SECTION 1

INTRODUCTION

This section provides a general introduction to the MEMA District 8 Regional Hazard Mitigation Plan. It consists of the following five subsections:

- 1.1 Background
- 1.2 Purpose
- 1.3 Scope
- 1.4 Authority
- 1.5 Summary of Plan Contents

1.1 BACKGROUND

Natural hazards, such as hurricanes, floods, and tornadoes, are a part of the world around us. Their occurrence is natural and inevitable, and there is little we can do to control their force and intensity. We must consider these hazards to be legitimate and significant threats to human life, safety, and property.

The MEMA District 8 Region is located in the southeastern part of Mississippi and includes the counties of Covington, Forrest, Jefferson Davis, Jones, Marion, Perry, and Wayne. This area is vulnerable to a wide range of natural hazards such as floods, drought, hurricanes, severe thunderstorms, and wildfires. It is also vulnerable to human-caused hazards, such as hazardous material incidents. These hazards threaten the life and safety of residents in the MEMA District 8 Region and have the potential to damage or destroy both public and private property, disrupt the local economy, and impact the overall quality of life of individuals who live, work, and vacation in the MEMA District 8 Region.

While the threat from hazardous events may never be fully eliminated, there is much we can do to lessen their potential impact upon our community and our citizens. By minimizing the impact of hazards upon our built environment, we can prevent such events from resulting in disasters. The concept and practice of reducing risks to people and property from known hazards is generally referred to as *hazard mitigation*.

FEMA Definition of Hazard Mitigation:
"Any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards."

Hazard mitigation techniques include both structural measures (such as strengthening or protecting buildings and infrastructure from the destructive forces of potential hazards) and non-structural measures (such as the adoption of sound land use policies and the creation of public awareness programs). It is widely accepted that the most effective mitigation measures are implemented at the local government level, where decisions on the regulation and control of development are ultimately

made. A comprehensive mitigation approach addresses hazard vulnerabilities that exist today and in the foreseeable future. Therefore, it is essential that projected patterns of future development are evaluated and considered in terms of how that growth will increase or decrease a community's overall hazard vulnerability.

A key component in the formulation of a comprehensive approach to hazard mitigation is to develop, adopt, and update a local hazard mitigation plan as needed. A hazard mitigation plan establishes the broad community vision and guiding principles for reducing hazard risk, and further proposes specific mitigation actions to eliminate or reduce identified vulnerabilities.

Each of the six counties participating in the development of the MEMA District 8 Hazard Mitigation Plan has an existing hazard mitigation plan that has evolved over the years, as described in Section 2: Planning Process. This regional plan draws from each of the county plans and documents the region's sustained efforts to incorporate hazard mitigation principles and practices into routine government activities and functions. At its core, the Plan recommends specific actions to minimize hazard vulnerability and protect residents from losses to those hazards that pose the greatest risk. These mitigation actions go beyond simply recommending structural solutions to reduce existing vulnerability, such as elevation, retrofitting, and acquisition projects. Local policies on community growth and development, incentives for natural resource protection, and public awareness and outreach activities are examples of other actions considered to reduce the MEMA District 8 Region's vulnerability to identified hazards. The Plan remains a living document, with implementation and evaluation procedures established to help achieve meaningful objectives and successful outcomes over time.

1.1.1 The Disaster Mitigation Act and the Flood Insurance Reform Act

In an effort to reduce the Nation's mounting natural disaster losses, the U.S. Congress passed the Disaster Mitigation Act of 2000 (DMA 2000) in order to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Section 322 of DMA 2000 emphasizes the need for state and local government entities to closely coordinate on mitigation planning activities and makes the development of a hazard mitigation plan a specific eligibility requirement for any local government applying for federal mitigation grant funds. These funds include the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation (PDM) program, both of which are administered by the Federal Emergency Management Agency (FEMA) under the Department of Homeland Security. Communities with an adopted and federally-approved hazard mitigation plan thereby become pre-positioned and more apt to receive available mitigation funds before and after the next disaster strikes.

The Flood Insurance Reform Act of 2004 (P.L. 108-264) created two new grant programs, Severe Repetitive Loss (SRL) and Repetitive Flood Claim (RFC), and modified the existing Flood Mitigation Assistance (FMA) program. One of the requirements of this Act is that a FEMA-approved Hazard Mitigation Plan is now required if communities wish to be eligible for these FEMA mitigation programs. However, as of mid-2013, guidance has not been released for the RFC and SRL programs and it is likely that these programs will be folded into a single, unified FMA program.

In addition, major federal flood insurance legislation was passed in 2012 under the Biggert-Waters Flood Insurance Reform Act (P.L. 112-141). This act made several changes to the way the National Flood Insurance Program is to be run, including raises in rates to reflect true flood risk and changes in how Flood Insurance Rate Map (FIRM) updates impact policyholders.

The MEMA District 8 Regional Hazard Mitigation Plan has been prepared in coordination with FEMA Region IV and the Mississippi Emergency Management Agency (MEMA) to ensure that the Plan meets all applicable FEMA and state requirements for hazard mitigation plans. A *Local Mitigation Plan Review Tool*, found in Appendix C, provides a summary of federal and state minimum standards and notes the location where each requirement is met within the Plan.

1.2 PURPOSE

The purpose of the MEMA District 8 Regional Hazard Mitigation Plan is to:

- Update the existing Covington, Jefferson Davis, Jones, Marion, Perry, and Wayne County hazard mitigation plans into one regional plan;
- Merge the Forrest County Hazard Mitigation Plan;
- Complete update of existing plans to demonstrate progress and reflect current conditions;
- Increase public awareness and education;
- Maintain grant eligibility for participating jurisdictions; and
- Maintain compliance with state and federal legislative requirements for local hazard mitigation plans.

1.3 SCOPE

The focus of the MEMA District 8 Regional Hazard Mitigation Plan is on those hazards determined to be "high" or "moderate" risks to the MEMA District 8 Region, as determined through a detailed hazard risk assessment. Other hazards that pose a "low" or "negligible" risk will continue to be evaluated during future updates to the Plan, but they may not be fully addressed until they are determined to be of high or moderate risk. This enables the participating counties to prioritize mitigation actions based on those hazards which are understood to present the greatest risk to lives and property.

The geographic scope (i.e., the planning area) for the Plan includes the counties of Covington, Forrest, Jefferson Davis, Jones, Marion, Perry, and Wayne, as well as their incorporated jurisdictions. **Table 1.1** identifies the participating areas.

TABLE 1.1: PARTICIPATING JURISDICTIONS IN THE MEMA DISTRICT 8 REGIONAL HAZARD MITIGATION PLAN

Covington County	
Collins	Mount Olive
Seminary	
Forrest County	
Hattiesburg	Petal
Jefferson Davis County	
Bassfield	Prentiss
Jones County	
Ellisville	Laurel
Sandersville	Soso
Marion County	
Columbia	
Perry County	
Beaumont	New Augusta
Richton	
Wayne County	
State Line	Waynesboro

1.4 AUTHORITY

The MEMA District 8 Regional Hazard Mitigation Plan has been developed in accordance with current state and federal rules and regulations governing local hazard mitigation plans and has been adopted by each participating county and local jurisdiction in accordance with standard local procedures. Copies of the adoption resolutions for each participating jurisdiction are provided in Appendix A. The Plan shall be routinely monitored and revised to maintain compliance with the following provisions, rules, and legislation:

- Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390);
- FEMA's Mitigation Planning Final Rule published in the Federal Register on September 16, 2009, at 44 CFR Part 201; and
- Flood Insurance Reform Act of 2004 (P.L. 108-264) and the Biggert-Waters Flood Insurance Reform Act of 2012 (P.L. 112-141)

1.5 SUMMARY OF PLAN CONTENTS

The contents of this Plan are designed and organized to be as reader-friendly and functional as possible. While significant background information is included on the processes used and studies completed (i.e., risk assessment, capability assessment), this information is separated from the more meaningful planning outcomes or actions (i.e., mitigation strategy, mitigation action plan).

Section 2, ***Planning Process***, provides a complete narrative description of the process used to prepare the Plan. This includes the identification of participants on the planning team and describes how the public and other stakeholders were involved. It also includes a detailed summary for each of the key meetings held, along with any associated outcomes.

The ***Community Profile***, located in Section 3, provides a general overview of the MEMA District 8 Region, including prevalent geographic, demographic, and economic characteristics. In addition, building characteristics and land use patterns are discussed. This baseline information provides a snapshot of the planning area and helps local officials recognize those social, environmental, and economic factors that ultimately play a role in determining the region's vulnerability to hazards.

The Risk Assessment is presented in three sections: Section 4, ***Hazard Identification***; Section 5, ***Hazard Profiles***; and Section 6, ***Vulnerability Assessment***. Together, these sections serve to identify, analyze, and assess hazards that pose a threat to the MEMA District 8 Region. The risk assessment also attempts to define any hazard risks that may uniquely or exclusively affect specific areas of the MEMA District 8 Region.

The Risk Assessment begins by identifying hazards that threaten the MEMA District 8 Region. Next, detailed profiles are established for each hazard, building on available historical data from past hazard occurrences, spatial extent, and probability of future occurrence. This section culminates in a hazard risk ranking based on conclusions regarding the frequency of occurrence, spatial extent, and potential impact highlighted in each of the hazard profiles. In the vulnerability assessment, FEMA's HAZUS®MH loss estimation methodology is used to evaluate known hazard risks by their relative long-term cost in expected damages. In essence, the information generated through the risk assessment serves a critical function as the MEMA District 8 Region seeks to determine the most appropriate mitigation actions to pursue and implement—enabling it to prioritize and focus its efforts on those hazards of greatest concern and those structures or planning areas facing the greatest risk(s).

The ***Capability Assessment***, found in Section 7, provides a comprehensive examination of the MEMA District 8 Region's capacity to implement meaningful mitigation strategies and identifies opportunities to increase and enhance that capacity. Specific capabilities addressed in this section include planning and regulatory capability, staff and organizational (administrative) capability, technical capability, fiscal capability, and political capability. Information was obtained through the use of a detailed survey questionnaire and an inventory and analysis of existing plans, ordinances, and relevant documents. The purpose of this assessment is to identify any existing gaps, weaknesses, or conflicts in programs or activities that may hinder mitigation efforts and to identify those activities that should be built upon in establishing a successful and sustainable local hazard mitigation program.

The *Community Profile*, *Risk Assessment*, and *Capability Assessment* collectively serve as a basis for determining the goals for the MEMA District 8 Regional Hazard Mitigation Plan, each contributing to the development, adoption, and implementation of a meaningful and manageable *Mitigation Strategy* that is based on accurate background information.

The ***Mitigation Strategy***, found in Section 8, consists of broad goal statements as well as an analysis of hazard mitigation techniques for the MEMA District 8 Region to consider in reducing hazard vulnerabilities. The strategy provides the foundation for a detailed ***Mitigation Action Plan***, found in Section 9, which links specific mitigation actions for each county department or agency to locally-assigned implementation mechanisms and target completion dates. Together, these sections are

designed to make the Plan both strategic, through the identification of long-term goals, and functional, through the identification of immediate and short-term actions that will guide day-to-day decision-making and project implementation.

In addition to the identification and prioritization of possible mitigation projects, emphasis is placed on the use of program and policy alternatives to help make the MEMA District 8 Region less vulnerable to the damaging forces of hazards while improving the economic, social, and environmental health of the community. The concept of multi-objective planning was emphasized throughout the planning process, particularly in identifying ways to link, where possible, hazard mitigation policies and programs with complimentary community goals related to disaster recovery, housing, economic development, recreational opportunities, transportation improvements, environmental quality, land development, and public health and safety.

Plan Maintenance, found in Section 10, includes the measures that the MEMA District 8 Region will take to ensure the Plan's continuous long-term implementation. The procedures also include the manner in which the Plan will be regularly evaluated and updated to remain a current and meaningful planning document.

County-specific Annexes have been created for each of the Counties participating in this plan. Each Annex contains information relevant to the County and the participating municipal jurisdictions in the County. Information included in each County-level Annex includes Community Profile, Risk Assessment and Capability Assessment information. The Mitigation Actions identified for that County and its municipal jurisdictions are also included in the County's Annex. This allows each County and jurisdiction to quickly locate the information contained in the plan that is most relevant for them.

SECTION 2

PLANNING PROCESS

This section describes the planning process undertaken by the Mississippi Emergency Management Agency (MEMA) District 8 counties and jurisdictions in the development of its 2020 Regional Hazard Mitigation Plan. It consists of the following seven subsections:

- 2.1 Overview of Hazard Mitigation Planning
- 2.2 History of Hazard Mitigation Planning in the MEMA District 8 Region
- 2.3 The MEMA District 8 Regional Hazard Mitigation Council
- 2.4 Community Meetings and Workshops
- 2.5 Involving the Public
- 2.6 Involving the Stakeholders
- 2.7 Documentation of Plan Progress

44 CFR Requirement
44 CFR Part 201.6(c)(1): The plan shall include 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.

2.1 OVERVIEW OF HAZARD MITIGATION PLANNING

Local hazard mitigation planning is the process of organizing community resources, identifying and assessing hazard risks, and determining how to best minimize or manage those risks. This process culminates in a hazard mitigation plan that identifies specific mitigation actions, each designed to achieve both short-term planning objectives and a long-term community vision.

To ensure the functionality of a hazard mitigation plan, responsibility is assigned for each proposed mitigation action to a specific individual, department, or agency along with a schedule or target completion date for its implementation (see Section 10: *Plan Maintenance*). Plan maintenance procedures are established for the routine monitoring of implementation progress, as well as the evaluation and enhancement of the mitigation plan itself. These plan maintenance procedures ensure that the Plan remains a current, dynamic, and effective planning document over time that becomes integrated into the routine local decision-making process.

Communities that participate in hazard mitigation planning have the potential to accomplish many benefits, including:

- saving lives and property,
- saving money,
- speeding up recovery following disasters,

- reducing future vulnerability through wise development and post-disaster recovery and reconstruction,
- expediting the receipt of pre-disaster and post-disaster grant funding, and
- demonstrating a firm commitment to improving community health and safety.

Typically, mitigation planning is described as having the potential to produce long-term and recurring benefits by breaking the repetitive cycle of disaster loss. A core assumption of hazard mitigation is that the investments made before a hazard event will significantly reduce the demand for post-disaster assistance by lessening the need for emergency response, repair, recovery, and reconstruction. Furthermore, mitigation practices will enable local residents, businesses, and industries to re-establish themselves in the wake of a disaster, getting the community economy back on track sooner and with less interruption.

The benefits of mitigation planning go beyond solely reducing hazard vulnerability. Measures such as the acquisition or regulation of land in known hazard areas can help achieve multiple community goals, such as preserving open space, maintaining environmental health, and enhancing recreational opportunities. Thus, it is vitally important that any local mitigation planning process be integrated with other concurrent local planning efforts, and any proposed mitigation strategies must take into account other existing community goals or initiatives that will help complement or hinder their future implementation.

2.2 HISTORY OF HAZARD MITIGATION PLANNING IN MEMA DISTRICT 8 REGION

One of the Counties in MEMA District 8 (Lamar) chose not to participate in the development of this plan. The county had recently completed updates to their existing plans and wanted to maximize the approval time they had already received for their plan. They will join the regional plan at some point in the future.

Forrest County joined the MEMA District 8 hazard mitigation planning process, and all of the jurisdictions that participated in previous planning efforts have participated in the development of this regional plan.

2.3 THE MEMA DISTRICT 8 REGIONAL HAZARD MITIGATION COUNCIL

In order to guide the development of this Plan, the counties in MEMA District 8 (Covington, Forrest, Jefferson Davis, Jones, Marion, Perry, and Wayne) and representatives from their participating municipal jurisdictions created the MEMA District 8 Regional Hazard Mitigation Council (RHMC). The RHMC represents a community-based planning team made up of representatives from various county departments and municipalities and other key stakeholders identified to serve as critical partners in the planning process.

Beginning in April 2019, the RHMC members engaged in regular discussions as well as local planning workshops to discuss and complete tasks associated with preparing the Plan. This working group coordinated on all aspects of plan preparation and provided valuable input to the process.

Specifically, the tasks assigned to the RHMC members included:

- participate in RHMC meetings and workshops
- provide best available data as required for the risk assessment portion of the Plan
- help review the local Capability Assessment information and provide copies of any mitigation or hazard-related documents for review and incorporation into the Plan
- support the development of the Mitigation Strategy, including the design and adoption of regional goal statements
- help design and propose appropriate mitigation actions for their department/agency for incorporation into the Mitigation Action Plan
- review and provide timely comments on all study findings and draft plan deliverables
- support the adoption of the *2020 MEMA District 8 Hazard Mitigation Plan*

Table 2.1 lists the members of the RHMC who were responsible for participating in the development of the Plan. Council members are listed in alphabetical order by last name.

TABLE 2.1: MEMBERS OF THE MEMA DISTRICT 8 REGIONAL HAZARD MITIGATION COUNCIL

NAME/TITLE	DEPARTMENT / AGENCY
Atchison, Angela / EMA Director	Wayne County
Breland, Tammy	Town of Beaumont
Brown, Chip / Communications	Forrest County EMA
Burns, Sherry	City of New Augusta
Chambliss, Jamie	Town of Beaumont
Courtney, Patricia	Bassfield
Dumas, Charley / Mayor	Prentiss
Ellard, Andrew	City of Hattiesburg
Gallaspy, Joe	City of New Augusta
Greer, Aaron / CD Director	Marion County / Columbia
Hall, S.	City of Hattiesburg
Knight, Shane / Assistant Director	City of Collins
Marx, Hal	City of Petal
Moore, Glen	Forrest County EMA
Osgood, Jennifer	City of Hattiesburg
Pitts, James	Town of Richton
Prine, Colby / Director	Perry County EMA
Ragsdale, Jocelyn / EMA Director	Jefferson Davis County
Roberts, Billy	City of Mt. Olive
Sanford, Greg / EMA Director	Covington County / Seminary
Sheffield, Paul / Director	Jones County EOC
Shoemake, Bob	City of Collins
Shows, Jennifer	City of Hattiesburg
Stevens, Kevin	Wayne County EMA

NAME/TITLE	DEPARTMENT / AGENCY
Proctor, Corey /EMA Director	Forrest County / City of Petal
Burns, Gerry	Forrest County
Williams, Nicolas	City of Hattiesburg
Zaydel, Joseph	City of Waynesboro
Billy Patrick / Staff Officer	MEMA

Some of the Regional Hazard Mitigation Council Members listed above were designated to represent more than one jurisdiction.

2.3.1 Multi-Jurisdictional Participation

The MEMA District 8 Hazard Mitigation Plan includes seven counties and seventeen incorporated municipalities. To satisfy multi-jurisdictional participation requirements, each county and its participating jurisdictions were required to perform the following tasks:

- Participate in mitigation planning workshops;
- Identify completed/new mitigation projects, if applicable; and
- Develop and adopt (or update) their local Mitigation Action Plan.

Each jurisdiction participated in the planning process and has developed a local Mitigation Action Plan unique to their jurisdiction. Each jurisdiction will adopt their Mitigation Action Plan separately. This provides the means for jurisdictions to monitor and update their Plan on a regular basis.

2.4 COMMUNITY MEETINGS AND WORKSHOPS

The preparation of this Plan required a series of meetings and workshops for facilitating discussion, gaining consensus and initiating data collection efforts with local government staff, community officials, and other identified stakeholders. More importantly, the meetings and workshops prompted continuous input and feedback from relevant participants throughout the drafting stages of the Plan. The following is a summary of the key meetings and community workshops held during the development of the plan update.[1] In many cases, routine discussions and additional meetings were held by local staff to accomplish planning tasks specific to their department or agency, such as the approval of specific mitigation actions for their department or agency to undertake and include in the Mitigation Action Plan.

TABLE 2.2: Hazard Mitigation Planning Meetings

Meeting Date	Meeting Notes
April 10, 2019	MEMA Region 8 HMP Kickoff Meeting- Discussed project background and purpose, overview of the project, completed a hazard identification exercise, and discussed next steps.
October 15, 2019	MEMA Region 8 HMP Mitigation Strategy Meeting- (Forrest County) discussed plan goals and potential updates to those goals. Also, discussed mitigation actions within the region.
October 16, 2019	Individual County/municipality workshops to discuss status updates to existing mitigation actions as well as new mitigation actions
October 16, 2019	MEMA Region 8 HMP Mitigation Strategy Meeting- discussed plan goals and potential updates to those goals. Also, discussed mitigation actions within the region.

2.5 INVOLVING THE PUBLIC

44 CFR Requirement
44 CFR Part 201.6(b)(1): The planning process shall include an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.

An important component of the mitigation planning process involves public participation. Individual citizen and community-based input provides the entire planning team with a greater understanding of local concerns and increases the likelihood of successfully implementing mitigation actions by developing community "buy-in" from those directly affected by the decisions of public officials. As citizens become more involved in decisions that affect their safety, they are more likely to gain a greater appreciation of the hazards present in their community and take the steps necessary to reduce their impact. Public awareness is a key component of any community's overall mitigation strategy aimed at making a home, neighborhood, school, business or entire city safer from the potential effects of hazards.

The Public was provided two opportunities to be involved in the actual plan development at two distinct periods during the planning process: (1) during the drafting stage of the Plan; and (2) upon completion of a final draft Plan, but prior to official plan approval and adoption.
Each of the participating jurisdictions will hold public meetings before the final plan is officially adopted by the local governing bodies. These meetings will occur at different times once FEMA has granted conditional approval of the Plan. Adoption resolutions will be included in Appendix A.

2.6 INVOLVING THE STAKEHOLDERS

44 CFR Requirement
44 CFR Part 201.6(b)(2): The planning process shall include an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other non-profit interests to be involved in the planning process.

At the beginning of the planning process for the development of this plan, the project consultant worked with MEMA mitigation staff, the MEMA District 8 Area Coordinator, and each of the seven County Emergency Management leads to initiate outreach to stakeholders to be involved in the planning process. The project consultant sent out a list of recommended stakeholders provided from FEMA Publication 386-1 titled **Getting Started: Building Support for Mitigation Planning**. The list of recommended stakeholders is found in Appendix C of that publication (Worksheet #1: Build the Planning Team) and has been included in **Appendix D** of this plan to demonstrate the wide range of stakeholders that were considered to participate in the development of this plan. Each of the seven County Emergency Management leads used that list for reference as they invited stakeholders from their counties to participate in the planning process.

Additionally, the project consultant and the County EM leads contacted Mississippi Automated Resources Information System (MARIS), Mississippi Forestry Commission, Mississippi Department of Environmental Quality, TriState Consulting Services, and the Southern Mississippi Planning and Development District to ask them to participate in the planning process and provide data that was used in the development of this plan.

2.7 DOCUMENTATION OF PLAN PROGRESS

Progress in hazard mitigation planning for the participating jurisdictions in the MEMA District 8 Region is documented in this plan update. Since hazard mitigation planning efforts officially began in the participating counties with the development of the initial Hazard Mitigation Plans in the late 1990's/early 2000s, many mitigation actions have been completed and implemented in the participating jurisdictions. These actions will help reduce the overall risk to natural hazards for the people and property in the Region. The actions that have been completed are documented in the Mitigation Action Plan found in Section 9.

In addition, community capability continues to improve with the implementation of new plans, policies and programs that help to promote hazard mitigation at the local level. The current state of local

capabilities for the participating jurisdictions is captured in Section 7: Capability Assessment. The participating jurisdictions continue to demonstrate their commitment to hazard mitigation and hazard mitigation planning and have proven this by reconvening the Hazard Mitigation Planning Team to update the Plan and by continuing to involve the public in the hazard mitigation planning process.

SECTION 3

COMMUNITY PROFILE

This section of the Plan provides a general overview of the MEMA District 8 Region. It consists of the following four subsections:

- 3.1 Geography and the Environment
- 3.2 Population and Demographics
- 3.3 Housing, Infrastructure, and Land Use
- 3.4 Employment and Industry

The County-specific annexes provide more detailed community profile information about each County.

