Land Corp., Crowley Wharf, North & South Piers	Mobile	Mobile Bay Ship Channel
Atlantic Land Corp., Pier X.	Mobile	Mobile Bay Ship Channel
Auto Shred Recycling, Chickasaw Wharf	Chickasaw	Chickasaw Creek, AL
Bae Systems, Pier E	Mobile	Mobile Bay Ship Channel
Bae Systems, Pier F	Mobile	Mobile Bay Ship Channel
Bae Systems, Pier G	Mobile	Mobile Bay Ship Channel
Bae Systems, Pier H	Mobile	Mobile Bay Ship Channel
Bae Systems, Pier J	Mobile	Mobile Bay Ship Channel
Bae Systems, Pier K	Mobile	Mobile Bay Ship Channel
Bae Systems, Wharf D	Mobile	Mobile Bay Ship Channel

# CHAPTER 5

# 2015 Mobile County Multi-Hazard Mitigation Plan

Port Facility	City	Waterway
Bayou La Batre Bridge	Bayou La Batre	Bayou La Batre, AL
Bayou La Batre City Docks	Bayou La Batre	Bayou La Batre, AL
Bender Shipbuilding & Repair Co., Yard No. 9 Dock	Mobile	Mobile River Channel
Bender Shipbuilding & Repair Co., Yard No. 9 Wharf	Mobile	Mobile River Channel
Black Bayou Co., Chickasaw Mooring	Saraland	Chickasaw Creek, AL
BP Oil Co., Mobile Terminal Barge Wharf	Mobile	Mobile River Channel
Bryant Seafood Co.	Bayou La Batre	Bayou La Batre, AL
Buchanan Lumber Mobile, Industrial Canal Docks	Mobile	Three Mile Creek, AL
C & G Boat Works, Mobile Wharf	Mobile	Mobile River Channel
Cargill Marketing Co., Blakeley Island Elevator Wharf	Mobile	Mobile Bay Ship Channel
Caribbean Ship Dock	Bayou La Batre	Bayou La Batre, AL
Caribe, Chickasaw Wharf	Chickasaw	Chickasaw Creek, AL
City of Mobile, Barge Wharf	Mobile	Arlington & Garrows Bend Channels, AL
Cooper Marine & Timberlands Export Chip. Terminal	Mobile	Mobile River Channel
Core Industries, Inc., Theodore Industrial Port	Theodore / Mobile	Theodore Ship Channel, AL
Cortaulds Fiber Axis Dock	Axis	Mobile River Channel
Crescent Towing & Salvage Co., River A Wharf	Mobile	Mobile River Channel
D L Zirlott Seafood	Bayou La Batre	Bayou La Batre, AL
Damrich Coatings, Mobile Wharf	Mobile	Three Mile Creek, AL
Dana Marine Service Industrial Canal Dock	Mobile	Three Mile Creek, AL
David Lake (Pulpwood)	Mount Vernon	Mobile River Channel
Deep Sea Foods, Inc.	Bayou La Batre	Bayou La Batre, AL
Deep Sea Marine Products	Bayou La Batre	Bayou La Batre, AL
Degussa Inc., Theodore Plant Wharf	Theodore	Theodore Ship Channel, AL
ELG Metals	Mobile	Three Mile Creek, AL
Environmental Treatment Team, Theodore Wharf	Theodore	Theodore Ship Channel, AL

<b>Port Facility</b>	<b>City</b>	<b>Waterway</b>
Ergon Oil Purchasing Co., Bucks Dock	Bucks	Mobile River Channel
Ernest Construction Co., Black Bayou Yard Mooring	Saraland	Chickasaw Creek, AL
Exxon Co., Theodore Wharf	Theodore	Theodore Ship Channel, AL
Fort Morgan Ferry Landing	Mobile	Arlington & Garrows Bend Channels, AL
Glenn Towing, Industrial Canal Wharf	Mobile	Three Mile Creek, AL
Gulf City Fisheries	Bayou La Batre	Bayou La Batre, AL
H&B Welding Service, Industrial Canal Dock	Mobile	Three Mile Creek, AL
Harrison Bros, Dry Dock & Repair Yard Piers	Mobile	Mobile River Channel
Harrison Bros, Dry Dock & Repair Yard, Low Yard Slip	Mobile	Mobile Bay Ship Channel
Henry Marine Service, Pier M	Mobile	Mobile Bay Ship Channel
Holnam, Inc., Axis	Stockton	Mobile River Channel
Holnam, Theodore Cement Plant Wharf	Theodore	Theodore Ship Channel, AL
Horizon Shipbuilding, Inc.	Bayou La Batre	Bayou La Batre, AL
Ineos Phenol, Inc.	Theodore	Theodore Ship Channel, AL
International Paper Co., Industrial Canal Dock	Mobile	Three Mile Creek, AL
International Paper Co., Chickasaw Coal Dock	Mobile	Chickasaw Creek, AL
International Paper Co., Chickasaw Fuel-Oil Dock	Mobile	Chickasaw Creek, AL
JCT Mobile River Harbor	Saraland	Chickasaw Creek, AL
JCT Tombigbee River	Mount Vernon	Alabama-Coosa Rivers, AL and GA
Joes Seafood	Bayou La Batre	Bayou La Batre, AL
John E Graham & Sons	Bayou La Batre	Bayou La Batre, AL
Johnson Ice	Bayou La Batre	Bayou La Batre, AL
Jordan Pile Driving, Lower Wharf Slip	Mobile	Three Mile Creek, AL
Jordan Pile Driving, Marine Yard Wharf	Mobile	Three Mile Creek, AL
Jordan Pile Driving, South Bank Mooring	Mobile	Three Mile Creek, AL
Jordan Pile Driving, Upper Wharf Slip	Mobile	Three Mile Creek, AL

<b>Port Facility</b>	<b>City</b>	<b>Waterway</b>
Kimberly-Clark Corp., Mobile Operations Container Dock	Mobile	Chickasaw Creek, AL
Kimberly-Clark Corp., Chickasaw Creek Fleet Mooring	Mobile	Chickasaw Creek, AL
Kimberly-Clark Corp., Mobile Plant	Mobile	Chickasaw Creek, AL
Kimberly-Clark Corp., Mobile Plant Fuel-Oil Pier	Mobile	Chickasaw Creek, AL
Kimberly-Clark Corp., Mobile Plant Log Wharf	Mobile	Chickasaw Creek, AL
Kimberly-Clark Corp., Mobile River Fleet Mooring	Mobile	Mobile River Channel
Kimberly-Clark Corp., Lizzard Creek (Pulpwood)	Creola	Mobile River Channel
Laundry Boat Works	Bayou La Batre	Bayou La Batre, AL
Martin Marietta Aggregates , Theodore Wharf	Theodore	Theodore Ship Channel, AL
Martin Marietta Yard	Mobile	Chickasaw Creek, AL
Metal Management Gulf Coast, Inc.	Mobile	Three Mile Creek, AL
M-I Drilling Fluids, Theodore Wharf	Theodore	Theodore Ship Channel, AL
Midstream Fuel Service, Mobile Wharf	Mobile	Mobile River Channel
Midstream Fuel Service, Mobile Wharf	Mobile	Mobile River Channel
Midstream Fuel Service, Supply Wharf	Mobile	Mobile River Channel
Midstream Fuel Service, Theodore Offshore Service Wharf	Theodore	Theodore Ship Channel, AL
Mile 36 BWWT	Mount Vernon	Mobile River Channel
Millar Refrigerated Services	Theodore	Theodore Ship Channel, AL
Miss Leona, Inc.	Bayou La Batre	Bayou La Batre, AL
Mobil Oil Drilling Rig	Dauphin Island	DAUPHIN ISLAND BAY, AL
Mobile Abrasives Pier	Mobile	Mobile Bay Ship Channel
Mobile Alabama Cruise Terminal	Mobile	Mobile Bay Ship Channel
Mobile Bay Wood Chip Center, Theodore Shipping Dock	Theodore	Theodore Ship Channel, AL
Mobile Marine Terminal Chickasaw	Chickasaw	Chickasaw Creek, AL
Mobile Pulley Marine Services Wharf	Mobile	Mobile Bay Ship Channel
Mobile Pulley Marine Services, Pinto Pass Slip	Mobile	Mobile Bay Ship Channel
Mobile River Terminal Co., Barge Wharf	Mobile	Mobile Bay Ship Channel

<b>Port Facility</b>	<b>City</b>	<b>Waterway</b>
Mobile River Terminal Co., Ship Pier	Mobile	Mobile Bay Ship Channel
Mobile Shipbuilding & Repair Wharf	Mobile	Three Mile Creek, AL
Mobile-Chickasaw Port Facility, Pier A	Chickasaw	Chickasaw Creek, AL
Mobile-Chickasaw Port Facility, Pier F	Chickasaw	Chickasaw Creek, AL
National Marine Spanish River Fleet Mooring	Chickasaw	Mobile River Channel
North American Gulf Terminals, Theodore Wharf	Theodore	Theodore Ship Channel, AL
Nustar Energy, Blakeley Island Terminal	Mobile	Mobile River Channel
Nustar Energy, Chickasaw Creek Terminal	Chickasaw	Chickasaw Creek, AL
Occidental Chemical Corp., Chickasaw Caustic-Soda Wharf	Mobile	Chickasaw Creek, AL
Occidental Chemical Corp., Chickasaw Salt Wharf	Mobile	Chickasaw Creek, AL
Occidental Chemical Corp., Chickasaw Wharf	Mobile	Chickasaw Creek, AL
Oil Recovery Co of AL, Mobile Terminal Pier	Mobile	Mobile Bay Ship Channel
Overseas Hardwood Co., Chickasaw Barge Slip	Chickasaw	Chickasaw Creek, AL
Oyster Shell Products, Mobile Wharf	Mobile	Three Mile Creek, AL
P & E Crewboats Inc.	Dauphin Island	DAUPHIN ISLAND BAY, AL
P & H Construction Corp., Mobile Dock	Mobile	Mobile Bay Ship Channel
Paco, Mobile Wharf	Mobile	Mobile River Channel
Pakhoed Corp., Mobile Wharf	Mobile	Mobile River Channel
Plains Marketing LP, Mobile Terminal Barge Dock	Mobile	Three Mile Creek, AL
Plains Marketing LP, Mobile Terminal Ship Dock	Mobile	Mobile River Channel
PM AG Products, Mobile Pier	Mobile	Mobile Bay Ship Channel
Quality Foods Inc.	Bayou La Batre	Bayou La Batre, AL
Resolve Marine Services	Theodore	Theodore Ship Channel, AL
Rodriguez Boat Builders	Coden	Bayou La Batre, AL
Sea Pearl Seafood	Bayou La Batre	Bayou La Batre, AL
Shell Chemical Co., Blakeley Island Terminal Wharf	Saraland	Mobile River Channel
Shell Chemical Co., Mobile Site Wharf	Saraland	Chickasaw Creek, AL

# CHAPTER 5

# 2015 Mobile County Multi-Hazard Mitigation Plan

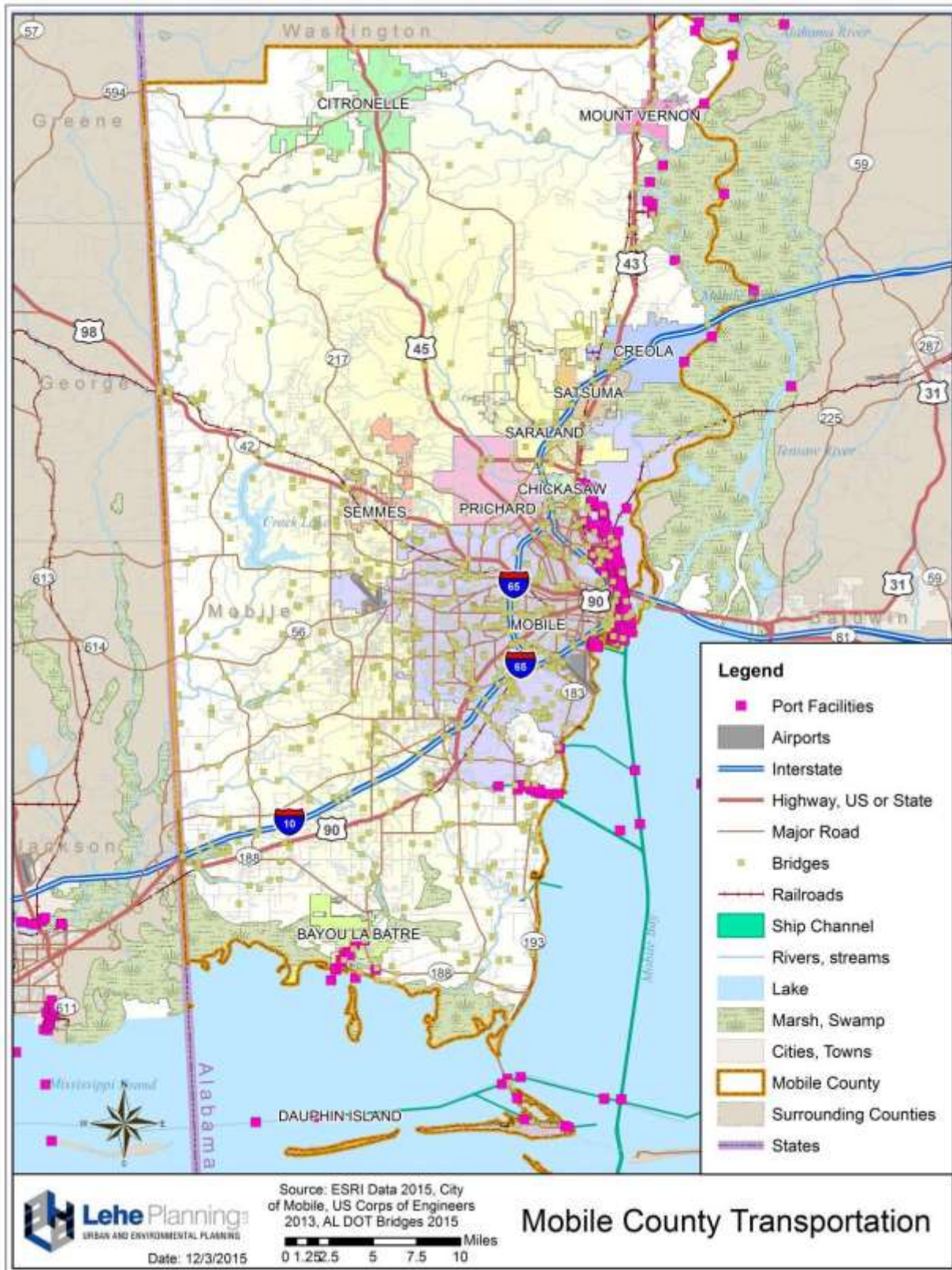
Port Facility	City	Waterway
Sherman Prestressed Concrete, Mobile Slips	Mobile	Three Mile Creek, AL
Signal Ship Repair	Mobile	Mobile Bay Ship Channel
Signal Ship Repair, Yard No. 8 Wharf.	Mobile	Mobile Bay Ship Channel
Signal Ship Repair, Bariod Wharf	Mobile	Mobile Bay Ship Channel
Signal Ship Repair, No. 15 Wharf	Mobile	Mobile Bay Ship Channel
Signal Ship Repair, NO. 3 & No. 4 Wharf	Mobile	Mobile Bay Ship Channel
Signal Ship Repair, Yard No. 1 Slip	Mobile	Mobile Bay Ship Channel
Signal Ship Repair, Yard No. 1 Wharf	Mobile	Mobile Bay Ship Channel
Signal Ship Repair, Yard No. 2A Slip	Mobile	Mobile Bay Ship Channel
Signal Ship Repair, Yard No. 6 Wharf & Slip	Mobile	Mobile Bay Ship Channel
Signal Ship Repair, Yard No. 7 Wharf	Mobile	Mobile Bay Ship Channel
Signal Ship Repair, Yard No.2B Wharf	Mobile	Mobile Bay Ship Channel
Southeast Wood Fibers, Theodore Receiving Dock	Theodore	Theodore Ship Channel, AL
Southern Fish & Oyster Co	Mobile	Mobile Bay Ship Channel
Steiner Shipyard	Bayou La Batre	Bayou La Batre, AL
TM Jemison Construction Co	Bayou La Batre	Bayou La Batre, AL
Taylor Bros	Bayou La Batre	Bayou La Batre, AL
Term Railway AL State Dock East Side Transfer BR	Mobile	Mobile River Channel
Term Railway AL State Dock West Side Transfer BR	Mobile	Mobile River Channel
ThyssenKrupp Steel USA, LLC	Calvert	Black Warrior and Tombigbee Rivers, AL
Total Cargo Services, Chickasaw Wharf	Chickasaw	Chickasaw Creek, AL
TransMontaigne Pipeline Services Inc., South Wharf	Mobile	Mobile River Channel
TransMontaigne Pipeline Services Inc., North Wharf	Mobile	Mobile River Channel
U.S. Coast Guard Station	Mobile	Arlington & Garrows Bend Channels, AL
U.S. Coast Guard, Mobile Group Wharf	Mobile	Arlington & Garrows Bend Channels, AL
University of South Alabama, Boathouse Slip	Mobile	Mobile Bay Ship Channel

