



Mobile County Hazard Mitigation: Integrating Mitigation Measures into Local Planning



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Mobile County EMA
Mobile, Alabama

By:



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Mobile County Hazard Mitigation: Integrating Mitigation Measures into Local Planning

*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, Alabama*



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May 17, 2016

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Chapter 1 – Introduction

- 1.1 Goals and Objectives of this Report
- 1.2 The Basis for Mitigation Plan Integration
- 1.3 Chronology of Mobile County Mitigation Planning

1.1 Goals and Objectives of this Report

This report seeks to facilitate dynamic and integrated planning processes that recognize the interdependencies between the *Mobile County Multi-Hazard Mitigation Plan* and local plans and regulations. Ultimately, the purpose of this report is to facilitate integration of the Mobile County mitigation plan into local planning through the following steps:

1. *To set forth the principles and practices of planning that seek to achieve community resilience and disaster resistance.*
2. *To fully recognize and acknowledge risks associated with natural hazards and their limitations and impacts on community growth and development.*
3. *To examine the gaps between mitigation planning and local planning.*
4. *To identify opportunities for linkages between hazard mitigation planning and local planning, thereby strengthening these interdependent planning processes.*
5. *To integrate hazard mitigation into the full range of local planning and regulatory tools – local comprehensive plans, neighborhood plans, downtown plans, transportation plans, park and recreation plans, zoning ordinances, subdivision regulations, flood hazard prevention ordinances, stormwater management and land disturbance controls, building and technical codes, and related tools.*

1.2 The Basis for Mitigation Plan Integration

The Federal Disaster Mitigation Act of 2000 (DMA2K) created the impetus for local governments across the nation to undertake a risk-based approach to reducing risks to natural hazards through mitigation planning. To conform to the DMA2K, Federal regulations have been issued that require a mitigation plan for local governments as a condition of receiving hazard mitigation assistance through various FEMA grant programs. The local hazard mitigation plan must meet the criteria found in the Federal regulations at 44 CFR §201.6, as implemented by FEMA in its mitigation planning guidance publications over the years. The latest revisions of the FEMA mitigation planning guidance are the Local Mitigation Planning Handbook, March 2013, and the

Local Mitigation Plan Review Guide, October 1, 2011. Local mitigation plans must be approved by FEMA as meeting its criteria and locally adopted by governing bodies. A local jurisdiction must review and revise its local plan to reflect any changes and resubmit it for approval every five years to remain eligible for FEMA hazard assistance grant funding.

Among other local mitigation requirements, the local planning process must, according to 44 CFR §201.6(b)(3), include the “Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.” According to the above-referenced FEMA planning guidance, this simply means that relevant data information from existing plans, regulations, and reports must be referenced and incorporated into the plan. This requirement is typically satisfied by listing or describing what local sources were consulted during the planning process. It is a one-way requirement that affects the mitigation plan only and does not affect local planning and regulatory actions.

1.3 Chronology of Mobile County Mitigation Planning

Over the period between 2003 and 2005, 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 with the participation of the first Hazard Mitigation Planning Committee (HMPC), made up of representatives from all municipalities. Developed simultaneously, the 2005 Mobile County Commission Hazard Mitigation Plan covered the unincorporated areas and was prepared by the South Alabama Regional Planning Commission. Local and interagency participation was conducted through a second Hazard Mitigation Planning Committee. The Mobile County EMA was represented on both Hazard Mitigation Planning Committees and helped coordinate the parallel efforts.

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. This included approving major plan amendments necessitated by that catastrophic event, including the formal consolidation of plans into a unified planning process.

The Mobile County Hazard Mitigation Planning Committee reconvened in January 2009 to update both hazard mitigation plans as the 2010 Mobile County Multi-Hazard Mitigation Plan. The 2010 HMPC represented all incorporated and unincorporated Mobile County jurisdictions, as well as other stakeholders and interested agencies. 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 served as a guide for local governments in their ongoing efforts to reduce community vulnerabilities and mitigate potential harm.

The Mobile County HMPC reconvened in April 2015 and continued to meet throughout the year to update the 2010 plan. 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 – Community Profiles

- 2.1 Scope and Purpose of this Chapter
- 2.2 Geographic Setting and History
- 2.3 Government
- 2.4 Environmental and Physical Features
- 2.5 Population and Growth
- 2.6 Economy
- 2.7 Transportation
- 2.8 Utilities

2.1 Scope and Purpose of this Chapter

This chapter provides a summary profile of Mobile County and its eleven municipalities. Included here are general descriptions of each jurisdiction’s principal characteristics: their geographic and historic settings, local government structures, physical and environmental attributes, and population and economic profiles, which affect the communities’ future growth and development. These profiles provide a context for understanding the findings and recommendations for integrating mitigation into essential planning and regulatory tools for managing growth.

2.2 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 2-1 “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 2-2 “Mobile County Gulf Coast Location,” Mobile County lies at the



Map 2-1. Mobile County Location

center of the U.S. Gulf Coast. Table 2-2 “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 310th year of continuous settlement in 2012.

Map 2-2. Mobile County Gulf Coast Location



Table 2-1. Driving Distances to Nearby Cities

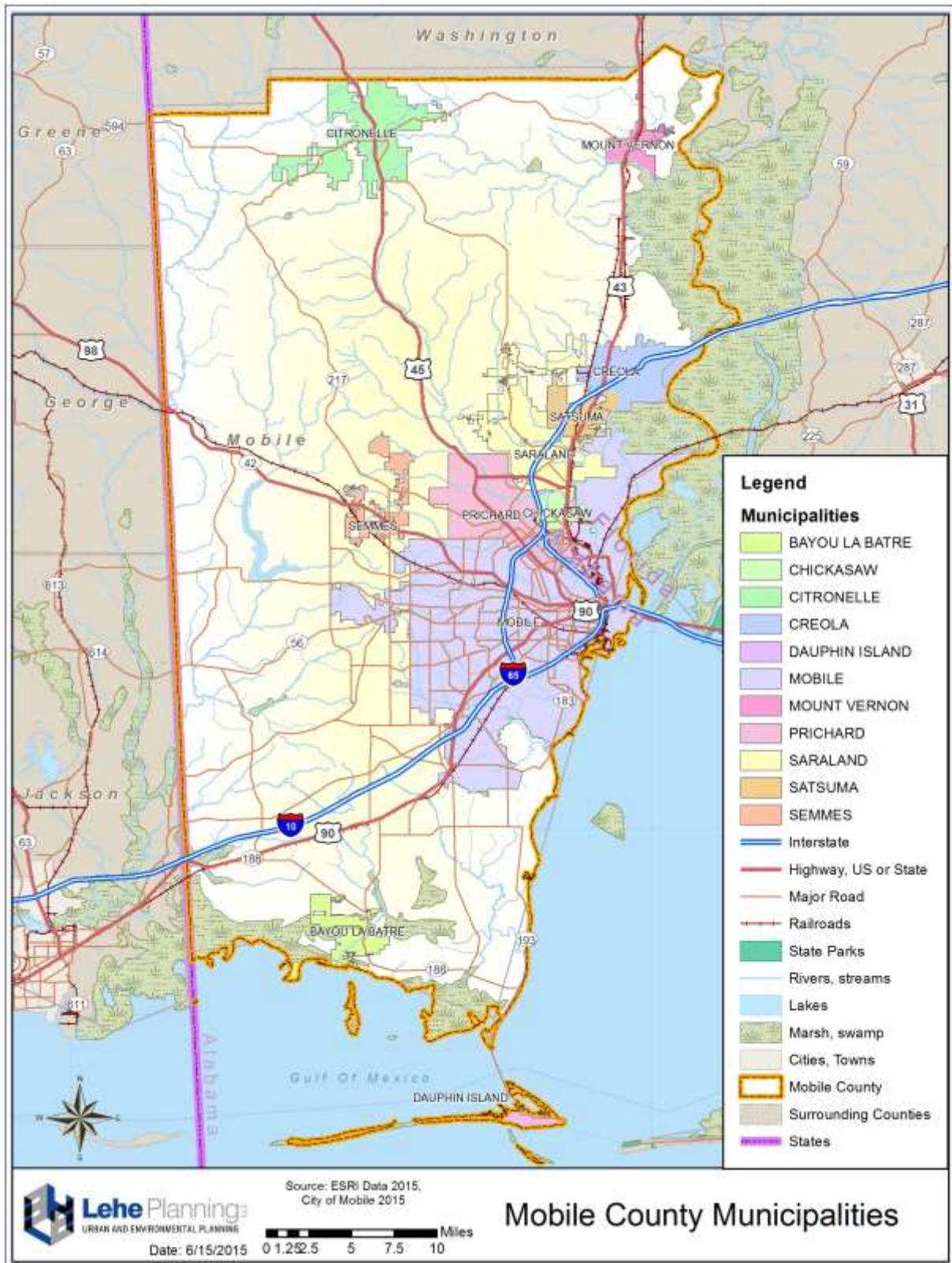
City	Mileage
Pensacola, FL	56
New Orleans, LA	141
Montgomery, AL	174
Jackson, MS	188
Birmingham, AL	241
Atlanta, GA	332
Nashville, TN	438

Source: Mobile Area Chamber of Commerce

Mobile County includes eleven incorporated communities, which are shown on Map 2-3 “Mobile County Municipalities,” as follows:

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

Map 2-3. Mobile County Municipalities



City of Bayou La Batre

Incorporated in 1955, 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 from Vietnam, Laos, and Cambodia following the Vietnam War to pursue shrimping, comprising 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. On August 29, 2005 Hurricane Katrina devastated the city with the largest storm surge ever recorded, reaching nearly 16 feet and destroying 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 139.1 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. Additionally, Hurricane Katrina hit August 29, 2005 with a surge of 11.5 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 in 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 461st 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.

2.3 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 operate under a mayor/council form of government.

2.4 Environmental and Physical Features**Physiography**

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.

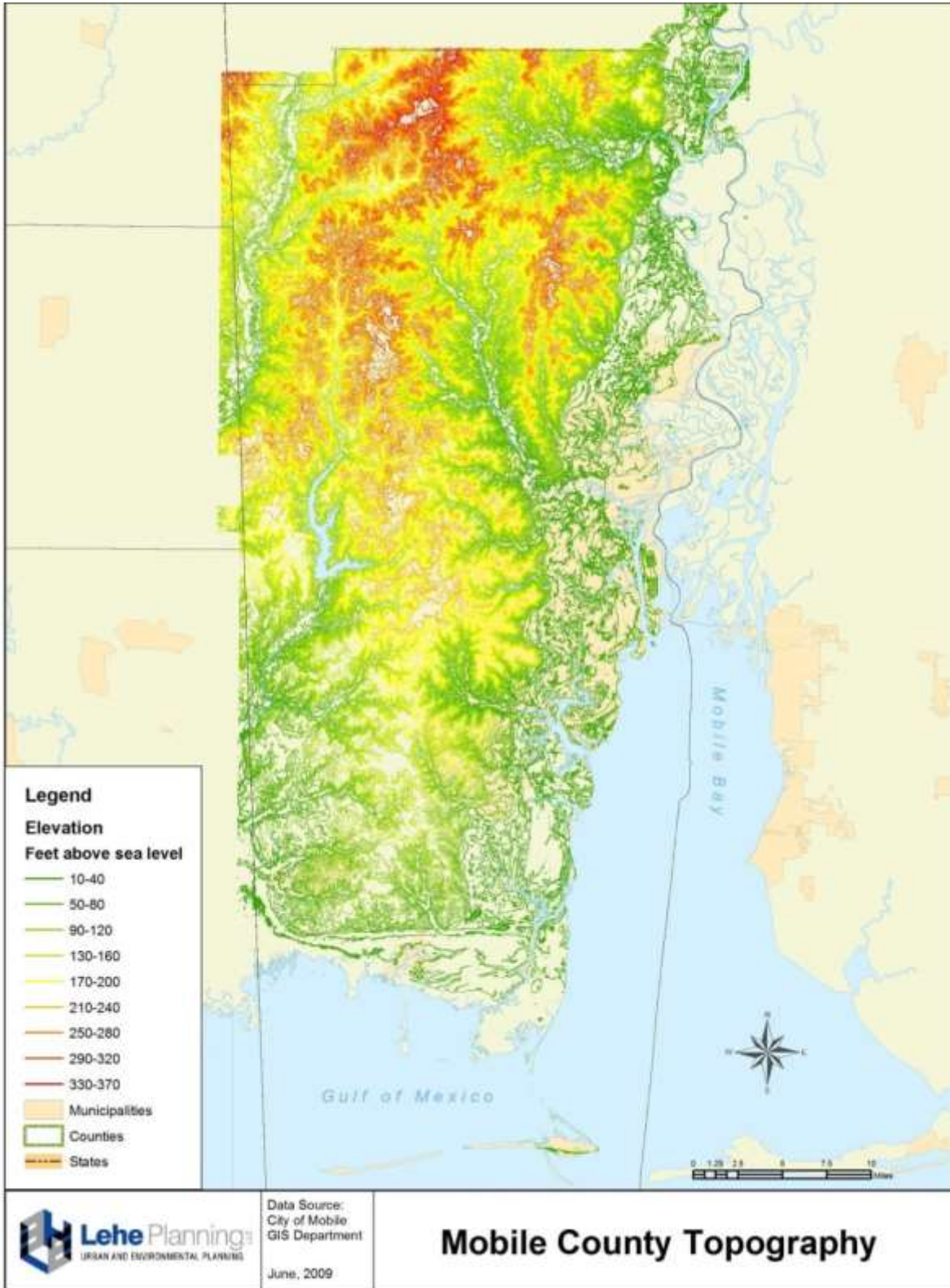
Near Mount Vernon the Alabama River joins the Tombigbee River to form the Mobile River before emptying into Mobile Bay. The Alabama River is the fourth-largest river system in the United States. The Mobile-Tensaw Delta is formed where the Alabama flows into Mobile Bay. It is shaped like a distorted triangle and near Creola widening to about seven miles. (Source: encyclopediaofalabama.org)

Topography

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 2-4 “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 2-4. Mobile County Topography



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 2-3 presents general climate observations.

Table 2-2. General Climate Observations

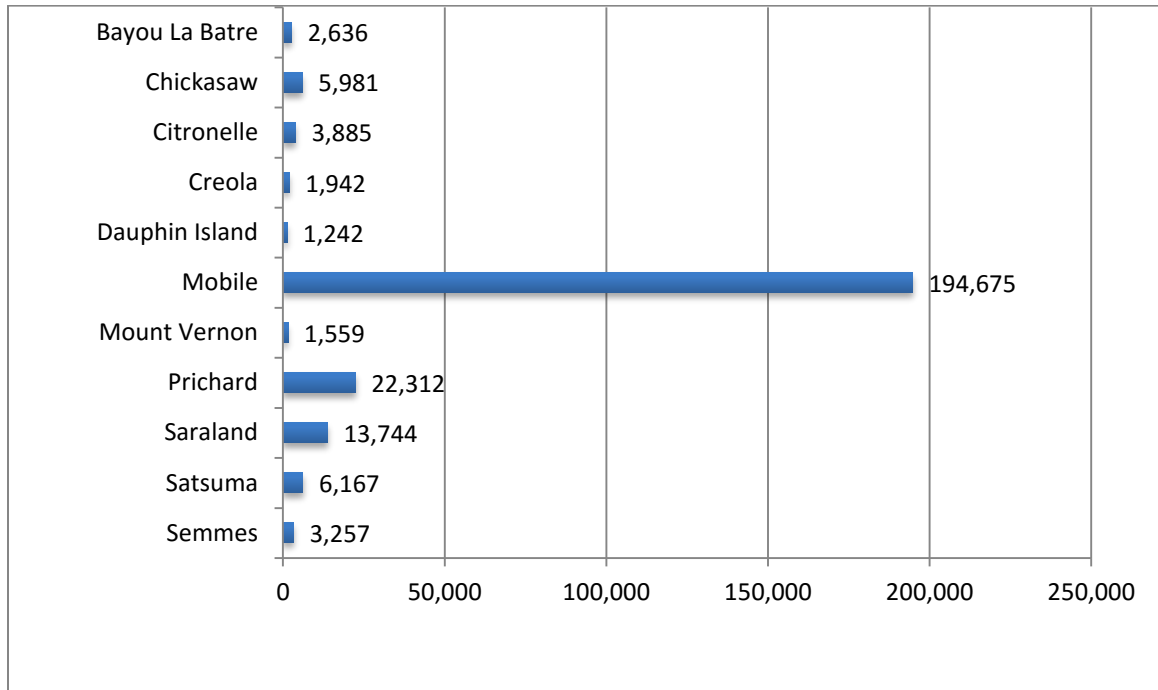
Category	Average
Annual Average Temperature	67.35° F
Average January Temperature	50.8° F
Average July Temperature	81.95° F
Average Annual Precipitation	65.3 inches
Average Annual Snowfall	0.4 inches

Source: National Weather Service

2.5 Population and Growth**2014 Population Estimates**

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. As shown in Chart 2-1 below, all other municipalities are small in comparison. Only Prichard and Saraland have populations of more than 10,000; Satsuma has a population of 6,167; while the other municipalities count fewer than 6,000 residents.

Chart 2-1. 2014 Population by Municipality



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

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 comprise 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.

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 fairly 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.

Educational Attainment

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.

Population Distribution

Nearly half of Mobile County’s population (46.9%) resides within the City of Mobile, and a substantial number (157,723 and 38% of the total) live within unincorporated communities. The next largest municipality is the City of Prichard with a population of 22,312 and 5.4% of the total, followed by Saraland with 3.3% of the total and 13,744 persons, and Satsuma with a 2014 population estimated at 1.5% and 6,167. All other municipalities are small, averaging 3,295 persons and under 1.0% of the total for each jurisdiction.

Table 2-3. 2014 Population Distribution by Jurisdiction

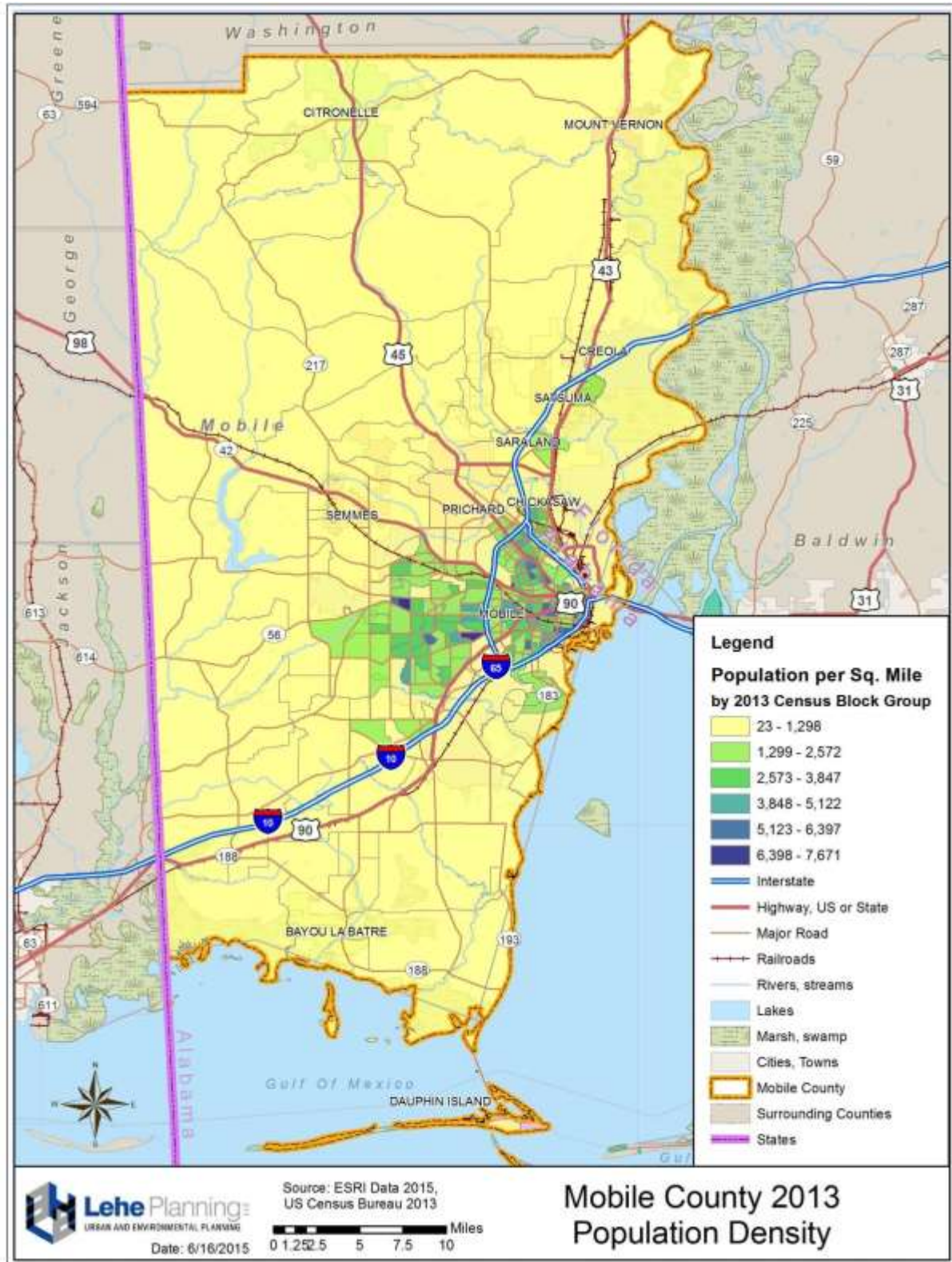
Jurisdiction	2014 Estimate	% of Total
Bayou La Batre	2,636	0.6%
Chickasaw	5,981	1.4%
Citronelle	3,885	0.9%
Creola	1,942	0.5%
Dauphin Island	1,242	0.3%
Mobile	194,675	46.9%
Mount Vernon	1,559	0.4%
Prichard	22,312	5.4%
Saraland	13,744	3.3%
Satsuma	6,167	1.5%
Semmes	3,257	0.8%
Unincorporated	157,723	38.0%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

Source: U.S. Census 2014 Population Estimates

Population Density

Map 2-5 shows the population density of Mobile County. Most of the population is concentrated within the central and west areas of the City of Mobile and along the I-10 corridor, north of Mobile, within Prichard, Chickasaw, Satsuma, and Saraland.

Map 2-5. Mobile County Population Density



Population Growth Trends

Alabama’s third largest county, Mobile County, with a 2014 estimated population of 415,123, experienced population growth of 9.6 percent between 1990 and 2014, as shown on Table 2-4 below. By a very large measure, most of this growth occurred within unincorporated communities, increasing by 43,512 or 37.5% over the 24 year period. During this same period, the population of the City of Mobile somewhat declined by 1,603 persons or 0.8%. Prichard experienced the most significant population losses of 35%, followed by Chickasaw with a 10% decline, 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. Growth numbers were unavailable for Semmes since it was incorporated in 2011.

Table 2-4. Population Growth 1990-2014

Jurisdiction	1990	2000	2010	2014	Change 1990-2014	% Change 1990-2014	1990-2014 Annual Growth Rate
State of Alabama	4,040,587	4,447,100	4,780,127	4,849,377	808,790	20.0%	0.8%
Mobile County	378,643	400,036	413,143	415,123	36,480	9.6%	0.4%
Bayou La Batre	2,456	2,313	2,558	2,636	180	7.3%	0.3%
Chickasaw	6,649	6,364	6,106	5,981	-668	-10.0%	-0.4%
Citronelle	3,671	3,659	3,905	3,885	214	5.8%	0.2%
Creola	1,896	2,002	2,073	1,942	46	2.4%	0.1%
Dauphin Island	824	1,371	1,238	1,242	418	50.7%	2.1%
Mobile	196,278	198,915	195,102	194,675	-1,603	-0.8%	0.0%
Mount Vernon	902	844	820	1,559	657	72.8%	3.0%
Prichard	34,311	28,633	22,659	22,312	-11,999	-35.0%	-1.5%
Saraland	11,751	12,288	13,631	13,744	1,993	17.0%	0.7%
Satsuma	5,194	5,687	6,168	6,167	973	18.7%	0.8%
*Semmes	-	-	-	3,257	-	-	-
Incorporated	263,932	262,076	254,260	257,400	-6,532	-2.5%	-0.1%
Unincorporated	114,711	137,960	158,883	157,723	43,012	37.5%	1.6%

*Semmes population data prior to its incorporation in 2011 is not available.

Source: U.S. Census Bureau

Population Growth Projections

The Alabama State Data Center at the University of Alabama has developed sophisticated models for projecting population growth for each of Alabama’s 67 counties. The Center projects a 5.3 percent population growth between 2014 and 2035. This annual growth rate of 0.25% is less than the 0.4% rate over the previous 24 year period between 1990 and 2014, during which Mobile County grew 9.6% over a slightly longer period.

Table 2-5. 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

Assuming the same population distribution among Mobile County jurisdictions in the years 2014 and 2035, projections can be made for each of the municipalities, as shown in Table 2-6 below. This represents a conservative projection, based on the State’s Mobile County projected population.

Table 2-6. 2035 Municipal Growth Projections

Jurisdiction	2014 Estimate	% of Total	2035 Projection
Bayou La Batre	2,636	0.60%	2,623
Chickasaw	5,981	1.40%	6,121
Citronelle	3,885	0.90%	3,935
Creola	1,942	0.50%	2,186
Dauphin Island	1,242	0.30%	1,312
Mobile	194,675	46.90%	205,065
Mount Vernon	1,559	0.40%	1,749
Prichard	22,312	5.40%	23,611
Saraland	13,744	3.30%	14,429
Satsuma	6,167	1.50%	6,559
Semmes	3,257	0.80%	3,498
Unincorporated	157,723	38.00%	166,150
Mobile County	415,123	100%	437,238

Source: Derived from Alabama State Data Center and Census Bureau Data

By applying the 0.4% annual growth rate from the previous 24 year period to the year 2035 horizon, Mobile County would be expected to grow to a population of 450,118, in comparison to the State Data Center projection of 437,228, and each of the jurisdictions would likewise be expected to grow to numbers that vary from those shown above in Table 2-6.

2.6 Economy

Business and Industry

Mobile is Alabama's only port city and serves as a regional center for both shipping commercial products and shipbuilding. The Port of Mobile is vital to the local economy and significantly contributes to the area's growth. The Alabama State Port Authority owns and operates the Port's public terminals and the "Alabama State Docks" Many terminals are privately owned. As of 2010, the Port of Mobile was among the top 12 largest U.S. ports by tonnage. The public terminals shipped more than 23 tons of materials in 2010, and the total tonnage exceeded 55 million tons in 2010. The Port Authority provides estimates on the substantial direct and indirect economic impacts of the Port: 127,591 jobs, over \$506 million in taxes, and a total economic value of \$18.7 billion.

Mobile County's major manufacturing employers are Austal USA, AM/NS Calvert, ST Aerospace Mobile, and BAE Systems Southeast Shipyards, among others. The largest employer is Austal USA, an Australian-owned shipbuilder with U.S. operations based on Blakely Island, along the northwestern coast of Mobile Bay. In 2014, Austal USA employed approximately 4,000 people. The next largest employer is AM/NS Calvert with 1,490 employees. Formerly operated as ThyssenKrupp, it processes steel at its plant located about 35 miles north of Mobile. The plant has the capacity to produce 5.3 million tons of flat rolled carbon steel products annually. BAE Systems Southeast Shipyards Alabama, with 1,057 employees, builds, repairs, and performs conversions of commercial ships, cruise ships, and other vessels and the repair of off-shore drilling rigs, among other industrial operations.



Major non-manufacturing employers include the Mobile County Public School System, the University of South Alabama, the City of Mobile, Mobile County, and several hospitals.

The Mobile Area Chamber of Commerce list the area's top ten manufacturing and non-manufacturing employers and their number of employees (as of 2013), as follows.

Table 2-7. Largest Manufacturing Employers, 2013

Name	Industry	Employees
Austal USA	Shipbuilding	4,000
AM/NS Calvert	Steel	1,490
ST Aerospace Mobile	Aerospace	1,350
BAE Systems Southeast Shipyards	Shipbuilding & Repair	1057
Outokumpu Stainless USA	Steel	850
Evonik Industries Chemicals	Chemicals	715
Kimberly Clark	Paper Products	605
SSAB Americas	Steel	581
Continental Motors	Aerospace	430
BASF	Chemicals	400

Source: Mobile Area Chamber of Commerce

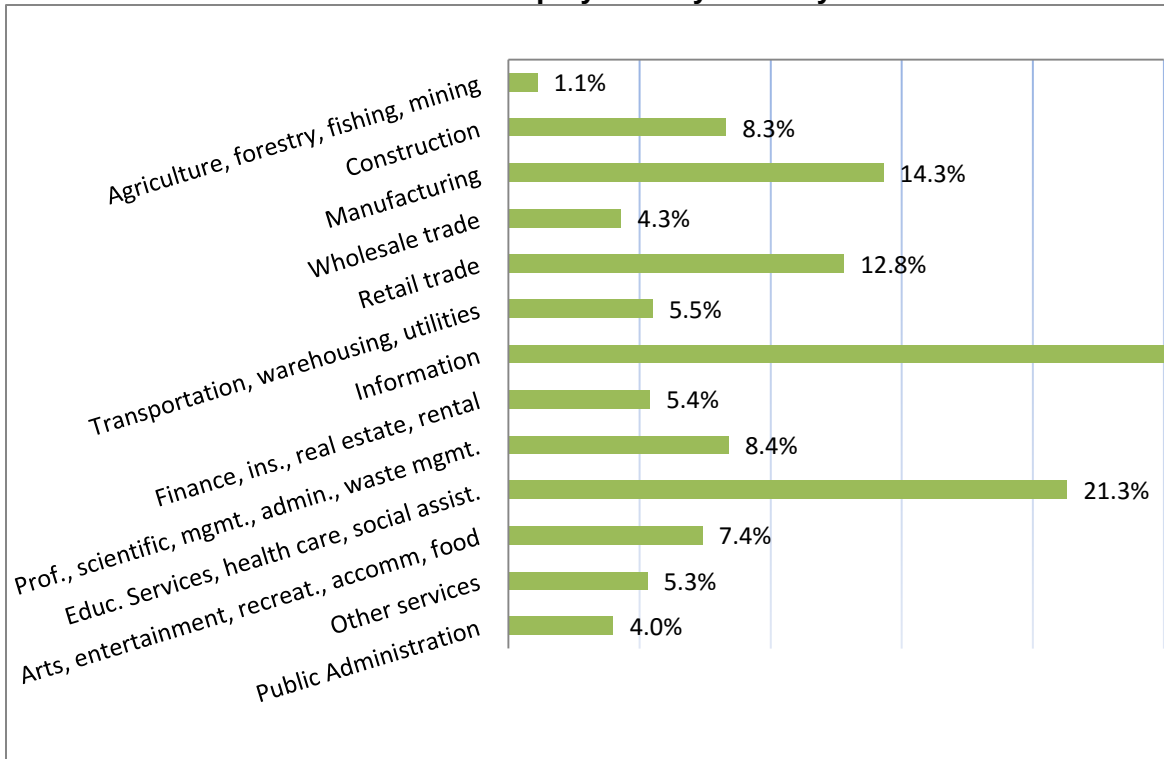
Table 2-8. Largest Non-Manufacturing Employers, 2013

Name	Industry	Employees
Mobile County Public School System	Education	7,280
University of South Alabama & USA Health Systems	Education/Medical	5,168
Infirmiry Health Systems	Medical	5,100
City of Mobile	Government	2,323
Providence Hospital	Government	1505
Springhill Medical Center	Medical	1,200
CPSI	Technology	1,200
Alta Pointe	Medical	960
Regions Bank	Financial	650
Alorica	Technology	612

Source: Mobile Area Chamber of Commerce

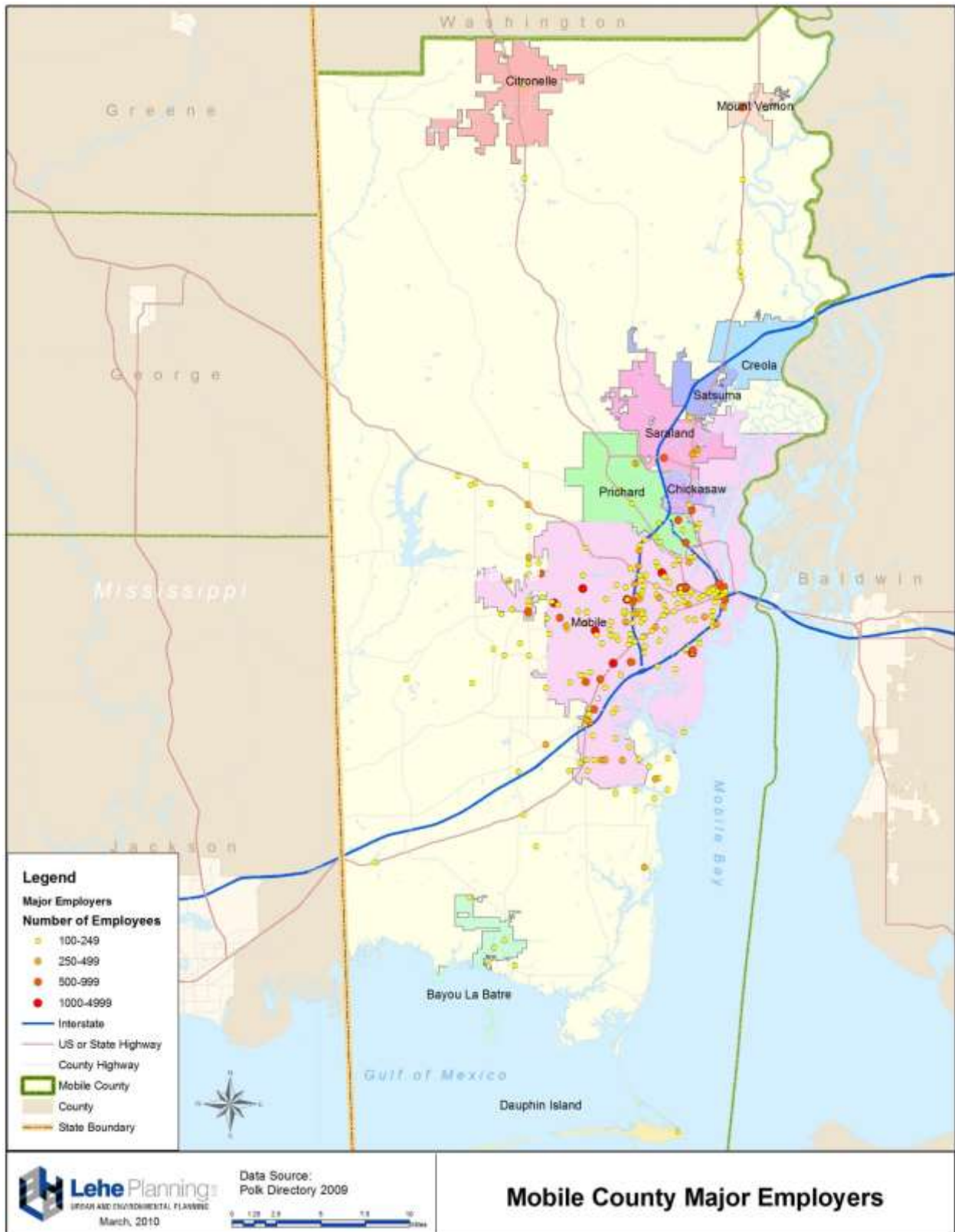
Relative to the State of Alabama, Mobile County's workforce is employed at a higher rate in construction, transportation and professional occupations and at a significantly lower rate in manufacturing.

Chart 2-2. Employment by Industry



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

Map 2-6. Mobile County Major Employers



Income and Housing

Data on income and housing are reported from the 2010-2013 three-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.

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,
- ✓ GulfQuest National Maritime Museum,
- ✓ 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.

2.7 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.

Ports

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.

The Port of Mobile

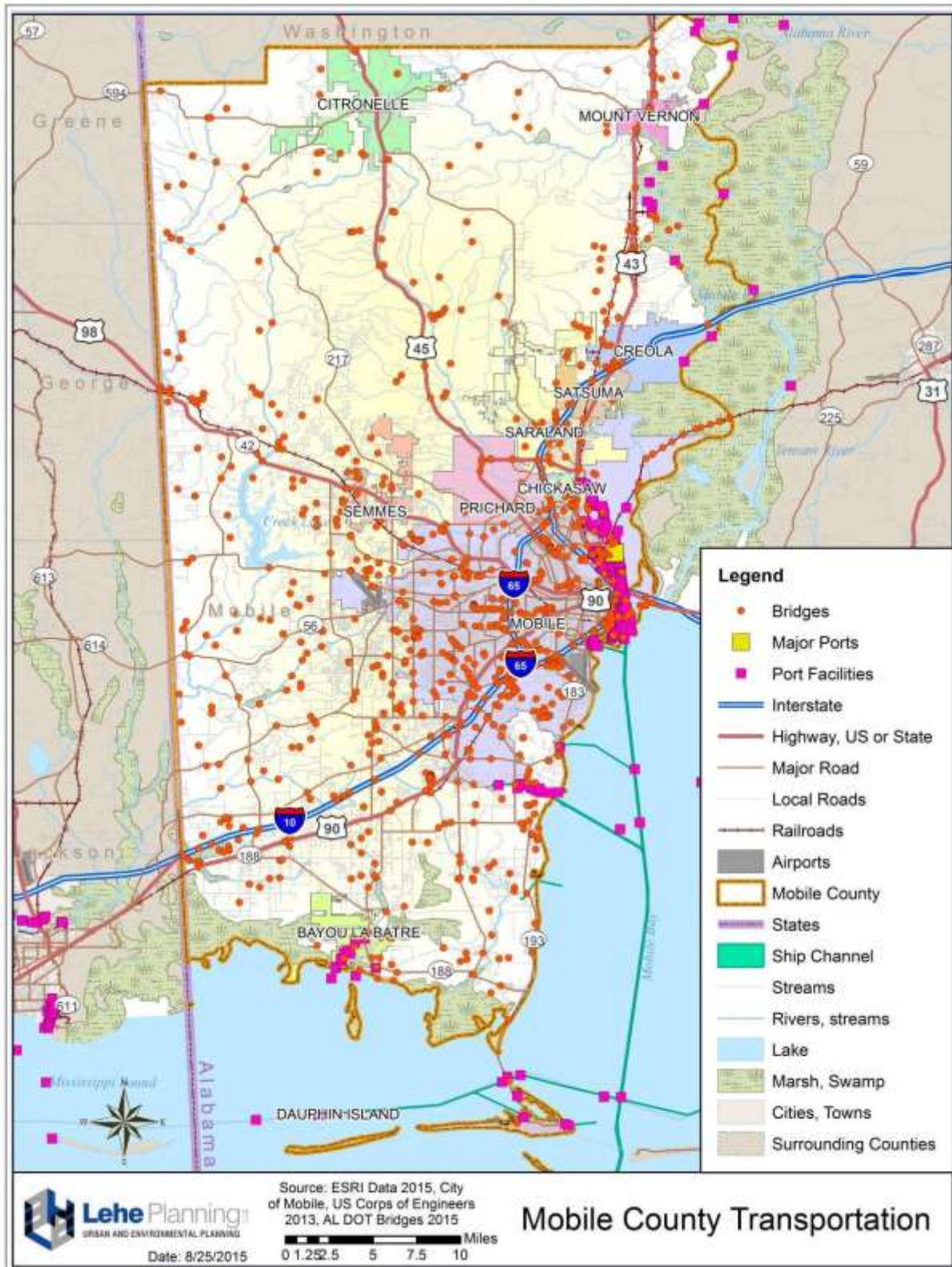
The Port of Mobile is located along the Mobile River, near the confluence of the Alabama and Tombigbee Rivers, where it empties into the Mobile Bay and the Gulf of Mexico. The Port of Mobile is an international deep water gateway. The port handles a variety of cargo, including containers, forest products, 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, specialized cargo operations, and stevedoring services (ship and cargo loading and unloading).

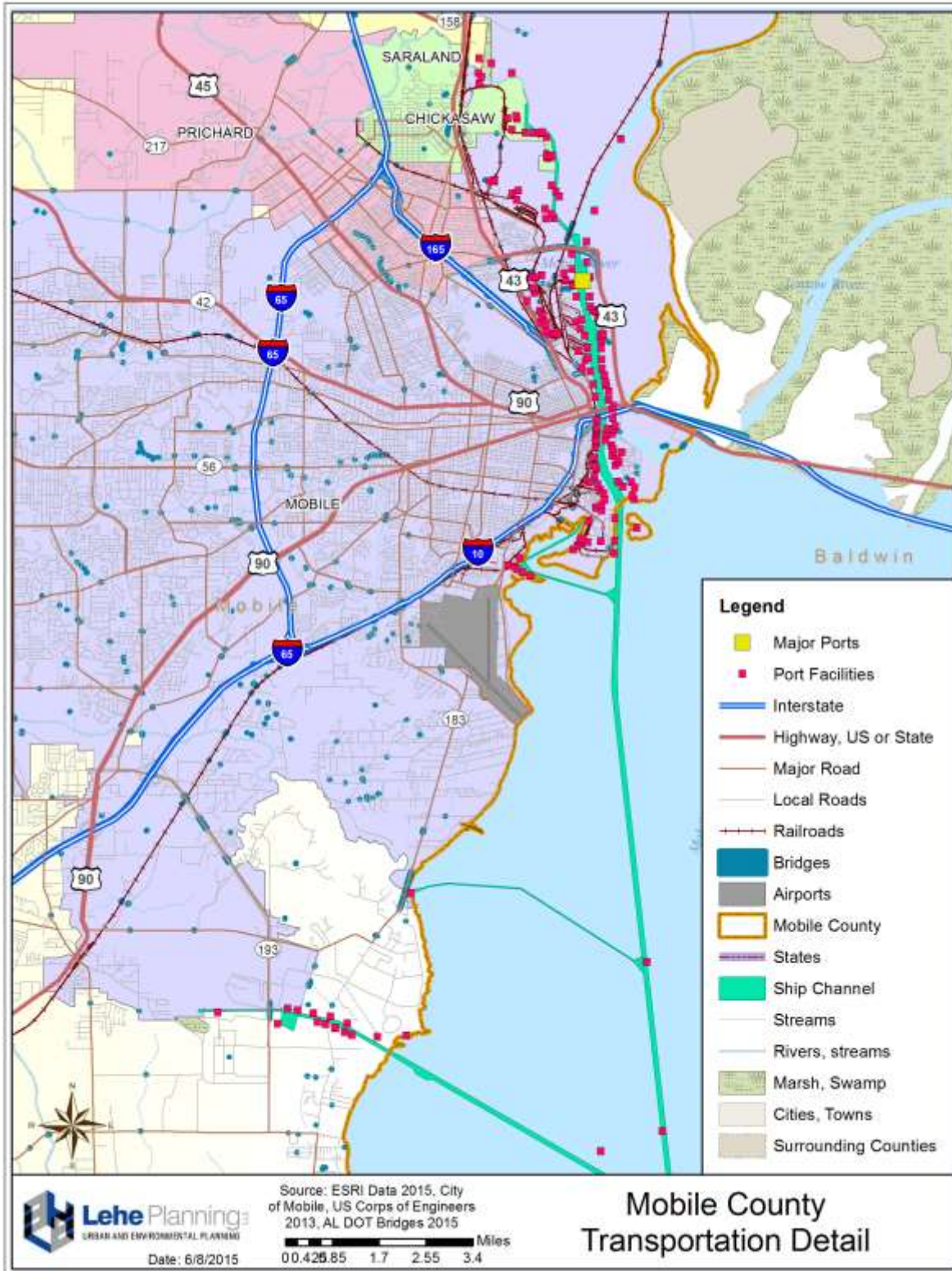
Airports

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

Map 2-7. Mobile County Transportation Facilities



Map 2-8. Mobile County Transportation Detail



2.8 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.

Chapter 3 – Community Risk Assessments

- 3.1 Introduction
- 3.2 High Winds
- 3.3 Storm Surge
- 3.4 Coastal/Riverine Flooding
- 3.5 Interface Wildfires
- 3.6 Minimal Risk Hazards

3.1 Introduction

This chapter provides a summary of risk exposure for unincorporated Mobile County and each of its eleven incorporated communities. Risk assessments for each Mobile County community focus on location-specific hazards, including high winds (from hurricanes, straight-line winds from severe storms, and tornadoes) storm surge related to hurricanes, coastal/riverine flooding, and interface wildfires. Some of the communities will be affected by all of these hazards, while others will only be affected by some. This summary of community risk assessments should help identify which planning and regulatory tools might respond to these risks. Effective planning that is fully integrated with hazard mitigation can guide growth and land development so as to minimize future adverse impacts on a community's buildings, critical facilities, economy, and population. Each of the sections in this chapter describes community-specific risk variations related to each identified hazard.

3.2 High Winds

Hurricane Winds. Dauphin Island's risk exposure to hurricane force winds is the most significant among Mobile County communities due to its location in the Gulf of Mexico. On September 12, 1979, Hurricane Frederic, a Category 3 hurricane with 124 mph peak wind gusts, made landfall at Dauphin Island, where it destroyed Dauphin Island's bridge to the mainland. In September 1995, Hurricane Opal struck Alabama with Category 4 winds, where Mobile recorded sustained wind speeds of 55 mph. During Hurricane Isaac, the highest wind gusts for the area were observed at the east end of Dauphin Island at 60 mph. Sustained wind speeds in Mobile measured 67 mph during Hurricane Katrina on August 29, 2005. The following table 3-1 lists the hurricane history (since 1969) for Mobile County and describes the related wind impacts.

Table 3-1. Mobile County Hurricane History, 1969-2015

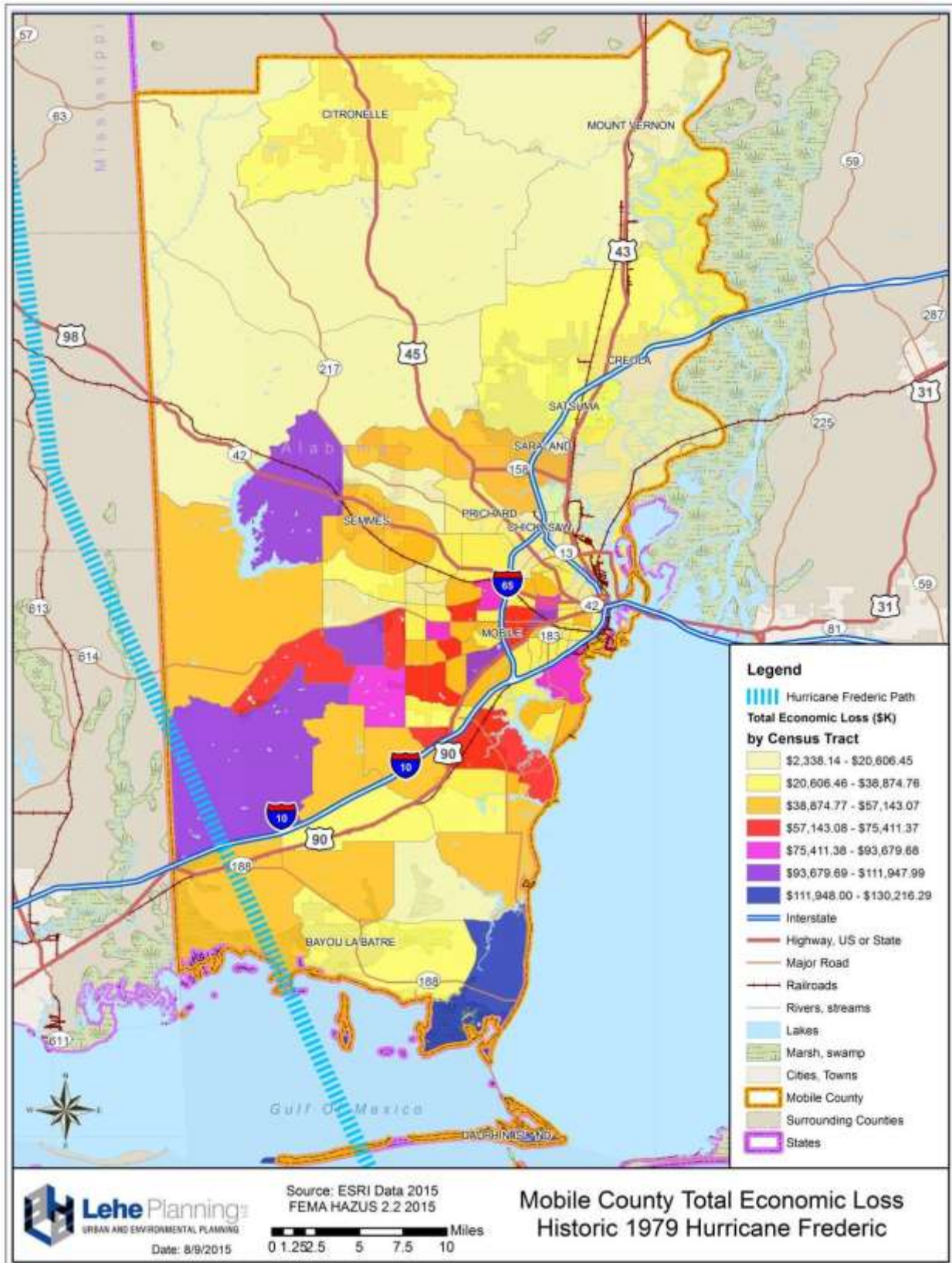
DATE	CATEGORY	NAME	NOTES
8/17/1969	5	Camille	The strongest known land-falling hurricane in recorded history. Winds were estimated at 190 mph at landfall.
9/12/1979	3	Frederic	Frederic strengthened from a category one to a category four storm in 30 hours while in the Gulf of Mexico, but weakened before 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.
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.
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.
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.
9/28/1998	2	Georges	Hurricane Georges delivered sustained winds of 130 mph at landfall, and then it moved inland near Biloxi MS.
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.
7/10/2005	3	Dennis	Hurricane Dennis carried winds of 121 mph at landfall, as it moved inland near Navarre Beach.
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.
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 and caused many deaths and considerable damage in Haiti, Cuba, and Louisiana.

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.

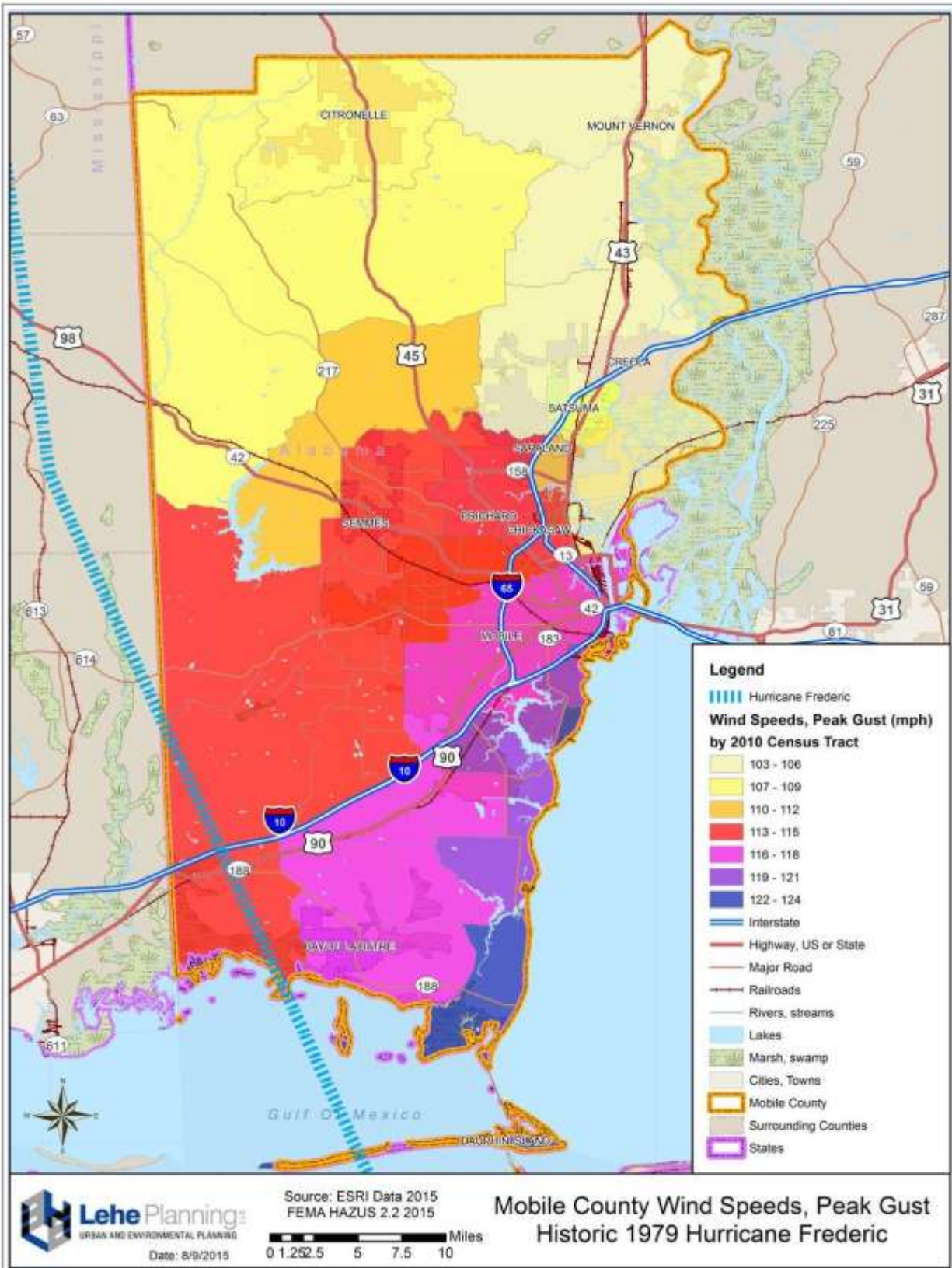
Source: National Hurricane Center

FEMA’s hazard assessment software, *HAZUS-MH Hurricane Winds*, for estimating hurricane wind damages for various scenarios was used to evaluate the impacts of one of Mobile County’s most significant wind events of record: Hurricane Frederic in 1979. The HAZUS-MH assessment reports major building damage resulting from peak wind gusts of as high as 124 mph for Hurricane Frederic. If that same event occurred today, HAZUS-MH estimates 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 3-1 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 3-2 shows the peak gust wind speeds by census tract.

Map 3-1. Hurricane Frederic Direct Economic Losses



Map 3-2. Hurricane Frederic Wind Speeds



Straight Winds from Severe Storms. High winds also stem from severe storms, which can occur during every season and strike with little advance warning. By toppling trees, straight winds cause power outages, damages to structures and road closures. Table 3-2 provides Mobile County severe storm events (1995-2014) and shows the associated damage as it relates to high winds. High-wind damages amount upward of \$3.6 million (2007).

Table 3-2. Mobile County Severe Storm Events, 1995-2014

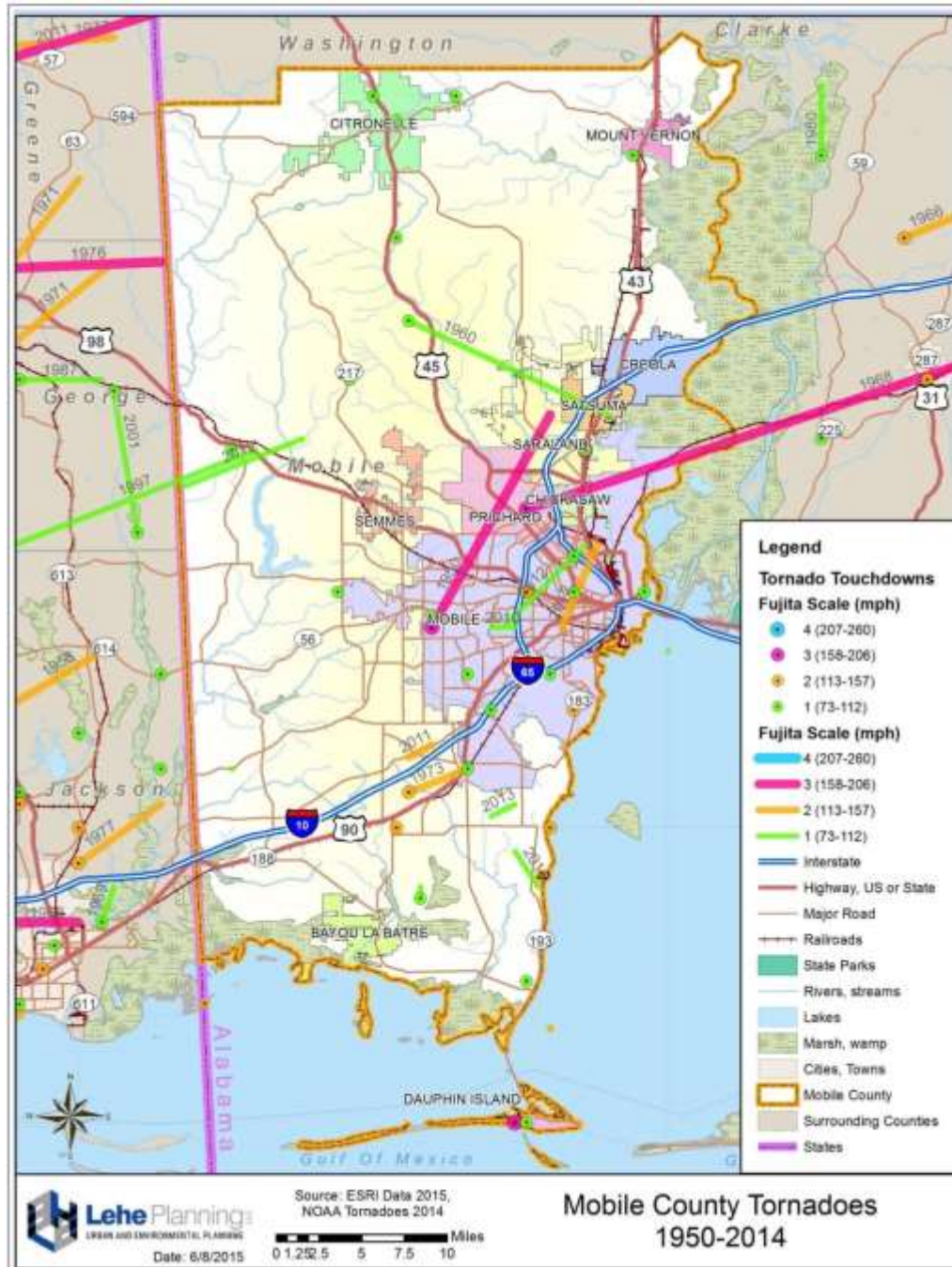
Year	Type	Number	Deaths	Injuries	Total Damages
1995	Hail	6	0	0	\$300
	Lightning	-	-	-	-
	Thunderstorm/High Wind	17	0	0	\$66,500
1996	Hail	10	0	0	\$0
	Lightning	3	0	0	\$325,000
	Thunderstorm/High Wind	6	0	0	\$38,000
1997	Hail	14	0	0	\$1,000
	Lightning	4	1	5	\$90,000
	Thunderstorm/High Wind	15	0	0	\$47,000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

Year	Type	Number	Deaths	Injuries	Total Damages
	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
	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
TOTAL		370	2	27	\$9,037,300
Annual Average		18.5	0.1	1.4	\$451,865

Tornado Winds. In addition to high winds resulting from hurricanes and severe storms, they can also stem from tornadoes. In fact, 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 are accompanied by winds in excess of 65 to 300 miles per hour. Tornadoes are generally not location-specific hazards; however, the high winds can be devastating. All Mobile County communities are at equal risk of tornadoes. In Mobile County, tornadoes have historically occurred at the lower end of the scale, rarely exceeding an EF-2 in strength, but, as shown on Map 3-2 below, EF-3 tornadoes have taken place.

Map 3-3. Mobile County Tornadoes, 1950-2014



Although comparably lower in intensity than tornadoes that historically occur in northern Alabama, these lower intensity tornadoes can likewise have severe impacts. For instance, the EF2 tornado on Christmas Day in 2012 began southwest of downtown Mobile, but its path was over 5 miles long, along a northeastward track. Damages were estimated at \$1.4 million with downed power lines, uprooted trees, widespread power outages, and significant damage to homes and businesses.

As shown below in Table 3-3, 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 3-3. Mobile County Tornadoes, 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
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	-	-	-	-
TOTAL	34	1	9	\$6,366,000
Annual Average	1.7	0.1	0.5	\$318,300

3.3 Storm Surge

Hurricanes create storm surges, which have direct adverse impacts to coastal and nearby communities. 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. 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 no risk of storm surge.

Storm surge occurs 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. The storm surge resulting from Hurricane Katrina (2005) was so strong that it cut a canal through the western part of Dauphin Island, destroying many homes. 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. During Hurricane Isaac, storm surge tides of 4 to 6 feet were witnessed in the Mobile Bay region.

Table 3-4 lists the critical facilities in Mobile County that are susceptible to Category 1, 2, and 3 storm surges. Map 3-4 delineates areas subject to inundation due to storm surge according to the Saffir-Simpson category hurricane strength. The map shows that communities along the Gulf coastline and along Mobile Bay are subject to Category 1 storm surges.

Table 3-4. Mobile County Critical Facilities & Storm Surge

Facility	Jurisdiction	Storm Surge Category
Bayou La Batre Police Department	Bayou La Batre	Cat 2
Bayou La Batre Town Hall	Bayou La Batre	Cat 3
Irvington Fire Department	Bayou La Batre	Cat 1
Alba Middle School	Bayou La Batre	Cat 2
Dauphin Island Fire & Rescue Department	Dauphin Island	Cat 2
Dauphin Island Police Department	Dauphin Island	Cat 2
Dauphin Island Sewer Authority	Dauphin Island	Cat 1
Dauphin Island Town Hall	Dauphin Island	Cat 1
Dauphin Island Elementary School	Dauphin Island	Cat 2
Dauphin Island Sea Lab/University of South Alabama	Dauphin Island	Cat 2
Alabama State Docks	Mobile	Cat 1
Battleship Park	Mobile	Cat 2
Convention Visitor’s Bureau	Mobile	Cat 3

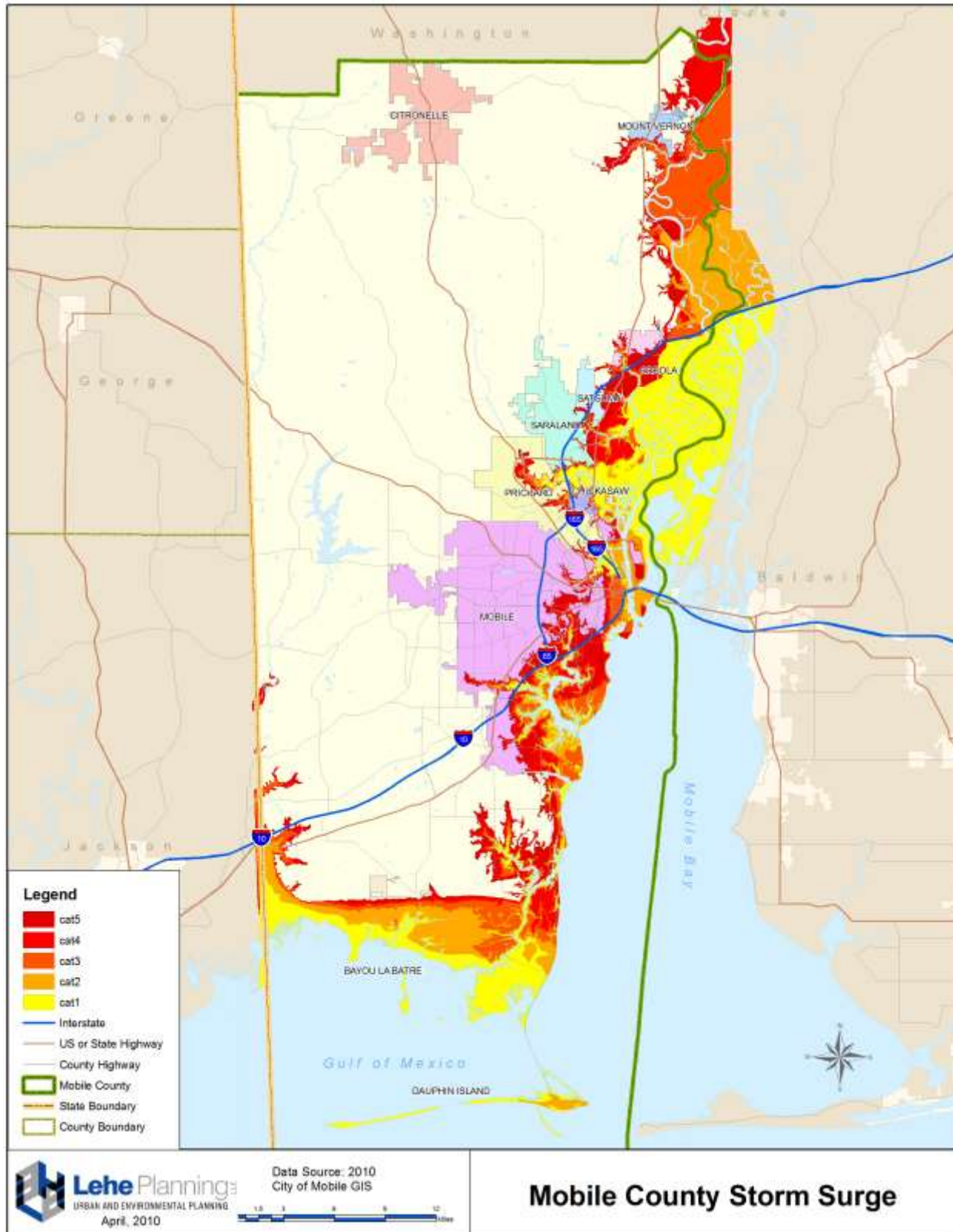
CHAPTER 3

Integrating Mitigation Measures Into Local Planning

FBI Building	Mobile	Cat 2
GM&O Transportation Center	Mobile	Cat 3
Mobile City Hall	Mobile	Cat 3
Mobile City Information Services Department	Mobile	Cat 3
Mobile City Motor Pool	Mobile	Cat 3
Mobile Civic Center	Mobile	Cat 3
Mobile Convention Center	Mobile	Cat 1
Mobile County Administration	Mobile	Cat 3
Mobile County Building Maintenance	Mobile	Cat 2
Mobile County Garage #4	Mobile	Cat 3
Mobile County Metro Jail	Mobile	Cat 3
Mobile Housing Board	Mobile	Cat 3
Mobile Library Administration	Mobile	Cat 3
Mobile County Sheriff's Department	Mobile	Cat 2
Mobile Telecom Department	Mobile	Cat 2
Parks Department Eastern Division	Mobile	Cat 3
Parks Department Mowing Division	Mobile	Cat 3
Police Warrant/Municipal Court Magistrate	Mobile	Cat 2
Public Buildings Storage 1 & 2	Mobile	Cat 3
Calloway Smith Middle School	Mobile	Cat 3
Council Traditional Elementary Magnet School	Mobile	Cat 3
Dunbar Performing Arts Magnet School	Mobile	Cat 3
Gilliard Elementary School	Mobile	Cat 3
Most Pure of Heart Mary Catholic School	Mobile	Cat 3
St. Johns Deliverance School	Mobile	Cat 3
US Bureau of ATF	Mobile	Cat 2
US Congressional Office	Mobile	Cat 2
US Customs Service	Mobile	Cat 2
US District Court	Mobile	Cat 3
US Federal Building	Mobile	Cat 3
US Postal Service	Mobile	Cat 2
US Social Security Office	Mobile	Cat 3
Alabama Port Fire Department	Mobile County	Cat 2
Hollingers Island Elementary School	Mobile County	Cat 3
Satsuma High School	Satsuma	Cat 3

Source: 2010 Mobile County Multi-Hazard Mitigation Plan, Part III Critical Facilities Assessment

Map 3-4. Mobile County Storm Surges



3.4 Coastal/Riverine Flooding

Flooding is a significant concern to Mobile County communities, due to the county’s low-lying, estuarine geography. The county experiences riverine, coastal, and flash flooding. Map 3-5 “Mobile County Flood Zones” 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. Specific facilities located in the 100-year flood zone and at greatest risk of flooding are listed in Table 3-5.

Table 3-5. Critical Facilities Located in the 100-year Flood Zone

Facility	Type	Jurisdiction
Bayou La Batre Police Department	Emergency Service	Bayou La Batre
Irvington Fire Department	Emergency Service	Bayou La Batre
Dauphin Island Fire & Rescue Department	Emergency Service	Dauphin Island
Dauphin Island Police Department	Emergency Service	Dauphin Island
Dauphin Island Sewer Authority	Government	Dauphin Island
Dauphin Island Town Hall	Government	Dauphin Island
Mobile County Sheriff’s Department	Emergency Service	Mobile
Mobile Fire Station 11 Willett	Emergency Service	Mobile
Mobile Fire Station 23 Simon	Emergency Service	Mobile
Mobile Police Central Events	Emergency Service	Mobile
Police Warrant/Municipal Court Magistrate	Emergency Service	Mobile
Nazarene Kindergarten	School	Mobile
St. Johns Deliverance School	School	Mobile
AL Department of Transportation	Government	Mobile
AL State Docks	Government	Mobile
Battleship Park	Government	Mobile
FBI Building	Government	Mobile
GM&O Transportation Center	Government	Mobile
Mobile County Community Corrections	Government	Mobile
Mobile Convention Center	Government	Mobile
Mobile County Administration	Government	Mobile
Mobile County Building Maintenance	Government	Mobile
Mobile County Metro Jail	Government	Mobile
Mobile Electrical Department	Government	Mobile
Mobile Telecom Department	Government	Mobile
Mobile Traffic Engineering	Government	Mobile
Public Buildings Storage 2	Government	Mobile

Facility	Type	Jurisdiction
US Bureau of ATF	Government	Mobile
US Congressional Office	Government	Mobile
US Customs Service	Government	Mobile
US District Court	Government	Mobile
US Federal Building	Government	Mobile
US Postal Service	Government	Mobile
Alabama Port Fire Department	Emergency Service	Mobile County
Glendale Elementary School	School	Prichard

Source: 2010 Mobile County Multi-Hazard Mitigation Plan, Part III Critical Facilities Assessment

Additionally, Mobile County’s rivers and streams threaten inland communities such as Citronelle, Mount Vernon, Prichard, Chickasaw, Saraland, Creola, Satsuma, Mobile, and unincorporated areas. 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.

Historical records indicate that Mobile County has witnessed 100 floods between 1995 and 2014 (5 per year), with damages averaging \$422,750 per year and \$84K per event. According to FEMA, there are 8,800 NFIP repetitive loss structures within Mobile County and the National Flood Insurance Program (NFIP) participating jurisdictions as of August 2015. A repetitive loss property is defined as those which have two or more losses of at least \$1,000 and have been paid under the NFIP.

Table 3-6 shows the repetitive loss properties by jurisdiction for Mobile County. The repetitive loss claims originate from all but four of the jurisdictions in Mobile County; however, most of the claims come from Dauphin Island (2,703) and the City of Mobile (1,885). The majority of properties are classified as residential, multi-family homes, non-residential, and condominiums. Of the repetitive loss properties identified above, Table 3-7 shows the 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.

Table 3-6. 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	-	-	-	-	-
Total	8,800	\$2,188,571,300	2,013	5,927	\$201,127,266

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

Table 3-7. Severe Repetitive Loss Properties by Jurisdiction

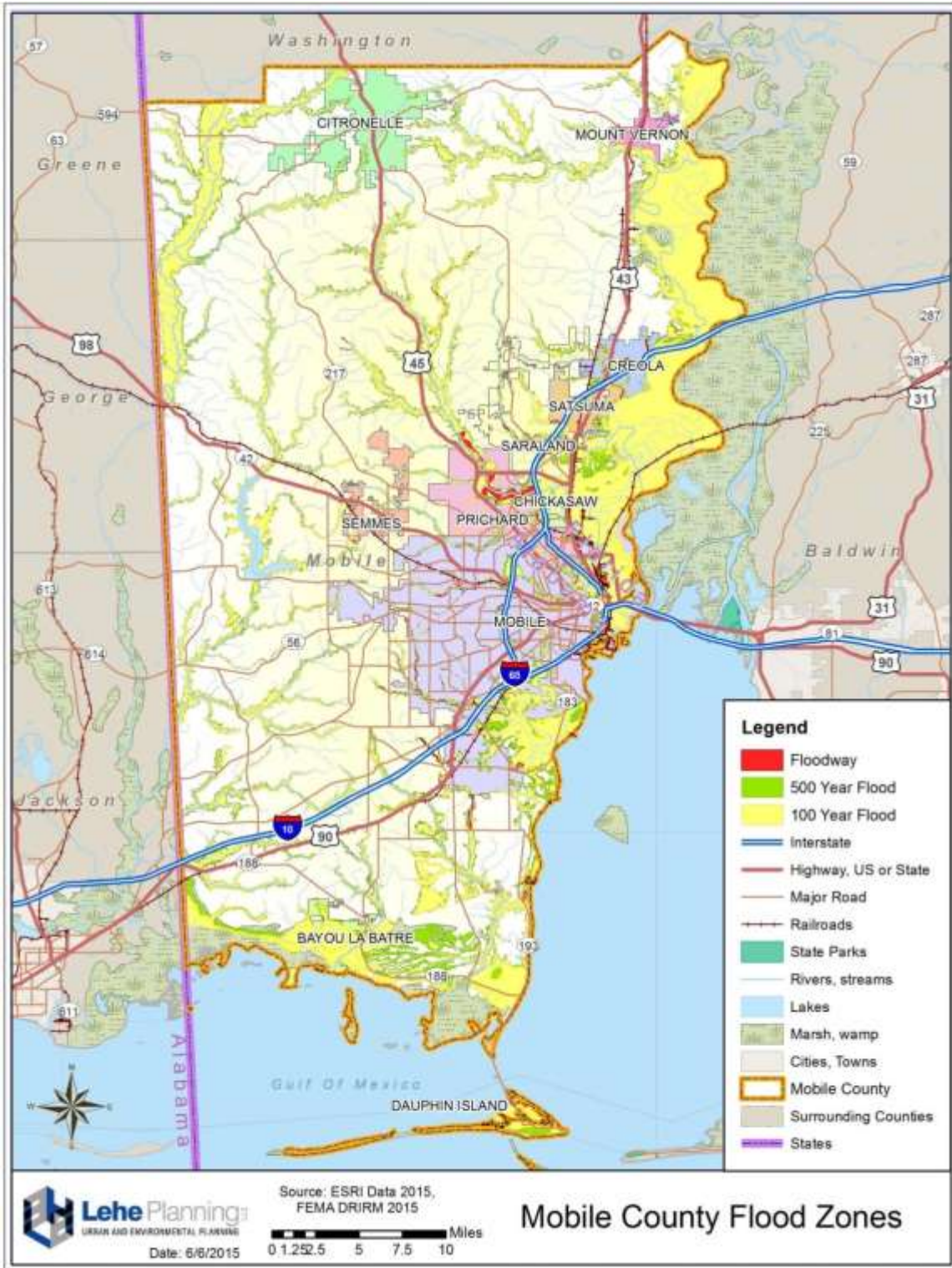
Community Name	Severe Repetitive Loss Structures	Total SRL Claims	Total SRL Losses (\$)
Mobile County	10	58	\$1,706,132
Bayou La Batre	2	6	\$158,596
Dauphin Island	68	426	\$14,199,499
Mobile	25	143	\$3,918,724
Saraland	1	5	\$49,363
Total	106	638	\$20,032,314

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

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. 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 tributaries). Development trends suggest the unincorporated areas west of the City of Mobile will experience the most growth. Additionally, there is an emerging possibility of mixed-use 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.

Map 3-5. Mobile County Flood Zones

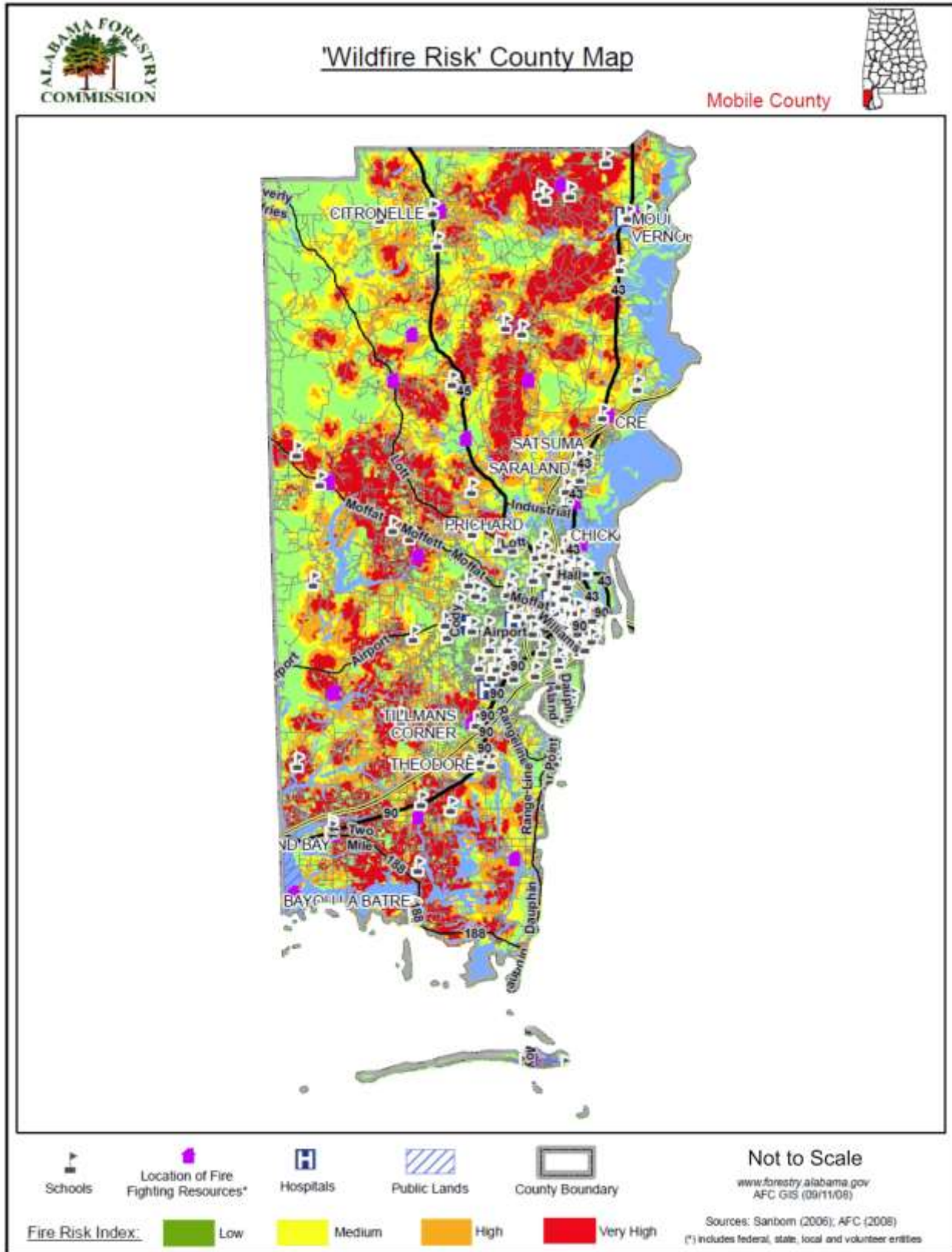


3.5 Interface Wildfires

Wildfires can be classified as either *interface* or *wildland* wildfires. Interface wildfires burn on a mix of vegetation and human structures and therefore occur at the interface of human development and rural landscapes. *Wildland* fires, however, burn only on vegetation and therefore occur in strictly rural areas. 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.

Interface wildfire risks are greatest for suburban sprawl areas where human development coexists with conditions amenable to wildfires, that is, anywhere there is an adequate mix of weather, topography, and fuel sources. Map 3-6 shows risk levels for wildfires by area. Heavily populated areas, such as Mobile and surrounding communities, are less at-risk than outlying communities that directly interface with rural areas, such as Citronelle, Mount Vernon, and Semmes are more at-risk.

Map 3-6. Mobile County Wildfire Risk Areas



3.6 Minimal Risk Hazards

Although locations exist throughout Mobile County, sinkholes, landslides, earthquakes, dam/levee failures, and tsunamis pose minimal risks to Mobile County communities. For specific locations and risk assessments of these minimal risk hazards, refer to Chapter 5 “Risk Assessment” of the *2015 Mobile County Multi-Hazard Mitigation Plan*.

Chapter 4 – Plan Integration Principles and Practices

- 4.1 Sources
- 4.2 Planning Terms
- 4.3 A Vision for Disaster Resistance
- 4.4 Integration into the Comprehensive Plan
- 4.5 Community Leadership and Support
- 4.6 The Benefits of Community Resilience
- 4.7 Planning for Post-Disaster Recovery
- 4.8 Community Facilities and Infrastructure
- 4.9 Opportunities for Plan Integration

4.1 Sources

Included here are the principles and practices of integrating hazard mitigation into the local planning framework. These basic principles are consistent with those promulgated by FEMA and the American Planning Association in its publications listed under “References” at the end of this report, particularly the “Fact Sheets” included in FEMA’s March 1, 2013 *Integrating Hazard Mitigation into Local Planning: Case Studies and Tools for Community Officials*.

4.2 Planning Terms

The following planning terms defined here are necessary for understanding the fundamental principles of plan integration presented in this chapter:

- **Community resilience** is a familiar term among hazard mitigation planning professionals. It is the community’s capacity to adapt to changing social, economic, or environmental conditions; and for purposes of hazard mitigation, it is the capacity to recover from a natural disaster or bounce back from a disaster.
- Ultimately, community resilience is necessary for **sustainability**, in which a community meets current needs without sacrificing the needs of future generations.
- A community can develop **disaster resistance** to the impending threats of natural hazards that it might face by undertaking appropriate hazard mitigation measures.

- Federal regulations governing mitigation planning, found in 44 CFR §201.2 define **hazard mitigation** to mean “any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.”
- Local **integration** of hazard mitigation takes place within a community’s overall planning framework, that is, the complete set of local plans, ordinances, codes, regulations, programs, and actions. These are the community’s planning and regulatory tools that can direct growth and development patterns by minimizing exposure to hazard risks or encourage redevelopment of existing patterns that reduce hazard risk and exposure.
- In recent years, planners, working in conjunction with FEMA hazard mitigation administrators, have encouraged communities to establish goals for **Safe Growth**; such goals seek to build safe and sustainable communities for all generations, with buildings and infrastructure protected and resistant to damages from natural disasters.

4.3 A Vision for Disaster Resistance

All Mobile County communities have adopted the 2015 Mobile County Multi-Hazard Mitigation Plan and endorse the long-term vision for disaster resistance presented in the plan:

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 communities 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 hazards identified in the 2015 Plan. Such a strategy requires successful implementation of a range of local measures, many of which can be achieved by integration with local plans and regulatory tools designed to achieve the following purposes:

- *To reduce or eliminate risks from natural hazards.*
- *To reduce the vulnerability of existing, new, and future development of buildings and infrastructure.*
- *To minimize exposure and vulnerability of people, buildings, critical facilities, and infrastructure to identified hazards.*

- *To increase public awareness and support of hazard mitigation.*
- *To establish interagency cooperation for conducting hazard mitigation activities.*
- *To strengthen communications and coordination among individuals and organizations.*
- *To integrate local hazard mitigation planning with State hazard mitigation planning, local comprehensive planning activities, and emergency operations planning.*
- *To protect people and property and reduce losses and damages to buildings and infrastructure.*

4.4 Integration into the Comprehensive Plan

A comprehensive plan provides a community with a general framework for long range growth and development over a 20 or more year horizon. A plan usually includes an analysis of existing and projected conditions of land use, population and economy, environment, community facilities, transportation systems, cultural and historic resources, parks and open space, and community design, among other planning considerations. The plan is usually divided into functional areas or elements, which address each of the areas of consideration, with a generalized future land use and development framework serving as the central focus of the plan. More specific functional plans (e.g., transportation, stormwater management, economic development plans) and area plans (e.g., downtown revitalization, neighborhood conservation, highway corridor plans) often supplement the comprehensive plan.

A community's comprehensive plan provides a policy framework with goals and objectives, and policies to guide development. The plan's policies can be implemented through a range of planning and regulatory tools, such as a zoning ordinance and map, subdivision and land development regulations, floodplain and stormwater management controls, and a multi-year plan for capital improvements, among other implementation tools. In theory, the plan should form the basis for zoning and other regulatory and programmatic tools, but in practice, that is not often the case.

In Alabama, local comprehensive planning is not required by state law, and communities that do conduct planning usually do so sporadically. There is no norm or standard for comprehensive planning in Alabama, in contrast to other states, where comprehensive plans are mandated with criteria established by state planning legislation. First enacted in 1935, Alabama's enabling legislation has remained virtually

unchanged over the years and offers little guidance on what should constitute a comprehensive plan and its purpose. Despite the statutory limitations, some Alabama communities have been able to successfully carry out local comprehensive planning programs.

In those cases where comprehensive planning successfully guides future growth and development, the link to hazard mitigation is extremely important, particularly for coastal communities and communities faced with high risks of natural disasters, such as those in Mobile County. The comprehensive plan provides the first step towards integrating the findings and recommendations of the hazard mitigation plan into the local planning framework. The plan presents a forum for proclaiming safe growth as a community goal, establishing policies that promote community resiliency and sustainability, and linking the plan implementation tools directly to the community actions laid out in the hazard mitigation plan. A strong and effective comprehensive plan that fully integrates hazard mitigation provides a foundation to manage and guide development in a pattern that minimizes risks and decreases vulnerabilities.

4.5 Community Leadership and Support

Ultimately, the driving force behind making hazard mitigation a priority is political will. Effective integration of mitigation measures into the local planning framework requires political leadership that can mobilize community support. To achieve this level of support, the risks of hazards must be clearly communicated to local officials and the general public. Awareness of hazard risks and available mitigation measures should be incorporated into public outreach activities, such as exhibits at local festivals, websites and social media communications, speaker presentations, public workshops, media relations, and newsletters.

Community leadership should aim for resiliency by implementing pre-disaster mitigation measures and plan for post-disaster recovery before the disaster strikes. For a community to truly be sustainable, it needs to be proactive and make plans now, and not be reactive and respond afterwards. An integrated planning process can help mitigate potential damages and prepare for post-disaster recovery.

“Community champions” who embrace hazard mitigation can help build the support needed to move a community towards publicly-supported safe growth objectives. Building support requires effective public communications that applies these fundamental approaches to convey the significance of hazard mitigation:

- *Make hazard mitigation relevant.* Hazard mitigation can be a difficult concept for the public to comprehend, but it can be framed in such a manner that it is relevant. Emphasize the importance of hazard mitigation in terms of financial savings, protection of property and lives, environmental quality

enhancements, economic impacts (jobs and revenues), and other relevant community values.

- *Make public safety and the community's resilience to recover from disasters public priorities.* Public officials should always be cognizant of how their decisions and actions can advance public safety and community resiliency. How does safe growth tie into public decisions on capital budget expenditures, rezonings, subdivision approvals, and other public actions by elected and appointed officials?
- *Take the initiative to cooperate and collaborate.* Coordinate hazard mitigation measures and build partnership among local and regional agencies, neighboring communities, utilities, businesses, educational institutions, civic associations, advocacy organizations, interest groups, public agencies, and other stakeholders in the planning and implementation processes. Community participation is critical to community support and success of hazard mitigation.
- *Use all means of communication.* Make hazard mitigation a commonly known phrase. Make community champions visible, and support them with effective communications tools and opportunities. Create platforms for delivering the public message: radio, TV, news media, internet, handouts, exhibits, and other available means. Take full advantage of all opportunities to educate and raise the awareness of community leaders and the public.
- *Boast of successes.* Let the community know of local mitigation successes. Conduct groundbreakings for mitigation projects (community safe rooms, flood control, and other construction projects). Announce successful FEMA grant awards for hazard mitigation. Announce how the new plan incorporates hazard mitigation measures, the community's successes in floodplain management, new or amended regulatory tools to manage hazard impacts, and other community successes.

4.6 The Benefits of Community Resilience

The integration of hazard mitigation into the local planning framework is the cornerstone of community resilience. Community resilience means the ability to bounce back from a disaster. Resilience increases sustainability to withstand such disruptions by taking proactive mitigation measures that protect against future damages and casualties from impending hazards. Community resilience has many far reaching benefits, including those summarized here:

- *Preventing or reducing future casualties.* Building a safe community for residents, occupants of commercial and public buildings, travelers, and visitors should be the top consideration given to hazard mitigation.
- *Reducing or preventing property damage.* Reduction and prevention of building damages and related property losses are important benefits of hazard mitigation, a characteristic of resilient communities.
- *Avoiding loss.* Effective hazard mitigation can avoid post disaster costs of building repairs and displacement of occupants. In addition, mitigation can reduce or avoid interruption of businesses and public services resulting from a disaster. Mitigation can avoid loss of business revenues, employee income, and better ensure continuity of public services after a disaster strikes.
- *Speeding recovery.* Planning for effective hazard mitigation can enhance a community's resilience by speeding the recovery of its vitality after a disaster.
- *Reducing costs of emergency operations during a disaster.* Helping to lower emergency response and disaster recovery costs. Both emergency response costs during the disaster and post disaster recovery costs can be significantly reduced by effective hazard migration and disaster response planning. A resilient community has less need for fire, police, medical and other necessary disaster response services, thus cutting emergency operations expenses during the disaster.
- *Speeding post disaster recovery and reducing costs.* A resilient community can cut its post disaster costs by speeding recovery and reducing damaging impacts through pre-disaster planning and implementation of effective mitigation measures. Debris removal, housing assistance, infrastructure repairs, restoration of commercial and public services and other recovery operations become less costly and more manageable.
- *Creating a more marketable community image.* Promoting a community with known hazard vulnerabilities as "resilient" creates an attractive image for recruiting business and industry, as well as stimulating residential growth. Community resiliency can improve the local economy and tax base.
- *Protecting community assets.* Integration of hazard mitigation into local plans and programs that are designed to protect historical, recreational, and environmental assets of a community can help improve quality of life for residents and attract visitors.
- *Enhancing valuable environmental resources.* Protection of a community's natural and beneficial environmental functions can help mitigate adverse

hazard impacts and can also improve quality of life and aid economic development for recreation and tourism related attractions.

- *Creating peace of mind and a sense of security and stability.* Community resiliency reassures residents and businesses of safety. Less fear of threatening natural disasters can reinforce a community's identity and improve its stability.

4.7 Planning for Post-Disaster Recovery

Planning today for recovery from tomorrow's disaster makes sense. Typically, long-term recovery planning does not take place until after the disaster has taken its toll on a community, but the better alternative is to plan now. Mobile County's hazard mitigation plan has fairly detailed assessments of risk, which are also summarized in Chapter 3 "Community Risk Assessments" in this report. The knowledge and awareness of community risks and vulnerabilities are the first steps toward identifying potential damages and examining alternative methods of recovering from various scenarios. A plan for recovery actions over a horizon of five or more years is typical, but recovery planning need not wait for the disaster to begin the process. Although disaster recovery must be addressed immediately after the disaster, the basic framework can be developed in advance of the disaster.

An available tool for emergency operations planners and managers is the Threat and Hazard Identification and Risk Assessment (THIRA). THIRA is a four-step risk assessment process that helps a community better understand its risks and estimate required "core capabilities" for responding to and recovering from disasters. This tool helps communities answer the following questions:

- What disasters do we need to prepare for?
- What resources are required to prepare for those disasters?
- What actions could be employed to reduce or eliminate adverse impacts of a hazard?

Among the core capabilities in the THIRA process are the following that are related to hazard mitigation, community resilience, and long term recovery:

- *Community Resilience.* Enable the recognition, understanding, and communication of, the importance of planning for risk. Empower individuals and communities to make informed risk management decisions necessary to adapt to, withstand, and quickly recover from future incidents.

- *Vulnerability Reduction.* Build and sustain resilient systems, communities, critical infrastructure, and key resources lifelines to reduce their vulnerability to natural, technological, and human-caused threats and hazards by lessening the likelihood, severity, and duration of the adverse consequences.
- *Disaster Resilience Assessment.* Assess risk and disaster resilience so that decision makers, responders, and community members can take informed action to reduce their entity's risk and increase their resilience.
- *Threats and Hazards Identification.* Identify the threats and hazards that occur in the geographic area; determine the frequency and magnitude; and incorporate this into analysis and planning processes to clearly understand the needs of a community or entity.

(Source: FEMA *Threat and Hazard Identification and Risk Assessment Guide*, 2nd Edition, August 2013).