3.1 GEOGRAPHY AND THE ENVIRONMENT

The MEMA District 8 Region was named based on the Mississippi Emergency Management Agency districts lines and is one of nine MEMA regions throughout the state. The Region is located in the southeastern portion of the state. It is bounded by the Mississippi/Alabama State Line to the east. The MEMA District 8 Region includes the counties of Covington, Forrest, Jefferson Davis, Jones, Marion, Perry, and Wayne. Lamar and Greene Counties are also in MEMA District 8 but are not participants in the development of this plan. An orientation map is provided as **Figure 3.1**.

The region surrounds the metropolitan area of Hattiesburg which is home to The University of Southern Mississippi and has traditionally been a major hub of transportation intersections (rail and road). The MEMA District 8 Region is often associated with the Civil Rights movement of the 1960s, and there are many important historic sites throughout the region. During the Civil War, Jones County was known as a haven of anti-secessionism and came to be known as "The Free State of Jones." The region is also home to a number of naturally protected areas that attract tourists to the area, such as the De Soto National Forest in Wayne County.

The total area of each of the participating counties is presented in **Table 3.1**.

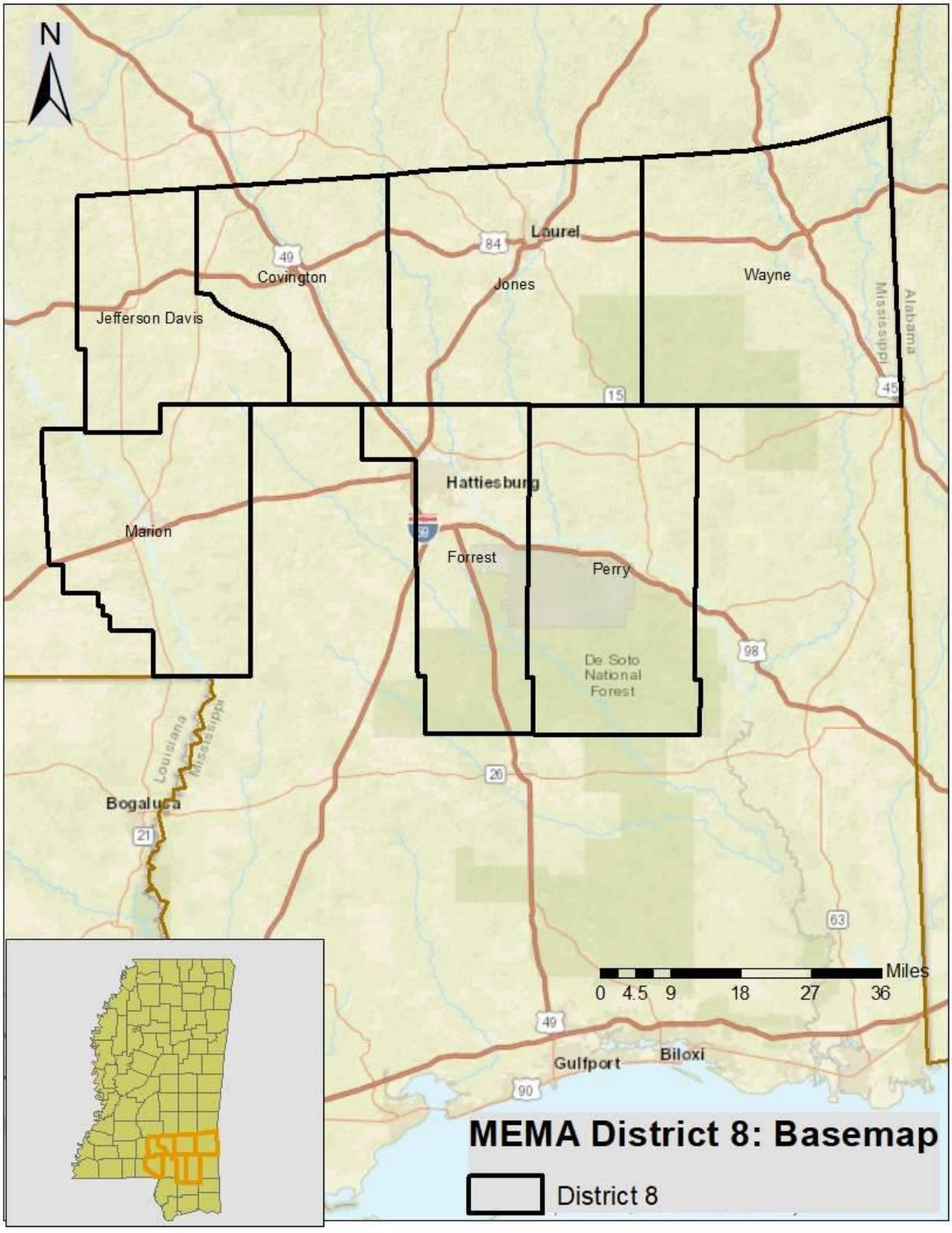
TABLE 3.1: TOTAL AREAS OF PARTICIPATING COUNTIES

County	Total Area
Covington County	415 square miles
Forrest County	470 square miles
Jefferson Davis County	409 square miles
Jones County	700 square miles
Marion County	549 square miles
Perry County	650 square miles
Wayne County	814 square miles

Source: US Census Bureau

The MEMA District 8 Region enjoys four distinct seasons but the climate in the region is generally hot and humid compared to much of the rest of the United States given its latitude and relative proximity to the Gulf Coast. The region generally receives steady precipitation throughout the year, averaging between 4 and 5 inches per month. The hottest months of the year tend to be July and August when average high temperatures reach the low to mid 90s and the coldest month is typically January with average low temperatures dropping to the mid thirties. The region is also often susceptible to turbulent weather when warm, wet air from the Gulf of Mexico is pushed up into the region and mixes with cooler air coming down from across the continent resulting in severe weather conditions. This is particularly true in the spring and fall when seasons are changing and diverse weather patterns interact.

FIGURE 3.1: MEMA DISTRICT 8 REGION ORIENTATION MAP



3.2 POPULATION AND DEMOGRAPHICS

Although Wayne County is the largest participating county by area, Forrest County has the largest population. Between 2000 and 2010, the majority of participating jurisdictions experienced little to no growth, however Jefferson Davis County experienced a notable decline in population. The Town of Ellisville had the highest rate of growth at 28.4 percent. Population counts from the US Census Bureau for 1990, 2000, and 2010 for each of the participating counties and jurisdictions are presented in **Table 3.2**.

TABLE 3.2: POPULATION COUNTS FOR PARTICIPATING COUNTIES

Jurisdiction	1990 Census Population	2000 Census Population	2010 Census Population	% Change 2000-2010
Covington County	16,527	19,407	19,568	0.8%
Forrest County	68,325	72,156	75,007	3.8%
Jefferson Davis County	14,051	13,962	12,487	-10.6%
Jones County	62,031	64,958	67,761	4.3%
Marion County	25,544	25,595	27,088	5.8%
Perry County	10,865	12,138	12,250	0.9%
Wayne County	19,517	21,216	20,747	-2.2%

Source: US Census Bureau

Based on the 2010 Census, the median age for residents of the participating counties ranges from 37 to 43 years. The racial characteristics of the participating counties are presented in **Table 3.3**. Generally, whites make up the majority of the population in the region, however, blacks make up a significant population throughout the region as well and in some cases represent the majority.

TABLE 3.3: DEMOGRAPHICS OF PARTICIPATING COUNTIES

Jurisdiction	White Persons, Percent (2010)	Black Persons, Percent (2010)	American Indian or Alaska Native, Percent (2010)	Other Race, Percent (2010)	Persons of Hispanic Origin, Percent (2010)*
Covington County	63.0%	34.9%	0.1%	1.0%	1.9%
Forrest County	57.0%	37.8%	0.4%	1.5%	2.9%
Jefferson Davis County	38.7%	59.9%	0.3%	0.3%	0.8%
Jones County	67.2%	28.3%	0.5%	3.1%	4.7%
Marion County	65.8%	32.3%	0.2%	1.7%	1.2%
Perry County	78.2%	20.0%	0.3%	1.5%	1.0%
Wayne County	59.3%	38.9%	0.2%	1.5%	1.2%

*Hispanics may be of any race, so also are included in applicable race categories

Source: US Census Bureau

3.3 HOUSING, INFRASTRUCTURE, AND LAND USE

3.3.1 Housing

According to the 2010 US Census, there are 85,791 housing units in the MEMA District 8 Region, most of which are single family homes. Housing information for the seven participating counties is presented in **Table 3.4**. As shown in the table, all counties have a very low percentage of seasonal housing units compared.

TABLE 3.4: HOUSING CHARACTERISTICS OF PARTICIPATING COUNTIES

Jurisdiction	Housing Units (2000)	Housing Units (2010)	Seasonal Units, Percent (2010)	Median Home Value (2006-2010)
Covington County	8,083	8,501	2.2%	$78,900
Forrest County	16,420	29,913	33,282	$114,000
Jefferson Davis County	5,891	5,876	3.6%	$69,500
Jones County	26,921	28,424	1.1%	$85,000
Marion County	10,395	11,838	3.8%	$82,800
Perry County	5,107	5,519	5.0%	$82,200
Wayne County	9,049	9,213	2.2%	$64,400

Source: US Census Bureau

3.3.2 Infrastructure

TRANSPORTATION

There are several major thoroughfares that traverse the MEMA District 8 Region. US Interstate 59 runs roughly northeast to southwest through Jones County, connecting with US Interstate 10 to the south and running into New Orleans. It is intersected by US Highway 84 which traverses across Wayne, Jones, Covington, and Jefferson Davis Counties from east to west, connecting Waynesboro, Laurel, and Collins. US Highway 98 runs through Perry and Marion Counties from east to west and connects both of these counties with Hattiesburg.

There are several small general aviation airports within the MEMA District 8 Region, including the Columbia-Marion County Airport in Columbia and the Richton-Perry County Airport in Richton. The major airport nearest to the region is the Hattiesburg-Laurel Regional Airport in Hattiesburg which offers non-stop commercial flights to destinations across the eastern US and Midwest and is generally less than 50 miles from anywhere in the region. Another major nearby airport that is often used by residents in the region is the Jackson-Medgar Wiley Evers International Airport, located in Jackson, Mississippi, which is used for longer flights into and out of the region.

UTILITIES

Electric power in the MEMA District 8 Region is provided by several electricity cooperatives, many of which are provided with power by Mississippi Power Company. Dixie Electric Power Association (EPA) serves Jones, Wayne, and Perry Counties. Meanwhile, Southern Pine EPA serves much of Covington and Jefferson Davis Counties and Pearl River Valley EPA is the primary provider to Marion County.

Water and sewer service is generally provided by all of the participating towns, but unincorporated areas rely on septic systems and wells in the MEMA District 8 Region.

COMMUNITY FACILITIES

There are a number of public buildings and community facilities located throughout the MEMA District 8 Region. According to the data collected for the vulnerability assessment (Section 6.4.1), there are 11 fire stations, 14 police stations, 7 medical care facilities, 4 EOCs, and 68 schools located within the study area.

Seven hospitals are located in the MEMA District 8 Region. The largest is Forrest General Hospital is a 545 inpatient bed facility with a 400-bed medical-surgical hospital located in the City of Hattiesburg. The second largest is the South Central Regional Medical Center, a 285-bed, not-for-profit hospital located in Laurel. Wayne General Hospital follows with 85 beds and Perry County General Hospital has 60 beds.

The MEMA District 8 Region contains numerous local, state, and national parks and recreation areas, the largest of which is the De Soto National Forest in Wayne and Perry Counties. These facilities offer recreational opportunities to area residents and hundreds of thousands of visitors each year.

3.3.3 Land Use

Many areas of the MEMA District 8 Region are undeveloped or sparsely developed due to the region's location just off the Gulf Coast and the conservation of land in state and national parks. As shown in **Figure 3.1** above, there are a few incorporated municipalities located throughout the study area, and these areas are where the region's population is generally concentrated. The incorporated areas are also where many of the businesses, commercial uses, and institutional uses are located. Land uses in the balance of the study area generally consist of rural residential development, agricultural uses, and recreational areas.

3.4 EMPLOYMENT AND INDUSTRY

Like many other parts of Mississippi, the MEMA District 8 Region's economy has traditionally been heavily reliant on the manufacturing industries. However, the region has suffered from numerous plant closings during the 1990s and 2000s. As a result, many of the communities are now working to develop place-based economies that will rely on the MEMA District 8 Region's cultural traditions and natural resources. Agriculture also continues to play a major role in the local economy and there are cattle, poultry, and other operations located throughout the region. As the construction sector continues to recover, this area of employment is also expected to pick back up.

According to the Mississippi Employment Security Commission (MESC), in 2018, Covington County had an average annual employment of 5,350 workers and an average unemployment rate of 8.2 percent (compared to 6.0 percent for the state). In 2018, the Manufacturing industry employed 26.2 percent of the County's workforce followed by Retail Trade (11.2%), and Transportation and Warehousing (8.0%). The average annual wage in 2018 for Covington County was $35,880 compared to $41,236 for the State of Mississippi.

In 2018, Forrest County had an average annual employment of 32,270 workers and an average unemployment rate of 4.4% percent. According to the MESC, in 2018, the Government Agencies

employed 26.8% percent of the workforce followed by Educational Services (13.3%) and Manufacturing (9.7%). The average annual wage in Forrest County was $ 42,389.

In 2019, Jefferson Davis County had an average annual employment of 1,630 workers and an average unemployment rate of 6.8 percent. According to the MESC, in 2018, the Construction industry employed 16 percent of the workforce followed by Retail Trade (14.1 %) and Health Care and Social Assistance (8.6%). The average annual wage in Jefferson Davis County was $26,736

In 2019, Jones County had an average annual employment of 27,860 workers in 2018 and an average unemployment rate of 4.8 percent. According to the MESC, in 2018, the Government Agencies employed the most people, with 25.1 percent of the workforce, followed by Manufacturing (23.7%) and Retail Trade (10.4%). The average annual wage in Jones County was $ 39,310.

In 2018, Marion County had an average annual employment of 8,220 workers and an average unemployment rate of 5.1 percent. In 2018, according to the MESC, Government Agencies employed 15.7 percent of the workforce. Retail Trade was the second largest industry, employing (14%) of workers, and Health Care and Social Assistance followed closely behind (13.4%). The average annual wage in Marion County was $30,998.

In 2018, Perry County had an average annual employment of 2,220 workers and an average unemployment rate of 6.0 percent. According to the MESC, in 2018, Government Agencies employed 26.6 percent of the workforce followed by Manufacturing (25.7 %) and Health Care and Social Assistance (14.9%). The average annual wage in Perry County was $35,374.

In 2019, Wayne County had an average annual employment of 4,937 workers and an average unemployment rate of 6.6 percent (compared to 6.0 percent for the state). In 2019, the Retail Trade industry continues to lead by employing the most people, with 16.1 percent of the workforce, followed by Manufacturing (12.6%) and Transportation and Warehousing (5.8%). The average annual wage in 2019for Wayne County was $36,816 compared to $41,236 for the State of Mississippi.

SECTION 4

HAZARD IDENTIFICATION

This section describes how the planning team identified the hazard to be included this plan. It consists of the following five subsections:

- 4.1 Overview
- 4.2 Description of Full Range of Hazards
- 4.3 Disaster Declarations
- 4.4 Hazard Evaluation
- 4.5 Hazard Identification Results

44 CFR Requirement
44 CFR Part 201.6(c)(2)(i): The risk assessment shall include 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.

4.1 OVERVIEW

The MEMA District 8 Region is vulnerable to a wide range of natural and human-caused hazards that threaten life and property. Current FEMA regulations and guidance under the Disaster Mitigation Act of 2000 (DMA 2000) require, at a minimum, an evaluation of a full range of natural hazards. An evaluation of human-caused (i.e., terrorism) and technological hazards (i.e., hazardous materials incident) is encouraged, though not required, for plan approval. The MEMA District 8 Region has included a comprehensive assessment of all hazards. It should be noted however, that this list may not be all-inclusive and will be revisited with each plan update.

Upon a review of the full range of natural hazards suggested under FEMA planning guidance, the participating jurisdictions in the MEMA District 8 Regional Hazard Mitigation Plan have identified a number of hazards that are to be addressed in this plan including natural, technological, and human-caused disasters. These hazards were identified through an extensive process that utilized input from the MEMA District 8 Hazard Mitigation Council (MEMA District 8 HMC) members, research of past disaster declarations in the participating counties[1], and review of the State of Mississippi Hazard Mitigation Plan (2019). Readily available information from reputable sources (such as federal and state agencies) was also evaluated to supplement information from these key sources.

Table 4.1 lists the full range of hazards initially identified for inclusion in the Plan and provides a brief description for each. This table includes 27 individual hazards. Some of these hazards are considered to be interrelated or cascading (one hazard event may cause another, i.e. – hurricanes cause flooding), but for preliminary hazard identification purposes these individual hazards are broken out separately.

[1] A complete list of disaster declarations for the MEMA District 8 Region can be found below in Section 4.3.

Table 4.2 lists the disaster declarations in the MEMA District 8 Region.

Table 4.3 documents the evaluation process used for determining which of the initially identified hazards are considered significant enough to warrant further evaluation in the risk assessment. For each hazard considered, the table indicates whether or not the hazard was identified as a significant hazard to be further assessed, how this determination was made, and why this determination was made. The table works to summarize not only those hazards that *were* identified (and why) but also those that *were not* identified (and why not). Hazard events not identified for inclusion at this time may be addressed during future evaluations and updates of the risk assessment if deemed necessary by the MEMA District 8 RHMC during the plan update process.

Lastly, **Table 4.4** provides a summary of the hazard identification and evaluation process noting that 15 of the 27 initially identified hazards are considered significant enough for further evaluation in this Plan's risk assessment (marked with a "☑")

4.2 DESCRIPTION OF FULL RANGE OF HAZARDS

In this section, hazards are classified into groups including atmospheric hazards, hydrological hazards, geologic hazards, and other hazards (a catch-category of hazards all that typically includes human-caused and technological hazards). As noted above, several sources where consulted to determine a list of hazard to be considered by MEMA District 8. These include the MEMA District 8 HMC members, research of past disaster declarations in the participating counties[2], and review of the State of Mississippi Hazard Mitigation Plan (2019). Readily available information from reputable sources (such as federal and state agencies) was also evaluated to supplement information from these key sources.

TABLE 4.1: DESCRIPTIONS OF THE FULL RANGE OF INITIALLY IDENTIFIED HAZARDS

Hazard Description	
ATMOSPHERIC HAZARDS	
Avalanche	A rapid fall or slide of a large mass of snow down a mountainside.
Drought	A prolonged period of less than normal precipitation such that the lack of water causes a serious hydrologic imbalance. Common effects of drought include crop failure, water supply shortages, and fish and wildlife mortality. High temperatures, high winds, and low humidity can worsen drought conditions and also make areas more susceptible to wildfire. Human demands and actions have the ability to hasten or mitigate drought-related impacts on local communities.
Hailstorm	Any storm that produces hailstones that fall to the ground; usually used when the amount or size of the hail is considered significant. Hail is formed when updrafts in thunderstorms carry raindrops into parts of the atmosphere where the temperatures are below freezing.

[2] A complete list of disaster declarations for the MEMA District 8 Region can be found below in Section 4.3.

Heat Wave	A heat wave may occur when temperatures hover 10 degrees or more above the average high temperature for the region and last for several weeks. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a "dome" of high atmospheric pressure traps hazy, damp air near the ground. Excessively dry and hot conditions can provoke dust storms and low visibility. A heat wave combined with a drought can be very dangerous and have severe economic consequences on a community.
Hurricane and Tropical Storm	Hurricanes and tropical storms are classified as cyclones and defined as any closed circulation developing around a low-pressure center in which the winds rotate counter-clockwise in the Northern Hemisphere (or clockwise in the Southern Hemisphere) and with a diameter averaging 10 to 30 miles across. When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, given a name, and is closely monitored by the National Hurricane Center. When sustained winds reach or exceed 74 miles per hour the storm is deemed a hurricane. The primary damaging forces associated with these storms are high-level sustained winds, heavy precipitation and tornadoes. Coastal areas are also vulnerable to the additional forces of storm surge, wind-driven waves and tidal flooding which can be more destructive than cyclone wind. The majority of hurricanes and tropical storms form in the Atlantic Ocean, Caribbean Sea and Gulf of Mexico during the official Atlantic hurricane season, which extends from June through November.
Lightning	Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes, but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes thunder. On average, 73 people are killed each year by lightning strikes in the United States.
Nor'easter	Similar to hurricanes, nor'easters are ocean storms capable of causing substantial damage to coastal areas in the Eastern United States due to their associated strong winds and heavy surf. Nor'easters are named for the winds that blow in from the northeast and drive the storm up the East Coast along the Gulf Stream, a band of warm water that lies off the Atlantic coast. They are caused by the interaction of the jet stream with horizontal temperature gradients and generally occur during the fall and winter months when moisture and cold air are plentiful. Nor'easters are known for dumping heavy amounts of rain and snow, producing hurricane-force winds, and creating high surf that causes severe beach erosion and coastal flooding.
Tornado	A tornado is a violently rotating column of air that has contact with the ground and is often visible as a funnel cloud. Its vortex rotates cyclonically with wind speeds ranging from as low as 40 mph to as high as 300 mph. Tornadoes are most often generated by thunderstorm activity when cool, dry air intersects and overrides a layer of warm, moist air forcing the warm air to rise rapidly. The destruction caused by tornadoes ranges from light to catastrophic depending on the intensity, size and duration of the storm.
Severe Thunderstorm	Thunderstorms are caused by air masses of varying temperatures meeting in the atmosphere. Rapidly rising warm moist air fuels the formation of thunderstorms. Thunderstorms may occur singularly, in lines, or in clusters. They can move through an area very quickly or linger for several hours. Thunderstorms may result in hail, tornadoes, or straight-line winds. Windstorms pose a threat to lives, property, and vital utilities primarily due to the effects of flying debris and can down trees and power lines.

Winter Storm and Freeze	Winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Blizzards, the most dangerous of all winter storms, combine low temperatures, heavy snowfall, and winds of at least 35 miles per hour, reducing visibility to only a few yards. Ice storms occur when moisture falls and freezes immediately upon impact on trees, power lines, communication towers, structures, roads and other hard surfaces. Winter storms and ice storms can down trees, cause widespread power outages, damage property, and cause fatalities and injuries to human life.
GEOLOGIC HAZARDS	
Earthquake	A sudden, rapid shaking of the Earth caused by the breaking and shifting of rock beneath the surface. This movement forces the gradual building and accumulation of energy. Eventually, strain becomes so great that the energy is abruptly released, causing the shaking at the earth's surface which we know as an earthquake. Roughly 90 percent of all earthquakes occur at the boundaries where plates meet, although it is possible for earthquakes to occur entirely within plates. Earthquakes can affect hundreds of thousands of square miles; cause damage to property measured in the tens of billions of dollars; result in loss of life and injury to hundreds of thousands of persons; and disrupt the social and economic functioning of the affected area.
Expansive Soils	Soils that will exhibit some degree of volume change with variations in moisture conditions. The most important properties affecting degree of volume change in a soil are clay mineralogy and the aqueous environment. Expansive soils will exhibit expansion caused by the intake of water and, conversely, will exhibit contraction when moisture is removed by drying. Generally speaking, they often appear sticky when wet, and are characterized by surface cracks when dry. Expansive soils become a problem when structures are built upon them without taking proper design precautions into account with regard to soil type. Cracking in walls and floors can be minor, or can be severe enough for the home to be structurally unsafe.
Landslide	The movements of a mass of rock, debris, or earth down a slope when the force of gravity pulling down the slope exceeds the strength of the earth materials that comprise to hold it in place. Slopes greater than 10 degrees are more likely to slide, as are slopes where the height from the top of the slope to its toe is greater than 40 feet. Slopes are also more likely to fail if vegetative cover is low and/or soil water content is high.
Land Subsidence	The gradual settling or sudden sinking of the Earth's surface due to the subsurface movement of earth materials. Causes of land subsidence include groundwater pumpage, aquifer system compaction, drainage of organic soils, underground mining, hydrocompaction, natural compaction, sinkholes, and thawing permafrost.
Sinkhole	Sinkholes are a natural and common geologic feature in areas with underlying limestone and other rock types that are soluble in natural water. Most limestone is porous, allowing the acidic water of rain to percolate through their strata, dissolving some limestone and carrying it away in solution. Over time, this persistent erosional process can create extensive underground voids and drainage systems in much of the carbonate rocks. Collapse of overlying sediments into the underground cavities produces sinkholes.