<b>Port Facility</b>	<b>City</b>	<b>Waterway</b>
USCG Fire & Safety Test, Detach Little Sand Island Wharf	Mobile	Mobile Bay Ship Channel
Vulcan Materials Co., Blakely Island Yard Dock	Mobile	Mobile River Channel
Warrior and Gulf Navigation Co., Blakeley Island Fleet Mooring	Mobile	Mobile River Channel
Warrior and Gulf Navigation Co., Chickasaw Fueling Dock.	Chickasaw	Chickasaw Creek, AL
Warrior and Gulf Navigation Co., Chickasaw Fuel-Oil Dock.	Chickasaw	Chickasaw Creek, AL
Warrior and Gulf Navigation Co., Chickasaw Pier A.	Chickasaw	Chickasaw Creek, AL
Warrior and Gulf Navigation Co., Chickasaw Pier B.	Chickasaw	Chickasaw Creek, AL
Warrior and Gulf Navigation Co., Chickasaw Wharf	Mobile	Chickasaw Creek, AL
Waterways Materials Co., Mobile Bulk Materials Wharf	Mobile	Three Mile Creek, AL
Waterways Towing & Offshore Service Chickasaw Slip	Chickasaw	Chickasaw Creek, AL

Source: US Army Corps of Engineers, 2000 (Port Facilities are portrayed on Map 5-38)



Map 5-35. Mobile County Transportation Infrastructure



## 5.6 Estimate of Dollar Losses to Vulnerable Structures

### 5.6.1 Scope and Purpose of Loss Estimates

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

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

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

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

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

### 5.6.2 Loss Estimate Methodology

#### Method 1: HAZUS-MH Loss Estimates

This plan estimates losses using HAZUS-MH, which was used as a basis for the vulnerable structures inventory of Section 5.5. HAZUS-MH uses approximations and algorithms to estimate losses, so results do not reflect actual losses with certainty. These loss estimates are most useful for judging the 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 2015 HAZUS-MH loss estimates are updates of the 2010 plan estimates.

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

**Jurisdictional Estimates**

To derive jurisdictional estimates, the planning team used existing (2014) and future (2035) population estimates to distribute losses among Mobile County’s 15 jurisdictions. Population distribution appears in Table 5-43 below. (See Section 5.5.2 “Inventory Methodology”). The damage estimates in this section, however, only apply to existing conditions.

**Table 5-43. Population Distribution by Jurisdiction, 2014 & 2035**

<b>Jurisdiction</b>	<b>Estimated 2014</b>	<b>% of 2014</b>	<b>Projected 2035</b>	<b>% of 2035 Projection</b>
Bayou La Batre	2,636	0.6%	2,807	0.64%
Chickasaw	5,981	1.4%	5,452	1.25%
Citronelle	3,885	0.9%	4,086	0.93%
Creola	1,942	0.5%	1,983	0.45%
Dauphin Island	1,242	0.3%	1,263	0.29%
Mobile	194,675	46.9%	193,452	44.25%
Mount Vernon	1,559	0.4%	1,482	0.34%
Prichard	22312	5.4%	15,302	3.50%
Saraland	13,744	3.3%	15,747	3.60%
Satsuma	6167	1.5%	7,170	1.64%
Semmes	3,257	0.8%	5,133	1.17%
Unincorporated	157,723	38.0%	154,444	35.32%
<b>Mobile Co</b>	<b>415,123</b>	<b>100%</b>	<b>437,228</b>	<b>100.00%</b>

**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 Mobile County EMA and available for public review:

1. HAZUS-MH Probabilistic 100-Year Hurricane Global Summary and Quick Assessment Reports, dated July 27, 2015.
2. HAZUS-MH Hurricane Frederic Global Summary and Quick Assessment Reports, dated July 27, 2015.
3. HAZUS-MH 100 Year Flood Event Global Summary and Quick Assessment Reports, dated August 8, 2015.
4. HAZUS-MH 500 Year Earthquake Event Global Summary and Quick Assessment Reports, dated August 10, 2015.

**Hurricane Loss Estimates**

The planning team used HAZUS-MH to assess two hurricane events: a 100-year scenario and the 1979 Frederic historical event. Hurricane Frederic unleashed high winds and flooding and spawned tornadoes across Alabama, but HAZUS only assesses the hurricane wind effects. The following Tables 5-44 and 5-45 show the loss estimates generated by HAZUS-MH for each of these events and Maps 5-36 through 5-43 show the geographic distribution of economic losses, debris volume and wind speeds (for Frederic only).

Probabilistic Hurricane Scenario. The HAZUS model estimates that a 100-year hurricane event would cause \$9.4 billion of damage and cause at least moderate damage to 24% of all buildings. A 500-year hurricane event, with only a 0.2 percent of occurring in any year, would cause catastrophic damage throughout Mobile County as a result of its coastal location. HAZUS estimates that over 93% of all buildings would suffer damage, and losses would total close to \$279 billion. Approximately 17% of all buildings would be destroyed in a 500-year hurricane event.

Maps 5-38 and 5-39 show direct economic loss and debris volume generated, by census tract, as a result of a 100-year hurricane scenario. The predicted damages would be compounded by storm surge and flooding since the HAZUS model only assesses wind effects. Inland communities, such as Citronelle and Mount Vernon, would incur no additional damage from storm surge, but coastal communities, especially Dauphin Island, Bayou La Batre, and Mobile can expect significantly more damage than HAZUS estimates, due to storm surge. Community impacts from hurricane winds can best be compared by a careful review of the HAZUS-generated maps, which show the locations of estimated economic losses in relation to each municipality.

**Table 5-44. 100 Year Hurricane Event Loss Estimates**

**General Building Stock**

<i>Occupancy</i>	<i>Building Count</i>	<i>Dollar Exposure (\$ K)</i>
Residential	151,777	31,740,022
Commercial	9,492	6,568,616
Other	5,272	5,242,121
<b>Total</b>	<b>166,541</b>	<b>43,550,759</b>

**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	1,024	50	0	0	1,074
20	16,723	2,103	61	43	18,930
50	51,105	18,459	2,647	1,552	73,763
100	55,813	35,466	10,430	5,747	107,456
200	46,609	44,691	21,487	13,586	126,373
500	30,696	46,474	36,054	28,548	141,772
1000	19,048	40,114	44,060	44,145	147,367

**Number of Buildings Damaged**

<i>Return Period</i>	<i>Minor</i>	<i>Moderate</i>	<i>Severe</i>	<i>Destruction</i>	<i>Total</i>
10	1,148	55	1	0	1,204
20	17,977	2,449	99	44	20,570
50	54,582	21,032	3,473	1,583	80,669
100	59,314	39,682	13,248	5,853	118,097
200	49,371	49,240	26,249	13,821	138,682
500	32,497	50,757	43,133	29,024	155,412
1000	20,237	43,698	52,635	44,875	161,445

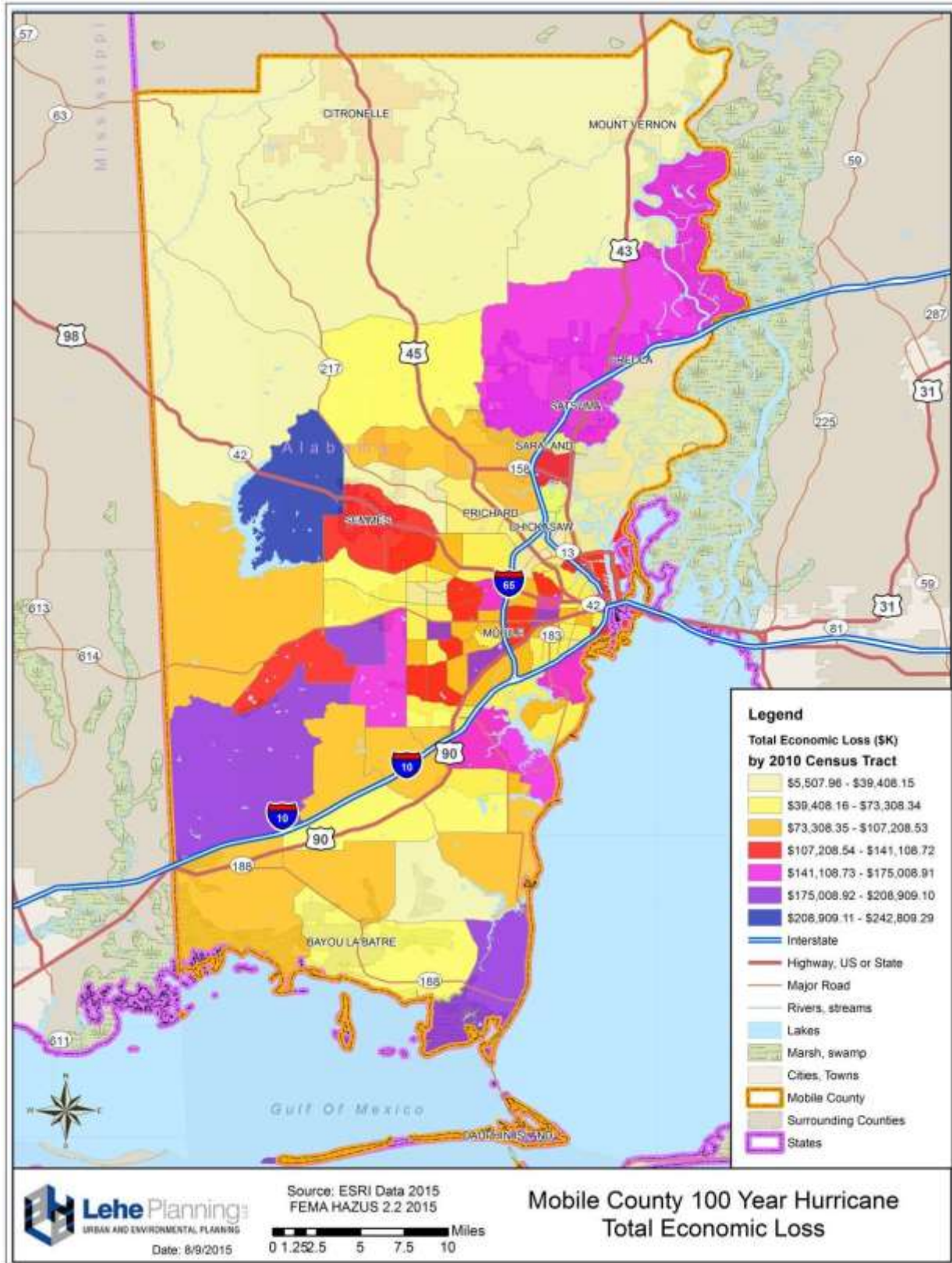
**Shelter Requirements**

<i>Return Period</i>	<i>Displaced Households (#Households)</i>	<i>Short Term Shelter (#People)</i>
10	1	0
20	360	99
50	4,169	1,134
100	15,034	4,296
200	35,212	9,977
500	69,055	19,280
1000	95,359	26,155

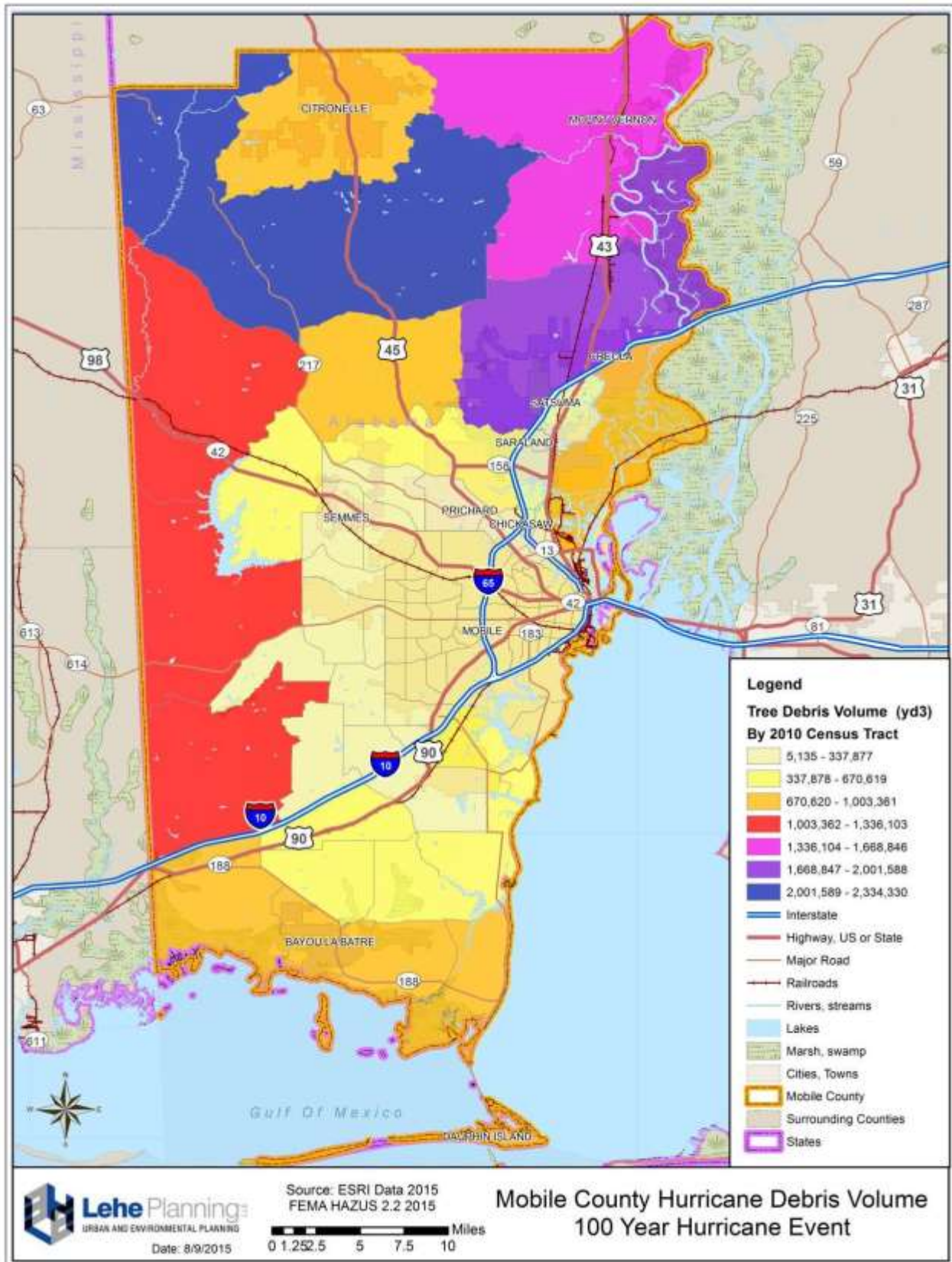
**Economic Loss (x 1000)**

<i>Return Period</i>	<i>Property Damage (Capital Stock) Losses</i>		<i>Business Interruption (Income) Losses</i>
	<i>Residential</i>	<i>Total</i>	
10	83,981	86,109	1,540
20	485,733	532,668	47,502
50	2,575,831	3,119,450	484,128
100	6,195,922	7,990,620	1,417,998
200	11,185,686	14,444,832	2,414,428
500	18,565,007	24,172,918	3,743,128
1000	24,518,546	32,032,205	4,755,353
<b>Annualized</b>	<b>227,908</b>	<b>286,180</b>	<b>42,994</b>

**Map 5-36. 100 Year Hurricane Event Direct Economic Loss**



**Map 5-37. 100 Year Hurricane Event Debris Volume**



Hurricane Frederic Scenario. The HAZUS-MH assessment reports major building damage resulting from peak wind gusts of as high as 124 mph for Hurricane Frederic. Over 53% (89,000) of all buildings in Mobile County would receive some damage and 2,100 of those damaged buildings would be destroyed. HAZUS reports over \$4,551 million in building and related damage. Map 5-41 shows direct economic loss by census tract, as a result of a hurricane similar to Frederic. Semmes, Dauphin Island, tracts in Mobile, and unincorporated areas of the county (to the southeast) would experience the greatest economic loss. Map 5-42 shows the volume of debris accumulated as a result of a hurricane of this magnitude. Map 5-43 portrays Hurricane Frederic wind speeds; communities along the Gulf Coast and Mobile Bay experience the highest winds speeds.