The post-disaster recovery plan can identify the roles and responsibilities of key agencies and individuals, potential impacts, temporary post-disaster measures, and permanent recovery and rebuilding solutions. Additionally, the recovery plan can help find ways to strengthen the integration of the hazard mitigation plan with local plans and programs. A recovery plan helps hasten community stability and creates a planning process for better informed decisions that do more than react to a crisis.

4.8 Community Facilities and Infrastructure

An important integration principle is the link between hazard mitigation and existing and/or planned community facilities and infrastructure. A capital budget should be developed with community resilience and hazard mitigation in mind. A few fundamental questions might be asked by each community about its capital improvements planning process, as follows:

- Does the local capital budget adequately address protection and reinforcement of facilities and infrastructure from hazards?
- Does the community have a multi-year capital improvements plan in place that directly ties to project needs identified in the county's hazard mitigation plan?
- Have FEMA Hazard Mitigation Assistance grants been fully considered as sources for funding capital improvements that promote hazard mitigation?

Each community in Mobile County has adopted its own Community Action Program as an element of the county's hazard mitigation plan. Mitigation projects and

actions included in those Community Action Programs include a range of mitigation measures that address community resiliency and protection of community facilities and infrastructure. Some of those measures are listed here as examples:

- Protecting water, sewer, and other public utilities from flooding and power failures.
- Installing emergency power backup generators for critical public facilities to prevent power disruptions.
- Constructing engineered drainage improvements (channel modifications, bridge improvements, detention ponds, etc.) to mitigate flood damages.
- Performing regular and active maintenance of drainage systems to manage the discharge of floodwaters.
- Implementing flood protection of vulnerable critical facilities used for essential services, such as fire and police stations, through elevation, floodproofing, or relocation.
- Reinforcing bridges to resist damages from high winds and floods when making repairs; replacing aging bridges with disaster resistant facilities.
- Reinforcing roofs, windows, and other structural components of public buildings with wind resistant components.
- Hardening areas to serve as safe rooms when remodeling existing public buildings; creating community safe rooms in all new construction of public buildings.
- Building dual use community safe rooms that also function as community centers and recreational buildings.
- Incorporating safe rooms into new fire stations.
- Reinforcing dams, as needed, to prevent downstream damage from potential failures.
- Repairing or replacing facilities and infrastructure damaged by a hazard with hazard resistant components.

Integrating mitigation into planned capital improvements can have far reaching community benefits. In particular, these benefits can improve public safety and result in long-term cost savings.

FEMA recognizes the benefits of hazard mitigation and offers funding incentives through its Public Assistance programs, in addition to grants offered through its Hazard

Mitigation Assistance (HMA) programs. FEMA recognizes that replacing or repairing facilities and infrastructure damaged by a hazard to their originally constructed design does not always make sense. If reconstructed without hazard mitigation, then they remain vulnerable to future hazards.

This is why FEMA can often fund hazard mitigation projects through its Public Assistance (PA) program, which provides funds to assist with a community's recovery from a Presidentially-declared disaster. PA funds provide Federal disaster assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly-owned facilities. In addition, PA funds can also be used for hazard mitigation projects during the disaster recovery process. FEMA refers to this option as "Section 406 Mitigation." Some examples include facility relocation, wind protection retrofits, drainage improvements, floodproofing of buildings, and protection of utilities. Section 406 activities are intended to improve community resiliency and resistance to future disaster events.

4.9 Opportunities for Plan Integration

As discussed throughout this chapter, every community has myriad opportunities to integrate hazard mitigation into its planning framework. The following table 4-1 "Potential Integration Opportunities" presents examples of the mitigation measures a community might undertake.

Table 4-1. Potential Integration Opportunities

Planning and Regulatory Tools	Potential Integration Opportunities
Comprehensive Plan	<i>Establish "Safe Growth" goals that are consistent with the mitigation plan goals</i>
	<i>Promote policies that encourage community resiliency, sustainability, and disaster resistance</i>
	<i>Consider a separate hazard mitigation element in the plan</i>
	<i>Plan now for future post disaster recovery scenarios</i>
	<i>Integrate hazard profiles into existing conditions analysis</i>
	<i>Include hazard maps and GIS data in the comprehensive plan</i>
	<i>Examine hazard risks of potential growth and redevelopment areas</i>
	<i>Establish policies to encourage growth in suitable locations with minimum risk</i>
	<i>Establish policies to encourage redevelopment of high risk locations</i>
	<i>Target extremely high risk areas for public open space uses</i>
	<i>Include mitigation measures from the Community Action Program in plan implementation</i>
Area Plans (e.g., downtown, historic districts, neighborhoods)	<i>Evaluate the full range of hazards affecting the planning area</i>
	<i>Include maps of hazard locations in the area plan</i>
	<i>Promote policies that encourage community resiliency, sustainability, and disaster resistance</i>
	<i>Identify appropriate hazard mitigation measures and projects within the planning area</i>
	<i>Encourage redevelopment of high risk areas that can reduce future losses</i>
Plans for Specialized Functions	<i>Develop independent floodplain management plans for each community</i>
	<i>Coordinate planning for water and sewer services with local plans and safe growth policies</i>
	<i>Coordinate regional transportation planning with local plans and safe growth policies</i>
	<i>Include open space allowances for high risk areas in plans for parks and outdoor recreation</i>
	<i>Examine emergency operations plans for compatibility with the mitigation plan findings</i>
	<i>Implement economic development strategies that respect hazard risks</i>

Planning and Regulatory Tools	Potential Integration Opportunities
Zoning and Land Development Regulations	<i>Review land use controls for consistency with Safe Growth goals and amend, as necessary</i>
	<i>Consider hazard overlay zones with special controls for particular hazards</i>
	<i>Review the zoning map to ensure targeted growth in low risk areas</i>
	<i>Consider special land use controls for areas of high risk for wildfires</i>
	<i>Create zoning and subdivision incentives for clustering and open space conservation</i>
	<i>Promote low impact development through creative land use controls</i>
	<i>Establish flexibility in land use regulations to encourage conservation of critical environmental areas</i>
	<i>Enact higher regulatory standards within floodplain management ordinances</i>
	<i>Enact flexible land use and development provisions that encourage safe growth</i>
	<i>Include conservation subdivision incentives in subdivision regulations</i>
Building and Technical Codes	<i>Maintain up-to-date building and technical codes</i>
	<i>Tie wind resistance provisions to storm surge/hurricane zones</i>
	<i>Provide continuing education, training, and certifications to local code enforcement officials</i>
Capital Improvements	<i>Establish a multi-year capital improvements programming process</i>
	<i>Fund mitigation projects identified in the Community Action Program of the mitigation plan</i>
	<i>Restrict building of critical facilities in high risk locations</i>
	<i>Aggressively pursue FEMA grant funds for mitigation projects</i>
	<i>Coordinate sewer service expansions with target growth location in low risk areas</i>
	<i>Consider the growth impacts of transportation improvements</i>
	<i>Target capital investments in infrastructure in accordance with safe growth principles</i>
Public Engagement and Outreach	<i>Keep community leaders, key decision makers, and stakeholders informed and supportive of hazard mitigation</i>
	<i>Conduct hazard mitigation workshops for community officials</i>
	<i>Engage and inform the public on hazard mitigation through public exhibits and social media communications</i>
	<i>Distribute hazard mitigation information at festivals and large community events</i>

Chapter 5 – Local Planning and Regulatory Practices

- 5.1 Examination of Local Practices
- 5.2 Local Hazard Mitigation Capabilities
- 5.3 Community Interviews
- 5.4 Review of Local Plans and Regulations

5.1 Examination of Local Practices

This chapter examines the planning and regulatory practices of the eleven Mobile County municipalities and the unincorporated communities under the jurisdiction of the Mobile County Commission. This examination follows the general “Safe Growth Audit” guidelines prescribed in the American Planning Association’s (APA) 2010 publication, *Hazard Mitigation: Integrating Best Practices into Planning*, Planning Advisory Service (PAS) Report 560 by James C. Schwab, Ed. A “Safe Growth Audit” is the phrase used in this PAS Report to describe “a method to analyze how the full slate of policies, ordinances, and plans” address hazard risks. The audit “can be used to test existing tools and policies” and “to guide needed changes in growth-related tools.” It “gives the community a comprehensive but concise evaluation of the positive and negative effects of its existing growth-guidance framework on future hazard vulnerability.” (See pages 54 – 58). A variation of the APA approach, this chapter reports on the performance of each jurisdiction in integrating hazard mitigation planning into its local planning and regulatory framework.

5.2 Local Hazard Mitigation Capabilities

A capabilities assessment was conducted as part of the *2015 Mobile County Multi-Hazard Mitigation Plan*. That assessment examined local capabilities to implement various mitigation measures identified for implementation through the Community Action Programs of the 2015 plan. It provides a framework for identifying the gaps and opportunities for each community to integrate the findings and recommendations of the 2015 Plan into its local planning and regulatory tools. The following six criteria are used here to measure local capabilities:

- (1) Planning and regulatory tools;
- (2) GIS resources;
- (3) Staffing and administrative resources;
- (4) Fiscal resources;
- (5) Public education and outreach programs; and,

(6) ISO ratings.

During the 2015 plan update, surveys and interviews were conducted with local government representatives regarding each of the community's current capabilities. (A previous survey was also conducted for the 2010 plan update). In early 2016, the information was updated for the purpose of this report.

The following highlights summarize the results of the capabilities assessment for each of the six evaluation criteria:

1. Planning and Regulatory Tools

- All jurisdictions have adopted the *2010 Mobile County Multi-Hazard Mitigation Plan* and have implemented mitigation actions from that plan.
- The *2015 Mobile County Multi-Hazard Mitigation Plan* has been approved by FEMA and is pending local adoption by all jurisdictions, as of the date of this report.
- The municipalities of Mobile, Mt. Vernon, Semmes, and Chickasaw have updated their comprehensive plans within the last five years, and Creola initiated an update in early 2016.
- The City of Mobile is the only jurisdiction that conducts multi-year capital improvements programming.
- Only Semmes and Mobile County have no zoning ordinance. State law does not authorize Mobile County to enact zoning laws.
- All the communities enforce building codes within their jurisdictions.
- All of the jurisdictions participate in the National Flood Insurance Program (NFIP).
- Dauphin Island is the only NFIP community that participates in the Community Rating System (CRS) program.
- Mobile, Prichard, and Saraland are "Tree City USA" communities.
- The South Alabama Regional Planning Commission provides professional planning services to all jurisdictions.

2. GIS Resources

- All jurisdictions in Mobile County have access to Geographic Information System (GIS) services.
- Mobile County and the City of Mobile maintain their own GIS system. South Alabama Regional Planning Commission (SARPC) maintains GIS services for the remaining communities in Mobile County.
- Mobile County EMA maintains critical geographic data that supports hazard mitigation planning and analysis for the entire county.

3. *Staffing and Administrative Resources*

- All jurisdictions have full or part time building inspectors on staff.
- All the communities which participate in the NFIP have personnel designated to administer flood plain management, usually the building inspector in small jurisdictions.
- Mobile County and the City of Mobile have flood plain administrators who are designated Certified Floodplain Managers (CFM) by the Association of State Floodplain Managers (ASFM).
- The City of Mobile is the only jurisdiction with a professional planning staff. All other municipalities rely on the planning services of the South Alabama Regional Planning Commission.
- Mobile County and the City of Mobile have professional engineers (P.E.) on staff.

4. *Fiscal Resources*

- All jurisdictions, with the exception of the City of Prichard, have been awarded FEMA mitigation grants. Prichard, however, has a pending grant award and has received mitigation grants under the State's Community Development Block Grant (CDBG) Program.
- All the jurisdictions have staff with grant writing experience or can retain a grant writer.
- The South Alabama Regional Planning Commission provides professional planning services to all jurisdictions.

5. *Public Education and Outreach Programs*

- Most public outreach activities are conducted jointly through the Mobile County Emergency Management Agency (EMA).
- Most jurisdictions have annual fairs or festivals to conduct outreach activities.

6. *ISO Ratings*

- The Insurance Services Office (ISO) would not disclose Building Code Grade Effective Schedule (BCGES) and Property Protection Classification (PPC) ratings directly to the planning team which had to rely entirely on local knowledge for this survey.
- Among the communities in Mobile County that participate in the National Flood Insurance Program (NFIP), Dauphin Island is the only participant in the CRS Program.
- The City of Mobile boasts a PPC of 3, and the cities of Chickasaw and Saraland have the next highest rating of 4.
- The City of Mobile has the highest BCGES rating of 4, according to available survey results.

Table 5-1 “Capabilities Assessment Results,” which follows, documents the full survey results.

Table 5-1. Capabilities Assessment Results

Criteria	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
Planning and Regulatory Tools												
Adopted hazard mitigation plan	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comprehensive plan (adopted ≤ 5 years)	N	N	Y	N	Y	N	Y	Y	N	N	N	Y
Capital improvements plan	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Zoning ordinance	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Subdivision regulations	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Building codes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Floodplain management ordinance	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Stormwater management regulations	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	Y
Urban forestry/tree protection program	N	N	N	N	N	N	Y	N	Y	Y	N	N
Regulations addressing conservation/open space subdivisions	N	N	Y	N	N	Y	N	N	N	N	N	Y
GIS Resources												
Access to a GIS program	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Maintains its own GIS	Y	N	N	N	N	N	Y	N	N	N	N	Y
GIS inventory of natural hazard areas	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
GIS inventory of critical facilities	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Staffing and Administrative Resources												
Building code staff	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Staff assigned to administer floodplain ordinance	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Certified floodplain manager	Y	Y	N	N	N	N	Y	N	N	N	N	N

CHAPTER 5

Integrating Mitigation Measures Into Local Planning

Criteria	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
Professional engineer on staff	Y	N	N	N	N	N	Y	N	N	N	N	N
Professional planning staff	N	N	N	N	N	N	Y	N	N	N	N	N
Participates in regional planning program	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Fiscal Resources												
Submitted applications for FEMA mitigation grants	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Awarded FEMA mitigation grant(s)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N
Initiated mitigation projects funded by other sources	N	N	Y	N	Y	N	Y	Y	Y	N	N	N
Has staff capable of writing grants	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y
Public Education and Outreach Programs												
On-going outreach program	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Special program for education outreach	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Insurance Services Office (ISO) Ratings												
CRS classification	10	10	10	10	10	8	10	10	10	10	10	10
Property Protection Classification (PPC)	NR	NR	4	7/9	7/9	6/9	3	NR	8	4	5	5/9
Building Code Effectiveness Grading Schedule(BCEGS)	NR	5	6	5	7/9	6/6	4	NR	8	NR	NR	4/3

NR=No Response

5.3 Community Interviews

As part of its Safe Growth Audit, the planning team conducted interviews with local government staff representing the local jurisdictions in early 2016. Interviews were conducted on location at local government offices. The 15 community survey questions listed below helped guide the interviews. Only one locality, the Town of Dauphin Island, did not participate, but the planning team found answers to questions through internet review of planning documents and other sources. The information reported below stems from community responses to the interview questions.

- (1) *What was your jurisdiction's level of participation in the 2015 hazard mitigation plan update?*
 - In contrast to the preparation of previous county hazard mitigation plans in 2004 and 2010, the level of participation in 2015 was very limited.
 - After the first of five Hazard Mitigation Planning Committee meetings held during the drafting of the 2015 plan, few of the community representatives attended the remaining four meetings and two community events.
 - The highest participation levels were from the cities of Semmes and Saraland.
- (2) *What is your community's familiarity with the Community Mitigation Action Program recommended by the 2015 plan?*
 - Only representatives from Semmes and Saraland demonstrated familiarity with their Community Action Program.
- (3) *What has your jurisdiction done over the last five years to implement the recommended actions in the Community Action Program from the 2010 plan update?*
 - Few of the jurisdictions intentionally implement the recommended actions, although all jurisdictions undertake hazard mitigation. As stated in the interview with Mobile County staff, Mobile County integrates hazard mitigation "into every aspect of our operations."
- (4) *Does your community have a current comprehensive plan to guide future growth and development?*
 - Mt. Vernon and Chickasaw have updated their comprehensive plans within the last five years and Creola initiated an update in early 2016. These small communities received planning assistance through the South Alabama Regional Planning Commission, funded, in part, through planning grants awarded by the Alabama Department of Economic and Community Affairs (ADECA).

- The City of Semmes retained a private consultant to prepare the first comprehensive plan for this recently incorporated community.
 - During 2015, the City of Mobile embarked on an ambitious comprehensive plan update through extensive community interaction and visioning. Named “Map for Mobile,” the planning process continues with follow up plans for land use and an overhaul of land use and development regulations to implement the plan concepts.
 - Mobile County does not have the statutory authority conferred by the State legislature to conduct a comprehensive planning and regulatory program.
- (5) *Does the comprehensive plan identify natural hazard areas?*
- The City of Chickasaw plan is the only one that specifically addresses hazard mitigation and discusses natural resources constraints, wetlands/flooding, and coastal hazards.
 - Wetlands and floodplains are also addressed in the Mount Vernon plan.
 - None of the plans integrate the risk assessment maps and data from the mitigation plan.
 - The City of Semmes has its own emergency operations plan that supplements the Mobile County EMA plan.
- (6) *Are the goals of the comprehensive plan consistent with the hazard mitigation plan goals?*
- None of the plans have specific goals for hazard mitigation or make any reference to the hazard mitigation plan.
 - All of the plans were developed independently of the mitigation plan.
- (7) *Does your jurisdiction’s zoning ordinance or other development regulations have any provisions that address protection of natural areas, such as an overlay zone?*
- The City of Chickasaw has prepared a new zoning ordinance with special “TC Tourist Conservation District” provisions for compatible waterfront development of targeted areas.
 - In general, all of the zoning ordinances are very conventional varieties that divide the communities into segregated land use districts.
 - The City of Mobile has begun a complete overhaul of its zoning ordinance to institute modern and creative land use controls.
 - Mobile County does not have the statutory authority to enact zoning controls in unincorporated communities.
- (8) *Do the flood plain regulations for your jurisdiction exceed the minimum standards of the NFIP and the State model?*
- All local floodplain management ordinances are based upon the State model.

- (9) *Do subdivision regulations include provisions for “conservation subdivisions” or clustering housing to preserve open space?*
- None of the subdivision regulations have special provisions or incentives to preserve open space.
- (10) *What is the process for budgeting capital improvements? How are projects selected? Is there a multi-year capital improvements plan or program (CIP)?*
- The City of Mobile is the only jurisdiction that has a multi-year CIP.
 - Capital budgeting decisions in all other jurisdictions are made by governing bodies.
- (11) *Is the CIP tied to recommendations in the comprehensive plan? The hazard mitigation plan?*
- Only the City of Mobile has a long-range planning program for capital improvements, but capital projects in its CIP are not tied to recommendations in the hazard mitigation plan.
- (12) *Does your community actively monitor and pursue FEMA Hazard Mitigation Assistance (HMA) grant funds?*
- The Mobile County EMA actively monitors the availability of HMA funds, keeps all communities informed of grant announcements, and coordinates the prioritization of mitigation projects.
- (13) *What building code provisions help mitigate building damage from natural hazards?*
- All communities have adopted the International Building Code and actively enforce the wind load standards through their building permit processes.
 - Wind load standards vary between 140 mph for coastal communities to 110 mph for inland communities.
- (14) *Does your community participate in any outreach activities to inform the public of natural hazards, their risk, and what can be done to stay safe?*
- All communities regularly conduct events, such as annual festivals, which present opportunities for public outreach.
- (15) *Overall, how important is hazard mitigation planning to your community?*
- Despite generally limited participation and interest among the communities in the hazard mitigation plan, all jurisdictions emphatically support hazard mitigation for the most severe hazard threats posed by flooding and hurricanes.

5.4 Review of Local Plans and Regulations

The planning team reviewed the planning and regulatory documents and internet resources listed below for each of the localities.

City of Bayou La Batre

- City of Bayou La Batre Official Website at <http://www.cityofbayoulabatre.com/>
- *City of Bayou La Batre Zoning Ordinance*, adopted March 22, 2005. Available at http://www.cityofbayoulabatre.com/document_center/2005_495_Zoning_Ordinance.pdf

City of Chickasaw

- City of Chickasaw Official Website at <http://cityofchickasaw.org/>
- *City of Chickasaw Comprehensive Plan 2030, Moving Forward from a Historical Past*, adopted March 10, 2014. Chickasaw Planning Commission with the Assistance of the South Alabama Regional Planning Commission (SARPC). Available at <http://cityofchickasaw.org/comprehensive-plan/>
- *City of Chickasaw Zoning Ordinance*, Draft for Council Review, January 26, 2016. Chickasaw Planning Commission with the Assistance of the South Alabama Regional Planning Commission (SARPC).

City of Citronelle

- City of Citronelle Official Website at <http://www.cityofcitronelle.com/>
- *City of Citronelle Code of Ordinances*, April 9, 2015. Available at https://www.municode.com/library/al/citronelle/codes/code_of_ordinances

City of Creola

- City of Creola Official Website at <http://www.cityofcreola.org/home.html>

Town of Dauphin Island

- Town of Dauphin Island Official Website at <http://townofdauphinisland.org/>
- *Dauphin Island Zoning Ordinance*, November 18, 2014, as amended through June 2015. Town Planning Commission and Town Council with the Assistance of the South Alabama Regional Planning Commission. Available at http://townofdauphinisland.org/uploads/files/Ordinance_96_Zoning.pdf

- Five E's Unlimited. *Dauphin Island Strategic Plan – 20 Year Vision: Final Report & Implementation Recommendations*, October 15, 2007. Mississippi-Alabama Sea Grant Consortium Publication Number: MASGP07-023. Available at <http://masgc.org/assets/uploads/publications/476/07-023.pdf>

City of Mobile

- City of Mobile Official Website at <http://www.cityofmobile.org/>
- *Mobile, Alabama, Capital Improvement Plan 2015-2016*. City of Mobile. Available at http://www.cityofmobile.org/announcement_files/151016_mobile_2016_cip_by_department.pdf
- *City of Mobile Code of Ordinances*, December 22, 2015. Available at https://www.municode.com/library/al/mobile/codes/code_of_ordinances
- *MAP for Mobile: Framework for Growth*, November 5, 2015. City of Mobile. Available at <http://mapformobile.org/>

Town of Mount Vernon

- Town of Mount Vernon Official Website at <http://www.mtvernonal.com/>
- *Town of Mount Vernon Comprehensive Plan 2030*, adopted August 18, 2014. South Alabama Regional Planning Commission (SARPC).

City of Prichard

- City of Prichard Official Website at <http://thecityofprichard.org/>
- MACTEC Engineering and Consulting, Inc., *City of Prichard Comprehensive Plan*, November 8, 2006.

City of Saraland

- City of Saraland Official Website at <http://www.saraland.org/>
- *City of Saraland Land Use and Development Ordinance*, adopted December 27, 2007.

City of Satsuma

- City of Satsuma Official Website at <http://www.cityofsatsuma.com/>
- *City of Satsuma Subdivision Regulations*, adopted November 30, 2010. Satsuma Planning Commission. Available at

http://www.cityofsatsuma.com/index_html_files/Subdivision%20Regulations%20November%202010.pdf

- *City of Satsuma Zoning Ordinance*, adopted September 6, 2011. Available at http://www.cityofsatsuma.com/index_html_files/Ordinance%20482-%20new%20zoning%20ordiinance.pdf

City of Semmes

- City of Semmes Official Website at <http://www.cityofsemmes.org/>
- *City of Semmes Comprehensive Plan: How do we grow from here?* April 2014. City of Semmes Planning Commission with assistance from Thompson Engineering.
- *City of Semmes Subdivision Regulations*, adopted January 27, 2012, as revised through July 19, 2015. City of Semmes Planning Commission. Available at <http://www.cityofsemmes.org/PlanningCommission/Subdivision%20Regulations/FINAL/Semmes%20Sub%20Regs%20Amendments%20FINAL%207-9-15.pdf>

Mobile County

- Mobile County Official Website at <http://www.mobilecountyal.gov/>

Chapter 6 – Conclusions and Recommendations

- 6.1 Conclusions
- 6.2 Recommendations

6.1 Conclusions

The findings of the Safe Growth Audit reported in Chapter 5 “Local Planning and Regulatory Practices” have determined that the *Mobile County Multi-Hazard Mitigation Plan* has little or no influence on local plans and regulatory tools. Mobile County communities, however, are very cognizant of the hazards and risks they face due to their proximity to the Gulf Coast. Although the few local comprehensive plans that do exist do not adequately address the risks of hazards and offer solutions, hazard mitigation is indeed integrated to a large extent into local government operations. Most significantly, local building codes establish wind load requirements to mitigate high wind risks from hurricanes and severe storms, and all communities participate in the National Flood Insurance Program (NFIP). Moreover, all communities enforce floodplain management regulations to mitigate both coastal and riverine flooding.

6.2 Recommendations

The recommendations presented here seek to improve the status of hazard mitigation planning and offer actions that can be undertaken to assure integration of mitigation measures into the local planning framework.

Comprehensive Plan Integration

- The mitigation strategy in the adopted 2015 calls for each local jurisdiction to establish an “active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.” The plan suggests the following mitigation measures be implemented by all jurisdictions:

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.

Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.

- All communities should have active comprehensive planning programs in place. Resources are available through the South Alabama Regional Planning Commission to assist small communities, which obtains planning funds through

the Alabama Department of Economic and Community Affairs (ADECA). Private consultants are also available to supplement local staff resources.

- For communities that have comprehensive plans in place, integration can be achieved by amending an existing plan or by creating a new comprehensive plan element that addresses hazard mitigation. The County hazard mitigation plan has a wealth of risk information, insights, and maps that should be incorporated into each local plan.
- Future land use maps and elements of comprehensive plans should consider the vulnerability of certain locations to hazards and guide development towards low risk locations. Land use intensity should be consistent with hazard and environmental constraints.
- The Mobile Metropolitan Planning Organization (MPO), which oversees regional transportation for the Mobile area, should carefully review the County hazard mitigation plan and take into account the risks in planning new transportation routes or planning improvements to existing facilities. Transportation planning can have a very significant impact on future development patterns and their exposure to hazards.
- Public sewer authorities, including the Mobile Area Water and Sewer System (MAWSS) and others, should coordinate its planning of sewer services with local comprehensive plans. Sewer service is a driving force in managing the location of growth and urban development, which should avoid increased exposure to hazards.

Integration with Regulatory Tools

- All municipalities should maintain consistency between its zoning map and regulations and the land use element of its comprehensive plan. The land use element, in turn, should be compatible with the findings of the county hazard mitigation plan.
- Creative regulatory methods should be considered to direct growth and preserve open space without infringing upon property rights. Conservation subdivision and clustering provisions are two creative methods.
- Strictly enforce the wind load standards of local building codes.

Capital Improvements Planning

- All jurisdictions should institute procedures for capital improvements planning that are directly tied to the comprehensive plans.
- Capital expenditures should be set aside for mitigation projects.

- FEMA Hazard Mitigation Assistance (HMA) funds should be actively pursued as new post-disaster Hazard Mitigation Grant Program (HMGP) funds become available, and each year, when annual appropriations for Pre-Disaster Mitigation (PDM) and Flood Mitigation Assistance (FMA) funds are announced.

Floodplain Management

- All communities should consider participation in the Community Rating System (CRS) program of the National Flood Insurance Program.
- CRS communities or those planning to join the CRS should develop floodplain management plans, funded through the Flood Mitigation Assistance (FMA) planning grant program.
- Given the unusually large number of repetitive flood insurance loss properties within Mobile County jurisdictions (see Tables 3-6 and 3-7 on pages 3-15), FMA grant funds should be pursued for buyouts of these properties. The FMA program provides up to 100% funding for property acquisition projects.

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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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FEMA Pre-Disaster Mitigation Grant Program

Draft December 14, 2015

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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Draft December 14, 2015

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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. 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 300th year of continuous settlement in 2002.

Map 3-1. Mobile County Location

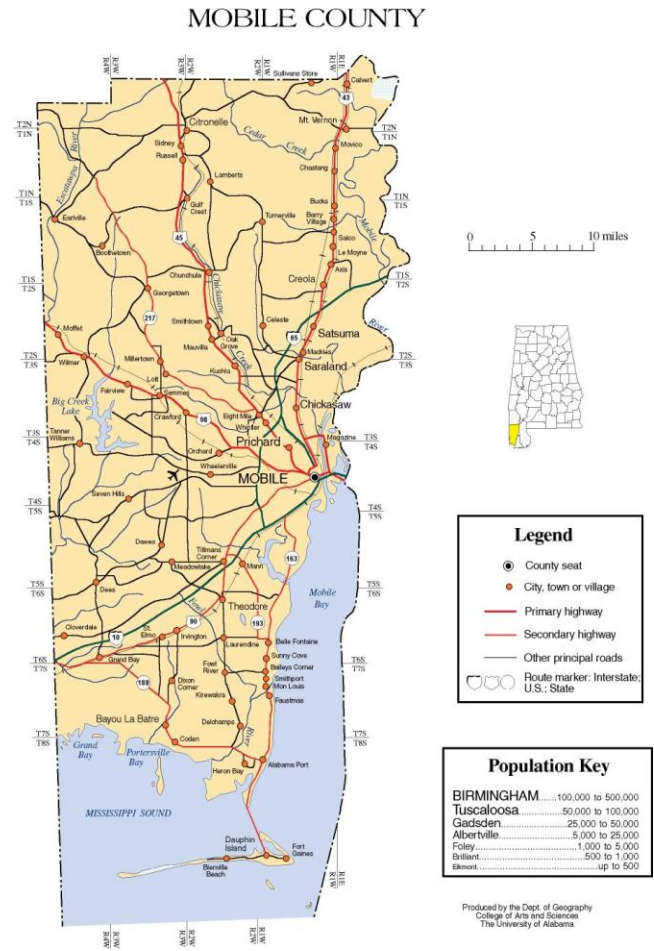


Table 3-2. Driving Distances to Nearby Cities

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

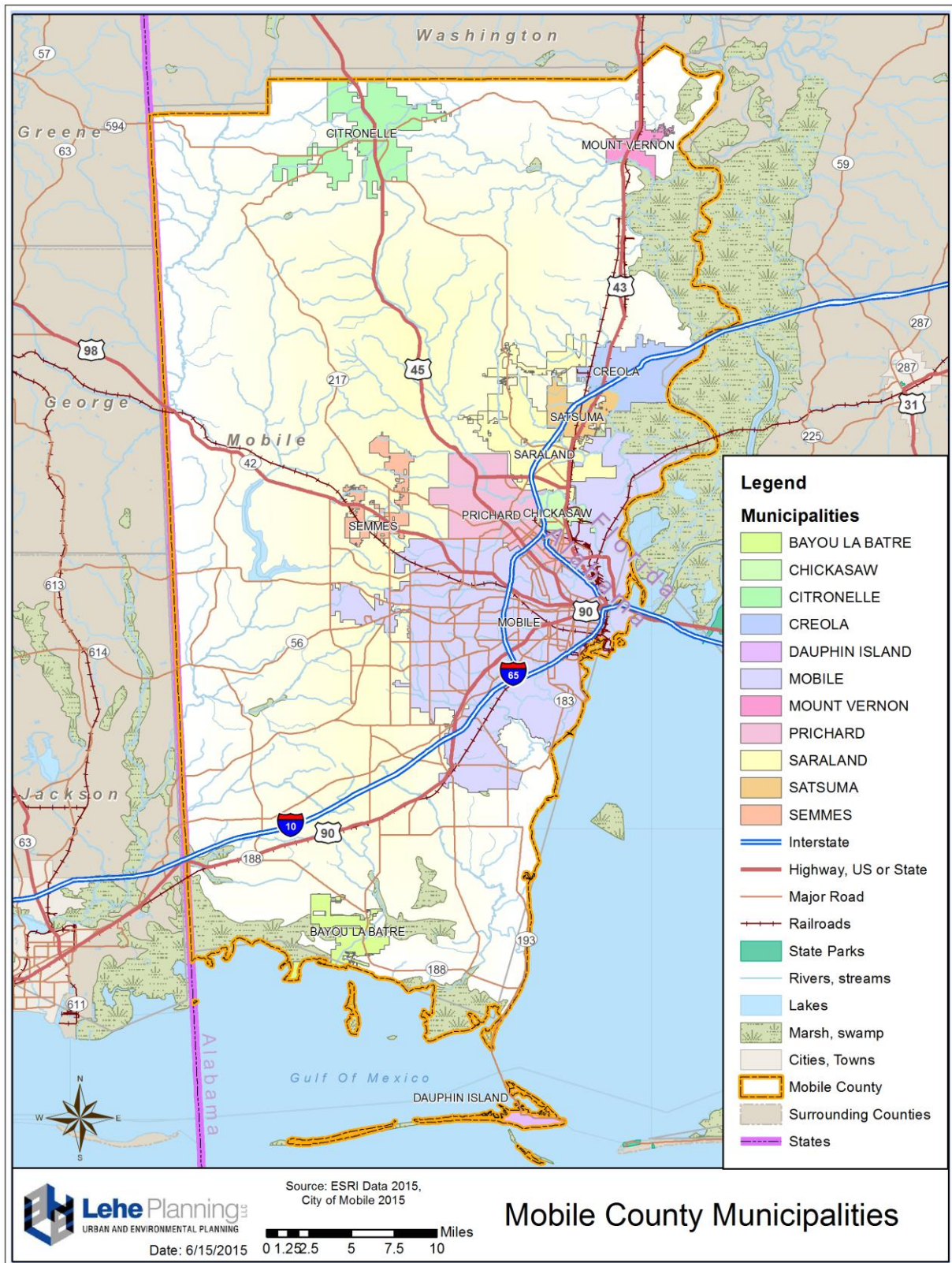
Map 3-2. Mobile County Gulf Coast Location



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.

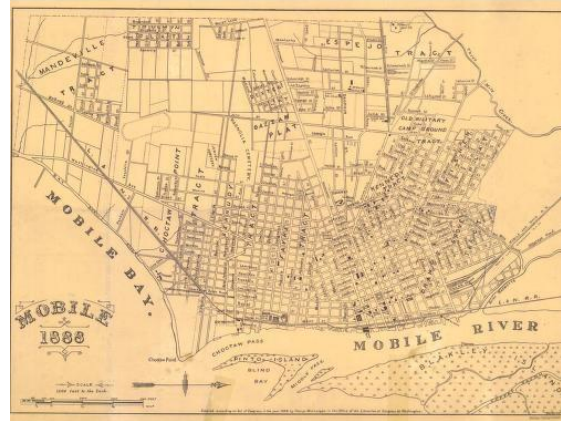
Town of Dauphin Island

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 461st 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.

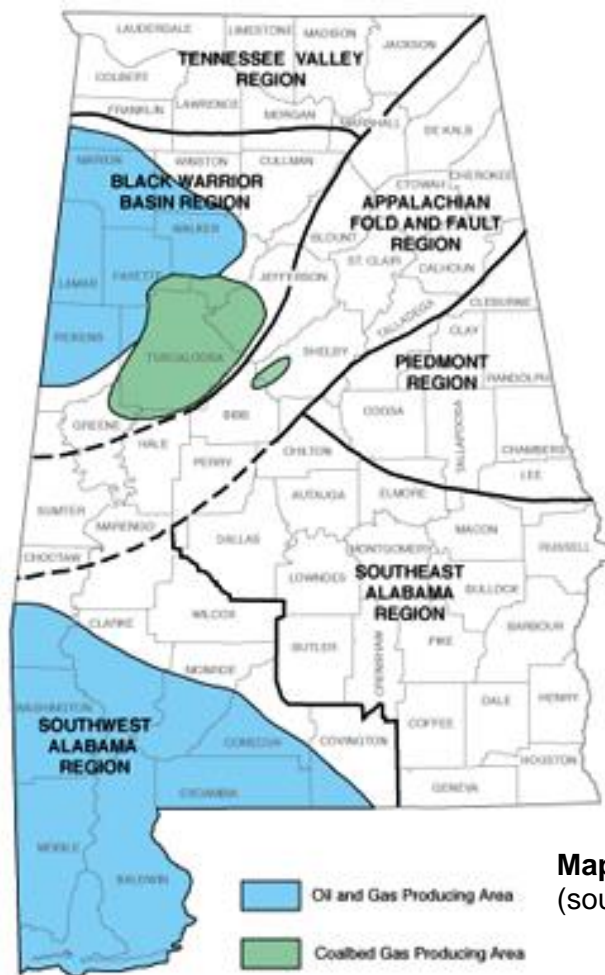
3.5 Physical Features

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 16th in oil production and 10th 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](#)).

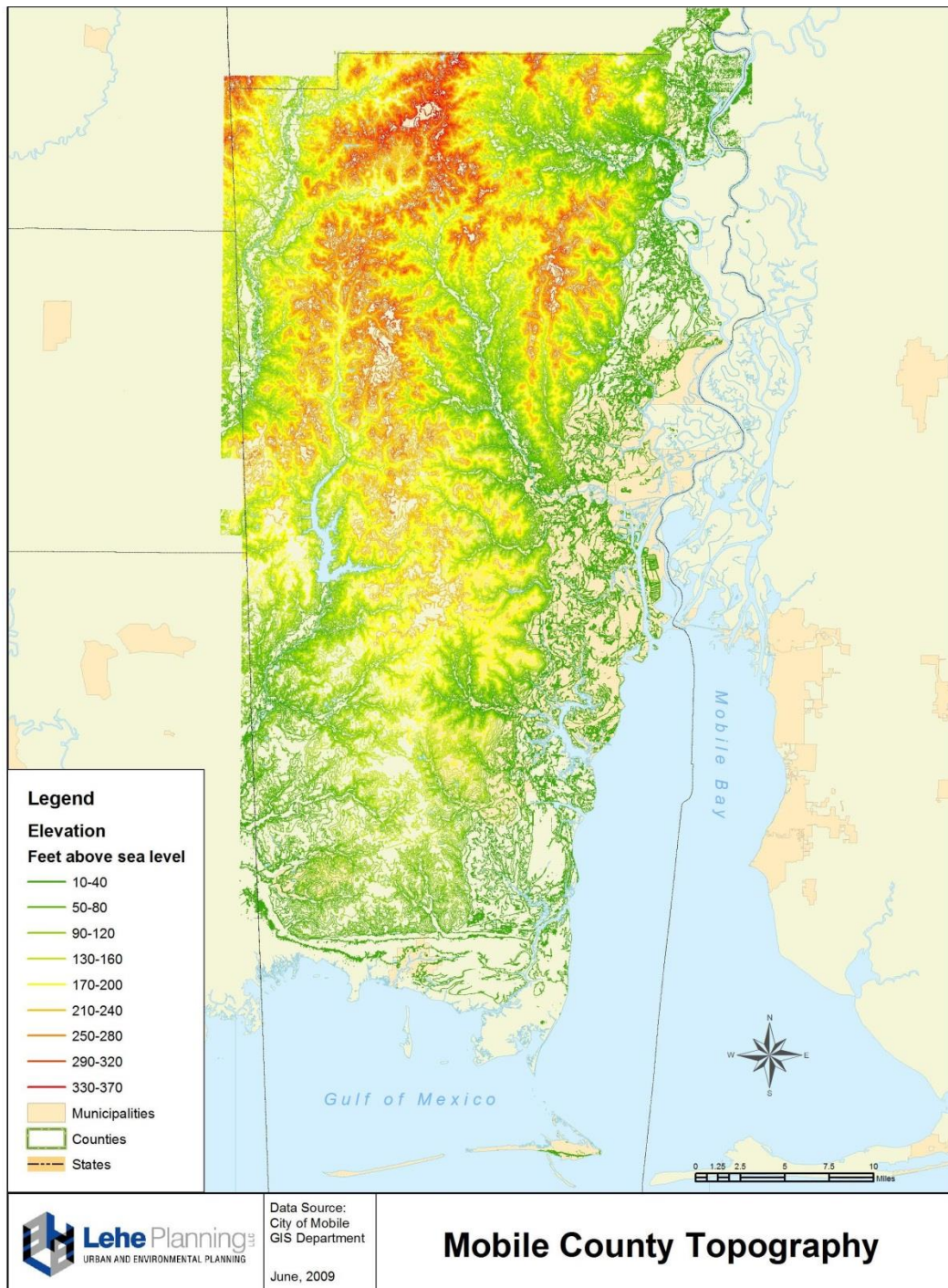


Map 3-4. Alabama Oil and Gas Regions
(source: Alabama Oil and Gas Board)

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

Category	Average
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

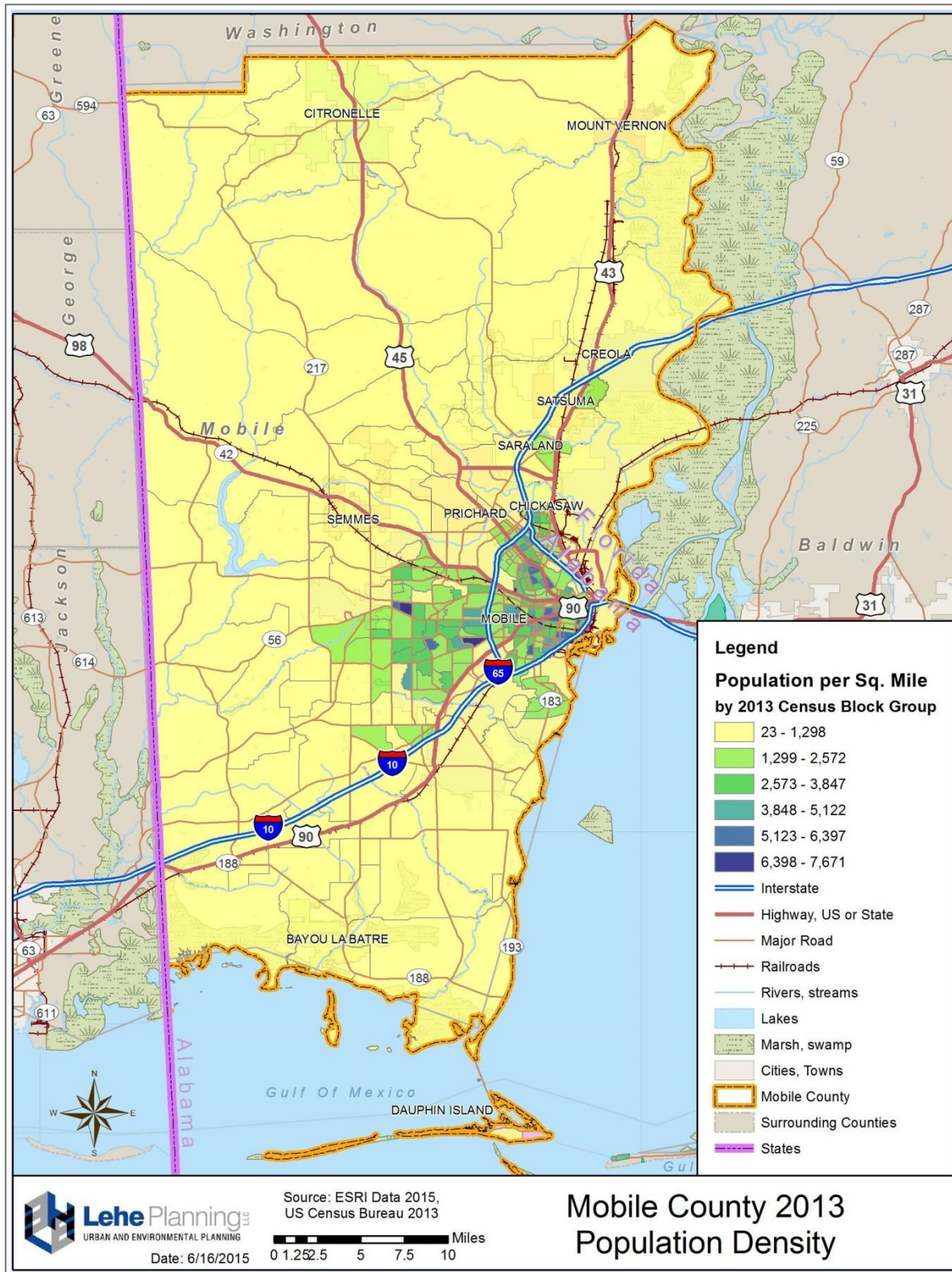
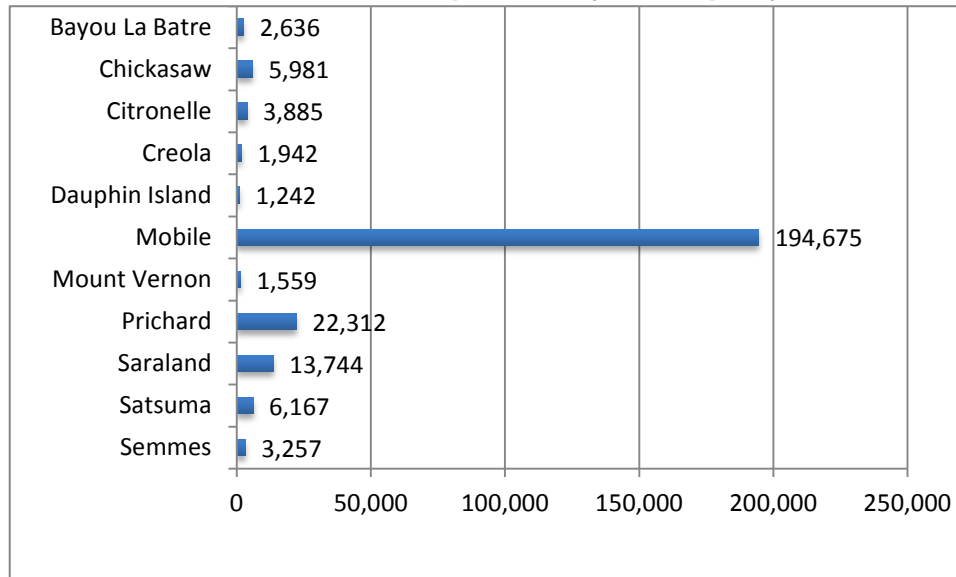


Chart 3-1. 2014 Population by Municipality



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

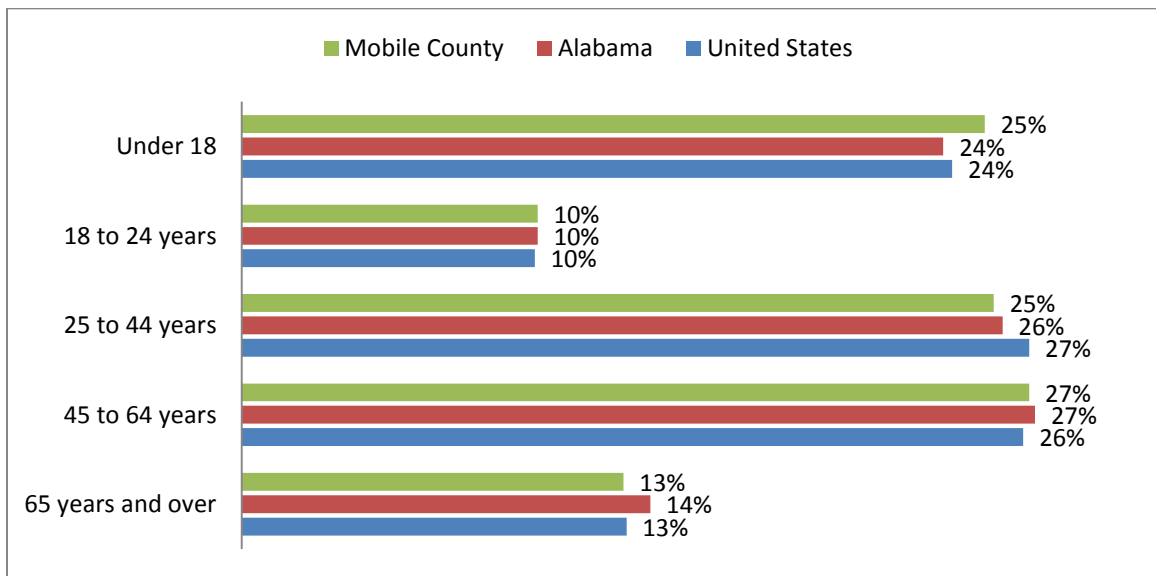
JURISDICTION	1970	1980	1990	2000	2010	Pop Change 1970-2010	% Change 1970-2010	Pop Change 2000-2010	% Change 2000-2010
State of Alabama	344,354	3,894,025	4,040,587	4,447,100	4,780,127	4,435,773	1288.00%	333,027	7.49%
Mobile County	317,308	364,980	378,643	400,036	413,143	95,835	30.20%	13,107	3.28%
Bayou 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%

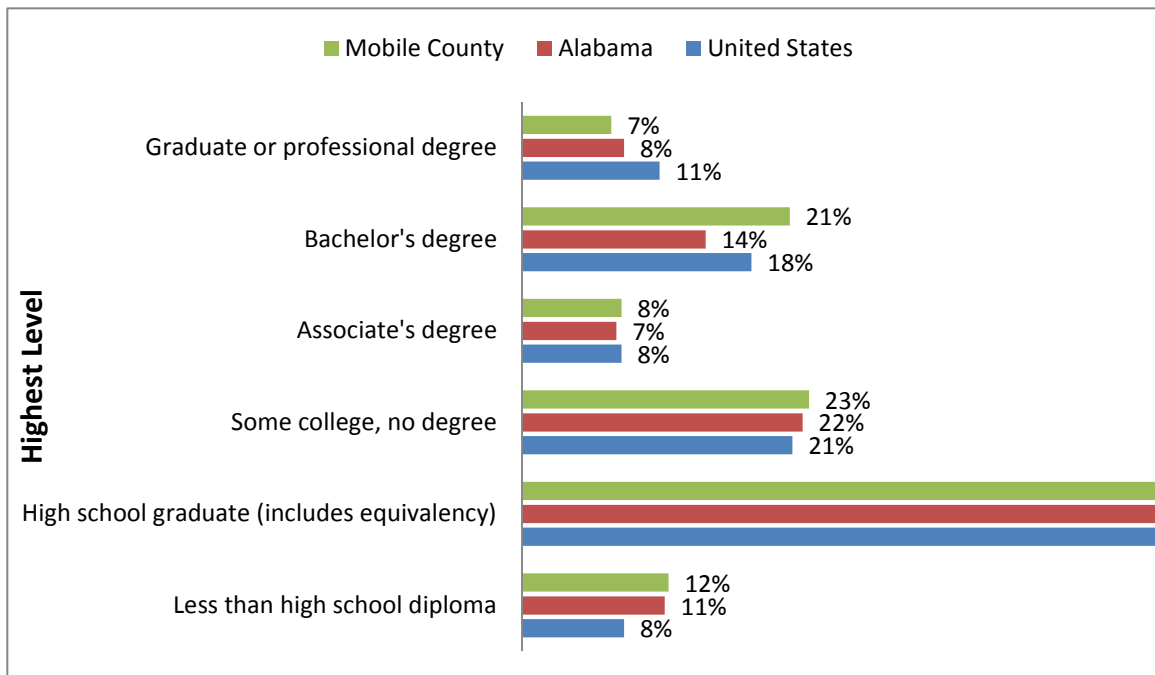
Community	2010 Population	Male	Female
Satsuma	6,168	48.2%	51.8%
Semmes	3,530	51.5%	48.5%
Theodore *	6,130	48.1%	51.9%
Tillmans Corner	17,398	48.8%	51.2%
*Unincorporated Census Designated Place (CDP)			

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

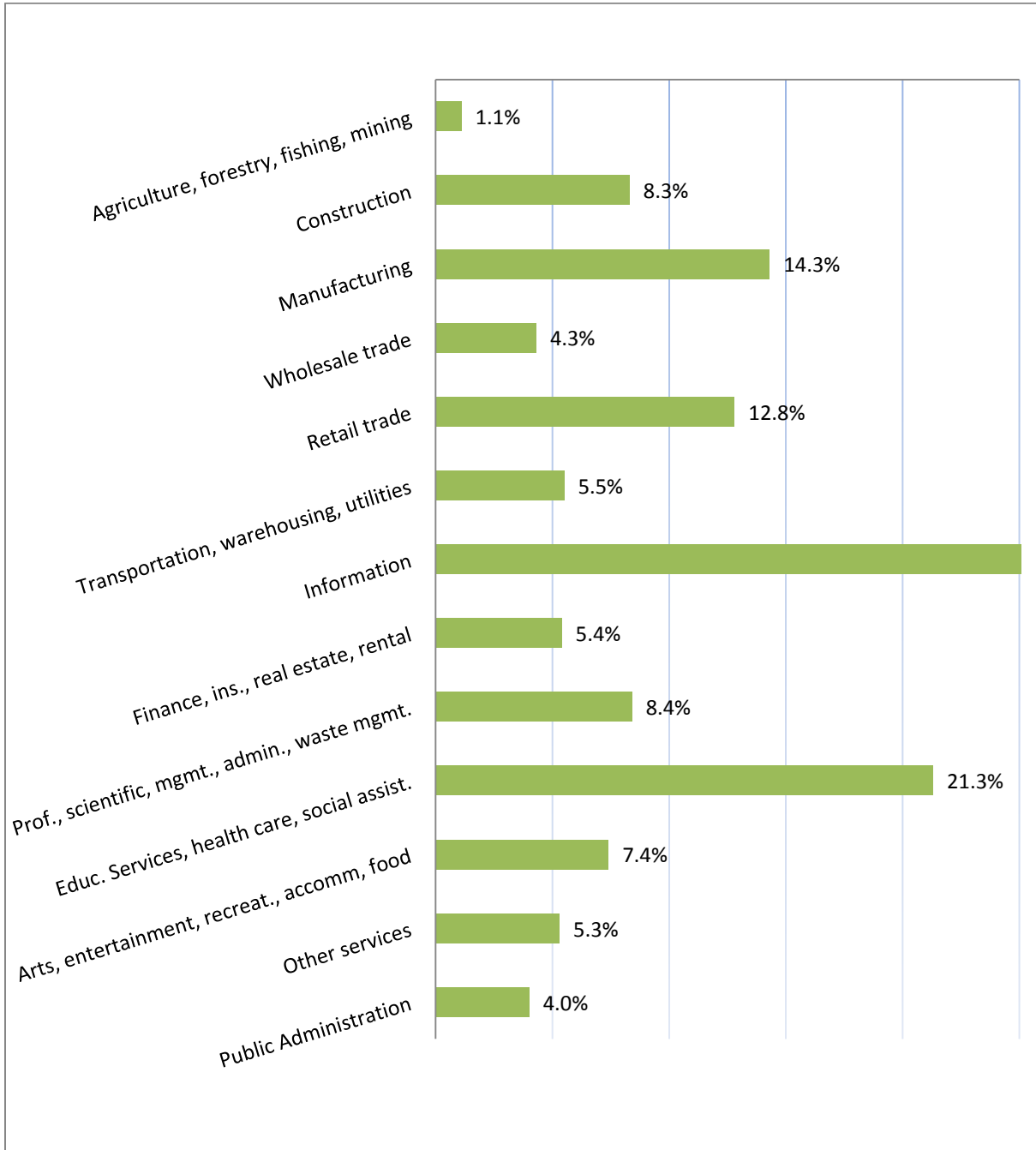
MANUFACTURERS	EMPLOYEES
Austal USA	4000
AM/NS Calvert	1490
ST Mobile Aerospace Engineering	1350
BAE Systems Southeast Shipyards	1057
Outokumpu Stainless USA	850
Evonik Industries Chemicals	715
Kimberly Clark	605
SSAB Americas (Steel)	581
Continental Motors	430
BASF	400

NON-MANUFACTURERS	EMPLOYEES
Mobile County Public School System	7280
University of South Alabama & USA Health Systems	5168
Infirmity 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

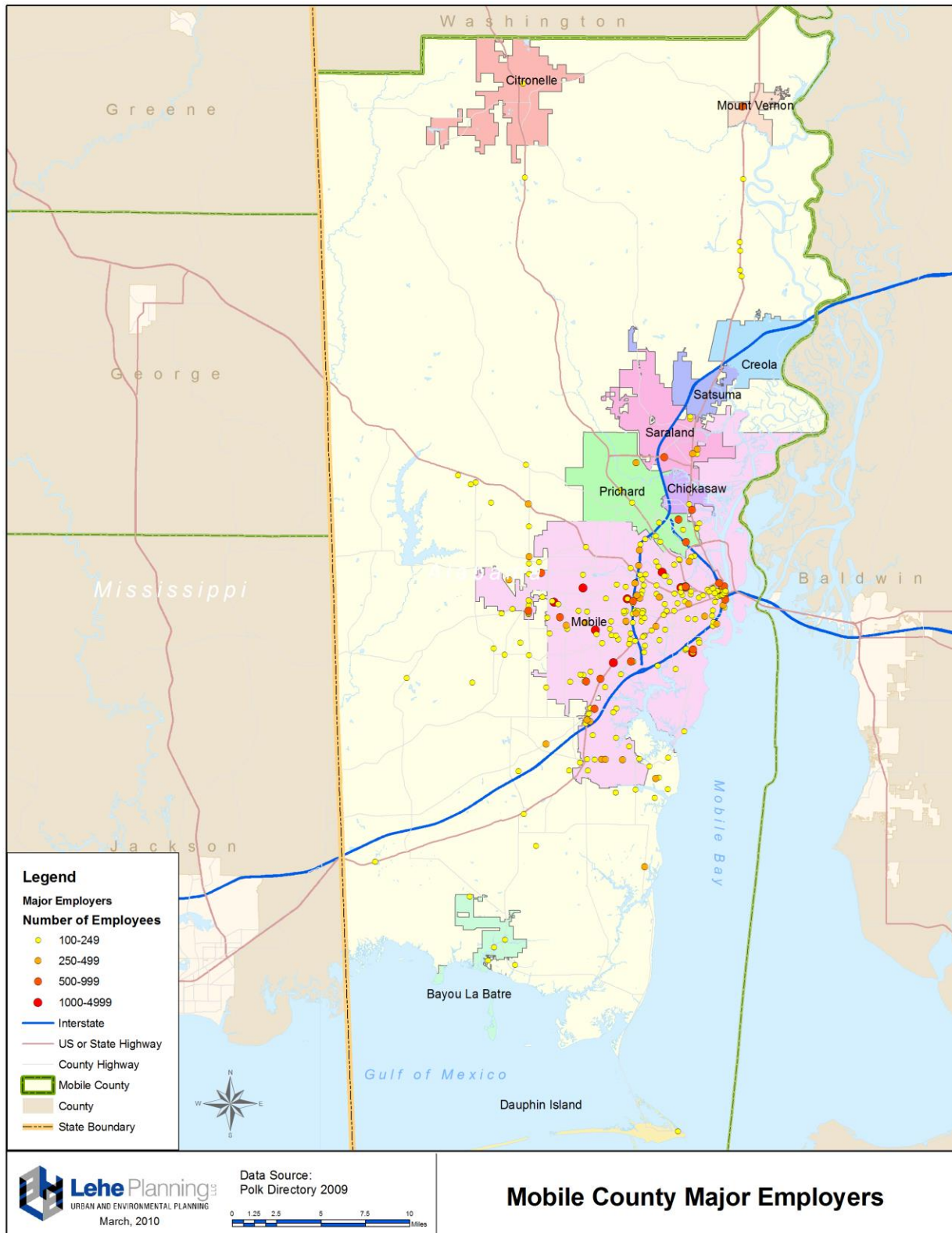
Relative to the State of Alabama, Mobile County’s workforce is employed at a higher rate in construction, transportation and professional occupations and at a significantly lower rate in manufacturing.

Chart 3-4. Employment by Industry



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

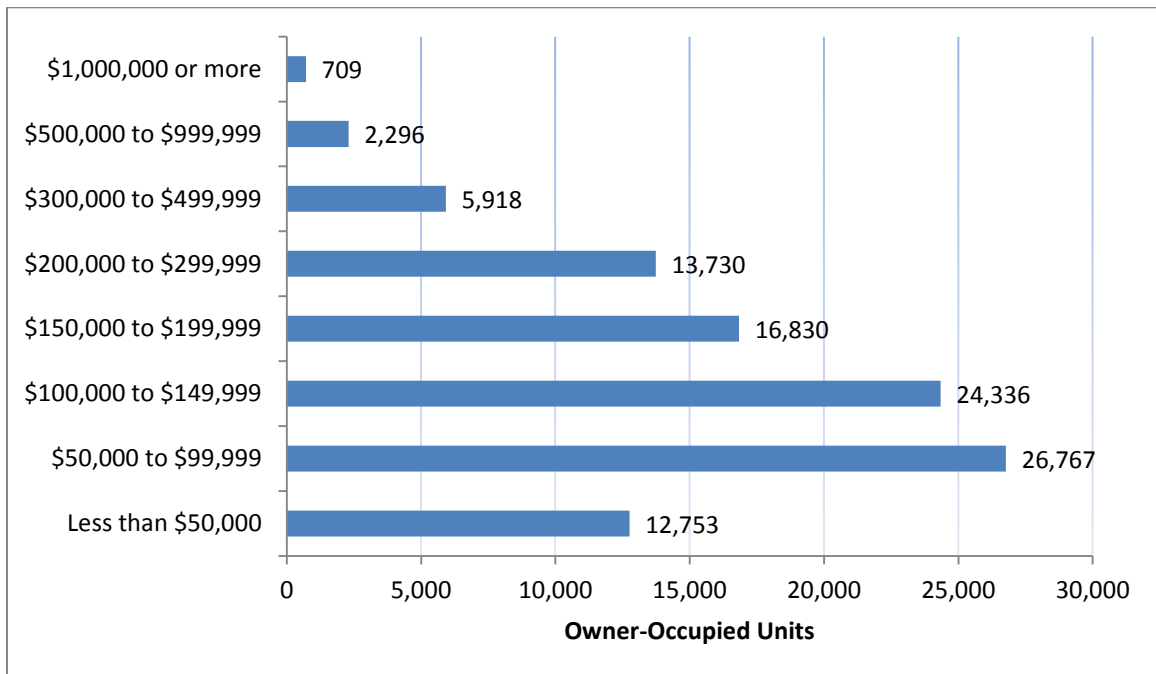
Map 3-7. Major Employers



Income and Housing

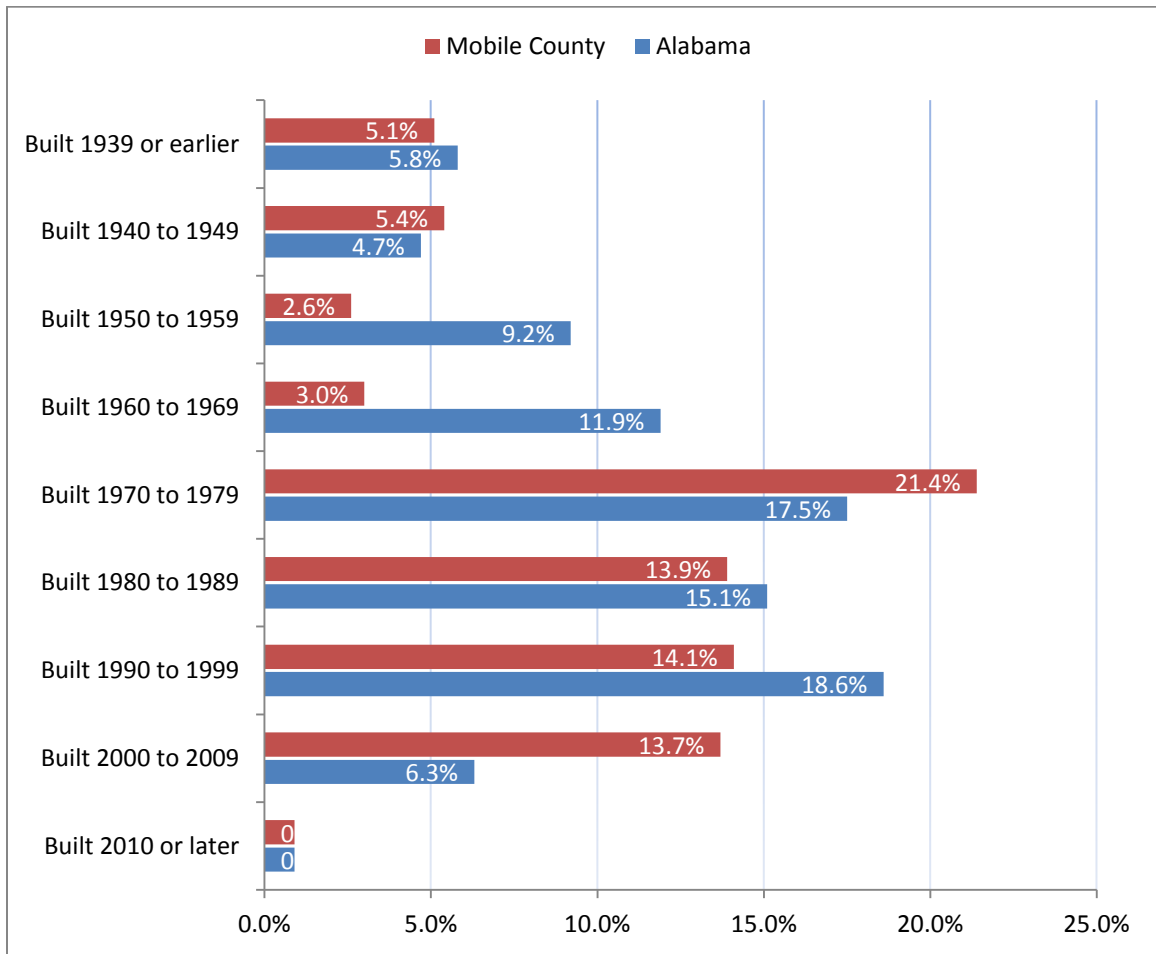
Data on income and housing are reported from the 2010-2013 3-year estimates of the American Community Survey. The median household income for Mobile County was \$43,028, which is slightly below the state median of \$43,253. Statistics indicate 21.2 percent of Mobile County residents and 20.4 percent 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 \$24,300. 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



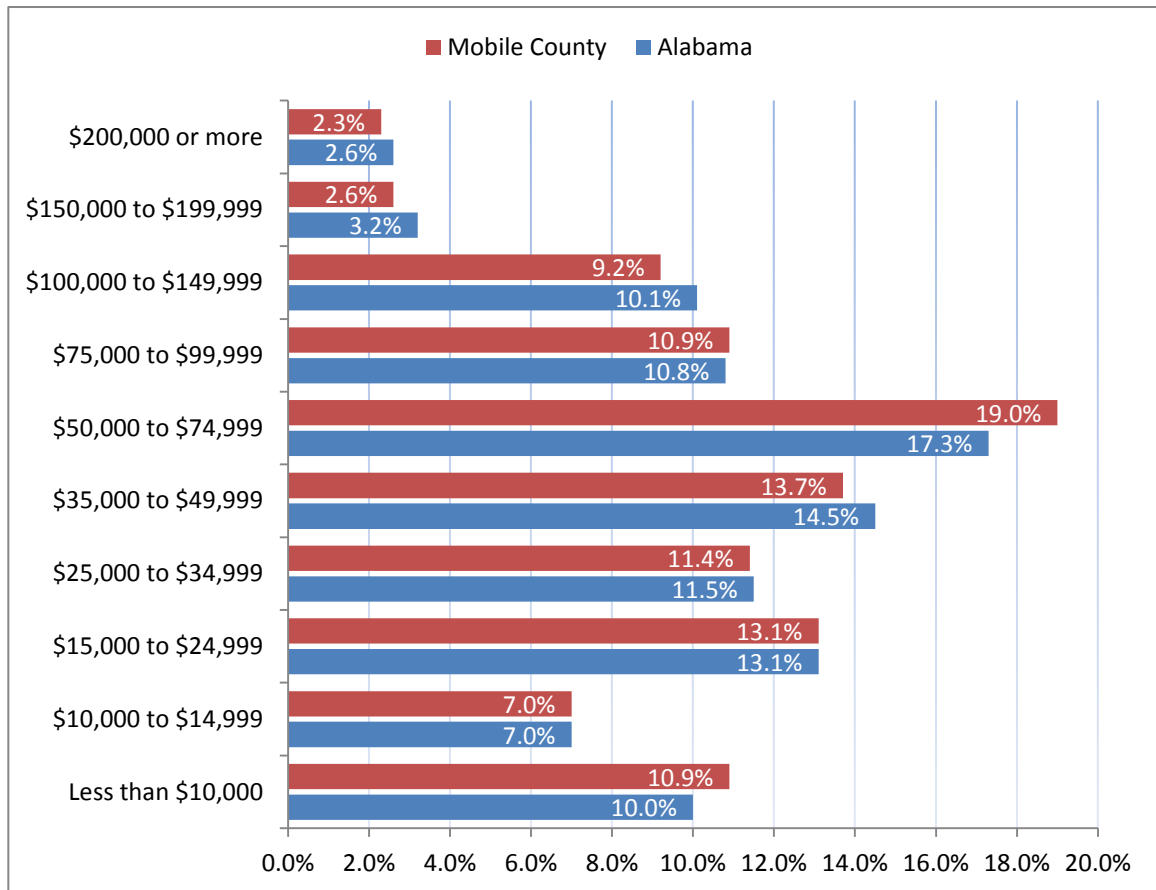
Source: U.S. Census Bureau, 2013 American Community Survey

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

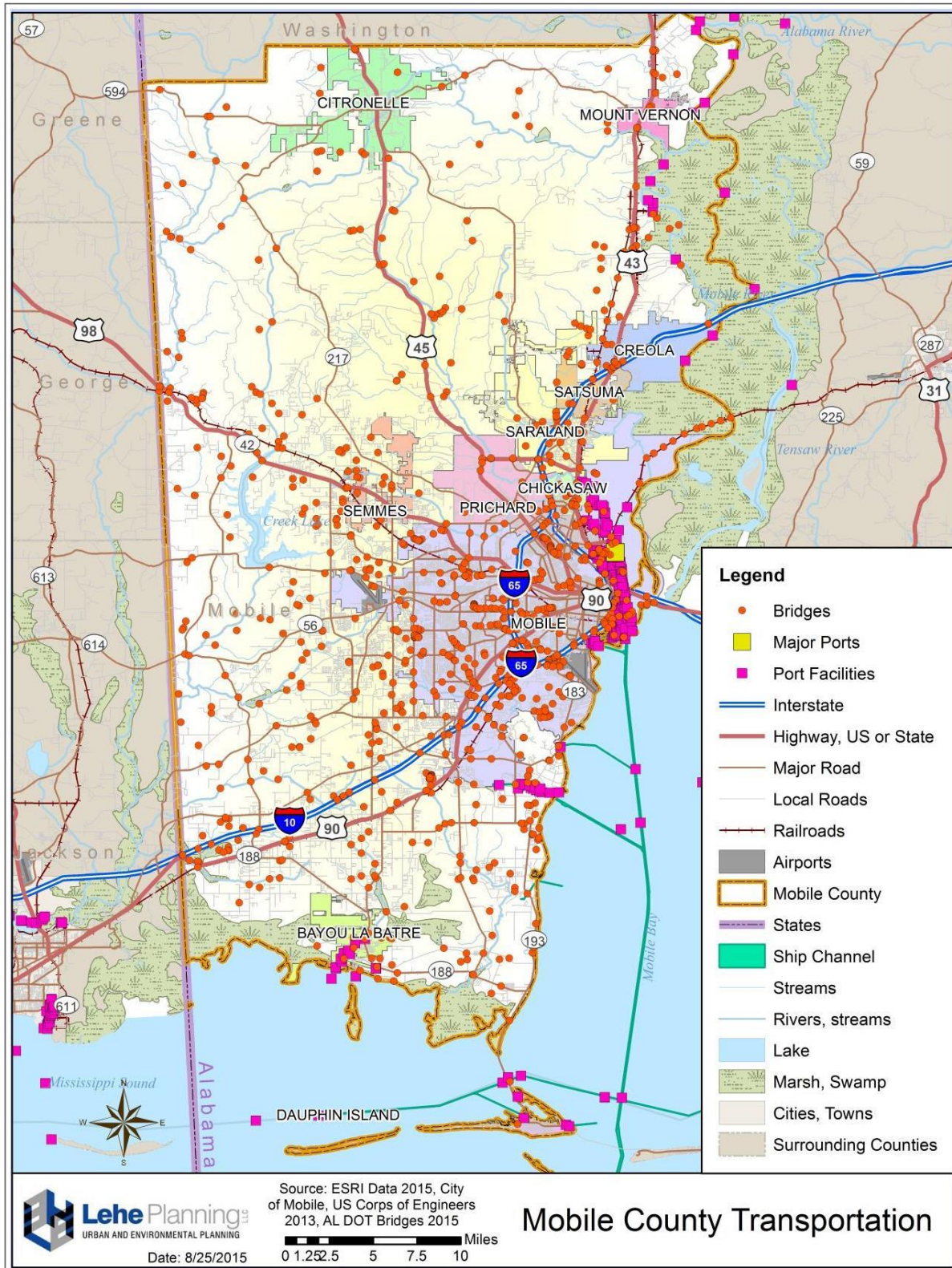
Mobile County has two airports Mobile Regional Airport that carries passengers, and Brookley Airport near Downtown Mobile is an industrial airport complex.

Ports

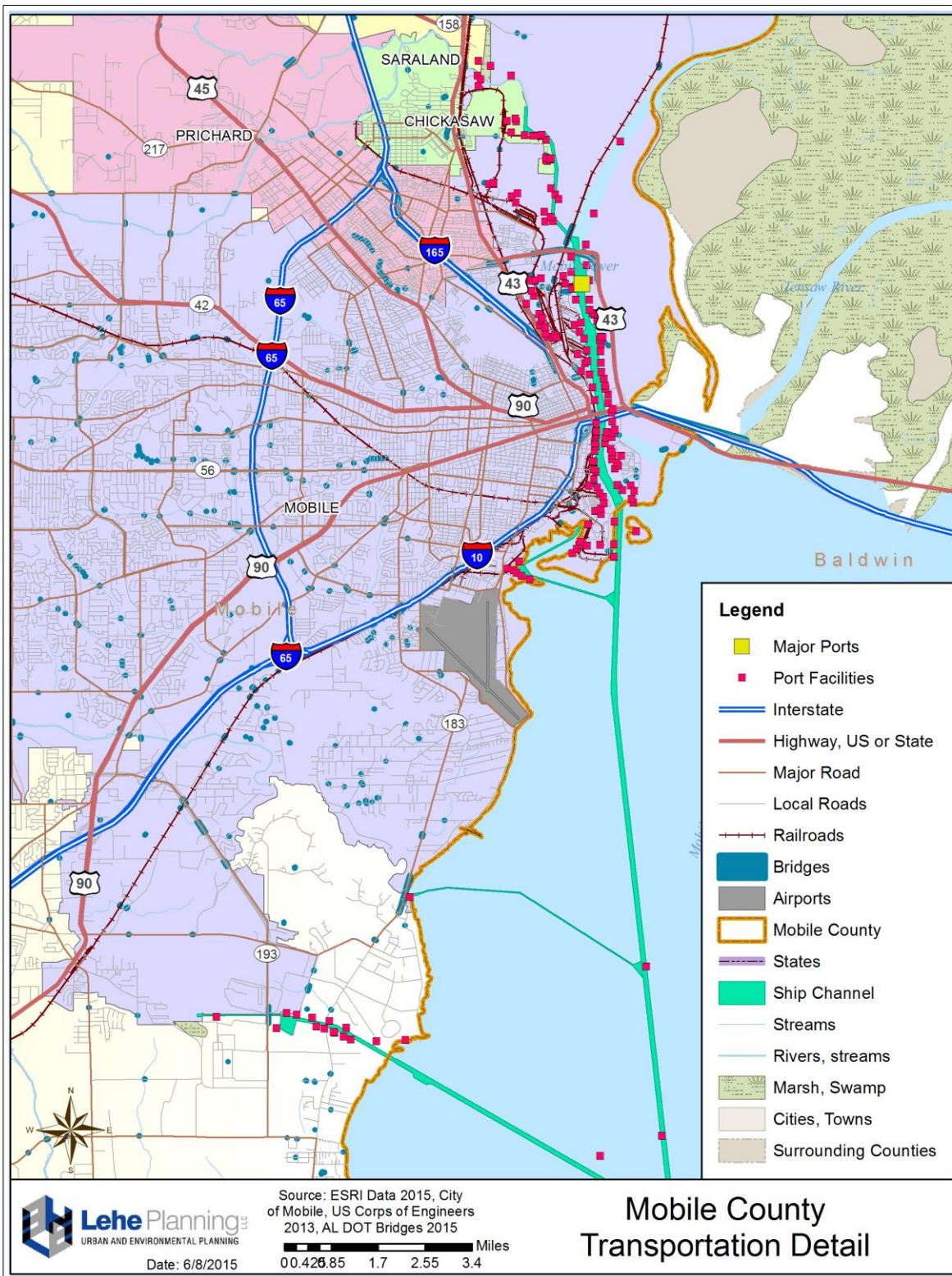
The Port of Mobile is an international deepwater gateway. The port handles a variety of cargo, including containers, forest products, metals, and bulk cargo. The Mobile ship channel has a maximum depth of 45 feet, deep enough to handle most of the ships used in world trade.

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

Section		Change
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

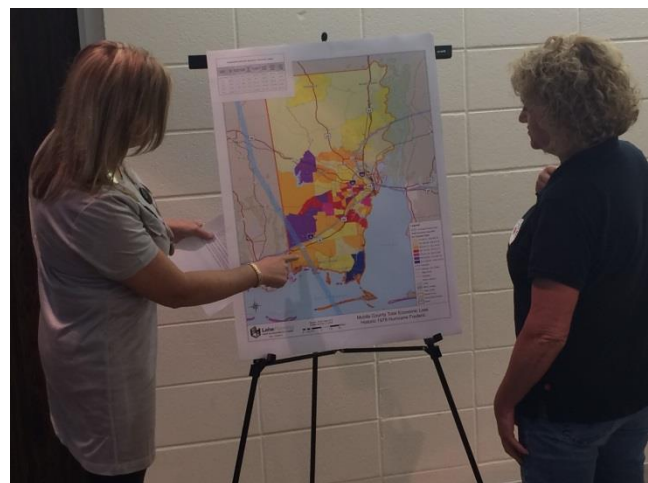
Figure 4-1 Website Image



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. 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. 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

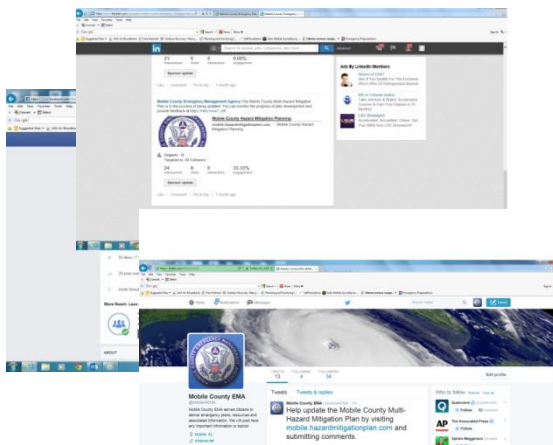


LeMoyne Community Advisory Panel. This second event was a well-attended family fun day with educational information, including games for the children, entertainment, and lunch. The HMPC booth was one of many informative exhibits and received plenty of public exposure and interest.



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

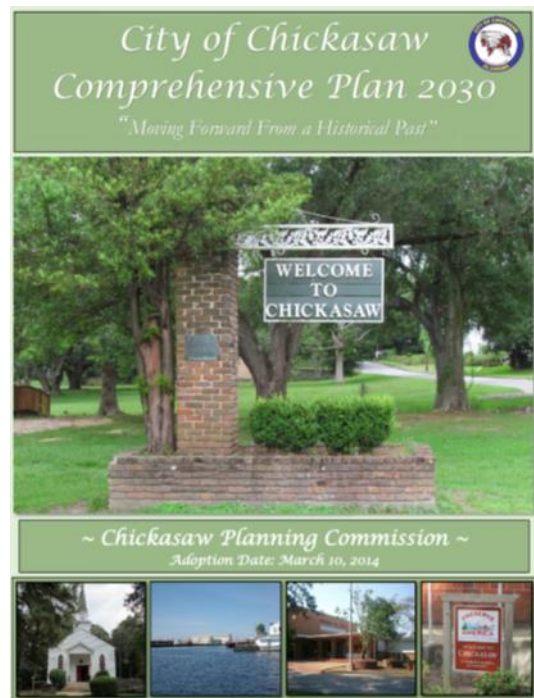
Non-Profits and Other Agencies

- 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.



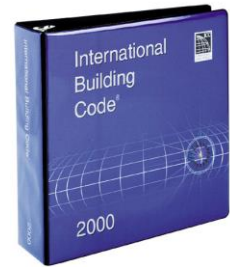
The City of Mobile was undergoing a major update of its comprehensive plan while this 2015 mitigation plan was underway. Mobile's long-range visioning process establishes long-range goals and presents a framework for the City's growth. Copies of this hazard mitigation plan were shared with the City's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



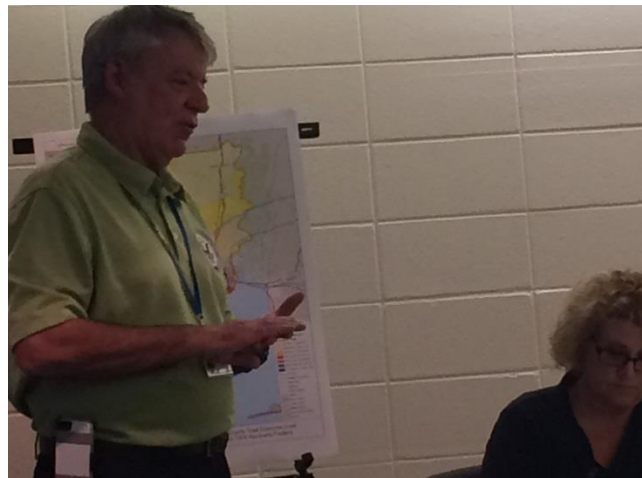
On April 16, 2015, the Hazard Mitigation Planning Committee (HMPC) was reconvened to begin the plan update process. Between April and December, 2015, the HMPC held five meetings. The printed agendas and sign-in sheets are on file in the Mobile County EMA office, and copies of these documents are included 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, 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. 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;">Hurricanes</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;">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;">Severe Storms</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;">Tornadoes</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;">Wildfires</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;">Drought/Heat Waves</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">Winter Storms/Freezes</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">Earthquakes</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">Landslides</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;">Dam/Levee Failures</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;">Sinkholes (Land Subsidence)</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;">Tsunamis</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
Manmade/Technological		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
* Declaration Type / Description Key:			
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

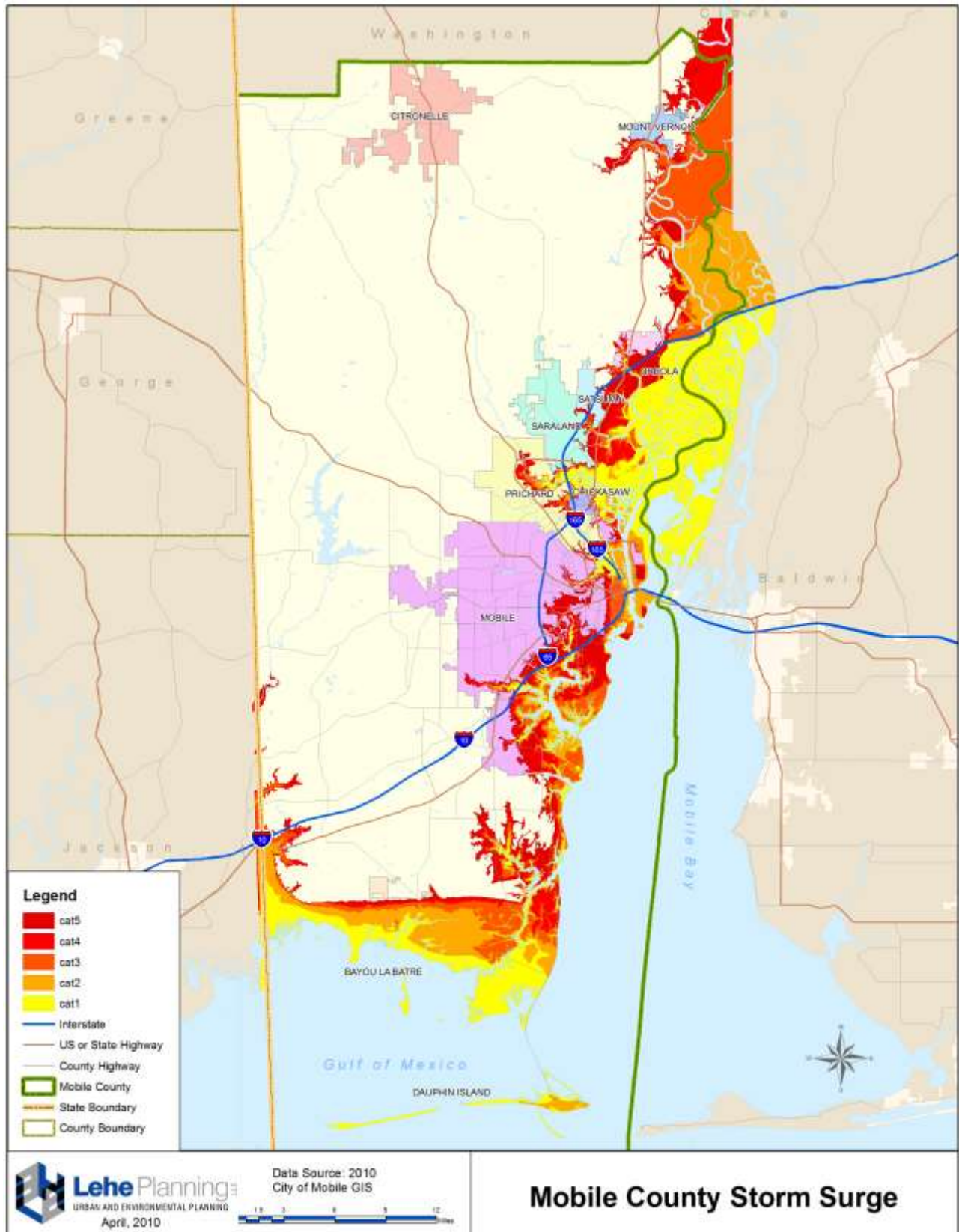
The hurricanes that pose a threat to Mobile County typically form as tropical storms in the oceans southeast of the Gulf of Mexico, and then build in size and intensity until making landfall between Texas and the Florida panhandle. Mobile County is located directly on the Gulf Coast, so hurricanes that 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

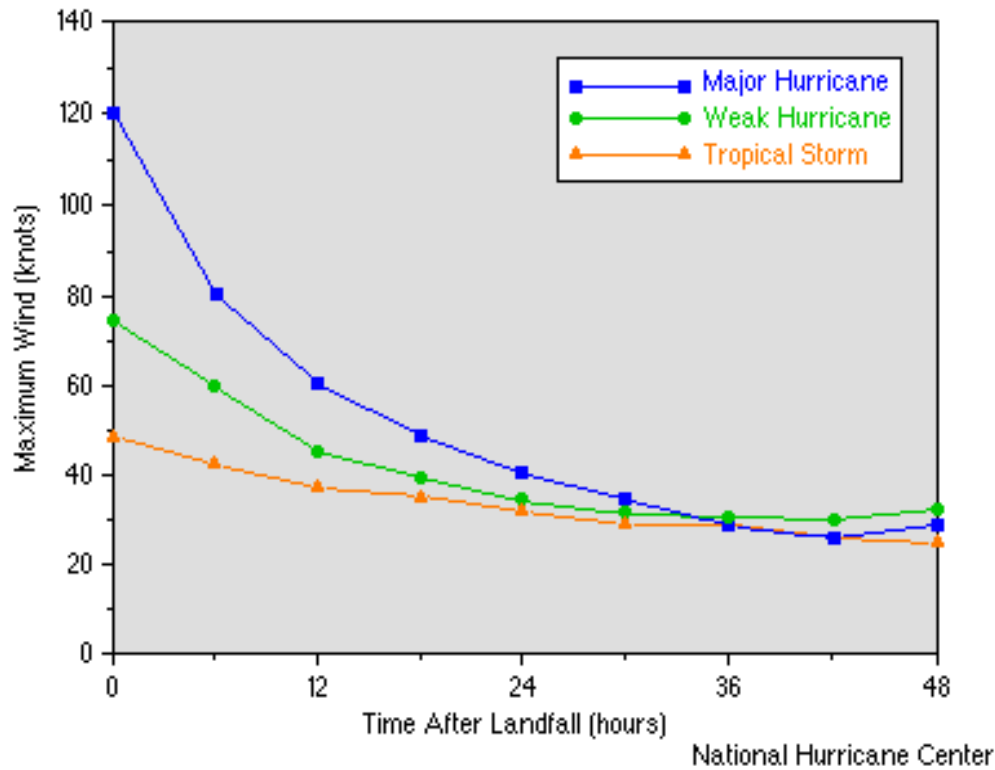
Among all hazards affecting Mobile County, hurricanes pose the greatest risk and historically have caused the most property damage. Shoreline communities are most vulnerable, because they are exposed to *storm surge*. *Storm surge* is said to occur when the steady forward progress of powerful winds laterally 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.

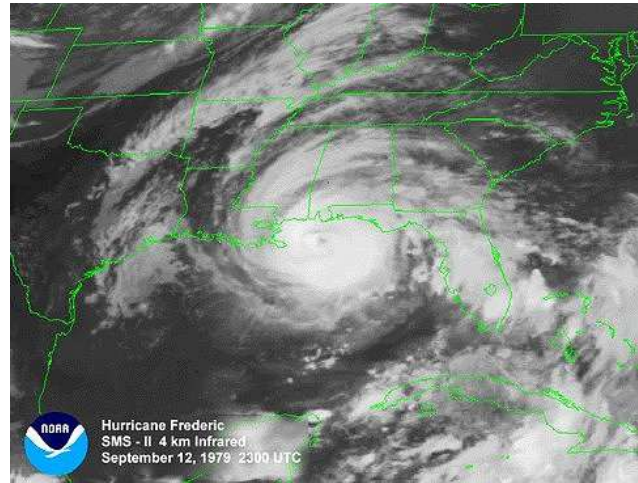


Figure 5-1 Hurricane Frederic Approaching the Alabama Coast

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.