Tsunami	A series of waves generated by an undersea disturbance such as an earthquake. The speed of a tsunami traveling away from its source can range from up to 500 miles per hour in deep water to approximately 20 to 30 miles per hour in shallower areas near coastlines. Tsunamis differ from regular ocean waves in that their currents travel from the water surface all the way down to the sea floor. Wave amplitudes in deep water are typically less than one meter; they are often barely detectable to the human eye. However, as they approach shore, they slow in shallower water, basically causing the waves from behind to effectively "pile up", and wave heights to increase dramatically. As opposed to typical waves which crash at the shoreline, tsunamis bring with them a continuously flowing 'wall of water' with the potential to cause devastating damage in coastal areas located immediately along the shore.
Volcano	A mountain that opens downward to a reservoir of molten rock below the surface of the earth. While most mountains are created by forces pushing up the earth from below, volcanoes are different in that they are built up over time by an accumulation of their own eruptive products: lava, ash flows, and airborne ash and dust. Volcanoes erupt when pressure from gases and the molten rock beneath becomes strong enough to cause an explosion.
HYDROLOGIC HAZARDS	
Dam and Levee Failure	Dam failure is the collapse, breach, or other failure of a dam structure resulting in downstream flooding. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and severe property damage if development exists downstream of the dam. Dam failure can result from natural events, human-induced events, or a combination of the two. The most common cause of dam failure is prolonged rainfall that produces flooding. Failures due to other natural events such as hurricanes, earthquakes or landslides are significant because there is generally little or no advance warning.
Erosion	Erosion is the gradual breakdown and movement of land due to both physical and chemical processes of water, wind, and general meteorological conditions. Natural, or geologic, erosion has occurred since the Earth's formation and continues at a very slow and uniform rate each year.
Flood	The accumulation of water within a water body which results in the overflow of excess water onto adjacent lands, usually floodplains. The floodplain is the land adjoining the channel of a river, stream ocean, lake or other watercourse or water body that is susceptible to flooding. Most floods fall into the following three categories: riverine flooding, coastal flooding, or shallow flooding (where shallow flooding refers to sheet flow, ponding and urban drainage).
Storm Surge	A storm surge is a large dome of water often 50 to 100 miles wide and rising anywhere from four to five feet in a Category 1 hurricane up to more than 30 feet in a Category 5 storm. Storm surge heights and associated waves are also dependent upon the shape of the offshore continental shelf (narrow or wide) and the depth of the ocean bottom (bathymetry). A narrow shelf, or one that drops steeply from the shoreline and subsequently produces deep water close to the shoreline, tends to produce a lower surge but higher and more powerful storm waves. Storm surge arrives ahead of a storm's actual landfall and the more intense the hurricane is, the sooner the surge arrives. Storm surge can be devastating to coastal regions, causing severe beach erosion and property damage along the immediate coast. Further, water rise caused by storm surge can be very rapid, posing a serious threat to those who have not yet evacuated flood-prone areas.

OTHER HAZARDS	
Hazardous Materials Incident	Hazardous material (HAZMAT) incidents can apply to fixed facilities as well as mobile, transportation-related accidents in the air, by rail, on the nation's highways and on the water. HAZMAT incidents consist of solid, liquid and/or gaseous contaminants that are released from fixed or mobile containers, whether by accident or by design as with an intentional terrorist attack. A HAZMAT incident can last hours to days, while some chemicals can be corrosive or otherwise damaging over longer periods of time. In addition to the primary release, explosions and/or fires can result from a release, and contaminants can be extended beyond the initial area by persons, vehicles, water, wind and possibly wildlife as well.
Pipeline Incident	In the case of this plan, a pipeline incident generally refers to a spill, explosion, or fire caused in the transport of flammable liquid or gas being carried by fixed pipes across the United States. These pipes often carry petroleum-based products that are dangerous to health and safety of people as well as the environment if exposed in large quantities.
Meth Lab Incident	A meth lab incident most often occurs as an explosion or fire that results from an unwanted chemical reaction that occurs during the production of the illegal drug, methamphetamine. Unlike a typical structural fire, the chemicals involved in meth production can create explosions and the release of toxic chemical gases which present additional risk of harm to anyone in the vicinity. Exposure to these chemicals can cause anything from eye/skin irritation to long term respiratory diseases and death.
Pandemic	Pandemics are infectious and contagious outbreaks typically caused by a virus that originated in animals and spreads to humans. Common sources are swine and avian. There are several definitions of pandemic depending on the severity of the outbreak. It can be defined generally as an epidemic occurring over a large geographic area. Pandemic viruses reproduce and mutate rapidly. Unlike seasonal influenza, humans have no immunity to the mutated strains, making it especially deadly in populations.
Terror Threat	Terrorism is defined by FEMA as, "the use of force or violence against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion, or ransom." Terrorist acts may include assassinations, kidnappings, hijackings, bomb scares and bombings, cyber attacks (computer-based), and the use of chemical, biological, nuclear and radiological weapons.
Wildfire	An uncontrolled fire burning in an area of vegetative fuels such as grasslands, brush, or woodlands. Heavier fuels with high continuity, steep slopes, high temperatures, low humidity, low rainfall, and high winds all work to increase risk for people and property located within wildfire hazard areas or along the urban/wildland interface. Wildfires are part of the natural management of forest ecosystems, but most are caused by human factors. Over 80 percent of forest fires are started by negligent human behavior such as smoking in wooded areas or improperly extinguishing campfires. The second most common cause for wildfire is lightning.
Cyber Attack	A cyber-attack is a malicious, intentional attempt to breach the information technology (IT) infrastructure of an individual or organization. The State of Mississippi defines a cyberterrorism incident as any adverse premeditated, politically, financially or maliciously motivated attack against informational systems.

4.3 DISASTER DECLARATIONS

Disaster declarations provide initial insight into the hazards that may impact the MEMA District 8 Regional planning area. Since 1973, 27 presidential disaster declarations have occurred in the region. This includes 14 events related to flooding, 15 events related to tornadoes, and 8 events related to hurricane and tropical storms.

TABLE 4.2: MEMA DISTRICT 8 REGION DISASTER DECLARATIONS BY COUNTY

Disaster Number	Year	Description	Covington	Jefferson Davis	Jones	Marion	Perry	Wayne	Forrest
271	1969	HURRICANE CAMILLE	X	X	X	X	X	X	X
302	1971	STORMS & TORNADOES			X		X		
318	1972	HEAVY RAINS & FLOODING				X			
368	1973	HEAVY RAINS, TORNADOES & FLOODING			X	X		X	
430	1974	HEAVY RAINS & FLOODING	X	X	X	X	X	X	X
577	1979	STORMS, TORNADOES, FLOODS				X			
599	1979	HURRICANE FREDERIC	X		X		X	X	X
618	1980	STORMS, FLOOD, MUDSLIDES & TORNADOES				X			X
678	1983	SEVERE STORMS, FLOODING & TORNADOES	X			X	X		X
787	1987	SEVERE STORMS, TORNADOES & FLOODING			X				
859	1990	SEVERE STORMS, TORNADOES & FLOODING	X		X	X	X		X
968	1992	SEVERE STORMS, HIGH WINDS & TORNADOES	X	X					
1251	1998	HURRICANE GEORGES	X	X	X	X	X	X	X
1360	2001	SEVERE STORMS AND TORNADOES			X	X	X		X
1459	2003	SEVERE STORMS, TORNADOES, FLOODS				X		X	
1550	2004	HURRICANE IVAN	X	X	X	X	X	X	X
1594	2005	HURRICANE DENNIS	X	X	X		X	X	X
1604	2005	MS HURRICANE KATRINA	X	X	X	X	X	X	X
1837	2009	MS SEVERE STORMS, FLOODING, AND TORNADOES		X				X	
1974	2008	MS HURRICANE GUSTAV		X		X			
4081	2012	MS HURRICANE ISAAC	X	X	X	X	X	X	X
4101	2013	MS SEVERE STORMS, TORNADOES, AND FLOODING				X		X	X
4175	2014	Mississippi Severe Storms, Tornadoes, and Flooding			X			X	
4205	2015	Mississippi Severe Storms and Tornadoes				X			

Disaster Number	Year	Description	Covington	Jefferson Davis	Jones	Marion	Perry	Wayne	Forrest
4268	2016	Mississippi Severe Storms and Flooding	X	X	X	X	X	X	X
4295	2017	Mississippi Severe Storms, Tornadoes, Straight-line Winds, and Flooding					X		X
4415	2018	Mississippi Severe Storms, Flooding, And Tornado	X		X	X	X	X	X
TOTAL NUMBER OF DISASTERS:			**13**	**11**	**16**	**19**	**15**	**15**	**16**

4.4 HAZARD EVALUATION

TABLE 4.3: DOCUMENTATION OF THE HAZARD EVALUATION PROCESS

Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	How was this determination made?	Why was this determination made?
ATMOSPHERIC HAZARDS			
Avalanche	NO	• Review of US Forest Service National Avalanche Center website • Review of FEMA's Multi-Hazard Identification and Risk Assessment • Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan	• There is no risk or history of avalanche events in Mississippi. The United States avalanche hazard is limited to mountainous western states including Alaska, as well as some areas of low risk in New England.

Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	How was this determination made?	Why was this determination made?
Drought	YES	• Review of State of MS Hazard Mitigation Plan • Review of U.S. Drought Monitor website • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan	• Droughts are identified in the State of MS Hazard Mitigation Plan as a limited hazard. • There are reports of the most extreme (exceptional) drought in each of the counties according to the NC Drought Monitor.
Hailstorm	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of FEMA's Multi-Hazard Identification and Risk Assessment • Review of NOAA NCEI Storm Events Database	• Hailstorm events are excluded from the state plan, but the plan notes that they should be addressed in local plans. • Hail is addressed under the thunderstorm in the previous MEMA District 8 Hazard Mitigation Plan. • NCEI reports over 509 hailstorm events (0.5-inch size hail to 4.5 inches) for the MEMA District 8 Region since 1962. For these events, there was over $6.3 million in property damages reported.
Heat Wave	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of NOAA NCDC Storm Events Database	• The State of MS Hazard Mitigation Plan excludes extreme heat, but it also indicates that extreme heat can create emergencies in Mississippi. • Heat wave/extreme heat was included in the previous MEMA District 8 Hazard Mitigation Plan. • NCEI reports 5 extreme heat events for the MEMA District 8 counties since 2000. These events resulted in 1 recorded death.

Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	How was this determination made?	Why was this determination made?
Hurricane and Tropical Storm	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Historical tropical cyclone tracks and National Hurricane Center Website • Review of NOAA NCEI Storm Events Database • Review of historical presidential disaster declarations	• The State Hazard Mitigation Plan profiles the hurricane hazard and identifies it as a significant hazard, noting its devastating impacts on the state. • The hurricane and tropical storm hazard was addressed in the previous MEMA District 8 Hazard Mitigation Plan. • NOAA historical records indicate 71 hurricane or tropical storms have come within 75 miles of the MEMA District 8 Region since 1850. Of these storms, 33 passed directly through the region. • NCEI reports 12 hurricane and tropical storm events in the MEMA District 8 Region since 1995. These events were responsible for an estimated $759.076 million (2019 dollars) in property damages as well as 25 deaths and 243 injuries (some of which may have occurred outside of the region). • 8 out of 22 disaster declarations in the MEMA District 8 are directly related to hurricane and tropical storm events.

Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	How was this determination made?	Why was this determination made?
Lightning	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of FEMA's Multi-Hazard Identification and Risk Assessment • Review of NOAA NCDC Storm Events Database, NOAA lightning statistics	• Lightning events are not profiled in the MS State Hazard Mitigation Plan because they do not generally impact the entire state. It is recommended that these hazards be profiled locally. • Lightning was previously included under thunderstorms in the MEMA District 8 Hazard Mitigation Plan. • NCEI reports 33 lightning events for the MEMA District 8 Region since 1995. These events have resulted in no recorded deaths, 6 injuries, and over$1,899,000 (2019 dollars) in property damages. • According to Vaisala's U.S. National Lightning Detection Network, the MEMA District 8 Region is located in an area that experienced an average of 12 to 20 lightning flashes per square kilometer per year between 2008 and 2017. • Given the damage and reported death and injuries, individual analysis is warranted.
Nor'easter	NO	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of NOAA NCEI Storm Events Database	• Nor'easters are not profiled or discussed in the state plan. • Nor'easters were not identified in the previous hazard mitigation plan for the MEMA District 8. • NCEI does not report any nor'easter activity for the MEMA District 8 Region.

Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	How was this determination made?	Why was this determination made?
Tornado	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of FEMA's Multi-Hazard Identification and Risk Assessment • Review of NOAA NCEI Storm Events Database • Review of historical presidential disaster declarations	• Tornado events are listed in the State of MS Hazard Mitigation Plan as a significant hazard and are referenced as a common disaster. • Tornado events were included in the previous MEMA District 8 Hazard Mitigation Plan. • NCEI reports 206 tornado events in MEMA District 8 Region counties since 1950. These events have resulted in 22 recorded deaths, 764 injuries, and almost $377.277 million (2019 dollars) in property damage. • 16 out of 27 disaster declarations in the MEMA District 8 Region are directly related to tornado events.
Severe Thunderstorm	YES	• Review of State of MS Hazard Mitigation Plan • Review of previous Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of FEMA's Multi-Hazard Identification and Risk Assessment • Review of NOAA NCEI Storm Events Database	• Severe thunderstorm events were not profiled in the State Hazard Mitigation Plan because they do not typically impact the entire state, invoking a state response. However, severe thunderstorms were identified as a significant concern at the local level. • Severe thunderstorm events were addressed the previous plans. • NCEI reports 1,230 thunderstorm events in the MEMA 8 Region counties since 1957. These events have resulted in 5 deaths, 16 injuries, and almost $19.659 million (2019 dollars) in property damage.

Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	How was this determination made?	Why was this determination made?
Winter Storm and Freeze	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of FEMA's Multi-Hazard Identification and Risk Assessment • Review of NOAA NCEI Storm Events Database • Review of historical presidential disaster declarations	• Extreme winter weather is identified in the state plan as a limited hazard. • Winter storm events included in the previous MEMA District 8 Hazard Mitigation Plan. • NCEI reports that the MEMA District 8 counties have been affected by 44 winter weather events since 1993. These events resulted in no recorded deaths or injuries and nearly $1,385,000 in property damages. • None of the region's disaster declarations were directly related to winter storm events.

Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	How was this determination made?	Why was this determination made?
GEOLOGIC HAZARDS			
Earthquake	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of National Geophysical Data Center • USGS Earthquake Hazards Program website • Review of FEMA's Multi-Hazard Identification and Risk Assessment	• Earthquake events are identified as a limited hazard in the State of MS Hazard Mitigation Plan, and all counties in MS are considered to be susceptible to the effects of earthquakes. • Earthquakes have occurred in and around the State of Mississippi in the past. The state is affected by the New Madrid (near Missouri) and White River Fault lines which have generated a magnitude 8.0 earthquake in the last 200 years. • The previous MEMA District 8 Region hazard mitigation plan does not address earthquake. • No events are known to have occurred in the region according to the National Geophysical Data Center. • According to USGS seismic hazard maps, the peak ground acceleration (PGA) with a 10% probability of exceedance in 50 years for the MEMA District 8 Region is approximately 2-3%g. FEMA recommends that earthquakes be further evaluated for mitigation purposes in areas with a PGA of 3%g or more.

Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	How was this determination made?	Why was this determination made?
Expansive Soils	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of FEMA's Multi-Hazard Identification and Risk Assessment • Review of USGS Swelling Clays Map	• Expansive soils are not identified in the state plan and have not historically been a problem for most areas in Mississippi. • Expansive soils are not addressed in the previous MEMA District 8 hazard mitigation plan. • According to USGS, the MEMA District 8 Region is located in an area that is underlain with "generally less than 50%" clay having high swelling potential.
Landslide	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of USGS Landslide Incidence and Susceptibility Hazard Map	• The State of MS Hazard Mitigation Plan excludes the landslide hazard because there is no extensive history of landslides in Mississippi. • The previous MEMA District 8 hazard mitigation plan does not identify landslides as a potential hazard. • USGS landslide hazard maps indicate "low incidence" (less than 1.5% of the area is involved in landsliding) for nearly the entire region. A small area in Wayne County has "moderate incidence" (1.5-15% of the area is involved in landsliding). • Local conditions may become more favorable for landslides due to heavy rain, for example.
Land Subsidence	NO	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan	• The state plan does not identify land subsidence as a hazard because there is no significant historical record of the hazard in the region. • The previous MEMA District 8 hazard mitigation plan does not identify land subsidence as a potential hazard.

Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	How was this determination made?	Why was this determination made?
Sinkhole	NO	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan	• The state plan does not identify sinkholes as a hazard because there is no significant historical record of the hazard in the region. • The previous MEMA District 8 Hazard Mitigation Plan does not identify sinkholes as a potential hazard.
Tsunami	NO	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of USGS Regional Assessment of Tsunami potential in the Gulf of Mexico • Review of FEMA's Multi-Hazard Identification and Risk Assessment • Review of FEMA "How-to" mitigation planning guidance (Publication 386-2, "Understanding Your Risks – Identifying Hazards and Estimating Losses)	• The tsunami hazard is excluded from the state plan. There is no historical record of tsunamis in the Gulf of Mexico. • Tsunami inundation zone maps are not available for communities located along the U.S. Gulf Coast. • FEMA mitigation planning guidance suggests that locations along the U.S. Gulf Coast have a relatively low tsunami risk and need not conduct a tsunami risk assessment at this time.
Volcano	NO	• Review of State of MS Hazard Mitigation Plan • Review of USGS Volcano Hazards Program website	• The volcano hazard is excluded from the state plan. There is no historical record of this hazard in the region. • There are no active volcanoes in Mississippi.

Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	How was this determination made?	Why was this determination made?
HYDROLOGIC HAZARDS			
Dam and Levee Failure	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of MS Division of Environmental Quality dam inventory	• Dam/levee failure is identified in the state plan as a limited hazard. • The previous MEMA District 8 Hazard Mitigation Plan address dam failure • 7 dams in the region are classified as high-hazard (high hazard is defined where dam failure may cause loss of life or serious damage).
Erosion	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan	• Coastal erosion was excluded from the State of MS Hazard Mitigation Plan as a hazard, however, it is addressed under the hurricane hazard. Riverine erosion is not addressed in the plan. • Erosion is identified as a hazard in the previous MEMA District 8 Hazard Mitigation Plan. • Erosion is a natural process and continuous process that impacts the region.

Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	How was this determination made?	Why was this determination made?
Flood	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of historical disaster declarations • Review of NOAA NCEI Storm Events Database • Review of FEMA DFIRM flood data for the MEMA District 8 Region counties • Review of FEMA's NFIP Community Status Book and Community Rating System (CRS)	• The flood hazard is thoroughly discussed in the state plan. Much of the state is located in the 100-year floodplain. Further, flash floods are a common occurrence during rain storms. • The previous MEMA District 8 Hazard Mitigation Plan includes the flood hazard. • 15 out of 27 disaster declarations were flood-related and an additional 8 were hurricane or tropical storm-related which caused flooding issues. • NCEI reports that MEMA District 8 Region counties have been affected by 344 flood events since 1993. In total, these events caused no recorded deaths or injuries but caused an estimated $53.66 million in property damages.
Storm Surge	NO	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of NOAA NCEI Storm Events Database	• Storm surge is discussed in the state plan under the hurricane hazard and indicates that only the costal shoreline counties are subject to storm surge. • The previous MEMA District 8 Hazard Mitigation Plan does not include storm surge as a potential hazard. • No historical events were reported by NCEI. • Given the inland location of the MEMA District 8 Region, storm surge would not affect the area.

Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	How was this determination made?	Why was this determination made?
OTHER HAZARDS			
Hazardous Materials Incident	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of EPA TRI sites inventory • Review of PHMSA HAZMAT Incident Statistics database	• The previous MEMA District 8 Hazard Mitigation Plan include hazardous materials incident as a hazard. • There are 60 TRI sites located in the MEMA District 8 Region. • Previously included as part of the Hazardous Materials Incident in the MEMA District 8 Hazard Mitigation Plan
Pipeline Incident	YES	• Review of PHMSA HAZMAT Incident Statistics database • Discussion with Regional Hazard Mitigation Plan Committee • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan	• The MEMA District 8 Region contains 1,248 miles of gas lines and 822 miles of hazardous liquid lines • Previously included as part of the Hazardous Materials Incident in the MEMA District 8 Hazard Mitigation Plan
Meth Lab Incident	YES	• Review of incident history based on local knowledge of past events and the potential for future events • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan	• Although there has not been an abundance of major meth lab incidents in the region, the potential for an incident exists and responders should be aware and prepared. • Previously included as part of the Hazardous Materials Incident in the MEMA District 8 Hazard Mitigation Plan

Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	How was this determination made?	Why was this determination made?
Pandemic	NO	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan	• Pandemic is not discussed in the state plan. • Pandemic is not included in the previous MEMA District 8 Hazard Mitigation Plan
Terror Threat	NO	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan	• Terrorism is excluded from the state plan. • Terrorism was considered but not included in the previous MEMA District 8 Hazard Mitigation Plan
Wildfire	YES	• Review of State of MS Hazard Mitigation Plan • Review of Previous Region 8 Hazard Mitigation Plan and Forrest County Hazard Mitigation Plan • Review of Southern Wildfire Risk Assessment (SWRA) Data • Review of Mississippi Forestry Commission website	• The State of MS Hazard Mitigation Plan identifies wildfire as a significant hazard and regular occurrence. • The previous MEMA District 8 Hazard Mitigation Plan addresses wildfire. • A review of Wildfire Hazard Potential (US Forrest Service) data indicates that there are areas of concern in the MEMA District 8 Region. Wildfire hazard risks will increase as low-density development along the urban/wildland interface increases.
Cyber-Attack	YES	• Review of State of MS Hazard Mitigation Plan	• Cyber Attack is included from the state plan • Cyber Attack was discussed and the planning committee determined to include the threat in this plan update.

4.5 HAZARD IDENTIFICATION RESULTS

TABLE 4.4: SUMMARY RESULTS OF THE HAZARD IDENTIFICATION AND EVALUATION PROCESS

ATMOSPHERIC HAZARDS	GEOLOGIC HAZARDS
☐ Avalanche	☑ Earthquake
☑ Drought	☑ Expansive Soils
☑ Hailstorm	☑ Landslide
☑ Heat Wave	☐ Land Subsidence
☑ Hurricane and Tropical Storm	☐ Sinkhole
☑ Lightning	☐ Tsunami
☐ Nor'easter	☐ Volcano
☑ Tornado	**OTHER HAZARDS**
☑ Severe Thunderstorm	☑ Hazardous Materials Incident
☑ Winter Storm and Freeze	☑ Pipeline Incident
HYDROLOGIC HAZARDS	☑ Meth Lab Incident
☑ Dam and Levee Failure	☐ Pandemic
☑ Erosion	☐ Terror Threat
☑ Flood	☑ Wildfire
☐ Storm Surge	☑ Cyber Terrorism

From this point in the plan onward, the hazards will be organized per the MEMA District 8 classification groups of: Flood Hazards (Flood, Erosion, Dam Failure, Winter Storm); Fire-related hazards (Drought/Heat Wave, Wildfire); Geologic hazards (Earthquake, Landslide, Expansive Soils); Wind Hazards (Hurricane and Tropical Storm; Thunderstorm, including Wind, Hail, and Lighting; Tornado); and Other Hazards (HAZMAT, Pipeline Incident, Meth Lab Incident, Wildfire, and Cyber Terrorism).