**Table 5-45. Hurricane Frederic Loss Estimates**

**General Building Stock**

<i>Occupancy</i>	<i>Building Count</i>	<i>Dollar Exposure (\$ M)</i>
Residential	151,777	31,740
Commercial	9,492	6,569
Other	5,272	5,242
<b>Total</b>	<b>166,541</b>	<b>43,551</b>

**Number of Buildings Damaged**

<i>Damage State</i>	<i>Residential</i>	<i>Commercial</i>	<i>Other</i>	<i>Total</i>
Minor	53,000	2,300	1,300	57,000
Moderate	22,000	2,100	1,000	25,000
Severe	3,800	800	400	5,000
Destruction	2,000	20	20	2,100
<b>Total</b>	<b>81,000</b>	<b>5,200</b>	<b>2,700</b>	<b>89,000</b>

**Shelter Requirements**

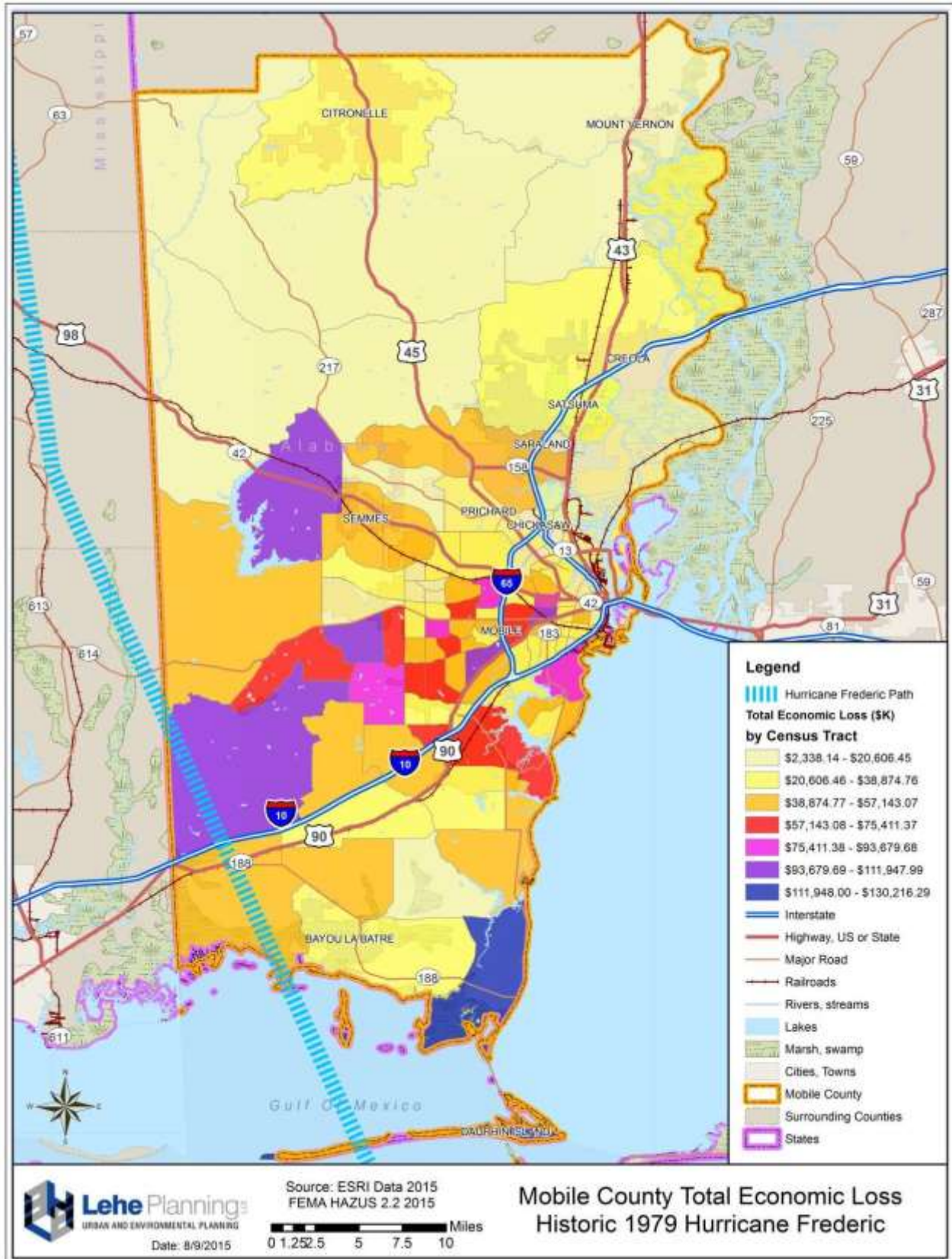
Displaced Households (# Households)	5,700
Short Term Shelter (# People)	1,600

**Economic Loss ( \$ Millions )**

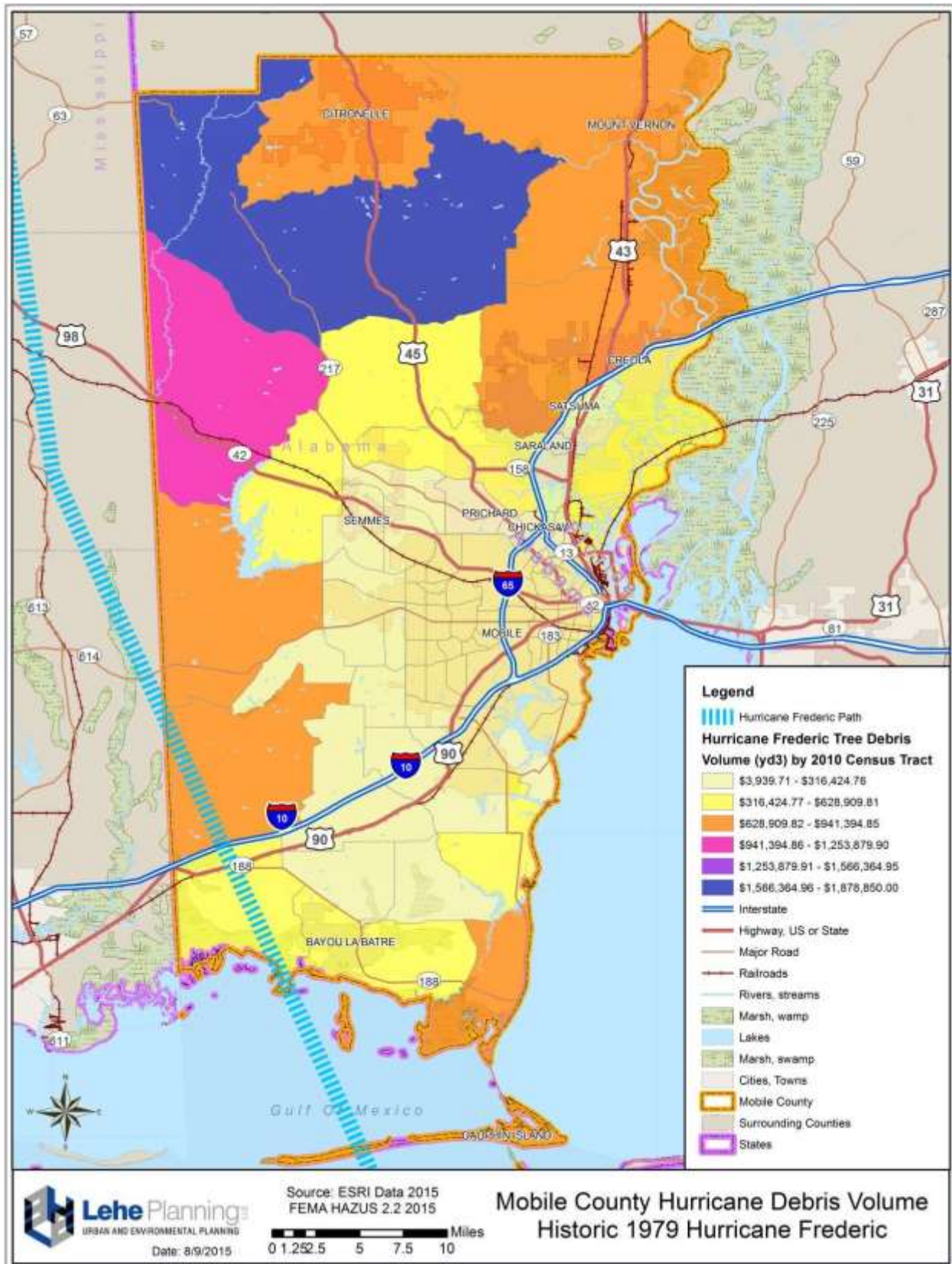
Capital Stock	3,899
Residential Property	3,136
Commercial Property	469
Other Property	295
<b>Business Interruption (Income)</b>	<b>651</b>
<b>Total Direct Economic Loss</b>	<b>4,551</b>



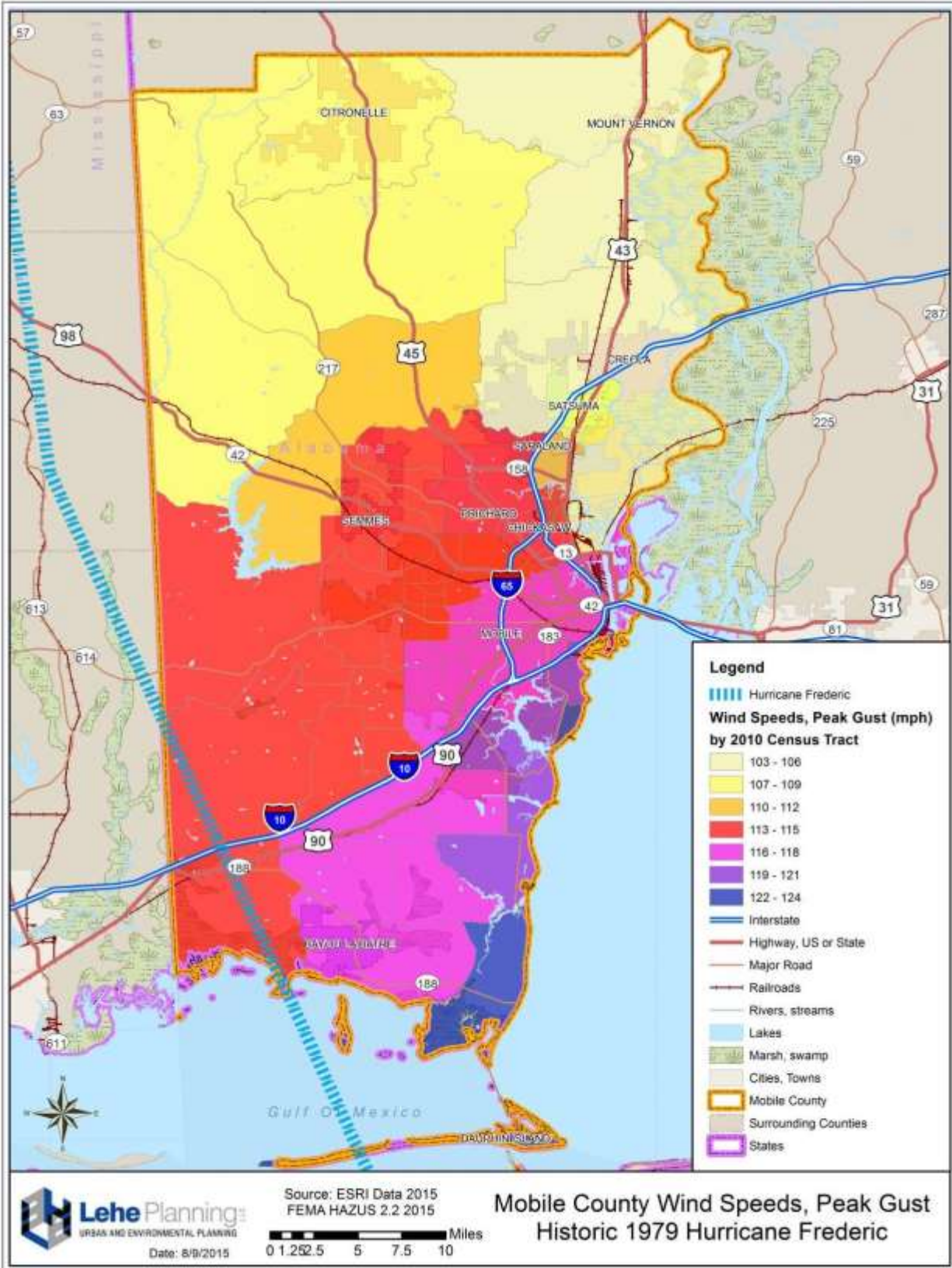
**Map 5-38. Hurricane Frederic Direct Economic Loss**



**Map 5-39. Hurricane Frederic Debris Volume**



**Map 5-40. Hurricane Frederic Wind Speeds**



**Table 5-46. Comparative Hurricane Scenarios Economic Losses**

Hurricane Scenario	Total Bldg.	Res. Bldg. Damage	Total Bldg. Damage	% of Total Bldg. Damage	Res. Damage (\$1,000)	Total Bldg. Damage (\$1,000)	Business Interruption Losses (\$1,000)	Total Economic Losses (\$1,000)
Hurricane Frederic	166,541	81,000	89,000	91.00%	\$3,135,551	\$3,899,241	\$651,299	\$4,550,541
10 Yr.	166,541	1,074	1,204	89.20%	\$83,981	\$86,109	\$1,540	\$87,649
50 Yr.	166,541	73,763	80,669	91.40%	\$2,575,831	\$3,119,450	\$484,128	\$3,603,578
100 Yr.	166,541	107,456	118,097	90.90%	\$6,195,922	\$7,990,620	\$1,417,998	\$9,408,618
500 Yr.	166,541	141,772	155,412	91.20%	\$18,565,007	\$24,172,918	\$3,743,128	\$27,916,046

**Flood Loss Estimates**

The planning team used HAZUS-MH to assess the 100-year flood event scenario. The following table itemizes the overall “Quick Assessment” results for the 100-year flood event and Map 5-41 shows total economic loss.

**Table 5-47. HAZUS-MH Flood Module Quick Assessment Results**

<b>Mobile County 100 Year Flood Event</b>	
Area (Square Miles)	\$1,252
Number of Residential Buildings	\$151,777
Number of All Buildings	\$166,541
Number of Persons in the Region	\$413,000
Residential Building Exposure (\$ millions)	\$31,740
Total Building Exposure (\$ millions)	\$43,551
Residential Property (Capital Stock) Losses (\$ millions)	\$424
Total Property (Capital Stock) Losses (\$ millions)	\$860
Business Interruptions (Income) Losses (\$ millions)	\$3
<b>Total Economic Losses (\$ millions)</b>	<b>\$1,287</b>

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 2014 county population.