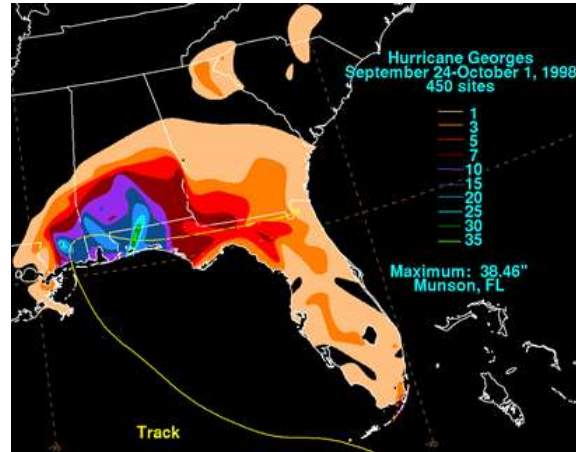


Figure 5-3. Hurricane Georges Rainfall

Source: Hydrometeorological Prediction Center



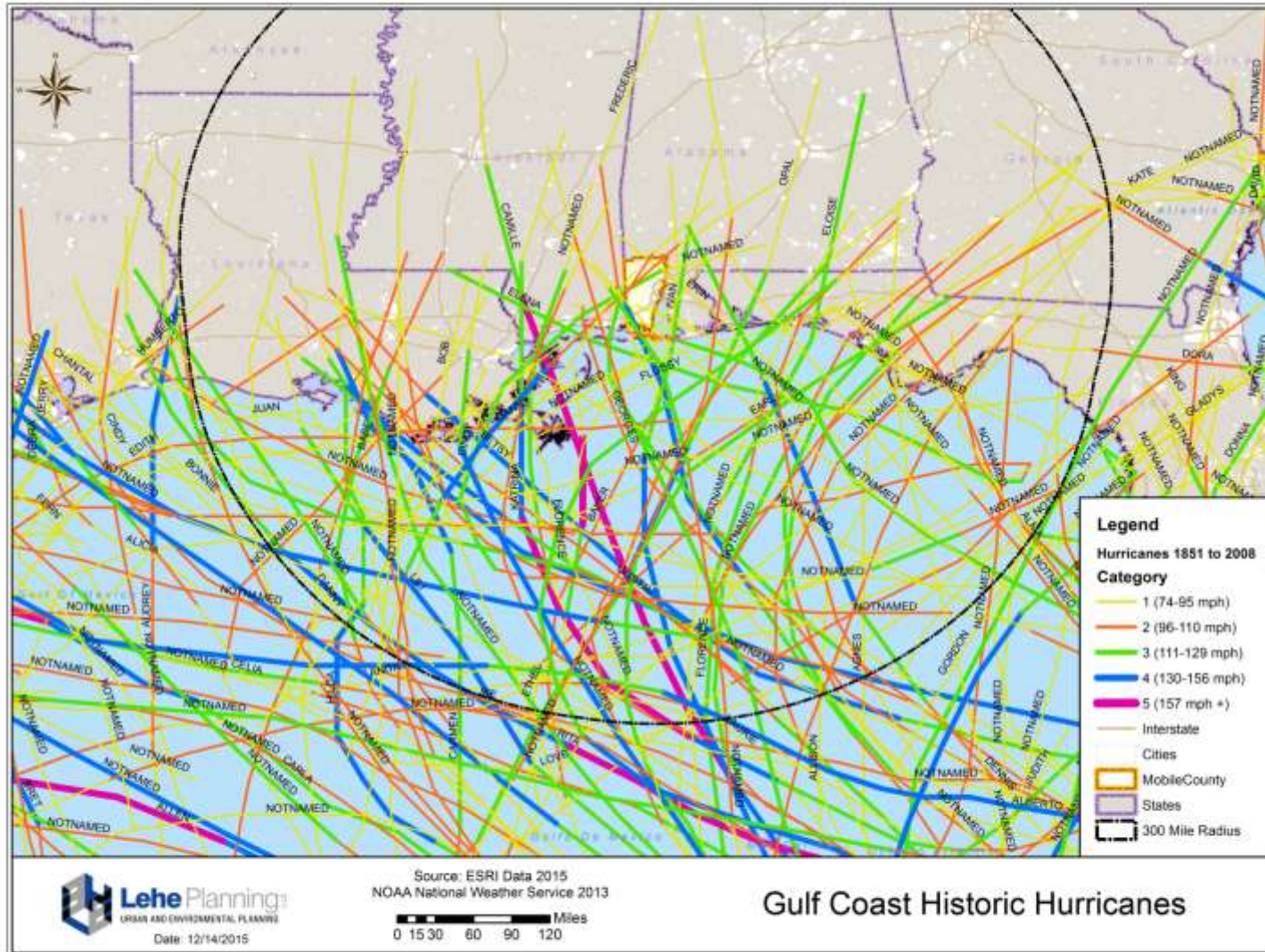
Figure 5-4. Hurricane Katrina Approaching the Gulf Coast

Source: National Oceanic and Atmospheric Administration

On August 29, 2005, Hurricane Katrina reached southeastern Louisiana with sustained winds of 125 mph and extended 120 miles. A storm surge between 12 and 16 feet high struck Mobile Bay and flooded downtown Mobile with six feet of water. Sustained wind speeds in Mobile measured 67 mph, and four tornadoes were reported in Alabama. Mobile County suffered the most severe damage in communities directly on the coast, including Bayou La Batre and Dauphin Island. Many cargo ships and fishing vessels 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

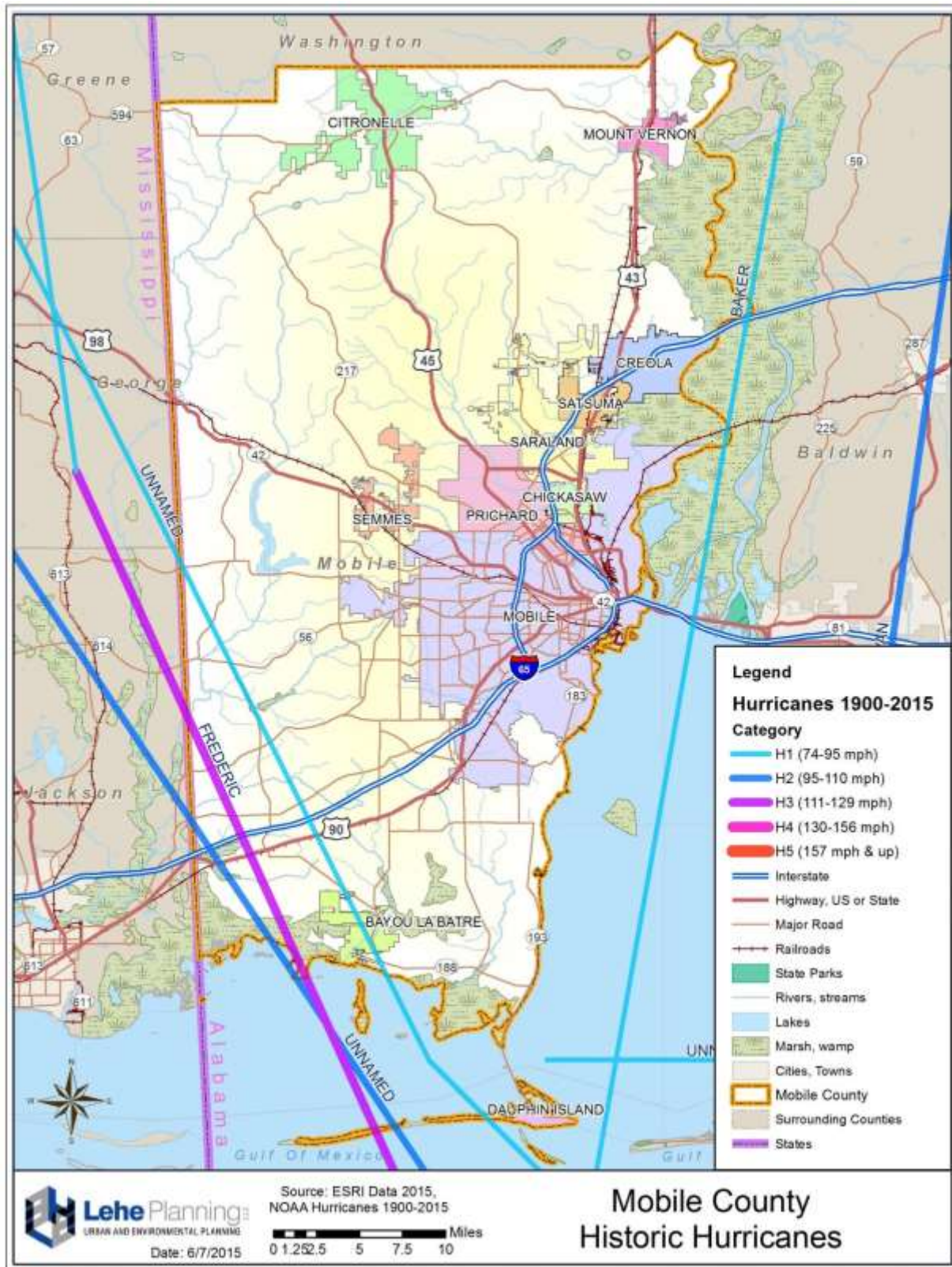


Table 5-5 portrays the history of hurricanes impacting Mobile County since 1893. Table 5-6 summarizes hurricane and tropical storms damage estimates over the last twenty years, as recorded by the National Climatic Data Center (NCDC). Mobile County has seen 29 hurricanes/tropical storms at an average 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	-	-	-	-
TOTAL	29	1	0	\$3,739,543,000
Annual Average	1.5	0.1	0	\$186,977,150

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.

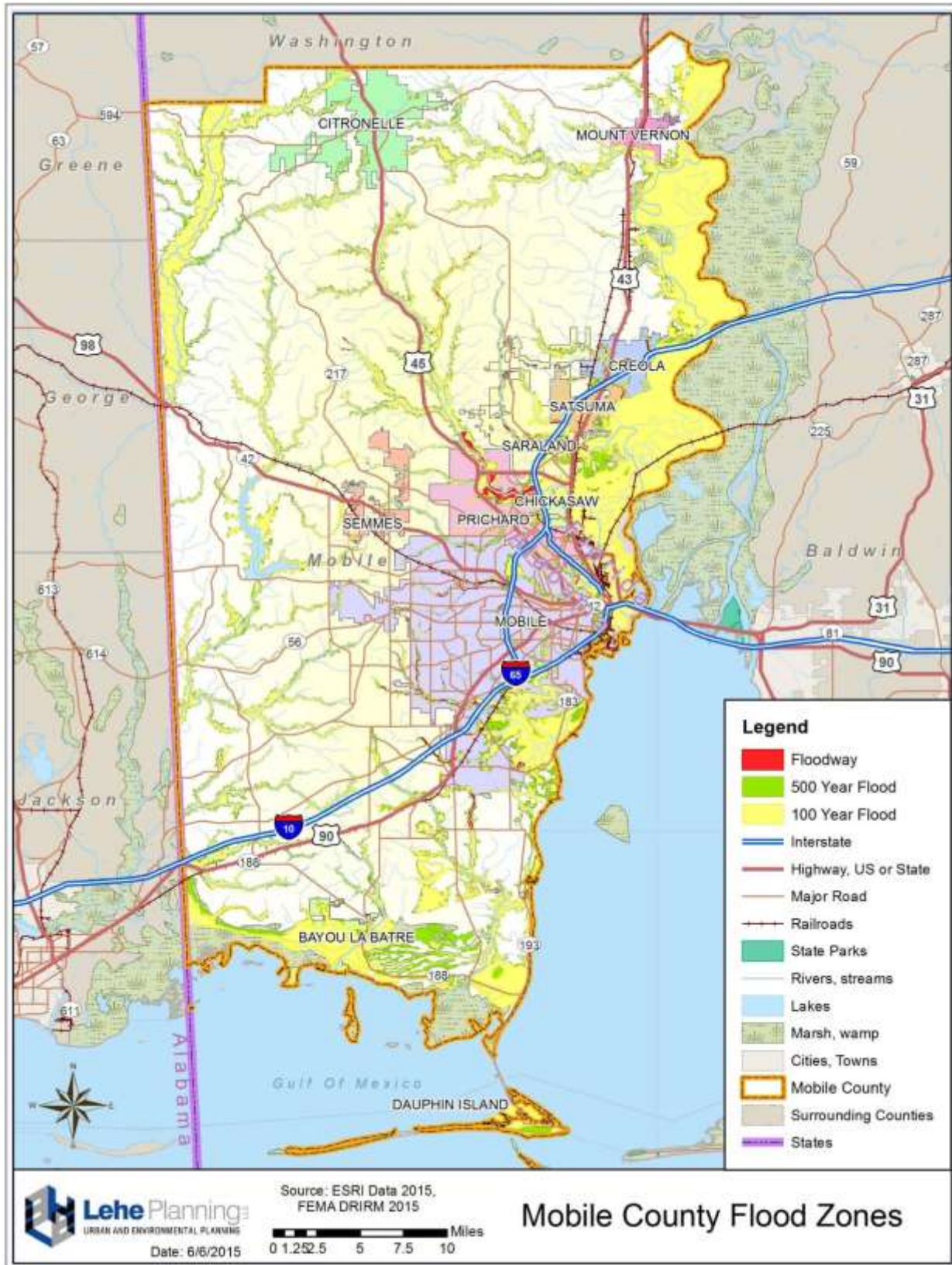
The City of Prichard is at risk from the eastern bed of the Toulmins Spring Branch and the Gun Tree Branch. Saraland has low-lying areas subject to periodic flooding caused by overflow of Bayou Sara River and Chickasaw Creek and its tributaries. Unincorporated areas of the county are subject to flooding 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

Year	Floods	Deaths	Injuries	Total Damages
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
TOTAL	100	0	0	\$8,455,000
Annual Average	5	0	0	\$422,750

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
TOTAL		370	2	27	\$9,037,300
Annual Average		18.5	0.1	1.4	\$451,865

Source: National Climatic Data Center

Probability of Future Severe Storms

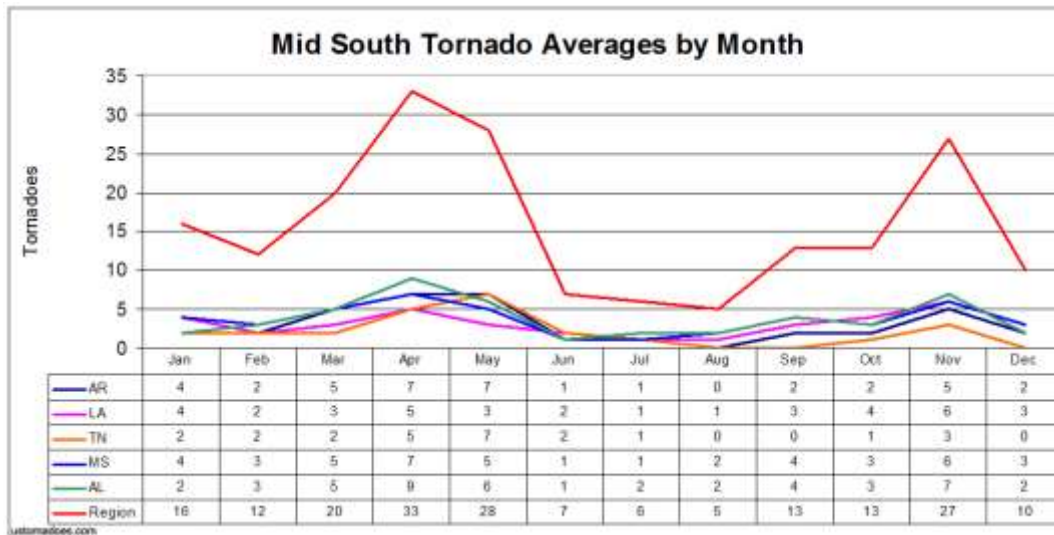
Severe storms will continue to strike Mobile County every year and in every jurisdiction. Past trends average 19 storms per year. High winds and hail infrequently accompany severe storms in Mobile County, but can cause significant property damage.

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



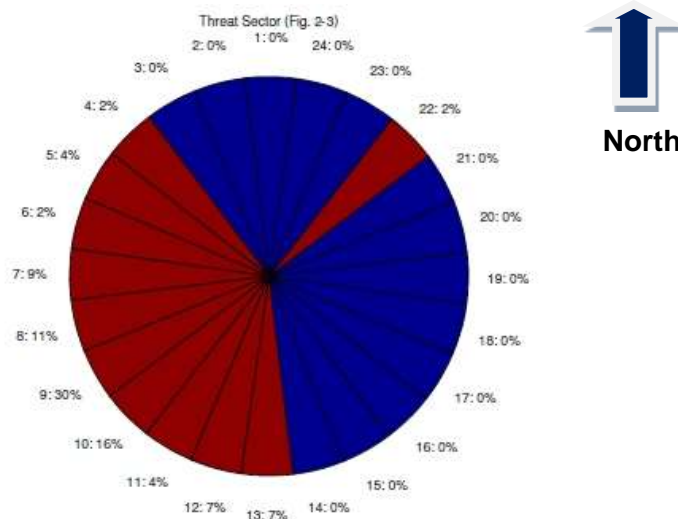
Source: ustornadoes.com, 2013

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

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

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

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	-	-	-	-
TOTAL	34	1	9	\$6,366,000
Annual Average	1.7	0.1	0.5	\$318,300

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

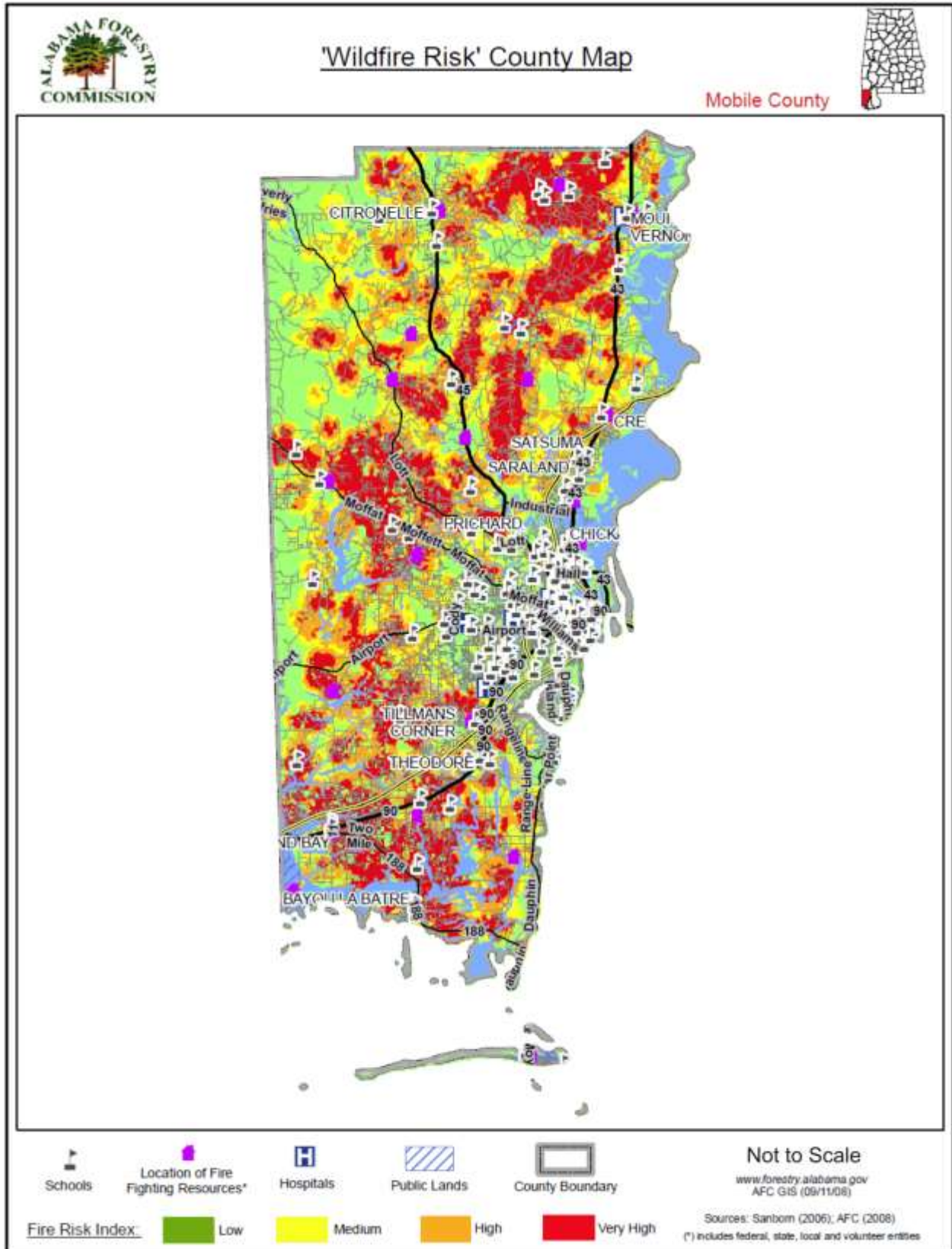
Unincorporated, rural areas of Mobile County (e.g., Citronelle) are most susceptible to wildfires. However, due to sparse development, the risks to life and property are lower in these areas. The risks are greatest for sprawl areas where human development coexists with conditions amenable to wildfires. 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

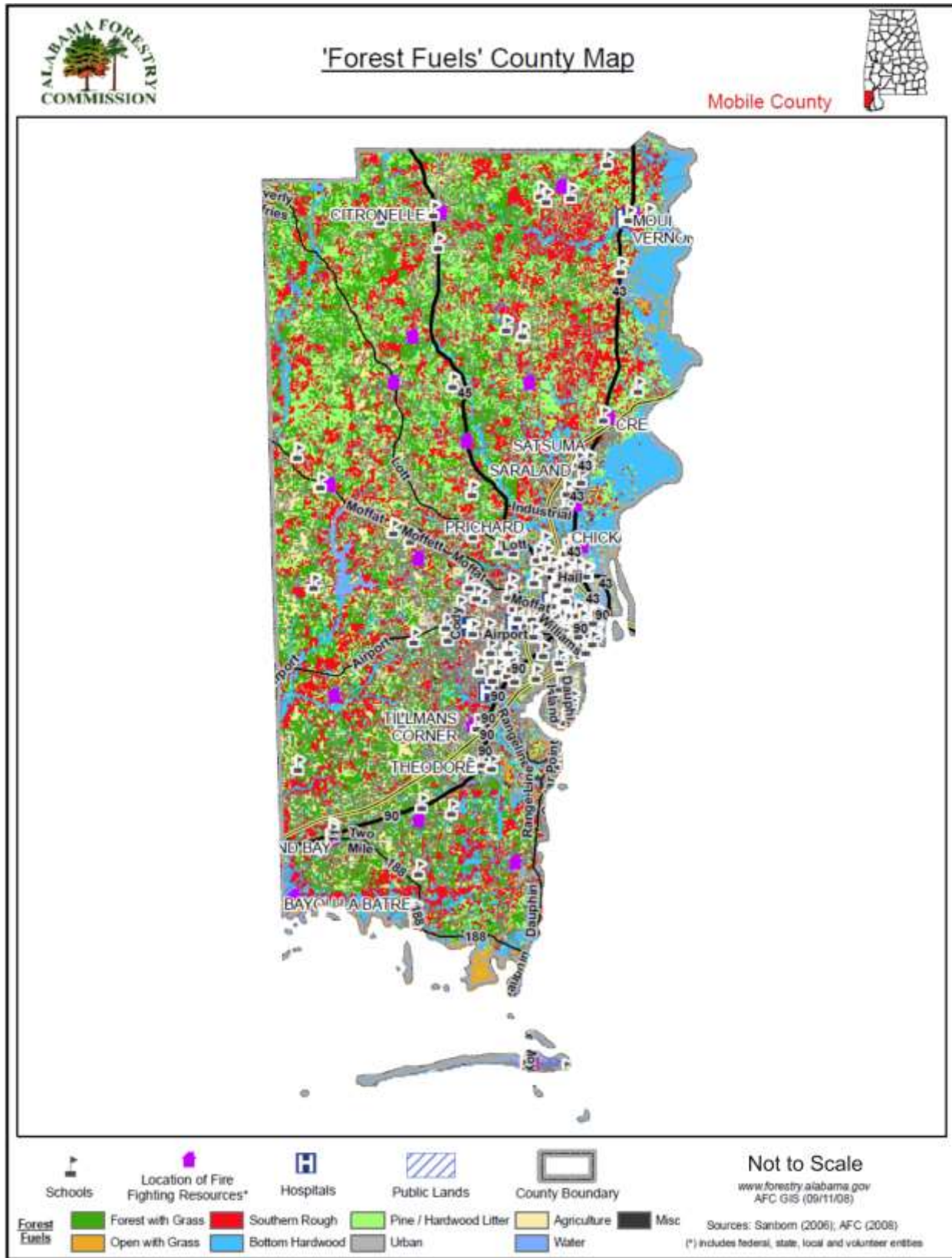
Mobile County's weather conditions, drought, and lightning from severe storms, increase the severity and frequency of wildfires. Mobile County's 500,000 acres of forestland are an abundant fuel source. The wildland-urban interface, where urban development and humans interact with forested wildlands compound, 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

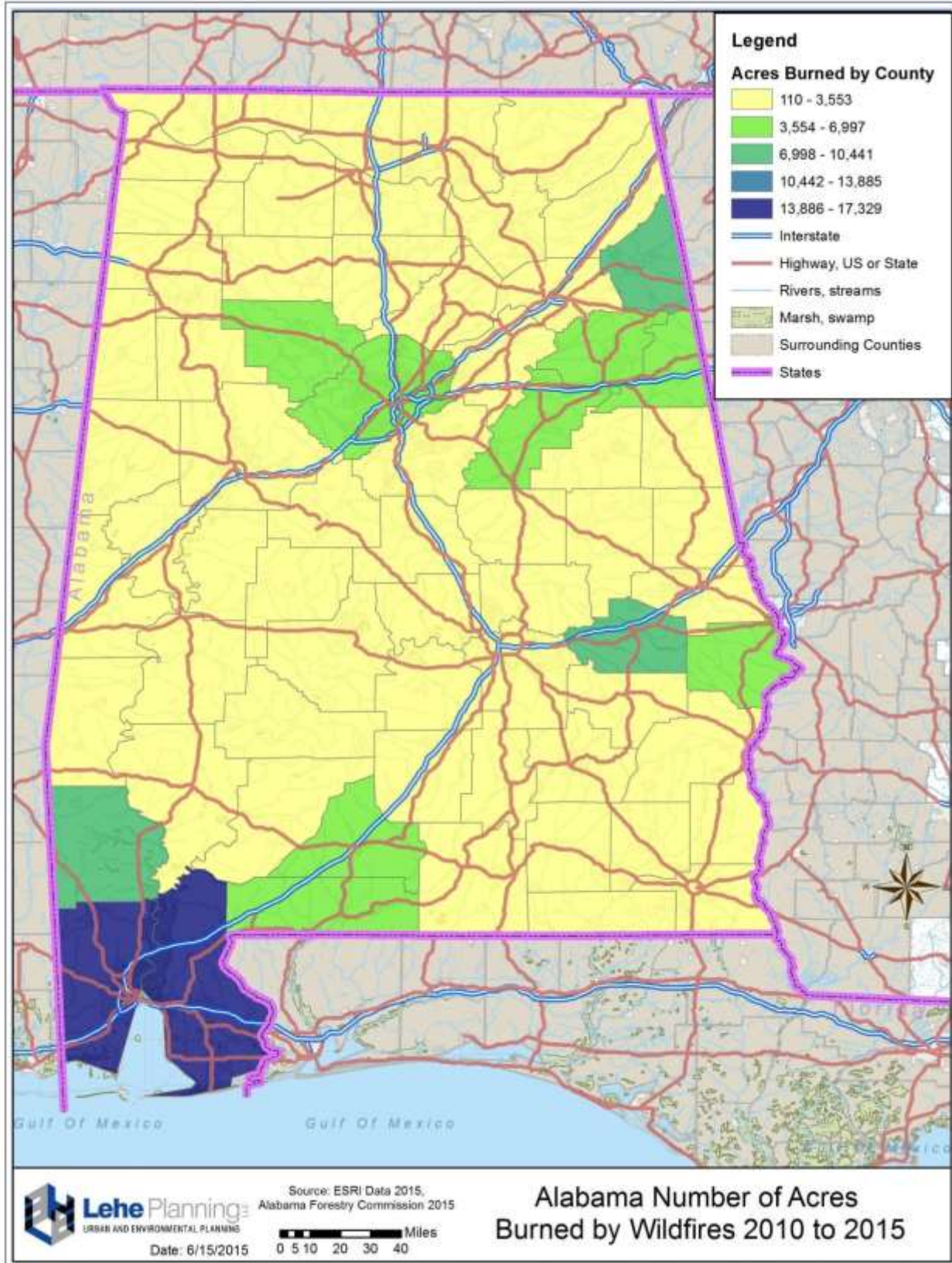


Previous Occurrences of Wildfires

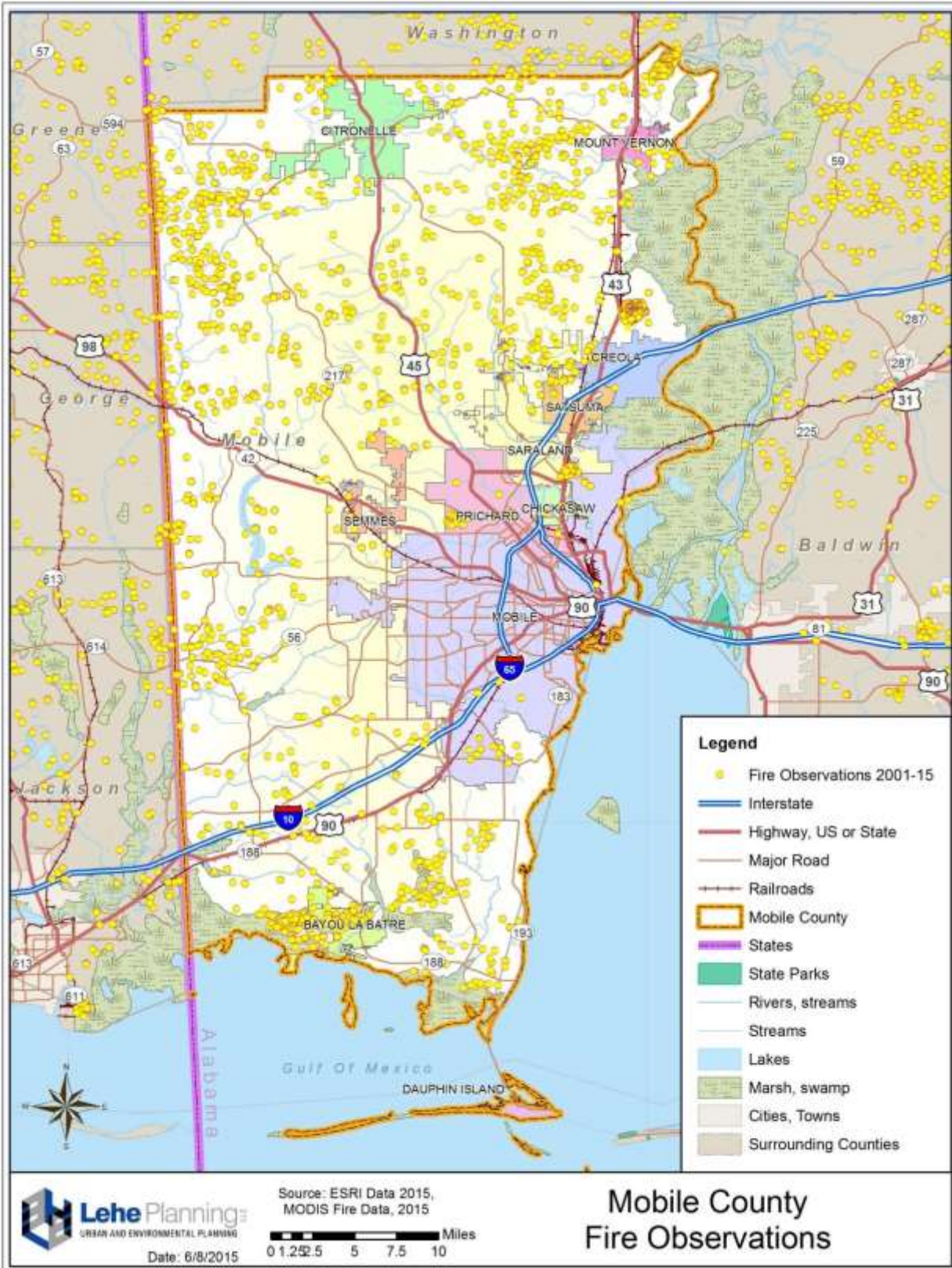
Among Alabama counties, Mobile County is annually ranked in the top two in number of acres burned by wildfires from 2010 to 2015 (Map 5-8). Over this 5-year period, Mobile County incurred 597 wildfires, burning approximately 16,000 acres. According to the Alabama Forestry Commission, from January 1, 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	-	-	-	-	-
Total		14	6	1	\$0
Annual Average		0.7	0.3	0.1	\$0

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

Category	Observation
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

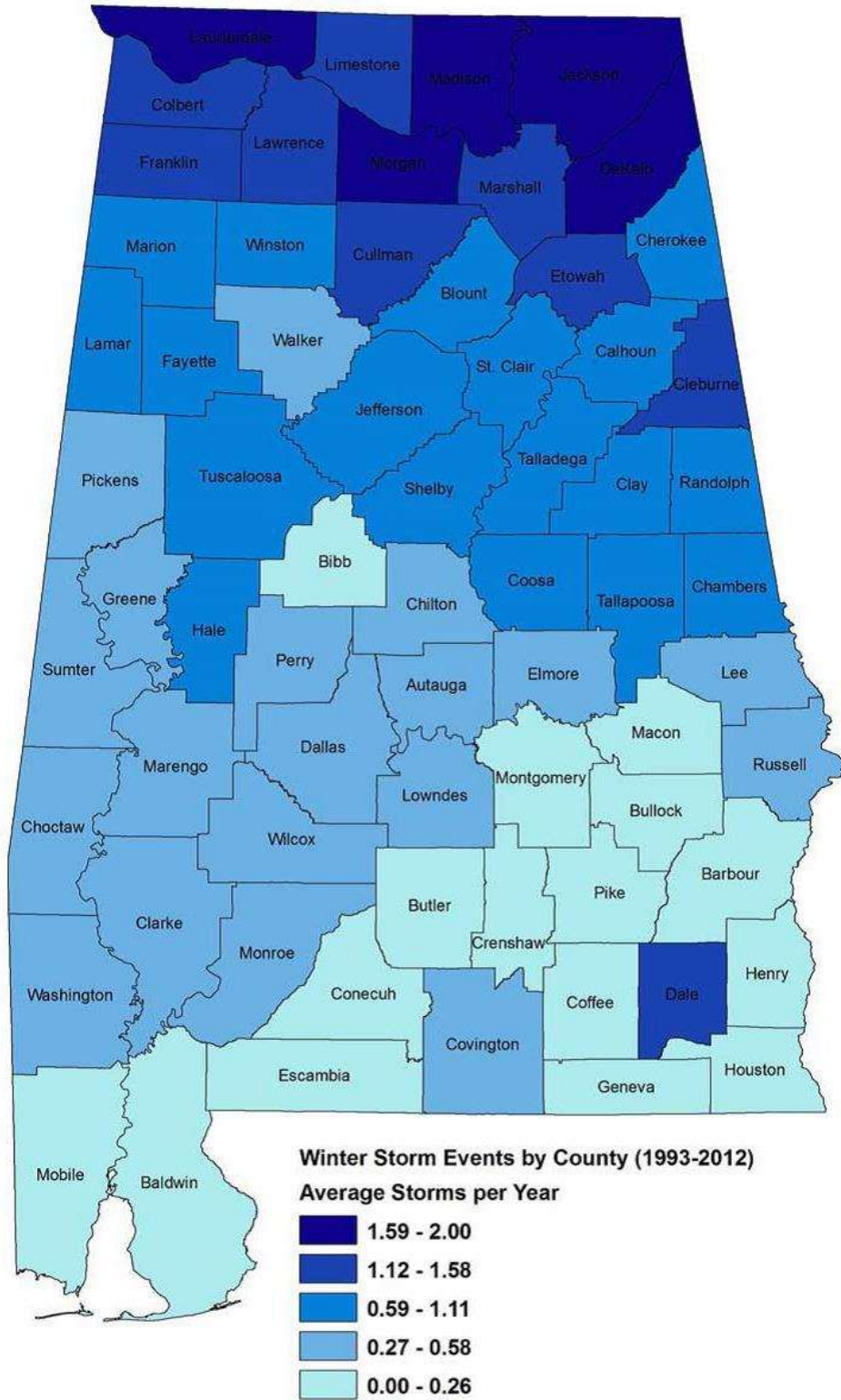
Year	Type	Number	Deaths	Injuries	Total Damages
1995	-	-	-	-	-
1996	Cold/Wind Chill	1	1	0	\$0
1996-2001	-	-	-	-	-
2002	Winter Storm	1	0	0	\$0
2003	Cold/Wind Chill	1	0	0	\$0
2004-2009	-	-	-	-	-
2010	Winter Storm	1	0	0	\$0
2011	Winter Weather	1	0	0	\$5,000
2012-2013	-	-	-	-	-
2014	Ice Storm	4	0	0	0
Total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

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

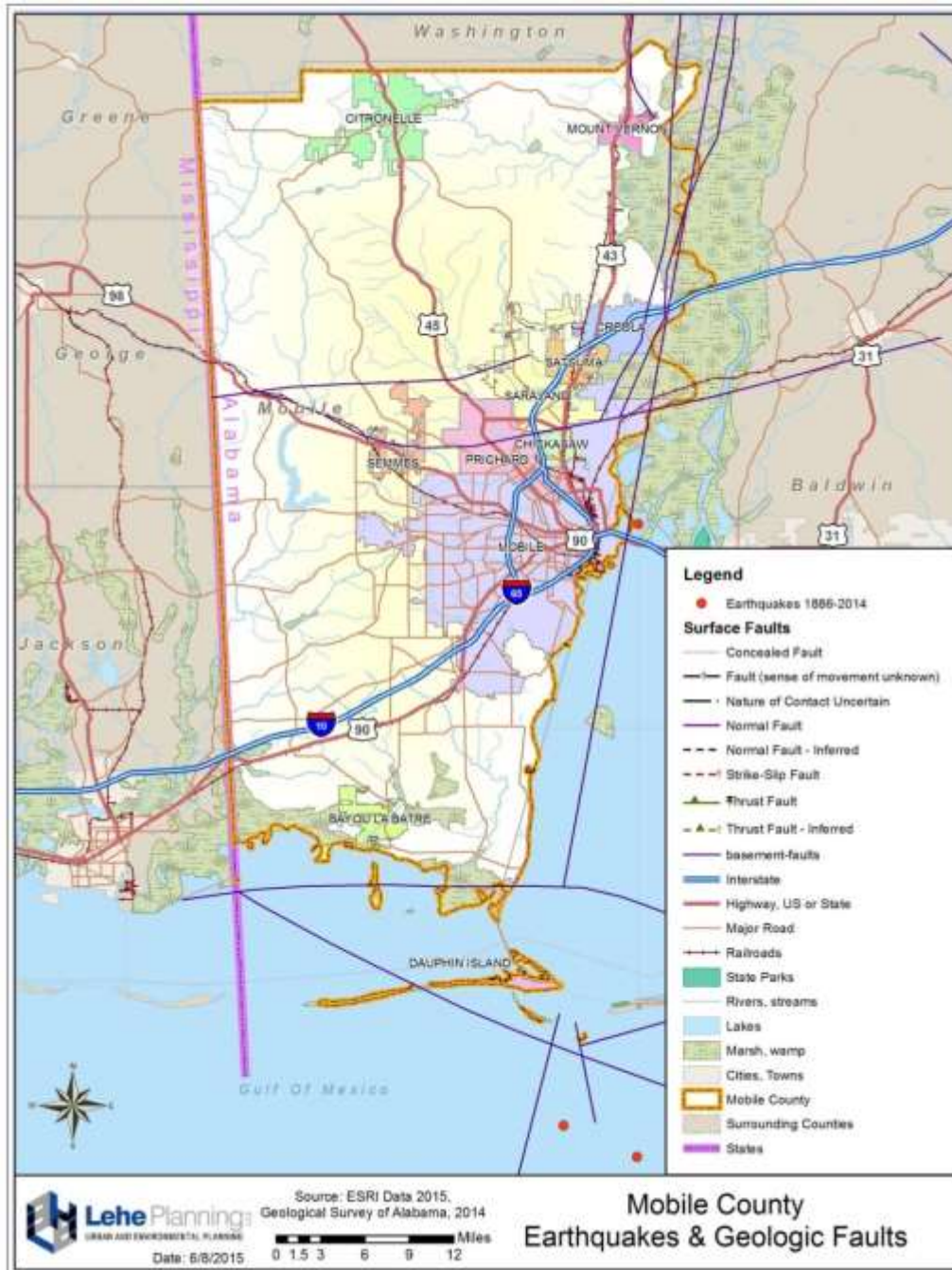
When earthquakes strike a region, it is impossible to predict which area will be affected the most at a sub-county level. The following maps (Map 5-11, 5-12 & 5-13), generated from 2014 GIS data supplied by the Geological Survey of Alabama (GSA), show locational variations in ground shaking and soil 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.

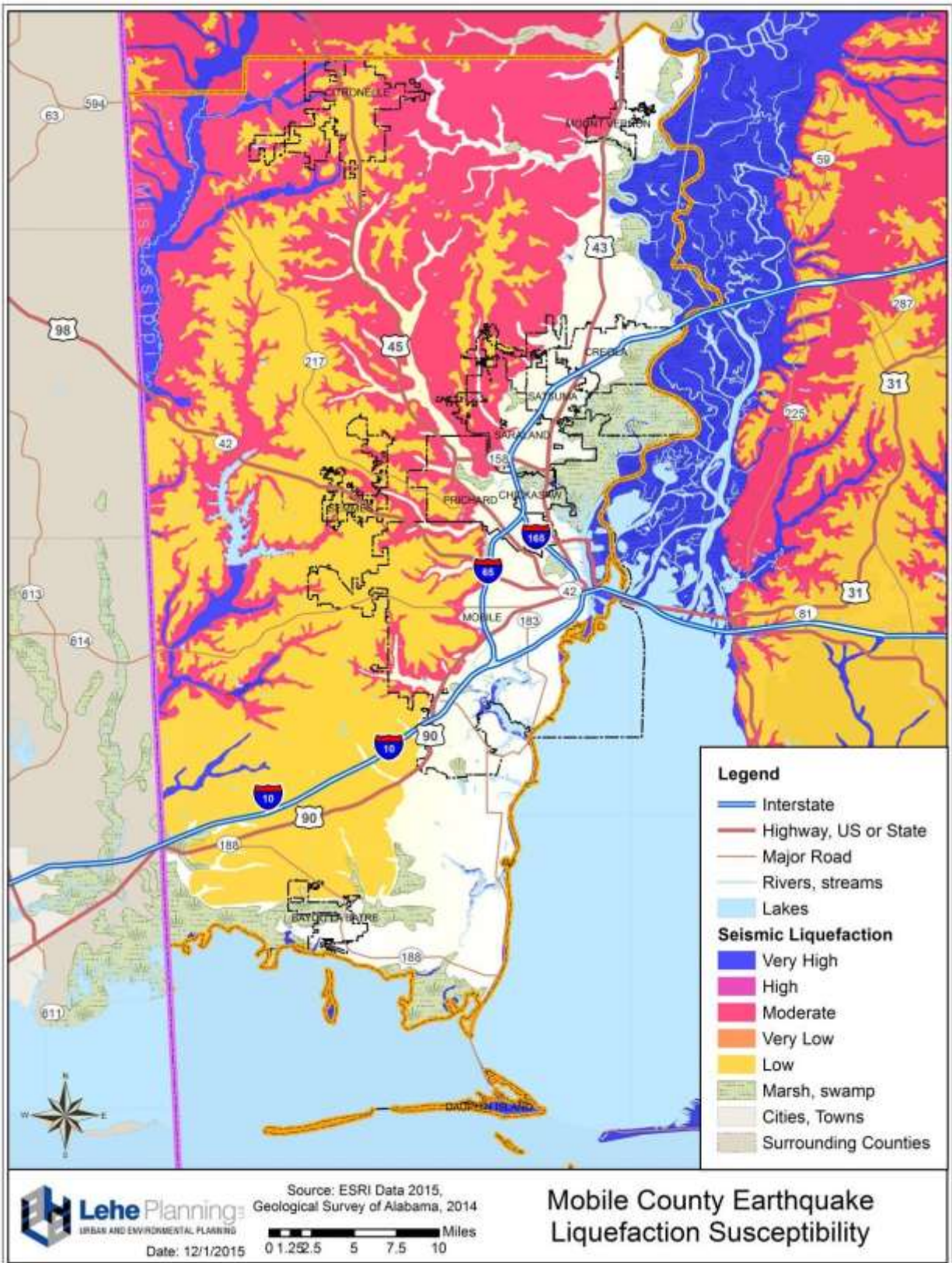
Damages to buildings and infrastructure depend not only on the energy released during an earthquake but also underlying soils and geological characteristics. Soil type and site amplification contribute to the velocity at which rock or soil transmits shear

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.

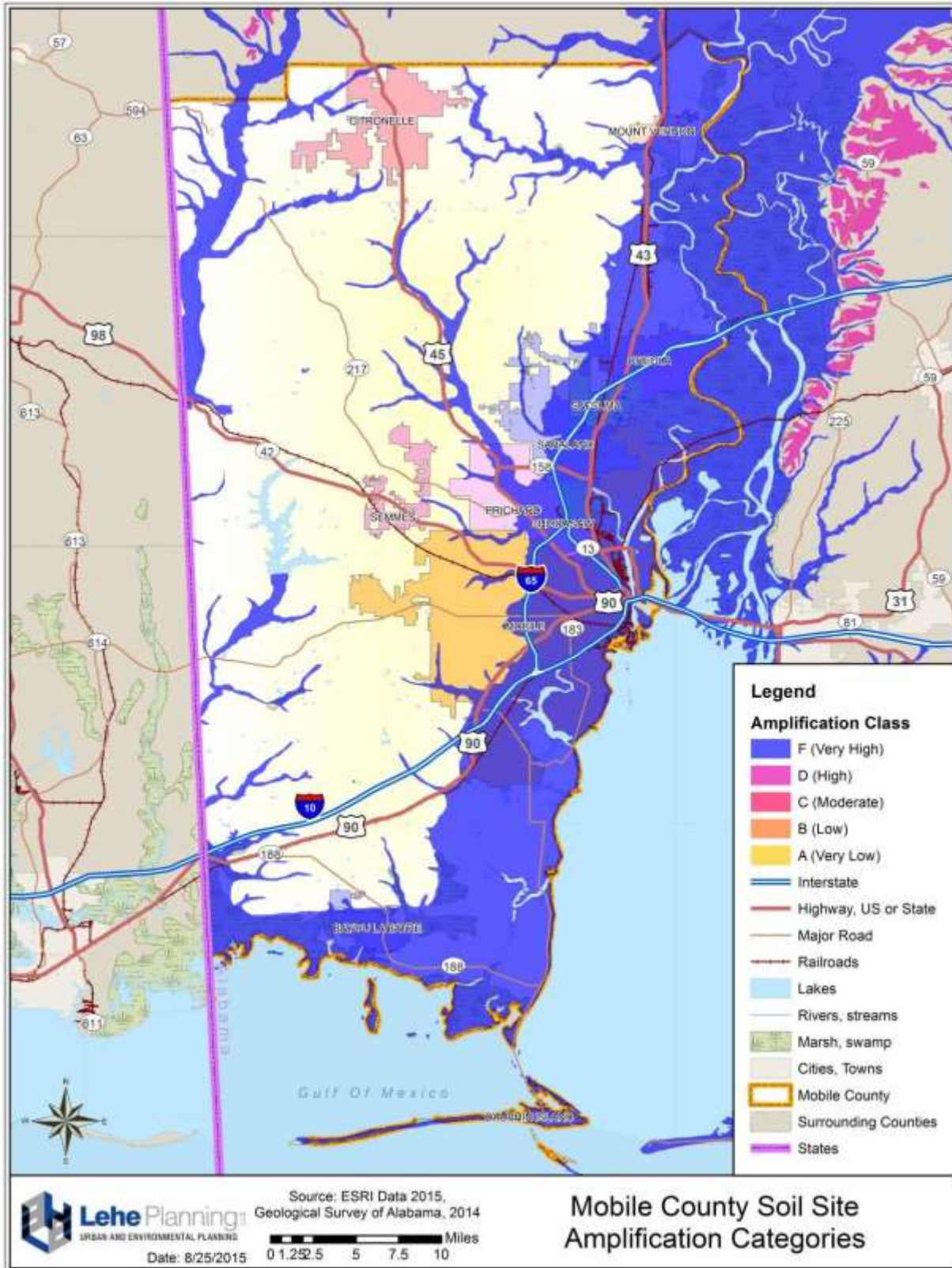
Map 5-11. Mobile County Earthquakes and Geologic Faults



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).

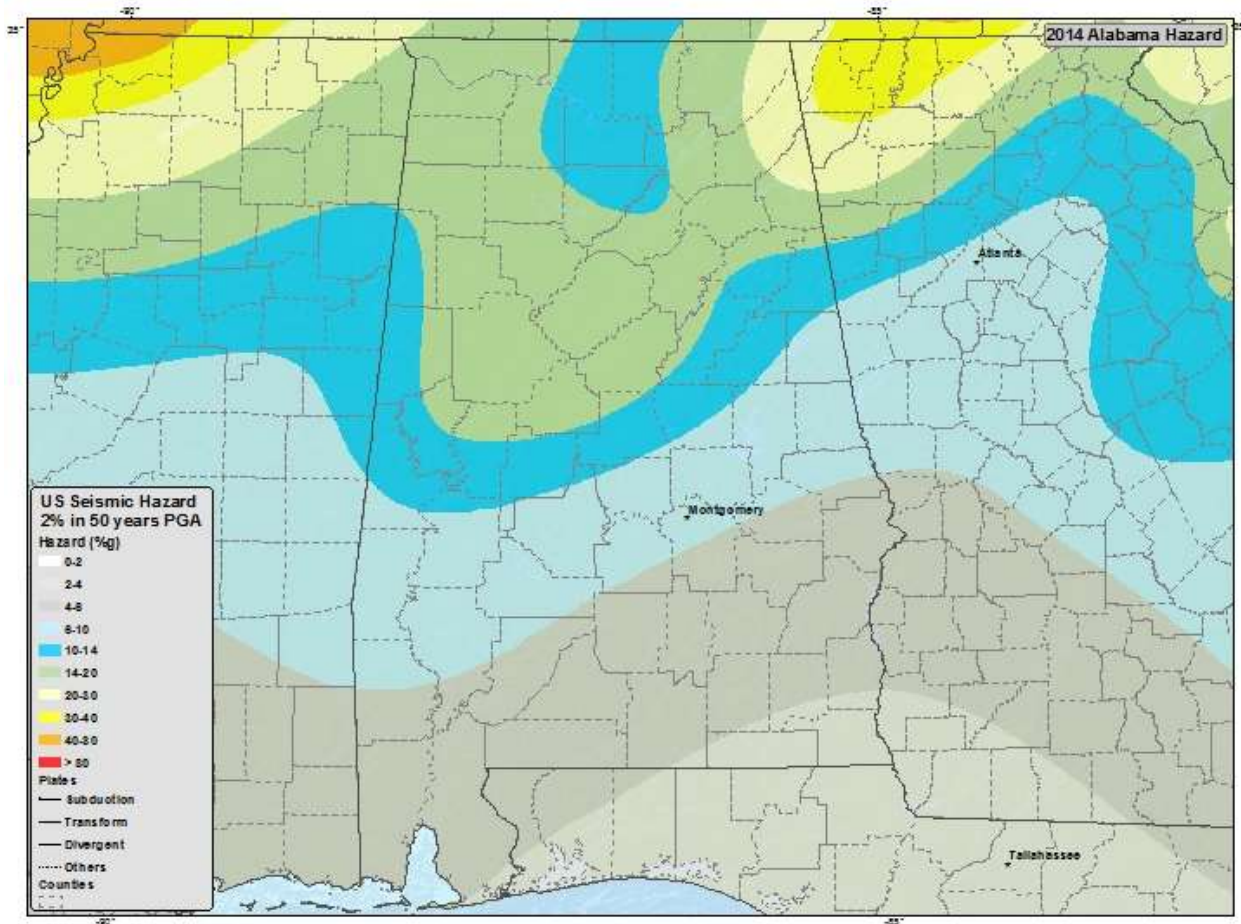
Figure 5-5. Modified Mercalli Intensity Scale

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

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

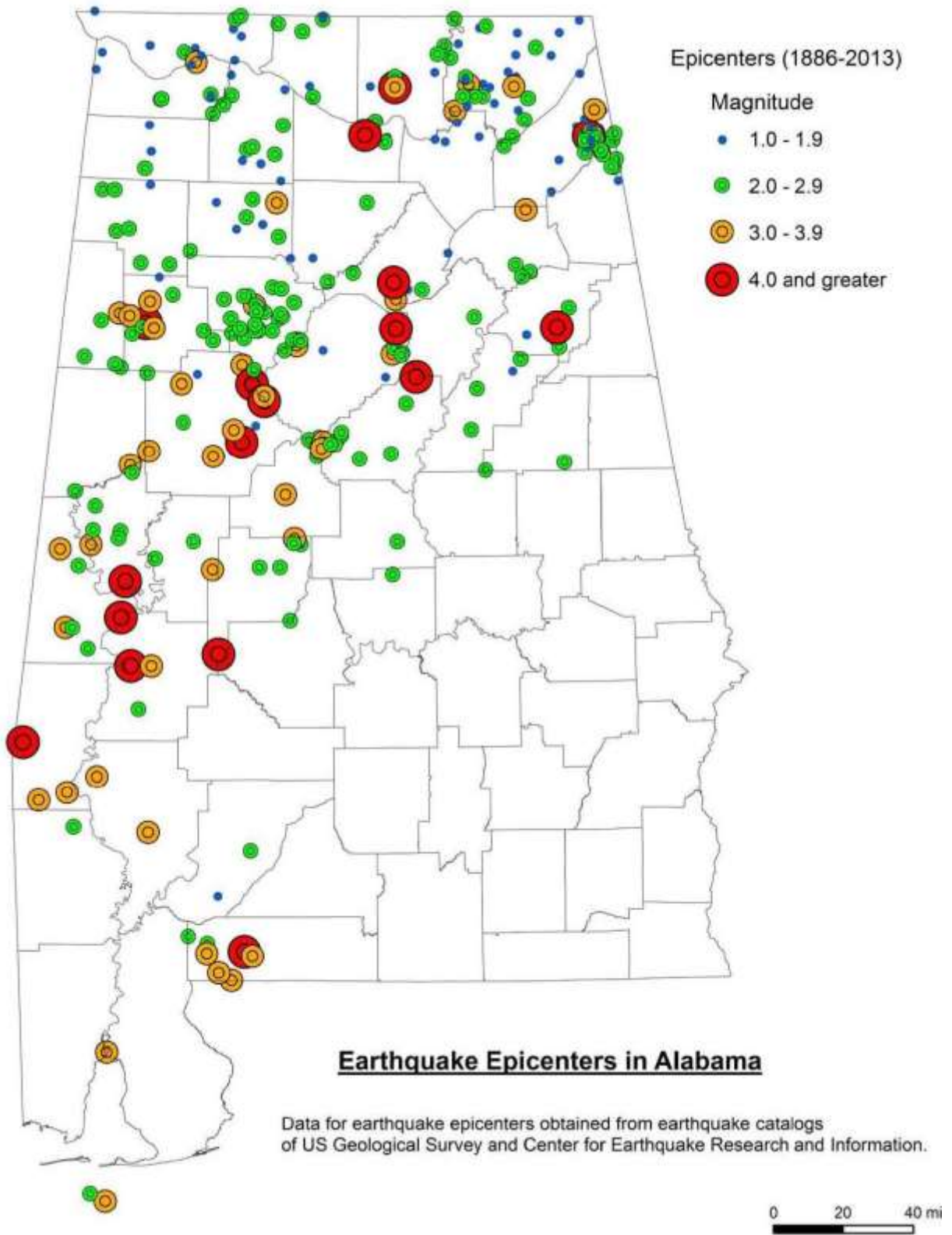


Source: United States Geological Survey, Earthquakes Hazards Program, 2014

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.

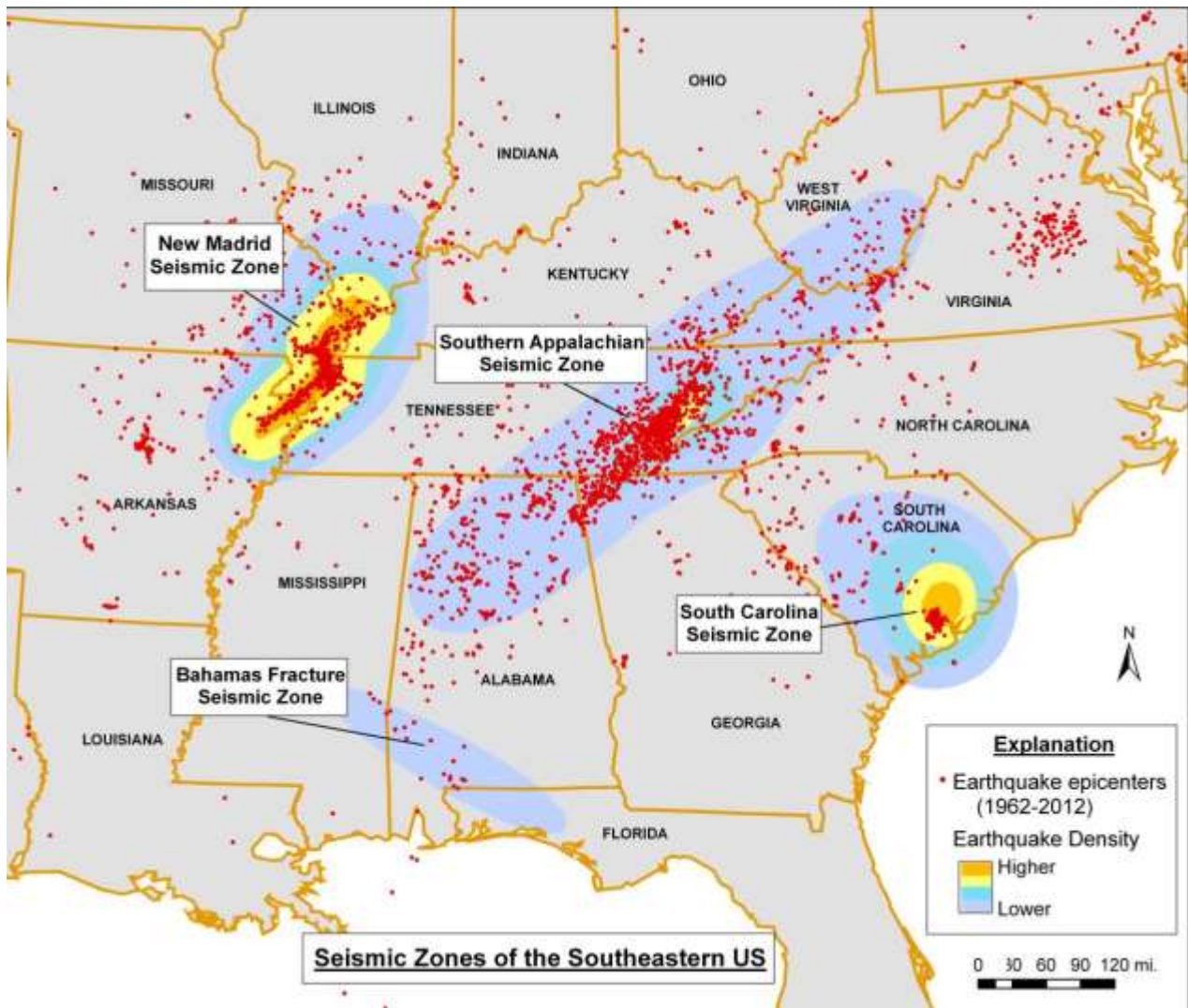
Map 5-15. Alabama Earthquake Locations



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.

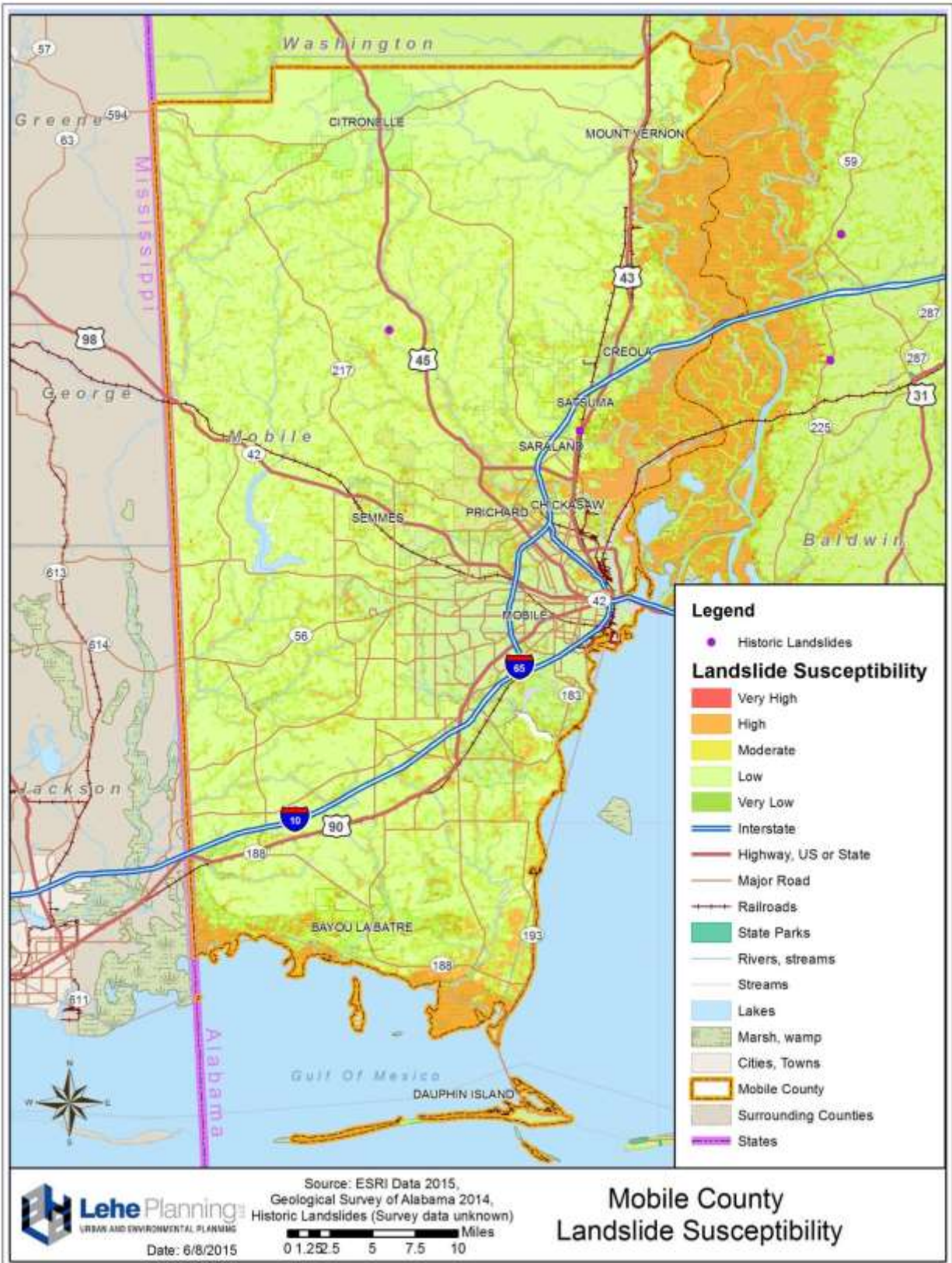
Previous Occurrences of Landslides

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

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

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

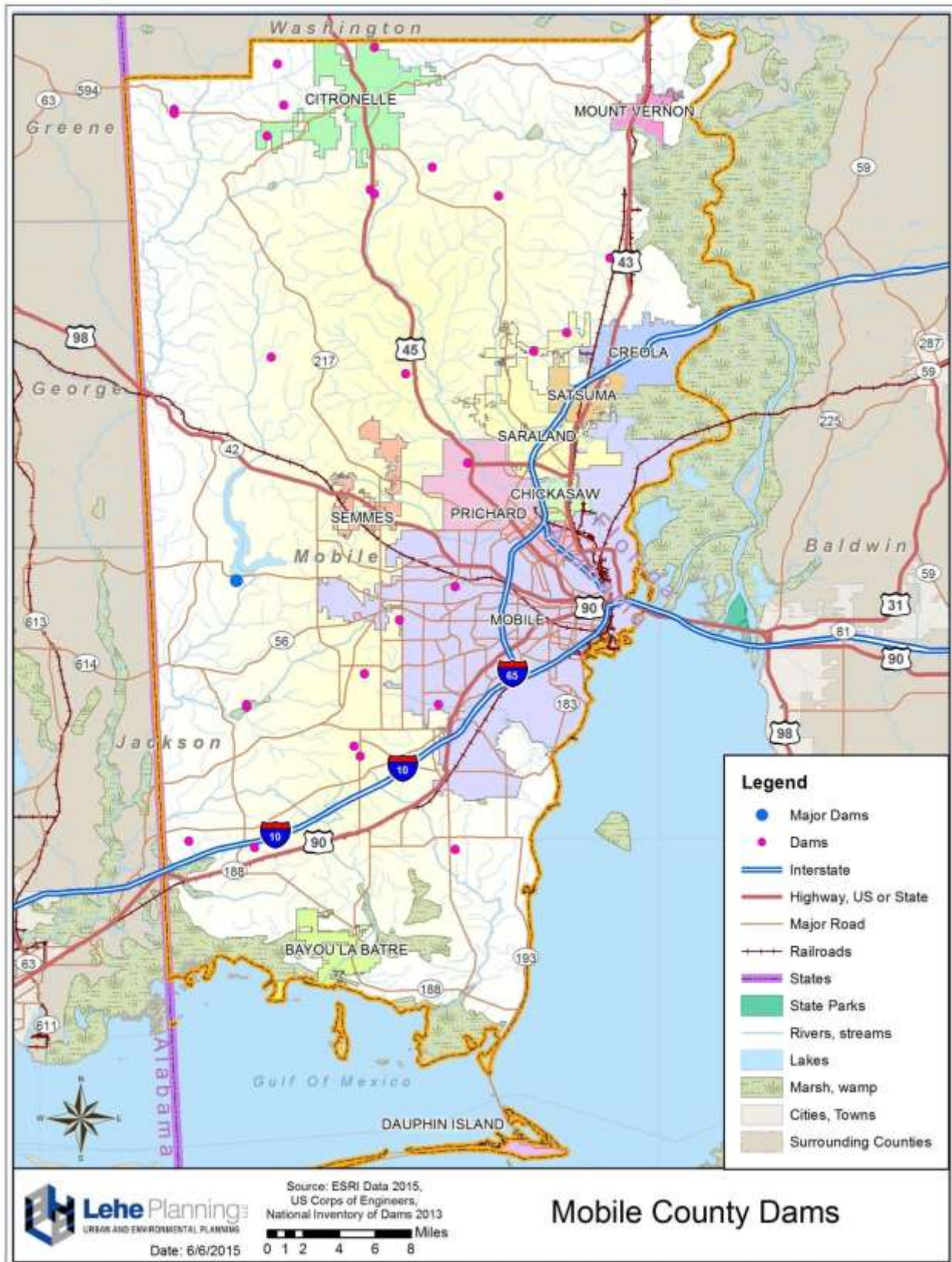
indicates failure or faulty operation would probably not result in loss of life, but would result in economic loss, environmental damage, and disruption of lifeline facilities. Low risk indicates failure/faulty operation would not result in loss of life and only low economic or environmental damage.

Table 5-15. Mobile County Dams Risk

Hazard Categories	Number of Dams
High	1
Significant	3
Low	26
Undetermined	0
Total	30

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.

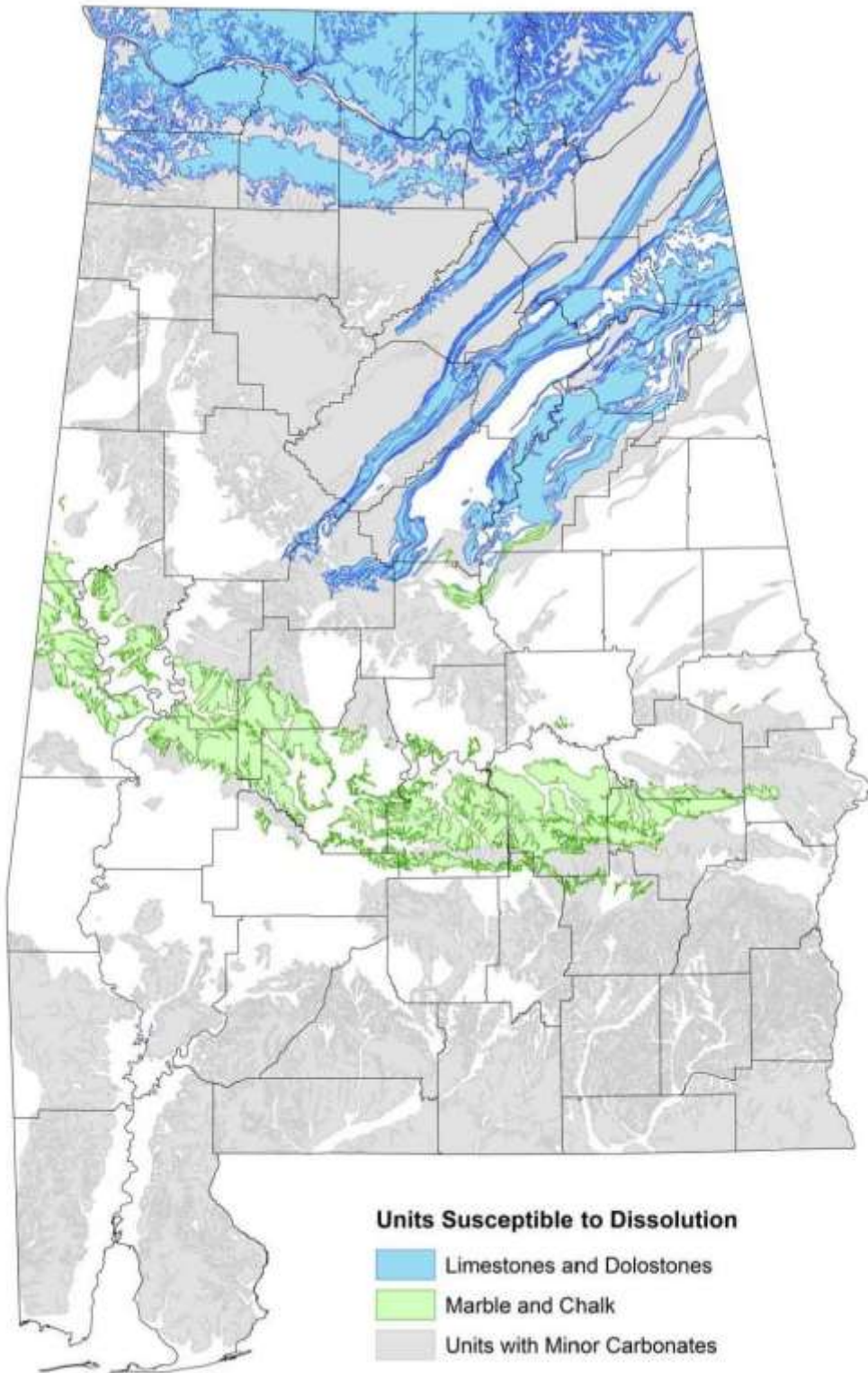
Previous Occurrences of Potential Sinkholes

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.

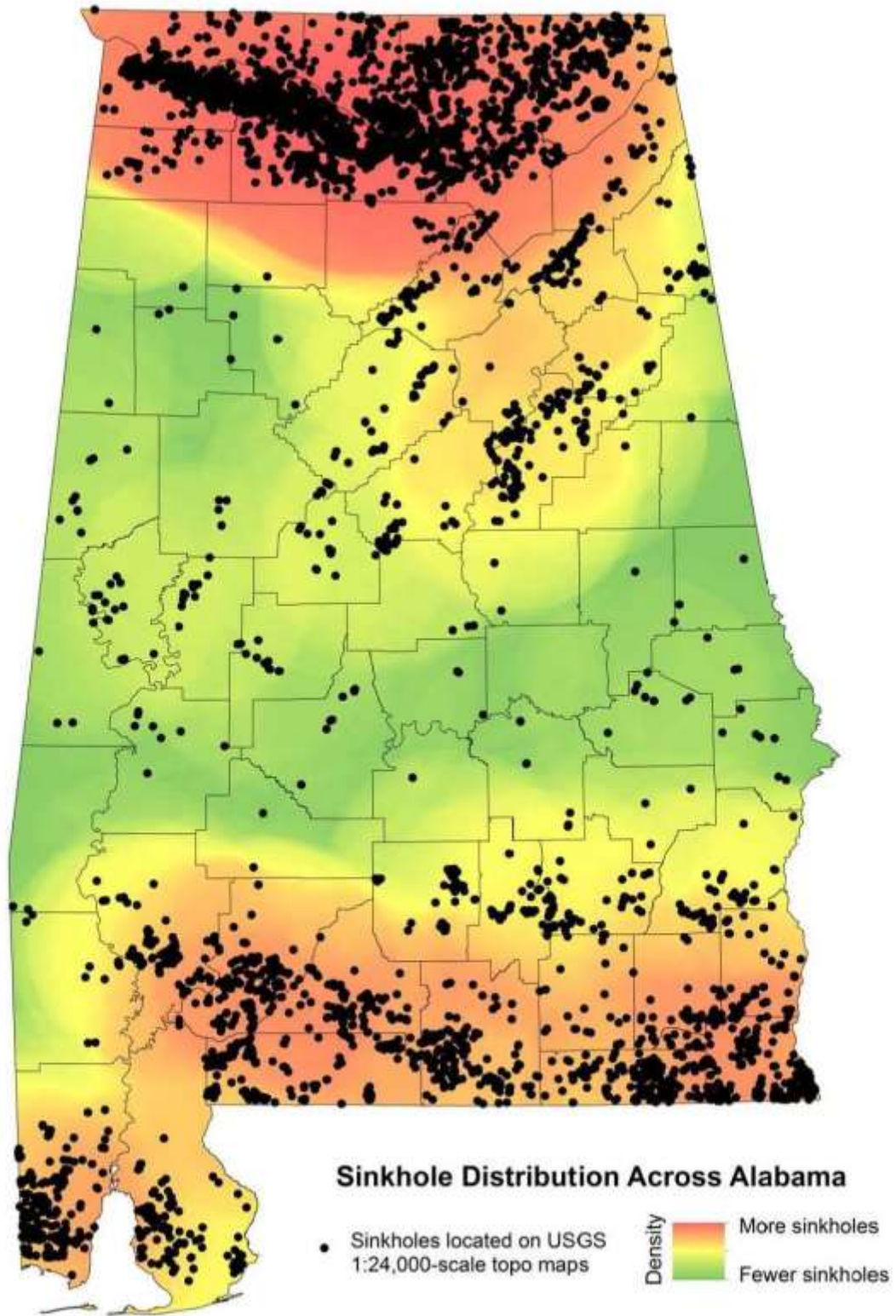
Map 5-19. Karst Geography, Alabama



0 10 20
Miles

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

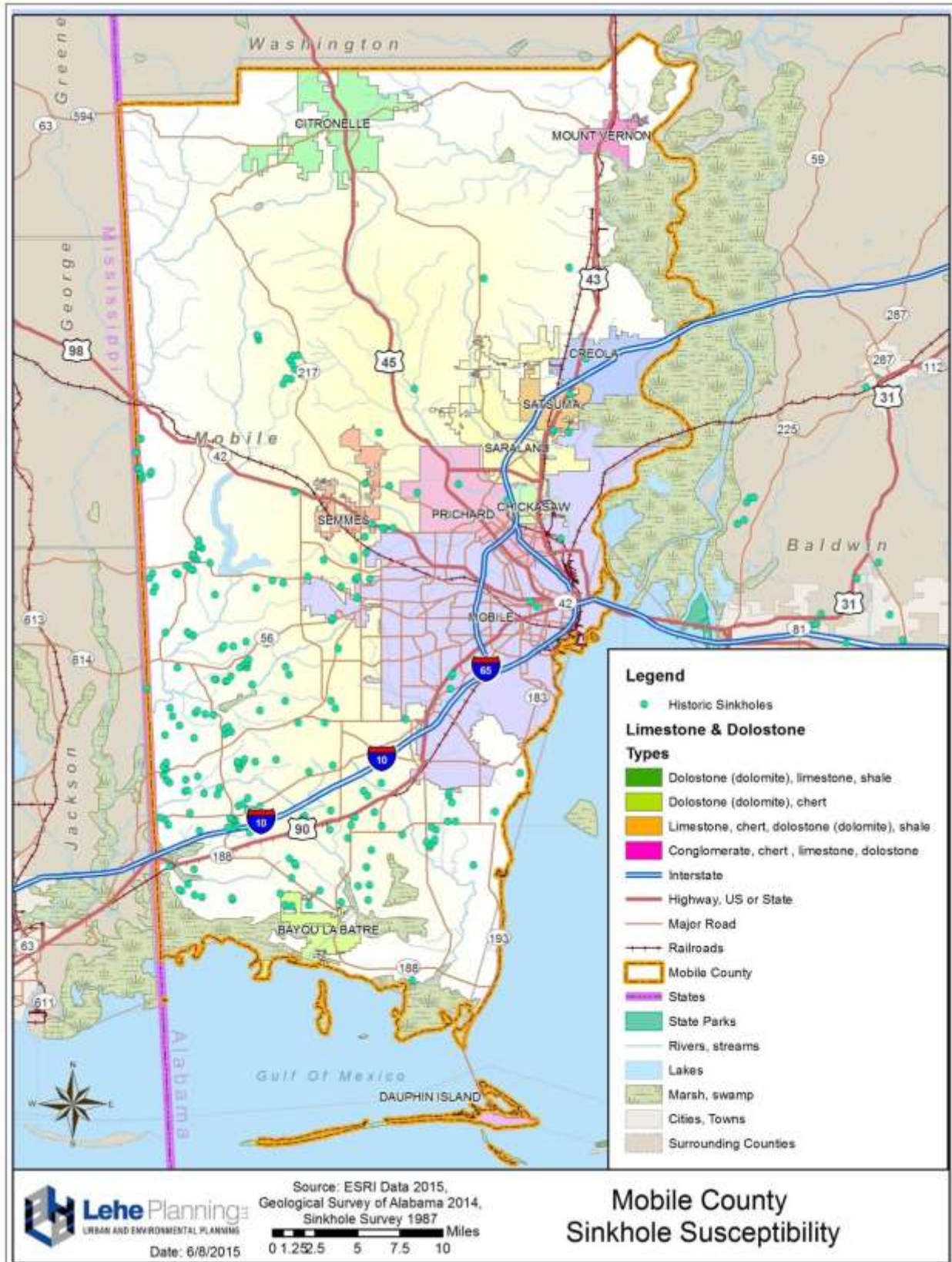
Map 5-20. Alabama Sinkhole Density



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

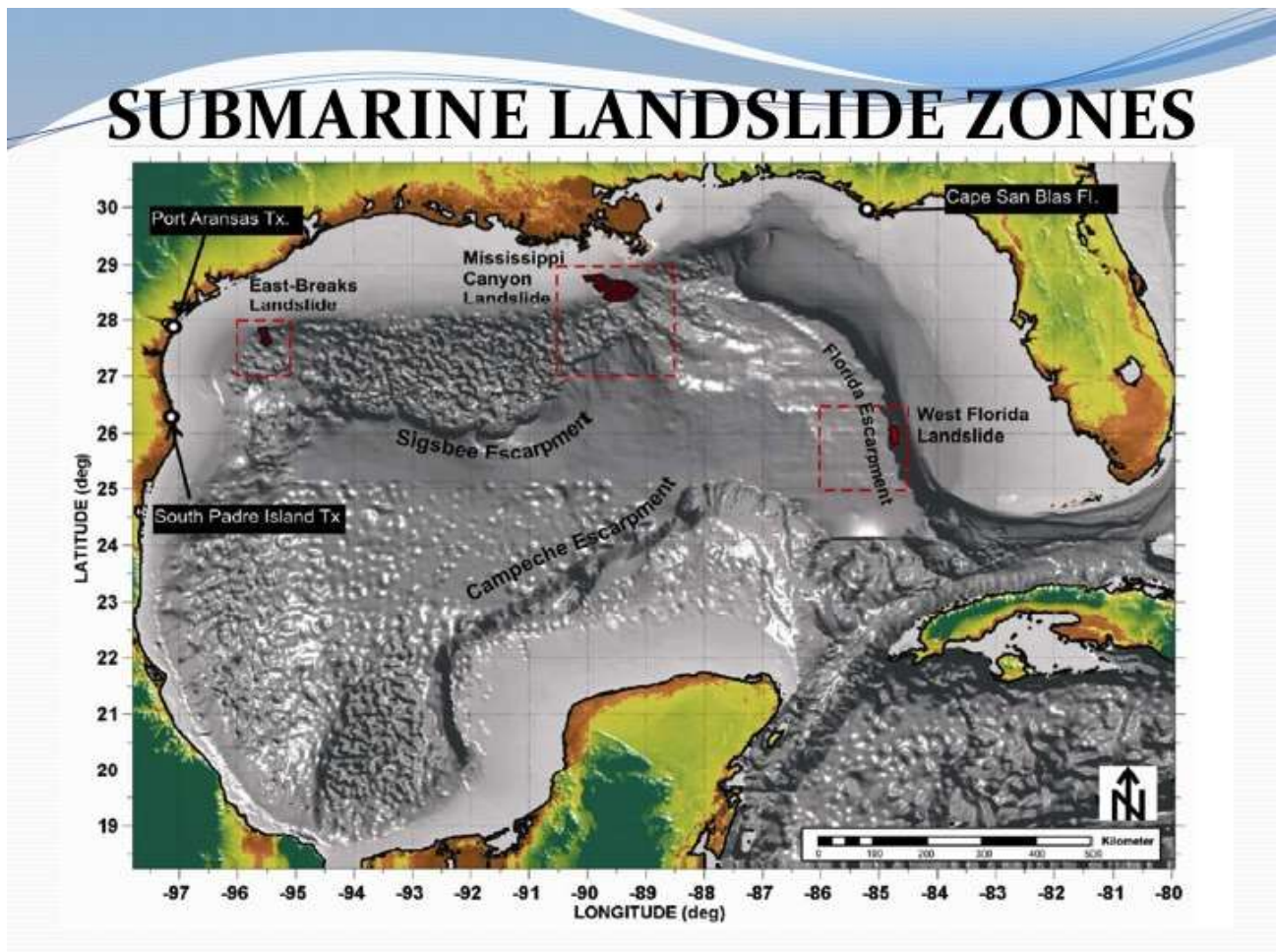
Tsunamis are large ocean waves triggered by earthquakes, volcanic eruptions, submarine landslides, and onshore landslides. However, the tsunami threat to Mobile County is largely a result of submarine landslides.

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.