SECTION 5

HAZARD PROFILES

This section includes detailed hazard profiles for each of the hazards identified in the previous section (*Hazard Identification*) as significant enough for further evaluation in the MEMA District 8 Regional Hazard Mitigation Plan. It contains the following subsections:

44 CFR Requirement
44 CFR Part 201.6(c)(2)(i): The risk assessment shall include 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

5.1 OVERVIEW

This section includes detailed hazard profiles for each of the hazards identified in the previous section (*Hazard Identification*) as significant enough for further evaluation in the MEMA District 8 hazard risk assessment by creating a hazard profile. Each hazard profile includes a general description of the hazard, its location and extent, notable historical occurrences and the probability of future occurrences. Each profile also includes specific items noted by members of the MEMA District 8 Regional Hazard Mitigation Council (MEMA District 8 RHMC) as it relates to unique historical or anecdotal hazard information for the counties in the Region or a participating municipality within it.

The following hazards were identified:

- **Flood-related Hazards**
  - Flooding
  - Erosion
  - Dam Failure

- Winter Storm and Freeze
- **Fire-related Hazards**
  - Drought / Heat Wave
  - Wildfire
- **Geologic Hazards**
  - Earthquake
  - Landslide
  - Expansive Soils
- **Wind-related Hazards**
  - Hurricane and Tropical Storm
  - Thunderstorm (including wind, hail, and lightning)
  - Tornado
- **Other Hazards**
  - Hazardous Materials Incident
  - Cyber Terrorism

5.2 STUDY AREA

The MEMA District 8 Region includes six counties and fifteen incorporated jurisdictions. **Table 5.1** provides a summary table of the participating jurisdictions within each county. In addition, **Figure 5.1** provides a base map, for reference, of the MEMA District 8 Region.

TABLE 5.1: PARTICIPATING JURISDICTIONS IN THE MEMA DISTRICT 8 REGIONAL HAZARD MITIGATION PLAN

Covington County	
Collins	Mount Olive
Seminary	
Jefferson Davis County	
Bassfield	Prentiss
Jones County	
Ellisville	Laurel
Sandersville	Soso
Marion County	
Columbia	
Perry County	
Beaumont	New Augusta
Richton	
Wayne County	
State Line	Waynesboro
Forrest County	

Hattiesburg	Petal

FIGURE 5.1: MEMA DISTRICT 8 BASE MAP

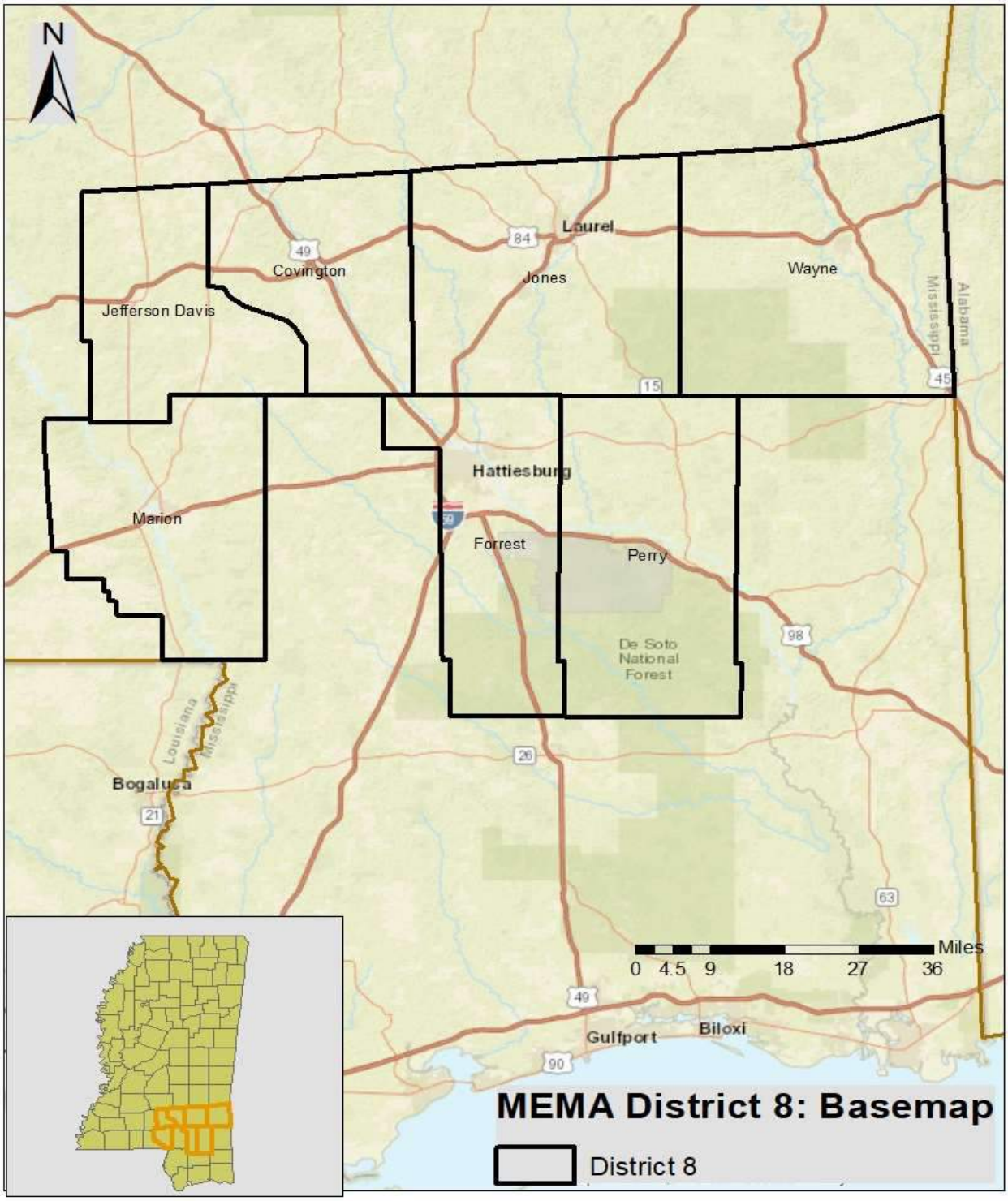


Table 5.2 lists each significant hazard for the MEMA District 8 Region and identifies whether or not it has been determined to be a specific hazard of concern for the municipal jurisdictions and the

unincorporated areas of the counties. This is the based on the best available data and information from the MEMA District 8 Regional Hazard Mitigation Council. (● = hazard of concern)

TABLE 5.2 SUMMARY OF IDENTIFIED HAZARD EVENTS IN THE MEMA DISTRICT 8 REGION

Jurisdiction	Flood-related				Fire-related		Geological			Wind-related			Other	
	Flood	Erosion	Dam Failure	Winter Storm	Drought / Heat Wave	Wildfire	Earthquake	Landslide	Expansive Soils	Hurricane	Thunderstorm	Tornado	HAZMAT	Cyber Terrorism
Covington County														
Collins	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Mount Olive	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Seminary	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Unincorporated Area	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Jefferson Davis County														
Bassfield	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Prentiss	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Unincorporated Area	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Jones County														
Ellisville	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Laurel	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Sandersville	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Soso	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Unincorporated Area	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Marion County														
Columbia	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Unincorporated Area	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Perry County														
Beaumont	●	●	●	●	●	●	●	●	●	●	●	●	●	●
New Augusta	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Richton	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Unincorporated Area	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Wayne County														
State Line	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Waynesboro	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Unincorporated Area	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Forrest County														
Hattiesburg	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Petal	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Unincorporated Area	•	•	•	•	•	•	•	•	•	•	•	•	•	•

FLOOD-RELATED HAZARDS

5.3 FLOOD

5.3.1 Background

Flooding is the most frequent and costly natural hazard in the United States and is a hazard that has caused more than 10,000 deaths since 1900. Nearly 90 percent of presidential disaster declarations result from natural events where flooding was a major component.

Floods generally result from excessive precipitation and can be classified under two categories: general floods, precipitation over a given river basin for a long period of time along with storm-induced wave action, and flash floods, the product of heavy localized precipitation in a short time period over a given location. The severity of a flooding event is typically determined by a combination of several major factors, including stream and river basin topography and physiography, precipitation and weather patterns, recent soil moisture conditions, and the degree of vegetative clearing and impervious surface.

General floods are usually long-term events that may last for several days. The primary types of general flooding include riverine, coastal, and urban flooding. Riverine flooding is a function of excessive precipitation levels and water runoff volumes within the watershed of a stream or river. Coastal flooding is typically a result of storm surge, wind-driven waves, and heavy rainfall produced by hurricanes, tropical storms, and other large coastal storms. Urban flooding occurs where manmade development has obstructed the natural flow of water and decreased the ability of natural groundcover to absorb and retain surface water runoff.

Flash flooding is another type of flooding that can be associated with urban flooding. It is common in urbanized areas where much of the ground is covered by impervious surfaces. Most flash flooding occurs along mountain streams and is caused by slow-moving thunderstorms in a local area or by heavy rains associated with hurricanes and tropical storms. However, flash-flooding events may also occur from a dam or levee failure within minutes or hours of heavy amounts of rainfall, or from a sudden release of water held by retention basin or other stormwater control facility.

The periodic flooding of lands adjacent to rivers, streams and shorelines (land known as floodplain) is a natural and inevitable occurrence that can be expected to take place based upon established recurrence intervals. Floodplains are designated by the frequency of the flood that is large enough to cover them. For example, the 10-year floodplain will be covered by the 100-year flood and the 100-year floodplain by the 1,000-year flood. Flood frequencies such as the 100-year flood are determined by plotting a graph of the size of all known floods for an area and determining how often floods of a particular size occur. Another way of expressing the flood frequency is the chance of occurrence in a given year, which is the percentage of the probability of flooding each year. For example, the 100-year flood has a 1-percent annual chance of occurring in any given year, and the 500-year flood has a 0.2-percent annual chance of occurring in any given year.

5.3.2 Location and Spatial Extent

There are areas in the MEMA District 8 Region that are susceptible to flood events. Special flood hazard areas in the MEMA District 8 Region were mapped using Geographic Information System (GIS) and FEMA

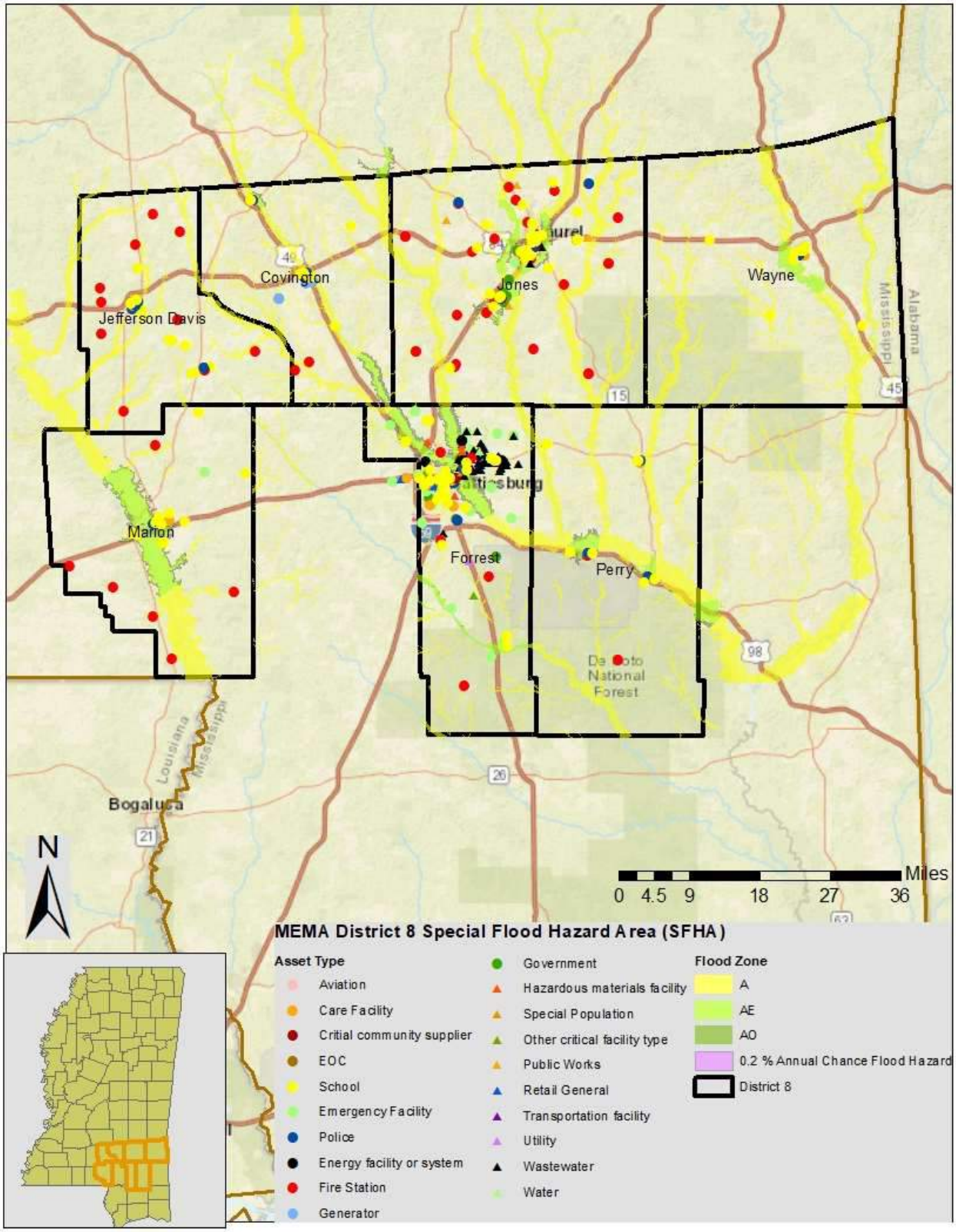
Digital Flood Insurance Rate Maps (DFIRM). This includes Zone A (1-percent annual chance floodplain), Zone AE (1-percent annual chance floodplain with elevations), and the 0.2-percent annual chance floodplain. According to GIS analysis, of the 4,003 square miles that make up the MEMA District 8 Region, there are approximately 629 square miles of land in zones A and AE (1-percent annual chance floodplain/100-year floodplain) and 5 square miles of land in the 0.2-percent annual chance floodplain (500-year floodplain). The county totals are presented below in **Table 5.3**.

TABLE 5.3: SUMMARY OF FLOODPLAIN AREAS IN THE MEMA DISTRICT 8 REGION

Location	100-year area (square miles)	500-year area (square miles)
Covington County (2010)	80	1
Jefferson Davis County (2010)	46	0
Jones County (2010)	137	1
Marion County (2011)	83	2
Perry County (2011)	115	1
Wayne County (2011)	122	0
Forrest County (2016)	46	0
MEMA DISTRICT 8 REGION TOTAL	**629**	**5**

These flood zone values account for 16.6 percent of the total land area in the MEMA District 8 Region. It is important to note that while FEMA digital flood data is recognized as best available data for planning purposes, it does not always reflect the most accurate and up-to-date flood risk. Flooding and flood-related losses often do occur outside of delineated special flood hazard areas. **Figure 5.2** illustrates the location and extent of currently mapped special flood hazard areas for the MEMA District 8 Region based on best available FEMA Digital Flood Insurance Rate Map (DFIRM) data.

FIGURE 5.2: SPECIAL FLOOD HAZARD AREAS IN THE MEMA DISTRICT 8 REGION



Source: Federal Emergency Management Agency

5.3.3 Historical Occurrences

Floods resulted in 12 disaster declarations in the MEMA District 8 Region between 1972 and 2019.[1] Information from the National Centers for Environmental Information was used to ascertain historical flood events. The National Centers for Environmental Information reported a total of 411 events throughout the MEMA District 8 Region since 1993.[2] A summary of these events is presented in **Table 5.4**. These events accounted for $94M in property damage throughout the region. Specific information on flood events for each county, including date, type of flooding, and deaths and injuries, can be found in the jurisdiction-specific annexes.

TABLE 5.4: SUMMARY OF FLOOD OCCURRENCES IN THE MEMA DISTRICT 8 REGION

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Covington County	**36**	**0/0**	**$3,377,816**
Collins	6	0/0	$258,689
Mount Olive	4	0/0	$311,460
Seminary	4	0/0	$45,130
Unincorporated Area	22	0/0	$2,762,537
Jefferson Davis County	**29**	**0/0**	**$1,324,227**
Bassfield	8	0/0	$96,512
Prentiss	7	0/0	$528,156
Unincorporated Area	14	0/0	$699,559
Jones County	**106**	**0/0**	**$6,079,482**
Ellisville	9	0/0	$62,387
Laurel	35	0/0	$1,265,051
Sandersville	4	0/0	$35,855
Soso	2	0/0	$8,000
Unincorporated Area	56	0/0	$4,708,189
Marion County	**68**	**0/0**	**$36,668,695**
Columbia	23	0/0	$24,924,081
Unincorporated Area	45	0/0	$11,744,614
Perry County	**29**	**0/0**	**$2,017,797**
Beaumont	1	0/0	$0
New Augusta	2	0/0	$50,000
Richton	5	0/0	$16,883
Unincorporated Area	21	0/0	$1,850,000
Wayne County	**26**	**0/0**	**$1,351,395**
State Line	3	0/0	$5,465
Waynesboro	10	0/0	$74,280
Unincorporated Area	13	0/0	$1,271,650
Forrest County	**117**	**4/0**	**$43,193,000**
Hattiesburg	46	3/0	$38,681,000

[1]Not all of the participating counties were declared disaster areas for these storms. A complete listing of historical disaster declarations, including the affected counties, can be found in Section 4: Hazard Identification.
[2] These events are only inclusive of those reported by NCEI. It is likely that additional occurrences have occurred and have gone unreported.

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Petal	11	0/0	$313,000
Unincorporated Area	60	1/0	$4,199,000
MEMA DISTRICT 8 REGION TOTAL	**411**	**0/0**	**$94,012,412**

Source: National Centers for Environmental Information

5.3.4 Historical Summary of Insured Flood Losses

Recently, FEMA issued a directive that prevents states or local governments from sharing NFIP information such as rep loss or severe rep loss data with third parties. Third parties are considered as consultants, contractors, etc. As a result, for continuity of information so that the reader with have an idea of the historical occurrences along with the corresponding damage amounts, the decision was made to leave the existing information in the plan.

According to FEMA flood insurance policy records as of March 2013, there have been 800 flood losses reported in the MEMA District 8 Region through the National Flood Insurance Program (NFIP) since 1978, totaling nearly $7.7 million in claims payments. A summary of these figures for each MEMA District 8 county is provided in **Table 5.5**. It should be emphasized that these numbers include only those losses to structures that were insured through the NFIP policies, and for losses in which claims were sought and received. It is likely that many additional instances of flood loss in the MEMA District 8 Region were either uninsured, denied claims payment, or not reported.

TABLE 5.5: SUMMARY OF INSURED FLOOD LOSSES IN THE MEMA DISTRICT 8 REGION

Location	Flood Losses	Claims Payments
Covington County	**48**	**$528,810**
Collins	18	$124,503
Mount Olive	3	$46,982
Seminary	0	$0
Unincorporated Area	27	$357,325
Jefferson Davis County	**2**	**$4,613**
Bassfield*	--	--
Prentiss	2	$4,613
Unincorporated Area	0	$0
Jones County	**108**	**$681,965**
Ellisville	5	$46,027
Laurel	75	$398,815
Sandersville*	--	--
Soso*	--	--
Unincorporated Area	28	$237,123
Marion County	**551**	**$5,950,261**
Columbia	303	$3,612,752
Unincorporated Area	248	$2,337,509
Perry County	**67**	**$258,797**
Beaumont	16	$32,703
New Augusta	12	$51,683
Richton	1	$42,415

Location	Flood Losses	Claims Payments
Unincorporated Area	38	$131,996
Wayne County	**24**	**$258,596**
State Line	1	$6,924
Waynesboro	17	$134,036
Unincorporated Area	6	$117,636
Forrest County	**23**	**$243,475**
Hattiesburg	23	$243,475
Petal	-	-
Unincorporated Area	-	-
MEMA DISTRICT 8 REGION TOTAL	**823**	**$7,926,517**

* These communities do not participate in the National Flood Insurance Program. Therefore, no values are reported.
Source: FEMA, NFIP, Planning Committee (Note: Forrest County data reported is as of March 2016)

5.3.5 Repetitive Loss Properties

No updates to this section can be provided at this time. Information normally used to update this section is not currently accessible. As a result, this information will remain the same for historical purposes.

FEMA defines a repetitive loss property as any insurable building for which two or more claims of more than $1,000 were paid by the NFIP within any rolling 10-year period, since 1978. A repetitive loss property may or may not be currently insured by the NFIP. Currently there are over 140,000 repetitive loss properties nationwide.

Currently (as of May 2013), there are 125 non-mitigated repetitive loss properties located in the MEMA District 8 Region, which accounted for 371 losses and more than $4.3 million in claims payments under the NFIP. The average claim amount for these properties is $11,657. Of the 125 properties, 88 are single family, 7 are assumed condominiums, 1 is other residential, and 29 are non-residential. Without mitigation, these properties will likely continue to experience flood losses. **Table 5.6** presents a summary of these figures for the MEMA District 8 Region. Detailed information on repetitive loss properties and NFIP claims and policies can be found in the jurisdiction-specific annexes. Currently, this remains the best available data. No NFIP Claims data was provided in the existing Forrest County HMP and no additional data was accessible at the time of the District Plan Update.

TABLE 5.6: SUMMARY OF REPETITIVE LOSS PROPERTIES IN THE MEMA DISTRICT 8 REGION

Location	Number of Properties	Number of Losses	Total Payments
Covington County	**8**	**18**	**$291,033**
Collins	0	0	$0
Mount Olive	0	0	$0
Seminary	0	0	$0
Unincorporated Area	8	18	$291,033
Jefferson Davis County	**0**	**0**	**$0**
Bassfield*	--	--	--
Prentiss	0	0	$0
Unincorporated Area	0	0	$0

Location	Number of Properties	Number of Losses	Total Payments
Jones County	**12**	**34**	**$235,086**
Ellisville	1	2	$17,996
Laurel	9	25	$186,536
Sandersville*	--	--	--
Soso*	--	--	--
Unincorporated Area	2	7	$30,554
Marion County	**91**	**282**	**$3,563,949**
Columbia	47	139	$2,027,858
Unincorporated Area	44	143	$1,536,092
Perry County	**11**	**26**	**$116,001**
Beaumont	2	4	$10,688
New Augusta	3	6	$33,259
Richton	0	0	$0
Unincorporated Area	6	16	$72,053
Wayne County	**3**	**11**	**$118,827**
State Line	0	0	$0
Waynesboro	3	11	$118,828
Unincorporated Area	0	0	$0
Forrest County	**22**	**74**	**$1,379,010**
Hattiesburg	22	74	$1,379,010
Petal	-	-	-
Unincorporated Area	-	-	-
MEMA DISTRICT 8 REGION TOTAL	**125**	**371**	**$5,703,907**

* These communities do not participate in the National Flood Insurance Program. Therefore, no values are reported.
Source: FEMA, NFIP, Planning Committee

5.3.6 Probability of Future Occurrences

Due to the unpredictable nature of this hazard, flood events will remain a threat in the MEMA District 8 Region, and the probability of future occurrences will remain likely (between 10 and 100 percent annual probability). The participating jurisdictions and unincorporated areas have risk to flooding, though not all areas will experience flood. The probability of future flood events based on magnitude and according to best available data is illustrated in the figures above**,** which indicates those areas susceptible to the 1-percent annual chance flood (100-year floodplain) and the 0.2-percent annual chance flood (500-year floodplain).