**Table 5-48. Total Economic Losses by Jurisdiction**

<b>Jurisdiction</b>	<b>Share of Losses</b>	<b>Total Economic Losses (\$ millions)</b>
Bayou La Batre	0.6%	\$7.72
Chickasaw	1.4%	\$18.02
Citronelle	0.9%	\$11.58
Creola	0.5%	\$6.44
Dauphin Island	0.3%	\$3.86
Mobile	46.9%	\$603.60
Mount Vernon	0.4%	\$5.15
Prichard	5.4%	\$69.49
Saraland	3.3%	\$42.47
Satsuma	1.5%	\$19.31
Semmes	0.8%	\$10.29
Unincorporated	38%	\$489.06
Mobile Co	100%	\$1,287.00

Building-Related Damages. HAZUS estimates that a 100 year flood event would moderately damage approximately 2,228 buildings – over 24% percent of the total number of buildings at risk of flooding in Mobile County. The event would destroy 153

buildings. The following tables show the detailed results, and GIS maps illustrate the HAZUS-generated damages due to flooding.

**Table 5-49. Expected Building Damage by Occupancy, 100 Year Flood Event**

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	5	16.67	20	66.67	2	6.67	2	6.67	1	3.33	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	2	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	3	60.00	1	20.00	0	0.00	1	20.00	0	0.00
Religion	1	11.11	8	88.89	0	0.00	0	0.00	0	0.00	0	0.00
Residential	1	0.05	74	3.38	804	36.73	458	20.92	699	31.93	153	6.99
<b>Total</b>	<b>7</b>		<b>107</b>		<b>807</b>		<b>460</b>		<b>701</b>		<b>153</b>	

**Table 5-50. Expected Building Damage by Building Type, 100 Year Flood Event**

Building Type	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00
ManufHousing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	92	100.00
Masonry	0	0.00	9	15.52	15	25.86	14	24.14	20	34.48	0	0.00
Steel	4	17.39	14	60.87	3	13.04	0	0.00	2	8.70	0	0.00
Wood	0	0.00	74	3.61	789	38.51	443	21.62	682	33.28	61	2.98

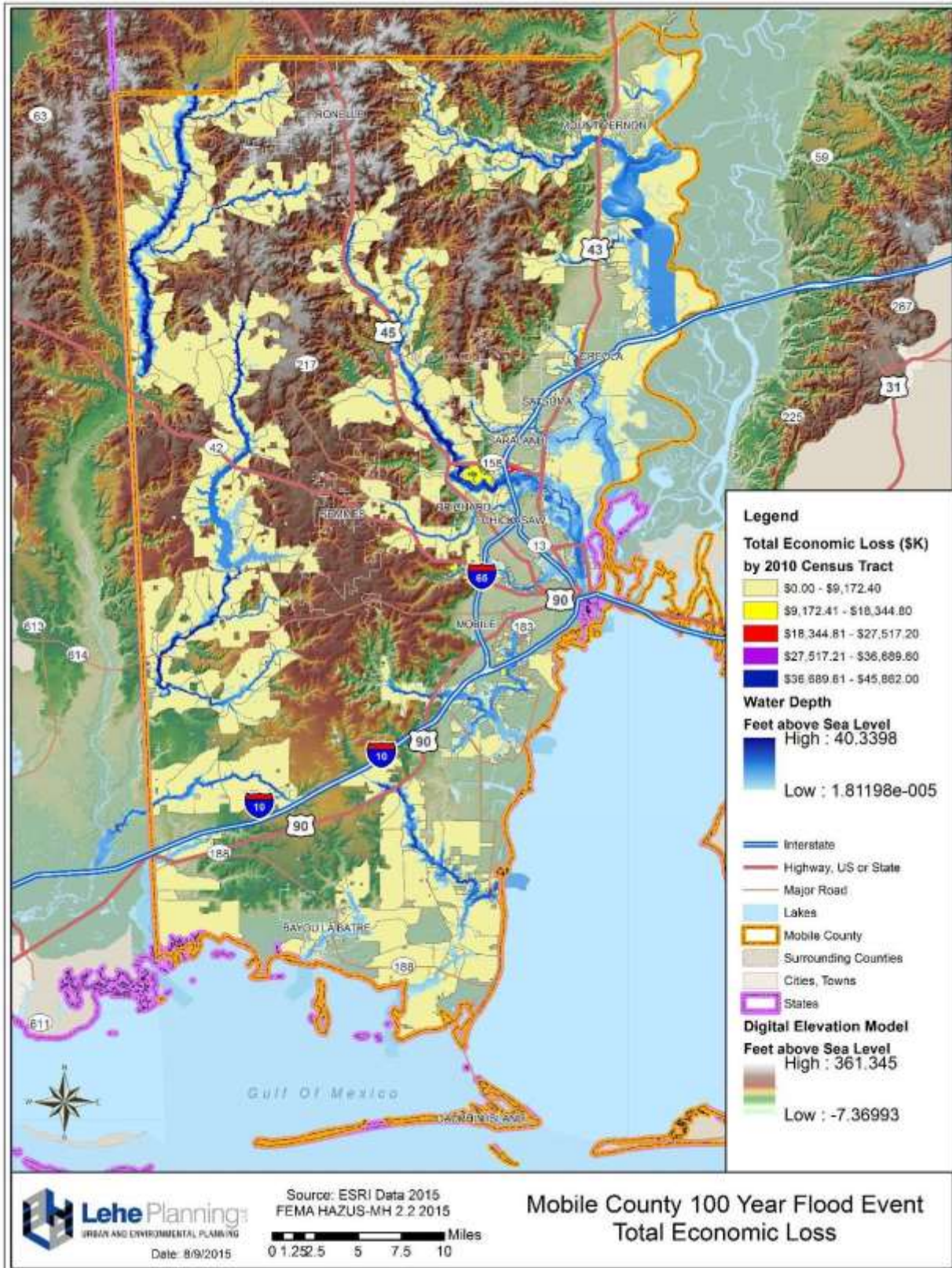
Essential Facilities Damages. HAZUS predicts that a 100 year flood event would cause at least moderate damage to 1 fire station, 2 hospitals, and 1 school (resulting in loss of use) in Mobile County.

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 \$862.95 million. Residential occupancies account for 49.2% of the total loss. Map 5-42 portrays residential building damage.

**Table 5-51. Building Related Economic Loss Estimates (\$ millions)**

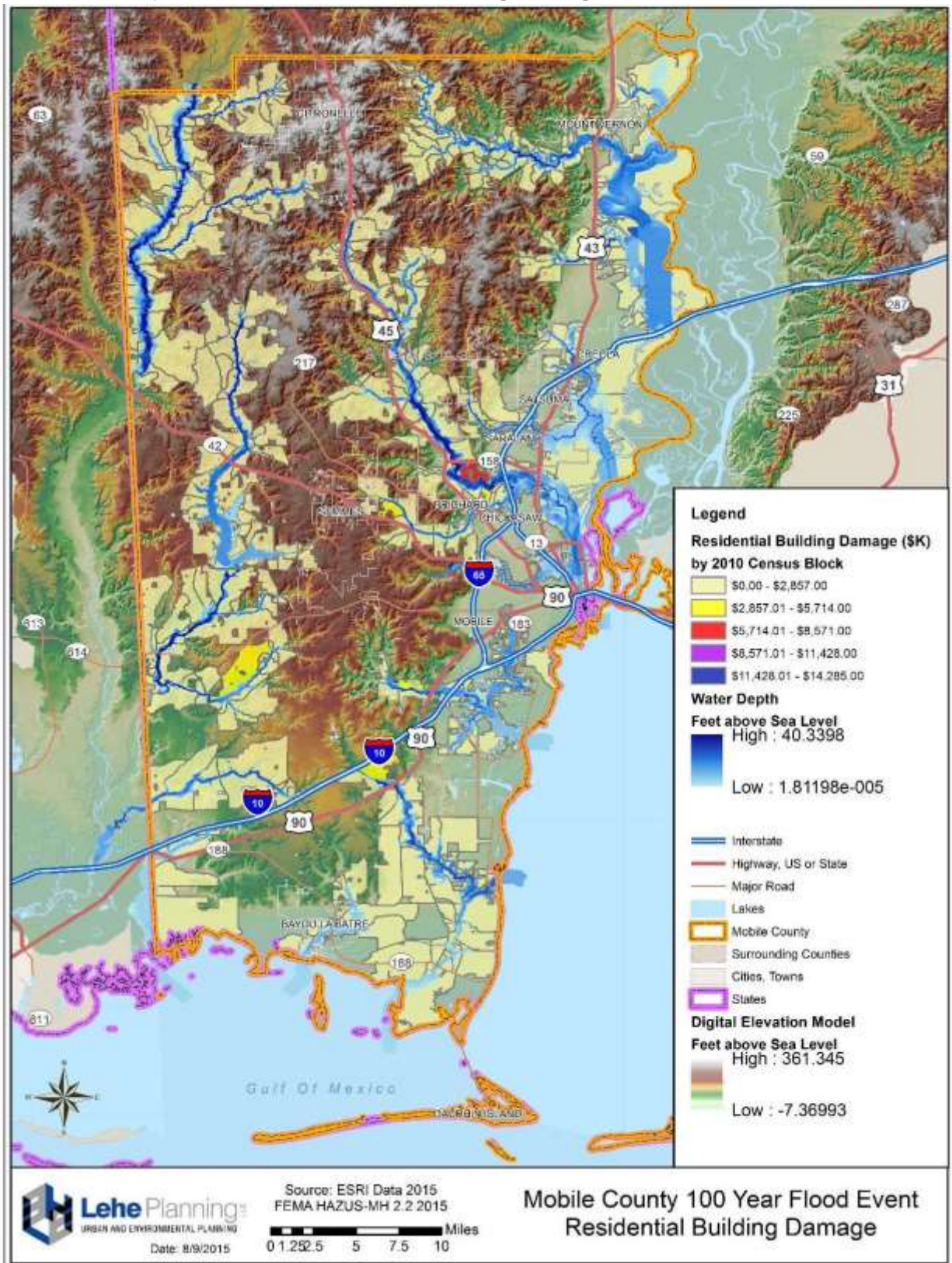
<b>Category</b>	<b>Area</b>	<b>Residential</b>	<b>Commercial</b>	<b>Industrial</b>	<b>Others</b>	<b>Total</b>
<u>Building Loss</u>						
	Building	255.73	65.30	26.57	9.34	356.94
	Content	168.22	194.44	65.33	60.17	488.16
	Inventory	0.00	4.81	9.73	0.22	14.76
	<b>Subtotal</b>	<b>423.96</b>	<b>264.55</b>	<b>101.62</b>	<b>69.73</b>	<b>859.86</b>
<u>Business Interruption</u>						
	Income	0.06	0.49	0.01	0.09	0.65
	Relocation	0.27	0.15	0.01	0.04	0.46
	Rental Income	0.10	0.06	0.00	0.00	0.17
	Wage	0.15	0.78	0.01	0.88	1.82
	<b>Subtotal</b>	<b>0.58</b>	<b>1.47</b>	<b>0.03</b>	<b>1.02</b>	<b>3.09</b>
<b>ALL</b>	<b>Total</b>	<b>424.53</b>	<b>266.02</b>	<b>101.65</b>	<b>70.75</b>	<b>862.95</b>

**Map 5-41. 100 Year Flood Total Economic Loss**





**Map 5-42. Total Residential Building Damage from 100 Year Flood**



**Earthquake Loss Estimates**

The planning team used HAZUS-MH to estimate the losses as a result of a 500-year earthquake event. Results indicate that approximately 254 buildings will be at least moderately damaged, with zero buildings that will be damaged beyond repair. Tables 5-52 and 5-53 show expected building damage by occupancy and by type. Map 5-43 illustrates the total economic loss by 2010 Census tract.

**Table 5-52. Expected Building Damage by Occupancy, 500 Year Earthquake Event**

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	755	0.46	9	0.88	2	0.92	0	1.70	0	1.14
Commercial	9,329	5.65	125	11.63	34	14.14	4	26.11	0	24.28
Education	353	0.21	4	0.41	1	0.48	0	0.85	0	0.94
Government	232	0.14	3	0.26	1	0.30	0	0.49	0	0.42
Industrial	2,552	1.54	31	2.91	8	3.42	1	5.83	0	4.65
Other Residential	21,571	13.06	462	42.84	122	50.60	3	22.61	0	11.79
Religion	1,295	0.78	17	1.56	5	2.18	1	4.40	0	5.66
Single Family	129,120	78.16	426	39.50	67	27.96	5	38.02	0	51.12
<b>Total</b>	<b>165,207</b>		<b>1,079</b>		<b>241</b>		<b>13</b>		<b>1</b>	

**Table 5-53. Expected Building Damage by Type, 500 Year Earthquake Event**

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	129,223	78.22	321	29.77	26	10.86	0	0.00	0	0.00
Steel	6,553	3.97	68	6.34	15	6.38	1	8.30	0	0.00
Concrete	1,115	0.67	10	0.94	2	0.78	0	0.36	0	0.00
Precast	427	0.26	8	0.74	4	1.61	1	3.78	0	0.00
RM	1,665	1.01	17	1.55	6	2.57	1	4.58	0	0.00
URM	10,451	6.33	239	22.16	79	32.60	10	70.47	1	100.00
MH	15,773	9.55	415	38.50	109	45.20	2	12.51	0	0.00
<b>Total</b>	<b>165,207</b>		<b>1,079</b>		<b>241</b>		<b>13</b>		<b>1</b>	

\*Note:

- RM Reinforced Masonry
- URM Unreinforced Masonry
- MH Manufactured Housing

With regard to essential facilities, HAZUS estimates that on the day of the earthquake 2,146 (93%) hospital beds are available for use; after one week, 98% of the beds will be back in service and by one month, all hospital beds will be available for use. No damage is expected for schools, police and fire stations, or the emergency operation center.

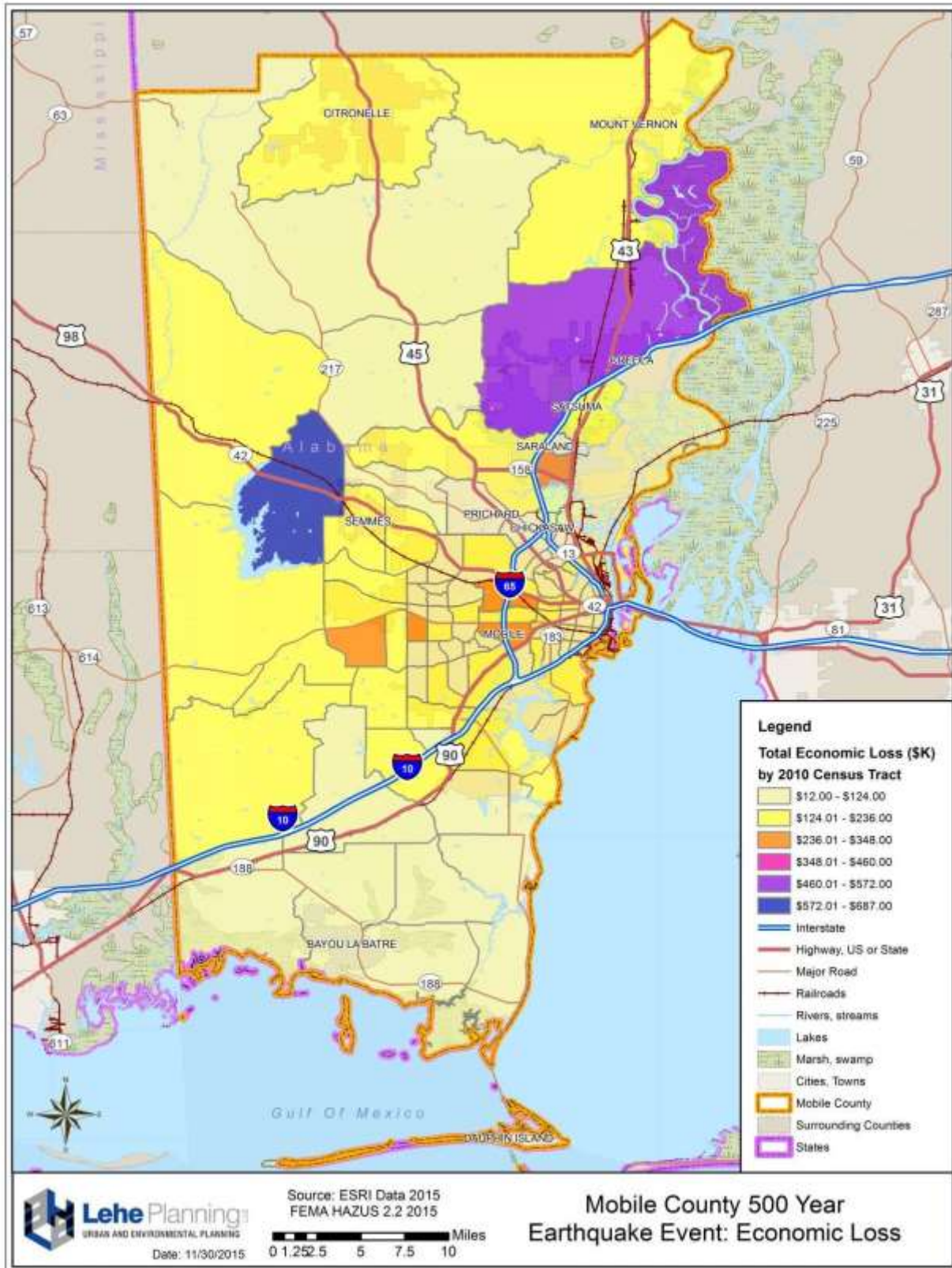
Additionally, the event report predicts that all components of the transportation system will maintain at least 50 percent functionality, because no component will suffer damage. Likewise, HAZUS predicts no disabling damage to the utility infrastructure; however, site-specific leaks and breaks in water and gas pipelines may occur.