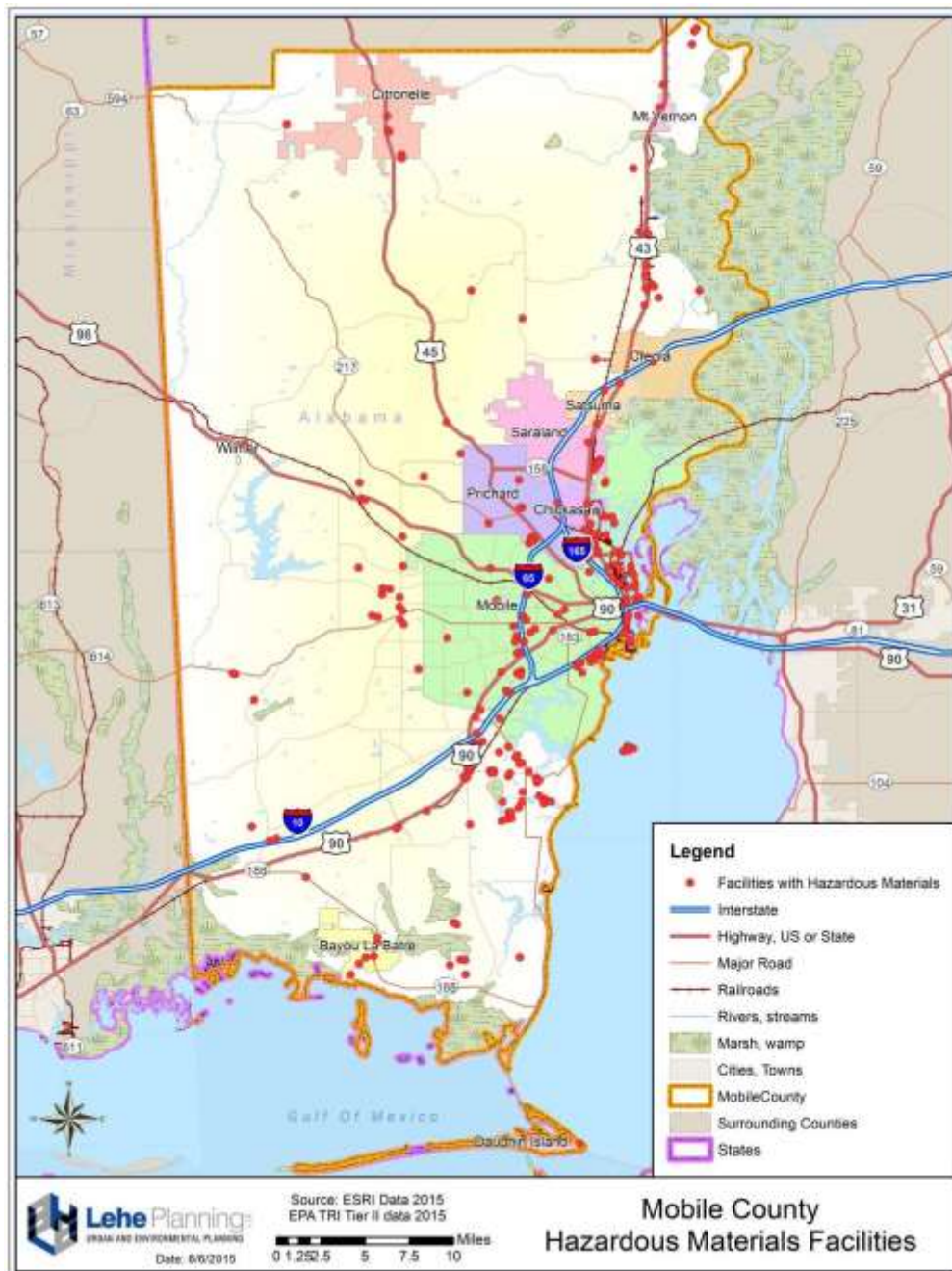
The principal man-made hazard events that have occurred in Mobile County are hazardous materials accidents. These have occurred at manufacturing sites, storage sites, and even during transport. The U.S. Department of Transportation's HAZMAT Intelligence Portal indicates that 359 transportation-related 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	100%

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%
Total	166,541	100%

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

Construction Type	Count	Share
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%
Total	166,473	100%

*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

Occupancy	Existing Exposure (\$1,000)	Future Exposure (\$1,000)	% of Total (Future)
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%
Total	\$43,550,759	\$45,728,297	100%

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

Classification	Existing Estimate	Future Estimate
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

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

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

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>	\$351.8
Waste Water	Distribution Lines	n/a	\$211.1
	Facilities	12	\$719.3
	Pipelines	0	\$0
		<i>Subtotal</i>	\$930.3
Natural Gas	Distribution Lines	n/a	\$140.7
	Facilities	7	\$6.9
	Pipelines	0	\$0
		<i>Subtotal</i>	\$147.6
Oil Systems	Facilities	8	\$0.7
	Pipelines	0	\$0
		<i>Subtotal</i>	\$0.7
Electrical Power	Facilities	5	\$495.0
		<i>Subtotal</i>	\$495.0
Communication	Facilities	12	\$1.1
		<i>Subtotal</i>	\$1.1
		Total	\$1,926.5

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

Agency	Address	City	Zip
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

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Agency	Address	City	Zip
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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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

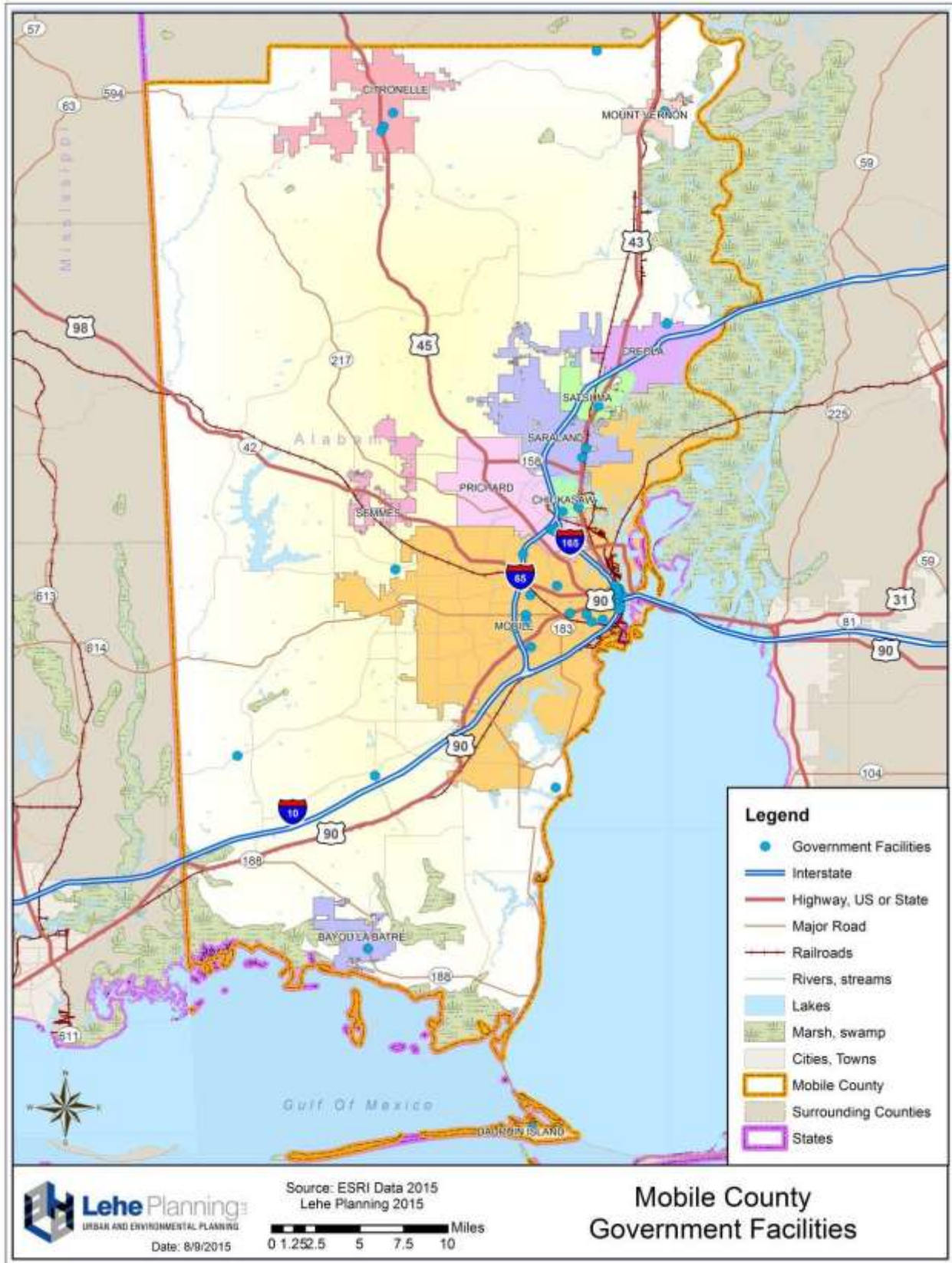


Table 5-33. Mobile County Public Safety Facilities

Name	Address	City
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
Calcedaveer 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**

Name	Address	City
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

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2015 Mobile County Multi-Hazard Mitigation Plan

Name	Address	City
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

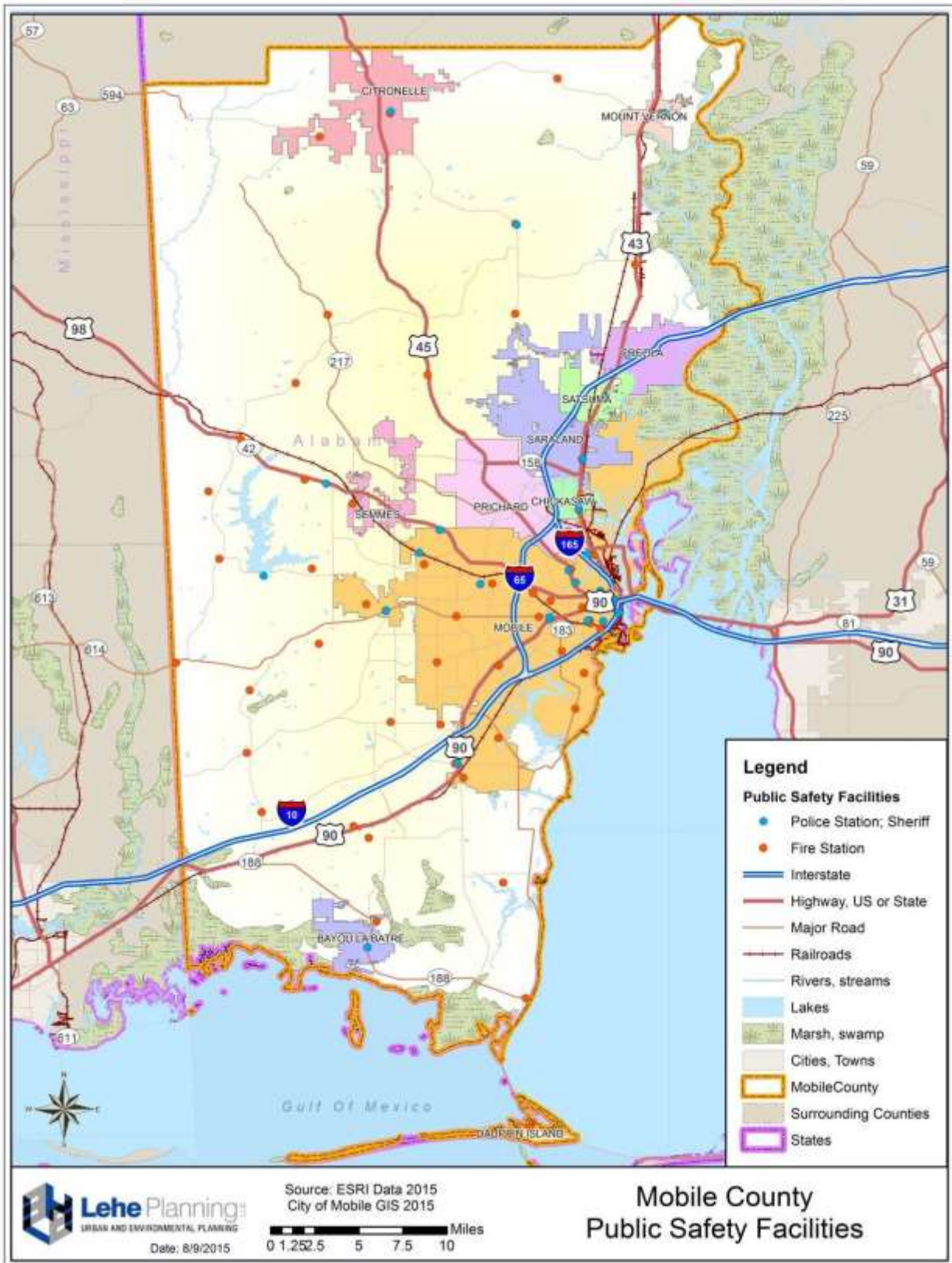


Table 5-34. Mobile County Schools

Name	Address	City	Zip
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**

Name	Address	City	Zip
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

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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

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Name	Address	City	Zip
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**

Name	Address	City	Zip
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

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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

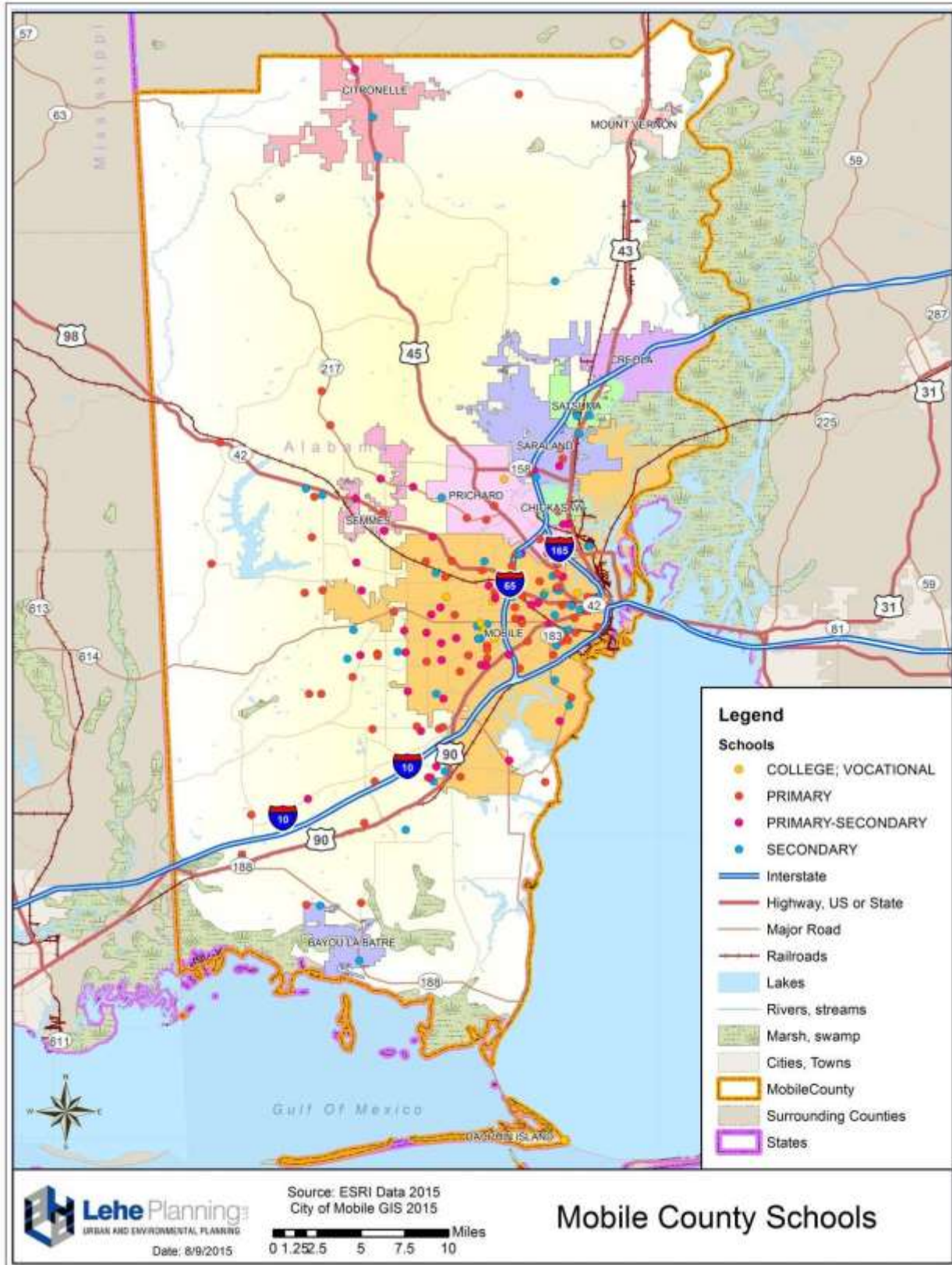


Table 5-35. Mobile County Medical Facilities

Facility	Address	City	Zip
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

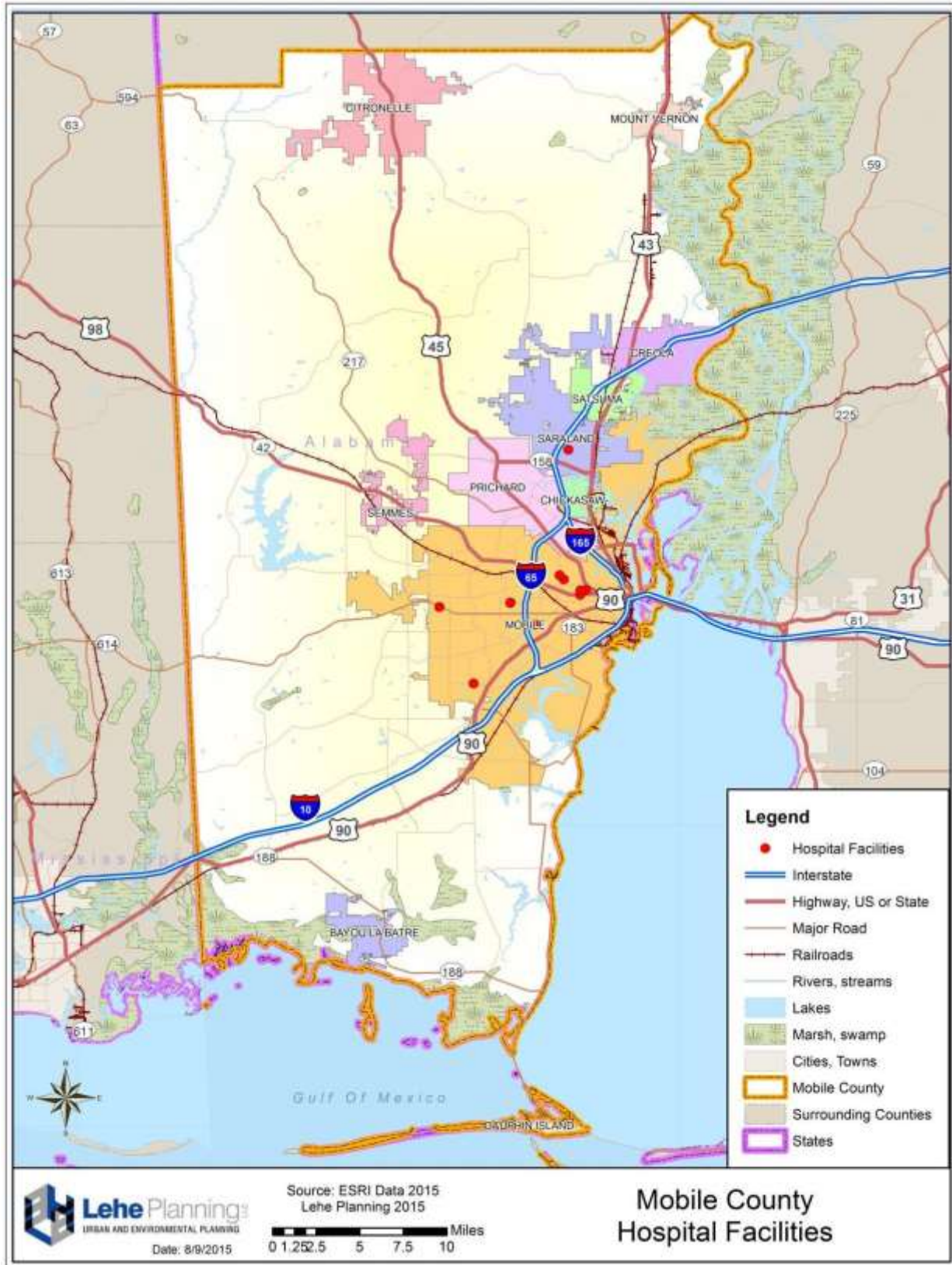


Table 5-36. Mobile County Elderly Care Facilities

Facility	Address	City	Zip
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

Facility	Address	City	Zip
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

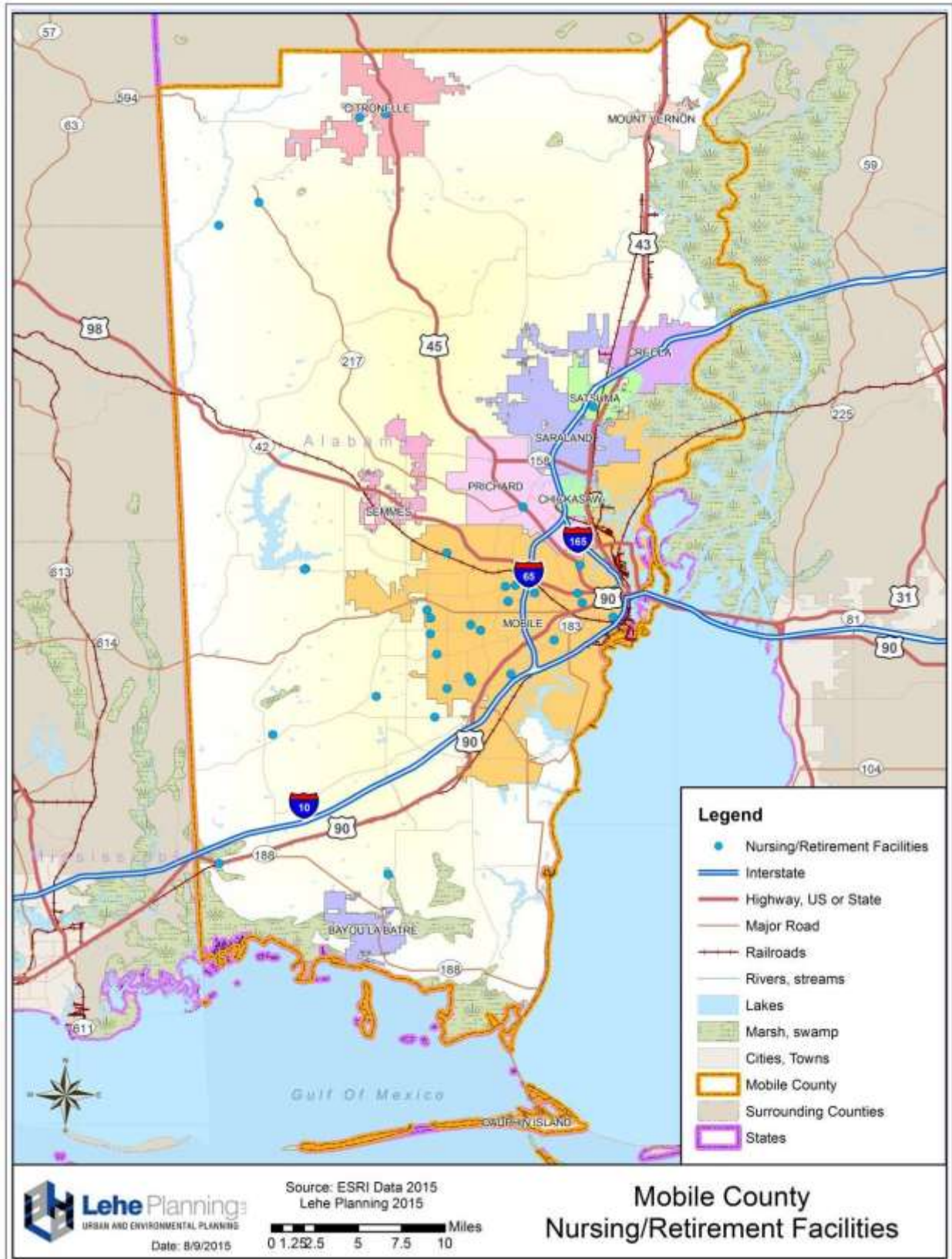


Table 5-37. Mobile County Utilities

Name	City	Zip	Latitude	Longitude
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

Name	City	Zip	Latitude	Longitude
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

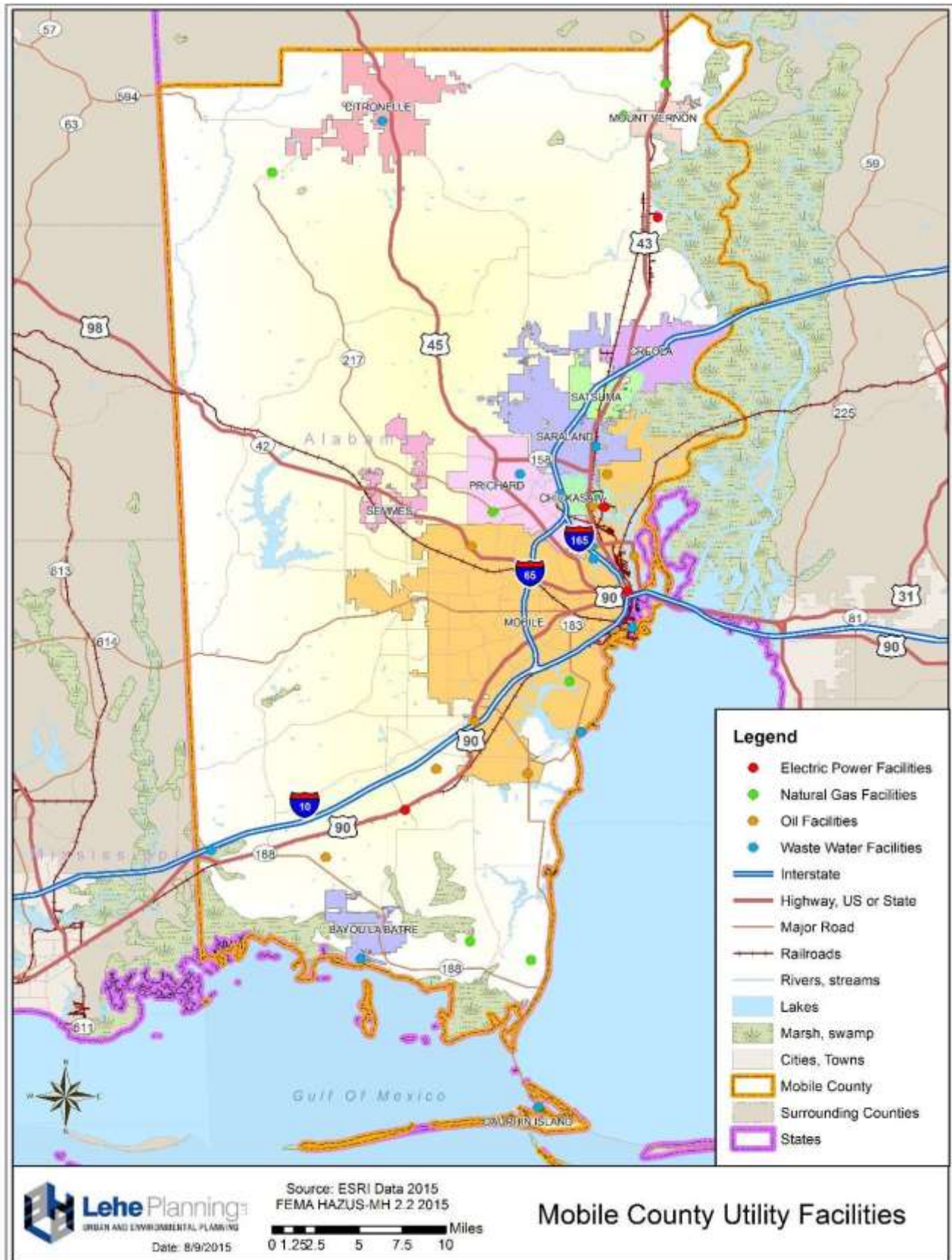
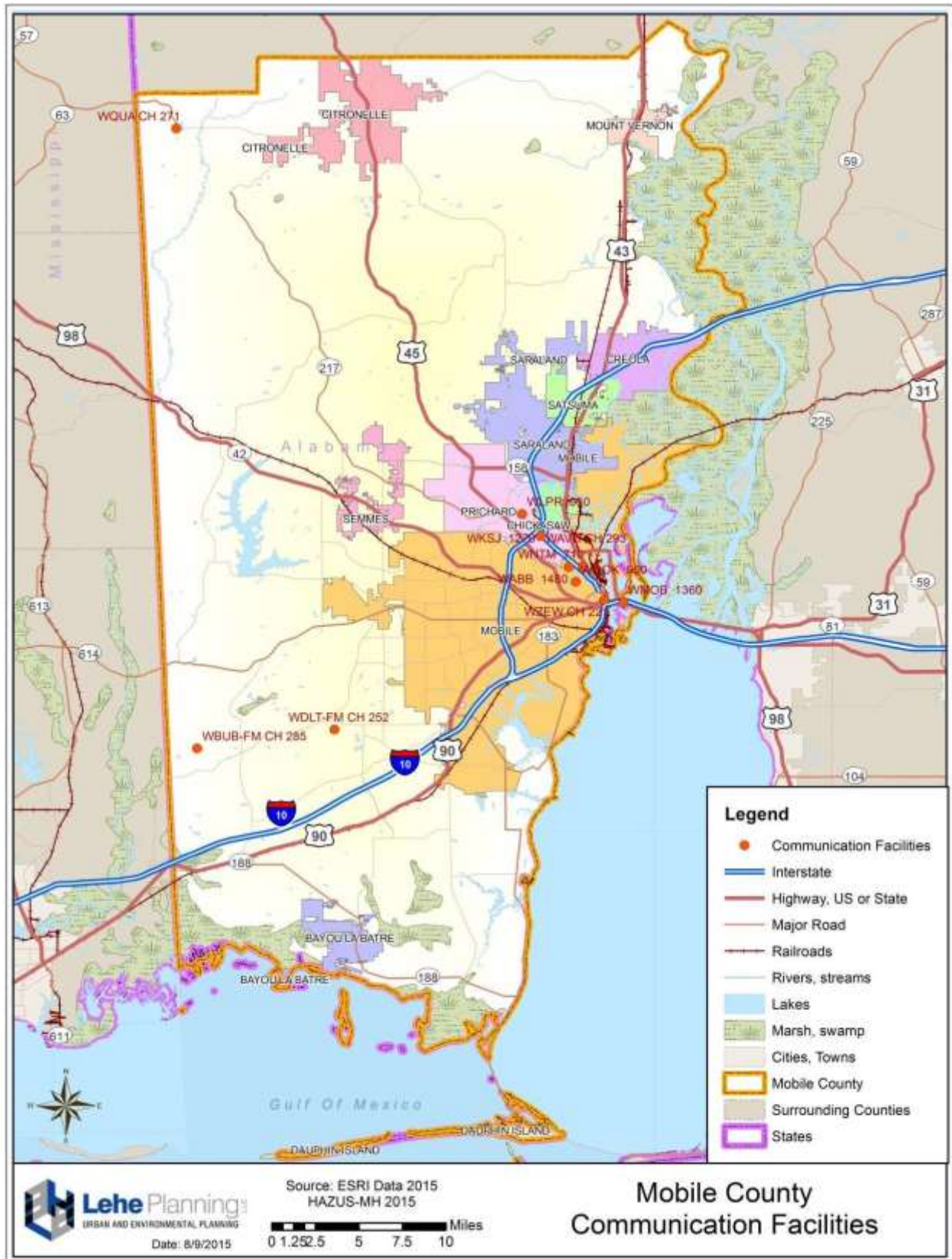


Table 5-38. Mobile County Communication Facilities

Name	Owner	City	Latitude	Longitude
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

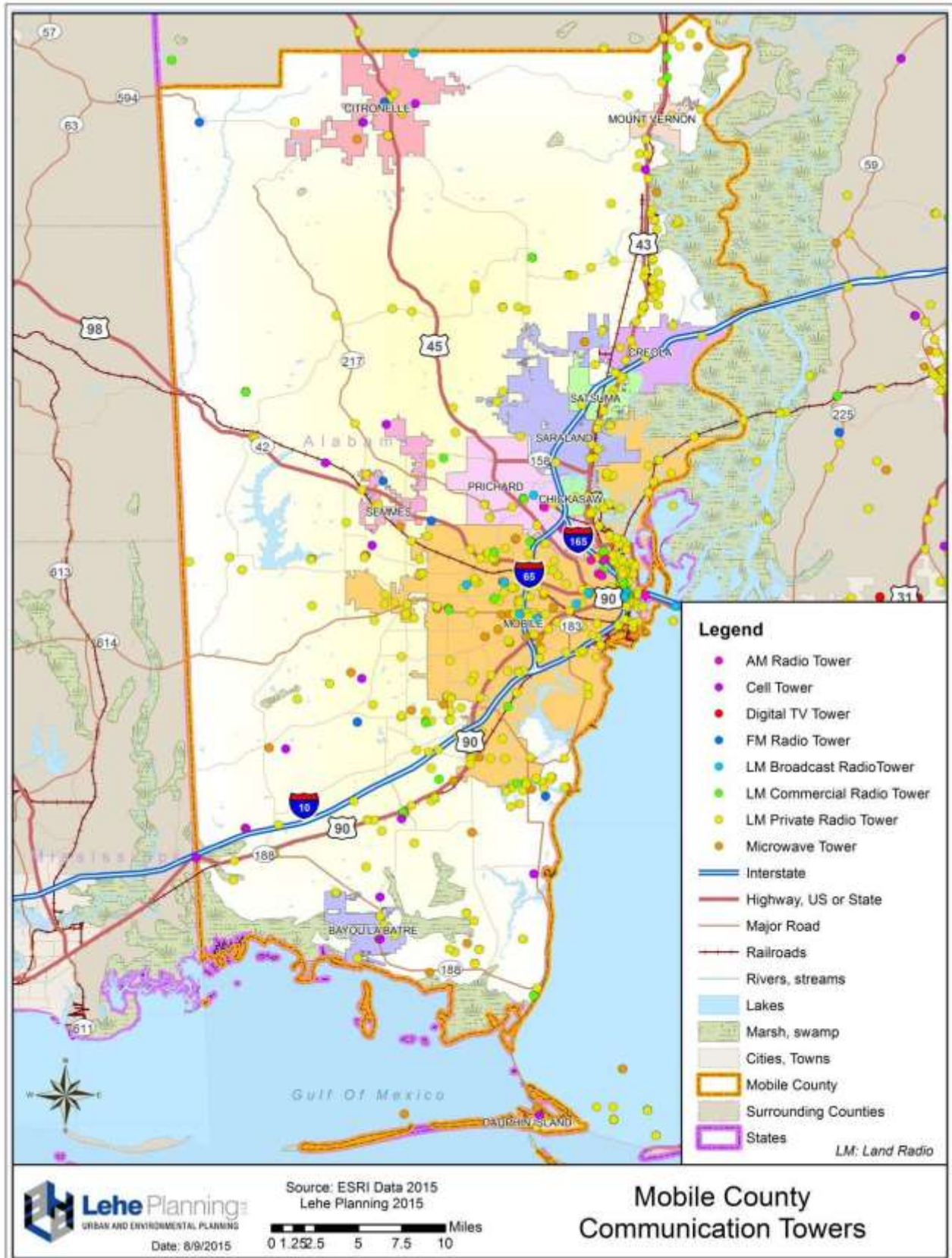


Table 5-39. Mobile County Warning Sirens

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

Siren No.	Location	WAIL ID
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

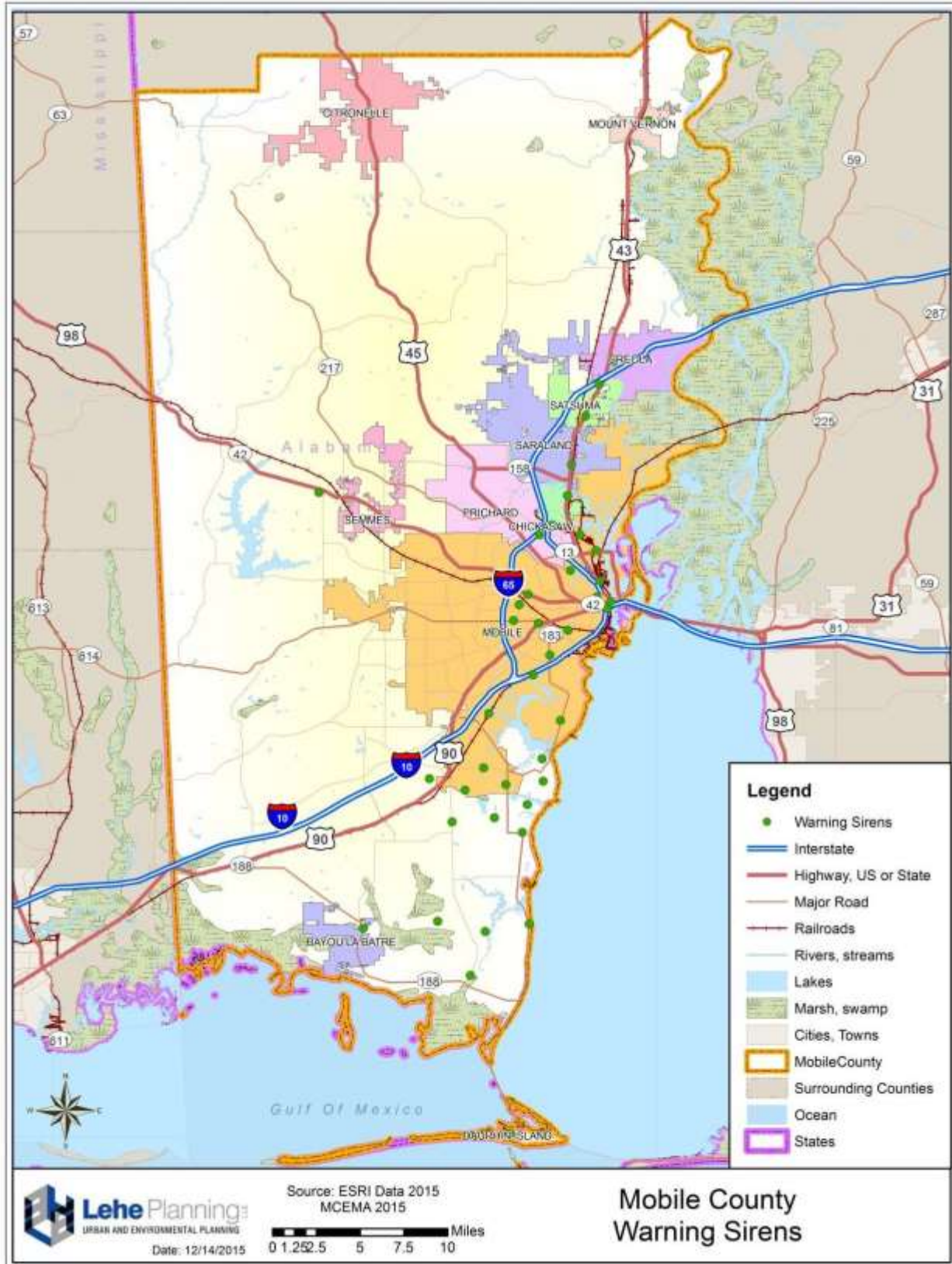


Table 5-40. Mobile County Emergency Shelters

Name	Address	City	Zip
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

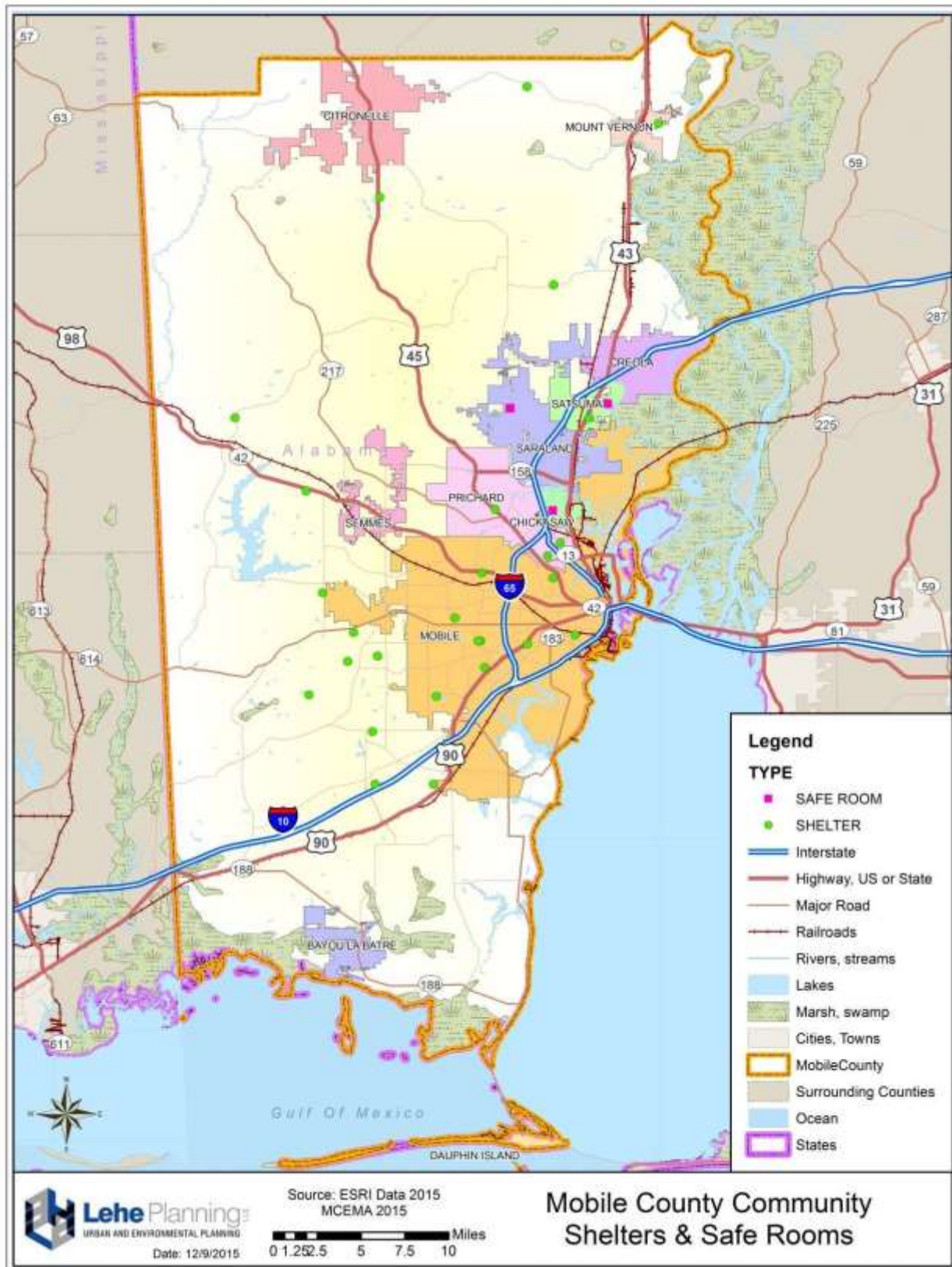


Table 5-41. Mobile County Dams

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

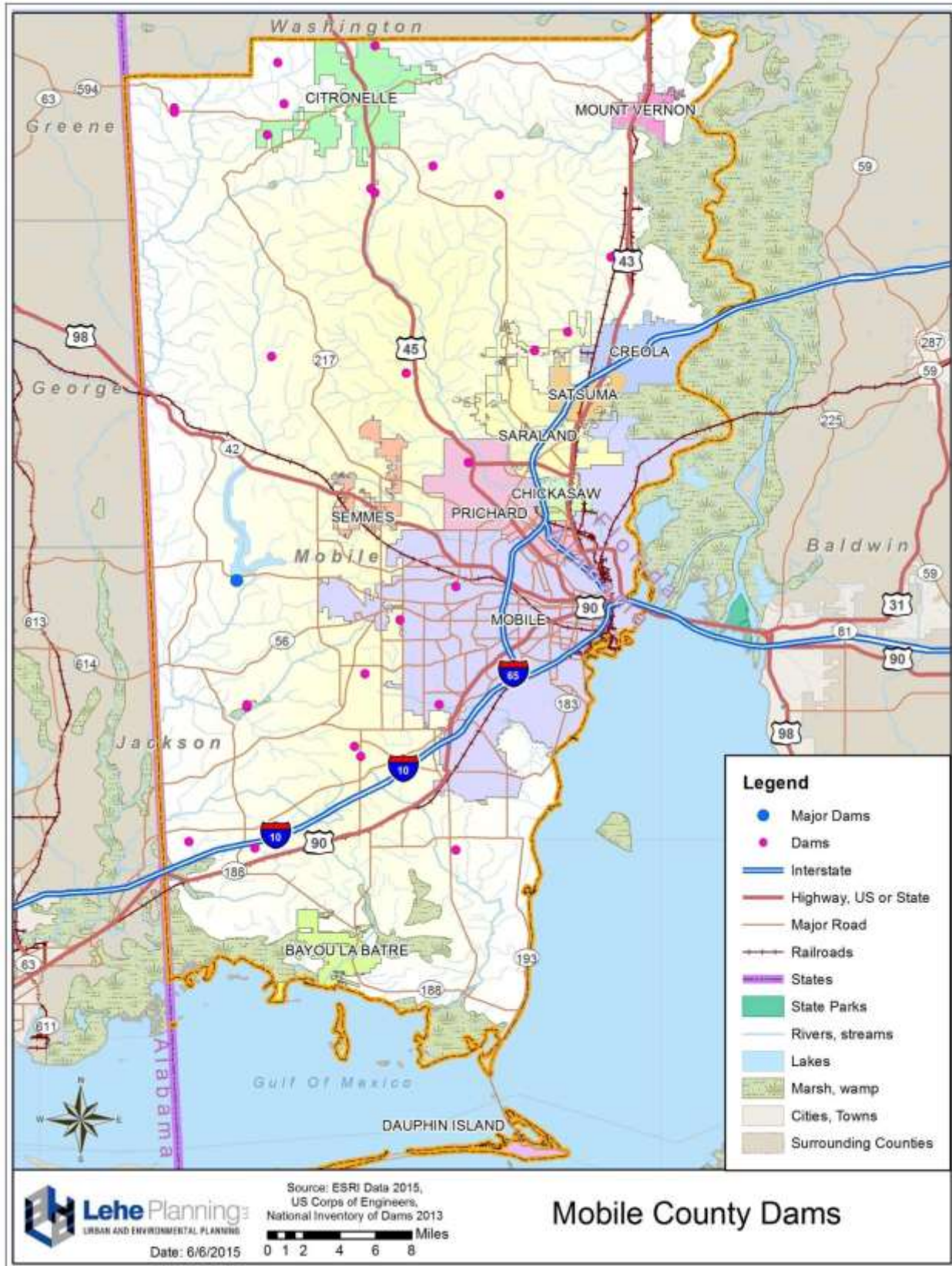


Table 5-42. Mobile County Port Facilities

Port Facility	City	Waterway
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

Port Facility	City	Waterway
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

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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

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2015 Mobile County Multi-Hazard Mitigation Plan

Port Facility	City	Waterway
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

Port Facility	City	Waterway
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

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2015 Mobile County Multi-Hazard Mitigation Plan

Port Facility	City	Waterway
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

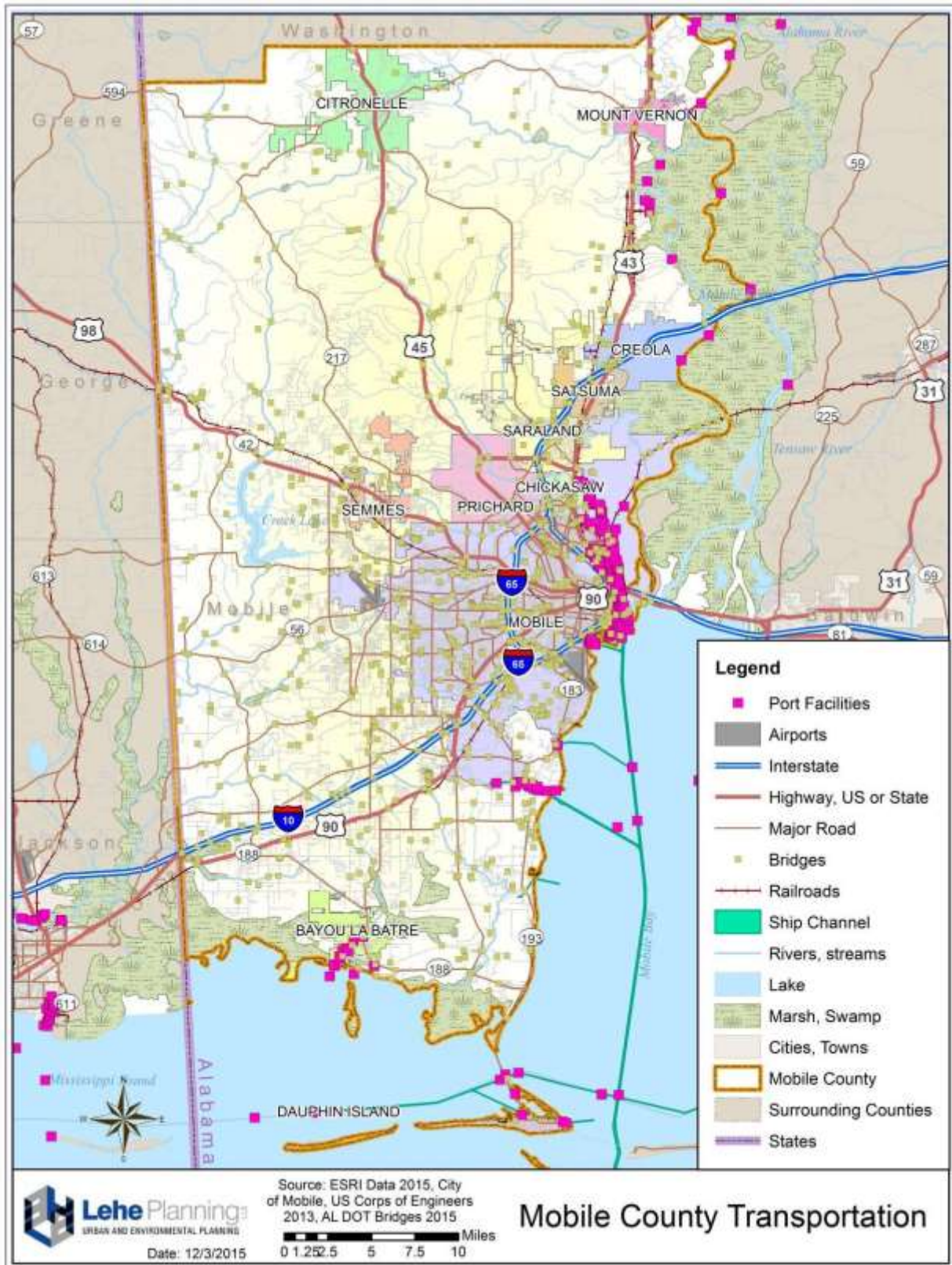
2015 Mobile County Multi-Hazard Mitigation Plan

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

Port Facility	City	Waterway
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

Jurisdiction	Estimated 2014	% of 2014	Projected 2035	% of 2035 Projection
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%
Mobile Co	415,123	100%	437,228	100.00%

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
Total	166,541	43,550,759

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

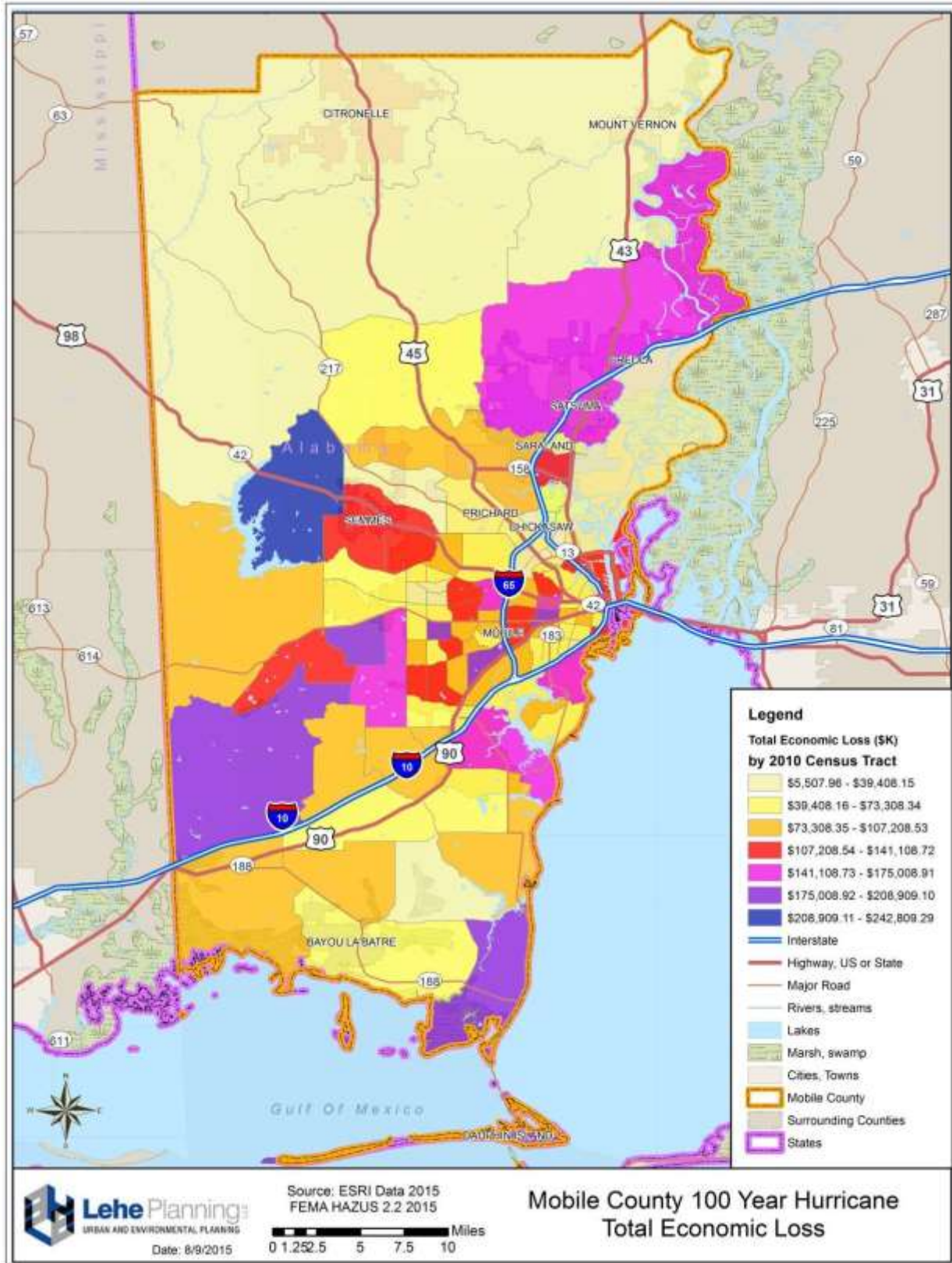
Shelter Requirements

<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

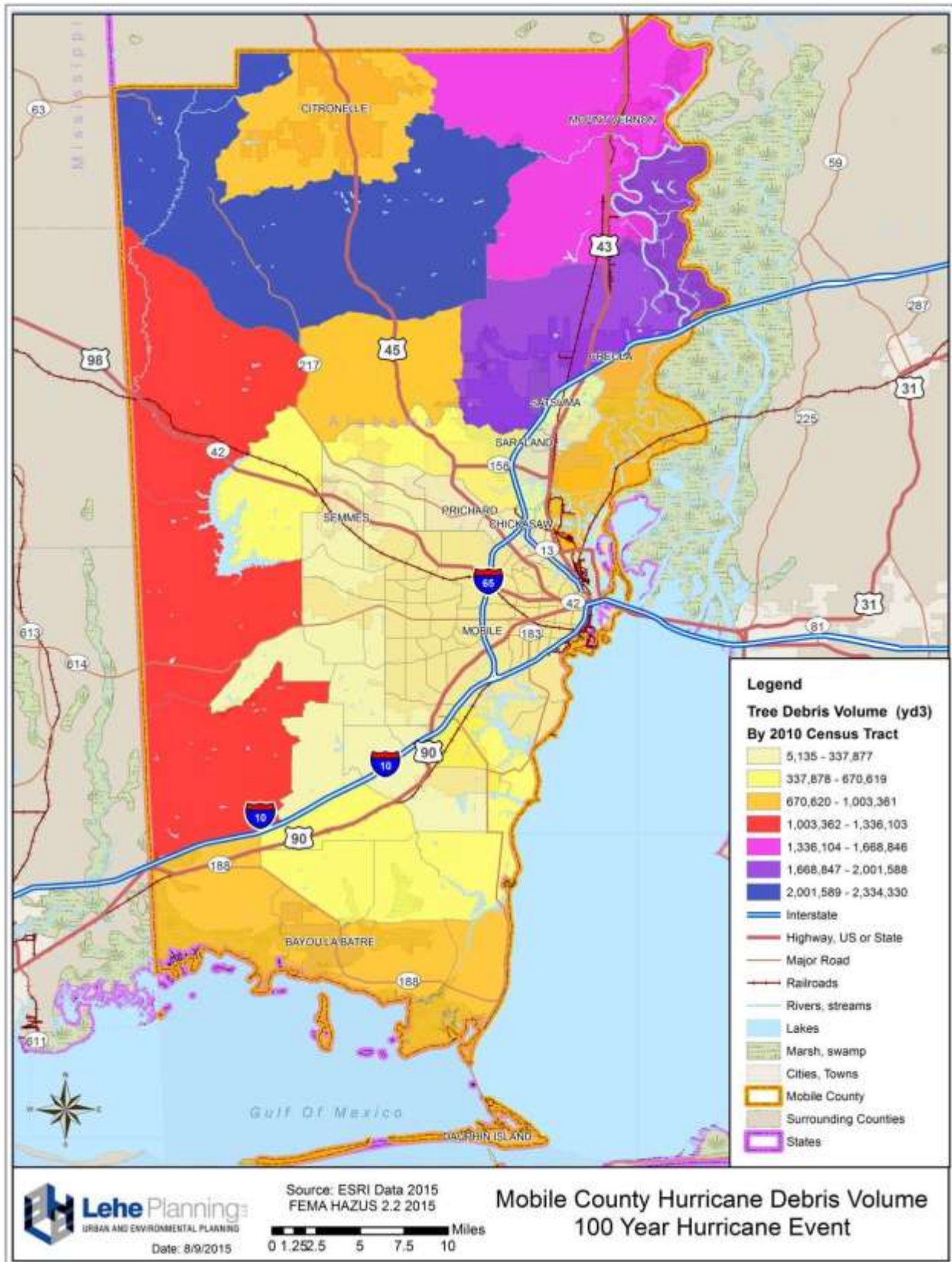
Economic Loss (x 1000)

<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
Annualized	227,908	286,180	42,994

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
Total	166,541	43,551

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
Total	81,000	5,200	2,700	89,000

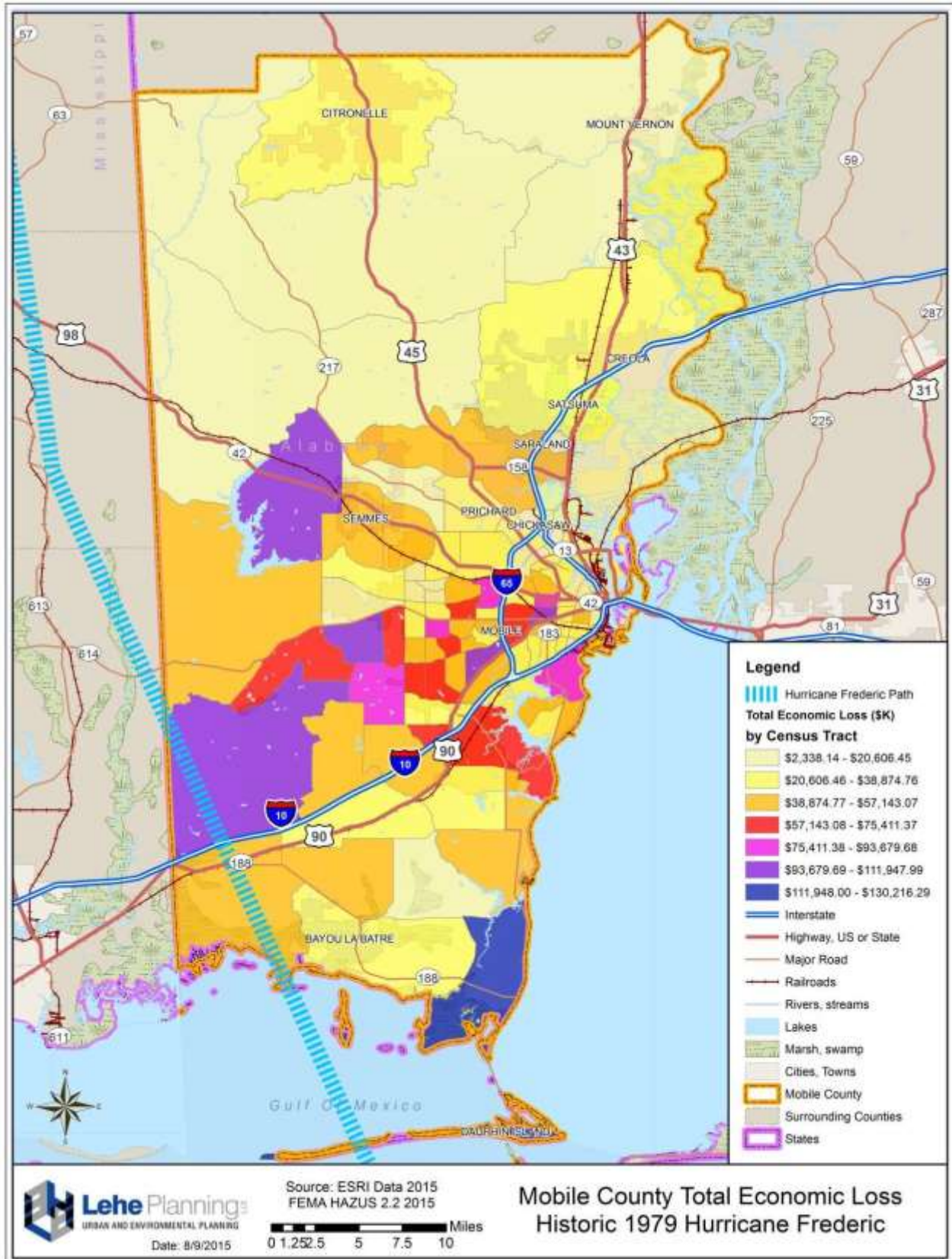
Shelter Requirements

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

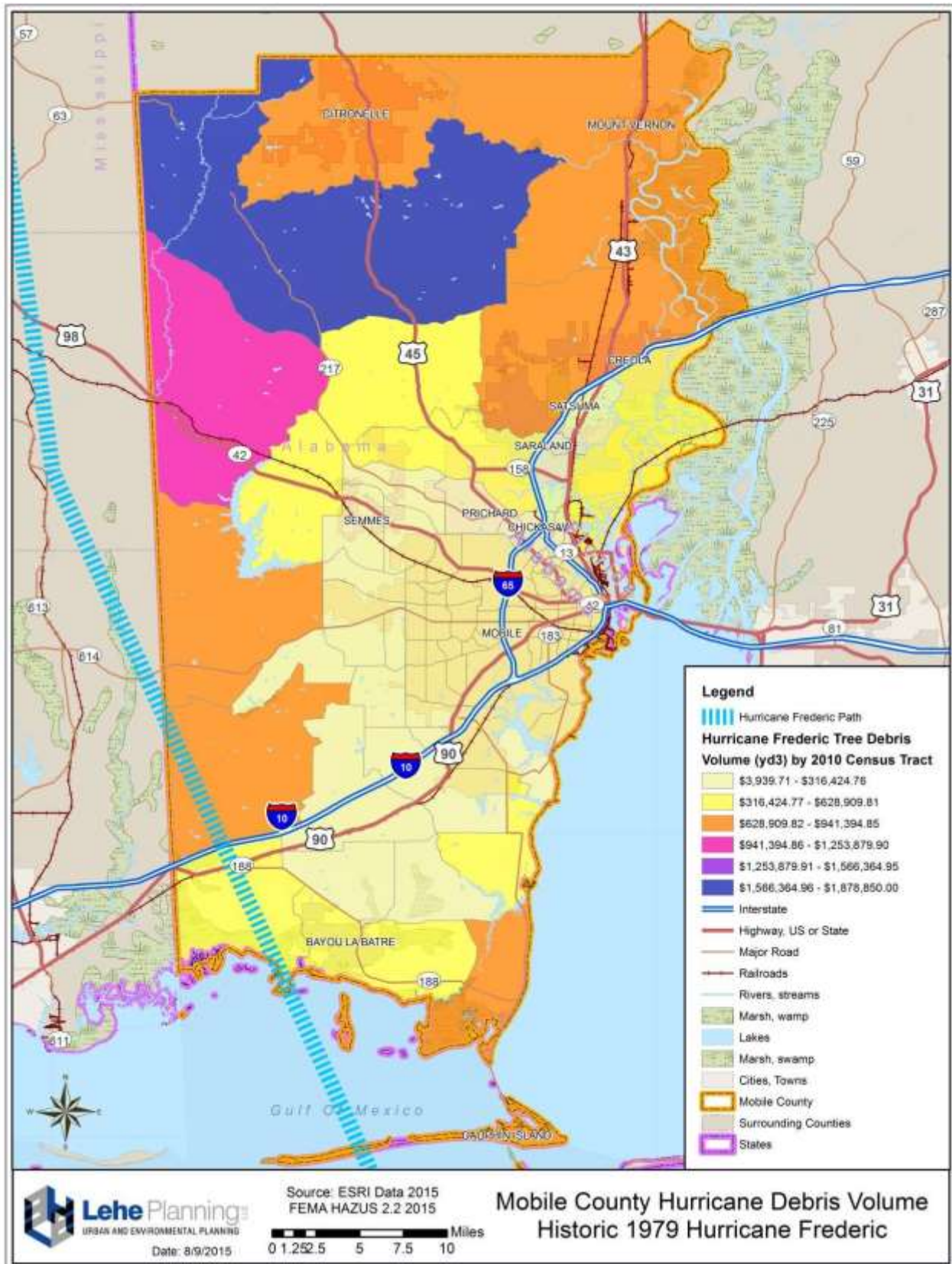
Economic Loss (\$ Millions)

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

Map 5-38. Hurricane Frederic Direct Economic Loss



Map 5-39. Hurricane Frederic Debris Volume



Map 5-40. Hurricane Frederic Wind Speeds

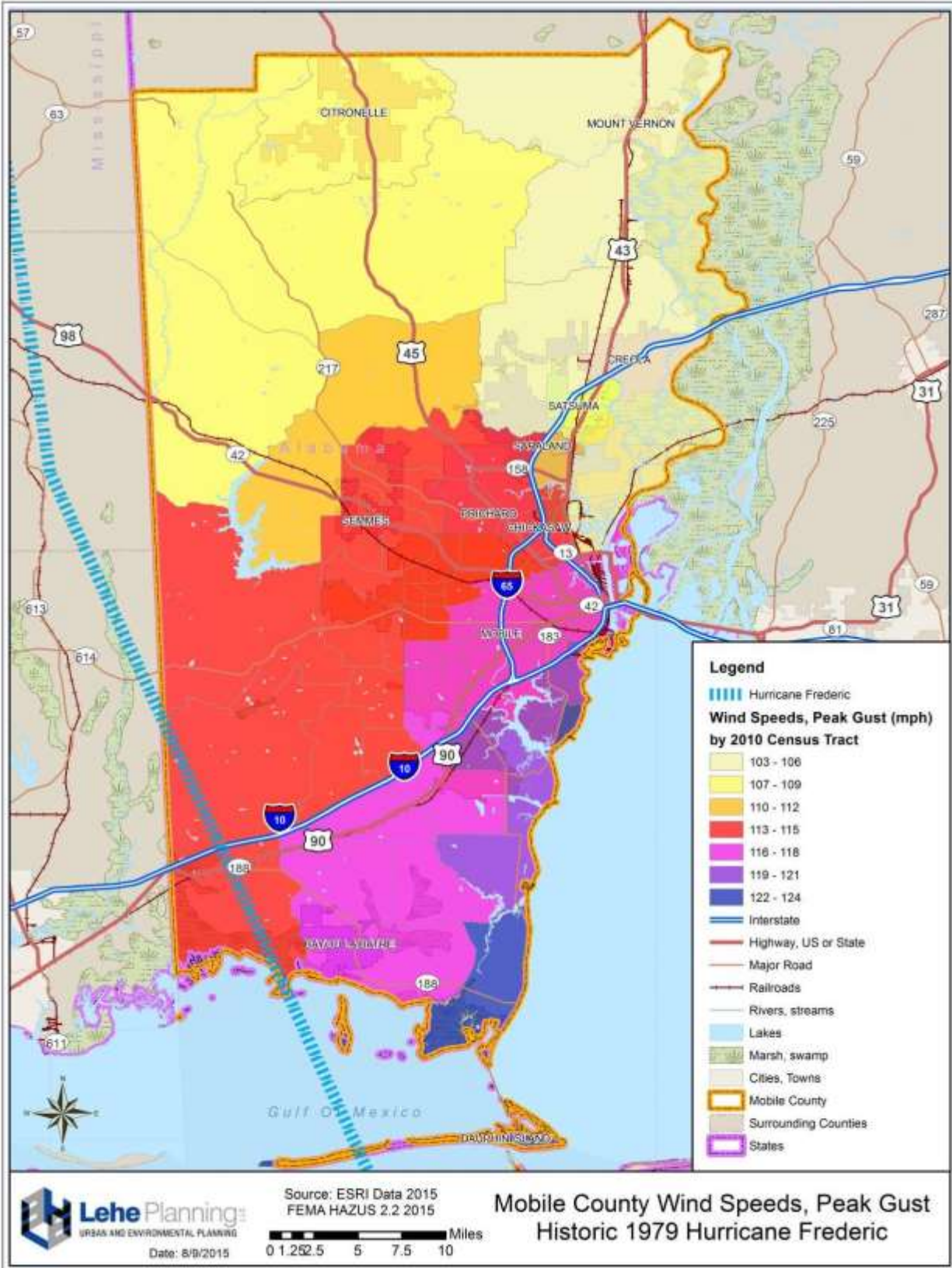


Table 5-46. Comparative Hurricane Scenarios Economic Losses

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

Mobile County 100 Year Flood Event	
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
Total Economic Losses (\$ millions)	\$1,287

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

Jurisdiction	Share of Losses	Total Economic Losses (\$ millions)
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
Total	7		107		807		460		701		153	

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

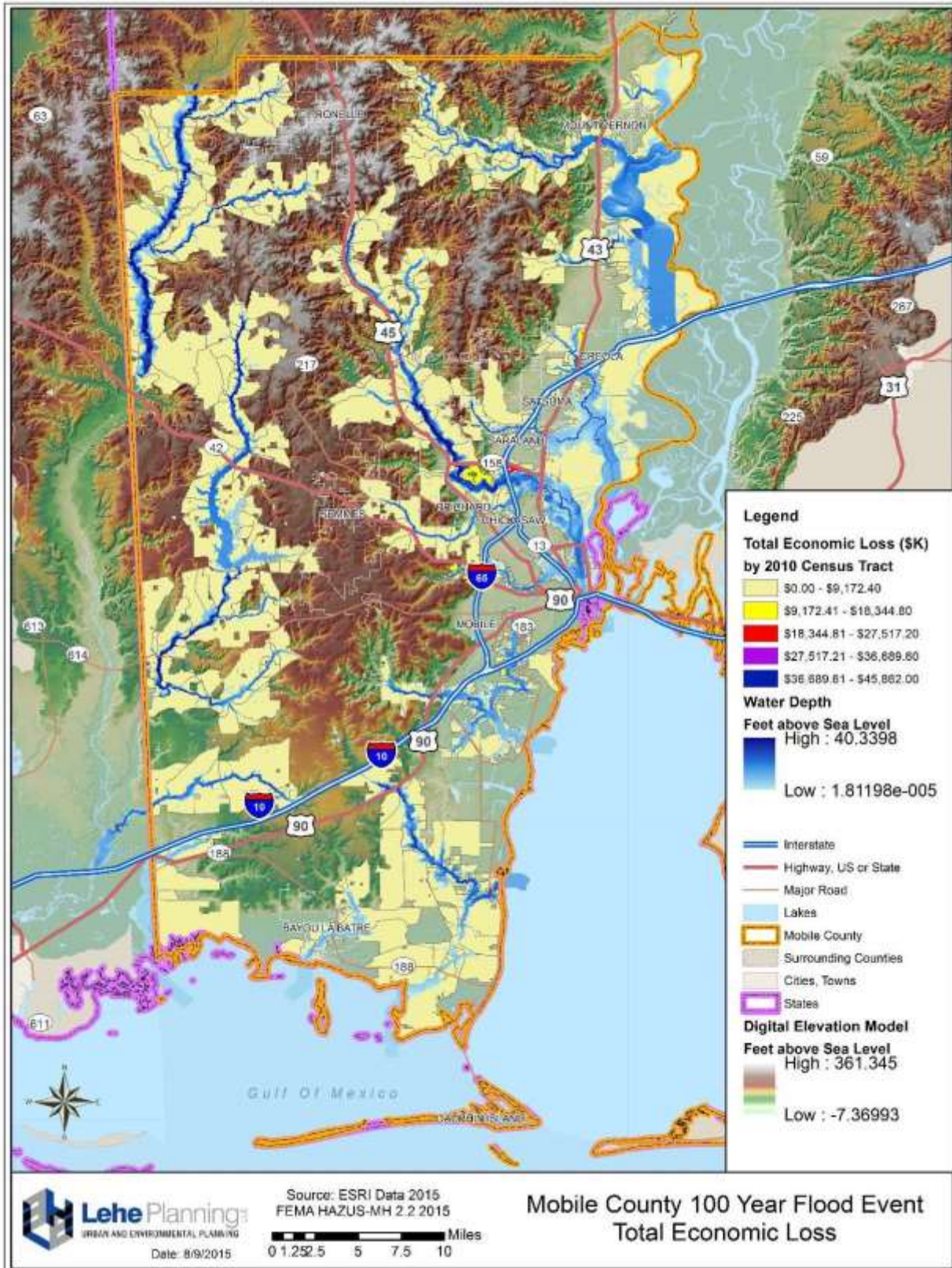
Essential Facilities Damages. HAZUS predicts that a 100 year flood event would cause at least moderate damage to 1 fire station, 2 hospitals, and 1 school (resulting in loss of use) in Mobile County.

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.

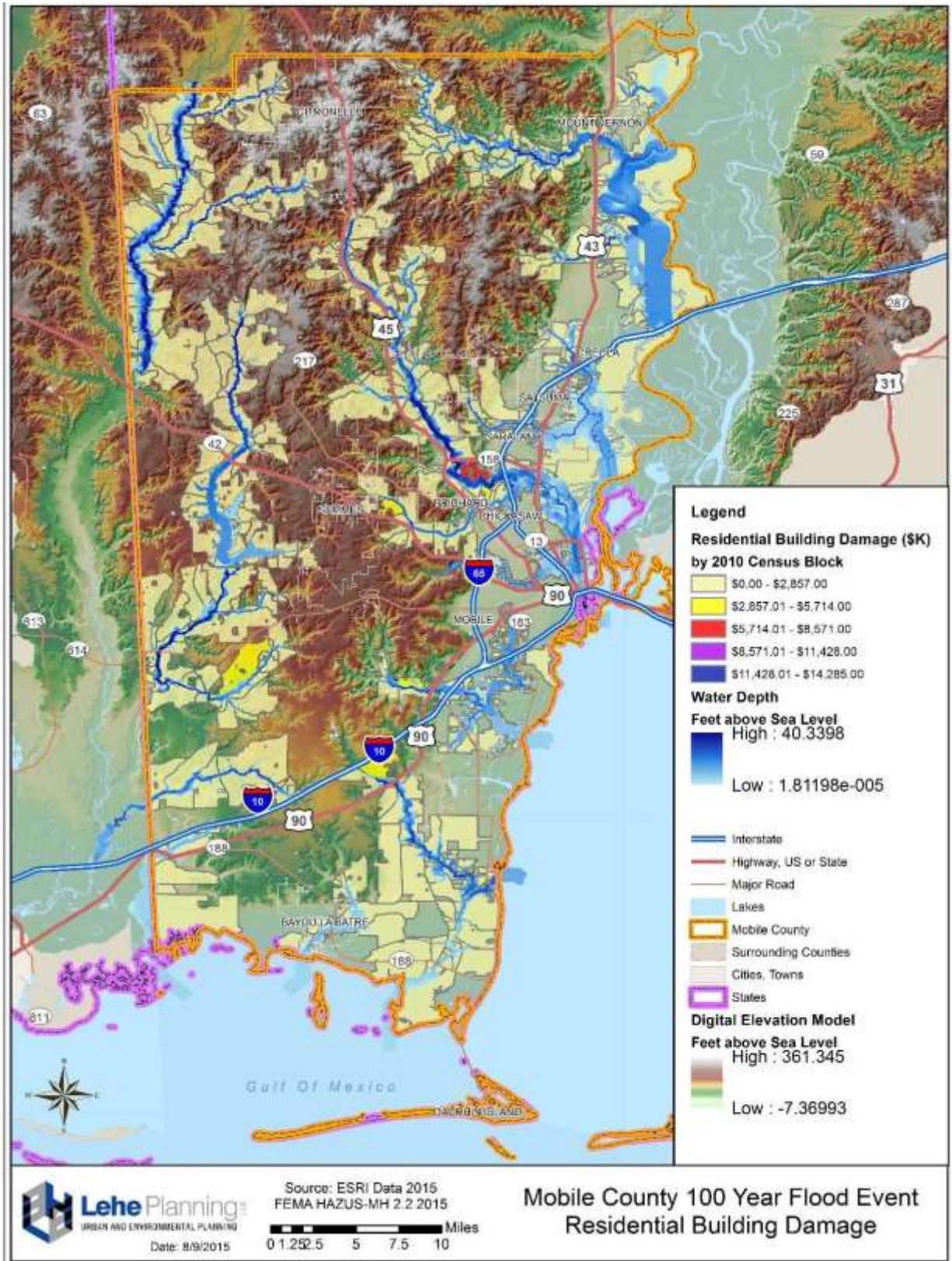
Table 5-51. Building Related Economic Loss Estimates (\$ millions)

Category	Area	Residential	Commercial	Industrial	Others	Total
<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
	Subtotal	423.96	264.55	101.62	69.73	859.86
<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
	Subtotal	0.58	1.47	0.03	1.02	3.09
ALL	Total	424.53	266.02	101.65	70.75	862.95

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
Total	165,207		1,079		241		13		1	

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
Total	165,207		1,079		241		13		1	

*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.

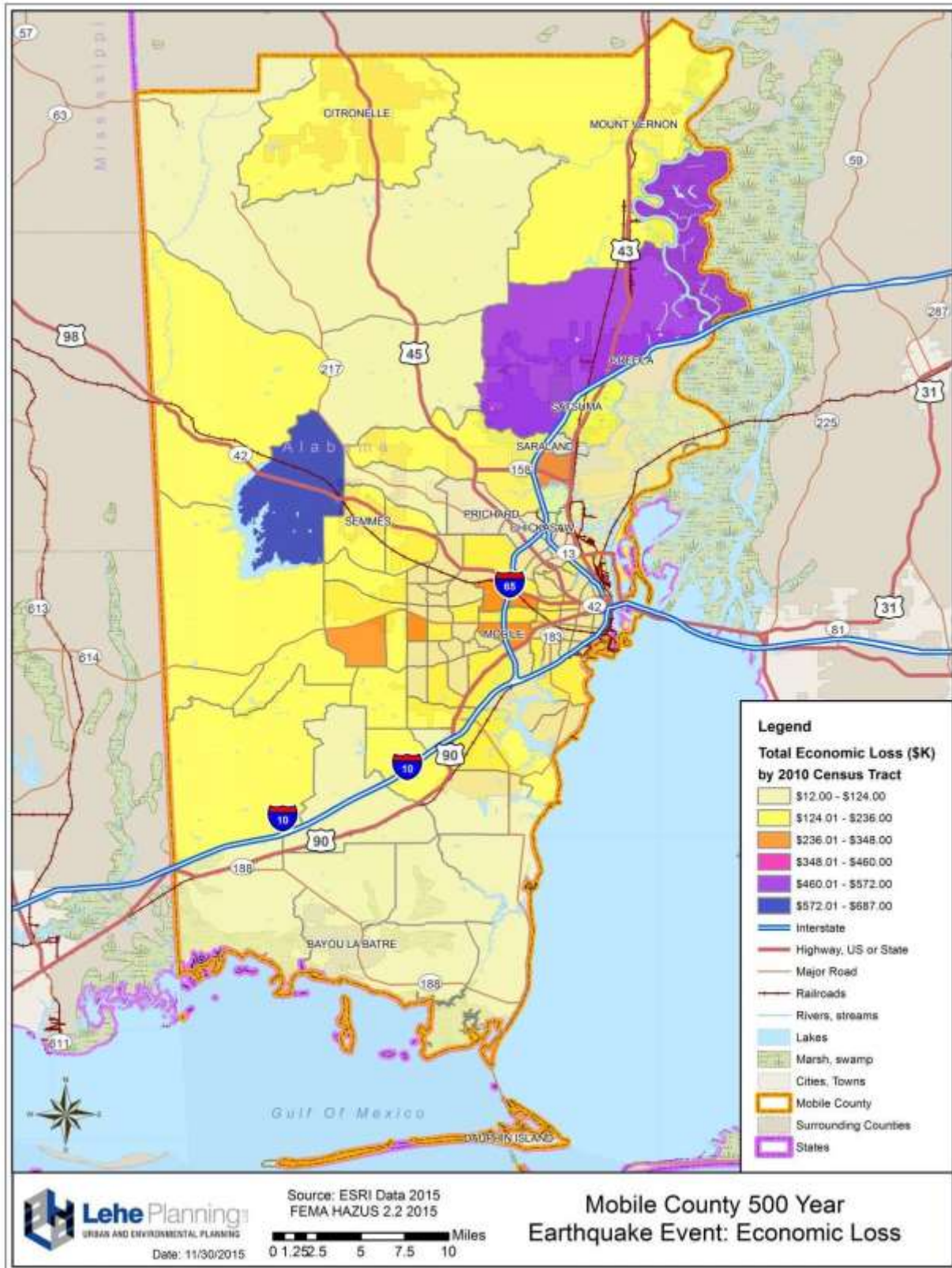
Additionally, the event report predicts that all components of the transportation system will maintain at least 50 percent functionality, because no component will suffer damage. Likewise, HAZUS predicts no disabling damage to the utility infrastructure; however, site-specific leaks and breaks in water 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
Income Losses							
	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
	Subtotal	0.42	0.72	2.91	0.15	0.49	4.70
Capital Stock Losses							
	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
	Subtotal	3.70	1.75	2.56	0.72	1.22	9.96
	Total	4.12	2.48	5.48	0.88	1.71	14.65

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

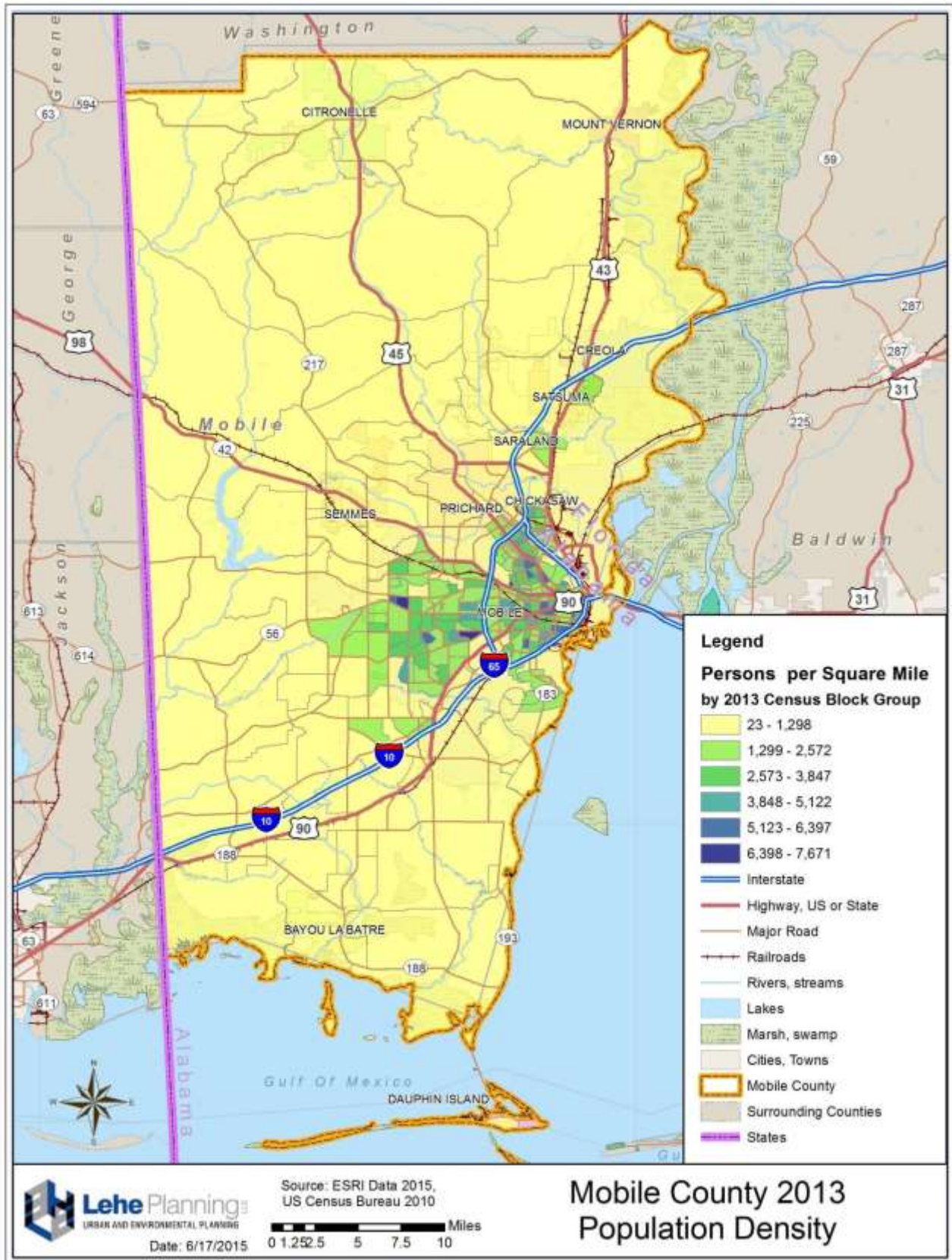
City of Mobile.

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

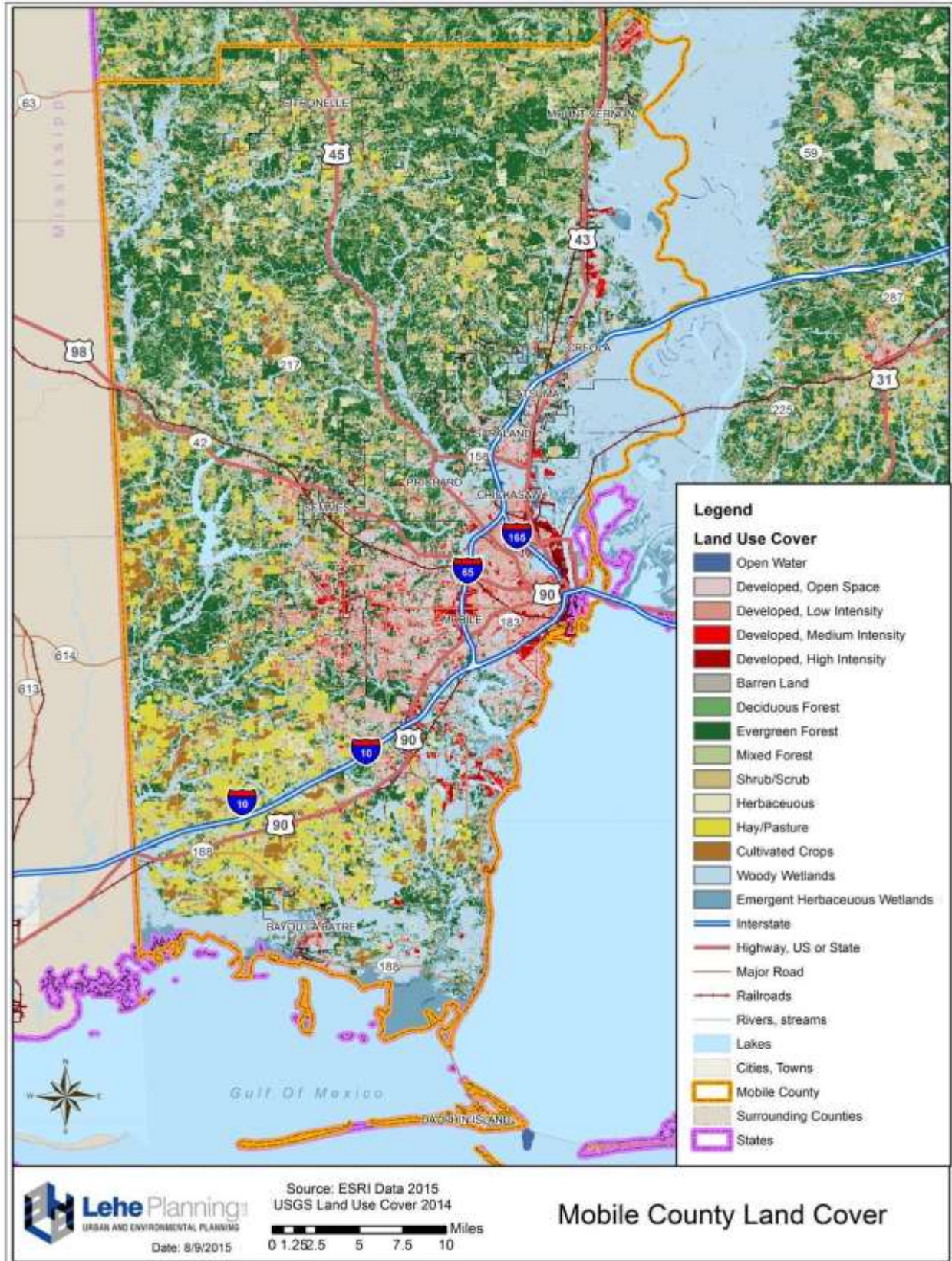


Land Use

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 ^a	2015 ^b	2020 ^b	2025 ^b	2030 ^b	2035 ^b	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%

^a US Census Bureau. 2010 Census ^b 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	22312	15,302	-7,010	-31.42%	3.50%
Saraland	13,744	15,747	2,003	14.57%	3.60%
Satsuma	6167	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	-	-	-	-	-
Total	8,800	\$2,188,571,300	2,013	5,927	\$201,127,266

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
Total	106	638	\$20,032,314

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
Hurricanes	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
Severe Storms	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

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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
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
Sinkholes (Land Subsidence)	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
Tsunamis	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
Manmade/Technological	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

CHAPTER 5

2015 Mobile County Multi-Hazard Mitigation Plan

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

CHAPTER 5

2015 Mobile County Multi-Hazard Mitigation Plan

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

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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

Section		Change
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	Goal for Prevention. Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	Comprehensive Plans and Smart Growth. Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.					
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions. Each plan should address natural hazards exposure and include long-term disaster resistance measures. The vulnerability and environmental suitability of lands for future development should be clearly addressed. Local plans should assess the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	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

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	
1.2	Geographic Information Systems (GIS). Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					
1.2.1	Maintain a centralized, countywide natural hazards and risk assessment database in GIS that is accessible to local planners and emergency management personnel, including such data as, flood zones, geohazards, major drainages structures, dams/levees, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	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
1.3	Planning Studies. Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	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	Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	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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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	<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.					
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	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	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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	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	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	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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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
1.8	<u>Landscape Ordinances.</u> Establish minimum standards for planting areas for trees and vegetation to reduce storm water runoff and improve urban aesthetics.					
1.8.1	Review and revise as necessary, landscaping standards for parking lots that reduce the size of impervious surfaces and encourage natural infiltration of rainwater.	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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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
1.9	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.9.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	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
1.10	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.10.1	Support legislation to establish a State dam safety program.	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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Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source	
1.11	Community Rating System Program (CRS). 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	Critical Facilities Assessments. Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					
1.12.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	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	Goal for Property Protection: Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	Building Relocation. Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					

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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
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	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
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	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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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
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Flooding	Existing	Project	HMA
2.5	<u>Flood Control Measures.</u> Small flood control measures built to reduce/prevent flood damage					
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
2.6	<u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
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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	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	<u>Hazard Insurance Awareness.</u> Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.7.1	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	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.8.1	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	<u>Back Up Power:</u> Assure uninterrupted power supplies during emergency events.					

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	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	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	All	Both	Action	Existing
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	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	<u>Real Estate Disclosure.</u> Encourage real estate agents to disclose flood plain location for property listings.					
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	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.4.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Action	Existing
3.5	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					

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Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
3.5.1	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	<u>Community Hazard Mitigation Plan Distribution.</u> Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.6.1	Distribute the 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	<u>Technical Assistance.</u> Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.					
3.7.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	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	Mass Media Relations. Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.					
3.8.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	All	Both	Action	Existing
3.9	Weather Radios. 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	Disaster Warning. Improve public warning systems.					

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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	Goal for Natural Resources Protection. Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	Open Space Easements and Acquisitions. Acquire easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands to assure permanent protection of these natural resources.					

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	Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
4.1.1	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	<u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.					
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	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	<u>Urban Forestry Programs.</u> Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.					
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland and Satsuma	Flooding	Existing	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
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
4.4	<u>Beach and Dune Protection/Renourishment.</u> Protect beaches and dunes from coastal and man-made erosion and renourish.					
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
4.5	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.5.1	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	Goal for Structural Projects. Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1	Drainage System Maintenance. Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Mobile County, Bayou La Batre, Chickasaw, Citronelle, Creola, Dauphin Island, Mobile, Mount Vernon, Prichard, Saraland, Satsuma and Semmes	Flooding	Both	Action	Existing
5.2	Reservoirs and Drainage System Improvements. Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	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	Community Shelters and Safe Rooms: 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 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.

2015
MOBILE COUNTY, ALABAMA
Multi-Hazard Mitigation Plan

II. Community action programs

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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Draft December 14, 2015

2015 Mobile County, Alabama, Multi-Hazard Mitigation Plan

II. Community Action Programs

*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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Draft December 14, 2015

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Community Action Programs

- 1.0 Development of Community Action Programs
- 2.0 Community Action Programs by Jurisdiction

1.0 Development of Community Action Programs

The Community Action Programs presented here supplement Table 6-3 “2015-2020 Mobile County Multi-Jurisdictional Mitigation Action Program” found in Volume I, Chapter 6, Section 6.6. These Community Action Programs delineate the same mitigation goals, objectives, and mitigation measures by community and add the priority, timeframe for completion, and lead responsibility for implementation. Section 6.3.1 “Description of How the Goals were Developed” describes the process leading to selection of mitigation measures by each jurisdiction.

In developing a list of mitigation measures for potential loss reduction, the planning team, in cooperation with the Hazard Mitigation Planning Committee (HMPC), consulted these four primary sources:

- 1) The 2010 Mobile County Multi-Hazard Mitigation Plan;
- 2) The 2013 Alabama State Hazard Mitigation Plan;
- 3) Appendix C – “Plan Implementation Status”; and
- 4) Appendix F – “Identification and Analysis of Mitigation Measures”.

First, the planning team examined the implementation status of the mitigation measures adopted by each community in the 2010 plan. Next, the planning team reviewed the alternative measures with the HMPC (refer to Appendix F). The HMPC then selected among alternatives to develop the overall county mitigation strategy and action program for each jurisdiction. The team also added the action items that are listed in the 2013 Alabama State Hazard Mitigation Plan mitigation strategy, in which the State assigned implementation responsibility to local jurisdictions. Finally, the HMPC selected mitigation actions through various exercises and added them to the list.

The results of the planning steps described above comprise each jurisdiction’s Community Action Program. Each participating jurisdiction was provided an opportunity to choose the measures for completion during the five-year (2015-2020) plan update cycle. Jurisdictional representatives were asked to rank the priority of each measure and choose a timeframe for completion. Measures could be ranked as short-range (less than two years), mid-range (two to five years), or long-range (five or more years). In addition, various measures, carried over from previous plans, are included. The agency responsible for implementation of each measure has been identified, and estimated costs and funding source have been noted (where available). Most cost estimates will be provided at the time the measure is planned for implementation, or, if eligible for FEMA HMA funding, at the time of application.

2.0 Community Action Programs for Each Jurisdiction

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

Key

- Action programs are in alphabetical order by jurisdiction.
- The action programs assign lead responsibility for implementation to a specific department or agency or position within the organization.
- Priorities are *High*, *Medium*, and *Low*.
- Timelines are *Short-Range* (less than 2 years), *Mid-Range* (2-5years), *Long-Range* (more than 5 years) or *Ongoing*.
- General cost estimates and potential funding sources are identified. FEMA Hazard Mitigation Assistance funds, where noted as a possible funding source, are subject to final eligibility determination, including, among other eligibility criteria, a positive benefit/cost analysis, and the availability of funds.
- *TBD* is "To Be Determined."

2.1 Mobile County Community Action Program

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.					
1.1.1	Prepare a five-year capital improvements plan (CIP) to include capital projects that implement the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Building Official	Medium	Mid-Range	Existing	TBD
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socioeconomic data, infrastructure, and critical facilities inventories.					
1.2.1	Maintain a centralized, countywide natural hazards and risk assessment database in GIS that is accessible to local planners and emergency management personnel; including such data as, flood zones, geohazards, major drainage structures, dams/levees, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	City of Mobile GIS Dept.	Low	Mid-Range	HMA	TBD
1.2.2	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.	City of Mobile GIS Dept.	Low	Mid-Range	FEMA HMA Grant	TBD

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.2.3	Mark depths of flooding and storm surge immediately after each event. Enter and maintain these historical records in GIS.	City of Mobile GIS Dept.	High	Long-Range/Ongoing	Existing	TBD
1.3	<u>Planning Studies.</u> Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	Local Floodplain Manager	Medium	Long-Range	FEMA HMA Grant	TBD
1.3.2	Identify existing culturally or socially significant structures and critical facilities within Mobile County that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Building Official	Low	Long-Range	TBD	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Medium	Long-Range	FEMA HMA Grant	TBD
1.4	<u>Zoning.</u> Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	County Commission	Medium	Short-Range	Existing	TBD
1.4.2	Evaluate additional land use restrictions within designated flood zones, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	County Commission	Medium	Short-Range	Existing	TBD

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	County Commission	Medium	Mid-Range	Existing	TBD
1.4.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	County Commission	Medium	Mid-Range	Existing	TBD
1.5	<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.					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	County Commission	Medium	Mid-Range	Existing	TBD
1.6	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Local Floodplain Manager	High	Long-Range/Ongoing	Existing	TBD
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Local Floodplain Manager	Medium	Ongoing	Existing	TBD
1.6.3	Promote the adoption of uniform flood hazard prevention ordinance among all NFIP communities. The ordinance standards should encourage flood plain management that maintains the natural and beneficial functions of flood plains by maximizing the credits that could be obtained for "Higher Regulatory Standards" under the Community Rating System (CRS) Program.	Local Floodplain Manager	High	Mid-Range	FEMA HMA Grant	TBD

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.6.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association of Flood Plain Managers and encourage active participation.	Local Floodplain Manager	High	Short-Range	Existing	TBD
1.6.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Local Floodplain Manager	Medium	Short-Range	Other	TBD
1.6.6	Improve flood risk assessment by documenting high water marks post event, verifying FEMA's repetitive loss inventory, and revising/updating regulatory floodplain maps.	Local Floodplain Manager	Medium	Short-Range	TBD	TBD
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Building Official	High	Ongoing	Existing	TBD
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."	Building Official	High	Short-Range	Existing	TBD

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.7.3	Relocate existing utility lines underground, where feasible and cost effective, and require, through local subdivision and land development regulations, the placement of all new utility lines underground for large residential subdivisions and commercial developments.	County Commission	High	Long-Range	TBD	TBD
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Building Official	High	Short-Range	Existing	TBD
1.7.6	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	County Commission	High	Ongoing	FEMA HMA Grant	TBD
1.8	<u>Landscape Ordinances.</u> Establish minimum standards for planting areas for trees and vegetation to reduce storm water runoff and improve urban aesthetics.					
1.8.1	Review and revise as necessary, landscaping standards for parking lots that reduce the size of impervious surfaces and encourage natural infiltration of rainwater.	County Commission	Low	Mid-Range	Existing	TBD
1.10	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.10.1	Support legislation to establish a State dam safety program.	County Commission	Low	Mid-Range	Existing	TBD
1.11	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.11.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Short-Range	Existing	TBD

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.12	<u>Critical Facilities Assessments.</u> Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					
1.12.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Building Official	Low	Long-Range	Existing	TBD
1.12.2	Conduct wildfire vulnerability assessments, including the vulnerability of critical facilities and number of residential properties in these risk areas, and prepare a comprehensive inventory to identify high and moderate wildfire risk areas.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
2	<u>Goal for Property Protection:</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					
2.1.1	Pursue FEMA grant funds to relocate buildings out of hazardous flood areas, with emphasis on pre-FIRM residential buildings, where deemed more cost effective than property acquisition or building elevation.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Building Official	High	Short-Range	FEMA HMA Grant	TBD

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5	<u>Flood Control Measures.</u> Construct small flood control measures to reduce/prevent flood damage.					
2.5.1	Examine use of minor structural projects (small berm or floodwalls) in areas that cannot be mitigated through non-structural mitigation techniques.	Building Official	Low	Long-Range	FEMA HMA Grant	TBD
2.6	<u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.6.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Building Official	Medium	Short-Range	Existing	TBD
2.6.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Building Official	Medium	Short-Range	Existing	TBD
2.7	<u>Hazard Insurance Awareness.</u> Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.7.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Local Floodplain Manager	High	Ongoing	Existing	TBD
2.8	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.8.1	Install lightning and/or surge protection on existing critical facilities.	Building Official	Low	Long-Range	TBD	TBD
2.9	<u>Backup Power.</u> Ensure uninterrupted power supply for critical facilities during emergency events.					
2.9.1	Pursue grant funding for the installation of backup power generators for critical facilities.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the measures available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Building Official	Low	Mid-Range	Existing	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.2	Distribute materials, via the internet and other media, and other outreach activities and workshops to encourage families and individuals to implement hazard mitigation measures in their homes.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.3	Promote disaster resilience within the business community through workshops, educational materials and planning guides, intended to assist business owners in recovering from a disaster event in a timely manner.	County Commission	Low	Long-Range	Existing	TBD
3.3	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.3.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.3.2	Consider the enactment of a local ordinance or state law to require floodplain disclosure when a property is for sale.	Local Floodplain Manager	Medium	Mid-Range	Local Funds	TBD

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.4	<u>Community Hazard Mitigation Plan Distribution.</u> Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.4.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	Mobile County EMA	High	Short-Range	Existing	TBD
3.5	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.5.1	Promote the use of weather radios in households and businesses.	County Commission	High	Short-Range	Existing	TBD
3.6	<u>Disaster Warning.</u> Improve public warning systems.					
3.6.1	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.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.6.2	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.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.6.3	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.6.4	Upgrade critical communications infrastructure.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.7	Technical Assistance. Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.					
3.7.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	Floodplain Manger	Medium	Short-Range	Local Funds	TBD
3.8	Mass Media Relations. Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.					
3.8.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	County Commission	Medium	Ongoing	Local Funds	TBD
3.9	Weather Radios. Improve public access to weather alerts.					
3.9.1	Promote the use of weather radios in households and businesses.	County Commission	High	Short-Range	Existing	TBD
3.10	Disaster Warning. Improve public warning systems.					
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.	County Commission	High	Mid-Range	FEMA HMA Grant	TBD
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.	County Commission	High	Mid-Range	FEMA HMA Grant	TBD

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.10.3	Evaluate the feasibility of a shared tri-county ALERT system covering Baldwin, Escambia, and Mobile counties.	County Commission	Low	Long-Range	FEMA HMA Grant	TBD
3.10.5	Upgrade critical communications infrastructure.	County Commission	High	Long-Range	TBD	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> Acquire easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands to assure permanent protection of these natural resources.					
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.	County Commission	High	Short-Range	FEMA HMA Grant	TBD
4.2	<u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.					
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	County Commission	High	Ongoing	Other	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	County Commission	High	Ongoing	Existing	TBD
4.3	<u>Urban Forestry Programs.</u> Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.					