It can be inferred from the floodplain location maps, previous occurrences, and repetitive loss properties that risk varies throughout the region. For example, the eastern half of the region has more floodplain and thus a higher risk of flood than the western half of the region. Flood is not the greatest hazard of concern but will continue to occur and cause damage. Therefore, mitigation actions may be warranted, particularly for repetitive loss properties.

5.4 EROSION

5.4.1 Background

Erosion is the gradual breakdown and movement of land due to both physical and chemical processes of water, wind, and general meteorological conditions. Natural, or geologic, erosion has occurred since the Earth's formation and continues at a very slow and uniform rate each year.

There are two types of soil erosion: wind erosion and water erosion. Wind erosion can cause significant soil loss. Winds blowing across sparsely vegetated or disturbed land can pick up soil particles and carry them through the air, thus displacing them. Water erosion, the hazard of topic here, can occur over land or in streams and channels. Water erosion that takes place over land may result from raindrops, shallow sheets of water flowing off the land, or shallow surface flow, which becomes concentrated in low spots. Stream channel erosion may occur as the volume and velocity of water flow increases enough to cause movement of the streambed and bank soils. Major storms, such hurricanes in coastal areas, may cause significant erosion by combining high winds with heavy surf and storm surge to significantly impact the shoreline.

An area's potential for erosion is determined by four factors: soil characteristics, vegetative cover, topography climate or rainfall, and topography. Soils composed of a large percentage of silt and fine sand are most susceptible to erosion. As the clay and organic content of these soils increases, the potential for erosion decreases. Well-drained and well-graded gravels and gravel-sand mixtures are the least likely to erode. Coarse gravel soils are highly permeable and have a good capacity for absorption, which can prevent or delay the amount of surface runoff. Vegetative cover can be very helpful in controlling erosion by shielding the soil surface from falling rain, absorbing water from the soil, and slowing the velocity of runoff. Runoff is also affected by the topography of the area including size, shape, and slope. The greater the slope length and gradient, the more potential an area has for erosion. Climate can affect the amount of runoff, especially the frequency, intensity, and duration of rainfall and storms. When rainstorms are frequent, intense, or of long duration, erosion risks are high. Seasonal changes in temperature and rainfall amounts define the period of highest erosion risk of the year.

During the past 20 years, the importance of erosion control has gained the increased attention of the public. Implementation of erosion control measures consistent with sound agricultural and construction operations is needed to minimize the adverse effects associated with harmful chemicals run-off due to wind or water events. The increase in government regulatory programs and public concern has resulted in a wide range of erosion control products, techniques, and analytical methodologies in the United States. The preferred method of erosion control in recent years has been the restoration of vegetation.

5.4.2 Location and Spatial Extent

Erosion in the MEMA District 8 Region is typically caused by flash flooding events. Unlike coastal areas, areas of concern for erosion in the MEMA District 8 Region are primarily rivers and streams. Generally, vegetation helps to prevent erosion in the area, and it is not an extreme threat to any of the participating counties and jurisdictions. No areas of concern were reported by the planning committee.

5.4.3 Historical Occurrences

Several sources were vetted to identify areas of erosion in the MEMA District 8 Region. This includes searching local newspapers, interviewing local officials, and reviewing previous hazard mitigation plans. No historical erosion occurrences were found in these sources.

Covington County, Jefferson Davis County, and Marion County have flood damage prevention ordinances that include measures to limit erosion. Such actions will continue to be implemented as necessary throughout the region.

5.4.4 Probability of Future Occurrences

Erosion remains a natural, dynamic, and continuous process for the MEMA District 8 Region, and it will continue to occur. The annual probability level assigned for erosion is possible (between 1 and 10 percent annually). However, given the lack of historical events, location, and threat to life or property, no further analysis will be done in Section 6: *Vulnerability Assessment*.

5.5 DAM AND LEVEE FAILURE

5.5.1 Background

Worldwide interest in dam and levee safety has risen significantly in recent years. Aging infrastructure, new hydrologic information, and population growth in floodplain areas downstream from dams and near levees have resulted in an increased emphasis on safety, operation, and maintenance.

There are approximately 80,000 dams in the United States today, the majority of which are privately owned. Other owners include state and local authorities, public utilities, and federal agencies. The benefits of dams are numerous: they provide water for drinking, navigation, and agricultural irrigation. Dams also provide hydroelectric power, create lakes for fishing and recreation, and save lives by preventing or reducing floods.

Though dams have many benefits, they also can pose a risk to communities if not designed, operated, and maintained properly. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and great property damage if development exists downstream. If a levee breaks, scores of properties may become submerged in floodwaters and residents may become trapped by rapidly rising water. The failure of dams and levees has the potential to place large numbers of people and great amounts of property in harm's way.

5.5.2 Location and Spatial Extent

The Mississippi Division of Environmental Quality provides information on dams including a hazard potential classification. There are three hazard classifications—high, significant, and low—that correspond to qualitative descriptions. **Table 5.7** explains these classifications.

TABLE 5.7: MISSISSIPPI DAM HAZARD CLASSIFICATIONS

Hazard Classification	Description

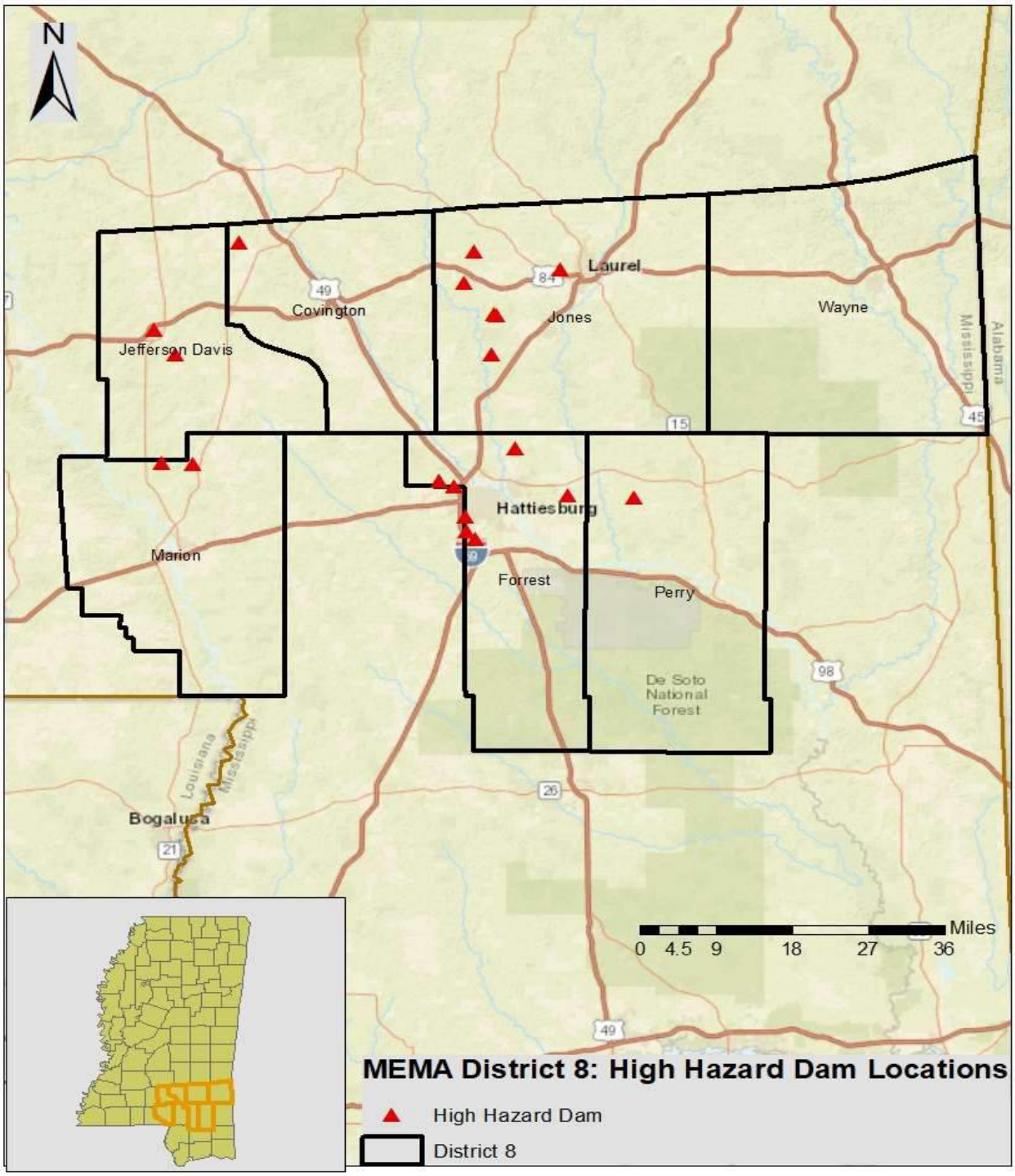
Low	Dam failure may cause damage to farm buildings (excluding residences), agricultural land, or county or minor roads.
Significant	Dam failure may cause significant damage to main roads, minor railroads, or cause interruption of use or service of relatively important public utilities.
High	Dam failure may cause loss of life, serious damage to homes, industrial or commercial buildings, important public utilities, main highways or railroads. Dams constructed in existing or proposed residential, commercial or industrial areas will be classified as high hazard dams, unless the applicant presents clear and convincing evidence to the contrary.

Source: Mississippi Division of Environmental Quality

According to the Mississippi Division of Environmental Quality, there are nineteen high hazard dams in the MEMA District 8 Region.[3] **Figure 5.3** shows the location of each of these high hazard dams and **Table 5.8** lists them by name. According to a consensus of local government officials and the Hazard Mitigation Council, a majority of these dams would not pose a major threat in a breach or failure occurrence.

[3] The list of high hazard dams obtained from the Mississippi Division of Environmental Quality was reviewed and amended by local officials to the best of their knowledge.

FIGURE 5.3: MEMA DISTRICT 8 REGION HIGH HAZARD DAM LOCATIONS



Source: Mississippi Division of Environmental Quality

TABLE 5.8: MEMA DISTRICT 8 REGION HIGH HAZARD DAMS

Dam Name	Hazard Potential
Covington County	
DRY CREEK WATERSHED STRUCTURE 3 DAM	*High*

Jefferson Davis County	
LAKE JEFFERSON DAVIS DAM	High
WHITE SAND - GREENS CREEK STR 11E DAM	High
Jones County	
BIG CREEK WATERSHED STRUCTURE 9 DAM	High
BIG CREEK WATER PARK DAM	High
ROBERTS LAKE DAM	High
LAKE HATTEN DAM	High
LAKE IVELL DAM	High
FLOWERS LAKE DAM	High
Marion County	
HOLIDAY CREEK WS STR 4 DAM	High
HOLIDAY CREEK WS STR 3 DAM	High
Perry County	
SPORTSMAN LAKE DAM	*High*
Wayne County	
None	N/A
Forrest County	
LYNN CARTLAGE LAKE DAM	High
COUNTRY CLUB LAKE	High
LAKE SEHOY (USM CAMPUS LAKE) DAM	High
LAKE B DAM	High
FORTIETH PLACE DAM	High
PLEASANT RIDGE ESTATES DAM	High
LAKELAND DRIVE LAKE DAM	High

Source: Mississippi Division of Environmental Quality

5.5.3 Historical Occurrences

A total of two dams have been breached in the MEMA District 8 Region. Two dam breaches occurred in Jones County in 1993 (Indian Springs Lake) and 2010 (Lake Getaway). There are no reports of death or injury and damage caused was minimal. However, a third breach occurred in 2004 (Big Bay Dam) in Lamar County that resulted in damages in Marion County, including destruction of 1 mobile home; major damage to 14 homes, 2 mobile homes, Pine Burr Church, and Pine Burr Volunteer Fire Department; and minor damage to 10 homes, 3 mobile homes, and Hub Chapel Church.

5.5.4 Probability of Future Occurrence

Given the current dam inventory and historic data, a dam breach is unlikely (less than 1 percent annual probability) in the future. However, as has been demonstrated in the past, regular monitoring is necessary to prevent these events. No further analysis will be completed in Section 6: *Vulnerability Assessment* as more sophisticated dam breach plans (typically completed by the U.S. Army Corp of Engineers) have been completed for dams of concern in the region.

5.6 WINTER STORM AND FREEZE

5.6.1 Background

A winter storm can range from a moderate snow over a period of a few hours to blizzard conditions with blinding wind-driven snow that lasts for several days. Events may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Some winter storms might be large enough to affect several states, while others might affect only localized areas. Occasionally, heavy snow might also cause significant property damages, such as roof collapses on older buildings.

All winter storm events have the potential to present dangerous conditions to the affected area. Larger snowfalls pose a greater risk, reducing visibility due to blowing snow and making driving conditions treacherous. A heavy snow event is defined by the National Weather Service as an accumulation of 4 of more inches in 12 hours or less. A blizzard is the most severe form of winter storm. It combines low temperatures, heavy snow, and winds of 35 miles per hour or more, which reduces visibility to a quarter mile or less for at least 3 hours. Winter storms are often accompanied by sleet, freezing rain, or an ice storm. Such freeze events are particularly hazardous as they create treacherous surfaces.

Ice storms are defined as storms with significant amounts of freezing rain and are a result of cold air damming (CAD). CAD is a shallow, surface-based layer of relatively cold, stably-stratified air entrenched against the eastern slopes of the Appalachian Mountains. With warmer air above, falling precipitation in the form of snow melts, then becomes either super-cooled (liquid below the melting point of water) or re-freezes. In the former case, super-cooled droplets can freeze on impact (freezing rain), while in the latter case, the re-frozen water particles are ice pellets (or sleet). Sleet is defined as partially frozen raindrops or refrozen snowflakes that form into small ice pellets before reaching the ground. They typically bounce when they hit the ground and do not stick to the surface. However, it does accumulate like snow, posing similar problems and has the potential to accumulate into a layer of ice on surfaces. Freezing rain, conversely, usually sticks to the ground, creating a sheet of ice on the roadways and other surfaces. All of the winter storm elements – snow, low temperatures, sleet, ice, etcetera – have the potential to cause significant hazard to a community. Even small accumulations can down power lines and trees limbs and create hazardous driving conditions. Furthermore, communication and power may be disrupted for days.

5.6.2 Location and Spatial Extent

Nearly the entire continental United States is susceptible to winter storm and freeze events. Some ice and winter storms may be large enough to affect several states, while others might affect limited, localized areas. The degree of exposure typically depends on the normal expected severity of local winter weather. The MEMA District 8 Region is not typically affected by major severe winter weather conditions and seldom receives extremely devastating winter weather, even during the winter months. Given the atmospheric nature of the hazard the entire region has uniform exposure to a winter storm.

5.6.3 Historical Occurrences

According to the National Centers for Environmental Information, there have been a total of 51 recorded winter storm events in the MEMA District 8 Region since 1993 (**Table 5.9**).[4] These events resulted in nearly $2M in damages. Detailed information on the recorded winter storm events can be found in the jurisdiction-specific annexes.

TABLE 5.9: SUMMARY OF WINTER STORM EVENTS IN THE MEMA DISTRICT 8 REGION

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Covington County	6	0/0	$349,819
Jefferson Davis County	6	0/0	$123,695
Jones County	6	0/0	$226,921
Marion County	6	0/0	$674,558
Perry County	7	0/0	$0
Wayne County	11	0/0	$10,000
Forrest County	9	0/0	$605,000
MEMA DISTRICT 8 REGION TOTAL	**51**	**0/0**	**$1,989,993**

Source: National Centers for Environmental Information

There have been several severe winter weather events in the MEMA District 8 Region. The text below describes two of the major events and associated impacts on the region. Similar impacts can be expected with severe winter weather.

January 2002 Winter Storm

A winter storm produced heavy snow across portions of southeast Mississippi. The heaviest snow recorded during the storm was four to four- and one-half inches. Icy bridges made traveling across the region very treacherous. As a result, several accidents occurred with two fatalities in Jones County.

January 2008 Winter Storm

This storm produced heavy snow across the region, with an average of three to four inches of snow. Some heavier amounts, between four to five inches, also fell in isolated areas. At the height of the snow, temperatures fell to near freezing, and accumulations occurred on roadways resulting in a number of traffic accidents. Additionally, some power outages occurred in the heaviest snow band due to the weight of wet snow on limbs and lines. The heaviest snow fell in the areas around Covington, Jefferson Davis, and Jones Counties.

Winter storms throughout the region have several negative externalities including hypothermia, cost of snow and debris cleanup, business and government service interruption, traffic accidents, and power outages. Furthermore, citizens may resort to using inappropriate heating devices that could to fire or an accumulation of toxic fumes.

January 2018 Winter Storm

[4] These ice and winter storm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional winter storm conditions have affected the MEMA District 8 Region.

A winter weather event occurred across the area beginning on January 16th and on into January 17th across the Gulf Coast. This event came with measurable snow with low temperatures in the 20's. The winter accumulation resulted in very hazardous traveling conditions particularly over bridges and overpasses. Several roads were closed throughout the area. The National Weather Service indicated the area received two to three inches of snow.

5.6.4 Probability of Future Occurrences

Winter storm events will continue to occur in the MEMA District 8 Region. Based on historical information, the annual probability is possible (between 1 and 10 percent).

FIRE-RELATED HAZARDS

5.7 DROUGHT

5.7.1 Background

DROUGHT

Drought is a normal part of virtually all climatic regions, including areas with high and low average rainfall. Drought is the consequence of a natural reduction in the amount of precipitation expected over an extended period of time, usually a season or more in length. High temperatures, high winds, and low humidity can exacerbate drought conditions. In addition, human actions and demands for water resources can hasten drought-related impacts. Droughts may also lead to more severe wildfires.

Droughts are typically classified into one of four types: 1) meteorological, 2) hydrologic, 3) agricultural, or 4) socioeconomic. **Table 5.10** presents definitions for these types of drought.

TABLE 5.10 DROUGHT CLASSIFICATION DEFINITIONS

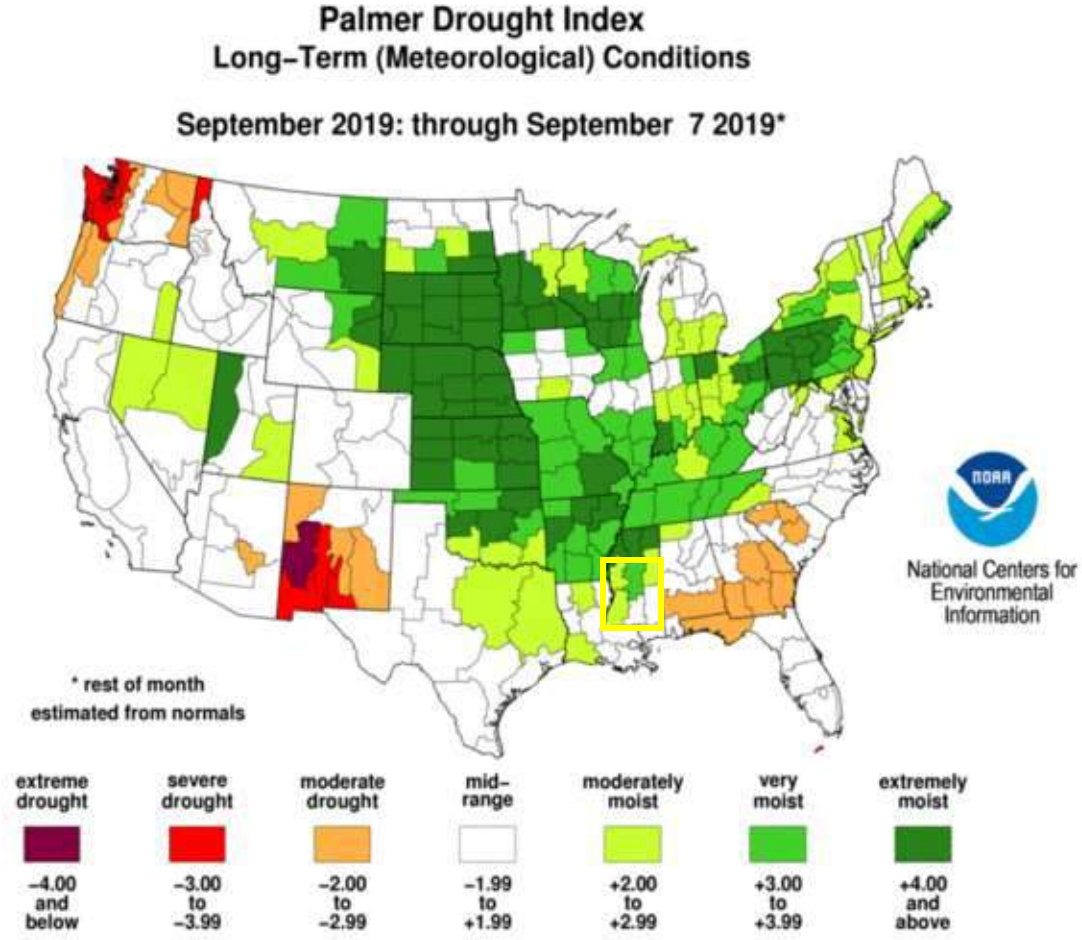
Meteorological Drought	The degree of dryness or departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
Hydrologic Drought	The effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels.
Agricultural Drought	Soil moisture deficiencies relative to water demands of plant life, usually crops.
Socioeconomic Drought	The effect of demands for water exceeding the supply as a result of a weather-related supply shortfall.

Source: Multi-Hazard Identification and Risk Assessment: A Cornerstone of the National Mitigation Strategy, FEMA

Droughts are slow-onset hazards, but, over time, can have very damaging affects to crops, municipal water supplies, recreational uses, and wildlife. If drought conditions extend over a number of years, the direct and indirect economic impact can be significant.

The Palmer Drought Severity Index (PDSI) is based on observed drought conditions and range from -0.5 (incipient dry spell) to -4.0 (extreme drought). Evident in **Figure 5.4**, the Palmer Drought Severity Index Summary Map for the United Stated, drought affects most areas of the United States, but is less severe in the Eastern and Southeastern United States.

FIGURE 5.4: PALMER DROUGHT SEVERITY INDEX SUMMARY MAP FOR THE UNITED STATES



Source: National Drought Mitigation Center

The U.S. Drought Monitor also records information on historical drought occurrence. The U.S. Drought Monitor categorizes drought on a D0-D4 scale as **Table 5.11** presents definitions for these classifications.

TABLE 5.11 U.S. DROUGHT MONITOR

D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered
D1	Moderate Drought	Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested
D2	Severe Drought	Crop or pasture losses likely; water shortages common; water restrictions imposed
D3	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies

Source U.S. Drought Monitor, http://droughtmonitor.unl.edu/classify.htm

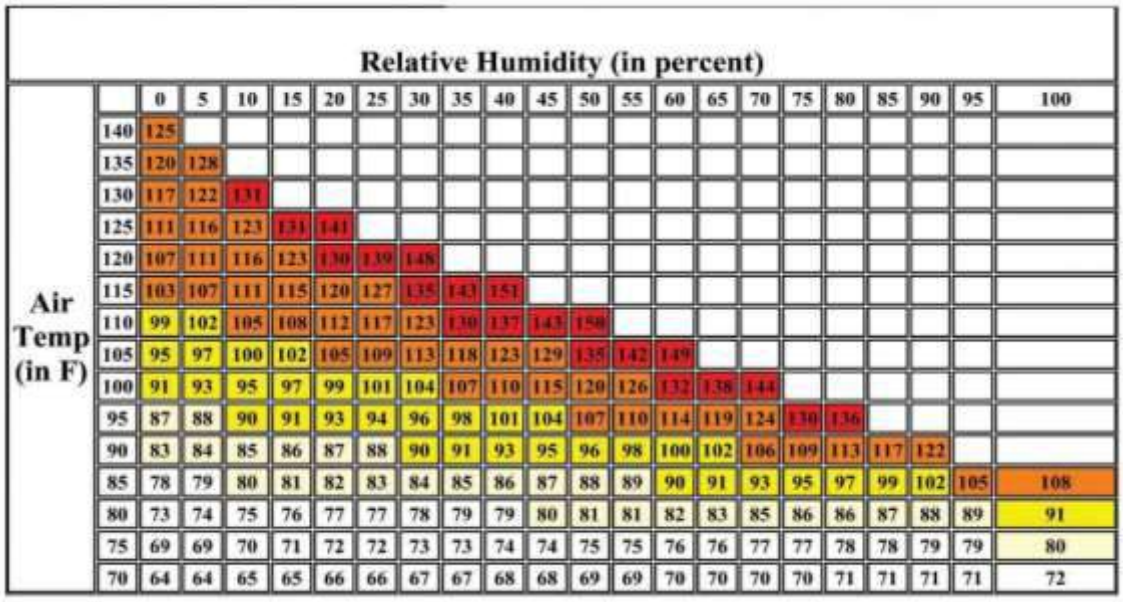
HEAT WAVE

Extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and that last for an extended period of time. A heat wave may occur when temperatures hover 10 degrees or more above the average high temperature for the region and last for a prolonged number of days or several weeks. Humid conditions may also add to the discomfort of high temperatures.