HAZUS estimates eight (8) households to be displaced due to the earthquake; six (6) of which will seek temporary shelter. No casualties are expected; however, 14 Level 1 injuries (requiring medical attention, but not hospitalization) and one Level 2 injury (requiring hospitalization, but not life-threatening) are expected. Total economic loss estimated for the earthquake is \$17.1 million, which includes building and lifeline related losses. Table 5-54 portrays building-related economic losses, in millions of dollars.

**Table 5-54. Building-Related Economic Loss Estimates, 500 Year Earthquake Event**

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
<b>Income Losses</b>							
	Wage	0.00	0.10	0.87	0.03	0.11	1.11
	Capital-Related	0.00	0.04	0.70	0.02	0.03	0.79
	Rental	0.09	0.28	0.60	0.02	0.03	1.02
	Relocation	0.33	0.30	0.75	0.08	0.32	1.77
	<b>Subtotal</b>	<b>0.42</b>	<b>0.72</b>	<b>2.91</b>	<b>0.15</b>	<b>0.49</b>	<b>4.70</b>
<b>Capital Stock Losses</b>							
	Structural	0.89	0.59	1.07	0.28	0.62	3.44
	Non_Structural	2.46	1.08	1.22	0.28	0.47	5.50
	Content	0.35	0.09	0.27	0.14	0.12	0.97
	Inventory	0.00	0.00	0.01	0.02	0.01	0.04
	<b>Subtotal</b>	<b>3.70</b>	<b>1.75</b>	<b>2.56</b>	<b>0.72</b>	<b>1.22</b>	<b>9.96</b>
	<b>Total</b>	<b>4.12</b>	<b>2.48</b>	<b>5.48</b>	<b>0.88</b>	<b>1.71</b>	<b>14.65</b>

**Map 5-43. Total Economic Loss, 500 Year Earthquake Event**



**5.6.4 Loss Estimates Based on Historical Records****Flood Loss Estimates**

The National Climatic Data Center (NCDC) Storm Events Database shows frequent flooding since 1995 (Section 5.4.2). There have been 100 floods reported for Mobile County—five per year—for the 1995-2014 period with damages averaging \$422,750 per year and \$84K per event.

**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 1995. The database shows 370 severe storm events for Mobile County—roughly 19 per year—including 166 reports of damage from thunderstorms, 59 from lightning, and 145 from hail. The database also shows \$9 million in damages since 1995.

**Tornado Loss Estimates**

According to the NOAA National Climatic Data Center and National Weather Service (NWS) records (Section 5.4.4), Mobile County has been the site of 34 tornadoes since 1995, averaging \$318,300 annually. These tornadoes caused 1 death, 9 injuries and property damages of \$6.4 million.

**Loss Estimates for Remaining Hazards**

From 1995 to 2014, Mobile County experienced 14 extreme heat and/or drought events (NCDC), averaging at 0.7 per year. This resulted in 6 deaths and one injury. Damages from the 10 winter storms, from 1995-2014, amount to \$5,000 in Mobile County.

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, sinkholes/land subsidence, and tsunamis. For wildfires, although Mobile County is ranked in the top two in number of acres lost to wildfires, estimated losses are not available.

**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.
- Development along the coast places communities at risk from hurricanes, surge, and high-winds.
- 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**

Mobile County has experienced slight growth over the past twenty years (1990 – 2010), less so in recent years. Table 5-55 shows that the rate of growth for Mobile County (3.3%) is less than the State of Alabama's growth (7.5%). Contributing to this slight growth is Mount Vernon, which saw an increase of 86.5% from 2000 to 2010. This growth is likely due to several annexations that took place over this time, as well as new industry (ThyssenKrupp Steel Facility) in the community.

In addition to Mount Vernon, Bayou La Batre (10.6%), Saraland (9.1%), Satsuma (8.5%), and Citronelle (6.7%) also experienced growth. Detracting from the growth, 5 of the 11 jurisdictions in the county declined in population (2000 – 2010), including Chickasaw (-4.1%), Creola (-3.8%), Dauphin Island (-9.7%), Mobile (-1.9%), and Prichard (-20.9%). Semmes does not have growth figures, due to it recently becoming a city. Map 5-47 shows population density (persons per square mile) for Mobile County using 2013 U.S. Census block groups. The densest areas are located in and around the

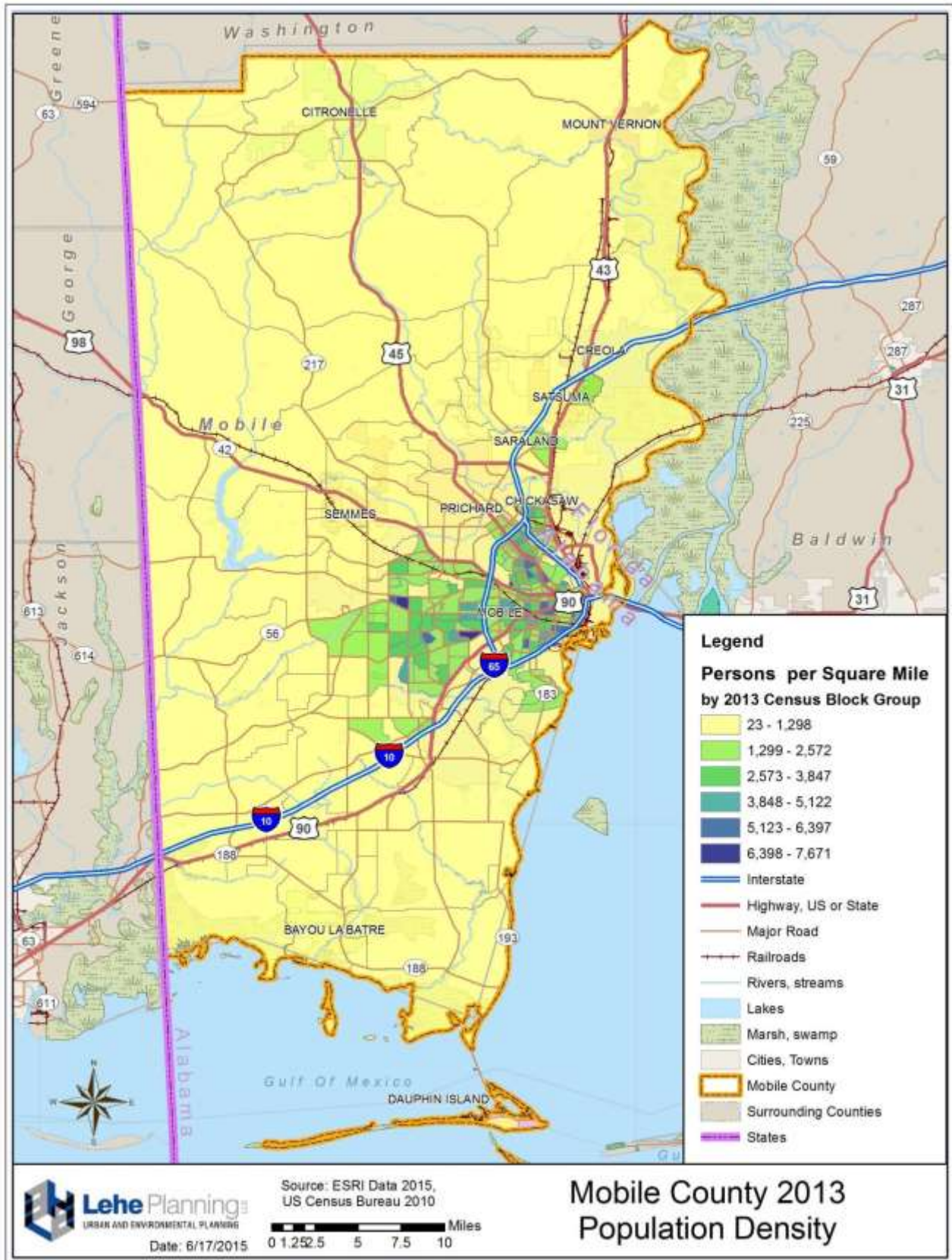
City of Mobile.

**Table 5-55. Mobile County Historic Growth Trends**

Jurisdiction	1990	2000	Number Change (1990-2000)	Percent Change (1990-2000)	2010	Number Change (2000-2010)	Percent Change (2000-2010)
Alabama	4,040,389	4,447,100	406,711	10.1%	4,779,736	332,636	7.5%
Mobile Co	378,643	399,843	21,200	5.6%	412,992	13,149	3.3%
Bayou La Batre	2,456	2,313	-143	-5.8%	2,558	245	10.6%
Chickasaw	6,649	6,364	-285	-4.3%	6,106	-258	-4.1%
Citronelle	3,671	3,659	-12	-0.3%	3,905	246	6.7%
Creola	1,896	2,002	106	5.6%	1,926	-76	-3.8%
Dauphin Island	n/a	1,371	n/a	n/a	1,238	-133	-9.7%
Mobile	196,278	198,915	2,637	1.3%	195,111	-3,804	-1.9%
Mount Vernon	n/a	844	n/a	n/a	1,574	730	86.5%
Prichard	34,311	28,633	-5,678	-16.5%	22,659	-5,974	-20.9%
Saraland	11,751	12,288	537	4.6%	13,405	1,117	9.1%
Satsuma	5,194	5,687	493	9.5%	6,168	481	8.5%
Semmes	n/a	n/a	n/a	n/a	2,987	n/a	n/a

Source: US Census, 1990 - 2010

**Map 5-44. Population Density in Mobile County**



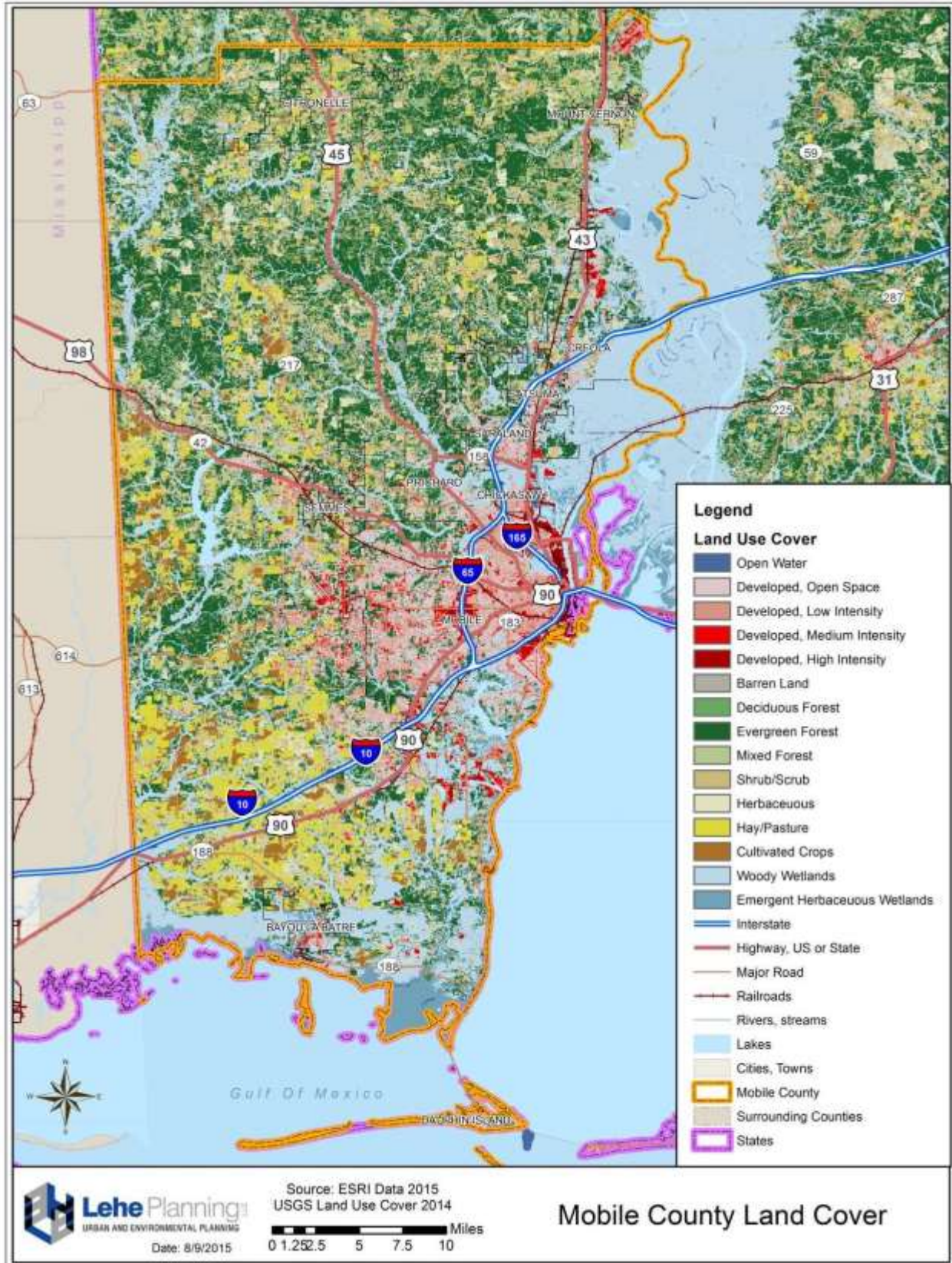


**Land Use**

Mobile County encloses an abundance of rivers, lakes, and wetlands. Many of the rivers flow from the interior of Mobile County through Mobile, Prichard, Chickasaw and Saraland, which comprise some of the more developed areas of Mobile County. Flood plains influence the location of development, as most historical and projected development in Mobile County is away from flood-prone regions and towards the interior of the county.

Map 5-45 “Mobile County Land Cover” provides further information about development patterns in Mobile County. Development in Mobile County is highly concentrated around the City of Mobile and its northern suburbs. The southern area of the county is primarily uncultivated pasture land, while the land in northern areas of Mobile County is evergreen forest. Very little of Mobile County’s land is in use as cultivated farmland.

**Map 5-45. Mobile County Land Cover**



**5.7.3 Future Trends**

Table 5-56 presents projected growth in Mobile County and the State of Alabama, between 2010 and 2035 according to projections compiled by the Center for Business and Economic Research at the University of Alabama. Alabama’s population growth between 2010 and 2035 nears 15%, compared to a growth of 6% for Mobile County. These projections are based on historical data and do not reflect current economic development efforts in Mobile County or throughout the State. Table 5-57 shows the estimated 2014 population and the projected 2035 population by jurisdiction. The City of Mobile accounts for most of the projected 2035 growth at 44%, followed by 35% of growth in unincorporated areas of the county (Table 5-57).

These projections are based on statistical inferences from historical data. The projections do not account for recent economic development in Mobile County. Faster-than-expected economic development, particularly in Mobile’s expanding manufacturing sector, could lead to increases in population.