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).	County Commission	Medium	Mid-Range	Existing	TBD
4.3.2	Increase overall green spaces in cities by planting hurricane resistant trees with site and location taken into consideration.	County Commission	Medium	Mid-Range	Existing	TBD
4.4	<u>Beach and Dune Protection/Renourishment.</u> Protect beaches and dunes from coastal and man-made erosion and implement renourishment programs.					
4.4.1	Restore and protect wetlands to enhance stormwater drainage.	County Commission	Medium	Mid-Range	Existing	TBD
4.4.2	Develop a coastal renourishment program.	County Commission	Low	Long-Range	Other	TBD
4.5	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.5.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	County Commission	Medium	Long-Range	Existing	TBD
5	<u>Goal for Structural Projects.</u> Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Building Official/Mobile County EMA	Medium	Short-Range	Existing	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					

Mobile County Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	Building Official/County Commission	High	Mid-Range	FEMA HMA Grant	TBD
5.3	<u>Community Shelters and Safe Rooms.</u> Provide shelters from natural hazards for the safety of community residents.					
5.3.1	Construct new community safe rooms in accessible locations and add safe rooms within new and existing public and institutional buildings, such as schools, colleges and universities, senior centers, community centers, hospitals, and government buildings.	County Commission	High	Long-Range	FEMA HMA Grant	TBD
5.3.2	Establish a program for subsidizing individual and community safe room construction in appropriate locations and facilities.	County Commission	High	Long-Range	FEMA HMA Grant	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	County Commission	High	Long-Range	FEMA HMA Grant	TBD

2.2 Bayou La Batre Community Action Program

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.					
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions. Each plan should address natural hazards exposure and include long-term disaster resistance measures. The vulnerability and environmental suitability of lands for future development should be clearly addressed. Local plans should assess the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implement the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Mayor and Council	Medium	Mid-Range	Existing	TBD

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socioeconomic data, infrastructure, and critical facilities inventories.					
1.2.1	Maintain a centralized, countywide natural hazards and risk assessment database in GIS that is accessible to local planners and emergency management personnel, including such data as, flood zones, geohazards, major drainage 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 EMA	Low	Mid-Range	HMA	TBD
1.2.2	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.	Mobile County EMA	Low	Mid-Range	FEMA HMA Grant	TBD
1.3	<u>Planning Studies.</u> Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	Local Floodplain Manager/	Medium	Long-Range	FEMA HMA Grant	TBD
1.3.2	Identify existing culturally or socially significant structures and critical facilities within Mobile County that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Building Official	Low	Long-Range	TBD	TBD

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.3	Evaluate elevation and culvert sizing of existing roadways in flash flood-prone areas to ensure compliance with current standards for design year floods, and develop a program for construction upgrades as appropriate.	Building Official	Low	Long-Range	TBD	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Building Official	Low	Long-Range	TBD	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Medium	Long-Range	FEMA HMA Grant	TBD
1.4	<u>Zoning.</u> Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	Mayor and Council	Medium	Short-Range	Existing	TBD
1.4.2	Evaluate additional land use restrictions within designated flood zones, such as prohibition of storage of buoyant materials, storage of hazardous materials, and restrictive development of flood ways, among others.	Mayor and Council	Medium	Short-Range	Existing	TBD
1.4.3	Require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Mayor and Council	Medium	Short-Range	Existing	TBD
1.4.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and Council	High	Short-Range	Existing	TBD

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5	<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.					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	Mayor and Council	Medium	Mid-Range	Existing	TBD
1.6	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Local Floodplain Manager	High	Long-Range/Ongoing	Existing	TBD
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Local Floodplain Manager	Medium	Ongoing	Existing	TBD
1.6.3	Promote the adoption of uniform flood hazard prevention ordinance among all NFIP communities. The ordinance standards should encourage flood plain management that maintains the natural and beneficial functions of flood plains by maximizing the credits that could be obtained for "Higher Regulatory Standards" under the Community Rating System (CRS) Program.	Local Floodplain Manager	High	Mid-Range	FEMA HMA Grant	TBD
1.6.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association of Flood Plain Managers and encourage active participation.	Local Floodplain Manager	High	Short-Range	Existing	TBD

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.6.5	Participate in the “Turn Around Don’t Drown” program by purchasing and installing signs in known flash flood bridge overpass locations.	Local Floodplain Manager	Medium	Short-Range	Other	TBD
1.6.6	Improve flood risk assessment by documenting high water marks post event, verifying FEMA’s repetitive loss inventory, and revising and updating regulatory floodplain maps.	Local Floodplain Manager	Medium	Short-Range	TBD	TBD
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Building Official	High	Ongoing	Existing	TBD
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.”	Building Official	High	Short-Range	Existing	TBD
1.7.4	Ensure that fire safety ordinances properly regulate open burning, the use of liquid fuel, and electric space heaters.	Building Official	Low	Mid-Range	Existing	TBD
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Building Official	High	Short-Range	Existing	TBD
1.7.6	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings, where feasible.	Mayor and Council	High	Ongoing	FEMA HMA Grant	TBD

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.8	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.8.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager	High	Ongoing	Existing	TBD
1.89.2	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	Mayor and Council	High	Ongoing	Existing	TBD
1.9	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.9.1	Support legislation to establish a State dam safety program.	Mayor and Council	Low	Mid-Range	Existing	TBD
1.10	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.10.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Short-Range	Existing	TBD
1.11	<u>Critical Facilities Assessments.</u> Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					
1.11.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.11.2	Conduct wildfire vulnerability assessments, including the vulnerability of critical facilities and number of residential properties in these risk areas, and prepare a comprehensive inventory to identify high and moderate wildfire risk areas.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
2	<u>Goal for Property Protection.</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					
2.1.1	Pursue FEMA grant funds to relocate buildings out of hazardous flood areas, with emphasis on pre-FIRM residential buildings, where deemed more cost effective than property acquisition or building elevation.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2.2	Utilize the most recent NFIP repetitive loss property list, and other appropriate sources, to create and maintain a prioritized list of acquisition mitigation projects based on claims paid.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5	<u>Flood Control Measures.</u> Construct small flood control measures to reduce/prevent flood damage.					
2.5.1	Examine use of minor structural projects (small berm or floodwalls) in areas that cannot be mitigated through non-structural mitigation techniques.	Building Official	Low	Long-Range	FEMA HMA Grant	TBD
2.6	<u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.6.1	Pursue FEMA grant funds to retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.6.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Building Official	Medium	Short-Range	Existing	TBD
2.7	<u>Hazard Insurance Awareness.</u> Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.7.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Local Floodplain Manager	High	Ongoing	Existing	TBD
2.8	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.8.1	Install lightning and/or surge protection on existing critical facilities.	Building Official	Low	Long-Range	TBD	TBD
2.9	<u>Backup Power:</u> Ensure uninterrupted power suppl during emergency events.					
2.9.1	Pursue grant funding for the installation of backup power generators for critical facilities.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Building Official	Low	Mid-Range	Existing	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.2	Distribute materials, via the internet and other media, and other outreach activities and workshops to encourage families and individuals to implement hazard mitigation measures in their homes.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.3	Promote disaster resilience within the business community through workshops, educational materials and planning guides, intended to assist business owners in recovering from a disaster event in a timely manner.	Mayor and Council	Low	Long-Range	Existing	TBD
3.2.4	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	Mayor and Council	High	Short-Range	Existing	TBD
3.3	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.3.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.4	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					
3.4.1	Distribute hazard mitigation brochures to students through area schools.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.5	<u>Community Hazard Mitigation Plan Distribution.</u> Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.5.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	Mobile County EMA	High	Short-Range	Existing	TBD
3.6	<u>Technical Assistance.</u> Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.					
3.6.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	Building Official	High	Short-Range	Existing	TBD
3.7	<u>Mass Media Relations.</u> Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.					
3.7.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.8	<u>Weather Radios.</u> Improve public access to weather alerts.					

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.8.1	Promote the use of weather radios in households and businesses.	Mayor and Council	High	Short-Range	Existing	TBD
3.8.2	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and Council	High	Short-Range	Existing	TBD
3.9	<u>Disaster Warning.</u> Improve public warning systems.					
3.9.1	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.2	Upgrade critical communications infrastructure.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> Acquire easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands to assure permanent protection of these natural resources.					
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.	Mayor and Council	High	Short-Range	FEMA HMA Grant	TBD
4.2	<u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.					
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	Mayor and Council	High	Ongoing	Other	TBD

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Mayor and Council	High	Ongoing	Existing	TBD
4.3	<u>Urban Forestry Programs.</u> Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.					
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).	Mayor and Council	Medium	Mid-Range	Existing	TBD
4.4	<u>Beach and Dune Protection/Renourishment.</u> Protect beaches and dunes from coastal and man-made erosion and implement renourishment programs					
4.4.1	Restore and protect wetlands to enhance stormwater drainage.	Mayor and Council	Medium	Mid-Range	Existing	TBD
4.4.2	Develop a coastal renourishment program.	Mayor and Council	Low	Long-Range	Other	TBD
4.5	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.5.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and Council	Medium	Long-Range	Existing	TBD
5	<u>Goal for Structural Projects.</u> Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					

Town of Bayou La Batre Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Building Official	Medium	Short-Range	Existing	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	Building Official	High	Mid-Range	FEMA HMA Grant	TBD
5.3	<u>Community Shelters and Safe Rooms.</u> Provide shelters from natural hazards for the safety of community residents.					
5.3.1	Construct new community safe rooms in accessible locations and add safe rooms within new and existing public and institutional buildings, such as schools, colleges and universities, senior centers, community centers, hospitals, and government buildings.	Mayor and Council	High	Long-Range	FEMA HMA Grant	TBD
5.3.2	Establish a program for subsidizing individual and community safe room construction in appropriate locations and facilities.	Mayor and Council	High	Long-Range	FEMA HMA Grant	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and Council	High	Long-Range	FEMA HMA Grant	TBD

2.3 Chickasaw Community Action Program

City of Chickasaw Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	Goal for Prevention. Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	Comprehensive Plans and Smart Growth. Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.					
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions. Each plan should address natural hazards exposure and include long-term disaster resistance measures. The vulnerability and environmental suitability of lands for future development should be clearly addressed. Local plans should assess the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implement the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Building Official/City Council and Mayor	Low	Long-Range	Existing	TBD

City of Chickasaw Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.2	Geographic Information Systems (GIS). Maintain a comprehensive database of hazards locations, socioeconomic data, infrastructure, and critical facilities inventories.					
1.2.1	Maintain a centralized, countywide natural hazards and risk assessment database in GIS that is accessible to local planners and emergency management personnel, including such data as, flood zones, geohazards, major drainage structures, dams/levees, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	City of Mobile GIS Dept./Mobile County EMA	Low	Mid-Range	HMA	TBD
1.2.2	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.	Mobile County EMA	Low	Mid-Range	FEMA HMA Grant	TBD
1.3	Planning Studies. Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	Local Floodplain Manager	Medium	Long-Range	FEMA HMA Grant	TBD
1.3.2	Identify existing culturally or socially significant structures and critical facilities within Mobile County that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Building Official	Low	Long-Range	TBD	TBD

City of Chickasaw Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.3	Evaluate elevation and culvert sizing of existing roadways in flash flood-prone areas to ensure compliance with current standards for design year floods, and develop a program for construction upgrades as appropriate.	Building Official	Low	Long-Range	TBD	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Building Official	Low	Long-Range	TBD	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Medium	Long-Range	FEMA HMA Grant	TBD
1.4	Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	City Council and Mayor	Medium	Short-Range	Existing	TBD
1.4.2	Evaluate additional land use restrictions within designated flood zones, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	City Council and Mayor	Medium	Short-Range	Existing	TBD
1.4.3	Require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	City Council and Mayor	Medium	Short-Range	Existing	TBD
1.4.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	City Council and Mayor	High	Short-Range	Existing	TBD

City of Chickasaw Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5	<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.					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	City Council and Mayor	Medium	Mid-Range	Existing	TBD
1.6	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Local Floodplain Manager	High	Long-Range/Ongoing	Existing	TBD
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Local Floodplain Manager	Medium	Ongoing	Existing	TBD
1.6.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association of Flood Plain Managers and encourage active participation.	Local Floodplain Manager	High	Short-Range	Existing	TBD
1.6.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Mobile County EMA	Medium	Short-Range	Other	TBD
1.6.6	Improve flood risk assessment by documenting high water marks post event, verifying FEMA's repetitive loss inventory and revising and updating regulatory floodplain maps.	Mobile County EMA	Medium	Short-Range	Other	TBD

City of Chickasaw Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Building Official	High	Ongoing	Existing	TBD
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."	Building Official	High	Short-Range	Existing	TBD
1.7.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Building Official	Low	Mid-Range	Existing	TBD
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Building Official	High	Short-Range	Existing	TBD
1.7.6	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	City Council and Mayor	High	Ongoing	FEMA HMA Grant	TBD
1.9	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.9.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager	High	Ongoing	Existing	TBD
1.9.2	Develop, adopt, and implement subdivision regulations that require proper stormwater infrastructure design and construction.	City Council and Mayor	High	Ongoing	Existing	TBD

City of Chickasaw Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.10	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.10.1	Support legislation to establish a State dam safety program.	City Council and Mayor	Low	Mid-Range	Existing	TBD
1.11	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.11.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Short-Range	Existing	TBD
1.12	<u>Critical Facilities Assessments.</u> Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					
1.12.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
1.12.2	Conduct wildfire vulnerability assessments, including the vulnerability of critical facilities and number of residential properties in these risk areas, and prepare a comprehensive inventory to identify high and moderate wildfire risk areas.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
2	<u>Goal for Property Protection.</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					

City of Chickasaw Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.1.1	Pursue FEMA grant funds to relocate buildings out of hazardous flood areas, with emphasis on pre-FIRM residential buildings, where deemed more cost effective than property acquisition or building elevation.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2.2	Utilize the most recent NFIP repetitive loss property list, and other appropriate sources, to create and maintain a prioritized list of acquisition mitigation projects based on claims paid.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					

City of Chickasaw Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5	<u>Flood Control Measures.</u> Construct small flood control measures to reduce/prevent flood damage.					
2.5.1	Examine use of minor structural projects (small berm or floodwalls) in areas that cannot be mitigated through non-structural mitigation techniques.	Building Official	Low	Long-Range	FEMA HMA Grant	TBD
2.6	<u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.6.1	Pursue FEMA grant funds to retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.6.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Building Official	Medium	Short-Range	Existing	TBD
2.7	<u>Hazard Insurance Awareness.</u> Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.7.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Local Floodplain Manager	High	Ongoing	Existing	TBD
2.8	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					

City of Chickasaw Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.8.1	Install lightning and/or surge protection on existing critical facilities.	Building Official	Low	Long-Range	TBD	TBD
2.9	<u>Backup Power.</u> Ensure uninterrupted power supply to critical facilities during emergency events.					
2.9.1	Pursue grant funding for the installation of backup power generators for critical facilities.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Building Official	Low	Mid-Range	Existing	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.2	Distribute materials, via the internet and other media, and other outreach activities and workshops to encourage families and individuals to implement hazard mitigation measures in their homes.	Mobile County EMA	High	Ongoing	Existing	TBD

City of Chickasaw Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.3	Promote disaster resilience within the business community through workshops, educational materials and planning guides, intended to assist business owners in recovering from a disaster event in a timely manner.	City Council and Mayor	Low	Long-Range	Existing	TBD
3.2.4	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	City Council and Mayor	High	Short-Range	Existing	TBD
3.3	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.3.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.4	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					
3.4.1	Distribute hazard mitigation brochures to students through area schools.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.5	<u>Community Hazard Mitigation Plan Distribution.</u> Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.5.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	Mobile County EMA	High	Short-Range	Existing	TBD
3.6	<u>Technical Assistance.</u> Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.					

City of Chickasaw Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.6.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	Building Official	High	Short-Range	Existing	TBD
3.7	<u>Mass Media Relations.</u> Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.					
3.7.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.8	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.8.1	Promote the use of weather radios in households and businesses.	City Council and Mayor	High	Short-Range	Existing	TBD
3.8.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	City Council and Mayor	High	Short-Range	Existing	TBD
3.9	<u>Disaster Warning.</u> Improve public warning systems.					
3.9.4	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.5	Upgrade critical communications infrastructure.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					

City of Chickasaw Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.1	<u>Open Space Easements and Acquisitions.</u> Acquire easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands to assure permanent protection of these natural resources.					
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.	City Council and Mayor	High	Short-Range	FEMA HMA Grant	TBD
4.2	<u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.					
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	City Council and Mayor	High	Ongoing	Other	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	City Council and Mayor	High	Ongoing	Existing	TBD
4.3	<u>Urban Forestry Programs.</u> Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.					
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).	City Council and Mayor	Medium	Mid-Range	Existing	TBD
4.5	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.5.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	City Council and Mayor	Medium	Long-Range	Existing	TBD

City of Chickasaw Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5	Goal for Structural Projects. Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1	Drainage System Maintenance. Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Building Official/Mobile County EMA	Medium	Short-Range	Existing	TBD
5.2	Reservoirs and Drainage System Improvements. Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	Building Official/City Council and Mayor	High	Mid-Range	FEMA HMA Grant	TBD
5.3	Community Shelters and Safe Rooms. Provide shelters from natural hazards for the safety of community residents.					
5.3.1	Construct new community safe rooms in accessible locations and add safe rooms within new and existing public and institutional buildings, such as schools, colleges and universities, senior centers, community centers, hospitals, and government buildings.	City Council and Mayor	High	Long-Range	FEMA HMA Grant	TBD
5.3.2	Establish a program for subsidizing individual and community safe room construction in appropriate locations and facilities.	City Council and Mayor	High	Long-Range	FEMA HMA Grant	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	City Council and Mayor	High	Long-Range	FEMA HMA Grant	TBD

2.4 Citronelle Community Action Program

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	Goal for Prevention. Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	Comprehensive Plans and Smart Growth. Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.					
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions. Each plan should address natural hazards exposure and include long-term disaster resistance measures. The vulnerability and environmental suitability of lands for future development should be clearly addressed. Local plans should assess the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implement the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Building Official/City Council and Mayor	Medium	Mid-Range	Existing	TBD

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					
1.2.1	Maintain a centralized, countywide natural hazards and risk assessment database in GIS that is accessible to local planners and emergency management personnel, including such data as, flood zones, geohazards, major drainage 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 EMA	Low	Mid-Range	HMA	TBD
1.2.2	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.	Mobile County EMA	Low	Mid-Range	FEMA HMA Grant	TBD
1.3	<u>Planning Studies.</u> Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	Local Floodplain Manager	Medium	Long-Range	FEMA HMA Grant	TBD
1.3.2	Identify existing culturally or socially significant structures and critical facilities within Mobile County that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Building Official	Low	Long-Range	TBD	TBD

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.3	Evaluate elevation and culvert sizing of existing roadways in flash flood-prone areas to ensure compliance with current standards for design year floods, and develop a program for construction upgrades as appropriate.	Building Official	Low	Long-Range	TBD	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Building Official	Low	Long-Range	TBD	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Medium	Long-Range	FEMA HMA Grant	TBD
1.4	Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	City Council and Mayor	Medium	Short-Range	Existing	TBD
1.4.2	Evaluate additional land use restrictions within designated flood zones, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	City Council and Mayor	Medium	Short-Range	Existing	TBD
1.4.3	Require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	City Council and Mayor	Medium	Short-Range	Existing	TBD
1.4.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	City Council and Mayor	High	Short-Range	Existing	TBD

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5	<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.					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	City Council and Mayor	Medium	Mid-Range	Existing	TBD
1.6	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Local Floodplain Manager	High	Long-Range/Ongoing	Existing	TBD
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Local Floodplain Manager	Medium	Ongoing	Existing	TBD
1.6.3	Promote the adoption of uniform flood hazard prevention ordinance among all NFIP communities. The ordinance standards should encourage flood plain management that maintains the natural and beneficial functions of flood plains by maximizing the credits that could be obtained for "Higher Regulatory Standards" under the Community Rating System (CRS) Program.	Local Floodplain Manager	High	Mid-Range	FEMA HMA Grant	TBD
1.6.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association of Flood Plain Managers and encourage active participation.	Local Floodplain Manager/	High	Short-Range	Existing	TBD

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.6.5	Participate in the “Turn Around Don’t Drown” program by purchasing and installing signs in known flash flood bridge overpass locations.	Local Floodplain Manager	Medium	Short-Range	Other	TBD
1.6.6	Improve flood risk assessment by documenting high water marks post event, verifying FEMA’s repetitive loss inventory and revising and updating regulatory floodplain maps.	Local Floodplain Manager	Medium	Long-Range	Other	TBD
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Building Official	High	Ongoing	Existing	TBD
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.”	Building Official	High	Short-Range	Existing	TBD
1.7.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Building Official	Low	Mid-Range	Existing	TBD
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Building Official	High	Short-Range	Existing	TBD
1.7.6	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	City Council and Mayor	High	Ongoing	FEMA HMA Grant	TBD

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.9	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.9.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager	High	Ongoing	Existing	TBD
1.9.2	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	City Council and Mayor	High	Ongoing	Existing	TBD
1.10	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.10.1	Support legislation to establish a State dam safety program.	City Council and Mayor	Low	Mid-Range	Existing	TBD
1.11	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.11.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Short-Range	Existing	TBD
1.12	<u>Critical Facilities Assessments.</u> Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					
1.12.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
2	<u>Goal for Property Protection.</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					
2.1.1	Pursue FEMA grant funds to relocate buildings out of hazardous flood areas, with emphasis on pre-FIRM residential buildings, where deemed more cost effective than property acquisition or building elevation.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2.2	Utilize the most recent NFIP repetitive loss property list, and other appropriate sources, to create and maintain a prioritized list of acquisition mitigation projects based on claims paid.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5	<u>Flood Control Measures.</u> Construct small flood control measures to reduce/prevent flood damage.					
2.5.1	Examine use of minor structural projects (small berm or floodwalls) in areas that cannot be mitigated through non-structural mitigation techniques.	Building Official	Medium	Long-Range	FEMA HMA Grant	TBD
2.5	<u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.5.1	Pursue FEMA grant funds to retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Building Official	Medium	Short-Range	Existing	TBD
2.6	<u>Hazard Insurance Awareness.</u> Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.6.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Mobile County EMA	High	Ongoing	Existing	TBD
2.7	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Building Official	Low	Long-Range	TBD	TBD
2.8	<u>Backup Power.</u> Ensure uninterrupted power supply to critical facilities during emergency events.					
2.8.1	Pursue grant funding for the installation of backup power generators for critical facilities.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Building Official	Low	Mid-Range	Existing	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.2	Distribute materials, via the internet and other media, and other outreach activities and workshops to encourage families and individuals to implement hazard mitigation measures in their homes.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.4	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	City Council and Mayor	High	Short-Range	Existing	TBD
3.3	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.3.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.4	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.4.1	Distribute hazard mitigation brochures to students through area schools.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.5	<u>Community Hazard Mitigation Plan Distribution.</u> Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.5.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	Mobile County EMA	High	Short-Range	Existing	TBD
3.6	<u>Technical Assistance.</u> Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.					
3.6.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	Building Official	High	Short-Range	Existing	TBD
3.7	<u>Mass Media Relations.</u> Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.					
3.7.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.8	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.8.1	Promote the use of weather radios in households and businesses.	City Council and Mayor	High	Short-Range	Existing	TBD
3.8.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	City Council and Mayor	High	Short-Range	Existing	TBD
3.9	<u>Disaster Warning.</u> Improve public warning systems.					

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.9.4	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.5	Upgrade critical communications infrastructure.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> Acquire easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands to assure permanent protection of these natural resources.					
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.	City Council and Mayor	High	Short-Range	FEMA HMA Grant	TBD
4.2	<u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.					
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	City Council and Mayor	High	Ongoing	Other	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	City Council and Mayor	High	Ongoing	Existing	TBD
4.3	<u>Urban Forestry Programs.</u> Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.					

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).	City Council and Mayor	Medium	Mid-Range	Existing	TBD
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	City Council and Mayor	Medium	Long-Range	Existing	TBD
5	<u>Goal for Structural Projects.</u> Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Building Official/Mobile County EMA	Medium	Short-Range	Existing	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	Building Official/City Council and Mayor	High	Mid-Range	FEMA HMA Grant	TBD
5.3	<u>Community Shelters and Safe Rooms.</u> Provide shelters from natural hazards for the safety of community residents.					

City of Citronelle Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5.3.1	Construct new community safe rooms in accessible locations and add safe rooms within new and existing public and institutional buildings, such as schools, colleges and universities, senior centers, community centers, hospitals, and government buildings.	City Council and Mayor	High	Long-Range	FEMA HMA Grant	TBD
5.3.2	Establish a program for subsidizing individual and community safe room construction in appropriate locations and facilities.	City Council and Mayor	High	Long-Range	FEMA HMA Grant	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	City Council and Mayor	High	Long-Range	FEMA HMA Grant	TBD

2.5 Creola Community Action Program

City of Creola Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	Goal for Prevention. Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	Comprehensive Plans and Smart Growth. Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.					
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions. Each plan should address natural hazards exposure and include long-term disaster resistance measures. The vulnerability and environmental suitability of lands for future development should be clearly addressed. Local plans should assess the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implement the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan..	Building Official/Local Government	Medium	Mid-Range	Existing	TBD

City of Creola Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					
1.2.1	Maintain a centralized, countywide natural hazards and risk assessment database in GIS that is accessible to local planners and emergency management personnel, including such data as, flood zones, geohazards, major drainage 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 EMA	Low	Mid-Range	HMA	TBD
1.2.2	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.	Mobile County EMA	Low	Mid-Range	FEMA HMA Grant	TBD
1.3	<u>Planning Studies.</u> Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	Local Floodplain Manager	Medium	Long-Range	FEMA HMA Grant	TBD
1.3.2	Identify existing culturally or socially significant structures and critical facilities within Mobile County that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Building Official	Low	Long-Range	TBD	TBD

City of Creola Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.3	Evaluate elevation and culvert sizing of existing roadways in flash flood-prone areas to ensure compliance with current standards for design year floods, and develop a program for construction upgrades as appropriate.	Building Official	Low	Long-Range	TBD	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Building Official	Low	Long-Range	TBD	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Medium	Long-Range	FEMA HMA Grant	TBD
1.4	Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	Local Government	Medium	Short-Range	Existing	TBD
1.4.2	Evaluate additional land use restrictions within designated flood zones, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	Local Government	Medium	Short-Range	Existing	TBD
1.4.3	Require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Local Government	Medium	Short-Range	Existing	TBD
1.4.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Local Government	High	Short-Range	Existing	TBD

City of Creola Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5	<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.					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	Local Government	Medium	Mid-Range	Existing	TBD
1.6	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Local Floodplain Manager	High	Long-Range/Ongoing	Existing	TBD
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Mobile County EMA	Medium	Ongoing	Existing	TBD
1.6.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association of Flood Plain Managers and encourage active participation.	Local Floodplain Manager	High	Short-Range	Existing	TBD
1.6.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Local Floodplain Manager	Medium	Short-Range	Other	TBD
1.6.6	Improve flood risk assessment by documenting high water marks post event, verifying FEMA's repetitive loss inventory and revising and updating regulatory floodplain maps.	Local Floodplain Manager	Low	Long-Range	FEMA HMA Funding	TBD

City of Creola Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Building Official	High	Ongoing	Existing	TBD
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."	Building Official	High	Short-Range	Existing	TBD
1.7.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Building Official	Low	Mid-Range	Existing	TBD
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Building Official	High	Short-Range	Existing	TBD
1.7.6	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Local Government	High	Ongoing	FEMA HMA Grant	TBD
1.9	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.9.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager	High	Ongoing	Existing	TBD
1.9.2	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	Local Government	High	Ongoing	Existing	TBD

City of Creola Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.10	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.10.1	Support legislation to establish a State dam safety program.	Local Government	Low	Mid-Range	Existing	TBD
1.11	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.11.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Short-Range	Existing	TBD
1.12	<u>Critical Facilities Assessments.</u> Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					
1.12.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
1.12.2	Conduct wildfire vulnerability assessments, including the vulnerability of critical facilities and number of residential properties in these risk areas, and prepare a comprehensive inventory to identify high and moderate wildfire risk areas.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
2	<u>Goal for Property Protection.</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					

City of Creola Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.1.1	Pursue FEMA grant funds to relocate buildings out of hazardous flood areas, with emphasis on pre-FIRM residential buildings, where deemed more cost effective than property acquisition or building elevation.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2.2	Utilize the 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.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					

City of Creola Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5	Building Retrofits. Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.5.1	Pursue FEMA grant funds to retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Building Official	Medium	Short-Range	Existing	TBD
2.6	Hazard Insurance Awareness. Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.6.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Local Floodplain Manager	High	Ongoing	Existing	TBD
2.7	Critical Facilities Protection. Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Building Official	Low	Long-Range	TBD	TBD
2.8	Back Up Power. Ensure uninterrupted power supply to critical facilities during emergency events.					

City of Creola Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.8.1	Pursue grant funding for the installation of back up power generators for critical facilities.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Building Official	Low	Mid-Range	Existing	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.2	Distribute materials, via the internet and other media, and other outreach activities and workshops to encourage families and individuals to implement hazard mitigation measures in their homes.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.3	Promote disaster resilience within the business community through workshops, educational materials and planning guides, intended to assist business owners in recovering from a disaster event in a timely manner.	Local Government	Low	Long-Range	Existing	TBD

City of Creola Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.4	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	Local Government	High	Short-Range	Existing	TBD
3.3	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.3.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.4	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					
3.4.1	Distribute hazard mitigation brochures to students through area schools.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.5	<u>Community Hazard Mitigation Plan Distribution.</u> Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.5.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	Mobile County EMA	High	Short-Range	Existing	TBD
3.6	<u>Technical Assistance.</u> Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.					
3.6.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	Building Official	High	Short-Range	Existing	TBD
3.7	<u>Mass Media Relations.</u> Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.					

City of Creola Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.7.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.8	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.8.1	Promote the use of weather radios in households and businesses.	Local Government	High	Short-Range	Existing	TBD
3.8.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Local Government	High	Short-Range	Existing	TBD
3.9	<u>Disaster Warning.</u> Improve public warning systems.					
3.9.4	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.5	Upgrade critical communications infrastructure.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> Acquire easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands to assure permanent protection of these natural resources.					

City of Creola Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.	Local Government	High	Short-Range	FEMA HMA Grant	TBD
4.2	<u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.					
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	Local Government	High	Ongoing	Other	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Local Government	High	Ongoing	Existing	TBD
4.3	<u>Urban Forestry Programs.</u> Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.					
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).	Local Government	Medium	Mid-Range	Existing	TBD
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Local Government	Medium	Long-Range	Existing	TBD
5	<u>Goal for Structural Projects.</u> Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					

City of Creola Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Building Official/Mobile County EMA	Medium	Short-Range	Existing	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	Building Official/Local Government	High	Mid-Range	FEMA HMA Grant	TBD
5.3	<u>Community Shelters and Safe Rooms.</u> Provide shelters from natural hazards for the safety of community residents.					
5.3.1	Construct new community safe rooms in accessible locations and add safe rooms within new and existing public and institutional buildings, such as schools, colleges and universities, senior centers, community centers, hospitals, and government buildings.	Local Government	High	Long-Range	FEMA HMA Grant	TBD
5.3.2	Establish a program for subsidizing individual and community safe room construction in appropriate locations and facilities.	Local Government	High	Long-Range	FEMA HMA Grant	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Local Government	High	Long-Range	FEMA HMA Grant	TBD

2.6 Dauphin Island Community Action Program

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	Goal for Prevention. Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	Comprehensive Plans and Smart Growth. Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.					
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions. Each plan should address natural hazards exposure and include long-term disaster resistance measures. The vulnerability and environmental suitability of lands for future development should be clearly addressed. Local plans should assess the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implement the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Building Official	Low	Long-Range	Existing	TBD

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.2	Geographic Information Systems (GIS). Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					
1.2.1	Maintain a centralized, countywide natural hazards and risk assessment database in GIS that is accessible to local planners and emergency management personnel, including such data as, flood zones, geohazards, major drainage 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 EMA	Low	Mid-Range	HMA	TBD
1.2.2	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.	Mobile County EMA	Low	Mid-Range	FEMA HMA Grant	TBD
1.3	Planning Studies. Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	Local Floodplain Manager	Medium	Long-Range	FEMA HMA Grant	TBD
1.3.2	Identify existing culturally or socially significant structures and critical facilities within Mobile County that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Building Official	Low	Long-Range	TBD	TBD

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.3	Evaluate elevation and culvert sizing of existing roadways in flash flood-prone areas to ensure compliance with current standards for design year floods, and develop a program for construction upgrades as appropriate.	Building Official	Low	Long-Range	TBD	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Building Official	Low	Long-Range	TBD	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Medium	Long-Range	FEMA HMA Grant	TBD
1.4	Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	Mayor and Council	Medium	Short-Range	Existing	TBD
1.4.2	Evaluate additional land use restrictions within designated flood zones, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	Mayor and Council	Medium	Short-Range	Existing	TBD
1.4.3	Require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Mayor and Council	Medium	Short-Range	Existing	TBD
1.4.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and Council	High	Short-Range	Existing	TBD

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5	<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.					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	Mayor and Council	Medium	Mid-Range	Existing	TBD
1.6	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Local Floodplain Manager	High	Long-Range/Ongoing	Existing	TBD
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Local Floodplain Manager	Medium	Ongoing	Existing	TBD
1.6.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association of Flood Plain Managers and encourage active participation.	Local Floodplain Manager	High	Short-Range	Existing	TBD
1.6.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Local Floodplain Manager	Medium	Short-Range	Other	TBD
1.6.6	Improve flood risk assessment by documenting high water marks post event, verifying FEMA's repetitive loss inventory and revising and updating regulatory floodplain maps.	Local Floodplain Manager	Medium	Long-Range	Other	TBD

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Building Official	High	Ongoing	Existing	TBD
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."	Building Official	High	Short-Range	Existing	TBD
1.7.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Building Official	Low	Mid-Range	Existing	TBD
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Building Official	High	Short-Range	Existing	TBD
1.7.6	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and Council	High	Ongoing	FEMA HMA Grant	TBD
1.8	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.8.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager	High	Ongoing	Existing	TBD
1.8.2	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	Mayor and Council	High	Ongoing	Existing	TBD

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.9	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.9.1	Support legislation to establish a State dam safety program.	Mayor and Council	Low	Mid-Range	Existing	TBD
1.10	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.10.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Short-Range	Existing	TBD
1.11	<u>Critical Facilities Assessments.</u> Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					
1.11.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
1.11.2	Conduct wildfire vulnerability assessments, including the vulnerability of critical facilities and number of residential properties in these risk areas, and prepare a comprehensive inventory to identify high and moderate wildfire risk areas.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
2	<u>Goal for Property Protection.</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.1.1	Pursue FEMA grant funds to relocate buildings out of hazardous flood areas, with emphasis on pre-FIRM residential buildings, where deemed more cost effective than property acquisition or building elevation.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2.2	Utilize the most recent NFIP repetitive loss property list, and other appropriate sources, to create and maintain a prioritized list of acquisition mitigation projects based on claims paid.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5	<u>Flood Control Measures.</u> Construct small flood control measures to reduce/prevent flood damage.					
2.5.1	Examine use of minor structural projects (small berm or floodwalls) in areas that cannot be mitigated through non-structural mitigation techniques.	Building Official	Low	Long-Range	FEMA HMA Grant	TBD
2.6	<u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.6.1	Pursue FEMA grant funds to retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.6.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Building Official	Medium	Short-Range	Existing	TBD
2.7	<u>Hazard Insurance Awareness.</u> Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.7.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Mobile County EMA	High	Ongoing	Existing	TBD
2.8	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.8.1	Install lightning and/or surge protection on existing critical facilities.	Building Official	Low	Long-Range	TBD	TBD
2.9	<u>Backup Power.</u> Ensure uninterrupted power supply to critical facilities during emergency events.					
2.9.1	Pursue grant funding for the installation of backup power generators for critical facilities.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Building Official	Low	Mid-Range	Existing	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.2	Conduct materials distribution, via the internet and other media, and other outreach activities and workshops to encourage families and individuals to implement hazard mitigation measures in their homes.	Mobile County EMA	High	Ongoing	Existing	TBD

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.3	Promote disaster resilience within the business community through workshops, educational materials and planning guides, intended to assist business owners in recovering from a disaster event in a timely manner.	Mayor and Council	Low	Long-Range	Existing	TBD
3.2.4	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	Mayor and Council	High	Short-Range	Existing	TBD
3.3	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.3.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.4	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					
3.4.1	Distribute hazard mitigation brochures to students through area schools.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.5	<u>Community Hazard Mitigation Plan Distribution.</u> Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.5.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	Mobile County EMA	High	Short-Range	Existing	TBD
3.6	<u>Technical Assistance.</u> Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.					

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.6.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	Building Official	High	Short-Range	Existing	TBD
3.7	<u>Mass Media Relations.</u> Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.					
3.7.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.8	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.8.1	Promote the use of weather radios in households and businesses.	Mayor and Council	High	Short-Range	Existing	TBD
3.8.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and Council	High	Short-Range	Existing	TBD
3.9	<u>Disaster Warning.</u> Improve public warning systems.					
3.9.4	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.5	Upgrade critical communications infrastructure.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.1	<u>Open Space Easements and Acquisitions.</u> Acquire easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands to assure permanent protection of these natural resources.					
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.	Mayor and Council	High	Short-Range	FEMA HMA Grant	TBD
4.2	<u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.					
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	Mayor and Council	High	Ongoing	Other	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Mayor and Council	High	Ongoing	Existing	TBD
4.3	<u>Urban Forestry Programs.</u> Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.					
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).	Mayor and Council	Medium	Mid-Range	Existing	TBD
4.4	<u>Beach and Dune Protection/Renourishment.</u> Protect beaches and dunes from coastal and man-made erosion and implement renourishment programs.					
4.4.1	Restore and protect wetlands to enhance stormwater drainage.	Mayor and Council	Medium	Mid-Range	Existing	TBD
4.4.2	Develop a coastal renourishment program.	Mayor and Council	Low	Long-Range	Other	TBD

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.5	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.5.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and Council	Medium	Long-Range	Existing	TBD
5	<u>Goal for Structural Projects.</u> Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Building Official/Mobile County EMA	Medium	Short-Range	Existing	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	Building Official/Mayor and Council	High	Mid-Range	FEMA HMA Grant	TBD
5.3	<u>Community Shelters and Safe Rooms.</u> Provide shelters from natural hazards for the safety of community residents.					
5.3.1	Construct new community safe rooms in accessible locations and add safe rooms within new and existing public and institutional buildings, such as schools, colleges and universities, senior centers, community centers, hospitals, and government buildings.	Mayor and Council	High	Long-Range	FEMA HMA Grant	TBD

Town of Dauphin Island Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5.3.2	Establish a program for subsidizing individual and community safe room construction in appropriate locations and facilities.	Mayor and Council	High	Long-Range	FEMA HMA Grant	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and Council	High	Long-Range	FEMA HMA Grant	TBD

2.7 Mobile Community Action Program

City of Mobile Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.					
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions. Each plan should address natural hazards exposure and include long-term disaster resistance measures. The vulnerability and environmental suitability of lands for future development should be clearly addressed. Local plans should assess the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	Building Official	High	Short-Range	Existing	TBD
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.	Building Official	High	Short-Range	Existing	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implement the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Mayor/City Council	Medium	Mid-Range	Existing	TBD

City of Mobile Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					
1.2.1	Maintain a centralized, countywide natural hazards and risk assessment database in GIS that is accessible to local planners and emergency management personnel, including such data as, flood zones, geohazards, major drainage structures, dams/levees, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	City of Mobile GIS Dept	Medium	Mid-Range	FEMA HMA Grant	TBD
1.2.2	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.	City of Mobile GIS Dept.	Medium	Mid-Range	FEMA HMA Grant	TBD
1.2.3	Mark depths of flooding and storm surge immediately after each event. Enter and maintain these historical records in GIS.	City of Mobile GIS Dept.	High	Short-Range	Existing	TBD
1.3	<u>Planning Studies.</u> Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	City Engineer	Medium	Mid-Range	FEMA HMA Grant	TBD
1.3.3	Evaluate elevation and culvert sizing of existing roadways in flash flood-prone areas to ensure compliance with current standards for design year floods, and develop a program for construction upgrades as appropriate.	Building Official	Low	Long-Range	TBD	TBD

City of Mobile Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Mayor/City Council	High	Short-Range	TBD	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Low	Long-Range	FEMA HMA Grant	TBD
1.4	Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
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.	Mayor/City Council	Low	Long-Range	Existing	TBD
1.4.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor/City Council	Medium	Mid-Range	Existing	TBD
1.5	Open Space Preservation. Minimize disturbances of natural land features and increased storm water runoff through regulations that maintain critical natural features such as open space for parks, conservation areas, landscaping, and drainage.					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	Mayor/City Council	Medium	Mid-Range	Existing	TBD
1.6	Flood Plain Management Regulations. Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Building Official	High	Short-Range	Existing	TBD

City of Mobile Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Floodplain Manager	Medium	Short-Range	Existing	TBD
1.6.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association of Flood Plain Managers and encourage active participation.	Floodplain Manager	Medium	Short-Range	Existing	TBD
1.6.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	National Weather Service	High	Short-Range	Other	TBD
1.6.6	Improve flood risk assessment by documenting high water marks post event, verifying FEMA's repetitive loss inventory and revising and updating regulatory floodplain maps.	Floodplain Manager	Low	Long-Range	FEMA HMA Grant	TBD
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Building Official	High	Ongoing	Existing	TBD
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."	Building Official	High	Short-Range	Existing	TBD

City of Mobile Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.7.3	Relocate existing utility lines underground, where feasible and cost effective, and require, through local subdivision and land development regulations, the placement of all new utility lines underground for large residential subdivisions and commercial developments.	Mayor/City Council	Medium	Mid-Range	TBD	TBD
1.7.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Building Official	High	Short-Range	Existing	TBD
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Building Official	High	Short-Range	Existing	TBD
1.7.6	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor/City Council	High	Ongoing	FEMA HMA Grant	TBD
1.8	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.8.2	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	Mayor/City Council	Medium	Mid-Range	Existing	TBD
1.9	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.9.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Floodplain Manager	Medium	Mid-Range	Existing	TBD
1.10	<u>Critical Facilities Assessments.</u> Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					

City of Mobile Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.10.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2	<u>Goal for Property Protection.</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					
2.1.1	Pursue FEMA grant funds to relocate buildings out of hazardous flood areas, with emphasis on pre-FIRM residential buildings, where deemed more cost effective than property acquisition or building elevation.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2.2	Utilize the most recent NFIP repetitive loss property list, and other appropriate sources, to create and maintain a prioritized list of acquisition mitigation projects based on claims paid.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					

City of Mobile Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5	<u>Flood Control Measures.</u> Construct small flood control measures to reduce/prevent flood damage.					
2.5.1	Examine use of minor structural projects (small berm or floodwalls) in areas that cannot be mitigated through non-structural mitigation techniques.	Building Official	Medium	Long-Range	FEMA HMA Grant	TBD
2.6	<u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.6.1	Pursue FEMA grant funds to retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Building Official	High	Long-Range	FEMA HMA Grant	TBD

City of Mobile Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.7	<u>Hazard Insurance Awareness.</u> Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.7.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Floodplain Manager	High	Ongoing	Existing	TBD
2.8	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.8.1	Install lightning and/or surge protection on existing critical facilities.	Building Official	Low	Long-Range	TBD	TBD
2.9	<u>Backup Power.</u> Ensure uninterrupted power supply to critical facilities during emergency events.					
2.9.1	Pursue grant funding for the installation of backup power generators for critical facilities.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Building Official	Medium	Mid-Range	Existing	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					

City of Mobile Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	Mobile County EMA	High	Short-Range	Existing	TBD
3.2.2	Conduct materials distribution, via the internet and other media, and other outreach activities and workshops to encourage families and individuals to implement hazard mitigation measures in their homes.	Mobile County EMA	High	Short-Range	Existing	TBD
3.2.3	Promote disaster resilience within the business community through workshops, educational materials and planning guides, intended to assist business owners in recovering from a disaster event in a timely manner.	Mayor/City Council	High	Short-Range	Existing	TBD
3.2.4	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	Mayor/City Council	Medium	Mid-Range	Existing	TBD
3.2.6	Host hazard mitigation roundtables at the beginning of the fiscal year and the beginning of hurricane season to review and coordinate individual jurisdiction mitigation activities.	Mobile County EMA	Low	Long-Range	TBD	TBD
3.3	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.3.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County EMA	Medium	Mid-Range	Existing	TBD

City of Mobile Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.4	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					
3.4.1	Distribute hazard mitigation brochures to students through area schools.	Mayor/City Council	High	Short-Range	FEMA HMA Grant	TBD
3.5	<u>Community Hazard Mitigation Plan Distribution.</u> Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.5.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	Mobile County EMA	High	Short-Range	Existing	TBD
3.6	<u>Mass Media Relations.</u> Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.					
3.6.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Mobile County EMA	High	Short-Range	Existing	TBD
3.8	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.8.1	Promote the use of weather radios in households and businesses.	Mayor/City Council	High	Short-Range	Existing	TBD
3.8.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor/City Council	High	Short-Range	Existing	TBD
3.8.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor/City Council	High	Short-Range	Existing	TBD

City of Mobile Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.9	<u>Disaster Warning.</u> Improve public warning systems.					
3.9.1	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.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.2	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.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.3	Evaluate the feasibility of a shared tri-county ALERT system covering Baldwin, Escambia, and Mobile counties.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.4	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.5	Upgrade critical communications infrastructure.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.					
4.1.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	Building Official	High	Ongoing	Other	TBD

City of Mobile Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.1.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Mayor/City Council	High	Ongoing	Existing	TBD
4.2	<u>Beach and Dune Protection/Renourishment.</u> Protect beaches and dunes from coastal and man-made erosion and implement renourishment programs.					
4.2.1	Restore and protect wetlands to enhance stormwater drainage.	Mayor/City Council	Medium	Mid-Range	Existing	TBD
4.2.2	Develop a coastal renourishment program.	Mayor/City Council	Low	Long-Range	Other	TBD
4.3	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.3.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor/City Council	Medium	Long-Range	Existing	TBD
5	<u>Goal for Structural Projects.</u> Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Building Official	Medium	Short-Range	Existing	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					

City of Mobile Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	Mayor/City Council	High	Mid-Range	FEMA HMA Grant	TBD
5.3	<u>Community Shelters and Safe Rooms.</u> Provide shelters from natural hazards for the safety of community residents.					
5.3.1	Construct new community safe rooms in accessible locations and add safe rooms within new and existing public and institutional buildings, such as schools, colleges and universities, senior centers, community centers, hospitals, and government buildings.	Building Official	High	Long-Range	FEMA HMA Grant	TBD
5.3.2	Encourage the construction of safe rooms in new and existing homes and buildings.	Building Official	High	Short-Range	FEMA HMA Grant	TBD

2.8 Mount Vernon Community Action Program

Town of Mount Vernon Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	<u>Comprehensive Plans and Smart Growth.</u> Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.					
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions. Each plan should address natural hazards exposure and include long-term disaster resistance measures. The vulnerability and environmental suitability of lands for future development should be clearly addressed. Local plans should assess the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implement the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Building Official	Low	Long-Range	Existing	TBD

Town of Mount Vernon Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.2	Geographic Information Systems (GIS). Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					
1.2.1	Maintain a centralized, countywide natural hazards and risk assessment database in GIS that is accessible to local planners and emergency management personnel, including such data as, flood zones, geohazards, major drainage 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 EMA	Low	Mid-Range	HMA	TBD
1.2.2	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.	Mobile County EMA	Low	Mid-Range	FEMA HMA Grant	TBD
1.3	Planning Studies. Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	Mobile County EMA	Medium	Long-Range	FEMA HMA Grant	TBD
1.3.2	Identify existing culturally or socially significant structures and critical facilities within Mobile County that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Building Official	Low	Long-Range	TBD	TBD

Town of Mount Vernon Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.3	Evaluate elevation and culvert sizing of existing roadways in flash flood-prone areas to ensure compliance with current standards for design year floods, and develop a program for construction upgrades as appropriate.	Building Official	Low	Long-Range	TBD	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Building Official	Low	Long-Range	TBD	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Medium	Long-Range	FEMA HMA Grant	TBD
1.4	Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	Mayor and Council	Medium	Short-Range	Existing	TBD
1.4.2	Evaluate additional land use restrictions within designated flood zones, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	Mayor and Council	Medium	Short-Range	Existing	TBD
1.4.3	Require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Mayor and Council	Medium	Short-Range	Existing	TBD
1.4.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and Council	High	Short-Range	Existing	TBD

Town of Mount Vernon Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5	<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.					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	Mayor and Council	Medium	Mid-Range	Existing	TBD
1.6	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Local Floodplain Manager	High	Long-Range/Ongoing	Existing	TBD
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Local Floodplain Manager	Medium	Ongoing	Existing	TBD
1.6.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association of Flood Plain Managers and encourage active participation.	Local Floodplain Manager	High	Short-Range	Existing	TBD
1.6.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Local Floodplain Manager	Medium	Short-Range	Other	TBD
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					

Town of Mount Vernon Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Building Official	High	Ongoing	Existing	TBD
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."	Building Official	High	Short-Range	Existing	TBD
1.7.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Building Official	Low	Mid-Range	Existing	TBD
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Building Official	High	Short-Range	Existing	TBD
1.7.6	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and Council	High	Ongoing	FEMA HMA Grant	TBD
1.9	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.9.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Mobile County EMA	High	Ongoing	Existing	TBD
1.9.2	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	Mayor and Council	High	Ongoing	Existing	TBD
1.10	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					

Town of Mount Vernon Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.10.1	Support legislation to establish a State dam safety program.	Mayor and Council	Low	Mid-Range	Existing	TBD
1.11	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.11.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Short-Range	Existing	TBD
1.12	<u>Critical Facilities Assessments.</u> Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					
1.12.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
1.12.2	Conduct wildfire vulnerability assessments, including the vulnerability of critical facilities and number of residential properties in these risk areas, and prepare a comprehensive inventory to identify high and moderate wildfire risk areas.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
2	<u>Goal for Property Protection.</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					

Town of Mount Vernon Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.1.1	Pursue FEMA grant funds to relocate buildings out of hazardous flood areas, with emphasis on pre-FIRM residential buildings, where deemed more cost effective than property acquisition or building elevation.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2.2	Utilize the most recent NFIP repetitive loss property list, and other appropriate sources, to create and maintain a prioritized list of acquisition mitigation projects based on claims paid.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					

Town of Mount Vernon Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5	Building Retrofits. Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.5.1	Pursue FEMA grant funds to retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Building Official	Medium	Short-Range	Existing	TBD
2.6	Hazard Insurance Awareness. Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.6.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Mobile County EMA	High	Ongoing	Existing	TBD
2.7	Critical Facilities Protection. Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Building Official	Low	Long-Range	TBD	TBD
2.8	Backup Power. Ensure uninterrupted power supply to critical facilities during emergency events.					

Town of Mount Vernon Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.8.1	Pursue grant funding for the installation of backup power generators for critical facilities.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Building Official	Low	Mid-Range	Existing	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.2	Conduct materials distribution, via the internet and other media, and other outreach activities and workshops to encourage families and individuals to implement hazard mitigation measures in their homes.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.3	Promote disaster resilience within the business community through workshops, educational materials and planning guides, intended to assist business owners in recovering from a disaster event in a timely manner.	Mayor and Council	Low	Long-Range	Existing	TBD

Town of Mount Vernon Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.4	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	Mayor and Council	High	Short-Range	Existing	TBD
3.3	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.3.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.4	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					
3.4.1	Distribute hazard mitigation brochures to students through area schools.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.5	<u>Community Hazard Mitigation Plan Distribution.</u> Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.5.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	Mobile County EMA	High	Short-Range	Existing	TBD
3.6	<u>Technical Assistance.</u> Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.					
3.6.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	Building Official	High	Short-Range	Existing	TBD
3.7	<u>Mass Media Relations.</u> Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.					

Town of Mount Vernon Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.7.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.8	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.8.1	Promote the use of weather radios in households and businesses.	Mayor and Council	High	Short-Range	Existing	TBD
3.8.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and Council	High	Short-Range	Existing	TBD
3.9	<u>Disaster Warning.</u> Improve public warning systems.					
3.9.4	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.5	Upgrade critical communications infrastructure.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> Acquire easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands to assure permanent protection of these natural resources.					

Town of Mount Vernon Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.	Mayor and Council	High	Short-Range	FEMA HMA Grant	TBD
4.2	<u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.					
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	Mayor and Council	High	Ongoing	Other	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Mayor and Council	High	Ongoing	Existing	TBD
4.3	<u>Urban Forestry Programs.</u> Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.					
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).	Mayor and Council	Medium	Mid-Range	Existing	TBD
4.4	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and Council	Medium	Long-Range	Existing	TBD
5	<u>Goal for Structural Projects.</u> Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					

Town of Mount Vernon Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Building Official/Mobile County EMA	Medium	Short-Range	Existing	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	Building Official/Mayor and Council	High	Mid-Range	FEMA HMA Grant	TBD
5.3	<u>Community Shelters and Safe Rooms.</u> Provide shelters from natural hazards for the safety of community residents.					
5.3.1	Construct new community safe rooms in accessible locations and add safe rooms within new and existing public and institutional buildings, such as schools, colleges and universities, senior centers, community centers, hospitals, and government buildings.	Mayor and Council	High	Long-Range	FEMA HMA Grant	TBD
5.3.2	Establish a program for subsidizing individual and community safe room construction in appropriate locations and facilities.	Mayor and Council	High	Long-Range	FEMA HMA Grant	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and Council	High	Long-Range	FEMA HMA Grant	TBD

2.9 Prichard Community Action Program

City of Prichard Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	<u>Goal for Prevention.</u> Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.2	<u>Planning Studies.</u> Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.2.3	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.	Building Official	Low	Long-Range	TBD	TBD
1.2.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	City Engineer	Low	Long-Range	TBD	TBD
1.2.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Medium	Long-Range	FEMA HMA Grant	TBD
1.3	<u>Zoning.</u> Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.3.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	Mayor and City Council	Medium	Short-Range	Existing	TBD
1.3.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and City Council	High	Short-Range	Existing	TBD

City of Prichard Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.4	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.4.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association of Flood Plain Managers and encourage active participation.	Local Floodplain Manager/Mobile County EMA	High	Short-Range	Existing	TBD
1.4.5	Participate in the “Turn Around Don’t Drown” program by purchasing and installing signs in known flash flood bridge overpass locations.	Local Floodplain Manager/Mobile County EMA	Medium	Short-Range	Other	TBD
1.5	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.5.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Building Official	High	Ongoing	Existing	TBD
1.5.2	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.”	Building Official	High	Short-Range	Existing	TBD
1.5.3	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.	Building Official	High	Short-Range	Existing	TBD

City of Prichard Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Building Official	Low	Mid-Range	Existing	TBD
1.5.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Building Official	High	Short-Range	Existing	TBD
1.5.6	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and City Council	High	Ongoing	FEMA HMA Grant	TBD
1.6	<u>Landscape Ordinances.</u> Establish minimum standards for planting areas for trees and vegetation to reduce storm water runoff and improve urban aesthetics.					
1.6.1	Review and revise as necessary, landscaping standards for parking lots that reduce the size of impervious surfaces and encourage natural infiltration of rainwater.	Building Official	Low	Mid-Range	Existing	TBD
1.7	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.7.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager	High	Ongoing	Existing	TBD
1.7.2	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	Mayor and City Council	High	Ongoing	Existing	TBD
1.8	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.8.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Short-Range	Existing	TBD

City of Prichard Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.9	<u>Critical Facilities Assessments.</u> Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					
1.9.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
2	<u>Goal for Property Protection.</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					
2.1.1	Pursue FEMA grant funds to relocate buildings out of hazardous flood areas, with emphasis on pre-FIRM residential buildings, where deemed more cost effective than property acquisition or building elevation.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2.2	Utilize the most recent NFIP repetitive loss property list, and other appropriate sources, to create and maintain a prioritized list of acquisition mitigation projects based on claims paid.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					

City of Prichard Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5	<u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Building Official	Medium	Short-Range	Existing	TBD
2.6	<u>Hazard Insurance Awareness.</u> Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.6.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Local Floodplain Manager	High	Ongoing	Existing	TBD

City of Prichard Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.7	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Building Official	Low	Long-Range	TBD	TBD
2.7.2	Conduct ongoing tree trimming programs along power lines.	Building Official	Low	Long-Range	TBD	TBD
2.8	<u>Backup Power.</u> Ensure uninterrupted power supply to critical facilities during emergency events.					
2.8.1	Pursue grant funding for the installation of backup power generators for critical facilities.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Building Official	Low	Mid-Range	Existing	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	Mobile County EMA	High	Ongoing	Existing	TBD

City of Prichard Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.2	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	Mayor and City Council	High	Short-Range	Existing	TBD
3.2.3	Hold at least 3 public meetings within 60 days of any presidentially declared disaster to solicit public input on event damages or plan revisions.	Mayor and City Council	High	Short-Range	Existing	TBD
3.3	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.3.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.4	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					
3.4.1	Distribute hazard mitigation brochures to students through area schools.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.5	<u>Community Hazard Mitigation Plan Distribution.</u> Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.5.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	Mobile County EMA	High	Short-Range	Existing	TBD
3.6	<u>Technical Assistance.</u> Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.					

City of Prichard Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.6.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	Building Official	High	Short-Range	Existing	TBD
3.7	<u>Mass Media Relations.</u> Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.					
3.7.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Mobile County EMA	High	Short-Range	Existing	TBD
3.8	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.8.1	Promote the use of weather radios in households and businesses.	Mayor and City Council	High	Short-Range	Existing	TBD
3.8.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor and City Council	High	Short-Range	Existing	TBD
3.8.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and City Council	High	Short-Range	Existing	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> Acquire easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands to assure permanent protection of these natural resources.					
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.	Mayor and City Council	High	Short-Range	FEMA HMA Grant	TBD

City of Prichard Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.2	<u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.					
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Mayor and City Council	High	Ongoing	Existing	TBD
4.4	<u>Beach and Dune Protection/Renourishment.</u> Protect beaches and dunes from coastal and man-made erosion and implement renourishment programs.					
4.4.1	Restore and protect wetlands to enhance stormwater drainage.	Mayor and City Council	Low	Long-Range	Other	TBD
4.5	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.5.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and City Council	Medium	Long-Range	Existing	TBD
5	<u>Goal for Structural Projects.</u> Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Building Official	Medium	Short-Range	Existing	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					

City of Prichard Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	Mayor and City Council	High	Mid-Range	FEMA HMA Grant	TBD
5.3	<u>Community Shelters and Safe Rooms.</u> Provide shelters from natural hazards for the safety of community residents.					
5.3.1	Construct new community safe rooms in accessible locations and add safe rooms within new and existing public and institutional buildings, such as schools, colleges and universities, senior centers, community centers, hospitals, and government buildings.	Mayor and City Council	High	Long-Range	FEMA HMA Grant	TBD
5.3.2	Establish a program for subsidizing individual and community safe room construction in appropriate locations and facilities.	Mayor and City Council	High	Long-Range	FEMA HMA Grant	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and City Council	High	Long-Range	FEMA HMA Grant	TBD

2.10 Saraland Community Action Program

City of Saraland Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	Goal for Prevention. Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	Comprehensive Plans and Smart Growth. Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.					
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions. Each plan should address natural hazards exposure and include long-term disaster resistance measures. The vulnerability and environmental suitability of lands for future development should be clearly addressed. Local plans should assess the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	Building Official	High	Short-Range	Existing	TBD
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.	Building Official	High	Short-Range	Existing	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implement the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Mayor and Council	Medium	Mid-Range	Existing	TBD

City of Saraland Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.2	<u>Geographic Information Systems (GIS).</u> Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					
1.2.1	Maintain a centralized, countywide natural hazards and risk assessment database in GIS that is accessible to local planners and emergency management personnel, including such data as, flood zones, geohazards, major drainage 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 EMA	Medium	Mid-Range	FEMA HMA Grant	TBD
1.2.2	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.	Mobile County EMA	Medium	Mid-Range	FEMA HMA Grant	TBD
1.2.3	Mark depths of flooding and storm surge immediately after each event. Enter and maintain these historical records in GIS.	Mobile County EMA	High	Short-Range	Existing	TBD
1.3	<u>Planning Studies.</u> Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	City Engineer	Medium	Mid-Range	FEMA HMA Grant	TBD
1.3.2	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.	Building Official	Low	Long-Range	TBD	TBD

City of Saraland Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.3	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Fire Department	High	Short-Range	TBD	TBD
1.3.4	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Low	Long-Range	FEMA HMA Grant	TBD
1.4	Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Mayor and Council	Low	Long-Range	Existing	TBD
1.4.2	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and Council	Medium	Mid-Range	Existing	TBD
1.5	Open Space Preservation. Minimize disturbances of natural land features and increased storm water runoff through regulations that maintain critical natural features such as open space for parks, conservation areas, landscaping, and drainage.					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	Mayor and Council	Medium	Mid-Range	Existing	TBD
1.6	Flood Plain Management Regulations. Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Building Official	High	Short-Range	Existing	TBD

City of Saraland Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Local Floodplain Manager	Medium	Short-Range	Existing	TBD
1.6.3	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association of Flood Plain Managers and encourage active participation.	Local Floodplain Manager	Medium	Short-Range	Existing	TBD
1.6.4	Participate in the “Turn Around Don’t Drown” program by purchasing and installing signs in known flash flood bridge overpass locations.	National Weather Service	High	Short-Range	Other	TBD
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Building Official	High	Ongoing	Existing	TBD
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.”	Building Official	High	Short-Range	Existing	TBD
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.	Mayor and Council	Medium	Mid-Range	TBD	TBD

City of Saraland Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.7.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Fire Department	High	Short-Range	Existing	TBD
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Building Official	High	Short-Range	Existing	TBD
1.7.6	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and Council	High	Ongoing	FEMA HMA Grant	TBD
1.9	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.9.1	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	Mayor and Council	Medium	Mid-Range	Existing	TBD
1.10	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.10.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	Medium	Mid-Range	Existing	TBD
1.11	<u>Critical Facilities Assessments.</u> Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					
1.11.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Building Official	High	Short-Range	FEMA HMA Grant	TBD

City of Saraland Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2	Goal for Property Protection: Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	Building Relocation. Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					
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.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2	Acquisition. Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2.2	Utilize the 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.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
2.3	Building Elevation. Elevate buildings in hazardous flood areas to safeguard against damages.					
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD

City of Saraland Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.4	Flood Proofing. Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5	Building Retrofits. Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.5.1	Pursue FEMA grant funds to retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Building Official	High	Long-Range	FEMA HMA Grant	TBD
2.6	Hazard Insurance Awareness. Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.6.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Local Floodplain Manager	High	Ongoing	Existing	TBD
2.7	Critical Facilities Protection. Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.7.1	Install lightning and/or surge protection on existing critical facilities.	Building Official	Low	Long-Range	TBD	TBD

City of Saraland Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.8	<u>Backup Power.</u> Ensure uninterrupted power supply to critical facilities during emergency events.					
2.8.1	Pursue grant funding for the installation of backup power generators for critical facilities.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Building Official	Medium	Mid-Range	Existing	TBD
3.2	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					
3.2.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	Mobile County EMA	High	Short-Range	Existing	TBD
3.2.2	Conduct materials distribution, via the internet and other media, and other outreach activities and workshops to encourage families and individuals to implement hazard mitigation measures in their homes.	Mobile County EMA	High	Short-Range	Existing	TBD

City of Saraland Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.3	Promote disaster resilience within the business community through workshops, educational materials and planning guides, intended to assist business owners in recovering from a disaster event in a timely manner.	Mayor and Council	High	Short-Range	Existing	TBD
3.2.4	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	Mayor and Council	Medium	Mid-Range	Existing	TBD
3.2.5	Host hazard mitigation roundtables at the beginning of the fiscal year and the beginning of hurricane season to review and coordinate individual jurisdiction mitigation activities.	Mobile County EMA	Low	Long-Range	TBD	TBD
3.3	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.3.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.4	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					
3.4.1	Distribute hazard mitigation brochures to students through area schools.	Mayor and Council	High	Short-Range	FEMA HMA Grant	TBD
3.5	<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.					

City of Saraland Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.5.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	Mobile County EMA	High	Short-Range	Existing	TBD
3.6	<u>Mass Media Relations.</u> Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.					
3.6.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Mobile County EMA	High	Short-Range	Existing	TBD
3.7	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.7.1	Promote the use of weather radios in households and businesses.	Mayor and Council	High	Short-Range	Existing	TBD
3.7.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor and Council	High	Short-Range	Existing	TBD
3.7.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and Council	High	Short-Range	Existing	TBD
3.8	<u>Disaster Warning.</u> Improve public warning systems.					
3.9.1	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.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.2	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.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD

City of Saraland Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.9.3	Evaluate the feasibility of a shared tri-county ALERT system covering Baldwin, Escambia, and Mobile counties.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.4	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.5	Upgrade critical communications infrastructure.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
4	Goal for Natural Resources Protection. Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	River/Stream Corridor Restoration and Protection. Restore and protect river and stream corridors within areas.					
4.1.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	Building Official	High	Ongoing	Other	TBD
4.1.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Mayor and Council	High	Ongoing	Existing	TBD
4.2	Water Resources Conservation Programs. Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.2.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and Council	Medium	Long-Range	Existing	TBD

City of Saraland Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5	<u>Goal for Structural Projects.</u> Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Building Official	Medium	Short-Range	Existing	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	Mayor and Council	High	Mid-Range	FEMA HMA Grant	TBD
5.3	<u>Community Shelters and Safe Rooms.</u> Provide shelters from natural hazards for the safety of community residents.					
5.3.1	Construct new community safe rooms in accessible locations and add safe rooms within new and existing public and institutional buildings, such as schools, colleges and universities, senior centers, community centers, hospitals, and government buildings.	Building Official	High	Long-Range	FEMA HMA Grant	TBD
5.3.2	Encourage the construction of safe rooms in new and existing homes and buildings.	Building Official	High	Short-Range	FEMA HMA Grant	TBD

2.11 Satsuma Community Action Program

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	Goal for Prevention. Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	Comprehensive Plans and Smart Growth. Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.					
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions. Each plan should address natural hazards exposure and include long-term disaster resistance measures. The vulnerability and environmental suitability of lands for future development should be clearly addressed. Local plans should assess the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implement the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Building Official	Medium	Mid-Range	Existing	TBD

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.2	Geographic Information Systems (GIS). Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					
1.2.1	Maintain a centralized, countywide natural hazards and risk assessment database in GIS that is accessible to local planners and emergency management personnel, including such data as, flood zones, geohazards, major drainage 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 EMA	Low	Mid-Range	HMA	TBD
1.2.2	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.	Mobile County EMA	Low	Mid-Range	FEMA HMA Grant	TBD
1.3	Planning Studies. Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	Local Floodplain Manager	Medium	Long-Range	FEMA HMA Grant	TBD
1.3.2	Identify existing culturally or socially significant structures and critical facilities within Mobile County that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Building Official	Low	Long-Range	TBD	TBD

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3.3	Evaluate elevation and culvert sizing of existing roadways in flash flood-prone areas to ensure compliance with current standards for design year floods, and develop a program for construction upgrades as appropriate.	Building Official	Low	Long-Range	TBD	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Building Official	Low	Long-Range	TBD	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Medium	Long-Range	FEMA HMA Grant	TBD
1.4	Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	Mayor and Council	Medium	Short-Range	Existing	TBD
1.4.2	Evaluate additional land use restrictions within designated flood zones, such as prohibition of storage of buoyant materials, storage of hazardous materials, restrictive development of flood ways, among others.	Mayor and Council	Medium	Short-Range	Existing	TBD
1.4.3	Require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Mayor and Council	Medium	Short-Range	Existing	TBD
1.4.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and Council	High	Short-Range	Existing	TBD

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.5	Open Space Preservation. Minimize disturbances of natural land features and increased storm water runoff through regulations that maintain critical natural features such as open space for parks, conservation areas, landscaping, and drainage.					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	Mayor and Council	Medium	Mid-Range	Existing	TBD
1.6	Flood Plain Management Regulations. Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Local Floodplain Manager	High	Long-Range/Ongoing	Existing	TBD
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Local Floodplain Manager	Medium	Ongoing	Existing	TBD
1.6.3	Promote the adoption of uniform flood hazard prevention ordinance among all NFIP communities. The ordinance standards should encourage flood plain management that maintains the natural and beneficial functions of flood plains by maximizing the credits that could be obtained for "Higher Regulatory Standards" under the Community Rating System (CRS) Program.	Local Floodplain Manager	High	Mid-Range	FEMA HMA Grant	TBD
1.6.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association of Flood Plain Managers and encourage active participation.	Local Floodplain Manager/	High	Short-Range	Existing	TBD

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.6.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Local Floodplain Manager	Medium	Short-Range	Other	TBD
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Building Official	High	Ongoing	Existing	TBD
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."	Building Official	High	Short-Range	Existing	TBD
1.7.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.	Building Official	Low	Mid-Range	Existing	TBD
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Building Official	High	Short-Range	Existing	TBD
1.7.6	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and Council	High	Ongoing	FEMA HMA Grant	TBD
1.8	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.8.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Local Floodplain Manager	High	Ongoing	Existing	TBD
1.8.2	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	Mayor and Council	High	Ongoing	Existing	TBD
1.9	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.9.1	Support legislation to establish a State dam safety program.	Mayor and Council	Low	Mid-Range	Existing	TBD
1.10	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.10.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Short-Range	Existing	TBD
1.11	<u>Critical Facilities Assessments.</u> Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					
1.11.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
1.11.2	Conduct wildfire vulnerability assessments, including the vulnerability of critical facilities and number of residential properties in these risk areas, and prepare a comprehensive inventory to identify high and moderate wildfire risk areas.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2	<u>Goal for Property Protection.</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					
2.1.1	Pursue FEMA grant funds to relocate buildings out of hazardous flood areas, with emphasis on pre-FIRM residential buildings, where deemed more cost effective than property acquisition or building elevation.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2.2	Utilize the most recent NFIP repetitive loss property list, and other appropriate sources, to create and maintain a prioritized list of acquisition mitigation projects based on claims paid.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5	<u>Flood Control Measures.</u> Small flood control measures built to reduce/prevent flood damage.					
2.5.1	Examine use of minor structural projects (small berm or floodwalls) in areas that cannot be mitigated through non-structural mitigation techniques.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
2.6	<u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.6.1	Pursue FEMA grant funds to retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.6.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Building Official	Medium	Short-Range	Existing	TBD

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.7	Hazard Insurance Awareness. Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.7.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Local Floodplain Manager	High	Ongoing	Existing	TBD
2.8	Critical Facilities Protection. Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.8.1	Install lightning and/or surge protection on existing critical facilities.	Building Official	Low	Long-Range	TBD	TBD
2.9	Backup Power. Ensure uninterrupted power supply to critical facilities during emergency events.					
2.9.1	Pursue grant funding for the installation of backup power generators for critical facilities.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
3	Goal for Public Education and Outreach. Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	Map Information. Increase public access to Flood Insurance Rate Map (FIRM) information.					
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.	Building Official	Low	Mid-Range	Existing	TBD
3.2	Outreach Projects. Conduct regular public events to inform the public of hazards and mitigation measures.					

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.2.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.2	Conduct materials distribution, via the internet and other media, and other outreach activities and workshops to encourage families and individuals to implement hazard mitigation measures in their homes.	Mobile County EMA	High	Ongoing	Existing	TBD
3.2.3	Promote disaster resilience within the business community through workshops, educational materials and planning guides, intended to assist business owners in recovering from a disaster event in a timely manner.	Mayor and Council	Low	Long-Range	Existing	TBD
3.2.4	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	Mayor and Council	High	Short-Range	Existing	TBD
3.3	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.3.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.4	<u>Education Programs.</u> Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.4.1	Distribute hazard mitigation brochures to students through area schools.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.5	Community Hazard Mitigation Plan Distribution. Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.5.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	Mobile County EMA	High	Short-Range	Existing	TBD
3.6	Technical Assistance. Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.					
3.6.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	Building Official	High	Short-Range	Existing	TBD
3.7	Mass Media Relations. Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.					
3.7.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.8	Weather Radios. Improve public access to weather alerts.					
3.8.1	Promote the use of weather radios in households and businesses.	Mayor and Council	High	Short-Range	Existing	TBD
3.8.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.	Mayor and Council	High	Short-Range	Existing	TBD
3.9	Disaster Warning. Improve public warning systems.					

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.9.4	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.9.5	Upgrade critical communications infrastructure.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
4	Goal for Natural Resources Protection. Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	Open Space Easements and Acquisitions. Acquire easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands to assure permanent protection of these natural resources.					
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.	Mayor and Council	High	Short-Range	FEMA HMA Grant	TBD
4.2	River/Stream Corridor Restoration and Protection. Restore and protect river and stream corridors within areas.					
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	Mayor and Council	High	Ongoing	Other	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Mayor and Council	High	Ongoing	Existing	TBD
4.3	Urban Forestry Programs. Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.					

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).	Mayor and Council	Medium	Mid-Range	Existing	TBD
4.4	Water Resources Conservation Programs. Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.4.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	Mayor and Council	Medium	Long-Range	Existing	TBD
5	Goal for Structural Projects. Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1	Drainage System Maintenance. Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Building Official/Mobile County EMA	Medium	Short-Range	Existing	TBD
5.2	Reservoirs and Drainage System Improvements. Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	Building Official/Mayor and Council	High	Mid-Range	FEMA HMA Grant	TBD
5.3	Community Shelters and Safe Rooms. Provide shelters from natural hazards for the safety of community residents.					

City of Satsuma Community Action Plan						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5.3.1	Construct new community safe rooms in accessible locations and add safe rooms within new and existing public and institutional buildings, such as schools, colleges and universities, senior centers, community centers, hospitals, and government buildings.	Mayor and Council	High	Long-Range	FEMA HMA Grant	TBD
5.3.2	Establish a program for subsidizing individual and community safe room construction in appropriate locations and facilities.	Mayor and Council	High	Long-Range	FEMA HMA Grant	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and Council	High	Long-Range	FEMA HMA Grant	TBD

2.12 Semmes Community Action Program

City of Semmes Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1	Goal for Prevention. Manage the development of land and buildings to minimize risks of loss due to natural hazards.					
1.1	Comprehensive Plans and Smart Growth. Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.					
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions. Each plan should address natural hazards exposure and include long-term disaster resistance measures. The vulnerability and environmental suitability of lands for future development should be clearly addressed. Local plans should assess the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	Building Official	Low	Long-Range/Ongoing	Existing	TBD
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implement the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.	Building Official	Medium	Mid-Range	Existing	TBD
1.2	Geographic Information Systems (GIS). Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.					
1.2.3	Mark depths of flooding and storm surge immediately after each event. Enter and maintain these historical records in GIS.	City of Mobile GIS Dept.	High	Long-Range/Ongoing	Existing	TBD

City of Semmes Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.3	Planning Studies. Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	Local Floodplain Manager	Medium	Long-Range	FEMA HMA Grant	TBD
1.3.2	Identify existing culturally or socially significant structures and critical facilities within Mobile County that have the most potential for losses from natural hazard events and identify needed structural upgrades.	Building Official	Low	Long-Range	TBD	TBD
1.3.3	Evaluate elevation and culvert sizing of existing roadways in flash flood-prone areas to ensure compliance with current standards for design year floods, and develop a program for construction upgrades as appropriate.	Building Official	Low	Long-Range	TBD	TBD
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.	Building Official	Low	Long-Range	TBD	TBD
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	City Engineer	Medium	Long-Range	FEMA HMA Grant	TBD
1.4	Zoning. Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	Mayor and City Council	Medium	Short-Range	Existing	TBD

City of Semmes Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
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.	Mayor and City Council	Medium	Short-Range	Existing	TBD
1.4.3	Require delineation of flood plain fringe, floodways, and wetlands on all plans submitted with a permit for development within a flood plain.	Mayor and City Council	Medium	Mid-Range	Existing	TBD
1.4.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	Mayor and City Council	Medium	Mid-Range	Existing	TBD
1.5	<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.					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	Mayor and City Council	Medium	Mid-Range	Existing	TBD
1.6	<u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.6.1	Participate in the “Turn Around Don’t Drown” program by purchasing and installing signs in known flash flood bridge overpass locations.	Local Floodplain Manager	Medium	Short-Range	Other	TBD
1.6.2	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.	Local Floodplain Manager	Medium	Short-Range	TBD	TBD

City of Semmes Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.7	<u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	Building Official	High	Ongoing	Existing	TBD
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."	Building Official	High	Short-Range	Existing	TBD
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.	Mayor and City Council	High	Long-Range	TBD	TBD
1.7.4	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	Building Official	High	Short-Range	Existing	TBD
1.7.5	Require the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.	Mayor and City Council	High	Ongoing	FEMA HMA Grant	TBD
1.8	<u>Landscape Ordinances.</u> Establish minimum standards for planting areas for trees and vegetation to reduce storm water runoff and improve urban aesthetics.					

City of Semmes Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.8.1	Review and revise as necessary, landscaping standards for parking lots that reduce the size of impervious surfaces and encourage natural infiltration of rainwater.	Mayor and City Council	Low	Mid-Range	Existing	TBD
1.9	<u>Storm Water Management.</u> Manage the impacts of land development on storm water runoff rates and to natural drainage systems.					
1.9.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.	Mayor and City Council	Low	Mid-Range	Existing	TBD
1.9.2	Develop, adopt and implement subdivision regulations that require proper stormwater infrastructure design and construction.	Mayor and City Council	Low	Mid-Range	Existing	TBD
1.10	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.10.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	Local Floodplain Manager	High	Short-Range	Existing	TBD
1.11	<u>Critical Facilities Assessments.</u> Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					
1.11.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.	Building Official	Low	Long-Range	Existing	TBD

City of Semmes Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
1.11.2	Conduct wildfire vulnerability assessments, including the vulnerability of critical facilities and number of residential properties in these risk areas, and prepare a comprehensive inventory to identify high and moderate wildfire risk areas.	Building Official	Medium	Mid-Range	FEMA HMA Grant	TBD
2	<u>Goal for Property Protection.</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					
2.1.1	Pursue FEMA grant funds to relocate buildings out of hazardous flood areas, with emphasis on pre-FIRM residential buildings, where deemed more cost effective than property acquisition or building elevation.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.2.2	Utilize the most recent NFIP repetitive loss property list, and other appropriate sources, to create and maintain a prioritized list of acquisition mitigation projects based on claims paid.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					

City of Semmes Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	Building Official	Medium	Short-Range	FEMA HMA Grant	TBD
2.5	<u>Flood Control Measures.</u> Small flood control measures built to reduce/prevent flood damage.					
2.5.1	Examine use of minor structural projects (small berm or floodwalls) in areas that cannot be mitigated through non-structural mitigation techniques.	Building Official	Low	Long-Range	FEMA HMA Grant	TBD
2.6	<u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.6.1	Retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	Building Official	Medium	Short-Range	Existing	TBD

City of Semmes Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
2.6.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	Building Official	Medium	Short-Range	Existing	TBD
2.7	<u>Hazard Insurance Awareness.</u> Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.7.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	Local Floodplain Manager	High	Ongoing	Existing	TBD
2.8	<u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.8.1	Install lightning and/or surge protection on existing critical facilities.	Building Official	Low	Long-Range	TBD	TBD
2.9	<u>Backup Power:</u> Assure uninterrupted power supplies during emergency events.					
2.9.1	Pursue grant funding for the installation of backup power generators for critical facilities.	Building Official	High	Short-Range	FEMA HMA Grant	TBD
3	<u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.					
3.1	<u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.					

City of Semmes Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.1.1	Continue to participate in environmental awareness events to provide the public information on hazard exposure and mitigation measures, such as City/County Day, Hurricane Awareness Week, and Severe Weather Week.	Mobile County EMA	High	Ongoing	Existing	TBD
3.1.2	Conduct materials distribution, via the internet and other media, and other outreach activities and workshops to encourage families and individuals to implement hazard mitigation measures in their homes.	Mobile County EMA	High	Ongoing	Existing	TBD
3.1.3	Promote disaster resilience within the business community through workshops, educational materials and planning guides, intended to assist business owners in recovering from a disaster event in a timely manner.	Mayor and City Council	Low	Long-Range	Existing	TBD
3.1.4	Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.	Mayor and City Council	Low	Long-Range	Existing	TBD
3.2	<u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.					
3.2.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	Mobile County EMA	Medium	Mid-Range	Existing	TBD
3.3	<u>Community Hazard Mitigation Plan Distribution.</u> Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.3.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	Mobile County EMA	High	Short-Range	Existing	TBD

City of Semmes Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
3.4	<u>Weather Radios.</u> Improve public access to weather alerts.					
3.4.1	Promote the use of weather radios in households and businesses.	Mayor and City Council	High	Short-Range	Existing	TBD
3.4.2	Require the installation of weather radios in all public buildings and places of public assembly.	Mayor and City Council	Low	Long-Range	Existing	TBD
3.4.3	Distribute weather radios and emergency response instructions to municipal residents.	Mayor and City Council	Low	Long-Range	Existing	TBD
3.5	<u>Disaster Warning.</u> Improve public warning systems.					
3.5.1	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
3.5.2	Upgrade critical communications infrastructure.	Mobile County EMA	High	Short-Range	FEMA HMA Grant	TBD
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> Acquire easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands to assure permanent protection of these natural resources.					
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.	Mayor and City Council	High	Short-Range	FEMA HMA Grant	TBD

City of Semmes Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
4.2	<u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.					
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	Mayor and City Council	High	Ongoing	Other	TBD
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	Mayor and City Council	High	Ongoing	Existing	TBD
4.3	<u>Urban Forestry Programs.</u> Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.					
4.3.1	Increase overall green spaces in cities by planting hurricane resistant trees with site and location taken into consideration.	Mayor and City Council	Medium	Mid-Range	Existing	TBD
5	<u>Goal for Structural Projects.</u> Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1	<u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Building Official/Mobile County EMA	Medium	Short-Range	Existing	TBD
5.2	<u>Reservoirs and Drainage System Improvements.</u> Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	Building Official/Mayor and City Council	High	Mid-Range	FEMA HMA Grant	TBD
5.3	<u>Community Shelters and Safe Rooms.</u> Provide shelters from natural hazards for the safety of community residents.					

City of Semmes Community Action Program						
#	Goal, Objectives and Mitigation Measures	Lead Responsibility for Carrying Out Measure	Priority	Timeline	Funding Source	Estimated Cost
5.3.1	Construct new community safe rooms in accessible locations and add safe rooms within new and existing public and institutional buildings, such as schools, colleges and universities, senior centers, community centers, hospitals, and government buildings.	Mayor and City Council	High	Long-Range	FEMA HMA Grant	TBD
5.3.2	Establish a program for subsidizing individual and community safe room construction in appropriate locations and facilities.	Mayor and City Council	High	Long-Range	FEMA HMA Grant	TBD
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Mayor and City Council	High	Long-Range	FEMA HMA Grant	TBD

2015
MOBILE COUNTY, ALABAMA
Multi-Hazard Mitigation Plan

Appendices

- A - FEDERAL REQUIREMENTS FOR LOCAL MITIGATION PLANS**
- B - COMMUNITY MITIGATION CAPABILITIES**
- C - 2009 PLAN IMPLEMENTATION STATUS**
- D - HAZARD RATINGS AND DESCRIPTIONS**
- E - HAZARD PROFILE DATA**
- F - ALTERNATIVE MITIGATION MEASURES**
- G - COMMITTEE MEETING DOCUMENTATION**
- H - COMMUNITY INVOLVEMENT DOCUMENTATION**
- I - MULTI-JURISDICTIONAL PARTICIPATION ACTIVITIES**
- J - ADOPTING RESOLUTION**



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Mobile County Hazard Mitigation Planning Committee



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2015 Mobile County, Alabama, Multi-Hazard Mitigation Plan

Appendices

*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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Appendix A
Federal Requirements for Local Mitigation
Plans

App. A – Federal Requirements for Local Mitigation Plans

- 1.0 Compliance
- 2.0 44 CFR Sec. 201.6 (2013)

1.0 Compliance

The 2015 Mobile County Multi-Hazard Mitigation Plan addresses the Local Mitigation Plans requirements of 44 CFR Sec. 201.6.

2.0 44 CFR Sec. 201.6 (2013)

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

(a) *Plan requirements.*

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

- (4) Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan. Statewide plans will not be accepted as multi-jurisdictional plans.
- (b) *Planning process.* An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:
- (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
 - (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
 - (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.
- (c) *Plan content.* The plan shall include the following:
- (1) Documentation of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.
 - (2) A *risk assessment* that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include:
 - (i) A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.
 - (ii) A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. All plans approved after October 1, 2008 must also address NFIP insured

structures that have been repetitively damaged by floods. The plan should describe vulnerability in terms of:

- A. The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;
 - B. An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate;
 - C. Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.
- (iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.
- (3) A *mitigation strategy* that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. This section shall include:
- (i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.
 - (ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.
 - (iii) An action plan describing how the actions identified in paragraph (c)(2)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost-benefit review of the proposed projects and their associated costs.

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

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

- (i) A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.
- (ii) A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.
- (iii) Discussion on how the community will continue public participation in the plan maintenance process.

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

(d) *Plan review.*

- (1) Plans must be submitted to the State Hazard Mitigation Officer (SHMO) for initial review and coordination. The State will then send the plan to the appropriate FEMA Regional Office for formal review and approval. Where the State point of contact for the FMA program is different from the SHMO, the SHMO will be responsible for coordinating the local plan reviews between the FMA point of contact and FEMA.
- (2) The Regional review will be completed within 45 days after receipt from the State, whenever possible.
- (3) A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding.
- (4) Managing States that have been approved under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c) will be delegated approval authority for local mitigation plans, and the review will be based on the criteria in this part. Managing States will review the plans within 45 days of receipt of the plans, whenever possible, and provide a copy of the approved plans to the Regional

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

Appendix B
Community Mitigation Capabilities

App. B - Community Mitigation Capabilities

- 1.0 Scope and Methodology
- 2.0 Summary of Results
- 3.0 Planning and Regulatory Tools
- 4.0 GIS Resources
- 5.0 Staffing and Administrative Resources
- 6.0 Fiscal Resources
- 7.0 Public Education and Outreach Programs
- 8.0 Insurance Services Office (ISO) Ratings

1.0 Scope and Methodology

This report is an in-depth assessment of community mechanisms that can affect hazard mitigation activities in a jurisdiction. The purpose of this examination is to determine the capabilities of Mobile County and its participating jurisdictions to implement mitigation strategies. Moreover, this assessment identifies any existing gaps or weaknesses that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. The results of this assessment help determine the types of mitigation activities a local government can realistically undertake over its five-year action program framework. This report also helps evaluate whether a proposed mitigation action is deemed practical when considering the local participating jurisdiction's ability to implement the action. It is important to review these mechanisms and assess whether they might either facilitate or hinder alternative hazard mitigation actions under consideration for each community mitigation action program included in Part I, Chapter 6 Mitigation Strategy.

This capabilities assessment examines six components, as follows: (1) planning and regulatory tools, (2) GIS resources, (3) staffing and administrative resources, (4) fiscal resources, (5) public education and outreach programs, and (6) ISO ratings. Local governments can use these components to enhance their capacity to carry out hazard mitigation actions and projects.

The information found in this report was derived from surveys and interviews of local government representatives regarding each of the community's current capabilities. A comprehensive questionnaire was distributed by the planning team to all participating jurisdictions. The survey requested information on a variety of community initiatives, such as existing local plans, policies, programs, and ordinances that contribute to or hinder the local capabilities to implement hazard mitigation actions. Other surveyed information relates to participating jurisdictions' fiscal, administrative and technical

capabilities, including access to budgetary and personnel resources for mitigation purposes.

The tables which follow show the participating jurisdictions' responses to the community capabilities questionnaire and interviewing processes. Explanations of findings are found below in the Summary of Results.

2.0 Summary of Results

Planning and Regulatory Tools

- ✓ All municipalities adopted the 2015 Mobile County Multi-Hazard Mitigation Plan. The jurisdictions have actively implemented mitigation actions from this plan.
- ✓ Prichard has a comprehensive plan. Mobile County, Creola, and Satsuma have no comprehensive plans.
- ✓ All the municipal governments have zoning ordinances. Mobile County is the only jurisdiction with no zoning ordinance
- ✓ Chickasaw is the only jurisdiction that does enforce subdivision regulations.
- ✓ All the communities enforce building codes within their jurisdictions.
- ✓ All of the jurisdictions participate in the National Flood Insurance Policy (NFIP) program.
- ✓ Dauphin Island and Mobile are the only NFIP communities that participate in the Community Rating System (CRS) program.
- ✓ Mt. Vernon and Satsuma have no stormwater management ordinance.
- ✓ Mobile and Dauphin Island have regulations to manage their coastal areas.
- ✓ Dauphin Island and Satsuma have addressed conservation of land or open space in either their zoning ordinance or subdivision regulations.
- ✓ Mobile, Prichard, and Saraland are "Tree City USA" communities. Saraland has adopted a tree protection ordinance.

GIS Resources

- ✓ All the jurisdictions in Mobile County have access to Geographic Information System (GIS) services.
- ✓ Mobile County and the City of Mobile maintain their own GIS system. South Alabama Regional Planning and Development Commission (SARPC) maintains GIS services for the remaining communities in Mobile County.

- ✓ Mobile County maintains critical geographic data that supports hazard mitigation planning and analysis for the entire county.

Staffing and Administrative Resources

- ✓ All the jurisdictions have building code inspectors on staff.
- ✓ All the communities which participate in the NFIP have personnel designated to administer the flood plain management ordinance with the exception of Citronelle and Creola.
- ✓ Mobile County and the City of Mobile have flood plain administrators who are Certified Floodplain Manager (CFM) designated by the Association of State Floodplain Managers (ASFM).
- ✓ The City of Mobile is the only jurisdiction with a professional planning staff.
- ✓ Mobile County and the City of Mobile have an engineering staff. These jurisdictions also have professional engineers (P.E.) on staff.

Fiscal Resources

- ✓ All the jurisdictions with the exception of the City of Prichard have been awarded FEMA mitigation grants. Prichard has received mitigation grants under the State's Community Development Block Grant (CDBG) Program.
- ✓ All the jurisdictions, with the exception of Citronelle and Creola, have staff with grant writing experience or have retained a grant writer.

Public Education and Outreach Programs

- ✓ Most public outreach activities are conducted jointly through the Mobile County Emergency Management Agency (EMA).

ISO Ratings

- ✓ The Insurance Services Office (ISO) would not disclose BCGES and PPC ratings directly to the planning team which had to rely entirely on local knowledge for this survey.
- ✓ Among the communities in Mobile County that participate in the National Flood Insurance Program (NFIP), Dauphin Island is the only participant in the CRS Program.
- ✓ The City of Mobile boasts a Property Protection Classification (PPC) of 3, and the cities of Chickasaw and Saraland have the next highest rating of 4.

- ✓ The City of Mobile has the highest Building Code Grade Effective Schedule (BCGES) rating of 4, according to available survey results.

3.0 Planning and Regulatory Tools

This section is an inventory of planning and regulatory tools in place by Mobile County jurisdictions to facilitate hazard mitigation through prevention measures.

Comprehensive planning can establish a vehicle for instituting and acknowledging local support for hazard mitigation goals. Comprehensive land use plans provide a growth management mechanism to prevent or discourage development in hazardous areas or restrict development in a manner that minimizes damage from hazards. Community facilities planning can ensure the protection of public infrastructure investments from future damages caused by natural and human-made hazards. Planning initiatives to promote community sustainability and smart growth should be fully integrated with mitigation-related goals and objectives in local plans.