While extreme heat does not typically affect buildings, the impact to the population can have grave effects. Health risks from extreme heat include heat cramps, heat fainting, heat exhaustion and heat stroke. According to the National Weather Service (which compiles data from the National Centers for Environmental Information), heat is the leading weather-related killer in the United States. During the ten-year period between 2000 and 2009 heat events killed 162 people - more people than lightning, tornado, flood, cold, winter storm, wind and hurricane hazards. However, most deaths are attributed to prolonged heat waves in large cities that rarely experience hot weather. The elderly and the ill are most at-risk, along with those who exercise outdoors in hot, humid weather.

The National Weather Service devised the Heat Index as a mechanism to better inform the public of heat dangers. The Heat Index Chart, shown in **Figure 5.5**, uses air temperature and humidity to determine the heat index or apparent temperature. **Table 5.12** shows the dangers associated with different heat index temperatures. Some populations, such as the elderly and young, are more susceptible to heat danger than other segments of the population.

FIGURE 5.5: HEAT INDEX CHART



Source: NOAA

TABLE 5.12: HEAT DISORDERS ASSOCIATED WITH HEAT INDEX TEMPERATURE

Heat Index Temperature (Fahrenheit)	Description of Risks
80°- 90°	Fatigue possible with prolonged exposure and/or physical activity
90°- 105°	Sunstroke, heat cramps, and heat exhaustion possible with prolonged exposure and/or physical activity
105°- 130°	Sunstroke, heat cramps, and heat exhaustion likely, and heatstroke possible with prolonged exposure and/or physical activity
130° or higher	Heatstroke or sunstroke is highly likely with continued exposure

Source: National Weather Service, NOAA

5.7.2 Location and Spatial Extent

Drought and heat waves typically cover a large area and cannot be confined to any geographic or political boundaries. Furthermore, it is assumed that the MEMA District 8 Region would be uniformly exposed to drought, making the spatial extent potentially widespread. It is also notable that drought conditions typically do not cause significant damage to the built environment but may exacerbate wildfire conditions.

5.7.3 Historical Occurrences

DROUGHT

Data from the U.S. Drought Monitor and National Centers for Environmental Information (NCEI) were used to ascertain historical drought events in the MEMA District 8 Region. The U.S. Drought Monitor reports data at the county level on a weekly basis throughout the county. It classifies drought conditions on a scale of D0 to D4, as described in **Table 5.11** above.

According to the U.S. Drought Monitor, all of the counties in the MEMA District 8 Region had drought levels (including abnormally dry) in all of the last thirteen years (2000-2018) (**Table 5.13**). The most severe drought classification reported for each year, according to U.S. Drought Monitor classifications, is listed in the jurisdiction-specific annexes. It should be noted that the U.S. Drought Monitor also estimates what percentage of the county is in each classification of drought severity. For example, the most severe classification reported may be exceptional, but a majority of the county may actually be in a less severe condition.

TABLE 5.13: SUMMARY OF DROUGHT OCCURRENCES IN THE MEMA DISTRICT 8 REGION

Abnormally Dry **Moderate Drought** **Severe Drought** **Extreme Drought** **Exceptional Drought**

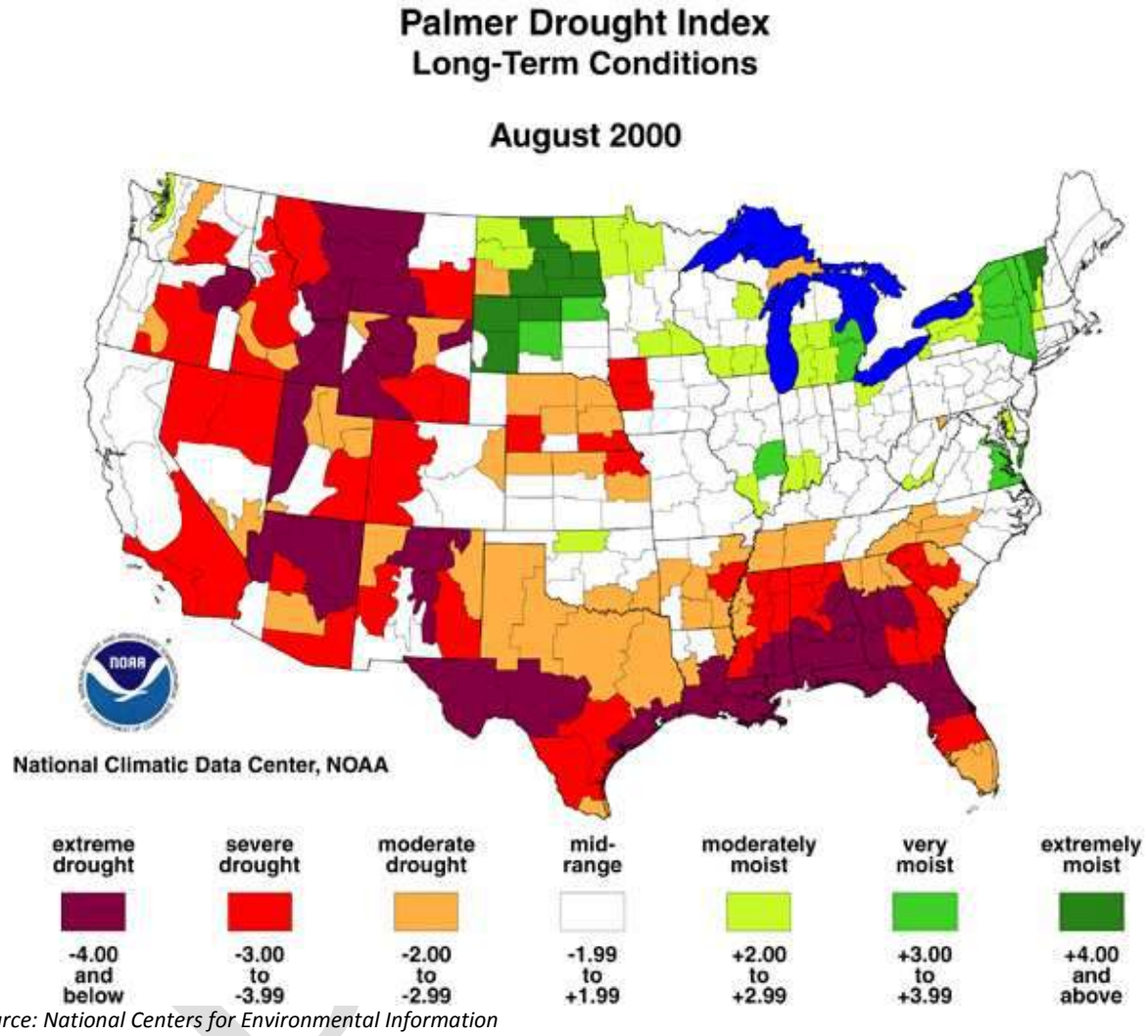
Location	Number Years with Drought Occurrences	Number of years with Exceptional Drought Occurrences
Covington County	13	**1**
Jefferson Davis County	13	**1**
Jones County	13	**1**
Marion County	13	**2**
Perry County	13	**2**
Wayne County	13	**1**
Forrest County	13	**2**

Source: U.S. Drought Monitor

Some additional anecdotal information was provided from the National Centers for Environmental Information on droughts in the MEMA District 8 Region.

Summer 2000 Drought – As shown in the **Figure 5.6** below, drought conditions were pronounced throughout much of the south and western areas of the nation.

Figure 5.6: Palmer Drought Index for August 2000



Source: National Centers for Environmental Information

June through October 2006 – Widespread drought conditions were reported as at least Extreme (D3) throughout most of the area.

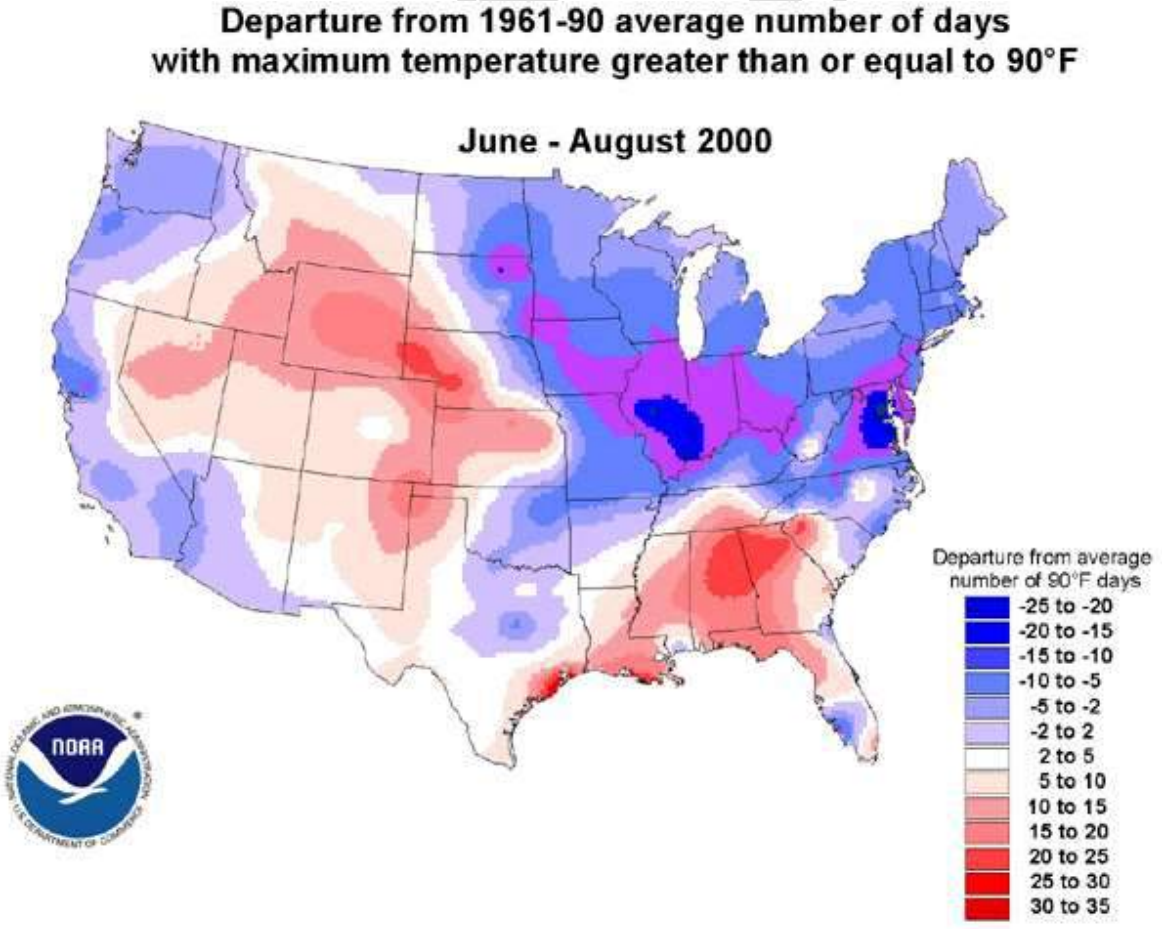
June/July 2007 – Lingering drought conditions peaked in June causing severe agricultural losses. By July, rainfall helped relieve conditions. However, yields were expected to be much lower than usual.

HEAT WAVE

The National Centers for Environmental Information was used to determine historical heat wave occurrences in the region.

Summer of 2000 – Hot temperatures persisted from July to September across the South and Plains. Known as the Summer of 2000 Heat Wave, high temperatures commonly peaked over 100 degrees. As shown in **Figure 5.7** below, there were several days over 90 degree than the typical average. This was the fourth warmest July-August on record. In Beaumont, the temperature was 100 degrees or higher eleven days during the month with the hottest being 105 degrees. In Richton the temperature was 100 degrees or higher three days during the month with the hottest being 102 degrees. In Waynesboro the temperature was 100 degrees or higher four days during the month with the hottest being 103 degrees.

FIGURE 5.7: DEPARTURE FROM AVERAGE NUMBER OF 90 DEGREE DAYS



Source: National Centers for Environmental Information

July 2005 – A five-day heat wave covered the area. Temperatures were consistently above 95 degrees. One heat-stress fatality was reported in Covington County. The agricultural industry was hit particularly hard in the cattle and catfish sectors. Water supply issues were encountered by cities and a burn ban was implemented due to the high fire risk.

August 2005 – A heat wave covering the south began in mid-August and lasted about 10 days. High temperatures were consistently over 95 degrees and surpassed 100 degrees on some days. It was the first time since August 2000 that 100-degree temperatures reached the area.

July 2006 – A short heat wave impacted most of the area temperatures in the 90s to around 100 for five straight days.

August 2007 – A heat wave gripped most of the area with the warmest temperatures since 2000. It lasted from August 5th to the 16th.

5.7.4 Probability of Future Occurrences

DROUGHT

According to the Palmer Drought Severity Index (**Figure 5.2**), MEMA District 8 has a relatively low risk for drought hazard (5 to 9.99%). However, local areas may experience much more severe and/or frequent drought events than what is represented on the Palmer Drought Severity Index map.

Based on historical occurrence information, it is assumed that all of the MEMA District 8 Region has a probability level of highly likely (100 percent annual probability) for future drought events. However, the extent (or magnitude) of drought and the amount of geographic area covered by drought, varies with each year. Historic information indicates that there is a much lower probability for extreme, long-lasting drought conditions.

HEAT WAVE

Based on historical occurrence information, it is assumed that all of the MEMA District 8 Region has a probability level of highly likely (100 percent annual probability) for future heat wave events.

5.8 WILDFIRE

5.8.1 Background

A wildfire is any outdoor fire (i.e. grassland, forest, brush land) that is not under control, supervised, or prescribed.[5] Wildfires are part of the natural management of forest ecosystems, but may also be caused by human factors.

[5] Prescription burning, or "controlled burn," undertaken by land management agencies is the process of igniting fires under selected conditions, in accordance with strict parameters.

Nationally, over 80 percent of forest fires are started by negligent human behavior such as smoking in wooded areas or improperly extinguishing campfires. The second most common cause for wildfire is lightning. In Mississippi, a majority of fires are caused by debris burning.

There are three classes of wildland fires: surface fire, ground fire, and crown fire. A surface fire is the most common of these three classes and burns along the floor of a forest, moving slowly and killing or damaging trees. A ground fire (muck fire) is usually started by lightning or human carelessness and burns on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the tops of trees. Wildfires are usually signaled by dense smoke that fills the area for miles around.

Wildfire probability depends on local weather conditions, outdoor activities such as camping, debris burning, and construction, and the degree of public cooperation with fire prevention measures. Drought conditions and other natural hazards (such as tornadoes, hurricanes, etc.) increase the probability of wildfires by producing fuel in both urban and rural settings.

Many individual homes and cabins, subdivisions, resorts, recreational areas, organizational camps, businesses, and industries are located within high wildfire hazard areas. Furthermore, the increasing demand for outdoor recreation places more people in wildlands during holidays, weekends, and vacation periods. Unfortunately, wildland residents and visitors are rarely educated or prepared for wildfire events that can sweep through the brush and timber and destroy property within minutes.

Wildfires can result in severe economic losses as well. Businesses that depend on timber, such as paper mills and lumber companies, experience losses that are often passed along to consumers through higher prices and sometimes jobs are lost. The high cost of responding to and recovering from wildfires can deplete state resources and increase insurance rates. The economic impact of wildfires can also be felt in the tourism industry if roads and tourist attractions are closed due to health and safety concerns.

State and local governments can impose fire safety regulations on home sites and developments to help curb wildfire. Land treatment measures such as fire access roads, water storage, helipads, safety zones, buffers, firebreaks, fuel breaks, and fuel management can be designed as part of an overall fire defense system to aid in fire control. Fuel management, prescribed burning, and cooperative land management planning can also be encouraged to reduce fire hazards.

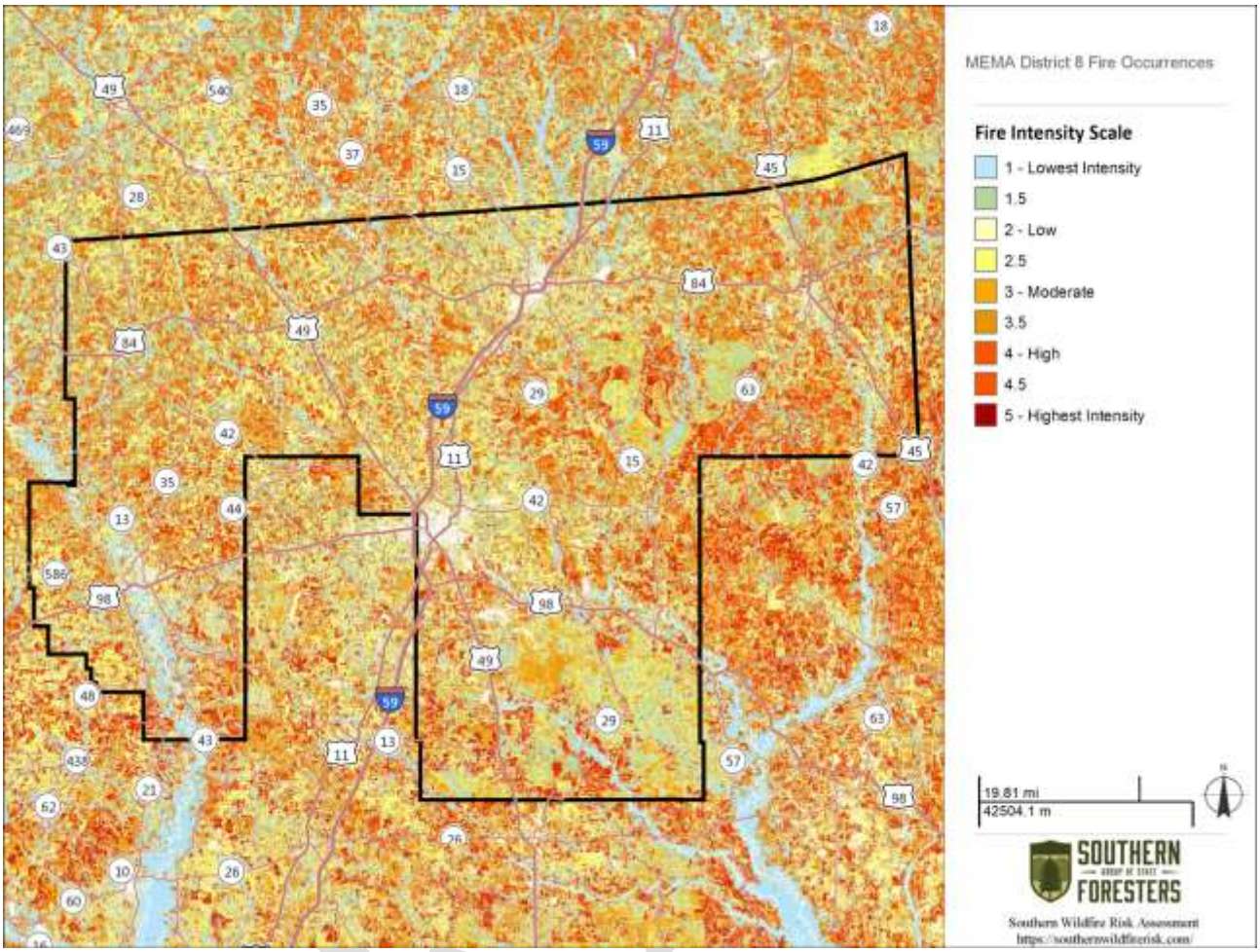
5.8.2 Location and Spatial Extent

The entire region is at risk to a wildfire occurrence. However, several factors such as drought conditions or high levels of fuel on the forest floor, may make a wildfire more likely. Furthermore, areas in the urban-wildland interface are particularly susceptible to fire hazard as populations abut formerly undeveloped areas. The Fire Occurrence Areas in the figure below give an indication of historic location.

5.8.3 Historical Occurrences

Figure 5.8 shows the Fire Occurrence Areas (FOA) in the MEMA District 8 Region based on data from the Southern Wildfire Risk Assessment. This data is based on historical fire ignitions and is reported as the number of fires that occur per 1,000 acres each year.

FIGURE 5.8: HISTORIC WILDFIRE EVENTS IN THE MEMA DISTRICT 8 REGION



Source: Southern Wildfire Risk Assessment

Based on data from the Mississippi Forestry Commission from 2008 to 2018, the MEMA District 8 Region experienced an average of 43 wildfires annually which burned a combined 406 acres, on average. **Table 5.14** provides a summary table for wildfire occurrences in the MEMA District 8 Region. The number of reported wildfire occurrences in the participating counties between the years 2008 and 2018 is listed in the jurisdiction-specific annexes.

TABLE 5.14: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2008 -2018)*

	Covington County	Jefferson Davis County	Jones County	Marion County	Perry County	Wayne County	Forrest County
Average Number of Fires per year	26.9	65	51.4	53.4	25.4	32.8	47.8
Average Number of Acres Burned per year	212	559	390.2	507.7	348.7	317.8	510.6
Average Number of Acres Burned	7.9	8.8	13.2	9.5	13.7	9.7	8.8

per fire							

*These values reflect averages over a 10-year period. No data available for 2009
Source: Mississippi Forestry Commission

5.8.4 Probability of Future Occurrences

Wildfire events will be an ongoing occurrence in the MEMA District 8 Region. The likelihood of wildfires increases during drought cycles and abnormally dry conditions. Fires are likely to stay small in size but could increase due to local climate and ground conditions. Dry, windy conditions with an accumulation of forest floor fuel (potentially due to ice storms or lack of fire) could create conditions for a large fire that spreads quickly. It should also be noted that some areas do vary somewhat in risk. For example, highly developed areas are less susceptible unless they are located near the urban-wildland boundary. The risk will also vary due to assets. Areas in the urban-wildland interface will have much more property at risk, resulting in increased vulnerability and need to mitigate compared to rural, mainly forested areas. In this case, the participating jurisdictions appear to have a similar risk to the surrounding areas. The probability assigned to the MEMA District 8 Region for future wildfire events is likely (a 10 and 100 percent annual probability).

GEOLOGIC HAZARDS

5.9 EARTHQUAKE

5.9.1 Background

An earthquake is movement or trembling of the ground produced by sudden displacement of rock in the Earth's crust. Earthquakes result from crustal strain, volcanism, landslides, or the collapse of caverns. Earthquakes can affect hundreds of thousands of square miles, cause damage to property measured in the tens of billions of dollars, result in loss of life and injury to hundreds of thousands of persons, and disrupt the social and economic functioning of the affected area.

Most property damage and earthquake-related deaths are caused by the failure and collapse of structures due to ground shaking. The level of damage depends upon the amplitude and duration of the shaking, which are directly related to the earthquake size, distance from the fault, site, and regional geology. Other damaging earthquake effects include landslides, the down-slope movement of soil and rock (mountain regions and along hillsides), and liquefaction, in which ground soil loses the ability to resist shear and flows much like quick sand. In the case of liquefaction, anything relying on the substrata for support can shift, tilt, rupture, or collapse.