**Table 5-56. Population 2000-2010 and Projections 2015-2035**

	Population Estimate/Projection						Change 2000-2035	
	2010 <sup>a</sup>	2015 <sup>b</sup>	2020 <sup>b</sup>	2025 <sup>b</sup>	2030 <sup>b</sup>	2035 <sup>b</sup>	Number	Percent
Alabama	4,779,736	4,943,866	5,096,521	5,242,423	5,365,245	5,486,147	706,411	14.8%
Mobile	412,992	420,180	426,597	431,537	434,968	437,228	24,236	5.9%

<sup>a</sup> US Census Bureau. 2010 Census    <sup>b</sup> Center for Business and Economic Research, U. of Alabama

**Table 5-57. Population Projections by Jurisdiction**

Jurisdiction	Estimated 2014	Projected 2035	Projected Change 2014-2035	Percent Change 2014-2035	% of Total 2035
Bayou La Batre	2,636	2,807	171	6.49%	0.64%
Chickasaw	5,981	5,452	-529	-8.84%	1.25%
Citronelle	3,885	4,086	201	5.16%	0.93%
Creola	1,942	1,983	41	2.12%	0.45%
Dauphin Island	1,242	1,263	21	1.69%	0.29%
Mobile	194,675	193,452	-1,223	-0.63%	44.25%
Mount Vernon	1,559	1,482	-77	-4.92%	0.34%
Prichard	22,312	15,302	-7,010	-31.42%	3.50%
Saraland	13,744	15,747	2,003	14.57%	3.60%
Satsuma	6,167	7,170	1,003	16.26%	1.64%
Semmes	3,257	5,133	1,876	57.61%	1.17%
Unincorporated	157,723	154,444	-3,279	-2.08%	35.32%
Mobile Co	415,123	437,228	22,105	5.32%	100.00%

Source: Derived from the Alabama State Data Center & U.S. Census  
 Mobile County total does not equal 100% due to rounding

**5.7.4 Impacts of hazards on the location of development**

The major hazards affecting Mobile County are hurricanes, severe storms, tornadoes, and flooding. Because severe storms, tornadoes and hurricanes affect all jurisdictions, they merit county-wide efforts. Hurricanes often create storm surges, which impact communities near the ocean most directly. Bayou la Batre and Dauphin Island suffered significant damage from tidal surges during Hurricane Katrina. The City of Mobile and its northern suburbs have some vulnerability to tidal surges, although Mobile Bay partially shields these communities.

Flooding is a location-specific hazard caused by severe storms and hurricanes. Flooding is common in Mobile County, especially in the dense areas around the City of Mobile and its northern suburbs, which are vulnerable to flooding from the Mobile and Dog Rivers and their tributaries. Typically, flooding around these channels is riverine flooding rather than flash flooding. Efforts to mitigate flooding should be local and address the riverine nature of the flooding problems.

Trends suggest development will be strongest in unincorporated areas to the west of the City of Mobile. Therefore, Mobile County's population growth will take place away from both the southern coastal areas and the flood-prone areas around major rivers. There is no reason to believe populations within Mobile County's incorporated municipalities will grow more quickly or more slowly than the gradual growth projected for the county as a whole. Mount Vernon may experience increased growth due to its proximity to the new ThyssenKrupp plant and possibly the proposed Hybrid Kinematic Motors plant in northern Baldwin County; however, such growth is not expected to substantially alter the rural landscape of northeastern Mobile County, as the number of jobs created by the ThyssenKrupp plant will be only a small fraction of Mobile County's total employment. There is an emerging possibility of mixed-used development in Mobile's Central Business District and core neighborhoods, which would increase residential populations in these areas. If new residential development occurs in these low-lying areas, it is crucial to mitigate flooding risks.

**5.8 Repetitively-Damaged NFIP-Insured Structures**

FEMA defines a repetitive loss property as those which have two or more losses of at least \$1,000 and have been paid under the National Flood Insurance Program (NFIP) within any 10 year period. According to FEMA, there are 8,800 NFIP repetitive loss structures within Mobile County and the NFIP participating jurisdictions as of August 2015. Table 5-58 describes the number of policies in force and includes the number of repetitive loss properties by jurisdiction.

**Table 5-58. Repetitive Loss Properties by Jurisdiction**

Community Name	NFIP Policies in Force	Total Insurance In Force	Repetitive Loss Structures	Total RL Claims	Total RL Losses
Mobile County	1,993	\$515,749,400	319	807	\$27,634,290
Bayou La Batre	230	\$55,989,400	78	184	\$12,879,317
Chickasaw	146	\$29,155,700	30	72	\$2,866,013
Citronelle	3	\$520,000	-	-	-
Creola	68	\$12,183,300	-	-	-
Dauphin Island	1,709	\$377,639,900	838	2,703	\$93,492,000
Mobile	4,060	\$1,092,377,200	660	1,885	\$60,933,521
Mount Vernon	2	\$560,000	-	-	-
Prichard	78	\$13,376,300	19	67	\$552,871
Saraland	401	\$63,997,200	53	163	\$2,144,861
Satsuma	110	\$27,022,900	16	46	\$624,393
Semmes	-	-	-	-	-
<b>Total</b>	<b>8,800</b>	<b>\$2,188,571,300</b>	<b>2,013</b>	<b>5,927</b>	<b>\$201,127,266</b>

Source: NFIP State Coordinator, 08/05/15 & FEMA Policy Statistics

The repetitive loss claims (to date) originate from all but four of the jurisdictions in Mobile County; however most of the claims come Dauphin Island (2,703) and the City of Mobile (1,885). The majority of the properties that have experienced repetitive losses are single family homes. The remaining properties are classified as other residential, multi-family homes, non-residential and condominiums. Of the repetitive loss properties identified above, the following (Table 5-59) provides a breakdown of severe repetitive loss properties, which is defined by FEMA’s NFIP as properties with a high frequency of losses or a high value of claims. Specifically, a severe repetitive loss property must meet one of two criteria: 1) four or more separate claim payments of more than \$5,000 each (building and/or contents); or 2) two or more separate claim payments (building payments only) where the total of the payments exceeds the current market value of the property.

**Table 5-59. Severe Repetitive Loss Properties by Jurisdiction**

Community Name	Severe Repetitive Loss Structures	Total SRL Claims	Total SRL Losses (\$)
Mobile County	10	58	\$1,706,132
Bayou La Batre	2	6	\$158,596
Dauphin Island	68	426	\$14,199,499
Mobile	25	143	\$3,918,724
Saraland	1	5	\$49,363
<b>Total</b>	<b>106</b>	<b>638</b>	<b>\$20,032,314</b>

As previously discussed in Section 5.4.2 “Floods Profile”, Dauphin Island and Bayou La Batre are susceptible to flooding from the Gulf. In addition, Mobile County’s rivers and streams threaten inland communities such as Saraland and other unincorporated areas. Furthermore, Table 6-3 “2015-2020 Mobile County Multi-Jurisdictional Mitigation Action Program” lists the specific goals, objectives, and mitigation measures related to flooding.

## **5.9 Summary of Hazards and Community Impacts**

Table 5-60 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 5-60. 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
<b>Hurricanes</b>	Bayou La Batre	Community-wide	Moderate	Significant	High	High
	Chickasaw	Community-wide	Moderate	Significant	High	High
	Citronelle	Community-wide	Moderate	Moderate	High	High
	Creola	Community-wide	Moderate	Significant	High	High
	Dauphin Island	Community-wide	Moderate	Devastating	High	High
	Mobile	Community-wide	Moderate	Significant	High	High
	Mount Vernon	Community-wide	Moderate	Slight	High	High
	Prichard	Community-wide	Moderate	Significant	High	High
	Saraland	Community-wide	Moderate	Significant	High	High
	Satsuma	Community-wide	Moderate	Significant	High	High
	Semmes	Community-wide	Moderate	Significant	High	High
	Unincorporated	Community-wide	Moderate	Significant	High	High
<b>Severe Storms</b>	Bayou La Batre	Community-wide	Very High	Moderate	High	Low
	Chickasaw	Community-wide	Very High	Moderate	High	Low
	Citronelle	Community-wide	Very High	Moderate	High	Low
	Creola	Community-wide	Very High	Moderate	High	Low
	Dauphin Island	Community-wide	Very High	Moderate	High	Low
	Mobile	Community-wide	Very High	Moderate	High	Low
	Mount Vernon	Community-wide	Very High	Moderate	High	Low
	Prichard	Community-wide	Very High	Moderate	High	Low
	Saraland	Community-wide	Very High	Moderate	High	Low
	Satsuma	Community-wide	Very High	Moderate	High	Low
	Semmes	Community-wide	Very High	Moderate	High	Low
	Unincorporated	Community-wide	Very High	Moderate	High	Low



Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location	Probability	Extent	Exposure	Damage Potential
Tornadoes	Bayou La Batre	Community-wide	Very High	Devastating	High	High
	Chickasaw	Community-wide	Very High	Devastating	High	High
	Citronelle	Community-wide	Very High	Devastating	High	High
	Creola	Community-wide	Very High	Devastating	High	High
	Dauphin Island	Community-wide	Very High	Devastating	High	High
	Mobile	Community-wide	Very High	Devastating	High	High
	Mount Vernon	Community-wide	Very High	Devastating	High	High
	Prichard	Community-wide	Very High	Devastating	High	High
	Saraland	Community-wide	Very High	Devastating	High	High
	Satsuma	Community-wide	Very High	Devastating	High	High
	Semmes	Community-wide	Very High	Devastating	High	High
	Unincorporated	Community-wide	Very High	Devastating	High	High
	Floods	Bayou La Batre	Partial	Moderate	Devastating	High
Chickasaw		Partial	Moderate	Moderate	Medium	Medium
Citronelle		Minimal	Moderate	Slight	Low	Low
Creola		Partial	Moderate	Moderate	Medium	Medium
Dauphin Island		Community-wide	Moderate	Devastating	High	High
Mobile		Partial	Moderate	Moderate	High	High
Mount Vernon		Minimal	Moderate	Slight	Low	Low
Prichard		Partial	Moderate	Moderate	Medium	Medium
Saraland		Partial	Moderate	Moderate	Medium	Medium
Satsuma		Minimal	Moderate	Moderate	Medium	Medium
Semmes		Minimal	Moderate	Moderate	Medium	Medium
Unincorporated		Partial	Moderate	Moderate	Medium	Medium

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Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location	Probability	Extent	Exposure	Damage Potential
Wildfires	Bayou La Batre	Partial	High	Devastating	High	High
	Chickasaw	Minimal	Low	Slight	Low	Low
	Citronelle	Partial	Moderate	Moderate	Medium	Low
	Creola	Partial	Low	Slight	Low	Low
	Dauphin Island	Minimal	Very Low	Slight	Low	Low
	Mobile	Minimal	Low	Slight	Low	Low
	Mount Vernon	Partial	Moderate	Moderate	Medium	Low
	Prichard	Partial	Low	Slight	Low	Low
	Saraland	Partial	Low	Slight	Low	Low
	Satsuma	Partial	Low	Slight	Low	Low
	Semmes	Partial	Low	Slight	Low	Low
	Unincorporated	Partial	Very High	Slight	Low	Low
Drought/Heat Waves	Bayou La Batre	Community-wide	Moderate	Slight	Low	Low
	Chickasaw	Community-wide	Moderate	Slight	Low	Low
	Citronelle	Community-wide	Moderate	Moderate	Medium	Low
	Creola	Community-wide	Moderate	Slight	Low	Low
	Dauphin Island	Community-wide	Moderate	Slight	Low	Low
	Mobile	Community-wide	Moderate	Slight	Low	Low
	Mount Vernon	Community-wide	Moderate	Moderate	Medium	Low
	Prichard	Community-wide	Moderate	Slight	Low	Low
	Saraland	Community-wide	Moderate	Slight	Low	Low
	Satsuma	Community-wide	Moderate	Slight	Low	Low
	Semmes	Community-wide	Moderate	Slight	Low	Low
	Unincorporated	Community-wide	Moderate	Moderate	Medium	Low

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Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location	Probability	Extent	Exposure	Damage Potential
Winter Storms/Freezes	Bayou La Batre	Community-wide	Low	Slight	High	Low
	Chickasaw	Community-wide	Low	Slight	High	Low
	Citronelle	Community-wide	Low	Slight	High	Low
	Creola	Community-wide	Low	Slight	High	Low
	Dauphin Island	Community-wide	Low	Slight	High	Low
	Mobile	Community-wide	Low	Slight	High	Low
	Mount Vernon	Community-wide	Low	Slight	High	Low
	Prichard	Community-wide	Low	Slight	High	Low
	Saraland	Community-wide	Low	Slight	High	Low
	Satsuma	Community-wide	Low	Slight	High	Low
	Semmes	Community-wide	Low	Slight	High	Low
	Unincorporated	Community-wide	Low	Slight	High	Low
Earthquakes	Bayou La Batre	Community-wide	Very Low	Slight	High	Low
	Chickasaw	Community-wide	Very Low	Slight	High	Low
	Citronelle	Community-wide	Very Low	Slight	High	Low
	Creola	Community-wide	Very Low	Slight	High	Low
	Dauphin Island	Community-wide	Very Low	Slight	High	Low
	Mobile	Community-wide	Very Low	Slight	High	Low
	Mount Vernon	Community-wide	Very Low	Slight	High	Low
	Prichard	Community-wide	Very Low	Slight	High	Low
	Saraland	Community-wide	Very Low	Slight	High	Low
	Satsuma	Community-wide	Very Low	Slight	High	Low
	Semmes	Community-wide	Very Low	Slight	High	Low
	Unincorporated	Community-wide	Very Low	Slight	High	Low

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Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location	Probability	Extent	Exposure	Damage Potential
Dam/Levee Failures	Bayou La Batre	Minimal	Very Low	Slight	Low	Low
	Chickasaw	Minimal	Very Low	Slight	Low	Low
	Citronelle	Minimal	Very Low	Slight	Low	Low
	Creola	Minimal	Very Low	Slight	Low	Low
	Dauphin Island	Minimal	Very Low	Slight	Low	Low
	Mobile	Minimal	Very Low	Slight	Low	Low
	Mount Vernon	Minimal	Very Low	Slight	Low	Low
	Prichard	Minimal	Very Low	Slight	Low	Low
	Saraland	Minimal	Very Low	Slight	Low	Low
	Satsuma	Minimal	Very Low	Slight	Low	Low
	Semmes	Minimal	Very Low	Slight	Low	Low
	Unincorporated	Minimal	Very Low	Slight	Low	Low
Landslides	Bayou La Batre	Minimal	Very Low	Slight	Low	Low
	Chickasaw	Minimal	Very Low	Slight	Low	Low
	Citronelle	Minimal	Very Low	Slight	Low	Low
	Creola	Minimal	Very Low	Slight	Low	Low
	Dauphin Island	Minimal	Very Low	Slight	Low	Low
	Mobile	Minimal	Very Low	Slight	Low	Low
	Mount Vernon	Minimal	Very Low	Slight	Low	Low
	Prichard	Minimal	Very Low	Slight	Low	Low
	Saraland	Minimal	Very Low	Slight	Low	Low
	Satsuma	Minimal	Very Low	Slight	Low	Low
	Semmes	Minimal	Very Low	Slight	Low	Low
	Unincorporated	Minimal	Very Low	Slight	Low	Low

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Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location	Probability	Extent	Exposure	Damage Potential
<b>Sinkholes (Land Subsidence)</b>	Bayou La Batre	Minimal	Very Low	Slight	Low	Low
	Chickasaw	Minimal	Very Low	Slight	Low	Low
	Citronelle	Minimal	Very Low	Slight	Low	Low
	Creola	Minimal	Very Low	Slight	Low	Low
	Dauphin Island	Minimal	Very Low	Slight	Low	Low
	Mobile	Minimal	Very Low	Slight	Low	Low
	Mount Vernon	Minimal	Very Low	Slight	Low	Low
	Prichard	Minimal	Very Low	Slight	Low	Low
	Saraland	Minimal	Very Low	Slight	Low	Low
	Satsuma	Minimal	Very Low	Slight	Low	Low
	Semmes	Minimal	Very Low	Slight	Low	Low
	Unincorporated	Partial	Low	Slight	Low	Low
<b>Tsunamis</b>	Bayou La Batre	Partial	Very Low	Significant	High	High
	Chickasaw	Minimal	Very Low	Slight	Low	High
	Citronelle	Minimal	Very Low	Slight	Low	High
	Creola	Minimal	Very Low	Slight	Low	High
	Dauphin Island	Partial	Very Low	Devastating	High	High
	Mobile	Partial	Very Low	Significant	High	High
	Mount Vernon	Minimal	Very Low	Slight	Low	High
	Prichard	Minimal	Very Low	Slight	Low	High
	Saraland	Minimal	Very Low	Slight	Low	High
	Satsuma	Minimal	Very Low	Slight	Low	High
	Semmes	Minimal	Very Low	Slight	Low	High
	Unincorporated	Minimal	Very Low	Slight	Low	High

Hazard	Jurisdiction	Community Impacts			Impacts on Vulnerable Community Buildings, Critical Facilities, and Infrastructure	
		Location	Probability	Extent	Exposure	Damage Potential
<b>Manmade/Technological</b>	Bayou La Batre	Minimal	Low	Slight	Low	Low
	Chickasaw	Minimal	Low	Slight	Low	Low
	Citronelle	Minimal	Low	Slight	Low	Low
	Creola	Minimal	Low	Slight	Low	Low
	Dauphin Island	Minimal	Low	Slight	Low	Low
	Mobile	Minimal	Low	Slight	Low	Low
	Mount Vernon	Minimal	Low	Slight	Low	Low
	Prichard	Minimal	Low	Slight	Low	Low
	Saraland	Minimal	Low	Slight	Low	Low
	Satsuma	Minimal	Low	Slight	Low	Low
	Semmes	Minimal	Low	Slight	Low	Low
	Unincorporated	Minimal	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 5-60 “Summary of Hazards and Community Impacts” summarizes how hazards impact each jurisdiction.