Regulatory tools used for planning and development can also be used to address hazard mitigation. Local governments can administer zoning ordinances, capital improvements plans, building and technical codes, floodplain management ordinances, erosion and sedimentation control ordinances, storm water management and detention standards, conservation subdivision provisions, hillside protection requirements, and a range of other regulatory tools to manage growth and land development.

Table B-1. Planning and Regulatory Tools

Tool	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
Adopted hazard mitigation plan	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comprehensive plan	N	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y
Comprehensive plan (adopted ≤ 5 years)	N	N	N	N	N	N	N	N	Y	N	N	Y
Zoning ordinance	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Subdivision regulations	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Building codes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Floodplain management ordinance	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Stormwater management regulations	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	Y
Coastal regulations	N	N	NA	NA	NA	Y	Y	NA	NA	NA	NA	N/A
Urban forestry/tree protection program	N	N	N	N	N	N	Y	N	Y	Y	N	N
Regulations addressing conservation/open space subdivisions	N	N	N	N	N	Y	N	N	N	N	Y	Y

NA= Not Applicable

4.0 GIS Resources

Communities’ access to geographic information systems (GIS) and database management resources were the focus of this survey component. GIS resources were evaluated to assess the communities’ existing GIS tools, access to GIS services and data, and capabilities to effectively gather, maintain, and manage relevant GIS data critical to hazard mitigation planning.

The majority of Mobile County’s municipalities have limited GIS staffing capabilities and limited computer hardware and software resources for GIS. In these jurisdictions, South Alabama Regional Planning Commission is providing GIS technical assistance. Mobile County and the City of Mobile maintain critical geographic data that supports hazard mitigation planning and analysis.

Table B-2 summarizes the GIS resources available to Mobile County jurisdictions.

Table B-2. GIS Resources

GIS Resources	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
Access to a GIS program	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Maintains its own GIS	Y	N	N	N	N	N	Y	N	N	N	N	Y
GIS inventory of natural hazard areas	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
GIS inventory of critical facilities	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

5.0 Staffing and Administrative Resources

The following section includes an inventory of existing staffing and administrative resources that can be used for mitigation planning and implementation of some mitigation actions. Specific resources reviewed include those involving technical personnel that apply planning and engineering, floodplain management, building codes, and related consulting services needed to facilitate hazard mitigation in Mobile County. The ability of a local government to develop and implement mitigation projects, policies and programs is directly tied to staff resources that can be directed for that purpose. Administrative capabilities were evaluated by assessing whether there are adequate personnel resources to complete these mitigation activities.

The staffing and administrative capabilities of Mobile County and its participating jurisdictions are shown on Table B-3.

Table B-3. Staffing and Administrative Resources

Resources	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
Building code staff	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
Staff assigned to administer floodplain ordinance	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	N
Certified floodplain manager	Y	Y	N	N	N	N	Y	N	N	N	N	N
Engineering staff	Y	N	N	N	N	N	Y	N	N	N	N	Y
Professional engineer on staff	Y	N	N	N	N	N	Y	N	N	N	N	N
Utilizes engineering consulting services	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y
Professional planning staff	N	N	N	N	N	N	Y	N	N	N	N	Y
Participates in regional planning program	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Utilizes planning consulting service	N	N	Y	N	N	N	Y	Y	Y	N	N	Y

6.0 Fiscal Resources

The ability of local governments to undertake costly hazard mitigation projects actions is a major constraint to effective hazard mitigation. This survey gathered information on Mobile County’s fiscal capabilities through the identification of locally available financial resources and the local government’s ability to compete for available mitigation grant resources. Table B-4 summarizes these fiscal resources.

Table B-4. Fiscal Resources

Resources	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
Submitted applications for FEMA mitigation grants	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Awarded FEMA mitigation grant(s)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N
Initiated mitigation projects funded by other sources	N	N	Y	N	Y	N	Y	Y	Y	N	N	N
Has staff capable of writing grants	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y

7.0 Public Education and Outreach Programs

Local governments are strongly encouraged to initiate and maintain on-going public education and outreach programs. Such programs are among the most cost efficient mechanisms for hazard mitigation. These actions inform and educate citizens, elected officials, and property owners about potential risks of hazards and the available ways to mitigate potential property damages. Such actions include outreach projects,

real estate disclosure, hazard information centers, and school-age and adult education programs.

Table B-5 summarizes the public education and outreach efforts of Mobile County jurisdictions. All outreach activities are conducted jointly with the Mobile County EMA.

Table B-5. Public Education and Outreach Programs

Programs	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
On-going outreach program	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Special program for education outreach	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

8.0 Insurance Service Office (ISO) Ratings

Each local government was surveyed to determine ratings in the following Insurance Services Office (ISO) programs: Community Rating System (CRS) Program, Property Protection Classification (PPC), and Building Code Effectiveness Grading Schedule (BCEGS). These rating systems provide valuable indicators of how the communities are reducing their hazard vulnerabilities through effective flood plain management, building code enforcement, and fire protection.

The CRS is an incentive-based program that encourages NFIP communities to undertake enhanced program measures to reduce the impacts of flooding. The CRS achieves these goals by encouraging communities to implement comprehensive flood plain mitigation programs that exceed the minimal requirements of the National Flood Insurance Program (NFIP). Class Communities can be rewarded by reduced flood insurance premiums – a 5% reduction for each rating increase. The highest rating of 1 can reduce premiums by 45% and the CRS entry rating of 9 results in a 5% reduction. NFIP communities that do not participate are rated class 10 and receive no premium reduction benefit. Among the communities in Mobile County that participate in the National Flood Insurance Program (NFIP), only Dauphin Island participates in the CRS Program.

For the Property Protection Classification (PPC), the ISO collects information on municipal fire-protection efforts in communities throughout the United States. In each community, ISO analyzes the relevant data using its Fire Suppression Rating Schedule (FSRS). A PPC rating from 1 to 10 is assigned to each community. Class 1 generally

represents superior property fire protection, and Class 10 indicates that the area's fire-suppression program doesn't meet ISO's minimum criteria.

The Building Code Effectiveness Grading Schedule (BCEGS) assesses the building codes in effect in a particular community and how the community enforces them. A community's classification is based on administration of codes, review of building plans, and field inspections. The BCEGS program assigns each municipality a BCEGS grade of 1 (exemplary commitment to building-code enforcement) to 10 (no credit).

The ISO would not disclose BCGES and PPC ratings directly to the planning team which had to rely on local knowledge for this survey. The incomplete results of the ISO ratings survey are found on Table B-6

Table B-6. Insurance Service Office (ISO) Ratings

ISO Ratings	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
CRS classification	10	10	10	10	10	8	10	10	10	10	10	NR
Property Protection Classification (PPC)	NR	NR	4	7/9	7/9	6/9	3	NR	8	4	5	5/9
Building Code Effectiveness Grading Schedule(BCEGS)	NR	5	6	5F	7/9	6/6	4	NR	8	NR	NR	4/3

NR= No Response

Appendix C
2010 Plan Implementation Status

App. C 2010 Plan Implementation Status

- 1.0 Scope and Methodology
- 2.0 Summary of Results

1.0 Scope and Methodology

FEMA guidance requires this review of previous mitigation measures. Each action or project must be identified and its status in 2015 must be evaluated.

This appendix includes the mitigation measures adopted by Mobile County and its participating jurisdictions in the 2010 plan. Measures identified in the 2010 plan were evaluated to obtain the current implementation status. Each jurisdiction or agency responsible for implementing a mitigation measure in 2010 was asked to provide a status update by classifying each action as completed, ongoing, deleted, or carried over to the 2015 plan. Agencies were asked to provide comments on any milestones achieved or impediments to implementation of the mitigation measures.

To accomplish this status assessment, a questionnaire based on the mitigation action program from the 2010 plan was sent to all members of the Hazard Mitigation Planning Committee. The survey provided each jurisdiction with a mechanism to provide feedback on the implementation status of the mitigation measures along with any relevant comments.

Results from this survey are highlighted on the table found in this appendix. The table shows an identifying number for each jurisdiction (e.g., City of Bayou La Batre is 1, City of Chickasaw is 2, etc.) for cross reference to the reasons for not completing the measure. If a mitigation measure was deferred or recommended for deletion, the jurisdiction was required to give the reason. The reasons for deferring or deleting a measure were categorized as lack of funding, administrative, political, technical, or legal. These categories are defined below:

Lack of funding	Lack of funding or budget constraints impeded the implementation of the mitigation measure
Administrative	Inadequate staff resources to implement and maintain the mitigation measure
Political	Lacks local political support of the mitigation measure
Technical	Mitigation measure was not technically feasible
Legal	Lacks the legal authority to implement the mitigation measure

2.0 Summary of Results

- ✓ The 2010 Mobile County Multi-Hazard Mitigation Plan as amended contained approximately 74 mitigation measures.
- ✓ Semmes was not a jurisdiction of the 2010 plan; the community was incorporated in 2011.

The Key for Table C-1 is as follows:

- C** = Completed this 2010 mitigation measure.
- O** = Completed this ongoing measure and will continue in the 2015 Plan.
- D** = This 2010 mitigation measure was not completed but defer to the 2015 Plan.
- X** = Delete: this 2010 mitigation measure was not completed or will no longer be ongoing for the 2015 Plan.

Table C-1. 2010 Plan Implementation Status

#	Mitigation Measure	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions.	O	O	O	O	O	O	O	O	O	O	O	
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs	O	O	O	O	O	O	O	O	O	O	O	
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.	D	O	D	X	D	C	O	D	O	O	D	
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.	D	O	D	X	C	C	O	C	X	O	C	

#	Mitigation Measure	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
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.	D	C	O	X	O	C	O	O	O	D	O	
1.2.3	Mark depths of flooding and storm surge immediately after each event. Enter and maintain these historical records in GIS.	O									O		
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.	D	O	O	O	O	O		O		O	O	
1.3.2	Identify existing culturally or socially significant structures and critical facilities within Baldwin County that have the most potential for losses from natural hazard events and identify needed structural upgrades.	O	O	D	X	O	O	O	D	O	O	D	
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.		O	O	X	O	O		D	O	O		
1.3.4	Inventory and map existing fire hydrants throughout the county, and identify areas in need of new fire hydrants.		O	O	X	O	O		O	O	C		

APPENDICES

2015 Mobile County Multi-Hazard Mitigation Plan

#	Mitigation Measure	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.	O	O	O	X	O	O		D	O	O		
1.4.1	Consider large lot size restriction on flood prone areas designated on Flood Insurance Rate Maps.	O	O	D	O	O	O	O	O	O	O	O	
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.	O	O	D	O	O	C	O	D	O		O	
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.		O	O	X	O	O		O	O	O		
1.4.4	Enact local ordinance that require community storm shelters within sizeable mobile home parks and subdivisions.	X	O	O	O	O	X		X	O	O	O	
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	O	O	C	X	O	C		O	O	O	O	
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator or FEMA's training center in	O	O	O	X	O	C	O	D	O	O	D	

#	Mitigation Measure	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
	Emmitsburg, Maryland.												
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	O	O	O	X	O	O	O	D	O	O		
1.6.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association Flood Plain Managers and encourage active participation.	O	O	O	X	O	O	O	D	O	O	D	
1.6.5	Participate in the “Turn Around, Don’t Drown” program by purchasing and installing signs in known flash flood overpass locations.	D	O	X	O	O	O	O	O	O	O	O	
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	O	O	O	X	O	O	O	D	O	O	C	
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.”	O	O	O	X	O	O	O	O	O	O	C	
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		O	O	X	O	O		D	O	O	D	

#	Mitigation Measure	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
	underground for large residential subdivisions and commercial developments.												
1.7.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.		O	O	X	O	C		D	O	O		
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.	O	O	O	X	O	O	O	O	O	O		
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.		O	O	X	O	O		D	X	O		
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.		O	O	X	O	O		D	O	O		
1.9.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.		O	O	X	O	C		O	O	O	O	
1.9.2	Develop, adopt and implement subdivision regulations that require proper storm water infrastructure design and construction.	O		O	X	O	C	O	O	O	O	C	
1.10.1	Support legislation to establish a State dam safety program.	O	O	O	O	O	O	O	O	O	O	O	

#	Mitigation Measure	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
1.11.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.	O	O	O	X	O	O	O	D	O	O	O	
1.12.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.		O	D	X	O	O		D	X	O	D	
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.	O	O	O	X	O	D	O	O	O	O	O	
2.1.1	Pursue FEMA grant funds to relocate buildings and infrastructure out of hazardous flood areas, with emphasis on pre-FIRM residential buildings, where deemed more cost effective than property acquisition or building elevation.	O	O	O	X	O	D	O	D	O	O	D	
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.	O	O	O	X	O	D	O	D	X	O	D	
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.	O	O	O	X	O	D	O	D	X	O	D	

#	Mitigation Measure	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
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.	O	O	O	X	O	D	O	D	O	O	D	
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.	O	O	D	X	O	D	O	D	X	O	D	
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.	O	O	D	X	O	X	O	D	X	O	D	
2.5.1	Pursue FEMA grant funds to retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.	O	O	D	X	O	X	O	D	X	O	D	
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.	O	O	O	X	O	O	O	D	O	O	O	
2.6.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.	O	O	O	X	O	O	O	D	O	O	O	
2.7.1	Install lightning and/or surge protection on existing critical facilities.	O	O	O	X	O	C	O	O	O	D	O	

#	Mitigation Measure	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
2.8.1	Pursue grant funding for the installation of back up power generators for critical facilities.	O	O	O	C	O	C	O	O	O	C	O	
3.1.1	Publicize the availability of FIRM information to real estate agencies, builders, developers, and homeowners through local trade publications and newspaper announcements.	O	O	O	C	O	O	O	O	O	O	O	
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.	O	O	O	C	O	O	O	O	O	O	O	
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.	O	O	O	O	O	O	O	D	O	O	O	
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.	O	O	O	O	O	O	O	O	O	O	O	
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.		O	O	O	O	O		D	O	O	O	

#	Mitigation Measure	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
3.3.2	Consider the enactment of a local ordinance or state law to require floodplain disclosure when a property is for sale.										O		
3.4.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.	O	O	O	O	O	O	O	O	O	O	O	
3.5.1	Distribute hazard mitigation brochures to students through area schools.		O	O	O	O	O		O	O	O	O	
3.6.1	Distribute the 2010 plan to local officials, stakeholders, and interested individuals through internet download.	C	O	O	O	O	C	O	D	O	O	D	
3.7.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	O	O	O	O	O	O	O	D	X	O	D	
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.		O	O	O	O	O		O	O	O	O	
3.9.1	Promote the use of weather radios in households and businesses.	O	O	O	O	O	O	O	O	O	O	O	
3.9.2	Require the installation of weather radios in all public buildings and places of public assembly.									O	O		
3.9.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.		O	D	O	O	D		D	O	O	D	

#	Mitigation Measure	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
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.	O									O		
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.	O									O		
3.10.3	Evaluate the feasibility of a shared tri-county ALERT system covering Baldwin, Escambia, and Mobile counties.	O				O					O		
3.10.4	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.	X	O	O	X	O	O	O	O	X	X	O	
3.10.5	Upgrade critical communications infrastructure.	O	O	O	O	O	O	O	O	O	O	O	
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.	X	O	O	X	O	O	O	O	O	O	O	
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.	O	O	O	C	O	O	O	D	O	O	O	
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.	O	O	O	C	O	O	O	O	O	O	O	

#	Mitigation Measure	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).	O	O	O	C	O	O	O	O	O	O	O	
4.4.1	Restore and protect wetlands to enhance storm water drainage.	O	O	O	O	O	C	O	O	O	O	O	
4.4.2	Develop a coastal renourishment program.	O	O		X		O	O					
4.5.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.	O	O	O	O	O	O	O	O	O	O	O	
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	O	O	O	X	O	O	O	D	O	O	O	
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	O	O	O	C	O	O	O	O	O	O	O	
5.3.1	Ensure the inclusion of storm shelters and/or safe rooms in public buildings such as schools and multi-purpose community centers.	O	O	O	O	O	O	O	O	O	O	O	
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.	O	O	O	O	O	O	O	O	O	O	O	

#	Mitigation Measure	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	0	0	0	0	0	0	0	0	0	0	0	

**Appendix D
Hazard Ratings and Descriptions**

App. D – Hazard Ratings and Descriptions

- 1.0 Scope and Methodology
- 2.0 Hazard Descriptions

1.0 Scope and Methodology

1.1 The HMPC Hazard Identification Exercises

The tables in this Appendix show the results of the Hazard Mitigation Planning Committee’s (HMPC) responses to the hazard identification exercises completed in 2009. The HMPC reviewed the same exercise at its March 20, 2014, committee meeting and chose to rely on the 2009 results for the 2015 plan update. These results are not necessarily supported by other resources evaluated in Chapter 5 – Risk Assessment, but are, nonetheless, indicators of the location, probability, and extent of hazards affecting Mobile County jurisdictions. These responses are those perceived by the HMPC membership, based on local knowledge and experience of the members. This exercise serves as a resource to help identify the hazards affecting each jurisdiction and determine the probability and extents (severity or magnitude) and how these measures of community impacts vary among Mobile County jurisdictions. The averages of the ratings compare how the location and impacts of hazards could vary among the jurisdictions. Table D-1 shows these results.

Key.

The following key to the tables describes the hazard ratings:

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

1.2 Summary of Results

Location of natural hazards

- ✓ The HMPC has identified the following hazards that could occur in all jurisdictions: hurricanes, tornadoes, severe storms, winter storms/freezes, and droughts/heat waves.
- ✓ Floods can occur in all jurisdictions, and flood studies confirm all jurisdictions are subject to flooding. Flood maps included in Section 5 - Risk Assessment show precise flood zones.
- ✓ All jurisdictions are subject to impacts from hurricanes, though only coastal communities would be affected by storm surge. The data suggests hurricane generated wind, rain (flooding) and tornadoes from land falling hurricanes and tropical storms could have severe impacts on all communities.
- ✓ Dauphin Island and Bayou La Batre could incur inundation flooding from hurricane storm surge.
- ✓ Some communities did not find threats from wildfires, landslides, tsunamis, sinkholes, and earthquakes, although all communities could experience these disasters to some extent. See locational maps in Part I, Chapter 5 Risk Assessment.

Probability of natural hazards

- ✓ According to the HMPC severe storms, hurricanes, and tornadoes are the most likely natural hazards to occur with ratings of 5.0, 4.8, and 4.6, respectively. Following this riverine and hurricane generated flooding with a rating of 4.4.
- ✓ The natural hazards that have some likelihood of occurring (less than 4.0 but greater than 2.0) are droughts/heat waves (3.6), wildfires (3.2), and winter storms/freezes (2.6).
- ✓ The least likely natural hazards are dam/levee failures, earthquakes, tsunamis, landslides, and sinkholes, all with ratings of 2.0 or less.

Extent of natural hazards

- ✓ The most potentially severe natural hazards are hurricanes (4.6), tornadoes (4.2), and flooding (4.0).
- ✓ Earthquakes (3.3), droughts/heat waves (3.2), winter storms/freezes (3.0), and wildfires (3.0) all could be moderately high in severity.
- ✓ Dams/levee failures (2.0), sinkholes/land subsidence (1.8), and tsunamis (1.7) are considered by the HMPC to have a low potential severity.

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

Natural Hazard	Geographic Area	Location	Probability	Extent
Hurricanes	Mobile County	1	5	5
	Bayou La Batre			
	Chickasaw	1	5	4
	Citronelle			
	Creola			
	Dauphin Island			
	City of Mobile	1	5	5
	Mt. Vernon			
	Prichard			
	Saraland	1	4	4
	Satsuma			
	Semmes	1	5	5
	<i>AVERAGE</i>	<i>1.0</i>	<i>4.8</i>	<i>4.6</i>
Severe Storms	Mobile County	1	5	5
	Bayou La Batre			
	Chickasaw	1	5	4
	Citronelle			
	Creola			
	Dauphin Island			
	City of Mobile	1	5	3
	Mt. Vernon			
	Prichard			
	Saraland	1	5	3
	Satsuma			
	Semmes	1	5	5
	<i>AVERAGE</i>	<i>1.0</i>	<i>5.0</i>	<i>4.0</i>
Tornadoes	Mobile County	1	5	5
	Bayou La Batre			
	Chickasaw	1	4	4
	Citronelle			
	Creola			
	Dauphin Island			
	City of Mobile	1	5	3
	Mt. Vernon			

Natural Hazard	Geographic Area	Location	Probability	Extent
	Prichard			
	Saraland	1	4	4
	Satsuma			
	Semmes	1	5	5
	<i>AVERAGE</i>	<i>1.0</i>	<i>4.6</i>	<i>4.2</i>
Earthquakes	Mobile County	0	1	1
	Bayou La Batre			
	Chickasaw	0		
	Citronelle			
	Creola			
	Dauphin Island			
	City of Mobile	1	2	4
	Mt. Vernon			
	Prichard			
	Saraland	0		
	Satsuma			
	Semmes	1	3	5
	<i>AVERAGE</i>	<i>0.4</i>	<i>2.0</i>	<i>3.3</i>
Floods	Mobile County	1	5	5
	Bayou La Batre			
	Chickasaw	1	4	4
	Citronelle			
	Creola			
	Dauphin Island			
	City of Mobile	1	5	4
	Mt. Vernon			
	Prichard			
	Saraland	1	5	4
	Satsuma			
	Semmes	1	3	3
	<i>AVERAGE</i>	<i>1.0</i>	<i>4.4</i>	<i>4.0</i>
Wildfires	Mobile County	1	3	3
	Bayou La Batre			
	Chickasaw	1	3	3
	Citronelle			
	Creola			

Natural Hazard	Geographic Area	Location	Probability	Extent
	Dauphin Island			
	City of Mobile	1	3	3
	Mt. Vernon			
	Prichard			
	Saraland	1	2	1
	Satsuma			
	Semmes	1	5	5
	<i>AVERAGE</i>	<i>1.0</i>	<i>3.2</i>	<i>3.0</i>
Dam/Levee Failures	Mobile County	0	1	1
	Bayou La Batre			
	Chickasaw	1	1	1
	Citronelle			
	Creola			
	Dauphin Island			
	City of Mobile	0		
	Mt. Vernon			
	Prichard			
	Saraland	0		
	Satsuma			
	Semmes	1	2	4
	<i>AVERAGE</i>	<i>0.4</i>	<i>1.3</i>	<i>2.0</i>
Droughts/Heat Waves	Mobile County	1	5	4
	Bayou La Batre			
	Chickasaw	1	3	3
	Citronelle			
	Creola			
	Dauphin Island			
	City of Mobile	1	3	2
	Mt. Vernon			
	Prichard			
	Saraland	1	3	2
	Satsuma			
	Semmes	1	4	5
	<i>AVERAGE</i>	<i>1.0</i>	<i>3.6</i>	<i>3.2</i>

Natural Hazard	Geographic Area	Location	Probability	Extent
Winter Storms/Freezes	Mobile County	1	3	4
	Bayou La Batre			
	Chickasaw	1	3	3
	Citronelle			
	Creola			
	Dauphin Island			
	City of Mobile	1	2	2
	Mt. Vernon			
	Prichard			
	Saraland	1	2	2
	Satsuma			
	Semmes	1	3	4
	<i>AVERAGE</i>	<i>1.0</i>	<i>2.6</i>	<i>3.0</i>
Sinkholes	Mobile County	0	1	1
	Bayou La Batre			
	Chickasaw	1	2	2
	Citronelle			
	Creola			
	Dauphin Island			
	City of Mobile	1	2	1
	Mt. Vernon			
	Prichard			
	Saraland	1	1	1
	Satsuma			
	Semmes	1	2	4
	<i>AVERAGE</i>	<i>0.8</i>	<i>1.6</i>	<i>1.8</i>
Landslides	Mobile County	0	1	1
	Bayou La Batre			
	Chickasaw	0		
	Citronelle			
	Creola			
	Dauphin Island			
	City of Mobile	0		
	Mt. Vernon			
	Prichard			
	Saraland	0		

Natural Hazard	Geographic Area	Location	Probability	Extent
	Satsuma			
	Semmes	1	1	3
	<i>AVERAGE</i>	<i>0.2</i>	<i>1.0</i>	<i>2.0</i>
Tsunamis	Mobile County	0	1	1
	Bayou La Batre			
	Chickasaw	1	2	3
	Citronelle			
	Creola			
	Dauphin Island			
	City of Mobile	0		
	Mt. Vernon			
	Prichard			
	Saraland	0		
	Satsuma			
	Semmes	0	1	1
	<i>AVERAGE</i>	<i>0.2</i>	<i>1.3</i>	<i>1.7</i>

2.0 Hazard Descriptions

2.1 Hurricanes Description

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

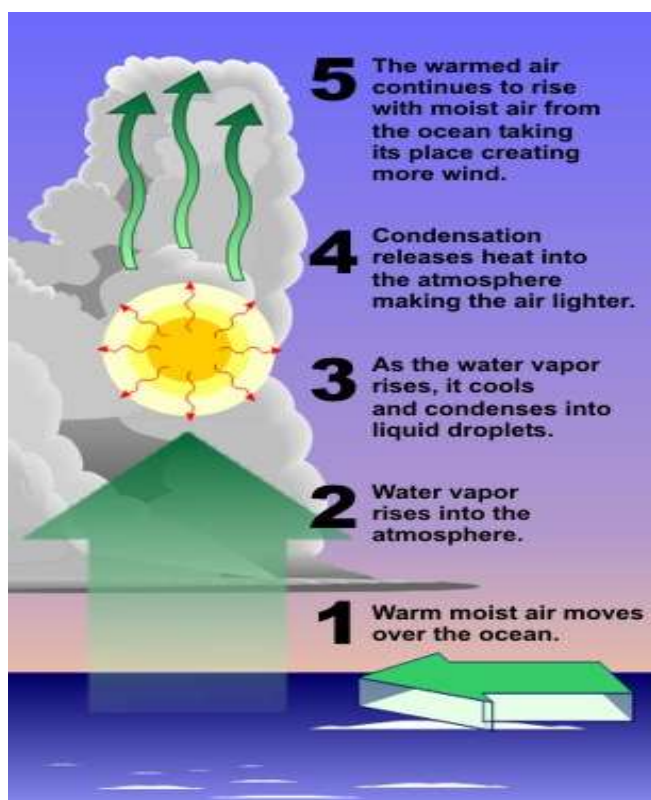


Figure D-1. How a Hurricane Forms

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

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

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

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

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

Table D-2. Saffir-Simpson Scale

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

Source: National Hurricane Center

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

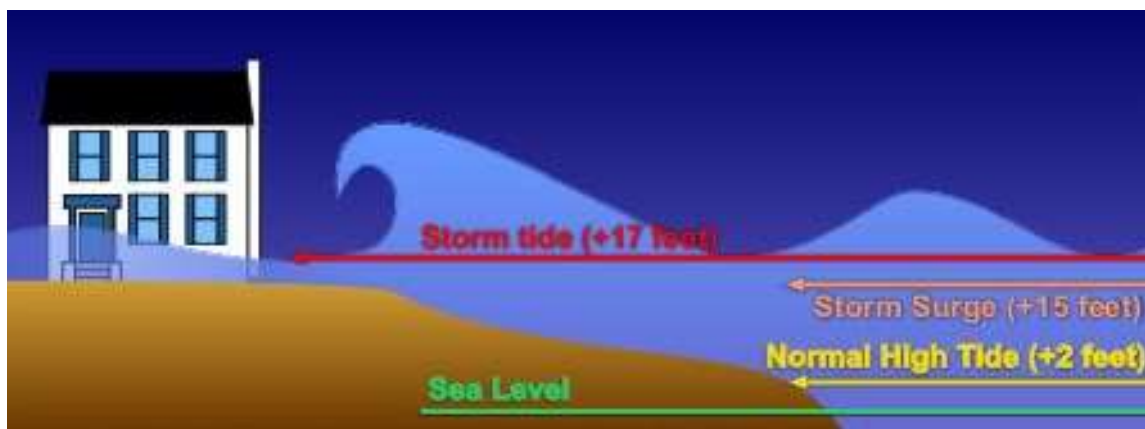
The **eye wall** is the part of a hurricane where the strong winds meet the eye. The eye wall is a group of tall thunderstorms that produce heavy rain and the strongest winds within the storm. Changes in the structure of the eye and eye wall can cause

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

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

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

Figure D-2. Storm Surge



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

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

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

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

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

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

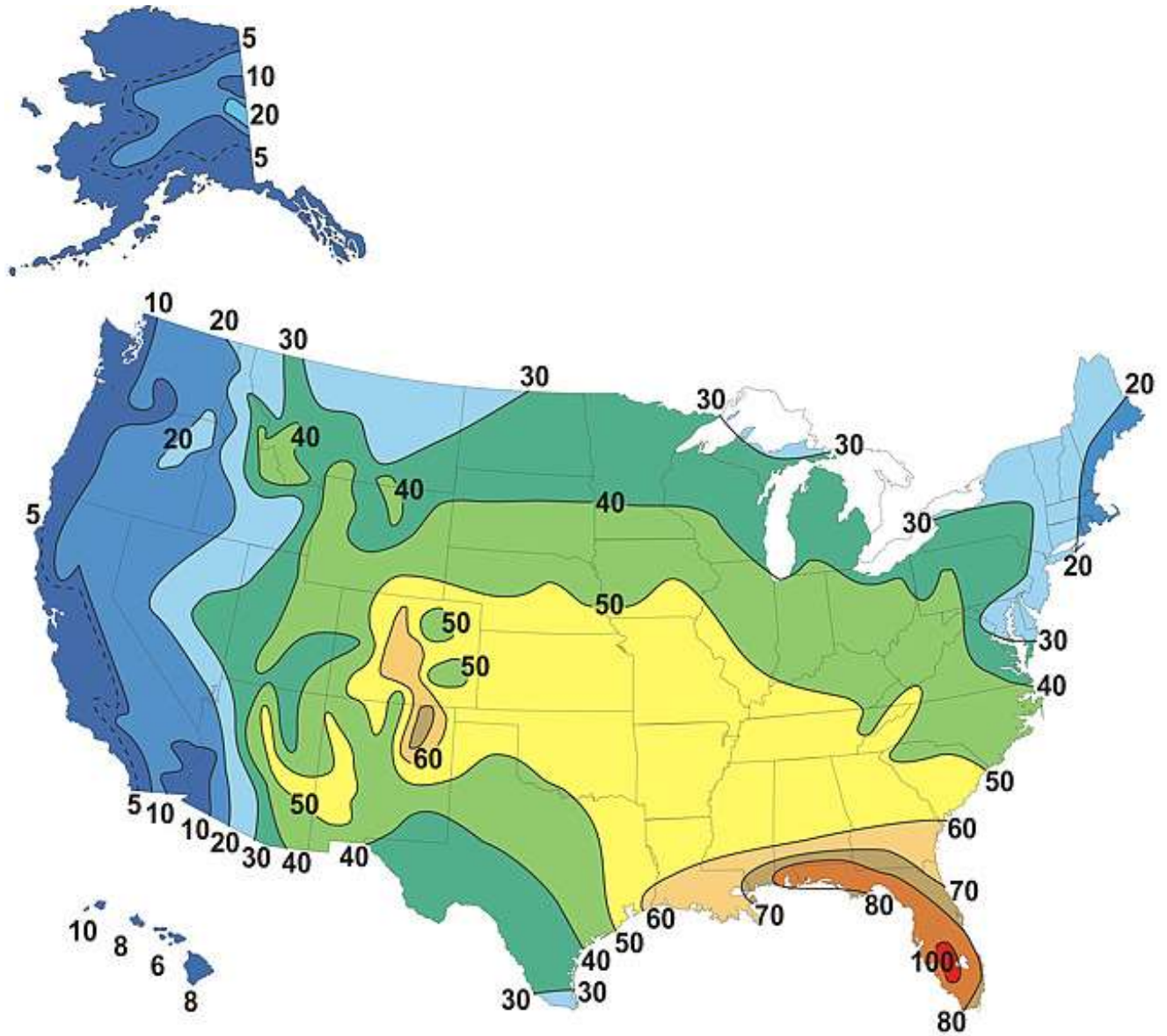
2.2 Severe Storms Description

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

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

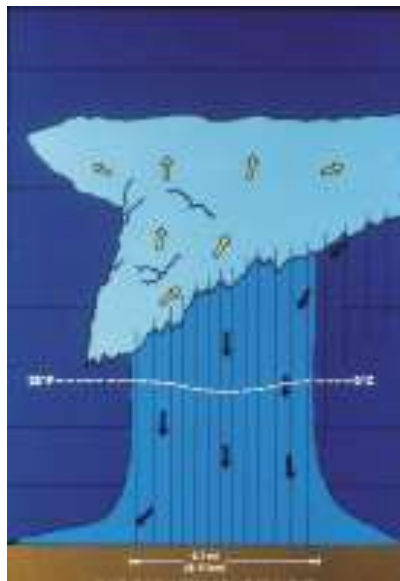
The National Weather Service estimates over 40,000 thunderstorms occur each day worldwide or close to 16 million annually. In the U.S., roughly 100,000 thunderstorms occur each year. The following map shows the average number of thunderstorm days each year throughout the U.S. The most frequent occurrence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

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



Source: National Weather Service

Figure D-3. Life Cycle of a Thunderstorm

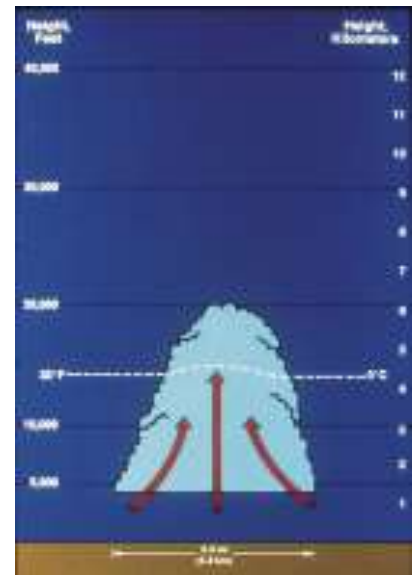


Developing Stage

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

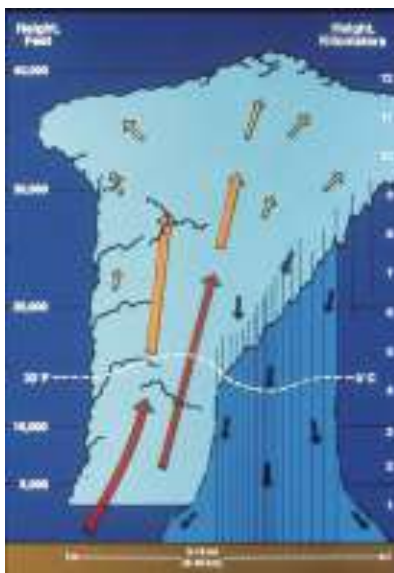
Mature Stage

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



Dissipating Stage

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



Source: National Weather Service

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

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

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

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



Figure D-4. Hail Stones.

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

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

2.3 Tornadoes Description

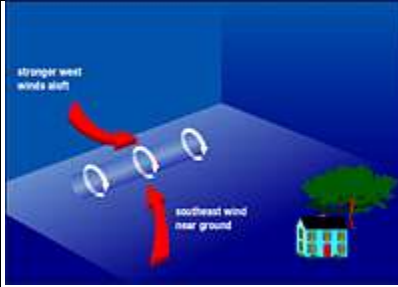
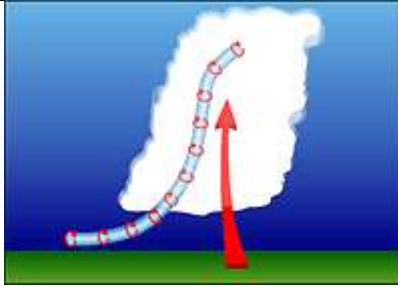
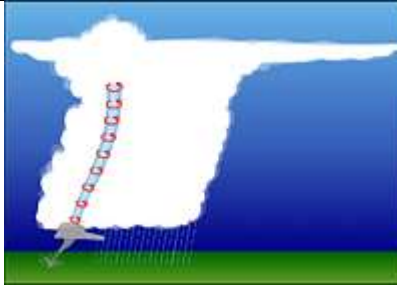


Tornadoes are one of nature's most violent storms, which are characterized by a rapidly rotating column of air extending from the base of a thunderstorm to the ground. In an average year, approximately 1,000 tornadoes are reported across the United States, resulting in over 1,500 injuries and 80 deaths,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

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

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

The following graphic describes the formation of a tornado:

Figure D-5. How a Tornado Forms

		
<p>▲ Before thunderstorms develop, a change in wind direction and an increase in wind speed with increasing height create an invisible, horizontal spinning effect in the lower atmosphere.</p>	<p>▲ Rising air within the thunderstorm updraft tilts the rotating air from horizontal to vertical.</p>	<p>▲ An area of rotation, 2-6 miles wide, now extends through much of the storm. Most strong and violent tornadoes form within this area of strong rotation.</p>
		
<p>Woodward OK (Ron Przybylinski)</p> <p>▲ A lower cloud base in the center of the photograph identifies an area of rotation known as a rotating wall cloud. This area is often nearly rain-free. Note rain in the background.</p>	<p>Woodward OK (Ron Przybylinski)</p> <p>▲ Moments later a strong tornado develops in this area. Softball-size hail and damaging "straight-line" winds also occurred with this storm.</p>	

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

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

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

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

Table D-3. Enhanced F Scale for Tornado Damage

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

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

Table D-4. Fujita Tornado Damage Scale

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

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

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

2.4 Floods Description

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

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

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

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

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

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

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

Special Flood Hazard Area (SFHA) is the shaded A-Zone or V-Zone area on a FIRM that identifies an area that has a 1% chance of being flooded in any given year or the **100-year floodplain**. FIRMs show different floodplains with different zone designations, as shown on Table D-7 “Flood Zone Designations.” These are used for insurance rating purposes, but are also necessary for flood permitting and flood hazard mitigation planning purposes. The **500-Year Floodplain** is the shaded X-Zone area shown on a FIRM that has a 0.2% chance of being flooded in any given year.

Table D-5. Flood Zone Designations

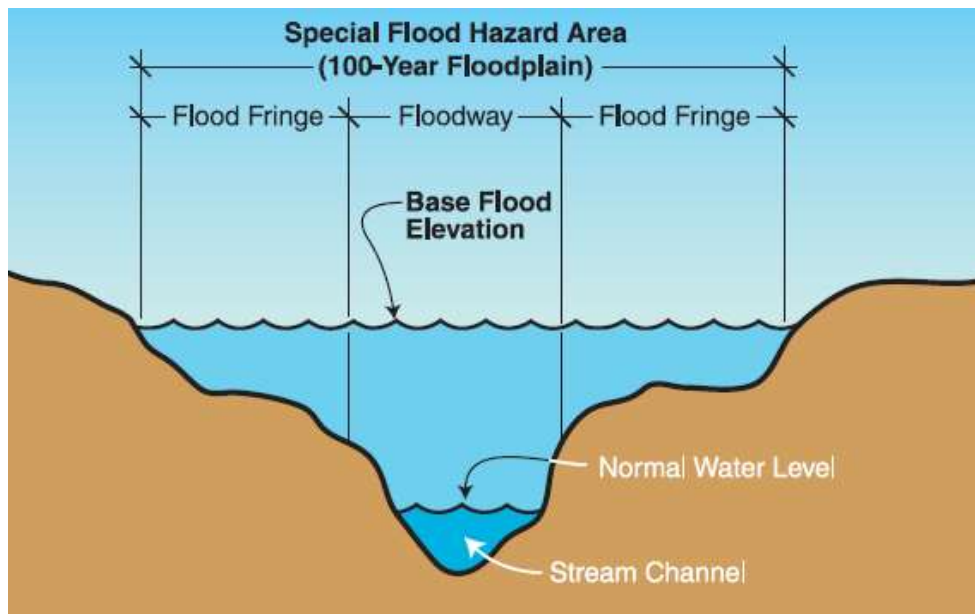
A Zones	100-year floodplain areas of high risk.	
	A	The base floodplain mapped by approximate methods. (i.e., BFEs are not determined). This is often called an unnumbered A zone or an approximate A zone.
	AE	The base floodplain where base flood elevations are provided.
	AO	The base floodplain with sheet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

Source: FEMA

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

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

Figure D-6. Flood Plain Cross Section



Source: FEMA

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

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

2.5 Wildfires Description

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

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

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

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

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

2.6 Droughts/Heat Waves Description

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

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

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

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

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

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

Temperature (°F)

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

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

■ Caution
 ■ Extreme Caution
 ■ Danger
 ■ Extreme Danger

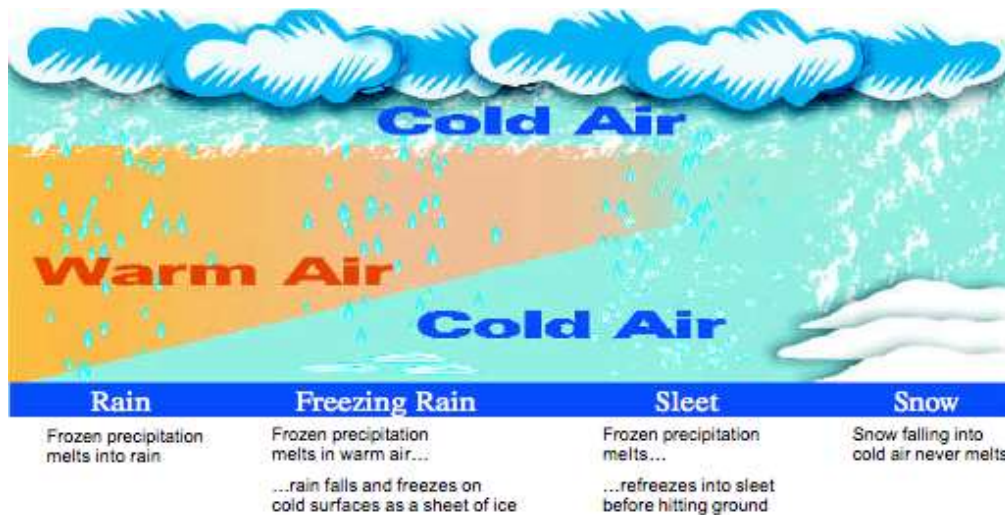
Source: NOAA at <http://www.weather.gov/om/heat/index.shtml>

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

2.7 Winter Storms/Freezes Description

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

Figure D-7. Types of Winter Precipitation



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

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

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

2.8 Earthquakes Description

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

Earthquakes are caused by the rupture or sudden movement of a fault where stresses have accumulated along fault planes within the earth's crust. While most earthquakes and active faults occur along the borders of the earth's tectonic plates, other active faults and earthquake zones lie within plates (intraplate).The plates range

from less than 10 miles (for young oceanic crust) to 125 miles (for older continental crust), and are in continuous motion, grinding against or ripping away from each other. All of this motion creates stress within the rock and along either side of faults. While rock can bend over time under this stress, if the stress exceeds the rock's elastic limit, a break or sudden shift occurs.

The area of greatest seismic activity in the United States is along the Pacific coast in California and Alaska, but as many as forty states can be characterized as having at least moderate earthquake risk. For example, seismic activity has been recorded in Boston, Massachusetts; New Madrid, Missouri; and Charleston, South Carolina, places not typically thought of as earthquake zones. While some areas have frequent earthquakes, such as in California, forecasting when and where an earthquake will occur is not yet possible. Records show that building inventories in 39 states are vulnerable to earthquake damage.

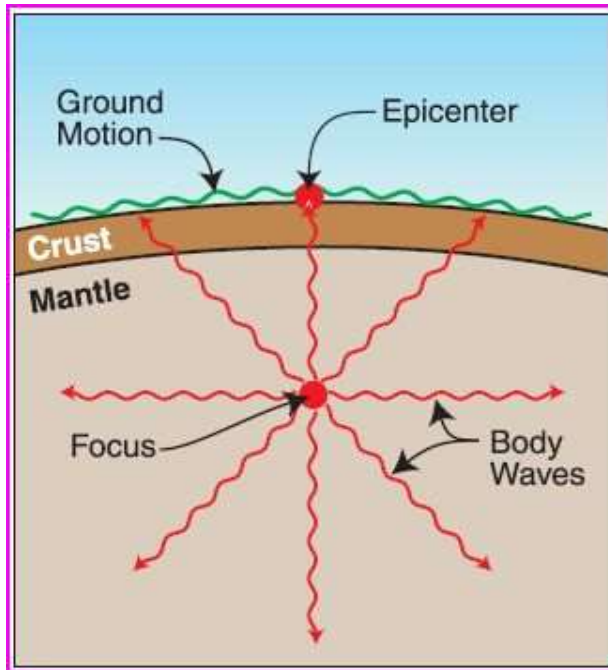


While most property damage from earthquakes in general is due to nonstructural damage, structural damage and deaths can result from strong magnitude earthquakes or moderate magnitude earthquakes for older structures or structures with lower seismic building designs. Ground shaking is caused by seismic waves generated by the earthquake. The intensity of shaking is

influenced by magnitude, distance from the earthquake's epicenter, and regional geology.

Earthquakes create seismic waves that consist of both primary and secondary waves. These waves emanate from the point at which movement first occurs (the focus). While primary waves (body waves) travel within the earth, secondary waves (surface waves), travel through the crust and create the ground shaking that we feel and that can be damaging to structures. See Figure D-8 for illustration of this concept.

Figure D-8. Seismic and Surface Waves



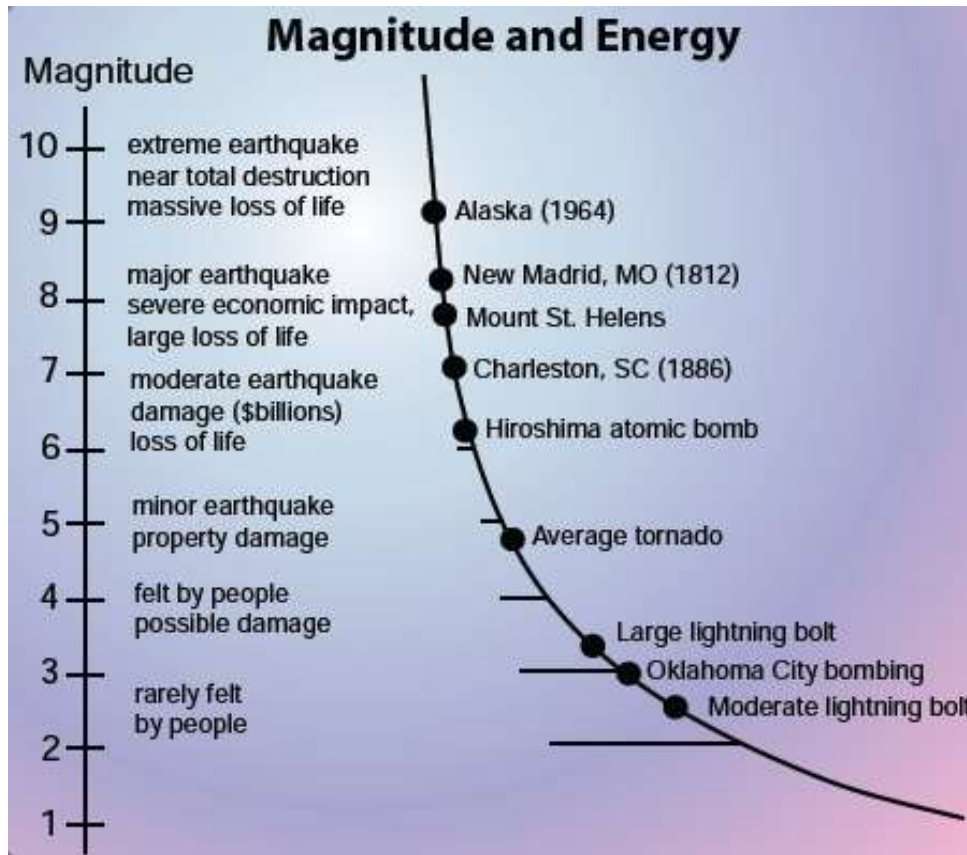
Source: FEMA

In addition to direct structural damage from earthquake shaking, triggered landslides can also damage structures. Earthquake-induced landslides can occur miles from the epicenter and can result from shaking of over-steepened or weak slopes. They can destroy roads, buildings, utilities, and other critical facilities necessary to respond to or recover from an earthquake. As sloped lands are developed, earthquake-induced landslides pose additional threats to homes and infrastructure. Soil type can substantially increase earthquake risk. **Liquefaction** occurs, when ground shaking causes saturated soft soils to change from a solid to a liquid state.

Liquefaction results in the loss of soil strength and three potential types of ground failure: lateral spreading, flow failure, and loss of bearing strength. Buildings and their occupants are at risk when the ground can no longer support buildings and structures. Areas susceptible to liquefaction include areas with high ground water tables and sandy soils. The extreme earthquake damage to San Francisco in 1989 was due to liquefaction of the soil used to fill in waterfront properties.

Amplification (strengthening) of shaking also results in areas with soils that are soft, thick, and/or have high water content, such as floodplains, coastal lowlands, infilled areas, and ancient river or marine deposits. Amplification increases the magnitude of the seismic waves generated by the earthquake.

Chart D-1. Earthquake Magnitude Scale



Source: USGS

Seismic activity is described in terms of magnitude and intensity. **Magnitude** describes the total energy released and **intensity** describes the effects at a particular location. Magnitude is defined as the measure of the amplitude of the seismic wave and is expressed by the Richter scale. The **Richter scale** is a logarithmic measurement where an increase in the scale by one whole number represents a tenfold increase in the measured amplitude of the earthquake.

Intensity is defined as the measure of the strength of the shock at a particular location and is expressed by the **Modified Mercalli Intensity (MMI) scale**. The modern MMI scale is a modification by the Italian volcanologist Giuseppe Mercalli of an older 1800s scale. Mercalli's scale was later published in English in 1931 by American seismologists Harry Wood and Frank Neumann and later modified by Charles Richter. The scale consists of a series of certain key responses such as people awakening, movement of furniture, the damage to structures, and total destruction. The *lower* numbers of the intensity scale generally deal with the manner in which the earthquake is felt by people. The *higher* numbers of the scale are based on observed non-structural and structural damage. This scale, composed of 12 increasing levels of intensity that range from imperceptible shaking to catastrophic destruction, is designated by Roman

numerals. It does not have a mathematical basis; instead it is a ranking based on observed effects. Table D-7 below describes the Modified Mercalli Intensity scale and its description of effects.

Table D-7. Modified Mercalli Intensity Scale

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

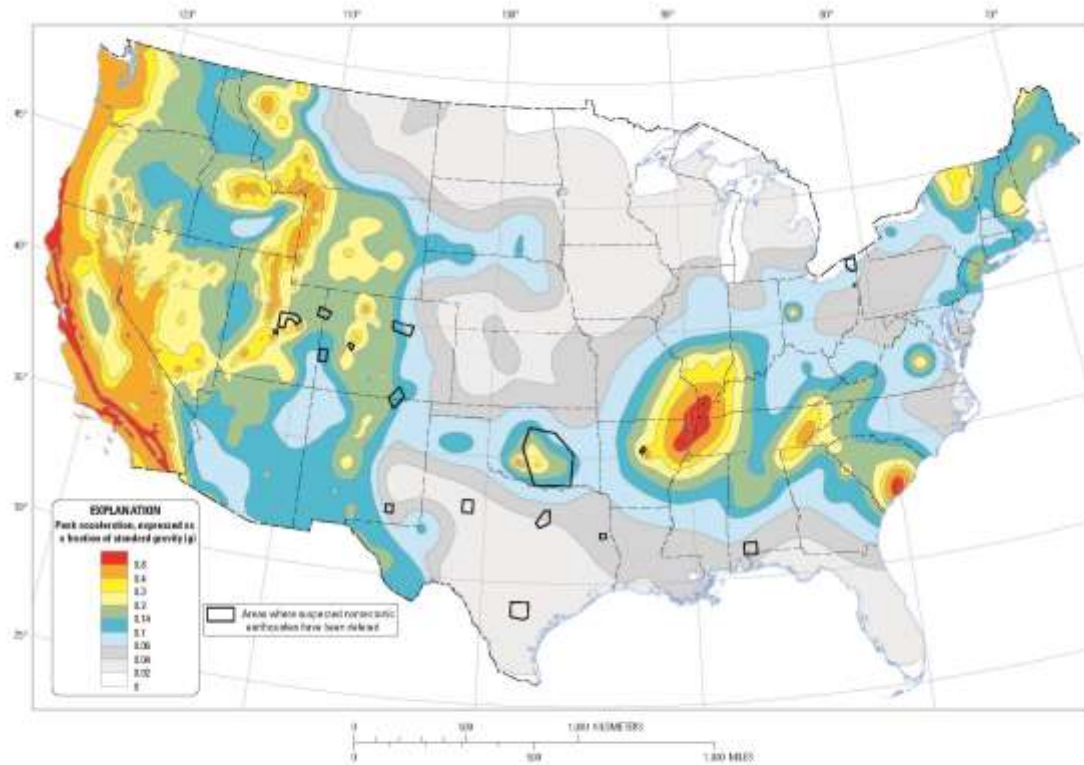
Source: FEMA

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

surface of 244 cm/sec/sec (where *g* equals 9.8 meters per second squared) equals a PGA of 25.0 percent.

Map D-2 below shows the 2008 Peak Ground Acceleration (PGA) values for the southeast United States with a 2% chance of being exceeded over 50 years. This is a common earthquake measurement that shows three things: the geographic area affected, the level of acceleration that could be exceeded (color scale), and the probability of exceeding that level within a given time period (probability and time stated in the title).

**Map D-2. 2014 PGA for U.S.
Peak Ground Acceleration with 2% Probability of Exceedance in 50 Years**



Two-percent probability of exceedance in 50 years map of peak ground acceleration

Source: U.S. Geological Survey Earthquake Hazards Program

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

2.9 Dam/Levee Failures Description

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



the worst flood event. There are more than 80,000 dams in the United States according to the 2007 update of the National Inventory of Dams. According to FEMA, one third of these pose a high or significant hazard to life and property if failure occurs. 56% of dams are privately owned, and the dam owner is responsible for the safety and liability of the dam as well for upkeep, upgrade and repair. This compounds the risk that is posed due to dam or levee failure.

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

2.10 Landslides Description

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

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

A landslide is a downward and outward movement of slope-forming soil, rock, and vegetation under the influence of gravity, which includes a wide range of ground movement. Numerous types of events, including natural and man-made changes within the environment, can trigger landslides. Examples of these changes that cause weaknesses in the composition or structures of the rock or soil include heavy rain, changes in ground water level, seismic activity, or construction activity. Man-made

landslides may result from activities such as terracing, cut and fill construction, building construction, mining operations, and changes in irrigation or surface runoff.

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



rotational and translational slides. In a **rotational slide** the surface of rupture is curved concavely upward and the slide block rotates around an axis parallel to the slope contours. A **translational slide** is a mass that moves down and outward along a relatively planar surface with little rotational movement or backward tilting. **Flows** are mass movements of water-saturated material. The movement of flows can be extremely rapid (debris avalanche), very rapid (debris flow) or very slow (earth flow).

Here are some significant landslide facts from the USGS:

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

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

2.11 Sinkholes (Land Subsidence) Description

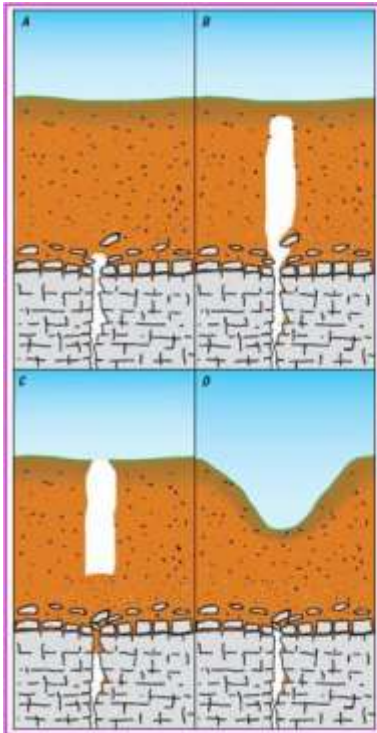
Sinkholes are a naturally occurring geologic feature that can be hazardous to property and the environment. Their formation is due to water dissolving rock below the land surface. The types of rock most susceptible to sinkhole formation are salt and carbonate rocks such as limestone, dolomite, and marble. As bedrock dissolves, voids (such as caves and caverns) develop underground; when a void is large enough, the void’s roof collapses, and the ground above falls in, leaving a visible sinkhole at the surface. While some sinkholes form as dramatic instant collapses, the vast majority of sinkholes develop slowly over time, with the ground slowly sinking downward. Although normally no more than a nuisance, some sinkholes can become very large and a house or road may be on top when the collapse occurs. See Figure D-9, which shows the making of a sinkhole. Figure D-10 illustrates the formation of a collapse.

Figure D-9. The Making of a Sinkhole



Source: Southwest Florida Water Management District

Figure D-10. Formation of a Collapse



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

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

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

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

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

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

Figure D-11. Sinkhole Collapse of House



Photo courtesy of Doug Gouze, 2006

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

Water is the most important agent effecting sinkhole development. Areas can become more susceptible to sinkholes when there is a drawdown of groundwater, heavy rains occur, or the land surface is changed. Changes to land such as increased development can add stress to the roof of a void, thus increasing chance of void collapse and sinkhole formation. Drainage for construction purposes or dewatering from mining or quarrying operations can also lower groundwater levels, reducing support for a void's roof. When water resources for populations or agriculture are overused, groundwater drawdown can occur, increasing likelihood of sinkhole development. Groundwater levels can also be lowered naturally during times of drought, when groundwater is not replenished by rainfall. Conversely, heavy rainfall can also lead to increased sinkhole development as rock dissolution increases or underground washouts occur, eroding supporting rock and soil.

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

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

2.12 Tsunamis Description

2.13 Manmade and Technological Hazards Description

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

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

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

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

The extent of the effects of a manmade hazard can range from localized to widespread, depending on the type of incident, the mode of application, duration, dynamic/static characteristic and mitigating conditions. A conventional bomb could damage a building in which it was placed or an entire city can be in danger if a hazardous material is released into the water supply. Three noted modes of force to the built environment involved by manmade hazards are: contamination, energy, and failure or denial or service. If a hazard remains for an extended period of time, the damage can be far reaching; however, if the hazard lasts for only a short time, the damage can usually be quickly determined and response can be swift and the disaster contained. A dynamic hazard is more damaging and unpredictable than a static hazard. Mitigating conditions can be deterrents or they can at least lessen the effects of a hazard at a certain location which also affects the extent of a disaster.

When trying to mitigate manmade hazards, measures must address security, unknown risks and civil liberties; concerns not raised by natural disasters. The events will usually occur in specific locations and mitigation measures can usually aid in the alleviation of manmade disasters. Those specific locations are known as critical facilities. In addition to the facilities usually addressed in vulnerability assessments for natural hazards, the

following critical infrastructure is usually assessed: agriculture and food, water, public health, emergency services, defense industrial base, telecommunications, energy, transportation, banking and finance, chemicals and hazardous materials, and postal and shipping. Threats to infrastructure can be carried out by anyone who has the knowledge, opportunity and desire to do harm. They can be anyone from terrorists to upset employees and are therefore largely unidentifiable.

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

- **Application mode** describes the human act(s) or unintended event(s) necessary to cause the hazard to occur.
- **Duration** is the length of time the hazard is present on the target. For example, the duration of a tornado may be just minutes, but a chemical warfare agent such as mustard gas, if not remediated, can persist for days or weeks under the right conditions.
- The **dynamic/static characteristic** of a hazard describes its tendency, or that of its effects, to either expand, contract, or remain confined in time, magnitude, and space. For example, the physical destruction caused by an earthquake is generally confined to the place in which it occurs, and it does not usually get worse unless there are aftershocks or other cascading failures; in contrast, a cloud of chlorine gas leaking from a storage tank can change location by drifting with the wind and can diminish in danger by dissipating over time.
- **Mitigating conditions** are characteristics of the target and its physical environment that can reduce the effects of a hazard. For example, earthen berms can provide protection from bombs; exposure to sunlight can render some biological agents ineffective; and effective perimeter lighting and surveillance can minimize the likelihood of someone approaching a target unseen. In contrast, *exacerbating conditions* are characteristics that can enhance or magnify the effects of a hazard. For example, depressions or low areas in terrain can trap heavy vapors, and a proliferation of street furniture (trash receptacles, newspaper vending machines, mail boxes, etc.) can provide concealment opportunities for explosive devices.

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

Manmade Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
<p>Conventional Bomb/ Improvised Explosive Device</p>	<p>Detonation of explosive device on or near target; delivery via person, vehicle, or projectile.</p>	<p>Instantaneous; additional "secondary devices" may be used, lengthening the time duration of the hazard until the attack site is determined to be clear.</p>	<p>Extent of damage is determined by type and quantity of explosive. Effects generally static other than cascading consequences, incremental structural failure, etc.</p>	<p>Overpressure at a given standoff is inversely proportional to the cube of the distance from the blast; thus, each additional increment of standoff provides progressively more protection. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting energy and debris. Exacerbating conditions include ease of access to target; lack of barriers/shielding; poor construction; and ease of concealment of device.</p>

Manmade Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Chemical Agent	Liquid/aerosol contaminants can be dispersed using sprayers or other aerosol generators; liquids vaporizing from puddles/containers; or munitions.	Chemical agents may pose viable threats for hours to weeks depending on the agent and the conditions in which it exists.	Contamination can be carried out of the initial target area by persons, vehicles, water and wind. Chemicals may be corrosive or otherwise damaging over time if not remediated.	Air temperature can affect evaporation of aerosols. Ground temperature affects evaporation of liquids. Humidity can enlarge aerosol particles, reducing inhalation hazard. Precipitation can dilute and disperse agents but can spread contamination. Wind can disperse vapors but also cause target area to be dynamic. The micro-meteorological effects of buildings and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects.

Manmade Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Arson/ Incendiary Attack	Initiation of fire or explosion on or near target via direct contact or remotely via projectile.	Generally minutes to hours.	Extent of damage is determined by type and quantity of device/accelerant and materials present at or near target. Effects generally static other than cascading consequences, incremental structural failure, etc.	Mitigation factors include built-in fire detection and protection systems and fire-resistive construction techniques. Inadequate security can allow easy access to target, easy concealment of an incendiary device and undetected initiation of a fire. Non-compliance with fire and building codes as well as failure to maintain existing fire protection systems can substantially increase the effectiveness of a fire weapon.
Armed Attack	Tactical assault or sniping from remote location.	Generally minutes to days.	Varies based upon the perpetrators' intent and capabilities.	Inadequate security can allow easy access to target, easy concealment of weapons and undetected initiation of an attack.
Biological Agent	Liquid or solid contaminants can be dispersed using sprayers/aerosol generators or by point or line sources such as munitions, covert deposits and moving sprayers.	Biological agents may pose viable threats for hours to years depending on the agent and the conditions in which it exists.	Depending on the agent used and the effectiveness with which it is deployed, contamination can be spread via wind and water. Infection can be spread via human or animal vectors.	Altitude of release above ground can affect dispersion; sunlight is destructive to many bacteria and viruses; light to moderate wind will disperse agents but higher winds can break up aerosol clouds; the micrometeorological effects of buildings and terrain can influence aerosolization and travel of agents.

Manmade Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Cyber-terrorism	Electronic attack using one computer system against another.	Minutes to days.	Generally no direct effects on built environment.	Inadequate security can facilitate access to critical computer systems, allowing them to be used to conduct attacks.
Agriterrorism	Direct, generally covert contamination of food supplies or introduction of pests and/or disease agents to crops and livestock.	Days to months.	Varies by type of incident. Food contamination events may be limited to discrete distribution sites, whereas pests and diseases may spread widely. Generally no effects on built environment.	Inadequate security can facilitate adulteration of food and introduction of pests and disease agents to crops and livestock.
Radiological Agent	Radioactive contaminants can be dispersed using sprayers/aerosol generators, or by point or line sources such as munitions, covert deposits and moving sprayers.	Contaminants may remain hazardous for seconds to years depending on material used.	Initial effects will be localized to site of attack; depending on meteorological conditions, subsequent behavior of radioactive contaminants may be dynamic.	Duration of exposure, distance from source of radiation, and the amount of shielding between source and target determine exposure to radiation.

Manmade Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Nuclear Bomb	Detonation of nuclear device underground, at the surface, in the air or at high altitude.	Light/heat flash and blast/shock wave last for seconds; nuclear radiation and fallout hazards can persist for years. Electromagnetic pulse from a high altitude detonation lasts for seconds and affects only unprotected electronic systems.	Initial light, heat and blast effects of a subsurface, ground or air burst are static and are determined by the device's characteristics and employment; fallout of radioactive contaminants may be dynamic, depending on meteorological conditions.	Harmful effects of radiation can be reduced by minimizing the time of exposure. Light, heat and blast energy decrease logarithmically as a function of distance from seat of blast. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting radiation and radioactive contaminants.
Hazardous Material Release (fixed facility or transportation)	Solid, liquid and/or gaseous contaminants may be released from fixed or mobile containers.	Hours to days.	Chemicals may be corrosive or otherwise damaging over time. Explosion and/or fire may be subsequent. Contamination may be carried out of the incident area by persons, vehicles, water and wind.	As with chemical weapons, weather conditions will directly affect how the hazard develops. The micrometeorological effects of buildings and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects. Non-compliance with fire and building codes as well as failure to maintain existing fire protection and containment features can substantially increase the damage from a hazardous materials release.

(The information presented in this section was extracted from the FEMA How to Guide Integrating Manmade Hazards into Mitigation Planning, FEMA 386-7 Version 2.0, FEMA, September 2003).

**Appendix E
Hazard Profile Data**

App. E - Hazard Profile Data

1.0 Records of Previous Occurrences of Hazard Events

1.0 Records of Previous Occurrences of Hazard Events

This appendix contains the detailed records of previous occurrences of hazard events reported in Section 5.4 “Hazard Profiles,” for events reported by the National Weather Service and National Climatic Data Center.

Past Occurrences of Tornadoes

Table E-1. Mobile County Tornado Events 1995 to 2014

34 TORNADO(s) were reported in **Mobile County, Alabama** between **01/01/1995** and **12/31/2014**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
Totals:						1	9	6.366M	0.00K
Mobile	5/9/1995	10:05	CST	Tornado	F0	0	0	2.00K	0.00K
Grand Bay	5/10/1995	0:40	CST	Tornado	F0	0	0	0.00K	0.00K
GULF CREST	1/26/1996	17:27	CST	Tornado	F1	1	3	100.00K	0.00K
WILMER	10/25/1997	17:10	CST	Tornado	F0	0	0	15.00K	0.00K
SARALAND	11/21/1997	19:40	CST	Tornado	F3	0	0	2.000M	0.00K
MOBILE	10/9/1999	3:20	CST	Tornado	F0	0	0	40.00K	0.00K
SARALAND	10/9/1999	4:15	CST	Tornado	F1	0	0	100.00K	0.00K
MOBILE	4/24/2000	3:00	CST	Tornado	F1	0	0	200.00K	0.00K
IRVINGTON	11/6/2000	21:30	CST	Tornado	F2	0	2	100.00K	0.00K
(MOB)MOBILE BATES FL	11/24/2000	10:40	CST	Tornado	F0	0	0	10.00K	0.00K
(MOB)MOBILE BATES FL	6/11/2001	6:40	CST	Tornado	F0	0	0	20.00K	0.00K
THEODORE	9/14/2002	8:30	CST	Tornado	F0	0	0	8.00K	0.00K
MOBILE BATES FLD	9/22/2002	14:08	CST	Tornado	F0	0	0	1.00K	0.00K
SEMMES	9/26/2002	5:30	CST	Tornado	F0	0	0	5.00K	0.00K
MOBILE	8/29/2003	13:55	CST	Tornado	F0	0	0	0.00K	0.00K
DAUPHIN IS	6/25/2004	17:23	CST	Tornado	F0	0	0	0.00K	0.00K
MON LOUIS	11/24/2004	7:10	CST	Tornado	F0	0	0	5.00K	0.00K
SEMMES	7/6/2005	3:00	CST	Tornado	F0	0	0	50.00K	0.00K
CHUNCHULA	7/6/2005	3:53	CST	Tornado	F0	0	0	20.00K	0.00K
SEMMES	8/28/2005	14:54	CST	Tornado	F0	0	0	5.00K	0.00K
ALABAMA PORT	8/28/2005	18:22	CST	Tornado	F0	0	0	5.00K	0.00K
DAUPHIN IS	10/22/2007	14:07	CST-6	Tornado	EF0	0	0	0.00K	0.00K
BAYOU LA BATRE ARPT	10/22/2007	15:33	CST-6	Tornado	EF1	0	0	750.00K	0.00K
DAUPHIN IS	8/18/2008	9:05	CST-6	Tornado	EF0	0	0	5.00K	0.00K

APPENDICES

2015 Mobile County Multi-Hazard Mitigation Plan

<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
COTTAGE HILL	10/25/2010	4:17	CST-6	Tornado	EF1	0	0	0.00K	0.00K
GRAND BAY	3/9/2011	8:26	CST-6	Tornado	EF1	0	0	0.00K	0.00K
THEODORE	3/9/2011	8:37	CST-6	Tornado	EF2	0	4	0.00K	0.00K
CITRONELLE	4/15/2011	21:05	CST-6	Tornado	EF0	0	0	30.00K	0.00K
DAUPHIN IS	9/3/2011	12:12	CST-6	Tornado	EF0	0	0	0.00K	0.00K
MON LOUIS	9/4/2011	0:02	CST-6	Tornado	EF1	0	0	45.00K	0.00K
COTTAGE HILL	12/20/2012	4:49	CST-6	Tornado	EF1	0	0	0.00K	0.00K
MERTZ	12/25/2012	16:54	CST-6	Tornado	EF2	0	0	1.350M	0.00K
PIERCIE	12/25/2012	19:22	CST-6	Tornado	EF1	0	0	0.00K	0.00K
LAURENDINE	4/11/2013	16:29	CST-6	Tornado	EF1	0	0	1.500M	0.00K
Totals:						1	9	6.366M	0.00K

Source: National Climatic Data Center

Past Occurrences of Severe Storms

Table E-2. Mobile County Severe Storms 1995 to 2014

373 SEVERE STORMS(s) were reported in **Mobile County, Alabama** between **01/01/1995** and **12/31/2014**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
Totals:					2	27	9.037M	0.00K
Mobile	2/3/1995	17:45	CST	Thunderstorm Wind	0	0	0.50K	0.00K
Mobile	3/15/1995	13:10	CST	Hail	0	0	0.00K	0.00K
Citronelle	4/21/1995	2:05	CST	Thunderstorm Wind	0	0	0.50K	0.00K
Kushla	5/9/1995	6:55	CST	Thunderstorm Wind	0	0	0.50K	0.00K
Dauphin Is.	5/10/1995	3:25	CST	Hail	0	0	0.30K	0.00K
Dauphin Island	5/29/1995	20:30	CST	Hail	0	0	0.00K	0.00K
Citronelle	6/1/1995	2:30	CST	Thunderstorm Wind	0	0	2.00K	0.00K
Dauphin Island	6/1/1995	13:30	CST	Thunderstorm Wind	0	0	0.50K	0.00K
Citronelle	7/8/1995	15:14	CST	Thunderstorm Wind	0	0	1.50K	0.00K
Semmes	7/8/1995	16:06	CST	Thunderstorm Wind	0	0	1.00K	0.00K
Mobile	7/8/1995	17:05	CST	Thunderstorm Wind	0	0	2.00K	0.00K
Mt. Vernon	7/9/1995	14:40	CST	Thunderstorm Wind	0	0	1.00K	0.00K
Citronelle	7/9/1995	14:45	CST	Hail	0	0	0.00K	0.00K
Mobile	7/12/1995	14:25	CST	Thunderstorm Wind	0	0	0.00K	0.00K
Mobile	7/13/1995	22:42	CST	Thunderstorm Wind	0	0	1.00K	0.00K
Wilmer	7/26/1995	17:30	CST	Thunderstorm Wind	0	0	1.00K	0.00K
Mobile	8/16/1995	20:15	CST	Thunderstorm Wind	0	0	0.00K	0.00K
Butler	8/20/1995	14:30	CST	Thunderstorm Wind	0	0	50.00K	0.00K
Mobile	9/17/1995	18:15	CST	Thunderstorm Wind	0	0	3.00K	0.00K

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<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
Mobile	12/17/1995	21:52	CST	Thunderstorm Wind	0	0	0.00K	0.00K
Mobile	12/18/1995	8:15	CST	Hail	0	0	0.00K	0.00K
Mobile	12/18/1995	9:32	CST	Hail	0	0	0.00K	0.00K
Citronelle	12/18/1995	16:15	CST	Thunderstorm Wind	0	0	2.00K	0.00K
CREOLA	1/26/1996	15:25	CST	Thunderstorm Wind	0	0	5.00K	0.00K
MT VERNON	1/26/1996	18:00	CST	Thunderstorm Wind	0	0	2.00K	0.00K
MOBILE	2/19/1996	18:10	CST	Thunderstorm Wind	0	0	25.00K	0.00K
CITRONELLE	3/18/1996	3:05	CST	Hail	0	0	0.00K	0.00K
SARALAND	3/18/1996	4:00	CST	Hail	0	0	0.00K	0.00K
THEODORE	3/30/1996	0:55	CST	Hail	0	0	0.00K	0.00K
TILLMANS CORNER	3/30/1996	1:28	CST	Hail	0	0	0.00K	0.00K
IRVINGTON	4/14/1996	15:50	CST	Hail	0	0	0.00K	0.00K
DAUPHIN IS	4/14/1996	16:30	CST	Hail	0	0	0.00K	0.00K
CITRONELLE	5/24/1996	15:35	CST	Hail	0	0	0.00K	0.00K
SEMMES	7/9/1996	15:45	CST	Hail	0	0	0.00K	0.00K
GEORGETOWN	7/9/1996	16:15	CST	Thunderstorm Wind	0	0	2.00K	0.00K
MOBILE	7/13/1996	11:06	CST	Lightning	0	0	15.00K	0.00K
MOBILE	7/20/1996	15:30	CST	Lightning	0	0	300.00K	0.00K
TILLMANS CORNER	8/8/1996	15:45	CST	Hail	0	0	0.00K	0.00K
MOBILE	8/28/1996	13:15	CST	Lightning	0	0	10.00K	0.00K
CITRONELLE	9/8/1996	17:00	CST	Thunderstorm Wind	0	0	1.50K	0.00K
MOBILE BATES FLD	9/21/1996	10:00	CST	Thunderstorm Wind	0	0	2.50K	0.00K
CITRONELLE	12/12/1996	20:00	CST	Hail	0	0	0.00K	0.00K
WILMER	1/8/1997	12:30	CST	Hail	0	0	0.00K	0.00K
CITRONELLE	1/24/1997	6:05	CST	Thunderstorm Wind	0	0	1.50K	0.00K
TILLMANS CORNER	1/24/1997	8:40	CST	Thunderstorm Wind	0	0	10.00K	0.00K
GRAND BAY	1/24/1997	17:10	CST	Hail	0	0	0.00K	0.00K
THEODORE	1/24/1997	17:23	CST	Hail	0	0	0.00K	0.00K
BELLEFONTAINE	1/24/1997	19:00	CST	Hail	0	0	0.00K	0.00K

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<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
MOBILE BATES FLD	1/24/1997	19:58	CST	Hail	0	0	0.00K	0.00K
BELLEFONTAINE	1/24/1997	20:15	CST	Lightning	0	0	75.00K	0.00K
MOBILE BROOKLEY FLD	1/24/1997	21:05	CST	Hail	0	0	0.00K	0.00K
DAUPHIN IS	1/24/1997	21:30	CST	Hail	0	0	0.00K	0.00K
CITRONELLE	1/28/1997	5:00	CST	Thunderstorm Wind	0	0	1.50K	0.00K
THEODORE	2/21/1997	11:00	CST	Thunderstorm Wind	0	0	5.00K	0.00K
(BFM)MOBILE BROOKLEY	3/13/1997	14:45	CST	Lightning	0	5	0.00K	0.00K
CITRONELLE	4/5/1997	13:00	CST	Thunderstorm Wind	0	0	1.50K	0.00K
BAYOU LA BATRE	4/5/1997	13:30	CST	Thunderstorm Wind	0	0	2.00K	0.00K
MT VERNON	4/21/1997	17:03	CST	Hail	0	0	1.00K	0.00K
MT VERNON	4/21/1997	17:17	CST	Hail	0	0	0.00K	0.00K
CITRONELLE	4/22/1997	21:15	CST	Hail	0	0	0.00K	0.00K
SARALAND	5/15/1997	14:20	CST	Hail	0	0	0.00K	0.00K
CREOLA	5/19/1997	14:10	CST	Thunderstorm Wind	0	0	5.00K	0.00K
MOBILE	5/19/1997	18:15	CST	Lightning	0	0	15.00K	0.00K
MOBILE BATES FLD	5/28/1997	20:40	CST	Thunderstorm Wind	0	0	1.50K	0.00K
DAUPHIN IS	5/28/1997	22:30	CST	Lightning	1	0	0.00K	0.00K
CITRONELLE	6/20/1997	14:25	CST	Hail	0	0	0.00K	0.00K
CITRONELLE	6/20/1997	15:40	CST	Thunderstorm Wind	0	0	1.00K	0.00K
COTTAGE HILL	7/5/1997	12:00	CST	Thunderstorm Wind	0	0	3.00K	0.00K
ALABAMA PORT	7/18/1997	16:10	CST	Thunderstorm Wind	0	0	3.00K	0.00K
THEODORE	8/20/1997	19:05	CST	Thunderstorm Wind	0	0	5.00K	0.00K
GEORGETOWN	10/25/1997	17:20	CST	Thunderstorm Wind	0	0	3.00K	0.00K
AXIS	10/25/1997	17:50	CST	Thunderstorm Wind	0	0	2.50K	0.00K
TANNER WILLIAMS	11/1/1997	16:10	CST	Hail	0	0	0.00K	0.00K

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SEMMES	12/24/1997	4:45	CST	Thunderstorm Wind	0	0	1.50K	0.00K
TILLMANS CORNER	12/26/1997	17:30	CST	Hail	0	0	0.00K	0.00K
MOBILE	1/7/1998	5:30	CST	Thunderstorm Wind	0	0	3.00K	0.00K
MOBILE BATES FLD	1/7/1998	6:30	CST	Thunderstorm Wind	0	0	3.50K	0.00K
CITRONELLE	1/22/1998	5:00	CST	Hail	0	0	0.00K	0.00K
SEMMES	1/22/1998	7:15	CST	Thunderstorm Wind	0	0	3.00K	0.00K
ALABAMA PORT	1/22/1998	10:23	CST	Hail	0	0	0.00K	0.00K
TANNER WILLIAMS	2/22/1998	3:40	CST	Hail	0	0	0.00K	0.00K
SARALAND	3/5/1998	13:03	CST	Hail	0	0	0.00K	0.00K
CREOLA	3/5/1998	13:25	CST	Hail	0	0	0.00K	0.00K
MOBILE	3/7/1998	8:00	CST	Lightning	1	0	0.00K	0.00K
DAUPHIN IS	3/7/1998	9:00	CST	Thunderstorm Wind	0	0	2.00K	0.00K
BAYOU LA BATRE	3/7/1998	9:00	CST	Hail	0	0	0.00K	0.00K
CHASTANG	4/8/1998	8:30	CST	Hail	0	0	0.00K	0.00K
CITRONELLE	4/17/1998	17:55	CST	Hail	0	0	0.00K	0.00K
PRICHARD	5/2/1998	15:07	CST	Hail	0	0	0.00K	0.00K
SARALAND	5/3/1998	18:05	CST	Hail	0	0	0.00K	0.00K
MT VERNON	5/3/1998	18:25	CST	Hail	0	0	0.00K	0.00K
CITRONELLE	5/3/1998	18:50	CST	Hail	0	0	0.00K	0.00K
DAUPHIN IS	5/6/1998	12:25	CST	Hail	0	0	0.00K	0.00K
COUNTYWIDE	6/5/1998	22:50	CST	Thunderstorm Wind	0	0	200.00K	0.00K
MOBILE	7/25/1998	14:30	CST	Lightning	0	0	10.00K	0.00K
MOBILE	8/12/1998	16:00	CST	Lightning	0	0	10.00K	0.00K
WILMER	1/2/1999	10:00	CST	Thunderstorm Wind	0	0	5.00K	0.00K
SARALAND	1/2/1999	10:20	CST	Thunderstorm Wind	0	0	10.00K	0.00K
MOBILE	1/22/1999	11:30	CST	Thunderstorm Wind	0	0	10.00K	0.00K
SPRING HILL	3/3/1999	0:10	CST	Thunderstorm Wind	0	0	60.00K	0.00K
MOBILE	3/13/1999	19:05	CST	Thunderstorm Wind	0	0	60.00K	0.00K

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<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
BAYOU LA BATRE	4/29/1999	12:08	CST	Hail	0	0	0.00K	0.00K
SPRING HILL	5/23/1999	14:05	CST	Hail	0	0	0.00K	0.00K
BUCKS	5/26/1999	17:55	CST	Hail	0	0	0.00K	0.00K
GRAND BAY	5/28/1999	12:58	CST	Hail	0	0	0.00K	0.00K
BAYOU LA BATRE	5/28/1999	13:10	CST	Thunderstorm Wind	0	0	7.00K	0.00K
CITRONELLE	6/4/1999	19:20	CST	Thunderstorm Wind	0	0	5.00K	0.00K
MOBILE	6/8/1999	15:05	CST	Thunderstorm Wind	0	0	5.00K	0.00K
MOBILE	7/8/1999	8:00	CST	Lightning	0	0	5.00K	0.00K
TILLMANS CORNER	7/30/1999	14:07	CST	Hail	0	0	0.00K	0.00K
SEMMES	7/30/1999	14:50	CST	Thunderstorm Wind	0	0	1.00K	0.00K
CODEN	8/14/1999	15:30	CST	Hail	0	0	0.00K	0.00K
SEMMES	8/19/1999	14:35	CST	Thunderstorm Wind	0	0	1.00K	0.00K
MT VERNON	8/20/1999	15:15	CST	Hail	0	0	0.00K	0.00K
BIG CREEK LAKE	10/9/1999	4:45	CST	Thunderstorm Wind	0	0	10.00K	0.00K
DAUPHIN IS	1/24/2000	1:07	CST	Hail	0	0	0.00K	0.00K
CITRONELLE	3/3/2000	19:10	CST	Thunderstorm Wind	0	0	5.00K	0.00K
MT VERNON	3/3/2000	19:30	CST	Thunderstorm Wind	0	0	15.00K	0.00K
DAUPHIN IS	3/29/2000	16:00	CST	Hail	0	0	0.00K	0.00K
DAUPHIN IS	3/29/2000	16:15	CST	Hail	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	4/24/2000	3:30	CST	Hail	0	0	0.00K	0.00K
SEMMES	4/26/2000	13:40	CST	Thunderstorm Wind	0	0	3.00K	0.00K
SEMMES	4/26/2000	13:40	CST	Hail	0	0	0.00K	0.00K
MOBILE	4/26/2000	13:50	CST	Hail	0	0	5.00K	0.00K
CITRONELLE	5/13/2000	13:35	CST	Hail	0	0	0.00K	0.00K
MOBILE	6/25/2000	20:05	CST	Lightning	0	1	0.00K	0.00K
MOBILE	6/25/2000	21:45	CST	Lightning	0	1	0.00K	0.00K
MOBILE	7/11/2000	15:48	CST	Hail	0	0	0.00K	0.00K
CITRONELLE	7/16/2000	14:50	CST	Thunderstorm Wind	0	0	5.00K	0.00K
MOBILE	7/16/2000	15:55	CST	Thunderstorm Wind	0	0	40.00K	0.00K

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IRVINGTON	7/21/2000	14:00	CST	Thunderstorm Wind	0	0	15.00K	0.00K
MOBILE	7/21/2000	15:15	CST	Lightning	0	0	5.00K	0.00K
GULF CREST	7/22/2000	12:42	CST	Hail	0	0	0.00K	0.00K
GULF CREST	7/22/2000	12:42	CST	Thunderstorm Wind	0	0	5.00K	0.00K
TILLMANS CORNER	7/22/2000	13:55	CST	Hail	0	0	0.00K	0.00K
TILLMANS CORNER	7/22/2000	13:55	CST	Thunderstorm Wind	0	0	6.00K	0.00K
THEODORE	7/22/2000	14:30	CST	Hail	0	0	0.00K	0.00K
THEODORE	7/22/2000	14:30	CST	Thunderstorm Wind	0	0	5.00K	0.00K
BAYOU LA BATRE	7/22/2000	15:00	CST	Thunderstorm Wind	0	0	5.00K	0.00K
MOBILE	7/22/2000	15:30	CST	Lightning	0	0	100.00K	0.00K
MOBILE	8/9/2000	16:00	CST	Hail	0	0	0.00K	0.00K
MOBILE	8/9/2000	16:00	CST	Thunderstorm Wind	0	0	10.00K	0.00K
CITRONELLE	8/10/2000	14:30	CST	Thunderstorm Wind	0	0	5.00K	0.00K
CITRONELLE	8/10/2000	16:35	CST	Hail	0	0	0.00K	0.00K
MOBILE	8/20/2000	14:15	CST	Thunderstorm Wind	0	0	10.00K	0.00K
BUCKS	8/25/2000	17:00	CST	Hail	0	0	0.00K	0.00K
EIGHT MILE	8/27/2000	15:15	CST	Thunderstorm Wind	0	0	15.00K	0.00K
PRICHARD	9/1/2000	16:30	CST	Lightning	0	0	5.00K	0.00K
CHUNCHULA	9/2/2000	16:45	CST	Thunderstorm Wind	0	0	5.00K	0.00K
GRAND BAY	9/5/2000	14:45	CST	Hail	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	11/6/2000	22:10	CST	Thunderstorm Wind	0	0	8.00K	0.00K
MOBILE	1/19/2001	7:30	CST	Thunderstorm Wind	0	0	2.00K	0.00K
(MOB)MOBILE BATES FL	3/3/2001	11:30	CST	Thunderstorm Wind	0	0	5.00K	0.00K
MT VERNON	3/12/2001	11:25	CST	Thunderstorm Wind	0	0	15.00K	0.00K
MOBILE	3/12/2001	12:09	CST	Lightning	0	0	100.00K	0.00K
IRVINGTON	3/12/2001	12:10	CST	Thunderstorm Wind	0	0	5.00K	0.00K
MOBILE	3/12/2001	12:25	CST	Thunderstorm Wind	0	0	3.00K	0.00K

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DAUPHIN IS	4/24/2001	16:20	CST	Hail	0	0	0.00K	0.00K
SATSUMA	5/2/2001	12:10	CST	Hail	0	0	0.00K	0.00K
MOBILE	5/2/2001	12:30	CST	Lightning	0	0	5.00K	0.00K
WILMER	5/2/2001	13:55	CST	Hail	0	0	0.00K	0.00K
EIGHT MILE	5/30/2001	12:30	CST	Lightning	0	1	0.00K	0.00K
PRICHARD	5/30/2001	12:35	CST	Lightning	0	1	0.00K	0.00K
GRAND BAY	6/11/2001	6:20	CST	Thunderstorm Wind	0	0	8.00K	0.00K
SEMMES	6/11/2001	6:35	CST	Thunderstorm Wind	0	0	100.00K	0.00K
GEORGETOWN	6/11/2001	6:45	CST	Thunderstorm Wind	0	0	70.00K	0.00K
KUSHLA	7/12/2001	16:15	CST	Hail	0	0	0.00K	0.00K
MOBILE	8/10/2001	16:58	CST	Thunderstorm Wind	0	0	5.00K	0.00K
(MOB)MOBILE BATES FL	8/28/2001	12:05	CST	Lightning	0	0	100.00K	0.00K
MOBILE	9/23/2001	16:30	CST	Lightning	0	1	0.00K	0.00K
WILMER	10/13/2001	18:15	CST	Thunderstorm Wind	0	0	100.00K	0.00K
MOBILE	10/13/2001	18:35	CST	Thunderstorm Wind	0	0	60.00K	0.00K
BUCKS	12/14/2001	0:45	CST	Thunderstorm Wind	0	0	25.00K	0.00K
DAWES	3/31/2002	11:20	CST	Thunderstorm Wind	0	0	25.00K	0.00K
(MOB)MOBILE BATES FL	6/30/2002	16:30	CST	Lightning	0	0	85.00K	0.00K
BAYOU LA BATRE	7/11/2002	18:00	CST	Lightning	0	2	0.00K	0.00K
THEODORE	7/13/2002	16:00	CST	Thunderstorm Wind	0	0	8.00K	0.00K
CITRONELLE	8/2/2002	14:00	CST	Thunderstorm Wind	0	0	10.00K	0.00K
THEODORE	8/2/2002	14:10	CST	Hail	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	8/5/2002	13:15	CST	Lightning	0	2	0.00K	0.00K
(MOB)MOBILE BATES FL	8/16/2002	12:00	CST	Lightning	0	1	0.00K	0.00K
MOBILE	8/19/2002	15:15	CST	Thunderstorm Wind	0	0	5.00K	0.00K
CITRONELLE	8/25/2002	11:55	CST	Thunderstorm Wind	0	0	8.00K	0.00K
SARALAND	10/20/2002	19:30	CST	Hail	0	0	0.00K	0.00K

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THEODORE	10/29/2002	9:15	CST	Thunderstorm Wind	0	0	25.00K	0.00K
TILLMANS CORNER	11/5/2002	12:55	CST	Thunderstorm Wind	0	0	2.00K	0.00K
THEODORE	11/5/2002	12:55	CST	Thunderstorm Wind	0	0	1.00K	0.00K
GEORGETOWN	11/15/2002	16:45	CST	Thunderstorm Wind	0	0	5.00K	0.00K
(MOB)MOBILE BATES FL	12/24/2002	3:43	CST	Thunderstorm Wind	0	0	0.00K	0.00K
ST ELMO	12/24/2002	3:45	CST	Thunderstorm Wind	0	0	5.00K	0.00K
(MOB)MOBILE BATES FL	12/31/2002	5:50	CST	Thunderstorm Wind	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	12/31/2002	6:37	CST	Thunderstorm Wind	0	0	0.00K	0.00K
MT VERNON	12/31/2002	7:00	CST	Thunderstorm Wind	0	0	20.00K	0.00K
MOBILE	12/31/2002	7:40	CST	Hail	0	0	0.00K	0.00K
GULF CREST	12/31/2002	7:45	CST	Thunderstorm Wind	0	0	5.00K	0.00K
(MOB)MOBILE BATES FL	3/13/2003	15:50	CST	Hail	0	0	0.00K	0.00K
SARALAND	3/13/2003	16:40	CST	Hail	0	0	0.00K	0.00K
CITRONELLE	4/25/2003	18:00	CST	Hail	0	0	0.00K	0.00K
CITRONELLE	4/25/2003	18:15	CST	Hail	0	0	5.00K	0.00K
CREOLA	4/25/2003	19:10	CST	Hail	0	0	0.00K	0.00K
SATSUMA	4/25/2003	20:00	CST	Hail	0	0	5.00K	0.00K
MT VERNON	5/3/2003	10:40	CST	Hail	0	0	0.00K	0.00K
WILMER	5/3/2003	11:48	CST	Hail	0	0	0.00K	0.00K
SEMMES	5/3/2003	12:00	CST	Hail	0	0	0.00K	0.00K
GRAND BAY	5/3/2003	14:20	CST	Hail	0	0	0.00K	0.00K
COTTAGE HILL	6/3/2003	0:00	CST	Thunderstorm Wind	0	0	20.00K	0.00K
TANNER WILLIAMS	6/3/2003	12:30	CST	Lightning	0	0	50.00K	0.00K
(MOB)MOBILE BATES FL	6/13/2003	7:05	CST	Lightning	0	0	20.00K	0.00K
COUNTYWIDE	6/30/2003	21:45	CST	Thunderstorm Wind	0	0	7.00K	0.00K
COTTAGE HILL	6/30/2003	22:20	CST	Thunderstorm Wind	0	0	5.00K	0.00K