Most earthquakes are caused by the release of stresses accumulated as a result of the rupture of rocks along opposing fault planes in the Earth’s outer crust. These fault planes are typically found along borders of the Earth's 10 tectonic plates. The areas of greatest tectonic instability occur at the perimeters of the slowly moving plates, as these locations are subjected to the greatest strains from plates traveling in opposite directions and at different speeds. Deformation along plate boundaries causes strain in the rock and the consequent buildup of stored energy. When the built-up stress exceeds the rocks' strength a rupture occurs. The rock on both sides of the fracture is snapped, releasing the stored energy and producing seismic waves, generating an earthquake.

The greatest earthquake threat in the United States is along tectonic plate boundaries and seismic fault lines located in the central and western states; however, the Eastern United State does face moderate risk to less frequent, less intense earthquake events. **Figure 5.9** shows relative seismic risk for the United States.

FIGURE 5.10: UNITED STATES EARTHQUAKE HAZARD MAP

Source: United States Geological Survey

Earthquakes are measured in terms of their magnitude and intensity. Magnitude is measured using the Richter Scale, an open-ended logarithmic scale that describes the energy release of an earthquake through a measure of shock wave amplitude (**Table 5.15**). Each unit increase in magnitude on the Richter Scale corresponds to a 10-fold increase in wave amplitude, or a 32-fold increase in energy. Intensity is most commonly measured using the Modified Mercalli Intensity (MMI) Scale based on direct and indirect measurements of seismic effects. The scale levels are typically described using roman numerals, ranging from "I" corresponding to imperceptible (instrumental) events to "XII" for catastrophic (total destruction). A detailed description of the Modified Mercalli Intensity Scale of earthquake intensity and its correspondence to the Richter Scale is given in **Table 5.16**.

685 **TABLE 5.15: RICHTER SCALE**

RICHTER MAGNITUDES	EARTHQUAKE EFFECTS
< 3.5	Generally not felt, but recorded.
3.5 - 5.4	Often felt, but rarely causes damage.
5.4 - 6.0	At most slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1 - 6.9	Can be destructive in areas up to about 100 kilometers across where people live.
7.0 - 7.9	Major earthquake. Can cause serious damage over larger areas.
8 or >	Great earthquake. Can cause serious damage in areas several hundred kilometers across.

Source: Federal Emergency Management Agency

686

687 **TABLE 5.16: MODIFIED MERCALLI INTENSITY SCALE FOR EARTHQUAKES**

SCALE	INTENSITY	DESCRIPTION OF EFFECTS	CORRESPONDING RICHTER SCALE MAGNITUDE
I	INSTRUMENTAL	Detected only on seismographs.	
II	FEEBLE	Some people feel it.	< 4.2
III	SLIGHT	Felt by people resting; like a truck rumbling by.	
IV	MODERATE	Felt by people walking.	
V	SLIGHTLY STRONG	Sleepers awake; church bells ring.	< 4.8
VI	STRONG	Trees sway; suspended objects swing, objects fall off shelves.	< 5.4
VII	VERY STRONG	Mild alarm; walls crack; plaster falls.	< 6.1
VIII	DESTRUCTIVE	Moving cars uncontrollable; masonry fractures, poorly constructed buildings damaged.	
IX	RUINOUS	Some houses collapse; ground cracks; pipes break open.	< 6.9
X	DISASTROUS	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread.	< 7.3
XI	VERY DISASTROUS	Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards.	< 8.1
XII	CATASTROPHIC	Total destruction; trees fall; ground rises and falls in waves.	> 8.1

688 *Source: Federal Emergency Management Agency*

689

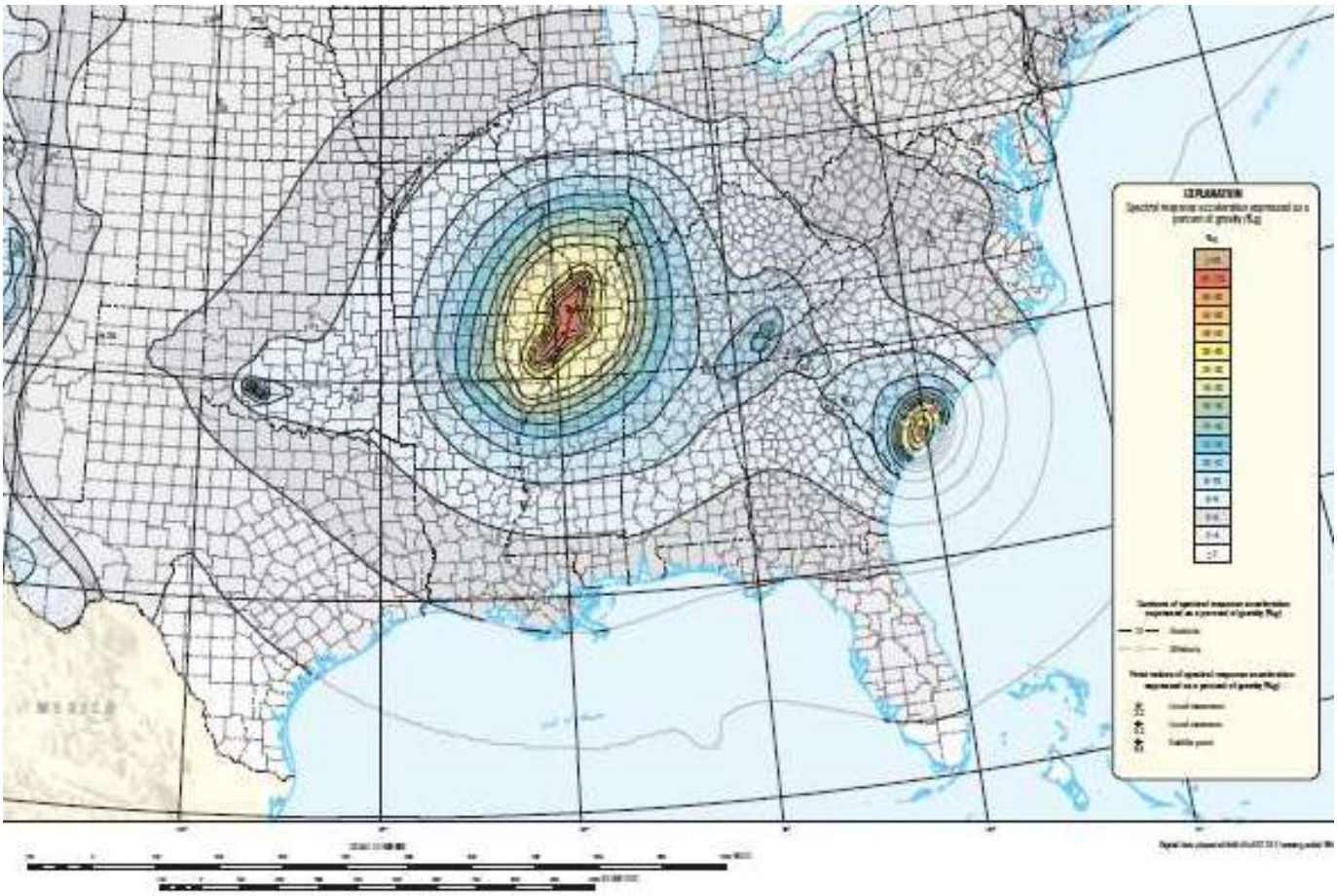
690 5.9.2 Location and Spatial Extent

691

692 **Figure 5.10** shows the intensity level associated with the MEMA District 8 Region, based on the national
693 USGS map of peak acceleration with 10 percent probability of exceedance in 50 years. It is the
694 probability that ground motion will reach a certain level during an earthquake. The data show peak
695 horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that
696 is moving horizontally due to an earthquake) with a 10 percent probability of exceedance in 50 years.

The map was compiled by the U.S. Geological Survey (USGS) Geologic Hazards Team, which conducts global investigations of earthquake, geomagnetic, and landslide hazards. According to this map, all of the MEMA District 8 Region lies within an approximate zone of level "2" to "3" ground acceleration. This indicates that the region as a whole exists within an area of moderate seismic risk.

FIGURE 5.11: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS



Source: USGS, 2017

5.9.3 Historical Occurrences

No earthquakes are known to have affected the MEMA District 8 Region since 1638. The strongest of these measured a VI on the Modified Mercalli Intensity (MMI) scale. **Table 5.17** provides a summary of earthquake events reported by the National Geophysical Data Center between 1638 and 1985.[6] There are no updates since the last plan.

[6] Due to reporting mechanisms, not all earthquakes events were recorded during this time.

TABLE 5.17: SUMMARY OF SEISMIC ACTIVITY IN THE MEMA DISTRICT 8 REGION

Location	Number of Occurrences	Greatest MMI Reported	Richter Scale Equivalent
Covington County	**0**	**--**	**--**
Collins	0	--	--
Mount Olive	0	--	--
Seminary	0	--	--
Unincorporated Area	0	--	--
Jefferson Davis County	**0**	**--**	**--**
Bassfield	0	--	--
Prentiss	0	--	--
Unincorporated Area	0	--	--
Jones County	**0**	**--**	**--**
Ellisville	0	--	--
Laurel	0	--	--
Sandersville	0	--	--
Soso	0	--	--
Unincorporated Area	0	--	--
Marion County	**0**	**--**	**--**
Columbia	0	--	--
Unincorporated Area	0	--	--
Perry County	**0**	**--**	**--**
Beaumont	0	--	--
New Augusta	0	--	--
Richton	0	--	--
Unincorporated Area	0	--	--
Wayne County	**0**	**--**	**--**
State Line	0	--	--
Waynesboro	0	--	--
Unincorporated Area	0	--	--
Forrest County	0	--	--
Hattiesburg	0	--	--
Petal	0	--	--
Unincorporated Area	0	--	--
MEMA DISTRICT 8 REGION TOTAL	**0**	**--**	**--**

Source: National Geophysical Data Center

In addition to those earthquakes specifically affecting the MEMA District 8 Region, a list of earthquakes that have affected Mississippi is presented below in **Table 5.18.**

TABLE 5.18: EARTHQUAKES WHICH HAVE AFFECTED MISSISSIPPI

Date	Origin	Richter Scale (Magnitude)	MMI (Intensity)	MMI in Mississippi	MEMA District 8 Counties Affected
1811-1812	New Madrid Seismic Zone	7.8-8.1	XI	Not available	Affected counties as far as the Gulf Coast

3/29/1972	New Madrid Seismic Zone	Not available	IV	I, II, III, IV	--
4/29/2003	8 miles ENE of Ft. Payne, AL	4.6	V	I, II, III, IV	--
11/7/2004	25 miles SW of Tuscaloosa, AL	4.0	V	I, II, III, IV	--
2/10/2005	22 miles WSW of Blytheville, AR	4.1	V	I, II, III	Jones
5/1/2005	15 miles WSW of Blytheville, AR	4.1	IV	I, II, III	--
6/2/2005	10 miles NNW of Dyersburg, TN	4.0	III	I	--
9/10/2006	253 miles SSW of Apalachicola, FL	6.0	VI	I, II, III, IV	Covington, Jones, Marion

Source: State of Mississippi Standard Mitigation Plan

5.9.4 Probability of Future Occurrences

The probability of significant, damaging earthquake events affecting the MEMA District 8 Region is unlikely. However, it is possible that future earthquakes resulting in light to moderate perceived shaking and damages ranging from none to very light will affect the region. The annual probability level for the region is estimated to be less than 1 percent (unlikely).

5.10 LANDSLIDE

5.10.1 Background

A landslide is the downward and outward movement of slope-forming soil, rock, and vegetation, which is driven by gravity. Landslides may be triggered by both natural and human-caused changes in the environment, including heavy rain, rapid snow melt, steepening of slopes due to construction or erosion, earthquakes, volcanic eruptions, and changes in groundwater levels.

There are several types of landslides: rock falls, rock topple, slides, and flows. Rock falls are rapid movements of bedrock, which result in bouncing or rolling. A topple is a section or block of rock that rotates or tilts before falling to the slope below. Slides are movements of soil or rock along a distinct surface of rupture, which separates the slide material from the more stable underlying material. Mudflows, sometimes referred to as mudslides, mudflows, lahars or debris avalanches, are fast-moving rivers of rock, earth, and other debris saturated with water. They develop when water rapidly accumulates in the ground, such as heavy rainfall or rapid snowmelt, changing the soil into a flowing river of mud or "slurry." Slurry can flow rapidly down slopes or through channels and can strike with little or no warning at avalanche speeds. Slurry can travel several miles from its source, growing in size as it picks up trees, cars, and other materials along the way. As the flows reach flatter ground, the mudflow spreads over a broad area where it can accumulate in thick deposits.

Landslides are typically associated with periods of heavy rainfall or rapid snow melt and tend to worsen the effects of flooding that often accompanies these events. In areas burned by forest and brush fires, a lower threshold of precipitation may initiate landslides. Some landslides move slowly and cause damage gradually, whereas others move so rapidly that they can destroy property and take lives suddenly and unexpectedly.

Among the most destructive types of debris flows are those that accompany volcanic eruptions. A spectacular example in the United States was a massive debris flow resulting from the 1980 eruptions of Mount St. Helens, Washington. Areas near the bases of many volcanoes in the Cascade Mountain Range

of California, Oregon, and Washington are at risk from the same types of flows during future volcanic eruptions.

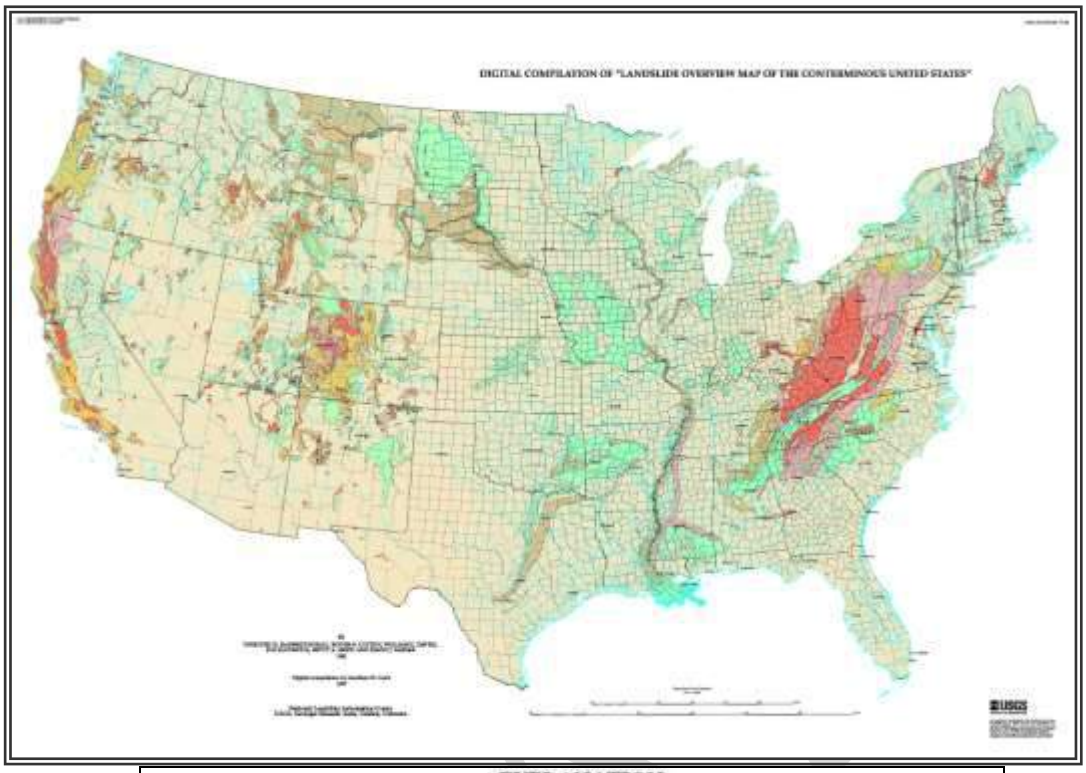
Areas that are generally prone to landslide hazards include previous landslide areas, the bases of steep slopes, the bases of drainage channels, and developed hillsides where leach-field septic systems are used. Areas that are typically considered safe from landslides include areas that have not moved in the past, relatively flat-lying areas away from sudden changes in slope, and areas at the top or along ridges set back from the tops of slopes.

According to the United States Geological Survey, each year landslides cause $5.1 billion (2009 dollars) in damage and between 25 and 50 deaths in the United States.[7] **Figure 5.11** delineates areas where large numbers of landslides have occurred and areas that are susceptible to landsliding in the conterminous United States.[8]

[7] United States Geological Survey (USGS). United States Department of the Interior. "Landslide Hazards – A National Threat." 2005.

[8] This map layer is provided in the U.S. Geological Survey Professional Paper 1183, Landslide Overview Map of the Conterminous United States, available online at: http://landslides.usgs.gov/html_files/landslides/nationalmap/national.html.

FIGURE 5.12: LANDSLIDE OVERVIEW MAP OF THE CONTERMINOUS UNITED STATES



Source: USGS

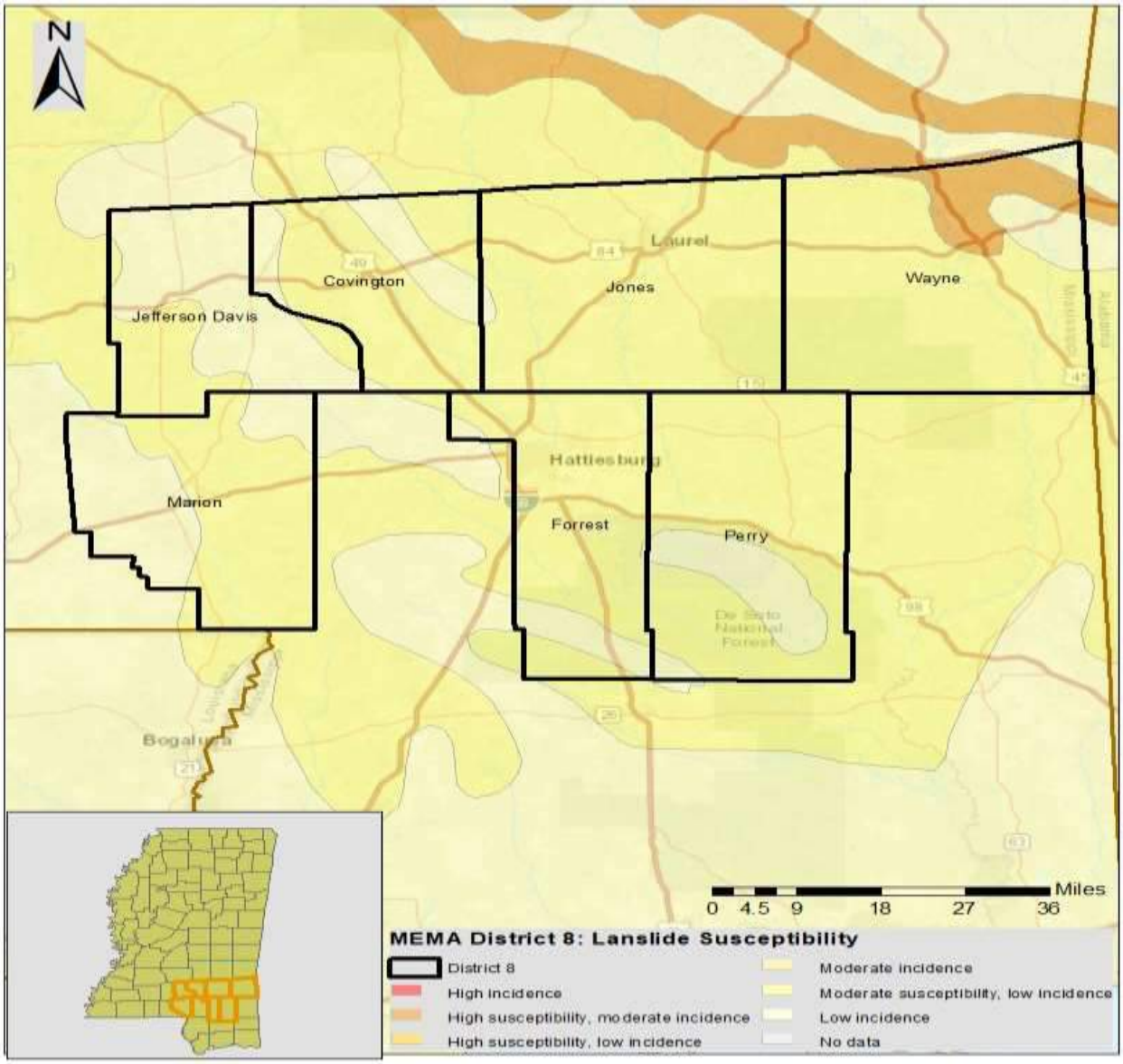
5.10.2 Location and Spatial Extent

Landslides occur along steep slopes when the pull of gravity can no longer be resisted (often due to heavy rain). Human development can also exacerbate risk by building on previously undevelopable steep slopes. Landslides are possible throughout the MEMA District 8 Region.

According to **Figure 5.12** below, nearly the entire region falls under a low incidence area (yellow and light purple). This indicates that less than 1.5 percent of the area is involved in landsliding. The areas in

yellow are defined as low incidence and low susceptibility. The areas in light purple, however, indicate that a moderate susceptibility to landsliding activity is present. In addition, there is a small area of land in Wayne County (depicted in orange) reported as high susceptibility and moderate incidence. This area is the area at greatest risk to landsliding according to the United States Geological Survey data.

FIGURE 5.13: LANDSLIDE SUSCEPTIBILITY MAP OF THE MEMA DISTRICT 8 REGION



Source: USGS

5.10.3 Historical Occurrences

There is no extensive history of landslides in the MEMA District 8 Region. Landslide events typically occur in isolated areas.

5.10.4 Probability of Future Occurrences

Based on historical information and the USGS susceptibility index, the probability of future landslide events is unlikely (less than 1 percent probability). The USGS data indicates that the nearly all areas in the MEMA District 8 Region have a low landslide incidence rate. However, some areas are reported as having moderate or high susceptibility to landsliding activity. Local conditions may become more favorable for landslides due to heavy rain, for example. This would increase the likelihood of occurrence. It should also be noted that some areas in the MEMA District 8 Region have greater risk than others given factors such as steepness on slope and modification of slopes.