Risk may vary among jurisdictions, as described in Table 5-61 “Jurisdictional Risk Variations.” Table 5-61 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 (if the location of a hazard is not unique, then it follows that the probability and the extent will also be marked not unique).

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 5-61. Jurisdictional Risk Variations**

Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
Hurricanes	Unique Risk	Bayou La Batre	Specific Locations	Moderate	Devastating
		Chickasaw	Specific Locations	Moderate	Significant
		Citronelle	Specific Locations	Moderate	Moderate
		Creola	Specific Locations	Moderate	Significant
		Dauphin Island	Specific Locations	Moderate	Devastating
		Mobile	Specific Locations	Moderate	Significant
		Mount Vernon	Specific Locations	Moderate	Moderate
		Prichard	Specific Locations	Moderate	Significant
		Saraland	Specific Locations	Moderate	Significant
		Satsuma	Specific Locations	Moderate	Significant
		Semmes	Specific Locations	Moderate	Significant
		Unincorporated	Specific Locations	Moderate	Significant
		Mobile County	Specific Locations	Moderate	Significant
Severe Storms	Common Risks	Bayou La Batre	Not Unique	Not Unique	Not Unique
		Chickasaw	Not Unique	Not Unique	Not Unique
		Citronelle	Not Unique	Not Unique	Not Unique
		Creola	Not Unique	Not Unique	Not Unique
		Dauphin Island	Not Unique	Not Unique	Not Unique
		Mobile	Not Unique	Not Unique	Not Unique
		Mount Vernon	Not Unique	Not Unique	Not Unique
		Prichard	Not Unique	Not Unique	Not Unique
		Saraland	Not Unique	Not Unique	Not Unique
		Satsuma	Not Unique	Not Unique	Not Unique
		Semmes	Not Unique	Not Unique	Not Unique
		Unincorporated	Not Unique	Not Unique	Not Unique
		Mobile County	Not Unique	Not Unique	Not Unique

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Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
Tornadoes	Common Risks	Bayou La Batre	Not Unique	Not Unique	Not Unique
		Chickasaw	Not Unique	Not Unique	Not Unique
		Citronelle	Not Unique	Not Unique	Not Unique
		Creola	Not Unique	Not Unique	Not Unique
		Dauphin Island	Not Unique	Not Unique	Not Unique
		Mobile	Not Unique	Not Unique	Not Unique
		Mount Vernon	Not Unique	Not Unique	Not Unique
		Prichard	Not Unique	Not Unique	Not Unique
		Saraland	Not Unique	Not Unique	Not Unique
		Satsuma	Not Unique	Not Unique	Not Unique
		Semmes	Not Unique	Not Unique	Not Unique
		Unincorporated	Not Unique	Not Unique	Not Unique
		Mobile County	Not Unique	Not Unique	Not Unique
Floods	Unique Risks	Bayou La Batre	Specific Locations	Moderate	Devastating
		Chickasaw	Specific Locations	Moderate	Slight
		Citronelle	Specific Locations	Moderate	Slight
		Creola	Specific Locations	Moderate	Slight
		Dauphin Island	Specific Locations	Moderate	Devastating
		Mobile	Specific Locations	Moderate	Slight
		Mount Vernon	Specific Locations	Moderate	Slight
		Prichard	Specific Locations	Moderate	Moderate
		Saraland	Specific Locations	Moderate	Moderate
		Satsuma	Specific Locations	Moderate	Moderate
		Semmes	Specific Locations	Moderate	Moderate
		Unincorporated	Specific Locations	Moderate	Moderate
		Mobile County	Specific Locations	Moderate	Moderate

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Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
Wildfires	Unique Risks	Bayou La Batre	Specific Locations	High	Devastating
		Chickasaw	Minimal Coverage	Low	Slight
		Citronelle	Specific Locations	Moderate	Moderate
		Creola	Specific Locations	Low	Slight
		Dauphin Island	Minimal Coverage	Very Low	Slight
		Mobile	Minimal Coverage	Low	Slight
		Mount Vernon	Specific Locations	Moderate	Moderate
		Prichard	Specific Locations	Low	Slight
		Saraland	Specific Locations	Low	Slight
		Satsuma	Specific Locations	Low	Slight
		Semmes	Specific Locations	Low	Slight
		Unincorporated	Specific Locations	Very High	Slight
		Mobile County	Specific Locations	Very High	Slight
Drought/Heat Waves	Common Risks	Bayou La Batre	Not Unique	Not Unique	Not Unique
		Chickasaw	Not Unique	Not Unique	Not Unique
		Citronelle	Not Unique	Not Unique	Not Unique
		Creola	Not Unique	Not Unique	Not Unique
		Dauphin Island	Not Unique	Not Unique	Not Unique
		Mobile	Not Unique	Not Unique	Not Unique
		Mount Vernon	Not Unique	Not Unique	Not Unique
		Prichard	Not Unique	Not Unique	Not Unique
		Saraland	Not Unique	Not Unique	Not Unique
		Satsuma	Not Unique	Not Unique	Not Unique
		Semmes	Not Unique	Not Unique	Not Unique
		Unincorporated	Not Unique	Not Unique	Not Unique
		Mobile County	Not Unique	Not Unique	Not Unique

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Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
Winter Storms/Freezes Wildfires	Common Risks	Bayou La Batre	Not Unique	Not Unique	Not Unique
		Chickasaw	Not Unique	Not Unique	Not Unique
		Citronelle	Not Unique	Not Unique	Not Unique
		Creola	Not Unique	Not Unique	Not Unique
		Dauphin Island	Not Unique	Not Unique	Not Unique
		Mobile	Not Unique	Not Unique	Not Unique
		Mount Vernon	Not Unique	Not Unique	Not Unique
		Prichard	Not Unique	Not Unique	Not Unique
		Saraland	Not Unique	Not Unique	Not Unique
		Satsuma	Not Unique	Not Unique	Not Unique
		Semmes	Not Unique	Not Unique	Not Unique
		Unincorporated	Not Unique	Not Unique	Not Unique
		Mobile County	Not Unique	Not Unique	Not Unique
Earthquakes	Common Risks	Bayou La Batre	Not Unique	Not Unique	Not Unique
		Chickasaw	Not Unique	Not Unique	Not Unique
		Citronelle	Not Unique	Not Unique	Not Unique
		Creola	Not Unique	Not Unique	Not Unique
		Dauphin Island	Not Unique	Not Unique	Not Unique
		Mobile	Not Unique	Not Unique	Not Unique
		Mount Vernon	Not Unique	Not Unique	Not Unique
		Prichard	Not Unique	Not Unique	Not Unique
		Saraland	Not Unique	Not Unique	Not Unique
		Satsuma	Not Unique	Not Unique	Not Unique
		Semmes	Not Unique	Not Unique	Not Unique
		Unincorporated	Not Unique	Not Unique	Not Unique
		Mobile County	Not Unique	Not Unique	Not Unique

# CHAPTER 5

# 2015 Mobile County Multi-Hazard Mitigation Plan

Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
Dam/Levee Failures	Unique Risks	Bayou La Batre	Specific Locations	Very Low	Slight
		Chickasaw	Specific Locations	Very Low	Slight
		Citronelle	Specific Locations	Very Low	Slight
		Creola	Specific Locations	Very Low	Slight
		Dauphin Island	Specific Locations	Very Low	Slight
		Mobile	Specific Locations	Very Low	Slight
		Mount Vernon	Specific Locations	Very Low	Slight
		Prichard	Specific Locations	Very Low	Slight
		Saraland	Specific Locations	Very Low	Slight
		Satsuma	Specific Locations	Very Low	Slight
		Semmes	Specific Locations	Very Low	Slight
		Unincorporated	Specific Locations	Very Low	Slight
		Mobile County	Specific Locations	Very Low	Slight
Landslides	Unique Risks	Bayou La Batre	Specific Locations	Very Low	Slight
		Chickasaw	Specific Locations	Very Low	Slight
		Citronelle	Specific Locations	Very Low	Slight
		Creola	Specific Locations	Very Low	Slight
		Dauphin Island	Specific Locations	Very Low	Slight
		Mobile	Specific Locations	Very Low	Slight
		Mount Vernon	Specific Locations	Very Low	Slight
		Prichard	Specific Locations	Very Low	Slight
		Saraland	Specific Locations	Very Low	Slight
		Satsuma	Specific Locations	Very Low	Slight
		Semmes	Specific Locations	Very Low	Slight
		Unincorporated	Specific Locations	Very Low	Slight
		Mobile County	Specific Locations	Very Low	Slight

# CHAPTER 5

# 2015 Mobile County Multi-Hazard Mitigation Plan

Hazard	Variation of Risks	Jurisdiction	Hazard's Unique Risk Characteristics		
			Location	Probability	Extent
Sinkholes (Land Subsidence)	Unique Risks	Bayou La Batre	Specific Locations	Very Low	Slight
		Chickasaw	Specific Locations	Very Low	Slight
		Citronelle	Specific Locations	Very Low	Slight
		Creola	Specific Locations	Very Low	Slight
		Dauphin Island	Specific Locations	Very Low	Slight
		Mobile	Specific Locations	Very Low	Slight
		Mount Vernon	Specific Locations	Very Low	Slight
		Prichard	Specific Locations	Very Low	Slight
		Saraland	Specific Locations	Very Low	Slight
		Satsuma	Specific Locations	Very Low	Slight
		Semmes	Specific Locations	Very Low	Slight
		Unincorporated	Specific Locations	Very Low	Slight
		Mobile County	Specific Locations	Very Low	Slight
Tsunamis	Unique Risks	Bayou La Batre	Not Unique	Very Low	Devastating
		Chickasaw	Specific Locations	Very Low	Slight
		Citronelle	Specific Locations	Very Low	Slight
		Creola	Specific Locations	Very Low	Slight
		Dauphin Island	Not Unique	Very Low	Devastating
		Mobile	Specific Locations	Very Low	Significant
		Mount Vernon	Specific Locations	Very Low	Slight
		Prichard	Specific Locations	Very Low	Slight
		Saraland	Specific Locations	Very Low	Slight
		Satsuma	Specific Locations	Very Low	Slight
		Semmes	Specific Locations	Very Low	Slight
		Unincorporated	Specific Locations	Very Low	Slight
		Mobile County	Specific Locations	Very Low	Moderate

## 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 Mitigation Action Program

### 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 Program 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 2010 plan as a result of the 2015 plan update, as follows:

**Table 6-1. Summary of Plan Updates**

<b>Section</b>		<b>Change</b>
6.3	Goals for Hazard Mitigation	2015 Goals updated to include new measures.
6.4	Identification and Analysis of Mitigation Actions and Projects	Updates the listing of alternative measures considered
6.5	Participation and Compliance with the National Flood Insurance Program (NFIP)	Describe participation and ongoing commitments of NFIP participants to enhance flood plain management program activities.
6.6	Implementation of Mitigation Actions	Describes new selection criteria for mitigation actions and projects.
6.7	Multi-Jurisdictional Mitigation Action Program	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 Hazard Mitigation Planning Committee (HMPC) evaluated the validity and effectiveness of the goals from the previous 2010 plan and determined that the goals statements should be retained in the 2015 plan update. The HMPC determination of the goals is based on current conditions and also considers the following factors, among others:

- The completion of mitigation measures over the five-year plan implementation cycle (see Appendix C “2010 Plan Implementation Status”);
- The 2015 update to the risk assessment in Chapter 5;
- The update to the risk assessment in the Alabama State Hazard Mitigation Plan; and
- The update of State goals and mitigation priorities reflected in the State Plan.

The previously approved plan 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 in the next paragraph (see Appendix F “Identification and Analysis of Mitigation Measures”). The 2010 implementation status report in Appendix C “2010 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 2010 goals and objectives reflected the updates to the local risk assessment and the update to the State risk assessment;
- Whether the 2010 goals and objectives effectively directed mitigation actions and projects that helped reduce vulnerability to property and infrastructure;
- Whether the 2010 goals and objectives support the changed 2015 mitigation priorities established by the HMPC; and
- Whether the 2010 goals reflect the adopted goals in the Alabama State Hazard Mitigation Plan.

The updated goals are presented in Section 6.3.3 “Community Goals” and have also been incorporated into Table 6-3 “2015-2020 Mobile County Multi-Jurisdictional Action Program” and the “Community Action Programs” in Volume II.

A strategic planning approach has been applied 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 is located in 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 within each of the above categories 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 Part 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 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; weight of benefit to cost; FEMA and State funding priorities for Hazard Mitigation Assistance grants; and the fiscal and staffing capacities of the jurisdictions for carrying out the measures.

The 2015-2020 Mobile 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 Part II, which supplement Table 6-3, break out the same mitigation goals, objectives, and mitigation measures by community and add the priority, timeframe for completion, and responsibility for implementation.

### **6.3.2 The Vision for Disaster-Resistant Mobile County Communities**

All of the jurisdictions endorse the long-term vision for disaster resistance set forth by the Mobile County Hazard Mitigation Planning Committee:

*The communities of Mobile County envision active resistance to the threats of nature to human life and property through publicly supported mitigation measures with proven results. The municipalities within Mobile County commit to reduce the exposure and risk of natural hazards by activating all available resources through cooperative*

*intergovernmental and private sector initiatives and augmenting public knowledge and awareness.*

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

- hurricanes,
- flooding,
- severe storms,
- tornadoes,
- wildfires,
- drought/heat waves,
- winter storms/freezes,
- earthquakes,
- landslides,
- dam/levee failures,
- sinkholes,
- tsunamis, and
- manmade/technological.

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

- *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.*
- *To protect people and property and reduce losses and damages to buildings and infrastructure.*

**6.3.3 Community Goals**

The goals for guiding the Mitigation Strategy and achieving the long-range vision shared among Mobile County communities are presented here:

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

**6.3.4 Compatibility with 2013 Alabama State Plan Goals**

The 2015 Mobile County vision, goals, and objectives are reflective of the goals adopted in the 2013 Alabama State Hazard Mitigation Plan. The State plan includes the following five goals for statewide hazard mitigation:

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

Alabama local governments, including Mobile County communities, are the fundamental building blocks of the "comprehensive statewide hazard mitigation system." The underlying principles and purposes of the 2015 Mobile County goals, listed in Subsection 6.3.2 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)**

Mobile County and all its municipal jurisdictions have been mapped and the flood plain identified. The NFIP updated and digitized all of Mobile County in 2009; the updated flood maps were published on March 17, 2010.