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CODEN	7/21/2003	12:20	CST	Hail	0	0	0.00K	0.00K
SARALAND	8/6/2003	15:15	CST	Lightning	0	1	0.00K	0.00K
SEMMES	8/6/2003	18:52	CST	Hail	0	0	0.00K	0.00K
MOBILE	8/6/2003	21:30	CST	Lightning	0	0	30.00K	0.00K
WILMER	6/1/2004	10:50	CST	Hail	0	0	0.00K	0.00K
MOBILE	6/6/2004	9:00	CST	Lightning	0	1	0.00K	0.00K
(MOB)MOBILE BATES FL	6/18/2004	18:10	CST	Thunderstorm Wind	0	0	5.00K	0.00K
SARALAND	6/22/2004	9:40	CST	Thunderstorm Wind	0	0	5.00K	0.00K
SEMMES	7/3/2004	14:50	CST	Hail	0	0	0.00K	0.00K
SPRING HILL	7/13/2004	19:15	CST	Thunderstorm Wind	0	0	15.00K	0.00K
MOBILE	7/25/2004	13:40	CST	Thunderstorm Wind	0	0	5.00K	0.00K
MOBILE	8/10/2004	9:00	CST	Lightning	0	0	30.00K	0.00K
SARALAND	8/10/2004	9:00	CST	Lightning	0	0	10.00K	0.00K
CHICKASAW	8/10/2004	10:00	CST	Lightning	0	0	5.00K	0.00K
MOBILE	8/10/2004	13:00	CST	Lightning	0	0	50.00K	0.00K
SEVEN HILLS	8/20/2004	23:30	CST	Lightning	0	0	500.00K	0.00K
TILLMANS CORNER	8/23/2004	16:00	CST	Lightning	0	0	50.00K	0.00K
FOREST HILL	8/30/2004	12:30	CST	Lightning	0	1	0.00K	0.00K
AXIS	3/26/2005	14:30	CST	Hail	0	0	0.00K	0.00K
DAWES	3/31/2005	21:35	CST	Hail	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	4/1/2005	0:00	CST	Heavy Rain	0	0	0.00K	0.00K
MOBILE	4/1/2005	2:00	CST	Hail	0	0	0.00K	0.00K
DAUPHIN IS	4/1/2005	3:41	CST	Hail	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	4/1/2005	3:49	CST	Hail	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	4/1/2005	4:23	CST	Hail	0	0	0.00K	0.00K
TANNER WILLIAMS	4/1/2005	4:30	CST	Hail	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	4/11/2005	23:49	CST	Thunderstorm Wind	0	0	150.00K	0.00K
CITRONELLE	4/22/2005	19:30	CST	Hail	0	0	4.00K	0.00K
SARALAND	4/26/2005	14:12	CST	Hail	0	0	0.00K	0.00K
CITRONELLE	6/7/2005	12:30	CST	Lightning	0	0	10.00K	0.00K

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(MOB)MOBILE BATES FL	6/15/2005	20:15	CST	Thunderstorm Wind	0	0	10.00K	0.00K
SEMMES	7/8/2005	4:55	CST	Hail	0	0	0.00K	0.00K
MOBILE BATES FLD	7/21/2005	16:40	CST	Thunderstorm Wind	0	0	12.00K	0.00K
SEMMES	8/20/2005	14:00	CST	Lightning	0	0	0.00K	0.00K
THEODORE	8/20/2005	16:45	CST	Lightning	0	0	25.00K	0.00K
ALABAMA PORT	9/23/2005	14:00	CST	Thunderstorm Wind	0	0	4.00K	0.00K
ALABAMA PORT	9/24/2005	4:35	CST	Thunderstorm Wind	0	0	5.00K	0.00K
BAYOU LA BATRE	1/1/2006	15:25	CST	Hail	0	0	0.00K	0.00K
TILLMANS CORNER	1/1/2006	15:35	CST	Hail	0	0	0.00K	0.00K
ST ELMO	1/1/2006	16:20	CST	Hail	0	0	0.00K	0.00K
SEMMES	4/22/2006	0:15	CST	Lightning	0	0	800.00K	0.00K
GULF CREST	5/8/2006	16:15	CST	Hail	0	0	0.00K	0.00K
MOBILE	5/9/2006	9:42	CST	Hail	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	6/2/2006	14:35	CST	Hail	0	0	0.00K	0.00K
THEODORE	6/2/2006	15:00	CST	Lightning	0	1	0.00K	0.00K
MOBILE	6/2/2006	15:00	CST	Lightning	0	0	100.00K	0.00K
SEMMES	6/23/2006	12:05	CST	Hail	0	0	0.00K	0.00K
SEMMES	6/23/2006	12:25	CST	Thunderstorm Wind	0	0	10.00K	0.00K
ST ELMO	6/23/2006	13:10	CST	Thunderstorm Wind	0	0	15.00K	0.00K
(MOB)MOBILE BATES FL	6/25/2006	15:00	CST	Thunderstorm Wind	0	0	10.00K	0.00K
COTTAGE HILL	7/30/2006	10:00	CST	Lightning	0	0	40.00K	0.00K
SEMMES	8/9/2006	11:36	CST	Hail	0	0	0.00K	0.00K
GEORGETOWN	8/9/2006	13:06	CST	Thunderstorm Wind	0	0	30.00K	0.00K
SATSUMA	8/9/2006	14:20	CST	Hail	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	8/9/2006	14:30	CST	Lightning	0	0	40.00K	0.00K
GEORGETOWN	8/15/2006	19:40	CST	Thunderstorm Wind	0	0	10.00K	0.00K
MT VERNON	8/15/2006	20:00	CST	Lightning	0	0	500.00K	0.00K

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(MOB)MOBILE BATES FL	8/15/2006	21:11	CST	Lightning	0	0	150.00K	0.00K
GRAND BAY	8/30/2006	15:30	CST	Thunderstorm Wind	0	0	45.00K	0.00K
(MOB)MOBILE BATES FL	10/16/2006	17:45	CST-6	Thunderstorm Wind	0	0	6.00K	0.00K
(MOB)MOBILE BATES FL	10/16/2006	18:15	CST-6	Thunderstorm Wind	0	0	6.00K	0.00K
SEMMES	10/16/2006	20:45	CST-6	Thunderstorm Wind	0	0	6.00K	0.00K
WILMER	11/15/2006	5:54	CST-6	Thunderstorm Wind	0	0	10.00K	0.00K
BAYOU LA BATRE	11/15/2006	7:20	CST-6	Thunderstorm Wind	0	0	12.00K	0.00K
CITRONELLE	2/13/2007	7:30	CST-6	Hail	0	0	0.00K	0.00K
GRAND BAY	2/13/2007	7:51	CST-6	Hail	0	0	0.00K	0.00K
DAUPHIN IS	4/10/2007	19:15	CST-6	Hail	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	5/11/2007	15:10	CST-6	Hail	0	0	0.00K	0.00K
THEODORE	5/11/2007	15:22	CST-6	Hail	0	0	0.00K	0.00K
MOBILE BROOKLEY FLD	5/12/2007	18:30	CST-6	Hail	0	0	0.00K	0.00K
IRVINGTON	5/13/2007	14:30	CST-6	Hail	0	0	0.00K	0.00K
MOBILE	5/16/2007	13:15	CST-6	Thunderstorm Wind	0	0	15.00K	0.00K
FOWL RIVER	6/12/2007	12:00	CST-6	Thunderstorm Wind	0	0	20.00K	0.00K
WILMER	6/19/2007	15:25	CST-6	Thunderstorm Wind	0	0	15.00K	0.00K
PRICHARD	6/19/2007	18:30	CST-6	Lightning	0	0	100.00K	0.00K
MOBILE	6/27/2007	14:55	CST-6	Lightning	0	0	0.00K	0.00K
MOBILE	7/3/2007	13:20	CST-6	Thunderstorm Wind	0	8	3.500M	0.00K
MOBILE	7/15/2007	13:00	CST-6	Lightning	0	0	16.00K	0.00K
MOBILE	8/30/2007	15:30	CST-6	Lightning	0	0	65.00K	0.00K

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GEORGETOWN	10/18/2007	6:00	CST-6	Thunderstorm Wind	0	0	20.00K	0.00K
DAUPHIN IS	2/12/2008	5:03	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
WHISTLER	2/12/2008	16:29	CST-6	Hail	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	2/12/2008	16:30	CST-6	Thunderstorm Wind	0	0	10.00K	0.00K
CITRONELLE	5/15/2008	9:56	CST-6	Thunderstorm Wind	0	0	100.00K	0.00K
IRVINGTON	6/17/2008	15:08	CST-6	Hail	0	0	10.00K	0.00K
GULF CREST	6/17/2008	16:37	CST-6	Hail	0	0	2.00K	0.00K
TILLMANS CORNER	6/22/2008	15:17	CST-6	Hail	0	0	10.00K	0.00K
DIXON CORNER	6/22/2008	15:45	CST-6	Thunderstorm Wind	0	0	12.00K	0.00K
SOUTH ORCHARD	6/22/2008	15:50	CST-6	Hail	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	7/12/2008	17:18	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
GRAND BAY	7/13/2008	14:00	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
MOBILE	7/26/2008	16:00	CST-6	Lightning	0	0	10.00K	0.00K
TILLMANS CORNER	7/26/2008	16:00	CST-6	Lightning	0	0	5.00K	0.00K
SEVEN HILLS	7/27/2008	17:26	CST-6	Hail	0	0	0.00K	0.00K
THEODORE	8/18/2008	13:40	CST-6	Lightning	0	0	0.00K	0.00K
CITRONELLE	1/3/2009	13:04	CST-6	Hail	0	0	0.00K	0.00K
MOBILE BATES FLD	3/27/2009	2:20	CST-6	Thunderstorm Wind	0	0	40.00K	0.00K
DAWES	3/27/2009	2:20	CST-6	Thunderstorm Wind	0	0	20.00K	0.00K
MOBILE BATES FLD	3/28/2009	1:45	CST-6	Hail	0	0	0.00K	0.00K
WILMER	3/31/2009	11:49	CST-6	Hail	0	0	0.00K	0.00K
SARALAND	3/31/2009	12:21	CST-6	Hail	0	0	0.00K	0.00K
CITRONELLE	5/5/2009	13:50	CST-	Hail	0	0	0.00K	0.00K

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			6					
GULF CREST	5/12/2009	14:50	CST-6	Hail	0	0	0.00K	0.00K
CITRONELLE	5/14/2009	14:25	CST-6	Hail	0	0	0.00K	0.00K
MOBILE BATES FLD	7/31/2009	9:30	CST-6	Thunderstorm Wind	0	0	12.00K	0.00K
MOBILE BATES FLD	8/3/2009	13:59	CST-6	Thunderstorm Wind	0	0	10.00K	0.00K
(MOB)MOBILE BATES FL	12/24/2009	16:40	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
PRICHARD	12/24/2009	17:14	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
CITRONELLE	4/24/2010	1:41	CST-6	Hail	0	0	0.00K	0.00K
CODEN	4/24/2010	14:04	CST-6	Hail	0	0	0.00K	0.00K
WHISTLER	5/29/2010	16:15	CST-6	Hail	0	0	0.00K	0.00K
WILMER	10/24/2010	15:55	CST-6	Hail	0	0	0.00K	0.00K
THEODORE	12/11/2010	23:30	CST-6	Thunderstorm Wind	0	0	5.00K	0.00K
DELCHAMPS	3/5/2011	16:35	CST-6	Thunderstorm Wind	0	0	5.00K	0.00K
CITRONELLE	3/8/2011	19:18	CST-6	Hail	0	0	0.00K	0.00K
CITRONELLE	3/9/2011	7:48	CST-6	Hail	0	0	0.00K	0.00K
MT VERNON	3/9/2011	8:02	CST-6	Thunderstorm Wind	0	0	7.00K	0.00K
GRAND BAY	3/9/2011	8:48	CST-6	Thunderstorm Wind	0	0	20.00K	0.00K
SPRING HILL	4/4/2011	19:45	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
NAVCO	4/4/2011	20:20	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
GEORGETOWN	5/26/2011	15:47	CST-6	Hail	0	0	0.00K	0.00K
GRAND BAY	6/6/2011	12:35	CST-6	Hail	0	0	0.00K	0.00K
MOBILE BATES FLD	6/16/2011	12:49	CST-6	Hail	0	0	0.00K	0.00K
MOBILE BATES FLD	6/16/2011	13:04	CST-6	Thunderstorm Wind	0	0	2.00K	0.00K

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MOBILE BATES FLD	6/16/2011	13:04	CST-6	Thunderstorm Wind	0	0	2.00K	0.00K
MOBILE BATES FLD	6/16/2011	13:04	CST-6	Hail	0	0	0.00K	0.00K
MOBILE BATES FLD	6/16/2011	13:45	CST-6	Hail	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	7/2/2011	11:56	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	7/31/2011	15:55	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
MOBILE BATES FLD	8/4/2011	17:34	CST-6	Thunderstorm Wind	0	0	2.00K	0.00K
SPRING HILL	8/12/2011	13:00	CST-6	Thunderstorm Wind	0	0	2.00K	0.00K
CODEN	8/12/2011	14:46	CST-6	Hail	0	0	0.00K	0.00K
GRAND BAY	8/24/2011	12:59	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
MOBILE BATES FLD	8/24/2011	12:59	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
MOBILE BATES FLD	9/5/2011	6:47	CST-6	Thunderstorm Wind	0	0	2.00K	0.00K
MOBILE	9/5/2011	7:25	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
MOBILE	9/5/2011	7:25	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
GRAND BAY	2/18/2012	16:10	CST-6	Thunderstorm Wind	0	0	3.00K	0.00K
BELLEFONTAINE	5/21/2012	14:07	CST-6	Hail	0	0	0.00K	0.00K
TILLMANS CORNER	5/30/2012	14:00	CST-6	Hail	0	0	0.00K	0.00K
MOBILE BATES FLD	5/30/2012	14:15	CST-6	Hail	0	0	0.00K	0.00K
MOBILE BROOKLEY FLD	5/30/2012	14:20	CST-6	Hail	0	0	0.00K	0.00K
MOBILE BATES FLD	6/7/2012	14:00	CST-6	Heavy Rain	0	0	0.00K	0.00K
BAYOU LA BATRE	7/2/2012	16:00	CST-6	Thunderstorm Wind	0	0	2.00K	0.00K
DAWES	8/29/2012	21:00	CST-6	Heavy Rain	0	0	0.00K	0.00K

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<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
SEMMES	12/25/2012	19:40	CST-6	Thunderstorm Wind	0	0	4.00K	0.00K
MOBILE BATES FLD	2/25/2013	3:15	CST-6	Lightning	0	0	5.00K	0.00K
SOUTH ORCHARD	4/14/2013	9:06	CST-6	Thunderstorm Wind	0	0	5.00K	0.00K
THEODORE	5/2/2013	3:00	CST-6	Lightning	0	0	15.00K	0.00K
MOBILE BATES FLD	8/5/2013	15:21	CST-6	Lightning	0	0	10.00K	0.00K
MOBILE BATES FLD	8/5/2013	15:41	CST-6	Lightning	0	0	10.00K	0.00K
SEVEN HILLS	2/21/2014	2:00	CST-6	Thunderstorm Wind	0	0	2.00K	0.00K
SARALAND	3/16/2014	7:00	CST-6	Thunderstorm Wind	0	0	4.00K	0.00K
SARALAND	3/16/2014	7:00	CST-6	Thunderstorm Wind	0	0	2.00K	0.00K
SARALAND	3/16/2014	7:00	CST-6	Thunderstorm Wind	0	0	2.00K	0.00K
SARALAND	3/16/2014	7:00	CST-6	Thunderstorm Wind	0	0	5.00K	0.00K
SATSUMA	3/29/2014	0:57	CST-6	Hail	0	0	0.00K	0.00K
MOBILE CO.	4/29/2014	1:05	CST-6	Thunderstorm Wind	0	0	0.00K	0.00K
MOBILE CO.	4/29/2014	1:20	CST-6	Hail	0	0	10.00K	0.00K
CITRONELLE	6/7/2014	15:16	CST-6	Hail	0	0	0.00K	0.00K
SARALAND	8/9/2014	14:30	CST-6	Thunderstorm Wind	0	0	25.00K	0.00K
PRICHARD	8/9/2014	14:30	CST-6	Thunderstorm Wind	0	0	10.00K	0.00K
MOBILE	12/23/2014	7:03	CST-6	Hail	0	0	0.00K	0.00K
Totals:					2	27	9.037M	0.00K

Source: National Climatic Data Center

Past Occurrences of Floods

Table E-3. Mobile County Flood Events 1995 - 2014

100 FLOOD event(s) were reported in **Mobile County, Alabama** between **01/01/1995** and **12/31/2014**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
Totals:					0	0	8.455M	0.00K
FOWL RIVER	4/14/1996	20:00	CST	Flash Flood	0	0	300.00K	0.00K
MOBILE	5/28/1997	20:15	CST	Flash Flood	0	0	10.00K	0.00K
EIGHT MILE	6/5/1997	14:00	CST	Flash Flood	0	0	1.00K	0.00K
TILLMANS CORNER	7/19/1997	10:00	CST	Flash Flood	0	0	0.00K	0.00K
CENTRAL PORTION	1/7/1998	6:40	CST	Flash Flood	0	0	30.00K	0.00K
LOWER MOBILE (ZONE)	2/15/1998	15:00	CST	Flood	0	0	30.00K	0.00K
COUNTYWIDE	3/8/1998	0:01	CST	Flash Flood	0	0	1.000M	0.00K
LOWER MOBILE (ZONE)	3/8/1998	2:00	CST	Flood	0	0	25.00K	0.00K
LOWER MOBILE (ZONE)	3/17/1998	10:00	CST	Flood	0	0	25.00K	0.00K
COUNTYWIDE	9/28/1998	11:00	CST	Flash Flood	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	10/28/1998	0:10	CST	Flood	0	0	5.00K	0.00K
DAUPHIN IS	1/22/1999	21:30	CST	Coastal Flood	0	0	5.00K	0.00K
MOBILE	3/8/1999	19:00	CST	Coastal Flood	0	0	10.00K	0.00K
DAUPHIN IS	3/13/1999	12:00	CST	Coastal Flood	0	0	5.00K	0.00K
CENTRAL PORTION	3/13/1999	19:00	CST	Flash Flood	0	0	5.00K	0.00K
DAUPHIN IS	5/5/1999	12:00	CST	Coastal Flood	0	0	15.00K	0.00K
DAUPHIN IS	9/20/1999	4:00	CST	Coastal Flood	0	0	5.00K	0.00K
MOBILE	3/19/2000	15:15	CST	Flash Flood	0	0	25.00K	0.00K
MOBILE	11/6/2000	22:30	CST	Flash Flood	0	0	0.00K	0.00K

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<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<u>COUNTYWIDE</u>	3/3/2001	12:00	CST	Flash Flood	0	0	15.00K	0.00K
<u>MOBILE</u>	3/12/2001	12:20	CST	Flash Flood	0	0	3.00K	0.00K
<u>LOWER MOBILE (ZONE)</u>	6/11/2001	10:15	CST	Flood	0	0	0.00K	0.00K
<u>CENTRAL PORTION</u>	7/12/2001	17:00	CST	Flash Flood	0	0	0.00K	0.00K
<u>MOBILE</u>	8/12/2001	10:30	CST	Flash Flood	0	0	0.00K	0.00K
<u>(MOB)MOBILE BATES FL</u>	8/28/2001	13:00	CST	Flash Flood	0	0	1.00K	0.00K
<u>THEODORE</u>	9/14/2002	7:35	CST	Flash Flood	0	0	0.00K	0.00K
<u>THEODORE</u>	9/24/2002	17:45	CST	Flash Flood	0	0	0.00K	0.00K
<u>THEODORE</u>	9/25/2002	3:00	CST	Flash Flood	0	0	0.00K	0.00K
<u>SOUTH PORTION</u>	9/25/2002	21:40	CST	Flash Flood	0	0	0.00K	0.00K
<u>CENTRAL PORTION</u>	12/31/2002	8:15	CST	Flash Flood	0	0	0.00K	0.00K
<u>SOUTH PORTION</u>	5/18/2003	5:50	CST	Flash Flood	0	0	0.00K	0.00K
<u>SOUTH PORTION</u>	5/18/2003	10:00	CST	Flash Flood	0	0	0.00K	0.00K
<u>MOBILE</u>	6/6/2003	14:45	CST	Flash Flood	0	0	0.00K	0.00K
<u>COUNTYWIDE</u>	6/30/2003	21:00	CST	Flash Flood	0	0	0.00K	0.00K
<u>COUNTYWIDE</u>	7/1/2003	0:00	CST	Flash Flood	0	0	0.00K	0.00K
<u>SEMMES</u>	2/25/2004	19:10	CST	Flash Flood	0	0	0.00K	0.00K
<u>SATSUMA</u>	6/1/2004	10:00	CST	Flash Flood	0	0	10.00K	0.00K
<u>SOUTH PORTION</u>	3/31/2005	23:45	CST	Flash Flood	0	0	5.00K	0.00K
<u>SOUTH PORTION</u>	4/1/2005	0:00	CST	Flash Flood	0	0	50.00K	0.00K
<u>SOUTH PORTION</u>	4/6/2005	17:30	CST	Flash Flood	0	0	25.00K	0.00K
<u>CENTRAL PORTION</u>	4/30/2005	8:15	CST	Flash Flood	0	0	0.00K	0.00K
<u>WEST CENTRAL PORTION</u>	6/11/2005	13:30	CST	Flash Flood	0	0	0.00K	0.00K
<u>COUNTYWIDE</u>	7/6/2005	2:45	CST	Flash Flood	0	0	0.00K	0.00K
<u>COUNTYWIDE</u>	8/29/2005	5:00	CST	Flash Flood	0	0	0.00K	0.00K

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Location	Date	Time	T.Z.	Type	Dth	Inj	PrD	CrD
NORTH PORTION	6/16/2006	15:30	CST	Flash Flood	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	10/17/2006	4:00	CST-6	Coastal Flood	0	0	50.00K	0.00K
SEMMES	11/15/2006	10:45	CST-6	Flash Flood	0	0	0.00K	0.00K
MOBILE	4/1/2007	11:00	CST-6	Flash Flood	0	0	0.00K	0.00K
CITRONELLE	6/19/2007	16:30	CST-6	Flash Flood	0	0	0.00K	0.00K
MOBILE	7/4/2007	14:00	CST-6	Flash Flood	0	0	0.00K	0.00K
CITRONELLE	10/23/2007	0:00	CST-6	Flash Flood	0	0	0.00K	0.00K
TANNER WILLIAMS	1/31/2008	19:40	CST-6	Flash Flood	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	3/19/2008	4:00	CST-6	Coastal Flood	0	0	0.00K	0.00K
GRAND BAY	4/5/2008	2:00	CST-6	Flash Flood	0	0	15.00K	0.00K
MOFFET	5/3/2008	9:00	CST-6	Flash Flood	0	0	0.00K	0.00K
GRAND BAY	5/16/2008	8:30	CST-6	Flash Flood	0	0	0.00K	0.00K
SPRING HILL	6/10/2008	13:15	CST-6	Flash Flood	0	0	5.00K	0.00K
MOBILE BATES FLD	8/16/2008	16:00	CST-6	Flash Flood	0	0	0.00K	0.00K
ALABAMA PORT	8/25/2008	1:10	CST-6	Flash Flood	0	0	20.00K	0.00K
PIERCIE	9/1/2008	15:30	CST-6	Flash Flood	0	0	250.00K	0.00K
CITRONELLE	3/27/2009	1:35	CST-6	Flash Flood	0	0	0.00K	0.00K
MOBILE	3/28/2009	2:48	CST-6	Flash Flood	0	0	0.00K	0.00K
CITRONELLE	3/28/2009	2:48	CST-6	Flash Flood	0	0	0.00K	0.00K
GRAND BAY	3/28/2009	3:25	CST-6	Flash Flood	0	0	0.00K	0.00K
DAUPHIN IS	5/23/2009	9:30	CST-6	Flash Flood	0	0	0.00K	0.00K
BAYOU LA BATRE	5/23/2009	9:30	CST-6	Flash Flood	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	10/22/2009	21:00	CST-6	Coastal Flood	0	0	0.00K	0.00K
THEODORE	12/12/2009	21:00	CST-6	Flash Flood	0	0	0.00K	0.00K
(MOB)MOBILE BATES FL	12/14/2009	21:10	CST-6	Flash Flood	0	0	0.00K	0.00K
SARALAND	12/14/2009	22:10	CST-6	Flash Flood	0	0	0.00K	0.00K
DAWES	1/20/2010	20:50	CST-6	Flash Flood	0	0	0.00K	0.00K
SPRING HILL	1/20/2010	21:00	CST-6	Flash Flood	0	0	0.00K	0.00K

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<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
SEVEN HILLS	1/20/2010	21:00	CST-6	Flash Flood	0	0	0.00K	0.00K
SEVEN HILLS	1/20/2010	21:00	CST-6	Flash Flood	0	0	0.00K	0.00K
FOREST HILL	1/20/2010	21:00	CST-6	Flash Flood	0	0	0.00K	0.00K
THEODORE	1/20/2010	21:00	CST-6	Flash Flood	0	0	0.00K	0.00K
DAWES	1/20/2010	21:00	CST-6	Flash Flood	0	0	0.00K	0.00K
MOBILE AEROSPACE ARP	1/20/2010	21:00	CST-6	Flash Flood	0	0	0.00K	0.00K
MERTZ	1/20/2010	21:00	CST-6	Flash Flood	0	0	0.00K	0.00K
MOBILE	8/15/2010	16:30	CST-6	Flash Flood	0	0	0.00K	0.00K
CITRONELLE	3/9/2011	9:30	CST-6	Flash Flood	0	0	0.00K	0.00K
BAYOU LA BATRE	3/9/2011	10:00	CST-6	Flash Flood	0	0	0.00K	0.00K
CHICKASAW	3/9/2011	10:00	CST-6	Flash Flood	0	0	0.00K	0.00K
FOREST HILL	3/9/2011	10:00	CST-6	Flash Flood	0	0	0.00K	0.00K
THEODORE	9/3/2011	1:45	CST-6	Flash Flood	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	9/3/2011	18:45	CST-6	Coastal Flood	0	0	0.00K	0.00K
EIGHT MILE	5/2/2012	17:20	CST-6	Flash Flood	0	0	0.00K	0.00K
MOBILE BATES FLD	5/2/2012	17:20	CST-6	Flash Flood	0	0	0.00K	0.00K
DAWES	6/9/2012	7:52	CST-6	Flash Flood	0	0	0.00K	0.00K
THEODORE IDLE HOUR A	6/9/2012	8:55	CST-6	Flash Flood	0	0	5.00K	0.00K
(MOB)MOBILE BATES FL	2/25/2013	20:16	CST-6	Flood	0	0	0.00K	0.00K
CHUNCHULA	5/1/2013	19:30	CST-6	Flash Flood	0	0	0.00K	0.00K
CHUNCHULA	6/2/2013	19:15	CST-6	Flash Flood	0	0	0.00K	0.00K
BAYOU LA BATRE	7/28/2013	1:32	CST-6	Flash Flood	0	0	0.00K	0.00K
SEMMES	9/3/2013	16:20	CST-6	Flash Flood	0	0	0.00K	0.00K
SPRING HILL	3/16/2014	7:00	CST-6	Flash Flood	0	0	0.00K	0.00K
MOBILE CO.	4/14/2014	21:00	CST-6	Flash Flood	0	0	0.00K	0.00K
MOBILE CO.	4/29/2014	1:50	CST-6	Flash Flood	0	0	0.00K	0.00K
MOBILE CO.	4/29/2014	14:45	CST-6	Flash Flood	0	0	5.00K	0.00K
MOBILE CO.	4/29/2014	19:44	CST-6	Flash Flood	0	0	6.500M	0.00K
Totals:					0	0	8.455M	0.00K

Source: National Climatic Data Center

Past Occurrences of Hurricanes and Tropical Storms

Table E-4. Mobile County Hurricanes and Tropical Storms, 1995 - 2014

36 HURRICANE & TROPICAL STORM event(s) were reported in **Mobile County, Alabama** between **01/01/1995** and **12/31/2014**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
Totals:					1	0	3.705B	30.100M
<u>UPPER MOBILE (ZONE)</u>	7/18/1997	12:00	CST	Hurricane (typhoon)	0	0	0.00K	0.00K
<u>LOWER MOBILE (ZONE)</u>	7/18/1997	12:00	CST	Hurricane (typhoon)	0	0	0.00K	0.00K
<u>LOWER MOBILE (ZONE)</u>	9/1/1998	15:00	CST	Hurricane (typhoon)	0	0	5.00K	0.00K
<u>UPPER MOBILE (ZONE)</u>	9/1/1998	15:00	CST	Hurricane (typhoon)	0	0	0.00K	0.00K
<u>UPPER MOBILE (ZONE)</u>	9/25/1998	9:00	CST	Hurricane (typhoon)	0	0	0.00K	0.00K
<u>LOWER MOBILE (ZONE)</u>	9/25/1998	9:00	CST	Hurricane (typhoon)	1	0	80.000M	5.000M
<u>UPPER MOBILE (ZONE)</u>	9/21/2000	9:00	CST	Tropical Storm	0	0	0.00K	0.00K
<u>LOWER MOBILE (ZONE)</u>	9/21/2000	9:00	CST	Tropical Storm	0	0	10.00K	0.00K
<u>UPPER MOBILE (ZONE)</u>	8/4/2001	9:00	CST	Tropical Storm	0	0	0.00K	0.00K
<u>LOWER MOBILE (ZONE)</u>	8/4/2001	9:00	CST	Tropical Storm	0	0	0.00K	0.00K

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UPPER MOBILE (ZONE)	9/12/2002	9:00	CST	Tropical Storm	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	9/12/2002	9:00	CST	Tropical Storm	0	0	50.00K	0.00K
UPPER MOBILE (ZONE)	9/24/2002	9:00	CST	Tropical Storm	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	9/24/2002	9:00	CST	Tropical Storm	0	0	4.500M	0.00K
UPPER MOBILE (ZONE)	10/2/2002	9:00	CST	Hurricane (typhoon)	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	10/2/2002	9:00	CST	Hurricane (typhoon)	0	0	100.00K	0.00K
UPPER MOBILE (ZONE)	9/13/2004	21:00	CST	Hurricane (typhoon)	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	9/13/2004	21:00	CST	Hurricane (typhoon)	0	0	2.500B	25.000M
LOWER MOBILE (ZONE)	10/9/2004	15:00	CST	Tropical Storm	0	0	0.00K	0.00K
UPPER MOBILE (ZONE)	10/9/2004	15:00	CST	Tropical Storm	0	0	0.00K	0.00K
UPPER MOBILE (ZONE)	6/10/2005	3:00	CST	Tropical Storm	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	6/10/2005	3:00	CST	Tropical Storm	0	0	0.00K	0.00K
UPPER MOBILE (ZONE)	7/5/2005	3:00	CST	Tropical Storm	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	7/5/2005	3:00	CST	Tropical Storm	0	0	300.00K	0.00K

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LOWER MOBILE (ZONE)	7/9/2005	3:00	CST	Hurricane (typhoon)	0	0	120.000M	100.00K
UPPER MOBILE (ZONE)	7/9/2005	3:00	CST	Hurricane (typhoon)	0	0	0.00K	0.00K
UPPER MOBILE (ZONE)	8/27/2005	15:00	CST	Hurricane (typhoon)	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	8/27/2005	15:00	CST	Hurricane (typhoon)	0	0	1.000B	0.00K
UPPER MOBILE (ZONE)	8/23/2008	23:00	CST-6	Tropical Depression	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	8/23/2008	23:00	CST-6	Tropical Depression	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	8/31/2008	21:00	CST-6	Tropical Storm	0	0	0.00K	0.00K
UPPER MOBILE (ZONE)	8/31/2008	21:00	CST-6	Tropical Storm	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	9/1/2008	0:00	CST-6	Tropical Storm	0	0	0.00K	0.00K
UPPER MOBILE (ZONE)	9/1/2008	0:00	CST-6	Tropical Storm	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	9/11/2008	8:00	CST-6	Tropical Storm	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	8/28/2012	6:00	CST-6	Tropical Storm	0	0	0.00K	0.00K
Totals:					1	0	3.705B	30.100M

Source: National Climatic Data Center

Past Occurrences of Winter Storms/Freezes

Table E-5. Mobile County Winter Storm Events 1995 to 2014

9 EXTREME COLD/WINTER STORM event(s) were reported in Mobile County, Alabama between **01/01/1995** and **12/31/2014**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Location	Date	Time	T.Z.	Type	Dth	Inj	PrD	CrD
Totals:					1	0	5.00K	0.00K
UPPER MOBILE (ZONE)	2/5/1996	9:20	CST	Cold/wind Chill	1	0	0.00K	0.00K
UPPER MOBILE (ZONE)	1/2/2002	0:30	CST	Winter Storm	0	0	0.00K	0.00K
UPPER MOBILE (ZONE)	1/31/2003	18:00	CST	Cold/wind Chill	0	0	0.00K	0.00K
UPPER MOBILE (ZONE)	2/12/2010	0:00	CST-6	Winter Storm	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	2/3/2011	8:10	CST-6	Winter Weather	0	0	5.00K	0.00K
LOWER MOBILE (ZONE)	1/28/2014	9:00	CST-6	Ice Storm	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	1/28/2014	9:00	CST-6	Ice Storm	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	1/28/2014	11:00	CST-6	Ice Storm	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	1/28/2014	11:00	CST-6	Ice Storm	0	0	0.00K	0.00K
Totals:					1	0	5.00K	0.00K

Source: National Climatic Data Center

Past Occurrences of Drought/Heat Waves

Table E-6. Mobile County Drought/Heat Wave Events, 1995 - 2014

14 DROUGHT/HEAT WAVE event(s) were reported in **Mobile County, Alabama** between **01/01/1995** and **12/31/2014**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

*Click on **Location** or **County** to display Details.*

Location	Date	Time	T.Z.	Type	Dth	Inj	PrD	CrD
Totals:					6	1	0.00K	0.00K
UPPER MOBILE (ZONE)	7/11/1996	8:00	CST	Heat	1	0	0.00K	0.00K
UPPER MOBILE (ZONE)	6/22/1998	16:00	CST	Heat	1	0	0.00K	0.00K
LOWER MOBILE (ZONE)	8/1/1999	8:00	CST	Heat	1	0	0.00K	0.00K
UPPER MOBILE (ZONE)	8/1/1999	8:00	CST	Heat	0	0	0.00K	0.00K
UPPER MOBILE (ZONE)	7/1/2000	0:01	CST	Heat	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	7/1/2000	0:01	CST	Heat	0	0	0.00K	0.00K
UPPER MOBILE (ZONE)	7/14/2000	11:00	CST	Heat	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	7/14/2000	11:00	CST	Heat	2	0	0.00K	0.00K
UPPER MOBILE (ZONE)	3/1/2004	0:00	CST	Drought	0	0	0.00K	0.00K

Location	Date	Time	T.Z.	Type	Dth	Inj	PrD	CrD
LOWER MOBILE (ZONE)	3/1/2004	0:00	CST	Drought	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	9/20/2005	11:30	CST	Heat	1	0	0.00K	0.00K
UPPER MOBILE (ZONE)	8/8/2007	8:00	CST-6	Heat	0	0	0.00K	0.00K
LOWER MOBILE (ZONE)	8/8/2007	8:00	CST-6	Heat	0	1	0.00K	0.00K
LOWER MOBILE (ZONE)	9/20/2007	6:30	CST-6	Heat	0	0	0.00K	0.00K
Totals:					6	1	0.00K	0.00K

Source: National Climatic Data Center

Past Occurrences of Hazardous Materials Incidents

Table E-7. Mobile County Transportation-Related Hazardous Materials Incidents, 1995-2014

Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Bayou La Batre	1/4/1999	Highway	GASOLINE	FLAMMABLE - COMBUSTIBLE LIQUID	2	\$2
Bayou La Batre	8/31/1997	Highway	SODIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	5	\$8,155
Chickasaw	10/9/2000	Highway	OXIDIZING SOLID N.O.S.	OXIDIZER	0.5 (Solid Pound)	\$3
Citronelle	8/6/2003	Highway	EPICHLOROHYDRIN	POISONOUS MATERIALS	0.007813	\$15
Citronelle	9/14/2014	Highway	PETROLEUM CRUDE OIL	FLAMMABLE - COMBUSTIBLE LIQUID	0	\$34,848
Creola	7/17/2001	Highway	ACETIC ANHYDRIDE	CORROSIVE MATERIAL	10	\$30
Creola	2/26/2000	Highway	SULFUR MOLTEN	MISCELLANEOUS HAZARDOUS MATERIAL	3	\$1,000
Creola	1/30/1999	Highway	SULFUR MOLTEN	MISCELLANEOUS HAZARDOUS MATERIAL	151	\$500
Creola	5/3/1997	Highway	ZINC CHLORIDE SOLUTION	CORROSIVE MATERIAL	8	\$965
Creola	1/21/2001	Highway	SODIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	1	\$1,001
Creola	11/7/1999	Highway	SULFURIC ACID	CORROSIVE MATERIAL	17	\$0
Mobile	6/4/1996	Highway	ETHYLENE GLYCOL MONOMETHYL ETHER	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$225
Mobile	2/24/2006	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$5,000
Mobile	12/8/1997	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.5	\$400
Mobile	10/18/1995	Rail	SULFURIC ACID	CORROSIVE MATERIAL	3	\$25
Mobile	10/2/2002	Highway	HYDROCHLORIC ACID SOLUTION	CORROSIVE MATERIAL	5	\$1,350
Mobile	10/11/2011	Rail	CAUSTIC ALKALI LIQUIDS N.O.S.	CORROSIVE MATERIAL	30	\$5,780

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Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Mobile	3/9/2005	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	2/25/2005	Rail	AMMONIUM NITRATE	OXIDIZER	4000 (Solid Pound)	\$7,500
Mobile	6/7/2001	Highway	NITROGEN REFRIGERATED LIQUID (CRYOGENIC LIQUID)	NONFLAMMABLE COMPRESSED GAS	3125	\$183,500
Mobile	10/13/1996	Highway	HYDROGEN REFRIGERATED LIQUID (CRYOGENIC LIQUID)	FLAMMABLE GAS	2.5	\$100
Mobile	1/29/1995	Rail	METHANOL	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	9/28/2004	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$385
Mobile	8/24/2010	Rail	AMMONIA ANHYDROUS LIQUEFIED	POISONOUS GAS	5	\$0
Mobile	1/31/2000	Highway	GASOLINE	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$1
Mobile	8/28/2003	Highway	HYDROCHLORIC ACID SOLUTION	CORROSIVE MATERIAL	0.023438	\$377
Mobile	8/12/2000	Rail	SULFURIC ACID	CORROSIVE MATERIAL	4	\$100
Mobile	5/27/1997	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	0.03125	\$125
Mobile	7/14/1998	Highway	CORROSIVE LIQUID ACIDIC INORGANIC N.O.S.	CORROSIVE MATERIAL	0.03125	\$200
Mobile	7/14/1997	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	0.0625	\$382
Mobile	2/3/1997	Highway	PETROLEUM DISTILLATES N.O.S. OR PETROLEUM PRODUCTS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	50	\$50
Mobile	10/18/1997	Highway	SULFUR MOLTEN	MISCELLANEOUS HAZARDOUS MATERIAL	30	\$1,000
Mobile	10/30/2006	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	15	\$0
Mobile	6/19/1997	Water	HYDROCHLORIC ACID SOLUTION	CORROSIVE MATERIAL	50	\$19,025
Mobile	2/14/2005	Highway	GASOLINE	FLAMMABLE - COMBUSTIBLE LIQUID	5	\$0

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Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Mobile	2/5/2003	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	3	\$0
Mobile	11/5/1997	Rail	HYDROGEN PEROXIDE	OXIDIZER	1	\$0
Mobile	8/13/2005	Rail	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.0625	\$1,500
Mobile	4/3/2012	Highway	HYPOCHLORITE SOLUTIONS	CORROSIVE MATERIAL	0.039062	\$0
Mobile	11/12/2001	Highway	PHOSPHORIC ACID SOLUTION	CORROSIVE MATERIAL	0.25	\$525
Mobile	12/3/2002	Highway	COMBUSTIBLE LIQUID N.O.S.	COMBUSTIBLE LIQUID	1	\$125
Mobile	5/23/2006	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	8/19/2000	Rail	PETROLEUM GASES LIQUEFIED	FLAMMABLE GAS	0.125	\$0
Mobile	7/21/1999	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.5	\$360
Mobile	5/15/2004	Rail	PHENOL MOLTEN	POISONOUS MATERIALS	15	\$0
Mobile	4/14/2004	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	10	\$125
Mobile	8/13/2002	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	1	\$525
Mobile	7/18/1996	Rail	METHYL ACRYLATE STABILIZED	FLAMMABLE - COMBUSTIBLE LIQUID	0.375	\$0
Mobile	6/22/2001	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	40	\$950
Mobile	7/1/1996	Rail	SODIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	5	\$510
Mobile	1/11/2002	Highway	ORGANOPHOSPHORUS PESTICIDES LIQUID	POISONOUS MATERIALS	2	\$20
Mobile	3/9/2007	Highway	PAINT	COMBUSTIBLE LIQUID	0.125	\$0
Mobile	6/12/2008	Rail	CHLORINE	POISONOUS GAS	0.01671 (Gas Cubic Foot)	\$5,500
Mobile	9/22/1995	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	0.0625	\$125
Mobile	4/5/1995	Rail	COMBUSTIBLE LIQUID N.O.S.	COMBUSTIBLE LIQUID	0.125	\$0

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Mobile	4/19/2005	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	2	\$0
Mobile	1/26/1996	Highway	ENVIRONMENTALLY HAZARDOUS SUBSTANCES SOLID N.O.S.	MISCELLANEOUS HAZARDOUS MATERIAL	50 (Solid Pound)	\$615
Mobile	10/21/1996	Highway	ISOPHORONEDIAMINE	CORROSIVE MATERIAL	0.264172	\$0
Mobile	9/18/1996	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	5	\$0
Mobile	6/21/2004	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	3	\$0
Mobile	8/22/2002	Highway	CORROSIVE LIQUID ACIDIC ORGANIC N.O.S.	CORROSIVE MATERIAL	0.023438	\$525
Mobile	4/21/2006	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	0.25	\$0
Mobile	4/30/2011	Water	ELEVATED TEMPERATURE LIQUID N.O.S.	MISCELLANEOUS HAZARDOUS MATERIAL	13.209	\$0
Mobile	1/15/2009	Highway	PAINT RELATED MATERIAL	FLAMMABLE - COMBUSTIBLE LIQUID	0.75	\$0
Mobile	11/17/2006	Rail	ELEVATED TEMPERATURE LIQUID FLAMMABLE N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.0625	\$0
Mobile	12/11/2013	Highway	PYRETHROID PESTICIDE LIQUID	POISONOUS MATERIALS	50	\$0
Mobile	7/13/1998	Highway	CORROSIVE LIQUID ACIDIC INORGANIC N.O.S.	CORROSIVE MATERIAL	10	\$2,400
Mobile	4/22/2003	Highway	FLAMMABLE LIQUIDS TOXIC N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.125	\$375
Mobile	8/17/2005	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	0.125	\$0
Mobile	4/28/2006	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	1	\$2,010
Mobile	9/2/1995	Highway	FLAMMABLE LIQUIDS CORROSIVE N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	25	\$950
Mobile	9/19/2008	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	0.046875	\$0
Mobile	1/7/2004	Highway	DISODIUM TRIOXOSILICATE	CORROSIVE MATERIAL	0	\$0

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Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Mobile	6/17/1998	Highway	GASOLINE	FLAMMABLE - COMBUSTIBLE LIQUID	500	\$500
Mobile	6/14/2005	Rail	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	8	\$7,840
Mobile	7/14/2014	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	10	\$0
Mobile	3/16/2007	Highway	PAINT	COMBUSTIBLE LIQUID	4	\$0
Mobile	9/6/2001	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	0.03125	\$355
Mobile	12/28/2001	Highway	PHOSPHORIC ACID SOLUTION	CORROSIVE MATERIAL	0.25	\$525
Mobile	5/18/2000	Highway	POTASSIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	0.0625	\$0
Mobile	12/26/2007	Rail	SULFURIC ACID	CORROSIVE MATERIAL	0.25	\$0
Mobile	5/17/2002	Rail	PETROLEUM GASES LIQUEFIED	FLAMMABLE GAS	25	\$5,000
Mobile	4/17/1995	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	0.125	\$125
Mobile	1/11/2002	Highway	ORGANOPHOSPHORUS PESTICIDES LIQUID	POISONOUS MATERIALS	2	\$20
Mobile	4/24/2007	Rail	POTASSIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	2	\$5,000
Mobile	7/15/1998	Highway	ORGANIC PEROXIDE TYPE B SOLID	ORGANIC PEROXIDE	0.5 (Solid Pound)	\$300
Mobile	1/30/2002	Rail	AMMONIA ANHYDROUS	NONFLAMMABLE COMPRESSED GAS	1.25 (Gas Cubic Foot)	\$2,510
Mobile	11/17/2006	Rail	ELEVATED TEMPERATURE LIQUID FLAMMABLE N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.0625	\$0
Mobile	3/10/1999	Rail	CARBON DIOXIDE REFRIGERATED LIQUID	NONFLAMMABLE COMPRESSED GAS	401.25	\$0
Mobile	9/29/2006	Rail	AMINE FLAMMABLE CORROSIVE N.O.S. OR POLYAMINES FLAMMABLE CORROSIVE N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	12/31/1999	Rail	AMMONIA ANHYDROUS	NONFLAMMABLE COMPRESSED GAS	0	\$0

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Mobile	6/5/1995	Highway	DISINFECTANTS LIQUID CORROSIVE N.O.S.	CORROSIVE MATERIAL	0.007813	\$125
Mobile	3/8/2001	Rail	PETROLEUM DISTILLATES N.O.S. OR PETROLEUM PRODUCTS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	8/16/2010	Highway	HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURES	OXIDIZER	0.5	\$0
Mobile	6/15/1995	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$125
Mobile	5/28/2003	Rail	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	9/19/2007	Highway	BATTERIES WET FILLED WITH ACID ELECTRIC STORAGE	CORROSIVE MATERIAL	160 (Solid Pound)	\$1,500
Mobile	4/3/1996	Rail	ETHANOLAMINE OR ETHANOLAMINE SOLUTIONS	CORROSIVE MATERIAL	1	\$0
Mobile	2/11/2010	Rail	AMMONIUM NITRATE	OXIDIZER	500	\$5,900
Mobile	8/27/2009	Rail	SODIUM ALUMINATE SOLUTION	CORROSIVE MATERIAL	0.625	\$0
Mobile	12/9/2002	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	2.11	\$525
Mobile	5/3/2002	Highway	CORROSIVE LIQUID ACIDIC INORGANIC N.O.S.	CORROSIVE MATERIAL	1	\$525
Mobile	8/10/2007	Highway	DYE INTERMEDIATES LIQUID CORROSIVE N.O.S.	CORROSIVE MATERIAL	15	\$3,315
Mobile	10/17/2006	Rail	ACETONE	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	4/12/2004	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.0625	\$395
Mobile	9/3/2014	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	9	\$0
Mobile	4/16/2007	Highway	BATTERIES WET FILLED WITH ACID ELECTRIC STORAGE	CORROSIVE MATERIAL	1 (Solid Pound)	\$0
Mobile	6/19/2000	Rail	SULFURIC ACID	CORROSIVE MATERIAL	0.125	\$1,260

Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Mobile	10/12/2006	Highway	HYDROCHLORIC ACID SOLUTION	CORROSIVE MATERIAL	20	\$0
Mobile	10/29/2008	Highway	ETHANOL SOLUTIONS	FLAMMABLE - COMBUSTIBLE LIQUID	0.5	\$0
Mobile	1/24/1996	Highway	FUEL OIL (NO. 1 2 4 5 OR 6)	FLAMMABLE - COMBUSTIBLE LIQUID	4300	\$62,300
Mobile	8/12/2014	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	0.25	\$0
Mobile	9/2/2001	Rail	METHYL TERT-BUTYL ETHER	FLAMMABLE - COMBUSTIBLE LIQUID	0	\$0
Mobile	4/24/2008	Rail	PETROLEUM DISTILLATES N.O.S. OR PETROLEUM PRODUCTS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	2	\$2,010
Mobile	12/17/1999	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	5	\$0
Mobile	7/23/2002	Highway	SULFURIC ACID	CORROSIVE MATERIAL	5	\$0
Mobile	3/11/2009	Highway	HYDROGEN PEROXIDE AQUEOUS SOLUTIONS	OXIDIZER	0.125	\$1,500
Mobile	12/6/2013	Highway	RESIN SOLUTION	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	9/14/2000	Highway	HYDROCHLORIC ACID SOLUTION	CORROSIVE MATERIAL	330	\$15,131
Mobile	6/21/2011	Highway	ACETONE	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	9/20/2006	Highway	ACETIC ACID GLACIAL OR ACETIC ACID SOLUTION	CORROSIVE MATERIAL	1.5	\$0
Mobile	3/28/2001	Highway	PRINTING INK	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$375
Mobile	9/3/1996	Highway	VINYLTOLUENES STABILIZED	FLAMMABLE - COMBUSTIBLE LIQUID	10	\$395
Mobile	3/9/2005	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	11/5/2002	Highway	BORON TRIFLUORIDE DIHYDRATE	CORROSIVE MATERIAL	1.5	\$0

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Mobile	1/6/2009	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	2	\$650
Mobile	5/1/2000	Highway	ACRYLAMIDE SOLID	POISONOUS MATERIALS	2	\$0
Mobile	2/15/1996	Rail	TURPENTINE	FLAMMABLE - COMBUSTIBLE LIQUID	0.125	\$0
Mobile	4/10/1995	Rail	PETROLEUM DISTILLATE	COMBUSTIBLE LIQUID	0	\$0
Mobile	10/20/2000	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	52	\$500
Mobile	6/25/1999	Highway	COMBUSTIBLE LIQUID N.O.S.	COMBUSTIBLE LIQUID	10	\$1
Mobile	2/25/2010	Rail	PETROLEUM GASES LIQUEFIED	FLAMMABLE GAS	0.25	\$0
Mobile	8/18/1998	Highway	CARBON DIOXIDE REFRIGERATED LIQUID	NONFLAMMABLE COMPRESSED GAS	3125	\$1,950
Mobile	6/13/1995	Highway	ETHYL ACETATE	FLAMMABLE - COMBUSTIBLE LIQUID	0.007813	\$321
Mobile	6/22/2000	Air	PETROLEUM DISTILLATES N.O.S. OR PETROLEUM PRODUCTS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.023776	\$0
Mobile	9/22/1996	Highway	CORROSIVE SOLIDS N.O.S.	CORROSIVE MATERIAL	120	\$500
Mobile	12/17/2007	Highway	CAUSTIC ALKALI LIQUIDS N.O.S.	CORROSIVE MATERIAL	0.2	\$0
Mobile	5/15/1995	Highway	COMPOUND CLEANING LIQUID (CONTAINING PHOSPHORIC ACID ACETIC ACID SODIUM HYDROXIDE OR POTASSIUM HYDROXIDE)	CORROSIVE MATERIAL	0.03125	\$335
Mobile	11/12/2013	Highway	DIESEL FUEL	FLAMMABLE - COMBUSTIBLE LIQUID	7500	\$307,817
Mobile	9/21/1997	Highway	GASOLINE	FLAMMABLE - COMBUSTIBLE LIQUID	5	\$5
Mobile	8/12/2008	Highway	GASOLINE	FLAMMABLE - COMBUSTIBLE LIQUID	5	\$1,020
Mobile	7/2/1996	Rail	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	30	\$20,120

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Mobile	7/26/2004	Highway	METHYL ETHYL KETONE	FLAMMABLE - COMBUSTIBLE LIQUID	0.264172	\$390
Mobile	4/2/2001	Highway	AMMONIA SOLUTION	CORROSIVE MATERIAL	0.858559	\$125
Mobile	5/23/2001	Highway	ADHESIVES CONTAINING A FLAMMABLE LIQUID	FLAMMABLE - COMBUSTIBLE LIQUID	0.25	\$0
Mobile	5/17/2004	Highway	ETHANOL OR ETHYL ALCOHOL OR ETHANOL SOLUTIONS OR ETHYL ALCOHOL SOLUTIONS	FLAMMABLE - COMBUSTIBLE LIQUID	2	\$430
Mobile	1/14/1999	Highway	PHOSPHORIC ACID SOLUTION	CORROSIVE MATERIAL	1	\$75
Mobile	4/19/2013	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	0.15625	\$0
Mobile	10/16/2014	Highway	LACQUER BASE OR LACQUER CHIPS PLASTIC WET WITH ALCOHOL OR SOLVENT	FLAMMABLE - COMBUSTIBLE LIQUID	0.5	\$0
Mobile	10/23/2001	Highway	COMPOUNDS CLEANING LIQUID	CORROSIVE MATERIAL	0.001308	\$360
Mobile	6/1/1998	Highway	CORROSIVE LIQUID ACIDIC ORGANIC N.O.S.	CORROSIVE MATERIAL	0.0625	\$390
Mobile	6/19/2003	Highway	HYDROCARBONS LIQUID N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.99857	\$525
Mobile	7/28/1997	Highway	1 1 1 2- TETRAFLUOROETHANE OR REFRIGERANT GAS R 134A	NONFLAMMABLE COMPRESSED GAS	0.26736 (Gas Cubic Foot)	\$25
Mobile	8/5/1998	Air	N/A		0	\$0
Mobile	4/27/1995	Rail	SULFURIC ACID SPENT	CORROSIVE MATERIAL	0.125	\$0
Mobile	4/5/2005	Highway	POTASSIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	55	\$4,500
Mobile	12/15/2006	Highway	SODIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	5	\$0
Mobile	11/19/1996	Highway	HYDROCHLORIC ACID SOLUTION	CORROSIVE MATERIAL	3	\$55

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Mobile	8/20/2003	Highway	CORROSIVE LIQUID ACIDIC INORGANIC N.O.S.	CORROSIVE MATERIAL	0.078125	\$525
Mobile	11/21/2005	Rail	AMMONIA ANHYDROUS	NONFLAMMABLE COMPRESSED GAS	1.3368 (Gas Cubic Foot)	\$5,000
Mobile	1/10/1999	Highway	HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURES	OXIDIZER	0.046875	\$360
Mobile	9/11/2006	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	2	\$0
Mobile	9/29/2006	Rail	AMINE FLAMMABLE CORROSIVE N.O.S. OR POLYAMINES FLAMMABLE CORROSIVE N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	1/23/2009	Highway	STYRENE MONOMER STABILIZED	FLAMMABLE - COMBUSTIBLE LIQUID	0.5	\$0
Mobile	3/19/2004	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$125
Mobile	1/31/1997	Highway	PETROLEUM DISTILLATES N.O.S. OR PETROLEUM PRODUCTS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	15	\$15
Mobile	9/14/2003	Highway	HYDROCHLORIC ACID SOLUTION	CORROSIVE MATERIAL	0.125	\$370
Mobile	6/30/2005	Rail	BUTYL ACRYLATES STABILIZED	FLAMMABLE - COMBUSTIBLE LIQUID	5	\$2,500
Mobile	9/13/1999	Rail	SULFURIC ACID	CORROSIVE MATERIAL	0	\$0
Mobile	5/18/1995	Rail	SULFURIC ACID	CORROSIVE MATERIAL	1	\$0
Mobile	6/10/1995	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$125
Mobile	5/28/2002	Air	FUEL AVIATION TURBINE ENGINE	FLAMMABLE - COMBUSTIBLE LIQUID	0.039626	\$0
Mobile	7/1/2011	Highway	PAINT RELATED MATERIAL	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	4/7/1998	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.5	\$330

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Mobile	10/3/1996	Highway	SODIUM NITRATE	OXIDIZER	6.25 (Solid Pound)	\$0
Mobile	10/5/1995	Highway	ENVIRONMENTALLY HAZARDOUS SUBSTANCES SOLID N.O.S.	MISCELLANEOUS HAZARDOUS MATERIAL	25 (Solid Pound)	\$650
Mobile	1/21/1999	Rail	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	5	\$1,000
Mobile	10/20/1996	Highway	TOXIC LIQUIDS ORGANIC N.O.S.	POISONOUS MATERIALS	3	\$550
Mobile	3/12/2014	Rail	FUEL OIL (NO. 1 2 4 5 OR 6)	FLAMMABLE - COMBUSTIBLE LIQUID	2	\$520
Mobile	8/23/2001	Highway	SODIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	20	\$1,100
Mobile	10/8/2004	Highway	COMPOUND CLEANING LIQUID (CONTAINING PHOSPHORIC ACID ACETIC ACID SODIUM HYDROXIDE OR POTASSIUM HYDROXIDE)	CORROSIVE MATERIAL	0.25	\$360
Mobile	9/6/2014	Highway	OXIDIZING SOLID CORROSIVE N.O.S.	OXIDIZER	5 (Solid Pound)	\$0
Mobile	3/8/2001	Highway	AMINE FLAMMABLE CORROSIVE N.O.S. OR POLYAMINES FLAMMABLE CORROSIVE N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.5	\$1,600
Mobile	6/22/2006	Highway	ALKYL PHENOLS LIQUID N.O.S. (INCLUDING C2-C8 HOMOLOGUES)	POISONOUS MATERIALS	0.007812	\$0
Mobile	3/6/2008	Highway	ETHANOL OR ETHYL ALCOHOL OR ETHANOL SOLUTIONS OR ETHYL ALCOHOL SOLUTIONS	FLAMMABLE - COMBUSTIBLE LIQUID	2.5	\$600
Mobile	12/9/2004	Rail	AMMONIUM NITRATE	OXIDIZER	44000 (Solid Pound)	\$0
Mobile	6/9/2006	Rail	POTASSIUM HYDROXIDE LIQUID	CORROSIVE MATERIAL	10	\$0

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Mobile	7/27/1999	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	0.25	\$0
Mobile	7/8/2004	Air	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	0.03125	\$75
Mobile	3/8/2002	Air	TETRACHLOROETHYLENE	POISONOUS MATERIALS	0.026417	\$0
Mobile	6/5/1998	Highway	HALOGENATED IRRITATING LIQUIDS N.O.S.	POISONOUS MATERIALS	0.5	\$275
Mobile	6/19/1995	Highway	ELEVATED TEMPERATURE LIQUID N.O.S.	MISCELLANEOUS HAZARDOUS MATERIAL	50	\$9,085
Mobile	11/12/1995	Highway	FORMIC ACID WITH MORE THAN 85% ACID BY MASS	CORROSIVE MATERIAL	1	\$25
Mobile	2/26/2008	Rail	COMBUSTIBLE LIQUID N.O.S.	COMBUSTIBLE LIQUID	0.125	\$0
Mobile	5/18/2007	Highway	CORROSIVE LIQUID ACIDIC ORGANIC N.O.S.	CORROSIVE MATERIAL	2	\$0
Mobile	6/20/2000	Highway	SULFURIC ACID WITH MORE THAN 51 PERCENT ACID	CORROSIVE MATERIAL	0.007813	\$355
Mobile	3/15/2000	Air	N/A		0.000132 (Solid Pound)	\$0
Mobile	3/11/1996	Rail	NAPHTHA SOLVENT	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	8/4/2014	Highway	AZODICARBONAMIDE	FLAMMABLE SOLID	0.5	\$0
Mobile	1/20/2014	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	8/22/1996	Highway	ORGANOTIN PESTICIDES LIQUID TOXIC	POISONOUS MATERIALS	55	\$0
Mobile	9/17/2003	Highway	HEPTANES	FLAMMABLE - COMBUSTIBLE LIQUID	0	\$0
Mobile	8/9/1996	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.015625	\$125
Mobile	3/27/1998	Highway	ACETIC ACID GLACIAL OR ACETIC ACID SOLUTION	CORROSIVE MATERIAL	0.125	\$0
Mobile	6/25/2002	Highway	ORGANIC PEROXIDE TYPE E LIQUID	ORGANIC PEROXIDE	0.007813	\$401
Mobile	7/29/1999	Air	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	1.06	\$0

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Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Mobile	3/17/2004	Highway	HYDROGEN PEROXIDE AQUEOUS SOLUTIONS	OXIDIZER	1	\$525
Mobile	7/17/2006	Highway	SULFURIC ACID	CORROSIVE MATERIAL	0.078125	\$1,500
Mobile	8/28/1995	Highway	METHANOL	FLAMMABLE - COMBUSTIBLE LIQUID	0.125	\$125
Mobile	1/30/2001	Highway	PHOSPHORIC ACID SOLUTION	CORROSIVE MATERIAL	0.125	\$0
Mobile	6/14/2000	Highway	HYDROCHLORIC ACID SOLUTION	CORROSIVE MATERIAL	25	\$1,875
Mobile	2/15/2000	Highway	ORGANIC PEROXIDE TYPE B SOLID	ORGANIC PEROXIDE	1 (Solid Pound)	\$355
Mobile	5/31/1995	Rail	SODIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	0.125	\$0
Mobile	8/5/2006	Rail	HYDROCHLORIC ACID SOLUTION	CORROSIVE MATERIAL	1	\$0
Mobile	9/20/2001	Rail	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0	\$0
Mobile	6/12/1998	Highway	CHLORINE	POISONOUS GAS	0.25	\$1
Mobile	6/6/2013	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	11/4/2010	Rail	TRIMETHYLAMINE ANHYDROUS	FLAMMABLE GAS	0.013368 (Gas Cubic Foot)	\$1,500
Mobile	7/9/2003	Highway	HYDROCHLORIC ACID SOLUTION	CORROSIVE MATERIAL	0.09375	\$10
Mobile	8/10/2007	Highway	DYE INTERMEDIATES LIQUID CORROSIVE N.O.S.	CORROSIVE MATERIAL	15	\$3,315
Mobile	1/30/2006	Highway	ETHANOL SOLUTIONS	FLAMMABLE - COMBUSTIBLE LIQUID	9	\$0
Mobile	2/8/1996	Highway	PETROLEUM DISTILLATES N.O.S. OR PETROLEUM PRODUCTS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.015625	\$125
Mobile	4/26/2005	Highway	ETHANOLAMINE SOLUTIONS	CORROSIVE MATERIAL	0.25	\$0
Mobile	9/15/1997	Highway	ADHESIVES CONTAINING A FLAMMABLE LIQUID	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$340

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Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Mobile	3/17/1996	Highway	PETROLEUM DISTILLATES N.O.S. OR PETROLEUM PRODUCTS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$510
Mobile	3/13/2002	Air	DANGEROUS GOODS IN MACHINERY OR DANGEROUS GOODS IN APPARATUS	MISCELLANEOUS HAZARDOUS MATERIAL	0.007925	\$0
Mobile	7/29/2002	Highway	PHOSPHORIC ACID SOLUTION	CORROSIVE MATERIAL	1	\$525
Mobile	1/12/2006	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	1.875	\$0
Mobile	7/30/1996	Highway	METHYL ETHYL KETONE	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	1/8/1997	Rail	SODIUM CHLORATE	OXIDIZER	2000 (Solid Pound)	\$2,400
Mobile	11/17/2006	Rail	ELEVATED TEMPERATURE LIQUID FLAMMABLE N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.0625	\$0
Mobile	1/18/2007	Highway	METHYL ACETATE	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	1/31/2004	Rail	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	2	\$0
Mobile	11/14/2003	Highway	METHANOL	FLAMMABLE - COMBUSTIBLE LIQUID	5	\$0
Mobile	8/25/2004	Highway	ORGANOPHOSPHORUS PESTICIDES LIQUID	POISONOUS MATERIALS	0.0625	\$0
Mobile	12/17/2007	Highway	SULFURIC ACID FUMING	CORROSIVE MATERIAL	0.007812	\$0
Mobile	5/5/1995	Rail	SODIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	2	\$0
Mobile	7/31/1998	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	0.132031	\$0
Mobile	11/20/2004	Rail	POTASSIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	5	\$0
Mobile	10/21/2000	Rail	POTASSIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	1	\$0
Mobile	10/16/1997	Highway	ALKYLPHENOLS LIQUID N.O.S. (INCLUDING C2-C12 HOMOLOGUES)	CORROSIVE MATERIAL	5	\$75

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Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Mobile	6/3/2014	Highway	CHLORINE	POISONOUS GAS	0 (Gas Cubic Foot)	\$26,900
Mobile	12/1/1997	Highway	HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURES	OXIDIZER	0.015625	\$385
Mobile	8/26/1997	Highway	ELEVATED TEMPERATURE LIQUID N.O.S.	MISCELLANEOUS HAZARDOUS MATERIAL	2	\$0
Mobile	1/20/2003	Highway	TETRAHYDROFURAN	FLAMMABLE - COMBUSTIBLE LIQUID	0.5	\$41,505
Mobile	12/9/2000	Rail	TOLUENE	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	1/5/2007	Rail	ACETONE	FLAMMABLE - COMBUSTIBLE LIQUID	0.25	\$0
Mobile	4/7/2010	Rail	FUEL OIL (NO. 1 2 4 5 OR 6)	FLAMMABLE - COMBUSTIBLE LIQUID	2	\$6,510
Mobile	2/11/1995	Rail	HYDROCHLORIC ACID SOLUTION	CORROSIVE MATERIAL	0.125	\$0
Mobile	12/2/1998	Highway	ORGANIC PEROXIDE TYPE B SOLID	ORGANIC PEROXIDE	1 (Solid Pound)	\$460
Mobile	4/26/1999	Highway	HYPOCHLORITE SOLUTIONS	CORROSIVE MATERIAL	100	\$1,050
Mobile	3/17/2007	Rail	DIESEL FUEL	FLAMMABLE - COMBUSTIBLE LIQUID	850	\$7,700
Mobile	6/12/1995	Rail	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	10	\$0
Mobile	9/20/2013	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	3/8/2014	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	10	\$3,050
Mobile	10/4/1996	Rail	DIISOBUTYLAMINE	FLAMMABLE - COMBUSTIBLE LIQUID	2	\$0
Mobile	6/8/2001	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	0.0625	\$0
Mobile	3/9/2007	Rail	ACETONE	FLAMMABLE - COMBUSTIBLE LIQUID	0.125	\$0

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Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Mobile	10/10/2014	Highway	OXIDIZING SOLID CORROSIVE N.O.S.	OXIDIZER	10 (Solid Pound)	\$0
Mobile	5/4/2004	Highway	FUEL OIL (NO. 1 2 4 5 OR 6)	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$125
Mobile	3/18/2005	Highway	SELF-HEATING SOLID INORGANIC N.O.S.	SPONTANEOUSLY COMBUSTIBLE	50	\$0
Mobile	3/30/2005	Highway	EPICHLOROHYDRIN	POISONOUS MATERIALS	100	\$35,000
Mobile	3/27/2001	Air	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.211338	\$0
Mobile	1/19/1995	Rail	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	8/29/2003	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$525
Mobile	3/29/2008	Highway	LIQUEFIED PETROLEUM GAS	FLAMMABLE GAS	0	\$1,915
Mobile	4/18/1997	Highway	METAL POWDERS FLAMMABLE N.O.S.	FLAMMABLE SOLID	0.125 (Solid Pound)	\$380
Mobile	12/18/1998	Rail	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	2	\$0
Mobile	10/7/2014	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	6.25	\$0
Mobile	4/4/1999	Highway	SODIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	1	\$810
Mobile	7/31/1998	Rail	HYDROCHLORIC ACID SOLUTION	CORROSIVE MATERIAL	2	\$0
Mobile	1/6/2003	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	39	\$510
Mobile	5/16/2000	Highway	TETRACHLOROETHYLENE	POISONOUS MATERIALS	0	\$0
Mobile	6/20/2003	Highway	ISOPROPYL BUTYRATE	FLAMMABLE - COMBUSTIBLE LIQUID	0.125	\$525
Mobile	12/8/1995	Rail	POTASSIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	1	\$0
Mobile	1/26/1995	Highway	METHANOL	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$125

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Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Mobile	6/17/2010	Rail	AMMONIA ANHYDROUS LIQUEFIED OR AMMONIA SOLUTIONS	POISONOUS GAS	0.026736 (Gas Cubic Foot)	\$2,000
Mobile	4/8/2002	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	0.0625	\$0
Mobile	8/3/2003	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	1	\$525
Mobile	8/21/1997	Highway	SULFURIC ACID FUMING	CORROSIVE MATERIAL	850	\$180,000
Mobile	11/30/2012	Highway	FUEL OIL (NO. 1 2 4 5 OR 6)	FLAMMABLE - COMBUSTIBLE LIQUID	682	\$20,812
Mobile	7/4/1998	Highway	ORGANIC PEROXIDE SOLID N.O.S.	ORGANIC PEROXIDE	0.5 (Solid Pound)	\$300
Mobile	1/9/2008	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	5	\$0
Mobile	4/20/1998	Air	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	0.264172	\$0
Mobile	1/11/2002	Highway	CAUSTIC ALKALI LIQUIDS N.O.S.	CORROSIVE MATERIAL	0.0625	\$365
Mobile	5/5/2004	Highway	RESIN SOLUTION FLAMMABLE	FLAMMABLE - COMBUSTIBLE LIQUID	0.125	\$125
Mobile	12/12/2005	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.25	\$0
Mobile	4/11/2005	Highway	THIOGLYCOLIC ACID	CORROSIVE MATERIAL	0.0625	\$0
Mobile	9/9/2010	Rail	ELEVATED TEMPERATURE LIQUID N.O.S.	MISCELLANEOUS HAZARDOUS MATERIAL	30	\$0
Mobile	2/15/1995	Highway	METHANOL	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$125
Mobile	11/17/1999	Air	GASOLINE INCLUDES GASOLINE MIXED WITH ETHYL ALCOHOL WITH NOT MORE THAN 10% ALCOHOL	FLAMMABLE - COMBUSTIBLE LIQUID	0.007925	\$0
Mobile	3/22/2001	Rail	METHANOL	FLAMMABLE - COMBUSTIBLE LIQUID	5	\$0
Mobile	7/9/2009	Rail	HYDROCHLORIC ACID SOLUTION	CORROSIVE MATERIAL	10	\$0
Mobile	8/14/2001	Rail	ACRYLAMIDE SOLID	POISONOUS MATERIALS	316	\$338,260

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Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Mobile	11/7/1995	Highway	METHANOL	FLAMMABLE - COMBUSTIBLE LIQUID	0.125	\$2,000
Mobile	7/22/1999	Highway	FLAMMABLE LIQUIDS CORROSIVE N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	5	\$600
Mobile	3/29/2005	Rail	TOLUENE	FLAMMABLE - COMBUSTIBLE LIQUID	3	\$0
Mobile	12/21/2010	Highway	PAINT	COMBUSTIBLE LIQUID	0.5	\$0
Mobile	12/20/2012	Air	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	0	\$0
Mobile	12/13/1995	Rail	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Mobile	2/11/2008	Rail	PETROLEUM DISTILLATES N.O.S. OR PETROLEUM PRODUCTS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.046875	\$0
Mobile	4/20/2007	Highway	BATTERIES WET FILLED WITH ACID ELECTRIC STORAGE	CORROSIVE MATERIAL	0.5 (Solid Pound)	\$0
Mobile	10/31/2000	Rail	SULFURIC ACID SPENT	CORROSIVE MATERIAL	1	\$0
Mobile	6/7/1995	Rail	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.25	\$0
Mobile	7/26/1996	Highway	SULFURIC ACID	CORROSIVE MATERIAL	0.039063	\$125
Mobile	11/9/2010	Rail	SODIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	0.125	\$15,000
Mobile	11/29/2006	Rail	HYDROGEN PEROXIDE AQUEOUS SOLUTIONS	OXIDIZER	0.5	\$0
Mobile	10/27/2003	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.264172	\$525
Mobile	10/1/2003	Highway	ETHANOL OR ETHYL ALCOHOL	FLAMMABLE - COMBUSTIBLE LIQUID	2	\$150
Mobile	7/8/2001	Rail	BUTYL ACETATES	FLAMMABLE - COMBUSTIBLE LIQUID	20	\$1,000
Mobile	5/22/2006	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	1	\$1,400
Mobile	12/21/1995	Rail	SULFURIC ACID SPENT	CORROSIVE MATERIAL	0.0625	\$0

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Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Mobile	2/24/1997	Highway	METHYL METHACRYLATE MONOMER STABILIZED	FLAMMABLE - COMBUSTIBLE LIQUID	55	\$400
Mobile	6/30/1995	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	1	\$125
Mobile	2/7/2005	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.125	\$0
Mobile	9/15/2010	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	0.0625	\$0
Mobile	12/5/2007	Rail	PETROLEUM DISTILLATES N.O.S. OR PETROLEUM PRODUCTS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.125	\$0
Mobile	9/8/1997	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	55	\$0
Mobile	5/30/2000	Highway	CORROSIVE LIQUIDS TOXIC N.O.S.	CORROSIVE MATERIAL	20	\$8,851
Mobile	5/15/2000	Highway	SULFURIC ACID FUMING	CORROSIVE MATERIAL	20	\$200
Prichard	7/8/2010	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	0.13209	\$0
Prichard	7/14/2009	Highway	CAUSTIC ALKALI LIQUIDS N.O.S.	CORROSIVE MATERIAL	1	\$0
Prichard	1/18/2010	Highway	PAINT	COMBUSTIBLE LIQUID	1	\$0
Prichard	8/26/2010	Highway	XYLENES	FLAMMABLE - COMBUSTIBLE LIQUID	0.0625	\$0
Prichard	6/23/2010	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.125	\$0
Prichard	10/16/2010	Highway	AEROSOLS POISONS	NONFLAMMABLE COMPRESSED GAS	0.09375	\$0
Prichard	6/2/2010	Highway	CARBON DIOXIDE	NONFLAMMABLE COMPRESSED GAS	0.01671 (Gas Cubic Foot)	\$0
Prichard	6/9/2010	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.125	\$0
Prichard	4/27/2010	Highway	CAUSTIC ALKALI LIQUIDS N.O.S.	CORROSIVE MATERIAL	0.000528	\$0
Prichard	7/6/2010	Highway	PAINT	COMBUSTIBLE LIQUID	2	\$0
Prichard	3/26/2010	Highway	SODIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	5	\$0
Prichard	7/14/2009	Highway	PAINT	COMBUSTIBLE LIQUID	0.3125	\$0

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Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Prichard	3/26/2010	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	0.039062	\$0
Saraland	3/12/2013	Highway	AMINE LIQUID CORROSIVE FLAMMABLE N.O.S. OR POLYAMINES LIQUID CORROSIVE FLAMMABLE N.O.S.	CORROSIVE MATERIAL	5	\$0
Saraland	11/15/2010	Highway	BATTERIES WET FILLED WITH ACID ELECTRIC STORAGE	CORROSIVE MATERIAL	0.03125 (Solid Pound)	\$0
Saraland	6/18/2007	Highway	CORROSIVE LIQUID BASIC INORGANIC N.O.S.	CORROSIVE MATERIAL	8	\$0
Saraland	8/28/2001	Highway	DICHLOROISOCYANURIC ACID DRY OR DICHLOROISOCYANURIC ACID SALTS	OXIDIZER	2 (Solid Pound)	\$800
Saraland	7/24/2012	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	2	\$0
Saraland	6/29/2004	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	4	\$204
Saraland	9/7/2006	Highway	ACRYLIC ACID STABILIZED	CORROSIVE MATERIAL	0	\$30,000
Saraland	9/10/1997	Highway	METHYL METHACRYLATE MONOMER	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$3
Saraland	8/18/2010	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	0.25	\$0
Saraland	7/6/2012	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	0.01	\$0
Saraland	5/11/2012	Highway	PAINT	FLAMMABLE - COMBUSTIBLE LIQUID	1	\$0
Saraland	11/11/1999	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	0.125	\$0
Saraland	6/27/2002	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	0.5	\$0
Saraland	8/29/2007	Highway	PAINT OR PAINT RELATED MATERIAL	CORROSIVE MATERIAL	0.046875	\$0
Saraland	12/27/2001	Highway	ORGANOPHOSPHORUS PESTICIDES SOLID TOXIC	POISONOUS MATERIALS	2 (Solid Pound)	\$0

Incident City	Date of Incident	Mode of Transportation	Commodity Long Name	Hazardous Class	Quantity Released	Damages
Saraland	6/30/2003	Highway	AMINE LIQUID CORROSIVE FLAMMABLE N.O.S. OR POLYAMINES LIQUID CORROSIVE FLAMMABLE N.O.S.	CORROSIVE MATERIAL	0.125	\$300
Saraland	4/6/2013	Highway	GASOLINE	FLAMMABLE - COMBUSTIBLE LIQUID	23	\$2,400
Saraland	8/18/2000	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	100	\$2,525
Saraland	5/4/2011	Highway	SODIUM HYDROXIDE SOLUTION	CORROSIVE MATERIAL	472.75	\$8,063
Saraland	3/8/1997	Highway	FLAMMABLE LIQUIDS N.O.S.	FLAMMABLE - COMBUSTIBLE LIQUID	10	\$0
Saraland	11/11/1999	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	0.125	\$0
Saraland	6/25/2005	Highway	AMINE LIQUID CORROSIVE FLAMMABLE N.O.S. OR POLYAMINES LIQUID CORROSIVE FLAMMABLE N.O.S.	CORROSIVE MATERIAL	0.007812	\$0
Saraland	12/22/2008	Highway	CORROSIVE LIQUIDS N.O.S.	CORROSIVE MATERIAL	0.0625	\$0
Saraland	6/10/2005	Highway	COMBUSTIBLE LIQUID N.O.S.	COMBUSTIBLE LIQUID	2	\$0
Satsuma	6/27/2001	Highway	CORROSIVE SOLIDS TOXIC N.O.S.	CORROSIVE MATERIAL	8 (Solid Pound)	\$0
Satsuma	3/7/2001	Highway	FUEL OIL (NO. 1 2 4 5 OR 6)	FLAMMABLE - COMBUSTIBLE LIQUID	5	\$5

Source: U.S. Department of Transportation HAZMAT Intelligence Portal

Appendix F
Identification and Analysis of
Mitigation Measures

App. F – Identification and Analysis of Mitigation Measures

1.0 Alternative Mitigation Measures

2.0 Types of Mitigation Measures

1.0 Alternative Mitigation Measures

This appendix documents the range of alternative mitigation measures considered by the Hazard Mitigation Planning Committee (HMPC) in the development of its mitigation strategy and its selection of final action programs for each participating community. This documentation supports the Federal requirement that the plan must identify and analyze “a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure” (44 CFR Section 201.6 (c)(3)(ii)). Included here are the following supporting documents:

1. Types of Mitigation Measures. This list describes the comprehensive range of mitigation measures by program area type (Prevention, Protection, Public Outreach and Awareness, Natural Resources Protection, and Structural Projects types), which was one resource to the HMPC in completing the exercise listed above.
2. Table of Alternative Mitigation Measures. This summary table identifies a measure as an action or project, whether new or existing buildings and infrastructure are affected, and the hazard effects that would be reduced by the measure.

The alternative measures described here are all intended to affect the built environment and thereby reduce loss of life and damages to buildings and infrastructure. Excluded from these alternatives are measures which might propose to establish disaster response procedures. The mitigation plan is not an emergency response, recovery, or preparedness plan. Consequently, all emergency services measures designed to prepare emergency operations plans, train or equip emergency personnel, programs to reduce mobile technological hazards, plans to counter terrorism and the like are not included in the range of alternatives considered for adoption in this plan. Rather, the purpose of these mitigation measures is to decrease the need for response and recovery through long-term mitigation actions and projects; the intent is not to increase capabilities for response to disasters and recovery from the effects.

According to recent FEMA guidance (Local Multi-Hazard Mitigation Planning Guidance, FEMA, July 1, 2008, page 59), “hazard mitigation is defined as any sustained action taken to reduce or eliminate long-term risk to people and property from hazards and their effects.” All of the mitigation measures presented here have been evaluated for compatibility with this recent FEMA definition.

2.0 Types of Mitigation Measures

Prevention Measures. Prevention measures involve adopting and administering ordinances, regulations, programs, and plans that can influence the development of land and buildings to minimize risks of loss due to natural and man-made hazards.

- *Comprehensive Plans and Smart Growth.* Comprehensive plans guide future development over a long-range framework through land use, community facilities, economic development, environmental conservation, public infrastructure, and related planning. Effective comprehensive planning can help create safer and more sustainable communities with improved disaster resistance. By incorporating “Smart Growth” principles in a community’s comprehensive plan, a community can improve the effectiveness and responsiveness of its comprehensive plan to hazards identified in the mitigation planning process. Smart Growth can result in safe growth through these fundamental principles of sustainable community development: (a) promote compact infill development vs. urban sprawl, (b) preserve open space and protect the natural and beneficial functions of flood plains, coastal zones, wetlands, hillsides, and other vulnerable locations; and (c) steer growth away from hazardous areas. A comprehensive plan can designate vulnerable lands for open space uses that would not be incompatible with occasional hazard events. For instance, vulnerable areas subject to flooding, dam failure inundation, landslide risk, and land subsidence could be planned for parks, greenways, wildlife refuges, and other open space uses. For a comprehensive plan to be truly effective, the hazard vulnerability of lands and buildings assessed through the mitigation planning process should influence a community’s comprehensive plan for future land use and development patterns, community facilities, and infrastructure. The comprehensive plan should direct growth toward the most suitable land areas and avoid exposure of new buildings and infrastructure to high risk hazard locations assessed in the mitigation plan. Equally important to the effectiveness of a comprehensive plan, is the integration of planning strategies. A community’s mitigation strategy should be carried over into the goals, objectives and policies of its comprehensive plan.
- *Capital Improvements Plans (CIP).* A CIP can recommend the setting aside of funds for public improvements, including water and sewer service extensions, new community facilities, land acquisitions for open space, emergency service facilities, improvements to retrofit or relocate vulnerable critical facilities, and other capital improvements that can be tied to both the comprehensive plan and the mitigation plan. The CIP schedules capital projects over a 5-6 year time frame, with funding identified. The capital expenditure requirements of high priority projects within a hazard mitigation plan may be included in a CIP. A CIP for public infrastructure improvements, when combined with zoning and land development controls, can establish a growth management program to direct the

location and timing of new development in accordance with a comprehensive plan and smart growth principles to avoid hazard areas.

- *Zoning and Land Development Controls.* The zoning ordinance is the primary tool to regulate development in vulnerable areas by limiting development. Zoning can be combined with a variety of related land development controls and special purpose ordinances. Growth management controls of density and infrastructure improvements may reduce risks in areas exposed to severe hazards, such as flooding, landslides, sinkholes, and other location specific hazards. Limited density controls could be applied to certain zones to discourage future development, or vulnerable areas could be zoned for recreation or agricultural uses or other uses that are compatible with the natural restrictions of the location. Landscaping standards can be incorporated into zoning ordinances to set aside minimum areas for tree and vegetation plantings. Planting areas can be used for drainage and help cool urban environments, as well as improve appearances. Tolerant species can be used to mitigate the effects of drought conditions, often referred to as “xeriscapes.” Other special purpose ordinances might address hillside development by placing limits or setting minimum standards for building construction in steeply-sloped areas that are prone to landslides. Transfer of development rights (TDR) programs are another tool for growth management by allowing landowners to transfer the right to develop one parcel of land to a different parcel of land. This could benefit the developer if incentives are given for building in suitable land areas and not building in hazardous areas.
- *Subdivision Regulations.* These regulations govern how land can be divided into separate lots or sites. Subdivision plats can be required to show hazard areas, such as flood zones, areas subject to landslides, and potential sinkhole locations. The regulations should establish minimum buildable lot areas that are sufficient to meet property protection objectives. Requiring new subdivisions to space buildings, install fire hydrants, and provide adequate access are some of the measures available to reduce the risks of fires.
- *Building and Technical Codes.* Standards can be incorporated into building and technical codes that address resistance against natural hazard threats for all new and substantially improved or repaired buildings. The International Code Series are the latest available codes. Building codes can prohibit loose masonry, overhangs, etc. that might be affected by earthquakes. Building code standards for roof materials and spark arrestors can mitigate fires. Standards can be set for roof construction to protect against wind damage from hurricanes, tornadoes, and severe storms. Performance standards for foundation supports, utility protection, also add to building protection. Design standards can mandate that quality building products and construction applications are used. These codes can better assure quality constructed structures, which are more likely to withstand high winds, severe storms, and other natural hazards. A site plan review process as part of local building permitting can ensure that site elements are organized and planned to lessen the effects of potential hazards on new development.

- *Flood Plain Management Programs.* Participation in the NFIP (National Floodplain Insurance Program) is based on a community agreement with FEMA to meet minimum program requirements, including the adoption and continuing enforcement of a flood plain management ordinance. Flood Insurance Rate Maps (FIRM) are not only a tool for managing flood plain development, but the maps also create broad-based awareness of flood hazards. Flood Insurance Studies and accompanying FIRMs provide the data needed to administer floodplain management programs and to establish flood insurance rates for new and existing buildings. Often, Flood Insurance Rate Maps need updates to reflect changing developing in a given watershed. This may require comprehensive and detailed hydrologic and hydraulic modeling and improved topographic mapping to modernize existing maps. Updated FIRMs may also be needed in “Approximate” flood zones where no flood elevations or profiles are available. DFIRMS or Digital FIRMS can be created for computer and on-line access to maps and data. The Community Rating System (CRS) Program of the (NFIP) is an option that covers all flood hazard mitigation program elements. The CRS rewards communities for conducting a full range of flood mitigation programs that exceed the minimum NFIP requirements by awarding points to achieve a rating classification. Total points determine the class of a community. The higher the class, the more savings to flood insurance holders and more recognition to the successes of the local flood plain management program. With or without CRS participation, a community can establish “Higher Regulatory Standards” for flood plain management. Floodplain management regulations do not prohibit development in the special flood hazard area; instead, the regulations impose construction standards to minimize damages. Communities may adopt more stringent standards than those set forth by the NFIP, such as additional building elevation requirements, additional limitations on building enclosures, and other standards designed to better mitigate flood damages. Another method to improve the effectiveness of flood plain management programs is to appoint a Certified Floodplain Manager (CFM) who has passed minimum criteria of the Association of State Floodplain Managers to administer the community’s ordinance and program.
- *Storm Water Management Regulations.* Development outside of a floodplain can contribute significantly to flooding by creating impervious surfaces or altering natural drainage management systems, which increase storm water runoff. Storm water management is usually addressed in subdivision regulations or other land development controls. Developers are typically required to build retention or detention basins to minimize any increase in runoff rates caused by new or expanded impervious surfaces, or new drainage systems. Generally, there is a prohibition against storm water leaving the site at a rate higher than it did before the development based on a given design storm. One technique is to use wet basins as part of the landscaping plan of a development. It might even be possible to site these basins based on a watershed analysis. Since detention only controls the runoff rates and not volumes, other measures may be applied

for storm water infiltration, such as, swales, infiltration trenches, vegetative filter strips, and permeable paving blocks for parking areas. Erosion and sedimentation control regulations not only assure improved water quality but help preserve the carrying capacity of drainage ways and reduce localized flooding. These regulations are typically a component of a larger storm water management program or included in a storm water management ordinance.

- *Dam Safety Management.* A comprehensive dam safety program should begin with dam failure inundation maps. These areas should be kept clear of new development and preserved as open space to prevent future damages. Flood plain regulations could establish minimum building elevations based on predicted flood elevation in the event of dam failure. Regular dam safety inspections identify risks of failures.
- *Coastal Zone Management Regulations.* The physical factors that have the greatest influence on coastal land loss are reductions in sediment supply, relative sea level rise, and frequent storms. The most important human activities are sediment excavation, river modification, and coastal construction. As a result of these agents and activities, coastal land loss is manifested most commonly as beach/bluff erosion and coastal submergence. Implementation of Coastal Zone Management Plans helps to alleviate some of these problems.
- *Open Space Requirements.* Preserving open space is the most effective method for preventing damages. Open space preservation for flood control should not, however, be limited to the flood plain, since other areas within the watershed may contribute to runoff that exacerbates flooding. Comprehensive plans can identify areas to be preserved by acquisition. Other means, such as purchasing easements or accepting donations of land are also available. Open space can also be protected through maintenance agreements with the landowners, or by requiring developers to dedicate land for parks, public facilities, and drainage.
- *Open Burning Regulations.* Open burning restrictions can be enforced to prevent the spread of wild fires, especially during times of drought when emergency measures could be enacted.
- *Safe Room/Shelter Requirements.* Some communities have enacted safe room or shelter requirements for new housing construction and require community shelters for manufactured home parks, apartment complexes, and other planned residential communities.
- *Public Right-of-Way Maintenance Regulations.* An effective drainage system maintenance program should also include regulations that prevent dumping and littering in ditches and stream channels and require adjoining property owners to keep these areas clear of fallen trees, limbs, dead brush, and any other debris. These efforts not only prevent obstructions to drainage but can also help mitigate wild fires.
- *Critical Facilities Assessments.* Assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) can address building and site vulnerabilities to hazards and

identify damage control measures in the event of severe weather and other natural hazards. This type of assessment can result in a plan to identify a variety of mitigation retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.

- *Geographic Information Systems (GIS).* GIS applies computer technology to hazard mitigation planning by linking data to maps. Detailed property information, socioeconomic data, critical facilities inventories, and hazard locations, among other relevant information, can be continuously updated to provide a complete assessment resource for mitigation planning and other planning studies. HAZUS-MH is a risk assessment tool developed by FEMA to apply loss estimation models for earthquakes, hurricane winds, and flooding within a GIS framework.
- *Technology Programs.* Modern technology has created new opportunities for improving planning systems to support hazard mitigation. These systems can serve dual functions - to monitor hazard events as they happen for disaster warning purposes and to forecast and simulate events for advance planning purposes. The U.S. Geologic Survey (USGS) ALERT gage networks for select rivers and streams allow the National Weather Service (NWS) to handle early recognition of flooding. Local gages to cover high risk flood areas can be integrated into these systems with local EMA access. New technology has become available to monitor tornado activities. A comprehensive system can tie a variety of gages into a single automated network to monitor rainfall, river/stream stages, icy bridges and highways, tornadoes, winds, water quality, chemical spills into water ways, and hazardous air emissions. Remote cameras can enhance the monitoring capabilities of the system. These systems when used to simulate events can test a variety of mitigation alternatives, such as flood simulations, evaluation of structural alternatives on flood levels, and damage estimates from simulated events.
- *Planning Studies.* Planning for areas of special consideration might be considered in certain situations. These planning studies might evaluate the feasibility of various mitigation alternatives to address a specific hazard concern, such as a detailed flood hazard mitigation plan for a stream that updates hydrology, generates new flood profiles, and evaluates economic feasibility of structural and non-structural alternatives using sophisticated economic models. Another example would be geologic investigations to identify areas subject to landslides and recommendations for corrective measures.

Property Protection Measures. Property protection measures protect structures and their occupants and contents from the damaging effects of natural hazard occurrences, including retrofitting existing structures to increase their resistance to damage and exposure of occupants to harm; relocating vulnerable structures and occupants from hazard locations; and conversion of developed land to permanent open space through acquisition and demolition of existing structures.

- *Acquisition Projects.* Acquisition of land in a highly vulnerable zone protects against damages and casualties and converts problem areas into community assets, with accompanying environmental benefits. Acquisition, followed by demolition and conversion of land to permanent open space, is the most appropriate strategy for those buildings that have experienced recurring flood damages and flood insurance claims. This method might also be considered for older buildings with finish floor elevations several feet below predicted flood elevation. Often buildings are too expensive to move or are dilapidated and not worth saving or protecting. Acquisition, like relocation, can be very expensive. Benefit-cost analysis must be used to be certain the damages avoided outweigh the acquisition costs. Less costly alternatives might also be investigated.
- *Building Elevations.* Elevating a flood-prone building above the base flood elevation is sometimes the best flood mitigation strategy. The building could be raised above the flood elevation to prevent interior water damage. This approach could be less costly than relocation or acquisition, and if properly designed the elevated buildings could be less disruptive than creating vacant lots as a result of relocations or acquisitions. Elevation is required by local flood plain regulations for new and substantially improved buildings in a floodplain, and is a commonly-practiced flood hazard prevention method.
- *Flood Proofing.* If a building cannot be elevated, it may be flood proofed. This approach works well in areas of low flood threat and with nonresidential buildings. Flood proofing can be accomplished through barriers to flooding, or by treatment to the structure itself.
 - ✓ *Dry flood proofing* seals a building against the water by coating the walls with waterproofing compounds or plastic sheeting. Openings, such as doors, windows, etc. are closed. Sometimes, manual intervention may be required to implement dry flood proofing, such as installing removable flood shields at doorways.
 - ✓ *Wet flood proofing* is usually considered a last resort measure, since water is intentionally allowed into the building in order to minimize pressure on the structure. This is best applied to unfinished areas, such as warehouses and garages where contents are elevated.
 - ✓ *Barriers*, such as small levees, floodwalls, and berms can keep floodwaters from reaching a building. These are most useful in areas subject to shallow flooding.
 - ✓ *Other flood proofing approaches* range from moving valuable items to higher floors to rebuilding the floodable area. An advantage over other approaches is that simply by moving household goods out of the range of floodwaters, thousands of dollars can be saved in damages.
- *Building Retrofits.* Existing buildings can be retrofitted to safeguard against possible damages. In addition to flood proofing or elevating existing buildings in a flood plain, other retrofits could protect buildings against natural hazards. Retrofitting to add braces/ roof straps and remove overhangs protects against high winds. Storm shutters and applying Mylar to windows and glass surfaces

protects from shattering glass during hurricanes and severe storms. Tie downs of major appliances and other contents may reduce earthquake damage.

- *Building Relocations.* Moving structures out of vulnerable areas, such as high-risk flood plains, dam inundation areas, landslide zones, and land subsidence areas, is a sure way to protect against damage. Relocation is expensive, however, so this approach should not be used except in extreme circumstances, where there are no practical alternatives.
- *Critical Facilities Protection.* Protecting critical facilities is vital. Efforts should be made to retrofit or relocate existing facilities located in high-risk zones or construct new facilities for maximum protection from hazards. Protection of facilities includes not only buildings but also utilities, bridges, and other critical infrastructure.
- *Emergency Power Generation.* Maintaining power in the event of loss during severe storms and other natural hazards is vital for the continuing operation of critical facilities, especially, emergency services, hospitals, elderly housing, water distribution, sewer treatment, and other facilities. Power shut downs could cause major disruptions and consequential damages. Relatively low cost portable generations can supply temporary power to small critical facilities, households, and small businesses.
- *Sewer Backup Protection.* Storm water overloads can cause backup into basements through sanitary sewer lines. Houses that have any kind of connection to a sanitary sewer system - whether it is downspouts, footing drain tile, and/or sump pumps, can be flooded during a heavy rain event. To prevent this, there should be no such connections to the system, and all rain and ground water should be directed onto the ground, away from the building. Floor drain plugs and floor drain standpipes keep water from flowing out of the lowest opening in the house. Overhead sewer keeps water in the sewer line during a backup. Backup valves allow sewage to flow out while preventing backups from flowing into the house.

Public Education and Awareness. Public education and awareness methods educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.

- *Community Hazard Mitigation Plan Distribution.* Internet downloads and CDs are some of the means for mass distribution of the mitigation plan to the public. A fold-out, poster-size summary document could be printed for mass mailings or a special summary document could be published in the Sunday edition of the local newspaper.
- *Flood Map Information.* Flood Insurance Rate Maps (FIRM) developed by FEMA outline the boundaries of the flood hazard areas and provide other valuable information on flooding conditions. These maps can be used by anyone interested in a particular property to determine if it is flood-prone. NFIP

communities can provide this information to the real estate agents, builders, developers and homeowners as a public service.

- *Outreach Projects.* Outreach projects are proactive; they give the public information even if they have not asked for it. Outreach projects are designed to encourage people to seek out more information and take steps to protect themselves and their properties. Outreach programs work, although awareness is not enough. People need to know what they can do about the hazards, so projects should include information on protection measures. Locally designed and run programs are often more effective than national advertising. The following are just a few of the examples of outreach activities:
 - ✓ City or county government newsletters with articles on hazard mitigation.
 - ✓ Notices directed to floodplain residents encouraging the purchase of flood insurance.
 - ✓ Displays in public buildings, malls, festivals, fairs, and other public assembly places, including colorful GIS maps, brochures, and information handouts.
 - ✓ Newspaper articles and special sections addressing hazards.
 - ✓ Radio and TV news releases and interviews shows.
 - ✓ A flood proofing video for cable TV programs and for loan to organizations.
 - ✓ A detailed property owner handbook tailored for local conditions.
 - ✓ Presentations at meetings of neighborhood groups.
- *Hazard Insurance Awareness.* Above and beyond standard property insurance, coverage may be available to property owners for protection against flood damages, if the property is in a community that participates in the National Flood Insurance Program. Any local insurance agent is able to sell flood insurance policies under rules and rates set by FEMA. Flood insurance may also be advisable for properties located in dam inundation areas. Flood insurance is also available for areas outside of mapped flood zones. Flood damage may still occur outside of a flood plain as a result of poor drainage or other causes. Property owners may also purchase additional insurance riders for specific hazard coverages, such as insurance riders for earthquake, landslides, or sinkhole damage.
- *Real Estate Disclosure.* Disclosure of information regarding flood-prone properties is important if potential buyers are to be in a position to mitigate damage. Federally regulated lending institutions are required to advise applicants that a property is in the floodplain. However, this requirement needs to be met only days prior to closing, and by that time, the applicant is typically committed to the purchase. State laws and local real estate practice can help by making this information available to prospective buyers early in the process.
- *Library.* Your local library can serve as a repository for pertinent information on hazards and methods of protection. Some libraries also maintain their own public information campaigns, augmenting the activities of the various governmental agencies involved in hazard mitigation.

- *Technical Assistance.* Certain types of technical assistance are available from the local technical and professional staff to advise on various mitigation alternatives to property owners. Community officials can also set up a service delivery program to provide one-on-one sessions with property owners. An example of technical assistance is the hazard audit, in which a specialist visits a property. The specialist advises the owner of alternative protection measures.
- *Education Programs.* Education can be a great mitigation tool. The earlier education begins the better. Education programs for children can be taught in the schools, park and recreation departments, conservation associations, or youth organizations. An activity can be as involved as course curriculum development or as simple as an explanatory sign near a river. Education programs do not have to be limited to children. Adults can benefit from knowledge of hazards and mitigation measures, and local officials, loaded with this knowledge, can make more informed decisions on mitigation actions.
- *Mass Media Relations.* Newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking are some of the ever changing mass media tools available for increasing public awareness and distributing public information on hazard mitigation topics. Effective media relations are essential to a comprehensive outreach program.
- *NOAA Weather Radio Programs.* The use of inexpensive weather radios in homes and businesses are another means for advance warning and can be promoted as a public service. Some localities may choose to purchase these radios in bulk and distribute them to residents at little or no cost. A corporate sponsor can bear some or all of the costs.

Natural Resources Protection Measures. Natural resources protection measures preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.

- *Wetlands Protection.* Wetlands are capable of storing large amounts of floodwaters, slowing and reducing downstream flows, and filtering the water. Any development that is proposed in a wetland is regulated by either federal and/or state agencies. Depending on the location, the project might fall under the jurisdiction of the U.S. Army Corps of Engineers, which in turn, calls upon several other agencies to review the proposal. Communities may also have local wetland ordinances. Generally, the goal is to protect wetlands by preventing development that would adversely affect them. Mitigation techniques are often employed, which might consist of creating a wetland on another site to replace what would be lost through the development.
- *Open Space Easements and Acquisitions.* Acquiring easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands, assures permanent protection. Acquisitions can be made by a land

trust or a public agency to benefit the public welfare. Often, property owners may be willing to dedicate lands and easements for tax advantages.

- *River/Stream Corridor Restoration and Protection.* Restoration and protection of stream or river banks and riparian zones help restore the natural and beneficial functions to manage floods and filter runoff. Streams should also be protected from dumping. Often, greenways or linear parks along these corridors provide amenities that are compatible with natural functions.
- *Urban Forestry Programs.* A number of cities nationwide have participated in formal urban forestry programs. Urban forestry programs which follow Tree City USA guidelines for public lands and rights-of-way help maintain healthy tree cover for multiple mitigation purposes. Protection and maintenance of the urban forest is especially helpful for the mitigation of wild fires, hillside erosion and landslides, and restoration of stream and river corridors. Combined with effective landscaping regulations, both private and public spaces can be addressed.
- *Water Resources Conservation Programs.* Protection of water quantity and quality through water conservation programs can help mitigate the effects of droughts.
- *Dune and Beach Restoration.* Dune and beach restoration and maintenance can alleviate flooding from hurricanes or severe storms in coastal areas. The dunes provide a natural barrier from the waves and wind which can travel inward causing flooding and major damage to structures.

Structural Projects Measures. Structural projects measures are engineering structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of a hazard on a community.

- *Reservoirs.* Reservoirs control flooding by holding water behind dams or in storage basins. After a flood peaks, water is released or pumped out slowly at a rate the river downstream can handle. Reservoirs are suitable for protecting existing development, and they may be the only flood control measure that can protect development close to a watercourse. They are most efficient in deeper valleys or on smaller rivers where there is less water to store. Reservoirs might consist of man-made holes dug to hold the approximate amount of floodwaters, or even abandoned quarries. As with other structural projects, reservoirs projects have drawbacks, as follows:
 - expensive
 - occupy a lot of land
 - require periodic maintenance
 - may fail to prevent damage from floods that exceed design levels
 - may eliminate the natural and beneficial functions of the floodplain.

Reservoirs should only be used after a thorough watershed analysis that identifies the most appropriate location, and ensures that they would not cause flooding somewhere else. Because they are so expensive and usually involve

more than one community, they are typically implemented with the help of state or federal agencies, such as the Army Corps of Engineers.

- *Levees/Floodwalls.* A commonly known structural flood control measure is either a levee (a barrier of earth) or a floodwall made of steel or concrete erected between the watercourse and the land.
- *Diversions.* A diversion is simply a new channel that sends floodwater to a different location, thereby reducing flooding along an existing watercourse. Diversions can be surface channels, overflow weirs, or tunnels. During normal flows, the water stays in the old channel. During flood flows, the stream spills over the diversion channel or tunnel, which carries the excess water to the receiving water body.
- *Channel Modifications.* Channel modifications include making a channel wider, deeper, smoother, or straighter. These techniques will result in more water being carried away, but as with other structural techniques, it is important to ensure that the modifications do not create or increase a flooding problem downstream.
- *Dredging.* Dredging involves removal of sediment and other deposits in a river or stream bed to restore flood conveyance. It can be costly because the dredged material must be hauled away and disposed of in another location, and the stream or river bed could quickly fill back in with sediment.
- *Drainage Modifications.* These include man-made ditches and storm sewers that help drain areas where the surface drainage system is inadequate or where underground drainage ways may be safer or more attractive. These approaches are usually designed to carry the runoff from smaller, more frequent storms.
- *Storm Sewers.* Mitigation techniques for storm sewers include installing new sewers, enlarging small pipes, street improvements, and preventing back flow. Because drainage ditches and storm sewers convey water faster to other locations, improvements are only recommended for small local problems where the receiving body of water can absorb the increased flows without increased flooding. In many developments, streets are used as part of the drainage system, to carry or hold water from larger, less frequent storms. The streets collect runoff and convey it to a receiving sewer, ditch, or stream. Allowing water to stand in the streets and then draining it slowly can be a more effective and less expensive measure than enlarging sewers and ditches.
- *Drainage System Maintenance.* Ongoing maintenance of streams and drainage channels is necessary if these facilities are to function effectively and efficiently over time. Maintenance of channel growth within or near stream and river channels is important for bank stabilization and to prevent obstructions of drainage flows. Often sediment buildup can impede stream flow. Regular maintenance is necessary for public drainage systems, including constructed components, such as, ditches, culverts, and bridges and natural components, such as swales, intermittent and perennial streams, and stream and river overbank areas. Maintenance assures adequate conveyance of storm and flood

waters. Other maintenance programs to clear dead and dry brush and fallen trees can not only prevent obstructions to drainage but also mitigate wild fires.

- *Dam Modifications.* Unsafe dams can be removed or modified to lessen the risks of dam failure, such as spillway enlargements to lessen hydraulic loads.
- *Ground Stabilization.* Unstable areas susceptible landslides or sinkholes may be stabilized to lessen risk of failure.
- *Community Storm Shelter/Safe Room Construction.* Freestanding, single-purpose community storm shelters or safe rooms within a building used for other purposes can be constructed to provide temporary shelter from hurricanes, tornadoes, and severe storms.

Table F-1. Alternative Types of Mitigation Measures

TYPES OF MITIGATION MEASURES	Action or Project	Affects New or Existing Buildings and Infrastructure	Tornadoes	Flooding	Severe Storms	Winter Storms/Freezes	Hurricanes	Droughts/Heat Waves	Earthquakes	Wildfires	Dam/Levee Failures	Landslides	Sinkholes	Tsunamis	Manmade/ Technical Hazards
PREVENTION MEASURES															
<i>Comprehensive Plans and Smart Growth</i>	Action	Both		X			X			X	X	X	X	X	
<i>Capital Improvements Plans</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X	
<i>Zoning and Land Development Controls</i>	Action	Both		X			X			X	X	X	X	X	
<i>Subdivision Regulations</i>	Action	Both		X			X			X	X	X	X	X	
<i>Building & Technical Codes</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X	
<i>Flood Plain Management Programs</i>	Action	Both		X							X				
<i>Storm Water Management Regulations</i>	Action	Both		X	X										
<i>Dam Safety Management</i>	Action	Both		X							X				
<i>Coastal Zone Management Regulations</i>	Action	Both		X	X		X								
<i>Open Space Requirements</i>	Action	Both		X			X			X		X	X	X	
<i>Open Burning Regulations</i>	Action	Both								X					
<i>Safe Room/Shelter Requirements</i>	Action	Both	X		X		X		X						
<i>Public Right-of-Way Maintenance Regulations</i>	Action	Both		X	X					X					
<i>Critical Facilities Assessments</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X		
<i>Geographic Information Systems</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Technology Programs</i>	Action	Both	X	X			X		X						
<i>Planning Studies</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X	X

APPENDIX F

2015 Mobile County Multi-Hazard Mitigation Plan

TYPES OF MITIGATION MEASURES	Action or Project	Affects Existing or New Buildings and Infrastructure	Tornadoes	Flooding	Severe Storms	Winter Storms/Freezes	Hurricanes	Droughts/Heat Waves	Earthquakes	Wildfires	Dam/Levee Failures	Landslides	Sinkholes	Tsunamis	Manmade/ Technical Hazards
PROPERTY PROTECTION MEASURES															
<i>Acquisitions Projects</i>	Project	Existing		X			X					X	X		
<i>Building Elevations</i>	Project	Existing		X											
<i>Flood Proofing</i>	Project	Existing		X											
<i>Building Retrofits</i>	Project	Existing	X	X	X	X	X	X	X	X				X	
<i>Building Relocations</i>	Project	Existing		X			X					X	X		
<i>Critical Facilities Protection</i>	Project	Existing	X	X	X	X	X	X	X	X					
<i>Emergency Power Generation</i>	Project	Both	X		X	X	X		X						
<i>Sewer Backup Protection</i>	Project	Both		X											
PUBLIC EDUCATION AND AWARENESS MEASURES															
<i>Community Hazard Mitigation Plan Distribution</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Flood Map Information</i>	Action	Both		X			X								
<i>Outreach Projects</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Hazard Insurance Awareness</i>	Action	Both	X	X			X		X	X		X	X	X	
<i>Real Estate Disclosure</i>	Action	Both		X											
<i>Library</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Technical Assistance</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Education Programs</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Mass Media Relations</i>	Action	Both	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>NOAA Weather Radio Programs</i>	Action	Existing	X	X	X	X	X	X	X						

APPENDIX F

2015 Mobile County Multi-Hazard Mitigation Plan

TYPES OF MITIGATION MEASURES

	Action or Project	Affects New or Existing Buildings and Infrastructure	Tornadoes	Flooding	Severe Storms	Winter Storms/Freezes	Hurricanes	Droughts/Heat Waves	Earthquakes	Wildfires	Dam/Levee Failures	Landslides	Sinkholes	Tsunamis	Manmade/ Technical Hazards
NATURAL RESOURCES PROTECTION MEASURES															
<i>Wetlands Protection</i>	Both	Both		X				X					X		
<i>Open Space Easements and Acquisitions</i>	Both	Both		X			X			X		X	X		
<i>River/Stream Corridor Restoration and Protection</i>	Both	Both		X											
<i>Urban Forestry Programs</i>	Both	Both								X					
<i>Water Resources Conservation Programs</i>	Action														
<i>Dune and Beach Restoration</i>	Project	Both		X			X								
STRUCTURAL MEASURES															
<i>Reservoirs</i>	Project	Both		X											
<i>Levees/Floodwalls</i>	Project	Both		X							X				
<i>Diversions</i>	Project	Both		X											
<i>Channel Modifications</i>	Project	Both		X											
<i>Dredging</i>	Project	Both		X											
<i>Drainage Modifications</i>	Project	Both		X											
<i>Storm Sewers</i>	Project	Both		X											
<i>Drainage System Maintenance</i>	Project	Both		X						X					
<i>Dam Modifications</i>	Project	Both		X							X				
<i>Ground Stabilization</i>	Project	Both										X	X		
<i>Community Shelter/Safe Room Construction</i>	Project	Both	X		X		X								

Appendix G
Committee Meeting Documentation

App. G - Committee Meeting Documentation

- 1.0 Establishment of Hazard Mitigation Planning Committee
- 2.0 Committee Meetings
- 3.0 Meeting Agendas and Sign-in Sheets
- 4.0 Authorized Representation Resolutions

1.0 Establishment of Hazard Mitigation Planning Committee

The Hazard Mitigation Planning Committee (HMPC) was first established to oversee the development of the 2005 plan and was reorganized for the 2010 and 2015 plan updates. It provides opportunities for direct involvement by participating jurisdictions and interested organizations and agencies in the planning process. The HMPC convened regularly throughout the drafting phase of the 2015 plan update. The HMPC meetings served as open public forums for discussing hazard risks to Mobile County communities and developing effective strategies to respond to those risks. Meetings were publicly announced and open to public participation. Most Mobile County jurisdictions had direct representation on the HMPC and participated in the meetings. (See Appendix I "Multi-Jurisdictional Participation Activities"). The Town of Mount Vernon, the City of Creola, and the City of Prichard appointed Mr. John Kilcullen of the Mobile County EMA to represent them on the HMPC.

2.0 Committee Meetings

This appendix also documents the HMPC's meeting activities during the drafting phase of this plan, including who was involved in these meetings. Included here are the meeting agendas and sign-in sheets.

Prior to the 2015 plan update period, the HMPC held eight interim meetings to review plan implementation measures and mitigation projects, in accordance with Chapter 7 "Plan Maintenance." Documentation of these meetings is included in this appendix.

After its award of FEMA PDM planning funds in late 2014, the Mobile County EMA established a schedule of five HMPC meetings to oversee the development of this 2015 update and retained Lehe Planning, LLC, as its consultant. From April through December 2015, the HMPC met to complete the plan update. The meetings were held in April, June, August, October and December of 2015. During these interactive meetings, members completed written exercises related to the various components of this plan update and discussed a range of issues, among other meeting activities. These

activities and discussions addressed, among other topics: identifying hazards, profiling hazards, examining the locations of hazards, rating the probability and extents of each hazard, assessing risk and vulnerabilities of buildings and populations, updating goals, reviewing mitigation action alternatives, and updating each community's action program. The completed exercises and results of meeting discussions were used in the formation of this plan update. All of the completed exercises are maintained on file in the Mobile County EMA offices. The agendas and sign-in sheets are included in this appendix. For a more in-depth discussion of the composition and role of the HMPC, see Chapter 4 "The Planning Process".

3.0 Meeting Agendas and Sign-in Sheets

This section documents the HMPC's meeting activities during the drafting phase of this plan, including who was involved in these meetings. The first part of this section includes meeting agendas and sign-in sheets during the 2015 drafting phase of the plan update. Next, the documentation includes the eight interim HMPC meetings held after the adoption of the 2010 plan.

1. 2015 Drafting Phase Meeting Agendas and Sign-In Sheets

Kick-off Meeting
2015 Mobile County Multi-Hazard Mitigation Plan Update
Mobile County EMA
348 McGregor Ave North
Mobile, AL 36608
(251) 460-8000

April 16, 2015
2:00 – 3:30 pm

1. Call to Order
2. Welcome and Opening Remarks
3. HMPC Appointments
4. Introduction of Consultant Team
5. Scope of Updates
 - a. 2015 Plan Update
 - b. Plan Integration
6. Organization of 2015 Plan
 - a. Part I – Comprehensive Plan
 - 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
 - b. Part II – Community Action Programs
 - c. Appendices - Evidence and Supporting Documentation
7. Review Draft Updates
 - a. Introduction - Chapter 1 and App. A Federal Requirements
 - b. Prerequisites - Chapter 2 and App. J Adopting Resolutions
 - c. Plan Maintenance - Chapter 7

8. HMPC Exercise – Hazard Identification and Ratings
9. Meeting Dates and Topics
10. Internet Access: mobile.hazardmitigationplan.com
11. Questions and Answers
12. Other Business

MOBILE COUNTY EMA SIGN IN SHEETS

MEETING: Hazard Mitigation Planning
 MEETING DATE: 4-16-15 2:00 pm

NAME	ORGANIZATION	TELEPHONE	E-MAIL
Jim Lehe	Lehe Plan	805-478-8333	jlehe@leheplans.com
Anthony Louitte	Scraperland	851-300-2672	Slouithe@scraperland.org
SAM RYALS	Chickasaw	251-452-6460	SamRyals@yahoo.com
Kerlin Anne Ryals	Lehe Planning	251-751-8660	LRyals@leheplans.com
JAMES FLAMORIE	CITY OF SCRAPERLAND	251-372-9629	JFLAMORIE@SCRAPERLAND.COM
FRAN LOUITE	MOBILE COUNTY	251-574-3229	flower@mobilecounty.net
JANIE TERRY	CITY OF MOBILE	251-208-7505	terry@cityofmobile.org
Clanady Simpson	Lehe Plan		
Bill Johnson	Chickasaw	533-6550	ljohnson@chickasaw.com
Katherine Fultz	CITY OF SCRAPERLAND	849-8811	katherine.fultz@cityofscraperland.org
MIKE EVANS	MCENNA	851-460-8000	mevans@mcenna.net
John K. Kallen	MCENNA	851-460-8000	jkallen@mcenna.net
Brian Wilkerson	JSU / MCENNA	851-401-4055	bwilkerson@jsu@gmail.com

MOBILE COUNTY EMA SIGN IN SHEETS

MEETING:

Hazard Mitigation Planning

MEETING DATE:

4-16-15 2:00 PM

NAME	ORGANIZATION	TELEPHONE	E-MAIL
Tom Bernard	SARUMA	371-9633	BERNARD@CITYOF.SARUMA.COM
APRIL FINNEM	MOBLOCOMM	574-3229	AGRI.FIN@MOBILECOUNTY.NET
John Forrester	City of Mobile	208-7243	forrester.j@cityofmobile.org
Tom Granger	Burgess Lumbert	544-7400	granger@burgesslumbert.com
Charles Hylton	MAUSS	694-3150	chylton@mauss.com
Curly Allen	Team of Work	861-5525	Curly.Allen@TeamofWork.com

2015 Mobile County Multi-Hazard Mitigation Plan Update

Mobile County EMA
348 N. McGregor Ave.
Mobile, AL 36608
(251) 460-8000

Thursday, June 18, 2015
2:00 – 3:30 pm

1. Call to Order
2. Welcome and Opening Remarks
3. <http://mobile.hazardmitigationplan.com> Updates
4. Review Draft Plan Updates
 - a. Community Profiles – Chapter 3
 - b. Risk Assessment Part A – Chapter 5A (sections 5.1-5.5)
 - c. Appendix D Hazard Ratings and Descriptions
 - d. Appendix E Hazard Profile Data
5. Plan Integration Effort
6. Questions and Answers
7. Next Meeting Dates and Topics
8. Other Business
9. Adjourn

**Mobile County EMA
Hazard Mitigation Planning Committee Meeting
June 18, 2015**

Name	Jurisdiction/Organization	Email Address	Phone Number
Dennis Sullivan	City of Chickasaw	Sullivan@Cityofchickasaw.org	380-8749
Glen Wickell	City of Chickasaw	gwickell@Cityofchickasaw.org	380-8335
John Kilkullen	MCEMA	jkilkullen@mcema.net	460-8000
Anahay Laitte	City of Saraland	slaitte@saraland.org	330-2672
Debi Foster	The Peninsula of Mobile	@gmail.com	377-4485
Tom Granger	Suzqress Consult.	Lgranger@suzqress.com	295-6921
John Forrester	City of Mobile	forresterj@cityofmobile.org	208-7243
Janic Terry	City of Mobile	terryj@cityofmobile.org	208-7505
Laticia Fultz	City of Semmes	laticiafulze@cityofsemmes.org	649-8811
Arl Griffin	Mobile Co. Comm	agriffin@mobilecounty.net	574-3229
Mike Evans	MCEMA	mevans@mcema.net	460-8000

2015 Mobile County Multi-Hazard Mitigation Plan Update

Mobile County EMA
348 N. McGregor Ave.
Mobile, AL 36608
(251) 460-8000

Thursday, August 13, 2015
2:00 – 3:30 pm

1. Call to Order
2. Welcome and Opening Remarks
3. <http://mobile.hazardmitigationplan.com> Updates
4. Review Risk Assessment Part B – Chapter 5B (sections 5.5 – 5.10)
5. Plan Integration Effort
6. HMPC Exercises
 - a. Capabilities
 - b. Plan Implementation Status
7. Questions and Answers
8. Next Meeting Dates and Topics
9. Other Business
10. Adjourn

**Mobile County EMA
Hazard Mitigation Planning Committee Meeting
August 13, 2015**

Name	Jurisdiction/Organization	Email Address	Phone Number
Anthony Lovitte	Saraland	sllovitte@Saraland.org	300-8672
John Kilaullen	MCEMA	jkilaullen@mcema.net	251-460-8000
Ronnie Adair	MCEMA	radair@wcewa.net	460-8000
Mike Evans	MCEMA	mevans@mcewa.net	" "
Bill Holbert	Eggs on the Border	143perc@cityofBayouLaLata.com	251-533-6550
Jim Lehe	Lehe Plans	jlehe@leheplans.com	205-978-3633
Tom Granger	Lehe Planning / Saugress Consulting	tgranger@saugressllc.com	(251) 544-7900
Leigh Anne Ryals	CrawdeGulf Lehe	LRyals@crawdegulf.com	251-459-7430
Andy Swiger	Lehe Planning	alswiger@gmail.com	251-454-0853

2015 Mobile County Multi-Hazard Mitigation Plan Update

Moorer Branch, Mobile Public Library
4 S. McGregor Ave.
Mobile, AL 36608
(251) 460-8000

Wednesday, October 21, 2015
3:00 – 4:00 pm

1. Call to Order
2. Welcome and Opening Remarks
3. <http://mobile.hazardmitigationplan.com> Updates
4. Review Plan Updates
 - a. Mitigation Strategy – Chapter 6
 - b. Appendix B - Community Mitigation Capabilities
 - c. Appendix C - 2010 Plan Implementation Status
 - d. Appendix F – Alternative Mitigation Measures
5. HMPC Exercise
 - Community Action Program
6. Questions and Answers
7. Final Meeting Date and Topic
8. Other Business
9. Adjourn to Community Event

**2015 Mobile County Multi-Hazard Mitigation Plan
October 22, 2015**

Name	Mobile County Resident (Y/N)?	City/Town/Community	Business/Organization (if applicable)
Debra Full	Y	Securies	City of Securies
Lori Bryan	Y	Citroville	City of Citroville
Ronnie Adair	Y	mobile	mobile county EMA
leigh Anna Ryals	N	Lehe Planning	.
Mike Evans	Y	Bemmes	mobile county EMA
John Kibulby	Y	mobile	mobile county EMA
Jan Lehe	N	Lehe Plan	

2015 Mobile County Multi-Hazard Mitigation Plan Update

Mobile County EMA
348 N. McGregor Ave.
Mobile, AL 36608
(251) 460-8000

Thursday, December 10, 2015
2:00 – 3:30 pm

1. Call to Order
2. Welcome and Opening Remarks
3. <http://mobile.hazardmitigationplan.com> Updates
4. Review Draft Plan Updates
 - a. Chapter 4. Planning Process
 - b. Part II. Community Action Programs
5. FEMA Approval Procedures
6. Local Plan Adoption
7. Plan Integration Effort
8. Questions and Answers
9. Other Business
10. Adjourn

2. Agenda and Sign-in Sheets for Interim HMPC meetings (2011-2014)

MOBILE COUNTY EMA SIGN IN SHEETS

MEETING:

~~EMA~~ SBA Damage PDA

MEETING DATE:

JAN 9, 2013

NAME	ORGANIZATION	TELEPHONE	E-MAIL
Ted Masterson	Mobile County	689-8542	T.Masterson@MobileCountyAla
Don Marshall	"	524-3507	DMARSHAL@MOBILECOUNTY.AL
Ronnie Adair	MCEMA	423-5046	radair@mcema.net
David Coggin's	MCEMA	8883900170	david.coggin@mcema.alabama.gov
Roy Price	City of Mobile	888 7263	price@cityofmobile.org
JANIE TERRY	City of Mobile	908-7505	terryj@cityofmobile.org
Dana Woodruff	SBA	404-387-8030	dana.woodruff@sba.gov
Glen Browner	MCEMA	460-8000	sbrowner@mcema.net
Donald Leath	Mobile Co EMA	460-8000	dleath@mcema.net
John K. Luller	Mobile County	460-8000	j.k.luller@mcema.net
Ron Sakis	City of Mobile	258-7199	ronjakis@cityofmobile.org
Theresa Jennings	City of Mobile	208-7199	jenningt@cityofmobile.org
David Daughenbaugh	City of Mobile	205-7091	Daughenbaugh@cityofmobile.org
Pa W. Windley	COM Pul.	208-2901	windley@cityofmobile.com
David Roberts	MCEMA	460-8000	drobert@mcema.net

**MOBILE COUNTY MULTI-HAZARD MITIGATION
PLANNING COMMITTEE**

Agenda

THURSDAY, August 15, 2013

10:00 am

WELCOME/INTRODUCTIONS

DR-4082 HMGP funding allocation

Milestones

Meeting Schedule

Plan Review/Update

- Community Profiles
- Hazard Profiles
- Community Action Plans

OPEN DISCUSSION

ADJOURN

MOBILE COUNTY EMA SIGN IN SHEETS

MEETING: Hazard Mitigation Planning

MEETING DATE: Aug 15, 2013

NAME	ORGANIZATION	TELEPHONE	E-MAIL
John K. Kallen	MCEMA	460-8000	jkallen@mcema.net
Donald Leeth	MCEMA	460-8000	dleeth@mcema.net
Glen Brannon	"	"	gbrannon@mcema.net
Gwendolyn Fugh	MCEMA	689-8914	gugh@womanspugh.com
John Forrester	CITY OF MOBILE	908-7243	forrester@cityofmobile.org
Ronnie Adair	MCEMA	460-8000	radair@mcema.net
Bill Moore	Mayor of Dauphin Island	766-5525	moore@dauphinisland.org
Bill Melton	Mobile Co. Eng.	574-3229	bmelton@mobilecounty.net
Tina Sanchez	Mobile Co.	574-3229	tsanchez@mobilecounty.net
Scott Kerney	City of Mobile	908-7942	kerney@cityofmobile.org
Sam Rauls	City of Clanton	463-9196	Sam.rauls@yaho.com

MOBILE COUNTY EMA SIGN IN SHEETS

MEETING: Joint PBA Meeting

MEETING DATE: 5/6/14

NAME	ORGANIZATION	TELEPHONE	E-MAIL
John K. Leallen	MCEMA	251-460-8000	j.k.leallen@mcema.net
John Windley	Co. M.	251-208-2900	windleyj@cityofmobile.org
Janic Teery	C.D.M.	251-208-7505	terryj@cityofmobile.org
KERRY HANNAH	MAWSS	251-463-7037	KHANNAHE.MAWSS.COM
FRAN HOWE	Mobile County	251-574-3229	flowe@mobilecounty.net
EDDIE KERR	"	"	ekerr@mobilecounty.net
BILL METTON	"	"	hmetton@mobilecounty.net
CRAIG BOLLING	AEMA	205-312-1025	Craig.bolling@ema.alabama.gov
Ronnie Adair	MCEMA	251-460-8000	radair@mcema.net
Chris Wenson	FEMA	810-912-9339	Christopher.Wenson@FEMA.DHS.GOV
Baxter Mann	FEMA	228-243-5849	Cyril.Mannjr@FEMA.dhs.gov

MOBILE COUNTY EMA SIGN IN SHEETS

MEETING:

Joint ADA Mtg #2

MEETING DATE:

5-8-14

NAME	ORGANIZATION	TELEPHONE	E-MAIL
John Kibullen	MCEMA	251-460-8000	jkibullen@mcema.net
Ronnie Adair	MCEWA	251/460-8000	radair@mcewa.net
KERRY HANRAH	MAWS	251-463 7039	khanrahe@maaws.com
FRAN LOWE	MCC	251-574-3229	flowe@mobilecounty.net
Bill Melton	MCC	251-574-3229	bmelton@mobilecounty.net
Eddie Kerr	MCC	251-574-3229	ekerr@mobilecounty.net
Glen Brownson	MCEMA	251-460-8000	gbrownson@mcema.net
Chris Wenson	FEMA	816-912-9239	christopher.wenson@fema.dhs.gov
JANIE TERRY	CoM	251-208-7505	terry@cityofmobile.org

MOBILE COUNTY EMA SIGN IN SHEETS

MEETING: Mobile County Mitigation Plan Meeting

MEETING DATE: 9/30/14

NAME	ORGANIZATION	TELEPHONE	E-MAIL
John K. Leiker	MCEMA	460-3000	j.k.leiker@mcema.net
Ronnie Adair	MCEMA	"	radair@mcema.net
Toni Gungor	Swagers	295-6-9271	tgungor@swagersllc.com
Jim Leiker	Leiker Plan	205-978-2823	jleiker@leikerplan.com
Clayton Snipes	Leiker Plan	251-454-0853	clsnipes@gmail.com
Nike Evans	MCEMA	251-460-3000	nevans@mcema.net

MOBILE COUNTY EMA SIGN IN SHEETS

MEETING: HMGP Meeting FEMA 4174
 MEETING DATE: 22 OCT 2014

NAME	ORGANIZATION	TELEPHONE	E-MAIL
FRAN LOUPE	Mobile County	251-574-8229	floupe@mobilecounty.net
Timon Sanchez	"	"	tsanchez@mobilecounty.net
YANNY NICHOLSON	City of Prichard	402-7901	cnicholson@cityofprichard.org
Nicholas Bodebin	City of Prichard	423-5546	n.bodebin@the-city-of-prichard.org
Dieter Mike Rothard	City of Prichard	452-7920	michael@the-city-of-prichard.org
Laticia Fultz	City of Semmes	649-8811	laticia.fultz@cityofsemmes.org
Jason Fran Klein	"	649-5952	jason.fra.klein@cityofsemmes.org
John K. Lullen	MEMA	460-8000	K.Lullen@memas.net
John Forester	City of Mobile	208-7243	foresterj@cityofmobile.org
Phil McTearl	Mobile Co.	574-3229	pmctearl@mobilecounty.net
Sam Reals	City of Chicklaw	452-6460	Sam.Reals@cityofchicklaw.com
Stacy Rogers	Emergency Services	251-973-1876	stacyrogers@mobilecounty.net
Ronnie Adair	Mobile Co. EMA	460-8000	radair@memas.net
Glen Browner	"	"	gbrowner@memas.net
Mike Evans	"	"	mevans@memas.net

MOBILE COUNTY EMA SIGN IN SHEETS

MEETING: HMGP Meeting FEMA 4176
 MEETING DATE: 22 OCT 2014

NAME	ORGANIZATION	TELEPHONE	E-MAIL
Glenn Johnson	City of Prichard	252-7800	g.johnson@thecityofprichard.org
Adelle Brown	"	"	a.brown@ " "
Walt Dickey	DEMA	267-0326	
Franklin Chapman	City of Prichard	452-7817	F.Chapman@thecityofprichard.org
Deborah Elmore	SATSUMA	377-9629	DEBORAH@CITYOFSAVSUMA.COM
Tom Berand	SATSUMA	377-9633	TBERAND@CITYOFSAVSUMA.COM
Brett Burgen	Browns Gate	751-6140	Mayor@cityofbrownsgate.com
Wanda Dierstrey	FLB	604-3050	assistant@cityofbrownsgate.com

4.0 Authorized Representation Resolutions

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CREOLA, ALABAMA

A Resolution Appointing John Kilcullen, Director of Plans and Operations of the Mobile County Emergency Management Agency (EMA), to serve as its Authorized Representative on the Mobile County Hazard Mitigation Planning Committee (HMPC)

WHEREAS, the City of Creola has limited capability to undertake extensive participation in the preparation of a hazard mitigation plan; and

WHEREAS, John Kilcullen, Director of Plans and Operations of the Mobile EMA is able to act on behalf of the City of Creola in the analysis and development of a hazard mitigation plan; and

WHEREAS, the Mobile County EMA in association with the Mobile County HMPC will oversee the preparation of the 2015 Mobile County Multi-Hazard Mitigation Plan in accordance with Federal Emergency Management Agency (FEMA) guidance and Federal regulations; and

WHEREAS, the Mobile County EMA and HMPC will present a draft copy of the Plan for public comment during the planning process and prior to adoption by the Creola City Council.

NOW THEREFORE BE IT RESOLVED that the City Council hereby authorizes John Kilcullen, Director of Plans and Operations of the Mobile County EMA, to serve on behalf of the City in the preparation of the 2015 Mobile County Multi-Hazard Mitigation Plan, which shall be reviewed and considered for adoption, following a public hearing, by the Council upon its completion.

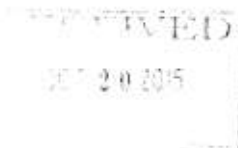
ADOPTED this the 8 day of October, 2015.

APPROVED: Donald Nelson
Donald Nelson

ITS: Mayor

ATTEST: Kim Green
Kim Green

ITS: City Clerk



2015-13-10

**RESOLUTION OF THE TOWN COUNCIL OF THE
TOWN OF MOUNT VERNON, ALABAMA**

A Resolution Appointing John Kilcullen, Director of Plans and Operations of the Mobile County Emergency Management Agency (EMA), to serve as its Authorized Representative on the Mobile County Hazard Mitigation Planning Committee (HMPC)

WHEREAS, the Town of Mount Vernon has limited capability to undertake extensive participation in the preparation of a hazard mitigation plan; and

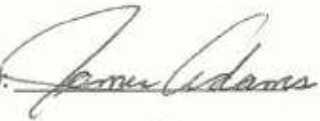
WHEREAS, John Kilcullen, Director of Plans and Operations of the Mobile EMA is able to act on behalf of the Town of Mount Vernon in the analysis and development of a hazard mitigation plan; and

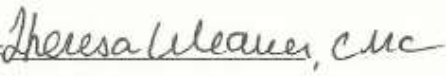
WHEREAS, the Mobile County EMA in association with the Mobile County HMPC will oversee the preparation of the 2015 Mobile County Multi-Hazard Mitigation Plan in accordance with Federal Emergency Management Agency (FEMA) guidance and Federal regulations; and

WHEREAS, the Mobile County EMA and HMPC will present a draft copy of the Plan for public comment during the planning process and prior to adoption by the Mount Vernon Town Council.

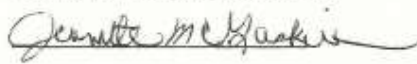
NOW THEREFORE BE IT RESOLVED that the Town Council hereby authorizes John Kilcullen, Director of Plans and Operations of the Mobile County EMA, to serve on behalf of the Town in the preparation of the 2015 Mobile County Multi-Hazard Mitigation Plan, which shall be reviewed and considered for adoption, following a public hearing, by the Council upon its completion.


ADOPTED this the 13th day of October, 2015.

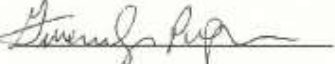
APPROVED: 
James Adams, Mayor

ATTEST: 
Theresa Weaver, CMC
Town Clerk

Johnnie Robinson, Councilwoman


Jeanette McGaskill, Councilwoman


Roosevelt Dean, Councilman


Gwendolyn Pugh, Councilwoman

1387-15

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PRICHARD, ALABAMA

A Resolution Appointing John Kilcullen, Director of Plans and Operations of the Mobile County Emergency Management Agency (EMA), to serve as its Authorized Representative on the Mobile County Hazard Mitigation Planning Committee (HMPC)

WHEREAS, the City of Prichard has limited capability to undertake extensive participation in the preparation of a hazard mitigation plan; and

WHEREAS, John Kilcullen, Director of Plans and Operations of the Mobile EMA is able to act on behalf of the City of Prichard in the analysis and development of a hazard mitigation plan; and


WHEREAS, the Mobile County EMA in association with the Mobile County HMPC will oversee the preparation of the 2015 Mobile County Multi-Hazard Mitigation Plan in accordance with Federal Emergency Management Agency (FEMA) guidance and Federal regulations; and

WHEREAS, the Mobile County EMA and HMPC will present a draft copy of the Plan for public comment during the planning process and prior to adoption by the Prichard City Council.

NOW THEREFORE BE IT RESOLVED that the City Council hereby authorizes John Kilcullen, Director of Plans and Operations of the Mobile County EMA, to serve on behalf of the City in the preparation of the 2015 Mobile County Multi-Hazard Mitigation Plan, which shall be reviewed and considered for adoption, following a public hearing, by the Council upon its completion.

ADOPTED this the 8th day of October, 2015.

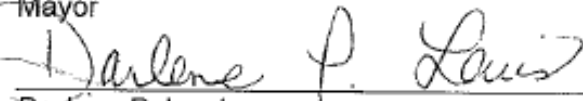
APPROVED:


Troy L. Ephraim

ITS:

Mayor

ATTEST:


Darlene P. Lewis

ITS:

City Clerk

Appendix H
Community Involvement Documentation

App. H - Community Involvement Documentation

- 1.0 Community Involvement Opportunities
- 2.0 Documentation

1.0 Community Involvement Opportunities

This section summarizes the extensive opportunities for community involvement made available throughout the planning process for the Mobile County 2015 plan update, as follows: (See Chapter 4 “Planning Process” for a complete discussion of community involvement in the planning process.

1. The Mobile County Hazard Mitigation Planning Committee (HMPC). This Committee, which was first established in 2004 to oversee the original plan, was reorganized in 2008 to oversee the 2010 update, and then again in April 2015 to prepare this 2015 update. Its primary purposes are to oversee all hazard mitigation planning activities and ensure the plan’s ongoing monitoring and implementation. The HMPC represents all Mobile County jurisdictions, as well as interested stakeholder organizations, and meets at least annually. Its five meetings during the drafting phase of the 2015 plan update were publicly announced and open to public attendance and participation. (For complete documentation of HMPC meetings, refer to Appendix G “Committee Meeting Documentation”, and for a more detailed discussion of the HMPC, refer to Chapter 4 “The Planning Process”).
2. The 2015 Mobile County Multi-Hazard Mitigation Plan Website. The website mobile.hazardmitigationplan.com was active during the drafting phase of the 2015 update. The website was created to encourage “the public, government agencies, colleges and universities, neighboring jurisdictions, businesses and industries, and others concerned with hazard mitigation to become involved in the process of updating the 2015 Mobile County Multi-Hazard Mitigation Plan. The website contained the most recent draft sections of the plan, all meeting materials, including presentation materials, and encouraged public comments through a form on the website. The website provided public information on the HMPC membership, meeting announcements, and contact information for the Mobile County EMA and the consulting team. The most recently adopted plan is maintained on the Mobile County EMA website at mcema.net.
3. Social Media. The public could also participate in the planning process and keep abreast of events through Facebook, Twitter, and LinkedIn.
4. Community Meetings. The HMPC held two community meetings during the drafting phase of the plan. Its first community meeting was held immediately

after the fourth HMPC meeting on October 21, 2015 at the Moorer Branch of the Mobile Public Library. The community meetings were publicly announced through a media release and by postings on Facebook, Twitter, and LinkedIn. The 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.

5. Community Survey. A community survey allowed the public to report their concerns and suggestion. The survey questionnaires were posted on the plan website and distributed at the two community meetings. Thirty-four responses were received and sent to the HMPC members for their consideration.
6. Interagency Involvement. Invitations to review the plan update on the website were sent to agencies and organizations representing neighboring counties, Federal and State governmental agencies, businesses, educational institutions and school boards, and other interested private and non-profit stakeholders in the hazard mitigation planning process.
7. Public Hearings Prior to Adoption. A final opportunity for public comment was afforded immediately before adoption by each local governing body. Following the close for public comments, the plan was adopted by the governing bodies of each jurisdiction.
8. Mobile County EMA Community Relations. The Director and staff of the Mobile County EMA have a longstanding record of strong and effective community relations, which further facilitated community interest and involvement in the 2015 plan update.

2.0 Documentation

This section documents community involvement activities and opportunities, as listed below:

- An image of the 2015 Mobile County Multi-Hazard plan update website at mobile.hazardmitigationplan.com. (Figure H-1).
- An image of Facebook, LinkedIn, and Twitter pages. (Figure H-2).
- The media release by the Mobile County EMA to announce the first community meeting. (Figure H-3).
- Sign in sheets documenting attendance at first community meeting. (Figure H-4).
- The community survey form. (Figure H-5).

- Photos of first community meeting at the Moorer Branch of the Mobile Public Library on October 21, 2015. (Figure H-6).
- The invitation from Lemoyne Industrial Park Board of Directors to attend 2nd community meeting event on November 7, 2015. (Figure H-7).
- Sign in sheets documenting attendance at second community meeting. (Figure H-8)
- Photos of second community meeting event at Creola Municipal Park (Figure H-9).
- The interagency coordination notification sent to interested agencies, organizations, and stakeholders to review the plan.(Figure H-10).

Figure H-1: Image of the Plan Website at mobile.hazardmitigationplan.com



Figure H-2: Images of Social Media Pages

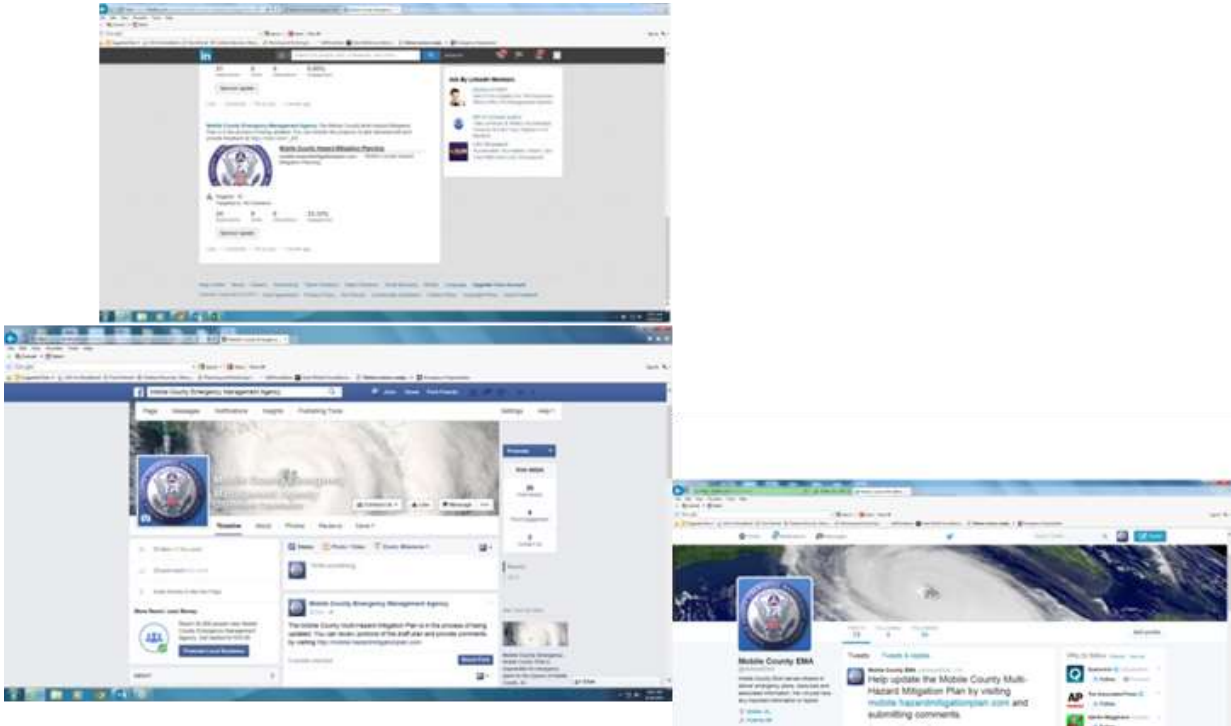


Figure H-3. Media Release



Mobile County Emergency Management Agency
148 North McGregor Avenue / Mobile, AL 36608
Phone: (251) 460-8000 / Fax: (251) 460-8035
Website: www.mcema.net/



FOR IMMEDIATE RELEASE

CONTACT: FOR ADDITIONAL INFORMATION:
John Kilcullen

DATE: October 15, 2015

Mobile County EMA

(251) 460-8000

jkilcullen@mcema.net

Mobile County Seeks Community Input for Mitigation Plan Update

The Mobile County Hazard Mitigation Planning Committee (HMPC) is asking for community input on the update of the Mobile County Multi-Hazard Mitigation Plan. The community event is part of a five-year plan update process to inform the public of and obtain input on changes made to the plan. Through a comprehensive planning process and risk assessment, the plan creates a unified approach among Mobile communities for dealing with identified hazards and associated risk issues. It serves as a guide for Mobile County to reduce community vulnerabilities.

The HMPC effort is scheduled for **Wednesday, October 21, 2015 from 4 to 6 pm**. It is being held in the meeting room of the **Moorer Branch, Mobile Public Library, located at 4 S. McGregor Avenue, Mobile, AL 36608**.

During this open-house style event, the HMPC will have maps, tables, and information from the 2015 plan update on display in the meeting room. The HMPC is asking community members to fill out a survey, which will be made available at the event and also available via the plan's website <http://mobile.hazardmitigationplan.com>. Interested parties can also view and download completed draft chapters from the website.

Mobile Emergency Management Agency, is leading the plan update project in coordination with the selected planning consulting firm, Lehe Planning, LLC. For additional information regarding the update of the Mobile County Multi-Hazard Mitigation Plan, contact John Kilcullen at 251-460-8000 or jkilcullen@mcema.net.

Figure H-4. Sign-in Sheet for First Community Meeting

**Mobile County Community Meeting
2015 Mobile County Multi-Hazard Mitigation Plan
October 22, 2015**

Name	Mobile County Resident (Y/N)?	City/Town/Community	Business/Organization (if applicable)
Jacinthe Tull	Y	Sevilles	City of Sevilles
Lori Bryan	Y	Citronelle	City of Citronelle
Ronnie Adair	Y	mobile	mobile county EMA
leigh Ann Ryals	N	Lehe Planning	.
Mike Evans	Y	Bemmes	mobile county EMA
John Kilsallen	Y	mobile	mobile county EMA
Jan Lehe	N	Lehe Plan	

Figure H-5. Community Survey Form

**Mobile County Community Meeting
2015 Mobile County Multi-Hazard Mitigation Plan**

Name of your community: _____

Of the following hazards, circle the ones that are of most concern to you.

- | | |
|-----------------------|---------------------------------|
| Severe Storms | Hurricanes |
| Tornadoes | Sinkholes |
| Floods | Landslides |
| Droughts/Heat Waves | Wildfires |
| Winter Storms/Freezes | Earthquakes |
| Dam/Levee Failures | Manmade & Technological Hazards |

Do you have any specific concerns for any of the above hazards?

Do you have any recommendations on how to mitigate (lessen the effects of) one or more of the above hazards?

Thank you for your comments.

Figure H-6. Photos of First Community Meeting

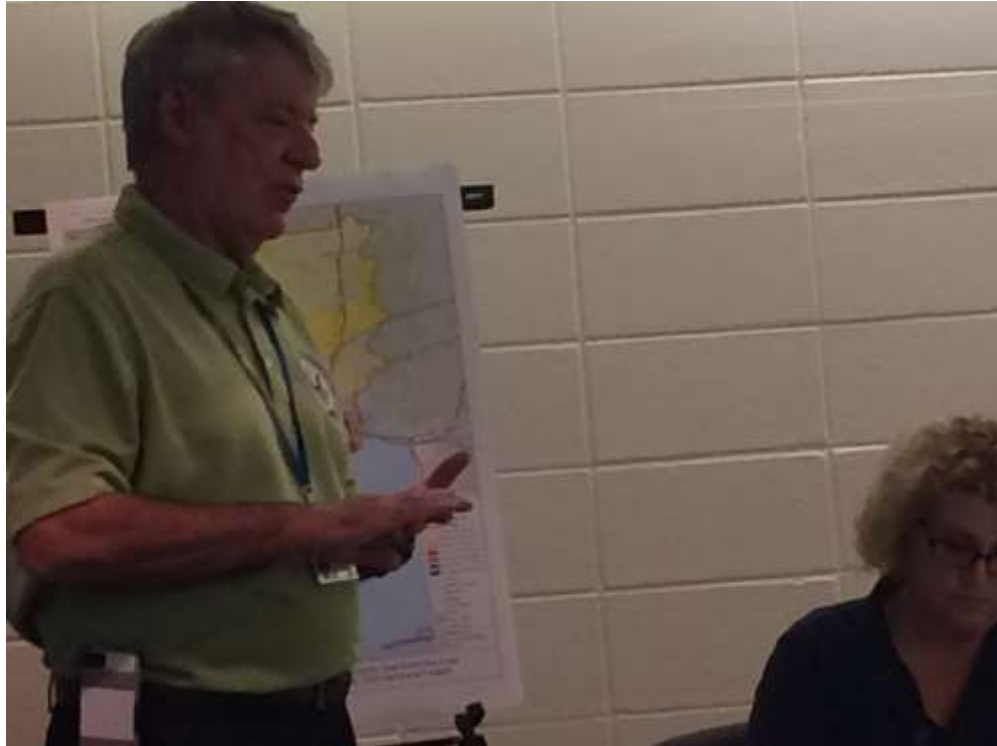


Figure H-7. Confirmation of Second Community Meeting



October 6, 2015

Mr. Mike Evans
Mobile County Emergency Management Agency
348 North McGregor Avenue
Mobile, AL 36608

Dear Mr. Evans:

On behalf of the LeMoyne Industrial Park and the LeMoyne Community Advisory Panel, I would like to invite you to attend our annual Community Day on Saturday, November 7, 2015. The event will be held at Creola Municipal Park, located on the East side of Hwy 43, in Creola from 9:00 am – 1:00 pm.

As in previous years, we are mixing some educational information with an enjoyable day for the family. There will be booths to inform the community about current activities of industries in the Industrial Park. There will be games for the children and entertainment for all with lunch served at 11:30 am.

We hope you will be able to attend. If you have any questions, please call me at 251-829-3841.

I am looking forward to seeing you November 7th.

Sincerely,

A handwritten signature in blue ink that reads "Samantha Johnston".

Samantha Johnston
Board of Directors
LeMoyne Industrial Park

RECEIVED

OCT 08 2015

Figure H-8. Sign-in Sheets for Second Community Meeting

Mobile County Community Outreach
2015 Mobile County Multi-Hazard Mitigation Plan
November 7, 2015

Name	Mobile County Resident Y/N?	City/Town/Community	Business/Organization (if applicable)
Jennifer Lamont	Y	Saraland	
MARY Stewart	Y	Creola	
Royal W. Petters	Y	Saraland	APC
Adam Rene	Y	Saraland	APC
Darigo Apfm	N	Saraland	APC
JOSEPH ENSON	Y	SARASOTA	DuPont
Joseph Stanley	Y	Crestonville, AL.	DuPont
Jimmy Broadhead	Y	Creola AL	
Martha Griffith	Y	Saraland	Lenzing
Teresam'Gay	Y	Axis	Lenzing

Mobile County Community Outreach
 2015 Mobile County Multi-Hazard Mitigation Plan
 November 7, 2015

Name	Mobile County Resident Y/N?	City/Town/Community	Business/Organization (if applicable)
Dawn Riche	Y	Satsoma	Akzo Nobel
Nathanael Riche	Y	Satsoma	-
Ashley Gibson	Y	West Mobile	Akzo Nobel
Christine Stewart	Y	Semmes	
Kylie Complik	Y	AXIS	Eco South
CHIP STEWART	Y	GEMMES	
Charleen Sikes	Y	Saraland	
Angelic Burkes	Y	Mobile	Red Cross
Misty Mosley	Y	REOLA	
Tara Mosley	Y	Gruha	Z Corp
Jana Smith	Y	REOLA	Z Corp

**Mobile County Community Outreach
2015 Mobile County Multi-Hazard Mitigation Plan
November 7, 2015**

Name	Mobile County Resident Y/N?	City/Town/Community	Business/Organization (if applicable)
Tammey Curtis	Y	Sealand AL	Mobile County Schools
Doreen Walker	Y	Sealand AL	
AMANDA BLAUDE	Y	SEALAND, AL.	
Billie Marshall	Y	Sealand 936571	Mgmt. Marketplace

Figure H-9. Photos of Second Community Meeting



Figure H-10 Email for Interagency Coordination

From: Kay Jones [mailto:kayjones@leheplanning.com]
Sent: Friday, November 06, 2015 2:35 PM
To:
Subject: 2015 Mobile County Multi-Hazard Mitigation Plan Update Review

To all concerned:

We are in the process of completing the drafting phase of the update to the 2010 Mobile County Multi-Hazard Mitigation Plan and would like to invite you to review the drafts and provide any additional information or comments you may have pertinent to the mitigation measures set forth in the plan.

The Mobile County Hazard Mitigation Planning Committee met from April through December 2015 to update the plan and, upon completion, will be submitting it to the state EMA office for their review and approval.

You can find the draft plan at <http://mobile.hazardmitigationplan.com/> and may provide any feedback you have to us at Mobile@hazardmitigationplan.com

We appreciate your participation in this planning process.

Thank you.

Kay Jones
Project Administrator

Lehe Planning, LLC
300 Century Park South, Ste. 216
Birmingham, AL 35226-3924
205-978-3633 Office
205-978-3634 Fax
leheplanning.com

Appendix I
Multi-Jurisdictional Participation Activities

App. I - Multi-Jurisdictional Participation Activities

- 1.0 Participation Requirements
- 2.0 Participation Documentation
- 3.0 HMPC Exercises

1.0 Participation Requirements

According to 44 CFR Section 201.6(a)4, “Multi-jurisdictional plans may be accepted, as appropriate, as long as each jurisdiction has participated in the process...” The table in this Appendix illustrates each jurisdiction’s participation within Mobile County in the plan update; qualifying it as a Multi-Jurisdictional Plan.

Each jurisdiction was given the opportunity to participate in every step of the plan update through the Hazard Mitigation Planning Committee (HMPC), from the kick-off meeting on April 16, 2015 to the signing and adoption of the resolutions. Whenever a jurisdiction’s representative was unable to attend a meeting, meeting materials (agendas, Power Point slides, committee exercises, and draft sections of the plan) were posted to the plan website at <http://mobile.hazardmitigationplan.com> for access by that representative, providing an opportunity for absent members to participate in all meetings. The City of Prichard, the City of Creola, and the Town of Mount Vernon appointed John Kilcullen of the Mobile County EMA to act as its HMPC representative (refer to Appendix G “Committee Meeting Documentation” for copies of the appointment resolutions).

2.0 Participation Documentation

Table I-1 included in this Appendix lists each jurisdiction within Mobile County and the various meetings and activities that each jurisdiction could participate in. An X indicates the events in which the jurisdiction chose to participate. Examples and conclusions of the activities are shown in Appendices B through F, and information on the meetings is included in Appendices G and H.

Table I-1 Multi-Jurisdictional Participation Activities*

*Multi-Jurisdictional Participation Activities Mobile County 2015 Plan Update	Mobile Co.	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
HMPC Kick-off Meeting - April 16, 2015	X	X	X		X	X	X	X	X	X	X	X
Hazard Identification and Ratings	X		X		X		X	X	X	X		X
HMPC Meeting 2 –June 18, 2015	X		X		X		X	X	X	X		X
HMPC Meeting 3 –August 13, 2015	X	X			X			X	X	X		
Community Capabilities Assessment	X	X	X	X	X	X	X	X	X	X	X	X
Plan Implementation Status					X			X	X	X		N/A
HMPC Meeting 4 –October 21, 2015	X			X	X			X	X			X
Multi-Jurisdiction Mitigation Action Program					X			X	X	X		X
HMPC Meeting 5–December 10, 2015					X		X	X	X	X		X

X Denotes participation in activity

N/A (not applicable): The City of Semmes was not incorporated when the 2010 plan was prepared.

* All communities were given opportunities to participate in missed HMPC meetings through access to the plan website at <http://mobile.hazardmitigationplan.com/>.

3.0 HMPC Exercises

The HMPC Exercises included in this section have been completed by participating jurisdictions and other interested stakeholders that serve on the Hazard Mitigation Planning Committee (HMPC) or participated in the HMPC meetings. The results have been compiled and incorporated into the contents throughout this plan. Included here are the following exercises:

- (1) **HMPC Hazard Identification and Ratings Exercise.** The results of this exercise are reported in Appendix D “Hazard Ratings and Descriptions” and have been incorporated into Chapter 5 “Risk Assessment” for the hazard identifications and profiles in Sections 5.3 and 5.4.
- (2) **Mobile County Communities Capabilities Assessment.** This exercise helped the planning team determine the capabilities of each jurisdiction to carry out alternative mitigation measures. The results, as reported in Appendix B “Community Mitigation Capabilities,” were used to support the selection of mitigation measures in each of the Community Action Programs.
- (3) **2010 Plan Implementation Status Survey.** This exercise demonstrated compliance with FEMA criteria to evaluate the implementation status of the previous plan. The results were used to identify which mitigation measures to carry over into the 2015 Community Action Programs. See Appendix C “2010 Plan Implementation Status.”
- (4) **Multi-Jurisdictional Mitigation Action Program Exercise** This exercise was used to select mitigation measures to be included in Part II “Community Action Programs” for each jurisdiction.

Mobile County 2015 Multi-Hazard Mitigation Plan Update
HMPC Hazard Identification and Ratings Exercise

Completed by (insert your name and title): _____

Representing (insert your organization): _____

Today's date: _____

Instructions. Please complete the ratings for your jurisdiction(s) of interest, according to the following key.

Key:

LOCATION - WHETHER THE JURISDICTION IS AFFECTED BY THE HAZARD
1 = YES
0 = NO
PROBABILITY - THE LIKELIHOOD THAT THE HAZARD WOULD OCCUR IN THIS JURISDICTION
5 - VERY HIGH
4 - HIGH
3 - MEDIUM
2 - LOW
1 - MINIMUM OR NONE
EXTENT - THE SEVERITY OR MAGNITUDE OF THE HAZARD SHOULD IT OCCUR IN THIS JURISDICTION
5 - VERY HIGH
4 - HIGH
3 - MEDIUM
2 - LOW
1 - MINIMUM OR NONE

Hazard Identification and Ratings Exercise

Hazard	Geographic Area	Location (2015)	Probability (2015)	Extent (2015)
Hurricanes	Mobile County			
	Bayou La Batre			
	Chickasaw			
	Citronelle			
	Creola			
	Dauphin Island			
	Mobile			
	Mount Vernon			
	Prichard			
	Saraland			
	Satsuma			
	Semmes			
	Severe Storms	Mobile County		
Bayou La Batre				
Chickasaw				
Citronelle				
Creola				
Dauphin Island				
Mobile				

Hazard	Geographic Area	Location (2015)	Probability (2015)	Extent (2015)
	Mount Vernon			
	Prichard			
Severe Storms (cont'd)	Saraland			
	Satsuma			
	Semmes			
Tornadoes	Mobile County			
	Bayou La Batre			
	Chickasaw			
	Citronelle			
	Creola			
	Dauphin Island			
	Mobile			
	Mount Vernon			
	Prichard			
	Saraland			
	Satsuma			
	Semmes			
Floods	Mobile County			
	Bayou La Batre			
	Chickasaw			

Hazard	Geographic Area	Location (2015)	Probability (2015)	Extent (2015)
	Citronelle			
	Creola			
	Dauphin Island			
	Mobile			
Floods (cont'd)	Mount Vernon			
	Prichard			
	Saraland			
	Satsuma			
	Semmes			
Wildfires	Mobile County			
	Bayou La Batre			
	Chickasaw			
	Citronelle			
	Creola			
	Dauphin Island			
	Mobile			
	Mount Vernon			
	Prichard			
	Saraland			
	Satsuma			

Hazard	Geographic Area	Location (2015)	Probability (2015)	Extent (2015)
	Semmes			
Droughts/Heat Waves	Mobile County			
	Bayou La Batre			
	Chickasaw			
	Citronelle			
	Creola			
Droughts/Heat Waves (cont'd)	Dauphin Island			
	Mobile			
	Mount Vernon			
	Prichard			
	Saraland			
	Satsuma			
	Semmes			
Winter Storms/Freezes	Mobile County			
	Bayou La Batre			
	Chickasaw			
	Citronelle			
	Creola			
	Dauphin Island			
	Mobile			

Hazard	Geographic Area	Location (2015)	Probability (2015)	Extent (2015)
	Mount Vernon			
	Prichard			
	Saraland			
	Satsuma			
	Semmes			
Earthquakes	Mobile County			
	Bayou La Batre			
	Chickasaw			
Earthquakes (cont'd)	Citronelle			
	Creola			
	Dauphin Island			
	Mobile			
	Mount Vernon			
	Prichard			
	Saraland			
	Satsuma			
	Semmes			
Dam/Levee Failures	Mobile County			
	Bayou La Batre			
	Chickasaw			

Hazard	Geographic Area	Location (2015)	Probability (2015)	Extent (2015)
	Citronelle			
	Creola			
	Dauphin Island			
	Mobile			
	Mount Vernon			
	Prichard			
	Saraland			
	Satsuma			
	Semmes			
Landslides	Mobile County			
Landslides (cont'd)	Bayou La Batre			
	Chickasaw			
	Citronelle			
	Creola			
	Dauphin Island			
	Mobile			
	Mount Vernon			
	Prichard			
	Saraland			
	Satsuma			

Hazard	Geographic Area	Location (2015)	Probability (2015)	Extent (2015)
	Semmes			
Sinkholes (Land Subsidence)	Mobile County			
	Bayou La Batre			
	Chickasaw			
	Citronelle			
	Creola			
	Dauphin Island			
	Mobile			
	Mount Vernon			
	Prichard			
	Saraland			
	Satsuma			
Sinkholes/Land Subsidence (cont'd)	Semmes			
Tsunamis	Mobile County			
	Bayou La Batre			
	Chickasaw			
	Citronelle			
	Creola			
	Dauphin Island			
	Mobile			

Hazard	Geographic Area	Location (2015)	Probability (2015)	Extent (2015)
	Mount Vernon			
	Prichard			
	Saraland			
	Satsuma			
	Semmes			

Comments:

2015 Mobile County Community Capabilities Assessment Exercise

The 2010 Mobile County Multi-Hazard Mitigation Plan includes a comprehensive capabilities assessment for each jurisdiction, except Semmes, which was incorporated after 2010. These items demonstrate your jurisdiction’s capabilities to undertake various hazard mitigation activities. Please review the 2010 responses for your jurisdiction, and mark any items that should be corrected for the 2015 update. Return your exercise to John Kilcullen. We need one response for each community.

Item	Jurisdiction											
	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
PLANNING AND REGULATORY TOOLS												
Adopted Hazard Mitigation Plan	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Comprehensive Plan	N	Y	Y	Y	N	Y	Y	Y	Y	Y	N	
Comprehensive Plan (adopted ≤ 5 years)	N	N	N	N	N	N	N	N	Y	N	N	
Zoning Codes	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Subdivision Regulations	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	
Building Codes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Floodplain Management Ordinance	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Storm Water Management Regulations	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	
Coastal Regulations	N	N	NA	NA	NA	Y	Y	NA	NA	NA	NA	
Urban Forestry/Tree Protection Program	N	N	N	N	N	N	Y	N	Y	Y	N	
Regulations Addressing Conservation/Greenspace Program	N	N	N	N	N	Y	N	N	N	N	Y	
GIS RESOURCES												
Access to a GIS Program	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Maintains its Own GIS	Y	N	N	N	N	N	Y	N	N	N	N	
GIS Inventory of Natural Hazard Areas	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
GIS Inventory of Critical Facilities	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
STAFFING AND ADMINISTRATIVE RESOURCES												
Building Code Staff	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	

Item	Jurisdiction											
	Mobile County	Bayou La Batre	Chickasaw	Citronelle	Creola	Dauphin Island	City of Mobile	Mt. Vernon	Prichard	Saraland	Satsuma	Semmes
Staff Assigned to Administer Floodplain Ordinance	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	
Certified Floodplain Manager	Y	N	N	N	N	N	Y	N	N	N	N	
Engineering Staff	Y	N	N	N	N	N	Y	N	N	N	N	
Professional Engineer on Staff	Y	N	N	N	N	N	Y	N	N	N	N	
Utilizes Engineering Consulting Services	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	
Professional Planning Staff	N	N	N	N	N	N	Y	N	N	N	N	
Participates in Regional Planning Program	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Utilizes Planning Consulting Service	N	N	Y	N	N	N	Y	Y	Y	N	N	
Fiscal Resources												
Submitted Applications for FEMA mitigation grants	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Awarded FEMA Mitigation Grant(s)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	
Initiated mitigation projects funded by other sources	N	N	Y	N	Y	N	Y	Y	Y	N	N	
Has staff capable of writing grants	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	
Public Education and Outreach Programs												
On-going Outreach Program	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Special Program for Education Outreach	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Insurance Service Office (ISO) Ratings												
CRS Classification	10	10	10	10	10	8	10	10	10	10	10	
Property Protection Classification (PPC)	NR	NR	4	7/9	7/9	6/9	3	NR	8	4	5	
Building Code Effectiveness Grading Schedule(BCEGS)	NR	NR	8	5F	7/9	6/6	4	NR	8	NR	NR	

Y = Yes N = No NA = Not Applicable

2015 Mobile County Multi-Hazard Mitigation Plan

2010 PLAN IMPLEMENTATION STATUS SURVEY

Completed by:

Name and TitleInstructions

1. Please return completed survey to John Kilcullen by August 21, 2015.
2. Please limit your response to one per community. If your community has more than one representative on the Hazard Mitigation Planning Committee, you will need to agree on a single response.
3. Please note the status of each mitigation measure your community approved in your Community Action Program from the 2010 Plan. Use the following abbreviations:
 - C** = Completed this 2010 mitigation measure.
 - O** = Completed this ongoing measure and will continue in the 2015 Plan.
 - D** = This 2010 mitigation measure was not completed but defer to the 2015 Plan.
 - X** = Delete: this 2010 mitigation measure was not completed or will no longer be ongoing for the 2015 Plan.
4. If a mitigation measure from the 2010 Plan was not completed, provide the primary reason for not completing it, using one of the following categories:

Lack of Funding – Lack of funding or budget constraints impeded the implementation of the mitigation measure.

Administrative – Inadequate staff resources to implement and maintain the mitigation measure.

Political – Lacks local political support of the mitigation measure.

Technical – Mitigation measure was not technically feasible.

Legal – Lacks the legal authority to implement the mitigation measure.

#	Mitigation Measure	Status	Reason Why Measure Was Not Completed
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.		
1.1.2	Integrate the findings and recommendations of this plan into comprehensive plan amendments for jurisdictions with active comprehensive planning programs.		
1.1.3	Prepare a five-year capital improvements plan (CIP) to include capital projects that implement the natural hazards element of the community's comprehensive plan or projects identified in the Community Mitigation Action Program of this multi-hazard mitigation plan.		
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 drainage structures, dams/levees, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.		
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.		
1.2.3	Mark depths of flooding and storm surge immediately after each event. Enter and maintain these historical records in GIS.		
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.		
1.3.2	Identify existing culturally or socially significant structures and critical facilities within Mobile County that have the most potential for losses from natural hazard events and identify needed structural upgrades.		
1.3.5	Identify problem drainage areas, conduct engineering studies, evaluate feasibility, and construct drainage improvements to reduce or eliminate localized flooding.		
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.		

#	Mitigation Measure	Status	Reason Why Measure Was Not Completed
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.		
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.		
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.		
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.		
1.6.3	Promote the adoption of uniform flood hazard prevention ordinance among all NFIP communities. The ordinance standards should encourage flood plain management that maintains the natural and beneficial functions of flood plains by maximizing the credits that could be obtained for "Higher Regulatory Standards" under the Community Rating System (CRS) Program.		
1.6.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association of Flood Plain Managers and encourage active participation.		
1.6.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.		
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.		
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."		
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.		
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.		
1.10.1	Support legislation to establish a State dam safety program.		
1.11.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.		

#	Mitigation Measure	Status	Reason Why Measure Was Not Completed
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.		
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.		
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.		
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.		
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.		
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.		
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.		
2.5.1	Pursue FEMA grant funds to retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.		
2.5.2	Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.		
2.6.1	Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.		
2.7.1	Install lightning and/or surge protection on existing critical facilities.		
2.8.1	Pursue grant funding for the installation of backup power generators for critical facilities.		

#	Mitigation Measure	Status	Reason Why Measure Was Not Completed
3.1.1	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.		
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.		
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.		
3.4.1	Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.		
3.6.1	Distribute the 2010 plan to local officials, stakeholders, and interested individuals through internet download.		
3.6.2	Distribute the 2010 plan summary to the public through local jurisdictions, via the internet and other media.		
3.9.1	Promote the use of weather radios in households and businesses.		
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.		
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.		
3.10.3	Evaluate the feasibility of a shared tri-county ALERT system covering Baldwin, Escambia, and Mobile counties.		
3.10.4	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.		
3.10.5	Upgrade critical communications infrastructure.		
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.		
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.		
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.		
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).		
4.3.2	Create an integrated wildfire mitigation plan for Mobile County.		

#	Mitigation Measure	Status	Reason Why Measure Was Not Completed
4.4.1	Restore and protect wetlands to enhance stormwater drainage.		
4.4.2	Develop a coastal renourishment program.		
4.5.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.		
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.		
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.		
5.3.2	Pursue grant funds to establish a program for subsidizing safe room and storm shelter construction in appropriate locations and facilities.		
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.		

Multi-Jurisdictional Mitigation Action Program Exercise

Mobile County Hazard Mitigation Planning Committee

Name of Community (town, city, or county), School Board, or Agency:

Prepared

by: _____
(name and position)

Instructions for selecting mitigation measures.

1. For Communities, which include all municipalities and the county government, place an X in the column under the Communities column for all those measures your jurisdiction would like to include in your five-year Community Action Program. Mark through those you want to exclude.
2. For School Boards, place the name of the community next to the mitigation measures to be undertaken within the selected community. Only address those measures that will be undertaken by your school board.
3. For Agencies (State, local, non-profit, etc.), place the name of the community next to the mitigation measure recommended for the selected community. These measures are not necessarily the responsibility of your agency.

If you have additional measures to include, please write them down on the back of this page. Please keep in mind your capabilities to carry out the measure. Some of the measures might be carried out jointly through the Mobile County EMA (e.g., outreach activities), Mobile County (e.g., shared GIS resources), or other agencies. You do not need to identify the funding source at this time.

Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
1	Goal for Prevention. Manage the development of land and buildings to minimize risks of loss due to natural hazards.				
1.1	Comprehensive Plans and Smart Growth. Establish an active comprehensive planning program that is consistent with Smart Growth principles of sustainable community development.				
1.1.1	Maintain up-to-date comprehensive plans for all jurisdictions. Each plan should address natural hazards exposure and include long-term disaster resistance measures. The vulnerability and environmental suitability of lands for future development should be clearly addressed. Local plans should assess the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.	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.	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.	All	Both	Action	Existing
1.2	Geographic Information Systems (GIS). Maintain a comprehensive database of hazards locations, socio economic data, infrastructure, and critical facilities inventories.				
1.2.1	Maintain a centralized, countywide natural hazards and risk assessment database in GIS that is accessible to local planners and emergency management personnel, including such data as, flood zones, geohazards, major drainages structures, dams/levees, hurricane surge areas, tornado tracks, disaster events and their extents, and a comprehensive inventory of critical facilities within all jurisdictions.	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.	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.	Flooding	Both	Action	Existing

Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
1.3 <u>Planning Studies.</u> Conduct special studies, as needed, to identify hazard risks and mitigation measures.					
1.3.1	Carry out detailed planning and engineering studies for sub-basins in critical flood hazard areas to determine watershed-wide solutions to flooding.	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.	All	Existing	Action	TBD
1.3.3	Evaluate elevation and culvert sizing of existing roadways in flash flood-prone areas to ensure compliance with current standards for design year floods, and develop a program for construction upgrades as appropriate.	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.	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.	Flooding	Both	Action	HMA
1.4 <u>Zoning.</u> Establish effective zoning controls, where applicable, to vulnerable land areas to discourage environmentally incompatible land use and development.					
1.4.1	Consider large lot size restrictions on flood prone areas designated on Flood Insurance Rate Maps.	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.	Flooding	Both	Action	Existing
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.	Flooding	Both	Action	Existing
1.4.4	Enact local ordinance that requires community storm shelters within sizeable mobile home parks and subdivisions.	Tornadoes, Hurricanes, Severe Storms	New	Action	Existing

Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
1.5 <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.					
1.5.1	Examine regulatory options and feasibility of requiring open space areas for recreation, landscaping, and drainage control.	Flooding	New	Action	Existing
1.6 <u>Flood Plain Management Regulations.</u> Effectively administer and enforce local floodplain management regulations.					
1.6.1	Train local flood plain managers through programs offered by the State Flood Plain Coordinator and FEMA's training center in Emmitsburg, Maryland.	Flooding	Both	Action	Existing
1.6.2	Maintain a library of technical assistance and guidance materials to support the local floodplain manager.	Flooding	Both	Action	Existing
1.6.4	Maintain membership for locally designated flood plain managers in the Association of State Flood Plain Managers and the Alabama Association Flood Plain Managers and encourage active participation.	Flooding	Both	Action	Existing
1.6.5	Participate in the "Turn Around Don't Drown" program by purchasing and installing signs in known flash flood bridge overpass locations.	Flooding	Existing	Project	Other
1.6.6	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.	Flooding	Both	Project	HMA
1.7 <u>Building and Technical Codes.</u> Review local codes for effectiveness of standards to protect buildings and infrastructure from natural hazard damages.					
1.7.1	Promote good construction practices and proper code enforcement to mitigate structural failures during natural hazard events.	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."	Tornadoes, Hurricanes, Severe Storms	New	Action	Existing

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.		Tornadoes, severe storms, winter storms/freezes, hurricanes	Both	Action	HMA
1.7.4	Ensure fire safety ordinances properly regulate open burning, the use of liquid fuel and electric space heaters.		Wildfires	Both	Action	Existing
1.7.5	Establish and enforce minimum property maintenance standards that reduce or eliminate unsafe structures.		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.		Tornadoes, Hurricanes, Severe Storms	New	Project	HMA
1.8	<u>Landscape Ordinances.</u> Establish minimum standards for planting areas for trees and vegetation to reduce storm water runoff and improve urban aesthetics.					
1.8.1	Review and revise as necessary, landscaping standards for parking lots that reduce the size of impervious surfaces and encourage natural infiltration of rainwater.		New	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.		Wildfires	Both	Action	Existing
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.		Wildfires	Both	Actions	Existing
1.9	<u>Storm Water Management.</u> Manage the impacts of development on storm water runoff rates and to natural drainage systems.					
1.9.1	Promote the adoption/enforcement of storm water management regulations that maintain pre-development runoff rates.		Flooding	Existing	Action	Existing

	Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
1.9.2	Develop, adopt and implement subdivision regulations that require proper storm water infrastructure design and construction.		Flooding	Existing	Action	Existing
1.9.3	Establish urban forestry program to help mitigate storm water runoff common in areas with large impervious surfaces.		Flooding	Both	Action	TBD
1.10	<u>Dam Safety Management.</u> Establish a comprehensive dam safety program.					
1.10.1	Support legislation to establish a State dam safety program.		Dam/Levee Failure	Both	Action	Existing
1.11	<u>Community Rating System Program (CRS).</u> Increase participation of NFIP member communities in the CRS Program.					
1.11.1	Apply for/maintain membership in the CRS Program; continue to upgrade rating.		Flooding	Both	Action	Existing
1.12	<u>Critical Facilities Assessments.</u> Perform assessments of critical facilities (hospitals, schools, fire and police stations, emergency operation centers, special needs housing, and others) to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerability to damage and disruption of operations during severe weather and disaster events.					
1.12.1	Perform vulnerability assessments of critical facilities to identify retrofit projects to improve the safety of occupants and mitigate damages from hazards.		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.		Wildfire	Both	Project	HMA
2	<u>Goal for Property Protection:</u> Protect structures and their occupants and contents from the damaging effects of natural hazards.					
2.1	<u>Building Relocation.</u> Relocate buildings out of hazardous flood areas to safeguard against damages and establish permanent open space.					

	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.		Flooding	Existing	Project	HMA
2.2	<u>Acquisition.</u> Acquire flood prone buildings and properties and establish permanent open space.					
2.2.1	Pursue grant funds to acquire and demolish flood prone or substantially damaged structures and replace with permanent open space.		Flooding	Existing	Project	HMA
2.2.2	Utilize the 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.		Flooding	Existing	Project	HMA
2.3	<u>Building Elevation.</u> Elevate buildings in hazardous flood areas to safeguard against damages.					
2.3.1	Pursue grant funds to subsidize the elevation of certain buildings in flood prone areas where acquisition or relocation is not feasible, with emphasis on Pre-FIRM buildings; where feasible, elevation is preferable to flood proofing.		Flooding	Existing	Project	HMA
2.3.2	Pursue grant funds to repair, elevate and weatherize existing homes for low- to moderate-income families.		Flooding	Existing	Project	HMA
2.4	<u>Flood Proofing.</u> Encourage flood proofing of buildings in hazardous flood areas to safeguard against damages.					
2.4.1	Pursue FEMA grant funds for flood proofing pre-FIRM non-residential buildings, where feasible.		Flooding	Existing	Project	HMA
2.5	<u>Flood Control Measures.</u> Small flood control measures built to reduce/prevent flood damage					

Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
2.5.1 Examine use of minor structural projects (small berm or floodwalls) in areas that cannot be mitigated through non-structural mitigation techniques.		Flooding	Both	Project	HMA
2.6 <u>Building Retrofits.</u> Retrofit vulnerable buildings to protect against natural hazards damages, including flooding, high winds, tornadoes, hurricanes, severe storms, and earthquakes.					
2.6.1 Pursue FEMA grant funds to retrofit existing buildings, critical facilities, and infrastructure against potential damages from natural and manmade hazards.		Flooding, Tornadoes, Hurricanes, Severe Storms and Earthquakes	Existing	Action	HMA
2.6.2 Provide technical advisory assistance to building owners on available building retrofits to protect against natural hazards damages.		Flooding, Tornadoes, Hurricanes, Severe Storms and Earthquakes	Existing	Action	Existing
2.7 <u>Hazard Insurance Awareness.</u> Increase public awareness of flood insurance and special riders that may be required for earthquake, landslide, sinkhole, and other damages typically not covered by standard property protection policies.					
2.7.1 Promote the purchase of insurance coverage by property owners and renters for flood damages in high-risk areas.		All	Existing	Action	Existing
2.7.2 Promote the purchase of crop insurance to cover potential losses due to drought.		Drought	Existing	Action	Existing
2.8 <u>Critical Facilities Protection.</u> Protect critical facilities from potential damages and occupants from harm in the event of hazards through retrofits or relocations of existing facilities located in high-risk zones or construction of new facilities for maximum protection from all hazards.					
2.8.1 Install lightning and/or surge protection on existing critical facilities.		Severe storms	Existing	Project	TBD
2.9 <u>Back Up Power:</u> Assure uninterrupted power supplies during emergency events.					
2.9.1 Pursue grant funding for the installation of back up power generators for critical facilities.		Hurricanes, Tornadoes, Severe Storms	Existing	Project	HMA

Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
<p>3 <u>Goal for Public Education and Outreach.</u> Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property.</p>					
<p>3.1 <u>Map Information.</u> Increase public access to Flood Insurance Rate Map (FIRM) information.</p>					
<p>3.1.1</p> <p>Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.</p>		All	Both	Action	Existing
<p>3.2 <u>Outreach Projects.</u> Conduct regular public events to inform the public of hazards and mitigation measures.</p>					
<p>3.2.1</p> <p>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.</p>		All	Both	Action	Existing
<p>3.2.2</p> <p>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.</p>		All	Existing	Action	Existing
<p>3.2.3</p> <p>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.</p>		All	Both	Action	Existing
<p>3.2.4</p> <p>Distribute outreach materials to citizens, builders and business owners inquiring about a flood problem, a building permit or other natural hazard related questions.</p>		Flooding	Both	Action	Existing
<p>3.3 <u>Real Estate Disclosure.</u> Encourage real estate agents to disclose flood plain location for property listings.</p>					
<p>3.3.2</p> <p>Consider the enactment of a local ordinance or state law to require floodplain location disclosure when a property is listed for sale.</p>		Flooding	Existing	Action	Existing
<p>3.4 <u>Library.</u> Use local library resources to educate the public on hazard risks and mitigation alternatives.</p>					
<p>3.4.1</p> <p>Through local libraries, maintain and distribute free and current publications from FEMA, NWS, USGS, and other federal and state agencies.</p>		All	Both	Action	Existing

Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
3.5 Education Programs. Use schools and other community education resources to conduct programs on topics related to hazard risks and mitigation measures.					
3.5.1	Distribute hazard mitigation brochures to students through area schools.	All	Both	Action	Existing
3.5.2	Educate homeowners about structural and non-structural retrofitting of vulnerable homes.	Earthquake	Both	Action	Existing
3.6 Community Hazard Mitigation Plan Distribution. Distribute the hazard mitigation plan to elected officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution.					
3.6.1	Distribute the 2015 plan to local officials, stakeholders, and interested individuals through internet download.	All	Both	Action	Existing
3.6.2	Distribute the 2015 plan summary to the public through local jurisdictions, via the internet and other media.	All	Both	Action	Existing
3.7 Technical Assistance. Make qualified local government staff available to advise property owners on various hazard risks and mitigation alternatives.					
3.7.1	Provide technical assistance to homeowners, builders, and developers on flood protection alternatives.	Flooding	Both	Action	Existing
3.8 Mass Media Relations. Utilize all available mass media, such as, newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and on-line social networking to increase public awareness and distribute public information on hazard mitigation topics.					
3.8.1	Maintain appropriate media relationships to ensure the public is informed of hazard threats and means to mitigate property damages and loss of life.	All	Both	Action	Existing
3.9 Weather Radios. Improve public access to weather alerts.					
3.9.1	Promote the use of weather radios in households and businesses.	All	Both	Action	Existing

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
3.9.2	Require the installation of weather radios in all public buildings and places of public assembly.		All	Both	Action	Existing
3.9.3	Pursue grant funding to distribute weather radios and emergency response instructions to municipal residents.		All	Both	Action	Existing
3.10	<u>Disaster Warning.</u> Improve public warning systems.					
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.		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.		Flooding	Both	Project	HMA
3.10.3	Evaluate the feasibility of a shared tri-county ALERT system covering Baldwin, Escambia, and Mobile counties.		Flooding	Both	Project	HMA
3.10.4	Upgrade siren-warning systems to provide complete coverage to all jurisdictions.		All	Both	Project	HMA
3.10.5	Upgrade critical communications infrastructure.		All	Both	Project	HMA
4	<u>Goal for Natural Resources Protection.</u> Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.					
4.1	<u>Open Space Easements and Acquisitions.</u> Acquire easements and fee-simple ownership of environmentally beneficial lands, such as hillsides, flood plains, and wetlands to assure permanent protection of these natural resources.					
4.1.1	Increase open space acquisitions through the FEMA HMA Grant Programs and other flood plain acquisition efforts.		Flooding	Existing	Project	HMA
4.2	<u>River/Stream Corridor Restoration and Protection.</u> Restore and protect river and stream corridors within areas.					

Goal, Objectives and Mitigation Measures		Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
4.2.1	Keep builders and developers informed of Federal wetlands permitting requirements of the Corps of Engineers.		Flooding	Both	Action	Other
4.2.2	Adopt and/or enforce regulations prohibiting dumping and littering within river and stream corridors.		Flooding	Existing	Action	Existing
4.3	<u>Urban Forestry Programs.</u> Maintain a healthy forest that can help mitigate the damaging impacts of flooding, erosion, landslides, and wild fires within urban areas.					
4.3.1	Utilize technical assistance available from the Alabama Cooperative Extension System with Best Management Practices (BMP).		Flooding	Existing	Action	Existing
4.3.2	Increase overall green spaces in cities by planting hurricane resistant trees with site and location taken into consideration.		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.		Wildfire	Both	Action	Existing
4.4	<u>Beach and Dune Protection/Renourishment.</u> Protect beaches and dunes from coastal and man-made erosion and renourish.					
4.4.1	Restore and protect wetlands to enhance storm water drainage.		Flooding, Hurricanes	Existing	Action	Other
4.4.2	Develop a coastal renourishment program.		Flooding, Hurricanes	Existing	Action	Other
4.5	<u>Water Resources Conservation Programs.</u> Protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.					
4.5.1	Enforce water use restrictions during periods of drought to conserve existing water supplies.		Droughts/heat waves, wildfires	Both	Action	Existing

Goal, Objectives and Mitigation Measures	Communities	Hazards Addressed	Affects New or Existing Buildings or Infrastructure	Action or Project	Funding Source
5 <u>Goal for Structural Projects.</u> Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of hazards, where feasible, cost effective, and environmentally suitable.					
5.1 <u>Drainage System Maintenance.</u> Improve maintenance programs for streams and drainage ways.					
5.1.1	Prepare and implement standard operating procedures and guidelines for drainage system maintenance.	Flooding	Both	Action	Existing
5.2 <u>Reservoirs and Drainage System Improvements.</u> Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, drainage modifications, and storm sewers.					
5.2.1	Construct drainage improvements to reduce or eliminate localized flooding in identified problem drainage areas.	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.	Drought	Both	Project	HMA
5.3 <u>Community Shelters and Safe Rooms:</u> Provide shelters from natural hazards for the safety of community residents.					
5.3.1	Ensure the inclusion of storm shelters and/or safe rooms in public buildings such as schools and multi-purpose community centers.	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.	Tornadoes, Hurricanes, Severe Storms	Existing	Project	HMA
5.3.3	Encourage the construction of safe rooms in new and existing homes and buildings.	Tornadoes, Hurricanes, Severe Storms	Both	Project	HMA

**Appendix J
Adopting Resolution**

App. J – Adopting Resolution

- 1.0 Purpose
- 2.0 Sample Adopting Resolution

1.0 Purpose

The sample resolution presented here serves as a model for the governing bodies of the participating jurisdictions to adopt the 2015 plan update following a public hearing. Each jurisdiction may modify the sample to fit their particular legal form.

2.0 Sample Adopting Resolution

RESOLUTION OF THE (GOVERNING BODY)

A RESOLUTION ADOPTING THE 2015 MOBILE COUNTY MULTI-HAZARD MITIGATION PLAN, IN FULFILLMENT OF THE FEDERAL DISASTER MITIGATION ACT OF 2000 AND THE LOCAL MITIGATION PLAN REQUIREMENTS OF 44 C.F.R. SECTION 201.6 AND FEMA LOCAL MULTI-HAZARD MITIGATION PLANNING GUIDANCE

WHEREAS, The Federal Disaster Mitigation Act of 2000 (DMA 2000), as administered by the Alabama Emergency Management Agency (AEMA) and the Federal Emergency Management Agency (FEMA) provides Federal assistance to local governments to alleviate suffering and damage from disasters, and broadens existing relief programs to encourage disaster preparedness plans and programs, coordination and responsiveness, insurance coverage, and hazard mitigation measures; and,

WHEREAS, the DMA 2000 requirements for local mitigation plans are set forth in 44 C.F.R. Section 201.6 and the Local Mitigation Planning Handbook, FEMA, March 2013; and,

WHEREAS, as a prerequisite for each Mobile County jurisdiction to continue to qualify for FEMA mitigation grant assistance programs, the DMA 2000 requires the five-year update of the 2010 Mobile County Multi- Hazard Mitigation Plan, which was approved by FEMA upon its local adoption on March 22, 2011; and,

WHEREAS, the AEMA had awarded a \$30,000.00 planning grant funded through the FEMA Pre-Disaster Mitigation (PDM) grant program (HMGP) to the Mobile County EMA to fund 75% of the total cost of the five-year plan update for all jurisdictions within Mobile County; and,

WHEREAS, the 2015 Mobile County Multi-Hazard Mitigation Plan has been prepared in accordance with DMA 2000 requirements under the direction of the Mobile County Hazard Mitigation Planning Committee with the support of the Mobile County EMA, on behalf of all of the jurisdictions within Mobile County; and,

WHEREAS, said mitigation plan addresses all natural hazards deemed to threaten property and persons within the unincorporated and incorporated areas of Mobile County; and,

WHEREAS, the Federal planning criteria require formal adoption of the FEMA-approved plan update by each participating jurisdiction.

NOW THEREFORE, BE IT RESOLVED that the 2015 Mobile County Multi-Hazard Mitigation Plan is hereby adopted and immediately made effective.

ADOPTED this the _____ day of _____, 20____.

APPROVED: _____

ITS: _____

ATTEST: _____

ITS: _____