The jurisdictions of Mobile County: Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma are in good standing with the NFIP. All of these jurisdictions had their maps updated and digitized in 2009. The City of Semmes incorporated in 2011 and to date has not been mapped by the NFIP. All other communities in Mobile 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 have developed five-year action programs to improve local flood plain management programs (see specific action items for each community in Part II – “Community Action Programs,” 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 Mobile 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 Mobile 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 Mobile County jurisdictions:

**Table 6-2. NFIP Community Status, Mobile County Jurisdictions**

Community ID	Jurisdiction	Current Effective Map Date	Status
015008	Mobile County	03/17/2010	Participating
015001	Bayou La Batre	03/17/2010	Participating
015003	Chickasaw	03/17/2010	Participating
010277	Citronelle	03/17/2010	Participating
010409	Creola	03/17/2010	Participating
010418	Dauphin Island	03/17/2010	Participating
015007	Mobile	03/17/2010	Participating
010169	Mount Vernon	03/17/2010	Participating
010170	Prichard	03/17/2010	Participating
010171	Saraland	03/17/2010	Participating
010172	Satsuma	03/17/2010	Participating
-	Semmes	-	Not Mapped

Source: NFIP Community Status Book, 7/26/15

## 6.5 Implementation of Mitigation Actions

The range of measures identified 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 Part 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 Section 6.7, Table 6.3 “2015-2020 Mobile County Multi-Jurisdictional Action Program” and Part II - “Community Action Programs,” which supplements Table 6.3.

## **6.6 Multi-Jurisdictional Mitigation Action Program**

Table 6-3 “2015-2020 Mobile County Multi-Jurisdictional Action Program” lists all goals, objectives, and mitigation measures for each participating jurisdiction. Separate action programs have been established for each community, which are presented in Part II - “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. Each jurisdiction participated in the development of its action program through its representative(s) on the Hazard Mitigation Planning Committee (HMPC), who identified and analyzed a comprehensive range of mitigation actions and projects that address each identified hazard. All actions included in these programs are achievable and within the capabilities of each jurisdictions. The planning team completed a comprehensive assessment of each jurisdiction’s capabilities to undertake hazard mitigation activities, and the results are reported in Appendix B “Community Mitigation Capabilities.” The action programs include multiple mitigation actions for each jurisdiction and each profiled hazard.

This is an updated multi-jurisdictional plan for 2015. As such, the status of measures proposed in the last 2010 plan have been reported in Appendix C “2010 Plan Implementation Status,” which identifies each measure as completed, ongoing, not completed but deferred for the 2015 plan, or not completed and deleted from the 2015 plan update. The reasons for deferring or deleting a measure were categorized in the status report as lack of funding, administrative, political, technical, or legal. The updated plan also includes new mitigation measures added through the plan update process. The sources for these new measures are noted in Appendix F, Table F-1 “Alternative Types of Mitigation Measures.” The sources for new measures include

those measures recommended for implementation by local governments in the 2013 Alabama State Plan update and measures recommended by the Hazard Mitigation Planning Committee (HMPC) and planning team in the 2015 plan update. Mitigation measures that remain unchanged from the previously approved plan include ongoing measures and measures that were deferred for the reasons noted in the 2010 implementation status report.

Table 6-3 “2015-2020 Multi-Jurisdictional Mitigation Action Program” presents the goals, objectives, and mitigation measures selected for each of the participating communities. The hazards addressed by the measures are listed. *All*, where used to denote hazards addressed, includes all hazards identified in Chapter 5 “Risk Assessment.” Whether the measure would affect new or existing buildings and infrastructure is noted on the table, and each measure is identified as a *Project* or *Action*. Also noted are potential funding sources. *FEMA HMA Grant* (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.

**Table 6-3. 2015-2020 Mobile 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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Action	Existing
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, and Satsuma	All	Both	Action	Existing
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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Action	Existing

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Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	
<b>1.2 <u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.</b>						
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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, and Satsuma	All	Both	Action	HMA
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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, and Satsuma	All	Both	Action	HMA
1.2.3	Mark depths of flooding and storm surge immediately after each event. Enter and maintain these historical records in GIS.	Mobile County, Saraland, and Semmes	Flooding	Both	Action	Existing
<b>1.3 <u>Planning Studies.</u> Conduct special studies, as needed, to identify hazard risks and mitigation measures.</b>						
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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Saraland, Satsuma, and Semmes	Flooding	Both	Action	HMA
1.3.2	Identify existing culturally or socially significant structures and critical facilities within the jurisdiction that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Existing	Action	TBD

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	Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
1.3.3	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.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Saraland, Satsuma and Semmes	Flooding	Existing	Action	TBD
1.3.4	Inventory and map existing fire hydrants throughout the jurisdiction, and identify areas in need of new fire hydrants.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Wildfires	Existing	Action	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Both	Action	HMA
1.4	<b>Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.</b>					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Both	Action	Existing
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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Both	Action	Existing

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# 2015 Mobile 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
1.4.3	Require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Saraland, Satsuma and Semmes	Flooding	Both	Action	Existing
1.4.4	Enact local ordinance that requires community storm shelters within sizeable mobile home parks and subdivisions.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Tornadoes, Hurricanes, Severe Storms	New	Action	Existing
1.5	<b><u>Open Space Preservation.</u> 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.</b>					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	New	Action	Existing
1.6	<b><u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.</b>					
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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Both	Action	Existing
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Flooding	Both	Action	Existing
1.6.3	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	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard,	Flooding	Both	Action	Existing

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# 2015 Mobile 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
	active participation.	Saraland and Satsuma				
1.6.4	Participate in the “Turn Around Don’t Drown” program by purchasing and installing signs in known flash flood bridge overpass locations.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Existing	Project	Other
1.6.5	Improve flood risk assessment by documenting high water marks post event, verification of FEMA’s repetitive loss inventory and revising and updating regulatory floodplain maps.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Both	Project	HMA
1.7	<b><u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.</b>					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	New	Action	Existing
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.”	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Tornadoes, Hurricanes, Severe Storms	New	Action	Existing

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# 2015 Mobile 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
1.7.3	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.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Tornadoes, severe storms, winter storms/freezes, hurricanes, tsunamis	Both	Action	HMA
1.7.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Wildfires	Both	Action	Existing
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Existing	Action	Existing
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.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Tornadoes, Hurricanes, Severe Storms	New	Project	HMA
<b>1.8</b>	<b><u>Landscape Ordinances.</u> Establish minimum standards for planting areas for trees and vegetation to reduce storm water runoff and improve urban aesthetics.</b>					
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.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Action	Action	Existing
1.8.2	Establish ordinances to help mitigate fire hazards related to fuel buildup due to recent hurricanes, by raising tree canopies close to homes, thinning forests near urban areas, and removing trees that are too close to homes.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Wildfires	Both	Action	Existing



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## 2015 Mobile 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
1.8.3	Establish ordinance for the planting of new urban forests or replacement of hurricane damaged urban forests using hurricane resistant tree species to mitigate wind and erosion problems, help beautify and promote healthy urban environments and reduce heating, cooling and storm runoff costs.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Wildfires	Both	Actions	Existing
<b>1.9</b>	<b><u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.</b>					
1.9.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, and Satsuma	Flooding	Existing	Action	Existing
1.9.2	Develop, adopt and implement subdivision regulations that require proper storm water infrastructure design and construction.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, and Satsuma	Flooding	Existing	Action	Existing
1.9.3	Establish urban forestry program to help mitigate storm water runoff common in areas with large impervious surfaces.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Flooding	Both	Action	TBD
<b>1.10</b>	<b><u>Dam Safety Management.</u> Establish a comprehensive dam safety program.</b>					
1.10.1	Support legislation to establish a State dam safety program.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Dam/Levee Failure	Both	Action	Existing

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## 2015 Mobile 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	
1.11	<b>Community Rating System Program (CRS).</b> 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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Both	Action	Existing
1.12	<b>Critical Facilities Assessments.</b> 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.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding, Tornadoes, Hurricanes, Severe Storms and Earthquakes	Existing	Action	HMA
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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Wildfire	Both	Project	HMA
2	<b>Goal for Property Protection:</b> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<b>Building Relocation.</b> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					

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# 2015 Mobile 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
2.1.1	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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Flooding	Existing	Project	HMA
<b>2.2</b>	<b><u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.</b>					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland and Satsuma	Flooding	Existing	Project	HMA
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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland and Satsuma	Flooding	Existing	Project	HMA
<b>2.3</b>	<b><u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.</b>					
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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Flooding	Existing	Project	HMA

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# 2015 Mobile 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
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Flooding	Existing	Project	HMA
<b>2.4</b>	<b><u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.</b>					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Flooding	Existing	Project	HMA
<b>2.5</b>	<b><u>Flood Control Measures.</u> Small flood control measures built to reduce/prevent flood damage</b>					
2.5.1	Examine use of minor structural projects (small berm or floodwalls) in areas that cannot be mitigated through non-structural mitigation techniques.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Both	Project	HMA
<b>2.6</b>	<b><u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.</b>					
2.6.1	Pursue FEMA grant funds to retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding, Tornadoes, Hurricanes, Severe Storms, Tsunamis and Earthquakes	Existing	Action	HMA

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## 2015 Mobile 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
2.6.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding, Tornadoes, Hurricanes, Severe Storms and Earthquakes	Existing	Action	Existing
2.7	<b>Hazard Insurance Awareness.</b> 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.					
2.7.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	All	Existing	Action	Existing
2.7.2	Promote the purchase of crop insurance to cover potential losses due to drought.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Drought	Existing	Action	Existing
2.8	<b>Critical Facilities Protection.</b> 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.					
2.8.1	Install lightning and/or surge protection on existing critical facilities.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Severe storms	Existing	Project	TBD
2.9	<b>Back Up Power:</b> Assure uninterrupted power supplies during emergency events.					

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# 2015 Mobile 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
2.9.1	Pursue grant funding for the installation of back up power generators for critical facilities.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Hurricanes, Tornadoes, Severe Storms	Existing	Project	HMA
3	<b><u>Goal for Public Education and Outreach.</u></b> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<b><u>Map Information.</u></b> 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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	All	Both	Action	Existing
3.2	<b><u>Outreach Projects.</u></b> 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.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Action	Existing
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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Existing	Action	Existing

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	Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Action	Existing
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.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Both	Action	Existing
3.3	<b><u>Real Estate Disclosure.</u> Encourage real estate agents to disclose flood plain location for property listings.</b>					
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.	Saraland	Flooding	Existing	Action	Existing
3.4	<b><u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.</b>					
3.4.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Action	Existing
3.5	<b><u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.</b>					

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## 2015 Mobile 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
3.5.1	Distribute hazard mitigation brochures to students through area schools.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Action	Existing
3.5.2	Educate homeowners about structural and non-structural retrofitting of vulnerable homes.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Earthquake	Both	Action	Existing
3.6	<b><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.</b>					
3.6.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Action	Existing
3.6.2	Distribute the 2015 plan summary to the public through local jurisdictions, via the internet and other media.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Action	Existing
3.7	<b><u>Technical Assistance.</u> Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.</b>					
3.7.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland and Satsuma	Flooding	Both	Action	Existing



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Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	
3.8	<b>Mass Media Relations.</b> 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.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Action	Existing
3.9	<b>Weather Radios.</b> Improve public access to weather alerts.					
3.9.1	Promote the use of weather radios in households and businesses.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Action	Existing
3.9.2	Require the installation of weather radios in all public buildings and places of public assembly.	Prichard, Saraland and Semmes	All	Both	Action	Existing
3.9.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Action	Existing
3.10	<b>Disaster Warning.</b> Improve public warning systems.					

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## 2015 Mobile 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
3.10.1	Establish an ALERT flood warning system at strategic locations in the county, including at a minimum, sensors that provide real-time access to stream flow, stream stage, and precipitation data.	Saraland and Mobile County	Flooding	Both	Project	HMA
3.10.2	Ensure that the ALERT warning system links data into GIS with the ability to use measured and forecasted rainfall to predict potential flood levels and create real-time maps of flooded areas.	Saraland and Mobile County	Flooding	Both	Project	HMA
3.10.3	Evaluate the feasibility of a shared tri-county ALERT system covering Baldwin, Escambia, and Mobile counties.	Saraland and Mobile County	Flooding	Both	Project	HMA
3.10.4	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Project	HMA
3.10.5	Upgrade critical communications infrastructure.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Project	HMA
4	<b>Goal for Natural Resources Protection.</b> 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	<b>Open Space Easements and Acquisitions.</b> 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.					

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## 2015 Mobile 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
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Existing	Project	HMA
4.2	<b><u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.</b>					
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Both	Action	Other
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Existing	Action	Existing
4.3	<b><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.</b>					
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Flooding	Existing	Action	Existing

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	Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
4.3.2	Increase overall green spaces in cities by planting hurricane resistant trees with site and location taken into consideration.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Wildfire	Both	Action	Existing
4.3.3	Develop an urban forestry management plan to ensure a progressive urban forestry program aimed at increasing forestry canopy, increased safety and planting hurricane resistant tree species.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, and Satsuma	Wildfire	Both	Action	Existing
<b>4.4</b>	<b><u>Beach and Dune Protection/Renourishment.</u> Protect beaches and dunes from coastal and man-made erosion and renourish.</b>					
4.4.1	Restore and protect wetlands to enhance storm water drainage.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Flooding, Hurricanes	Existing	Action	Other
4.4.2	Develop a coastal renourishment program.	Mobile County, Bayou La Batre, Dauphin Island and Mobile	Flooding, Hurricanes	Existing	Action	Other
<b>4.5</b>	<b><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.</b>					
4.5.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Droughts/heat waves, wildfires	Both	Action	Existing

# CHAPTER 6

# 2015 Mobile 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	<b>Goal for Structural Projects.</b> 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	<b>Drainage System Maintenance.</b> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Both	Action	Existing
5.2	<b>Reservoirs and Drainage System Improvements.</b> 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.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Both	Project	HMA
5.2.2	Improve and retrofit water supply systems to save water during drought events and to eliminate breaks and leaks.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Drought	Both	Project	HMA
5.3	<b>Community Shelters and Safe Rooms:</b> Provide shelters from natural hazards for the safety of community residents.					

# CHAPTER 6

## 2015 Mobile 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
5.3.1	Ensure the inclusion of storm shelters and/or safe rooms in public buildings such as schools and multi-purpose community centers.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Hurricanes, Tornadoes, Severe Storms	New	Project	HMA
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Satsuma and Semmes	Tornadoes, Hurricanes, Severe Storms	Existing	Project	HMA
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Tornadoes, Hurricanes, Severe Storms	Both	Project	HMA

## **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**

This Chapter continues an active monitoring and streamlined plan amendment process; guidance for annual evaluation of plan status; refined and updated process; ongoing integration of local planning mechanisms; and 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 Mobile County EMA Director and representatives from the HMPC and should include the following information:

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

The ongoing review process may require adjustments to the selection of mitigation measures, priorities, timelines, lead responsibilities, and funding sources scheduled in the “Community Action Programs.” In the event modifications to the plan are warranted as a result of the annual review or other conditions, the HMPC will oversee and approve all amendments to the plan by majority vote of a quorum of HMPC members. Conditions that might warrant amendments to this plan would include, but not be limited to, special opportunities for funding and response to a natural disaster. A copy of the plan amendments will be submitted by the Mobile 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 Mobile 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 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 Mobile 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 Mobile County Emergency Operations Plan, which is administered through the Mobile 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 2015 Mobile County Multi-Hazard Mitigation Plan is a multi-jurisdictional plan, the mechanisms for implementation of the various mitigation measures through existing programs may vary by jurisdiction. Each jurisdiction’s unique needs and 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 Mobile 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 2014 update and should follow in the next update cycle.

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

Of particular importance to incorporating hazard mitigation planning into other planning programs, is the Mobile 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 2015 Mobile County Multi-Hazard Mitigation Plan will be maintained in the offices of the Mobile 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 Mobile County EMA website at [www.mcema.net](http://www.mcema.net) contains a link to download an online copy of the plan. Public comments can be received by the Mobile 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 Mobile County EMA.

Extensive public involvement activities initiated by the 2015 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.