5.11 EXPANSIVE SOILS

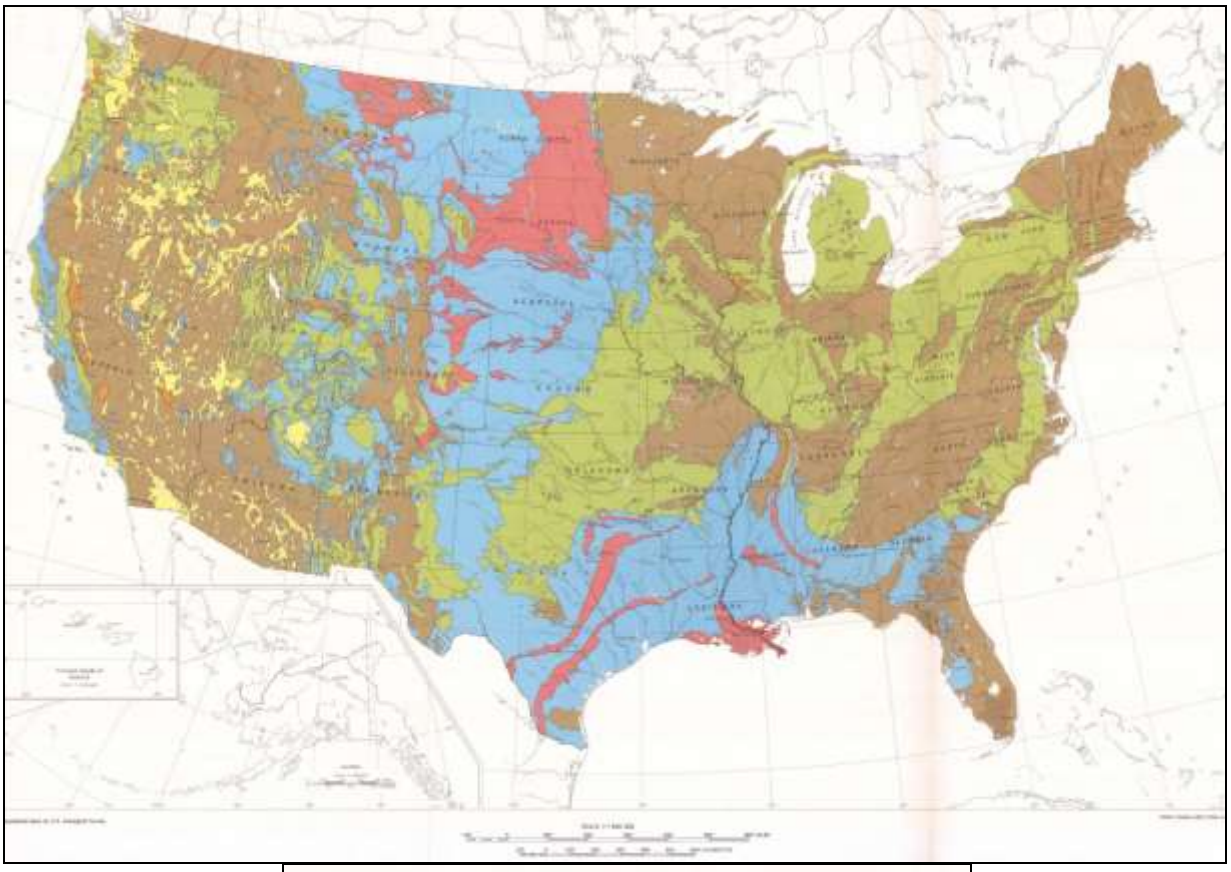
5.11.1 Background

Expansive soils, also called shrink-swell soils, are soils that will exhibit some degree of volume change with variations in moisture conditions. Depending upon the supply of moisture in the ground, expansive soils will experience changes in volume of up to thirty percent or more. The most important properties affecting degree of volume change in a soil are clay mineralogy and the aqueous environment. Generally speaking, expansive soils often appear sticky when wet and are characterized by surface cracks when dry.

The effects of expansive soils are typically experienced in regions of moderate to high precipitation, where periods of drought are followed by periods of rainfall. Expansive soils become a problem when structures are built upon them without taking proper design precautions into account with regard to soil type. Cracking in walls and floors can be minor, or can be severe enough for the home to be structurally unsafe. Expansive soils are known to cause adverse effects on structures and infrastructure throughout the United States. **Figure 5.14** delineates areas underlain by soils with swelling potential in the conterminous United States.[9]

[9] This map layer is provided in the U.S. Geological Survey Investigation Series Map 1940, Swelling Clays Map of the Conterminous United States, available online at: http://ngmdb.usgs.gov/Prodesc/proddesc_10014.htm.

FIGURE 5.14: SWELLING CLAYS MAP OF THE CONTERMINOUS UNITED STATES

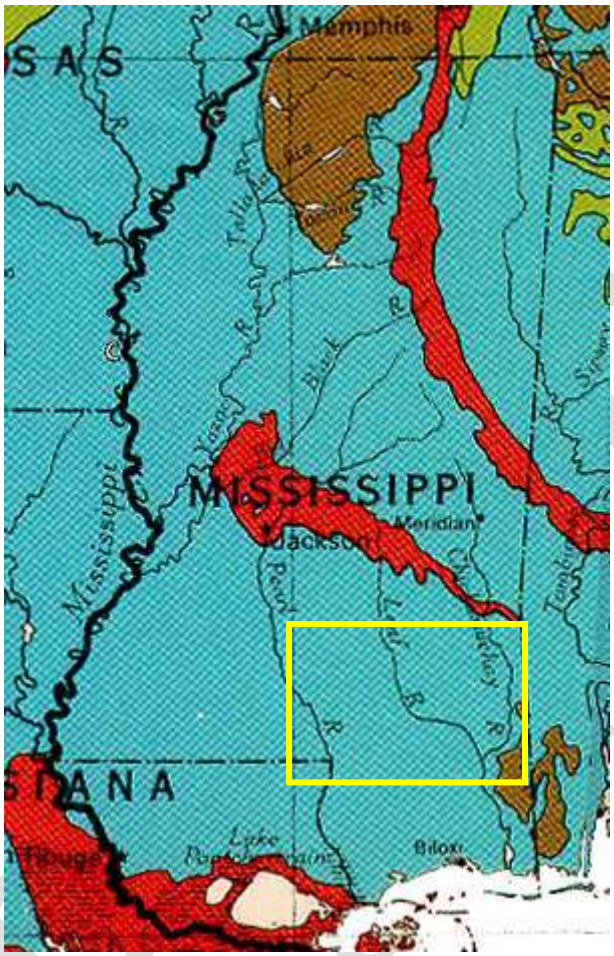


Source: USGS

5.11.3 Location and Spatial Extent

Due to the amount of clay minerals present in the MEMA District 8 Region, expansive soils present a threat to the region. Areas underlain by soils with swelling potential are shown in **Figure 5.13**. The areas in blue are underlain with generally less than 50 percent clay having high swelling potential and the areas in brown contain little or no swelling clays.

FIGURE 5.15: SWELLING CLAYS IN MISSISSIPPI



Source: USGS

5.11.3 Historical Occurrences

There is no historical record of significant expansive soil events in the MEMA District 8 Region. However, expansive soils can cause considerable damage to structural foundations in the region, although they do not pose a significant threat to human life.

5.11.4 Probability of Future Occurrences

Based on historical information, the probability of future expansive soil events is possible (between 1 and 100 percent annually).

WIND-RELATED HAZARDS

5.12 HURRICANE AND TROPICAL STORM

5.12.1 Background

Hurricanes and tropical storms are classified as cyclones and defined as any closed circulation developing around a low-pressure center in which the winds rotate counter-clockwise in the Northern Hemisphere (or clockwise in the Southern Hemisphere) and whose diameter averages 10 to 30 miles across. A tropical cyclone refers to any such circulation that develops over tropical waters. Tropical cyclones act as a "safety-valve," limiting the continued build-up of heat and energy in tropical regions by maintaining the atmospheric heat and moisture balance between the tropics and the pole-ward latitudes. The primary damaging forces associated with these storms are high-level sustained winds, heavy precipitation, and tornadoes.

The key energy source for a tropical cyclone is the release of latent heat from the condensation of warm water. Their formation requires a low-pressure disturbance, warm sea surface temperature, rotational force from the spinning of the earth, and the absence of wind shear in the lowest 50,000 feet of the atmosphere. The majority of hurricanes and tropical storms form in the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico during the official Atlantic hurricane season, which encompasses the months of June through November. The peak of the Atlantic hurricane season is in early to mid-September and the average number of storms that reach hurricane intensity per year in the Atlantic basin is about six.

As an incipient hurricane develops, barometric pressure (measured in millibars or inches) at its center falls and winds increase. If the atmospheric and oceanic conditions are favorable, it can intensify into a tropical depression. When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, given a name, and is closely monitored by the National Hurricane Center in Miami, Florida. When sustained winds reach or exceed 74 miles per hour the storm is deemed a hurricane. Hurricane intensity is further classified by the Saffir-Simpson Scale (**Table 5.19**), which rates hurricane intensity on a scale of 1 to 5, with 5 being the most intense.

TABLE 5.19: SAFFIR-SIMPSON SCALE

Category	Maximum Sustained Wind Speed (MPH)
1	74–95
2	96–110
3	111–129
4	130–156
5	157 +

Source: National Hurricane Center

The Saffir-Simpson Scale categorizes hurricane intensity linearly based upon maximum sustained winds, barometric pressure and storm surge potential, which are combined to estimate potential damage. Categories 3, 4, and 5 are classified as "major" hurricanes and, while hurricanes within this range comprise only 20 percent of total tropical cyclone landfalls, they account for over 70 percent of the damage in the United States. **Table 5.20** describes the damage that could be expected for each category

of hurricane. Damage during hurricanes may also result from spawned tornadoes, storm surge, and inland flooding associated with heavy rainfall that usually accompanies these storms.

TABLE 5.20: HURRICANE DAMAGE CLASSIFICATIONS

Storm Category	Damage Level	Description of Damages	Photo Example
1	MINIMAL	No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Also, some coastal flooding and minor pier damage.	
2	MODERATE	Some roofing material, door, and window damage. Considerable damage to vegetation, mobile homes, etc. Flooding damages piers and small craft in unprotected moorings may break their moorings.	
3	EXTENSIVE	Some structural damage to small residences and utility buildings, with a minor amount of curtainwall failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures, with larger structures damaged by floating debris. Terrain may be flooded well inland.	
4	EXTREME	More extensive curtainwall failures with some complete roof structure failure on small residences. Major erosion of beach areas. Terrain may be flooded well inland.	
5	CATASTROPHIC	Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. Flooding causes major damage to lower floors of all structures near the shoreline. Massive evacuation of residential areas may be required.	

Source: National Hurricane Center; Federal Emergency Management Agency

5.12.2 Location and Spatial Extent

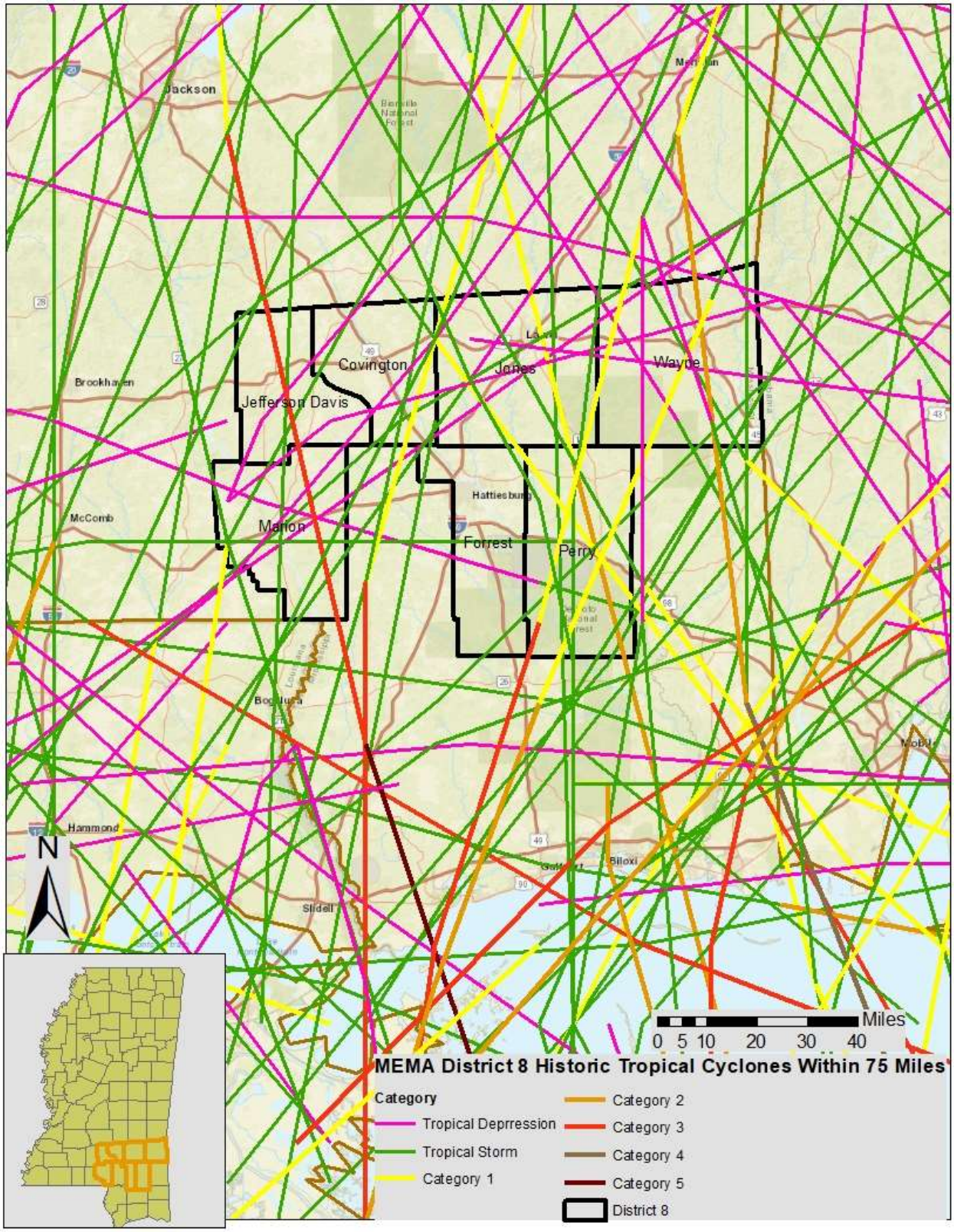
Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact the region. All areas in the MEMA District 8 Region are equally susceptible to hurricane and tropical storms.

5.12.3 Historical Occurrences

According to the National Hurricane Center's historical storm track records, approximately 69 hurricane or tropical storm tracks have passed within 75 miles of the MEMA District 8 Region since 1851 as shown in **Figure 5.14**.[10] Thirty-one of these tracks passed directly through the region. Notable storms include Hurricane Camille (1969), Hurricane Frederic (1979), and Hurricane Katrina (2005).

[10] These storm track statistics do not include extra-tropical storms or tropical depressions. Though these related hazard events are less severe in intensity, they may cause significant local impact in terms of rainfall and high winds.

912 **FIGURE 5.16: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF THE**
913 **MEMA DISTRICT 8 REGION**



914

Source: National Oceanic and Atmospheric Administration, National Hurricane Center

Federal records indicate that disaster declarations were made in 1969 (Hurricane Camille), 1979 (Hurricane Frederic), 1998 (Hurricane Georges), 2004 (Hurricane Ivan), 2005 (Hurricane Dennis), 2005 (Hurricane Katrina), 2008 (Hurricane Gustav), and 2012 (Hurricane Isaac).[11] Hurricane and tropical storm events can cause substantial damage in the area due to high winds and flooding.

Flooding and high winds from hurricanes and tropical storms can cause damage throughout the region. Many anecdotes are available from NCEI for the major storms that have impacted the area as found below:

Hurricane Erin – August 20, 1995
Hurricane Erin moved out of Washington County, Alabama into Greene and Wayne Counties in Mississippi. The storm moved generally along Highway 45 passing just south of Waynesboro. Trees and power lines were blown down across Northern Greene, Northern Perry and most of Wayne Counties as Erin moved northwest. Some homes were damaged along Highway 45 and in the cities of Buckatunna and Waynesboro. Most of the damage was from trees falling on homes or shingles being blown from roofs. Wind speeds of 50 to 60 mph were estimated in Waynesboro. Preliminary damage estimates in these three counties was around $100 thousand.

Hurricane Georges – September 25, 1998
Hurricane Georges, a strong Category 2 hurricane moved slowly northwest across the Gulf of Mexico toward southeast Louisiana and coastal Mississippi on the September 25 and September 26. As the hurricane approached the mouth of the Mississippi River on September 27, it slowly turned toward the north making landfall along the Mississippi Coast just to the east of Biloxi, MS on September 28. Hurricane Georges resulted in damage from heavy rains and persistent winds. Trees and power lines were blown down. Cotton, soybean, and pecan crops were almost totally destroyed.

Tropical Storm Isidore – September 26, 2002
Tropical Storm Isidore moved onshore along the Louisiana coast early in the morning of September 26. The weakening storm then moved northeast across eastern Mississippi during the day. The heavy rainfall associated with the storm resulted in significant river and flash flooding across much of Mississippi. Twenty-four-hour rainfall totals between 5 and 10 inches were common over much of Mississippi, especially in the southern part of the state, where twenty-four hour amounts exceeded 9 inches near Hattiesburg. Gradient wind gusts between 35 and 45 miles per hour combined with the saturated ground to lead to numerous downed trees and powerlines over the state. Most of the damage was seen along and east of the Natchez Trace, near the path of the storm's diffuse center. One indirect fatality was reported just east of the Kalem community in Scott County. Here, a falling tree struck a truck driven by a 31-year-old male. Damage from Isidore was an estimated $500,000.

Hurricane Lili – October 3, 2002
Hurricane Lili brought thunderstorm bands, strong winds, and associated tornadoes that created damage across central Mississippi. Most of the damage was caused by downed trees. The highest actual wind gust was measured at 56 miles per hour. Ground over most of the area was saturated from the combined rainfall of Lili and Isidore (which affected the same areas a week earlier), and this allowed

[11] Not all of the participating counties were declared disaster areas for these storms. A complete listing of historical disaster declarations, including the affected counties, can be found in Section 4: Hazard Identification.

tropical storm force winds to easily push down trees area-wide. Rainfall amounts were over 3 inches in the most persistent rainbands. Estimated damage across central Mississippi from Lili was $500,000.

Tropical Storm Bill – June 30, 2003
Tropical Storm Bill tracked along Interstate 59. Heavy rainfall caused flash flooding. Forty-eight-hour rainfall totals ranged between 3-7 inches, mainly across SE Mississippi. Gradient wind gusts between 30 and 40 mph combined with saturated soils downed numerous trees very close to center's track. Damage from Bill was an estimated $100,000.

Hurricane Ivan – September 16, 2004
Thousands of trees were blown down across Eastern Mississippi during the event as well as hundreds of power lines. The strong wind itself did not cause much structural damage, however the fallen trees did. These downed trees accounted for several hundred homes, mobile homes and businesses to be damaged or destroyed. Most locations across Eastern Mississippi reported sustained winds between 30 and 40 mph with Tropical Storm force gusts between 48 and 54 mph. The strongest reported winds occurred in Newton, Lauderdale and Oktibbeha Counties.

Overall, rainfall totals were held in check as Ivan steadily moved north. The heaviest rains were confined to far Eastern Mississippi where 3 to 4 inches fell over a 15-hour period. Due to the duration of the rain no flooding was reported. Across Eastern Mississippi, Hurricane Ivan was responsible for one fatality. This fatality occurred in Brooksville (Noxubee County) when a tree fell on a man. Damage from Ivan was estimated at $200 million.

Hurricane Dennis – July 10, 2005
Hurricane Dennis made landfall during the afternoon of July 10th near Navarre Beach Florida as a category 3 Hurricane. The storm moved north-northwest across Southwest Alabama and then into East-Central Mississippi and finally across Northeast Mississippi during the overnight hours. Wind gusts over tropical storm force were common across areas east of a line from Starkville to Newton to Hattiesburg. These winds caused several hundred trees to uproot or snap and took down numerous power lines. Additionally, a total of 21 homes or businesses sustained minor to major damage from fallen trees or gusty winds.

Heavy rainfall was not a major issue as Dennis steadily moved across the region. Rainfall totals between 2 and 5 inches fell across Eastern Mississippi over a 12 hour period. One indirect fatality occurred in Jasper County from an automobile accident due to wet roads.

Hurricane Katrina – August 25, 2005
Hurricane Katrina will likely go down as the worst and costliest natural disaster in United States history. The amount of destruction, the cost of damaged property/agriculture and the large loss of life across the affected region has been overwhelming. Catastrophic damage was widespread across a large portion of the Gulf Coast region. The devastation was not only confined to the coastal region, widespread and significant damage occurred well inland up to the Hattiesburg area and northward past Interstate 20.

Devastation from Hurricane Katrina was widespread across the region. Hurricane force winds were common across the area. The region received sustained winds of 60-80 mph with gusts ranging from 80-120 mph. There was widespread damage to trees and power lines. Wind damage to structures was also widespread, with roofs blown off or partially peeled. Hundreds of signs were shredded or blown down. Businesses sustained structural damage. Power outages lasted from a few days to as long as four

weeks. Agriculture and timber industries were severely impacted. Row crops, including cotton, rice, corn, and soybeans, took a hard hit. Other impacted industries were the catfish industry, dairy and cattle industry, and nursery businesses.

Hurricane Rita – September 5, 2005
Hurricane Rita brought heavy rainfall, tropical storm force winds, and tornados to the region. Rainfall amounts ranged from 4-7 inches, which resulted in flooding. Winds between 25-35 mph, with gusts up to 40-50 mph, downed trees and power lines.

Hurricane Gustav – September 1, 2008
As hurricane Gustav moved south of the area, tropical depression conditions spread into southeast Mississippi. The winds increased during the early morning of September 1 and ended during the early afternoon as Gustav moved farther away. No damage was reported from the winds. Several mesonet sites had sustained winds of 20-30 mph with higher gusts. Rainfall estimates across the area were 3-5 inches which resulted in some minor street flooding. Parts of southeast Mississippi were put under a tropical storm wind warning in the early morning hours of August 31 and the warning continued in effect until the late evening of September 1.

Hurricane Gordon (Tropical Depression) – September 9, 2018
As Tropical Storm Gordon moved further inland, it was downgraded to a tropical depression. Gusty winds still occurred as the center moved through central Mississippi. A few trees were blown down across portions of Covington County.

5.12.4 Probability of Future Occurrences

Based on historical evidence, the probability level of future occurrence is likely (annual probability between 10 and 100 percent). Given the regional nature of the hazard, all areas in the region are equally exposed to this hazard. However, when the region is impacted, the damage could be catastrophic, threatening lives and property throughout the planning area.

5.13 THUNDERSTORM (WIND, HAIL, LIGHTNING)

5.13.1 Background

THUNDERSTORM / HIGH WIND

Thunderstorms can produce a variety of accompanying hazards including wind (discussed here), hail, and lightning. Although thunderstorms generally affect a small area, they are very dangerous may cause substantial property damage.

Three conditions need to occur for a thunderstorm to form. First, it needs moisture to form clouds and rain. Second, it needs unstable air, such as warm air that can rise rapidly (this often referred to as the "engine" of the storm). Third, thunderstorms need lift, which comes in the form of cold or warm fronts, sea breezes, mountains, or the sun's heat. When these conditions occur simultaneously, air masses of varying temperatures meet, and a thunderstorm is formed. These storm events can occur singularly, in lines, or in clusters. Furthermore, they can move through an area very quickly or linger for several hours.

According to the National Weather Service, more than 100,000 thunderstorms occur each year, though only about 10 percent of these storms are classified as "severe." A severe thunderstorm occurs when the storm produces at least one of these three elements: 1) hail of three-quarters of an inch, 2) a tornado, or 3) winds of at least 58 miles per hour.

Downbursts are also possible with thunderstorm events. Such events are an excessive burst of wind in excess of 125 miles per hour. They are often confused with tornadoes. Downbursts are caused by down drafts from the base of a convective thunderstorm cloud. It occurs when rain-cooled air within the cloud becomes heavier than its surroundings. Thus, air rushes towards the ground in a destructive yet isolated manner. There are two types of downbursts. Downbursts less than 2.5 miles wide, duration less than 5 minutes, and winds up to 168 miles per hour are called "microbursts." Larger events greater than 2.5 miles at the surface and longer than 5 minutes with winds up to 130 miles per hour are referred to as "macrobursts."

HAILSTORM

Hailstorms are a potentially damaging outgrowth of severe thunderstorms (thunderstorms are discussed separately in Section 5.8). Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until they develop to a sufficient weight and fall as precipitation. Hail typically takes the form of spheres or irregularly-shaped masses greater than 0.75 inches in diameter. The size of hailstones is a direct function of the size and severity of the storm. High velocity updraft winds are required to keep hail in suspension in thunderclouds. The strength of the updraft is a function of the intensity of heating at the Earth's surface. Higher temperature gradients relative to elevation above the surface result in increased suspension time and hailstone size. **Table 5.21** shows the TORRO Hailstorm Intensity Scale which is a way of measuring hail severity.

TABLE 5.21: TORRO HAILSTORM INTENSITY SCALE

	Intensity Category	Typical Hail Diameter (mm)*	Probable Kinetic Energy, J-m^2	mm to inch conversion (inches)	Typical Damage Impacts
H0	Hard Hail	5	0-20	0 - 0.2	No damage
H1	Potentially Damaging	5-**15**	>20	0.2 - 0.6	Slight general damage to plants, crops
H2	Significant	10-**20**	>100	0.4 - 0.8	Significant damage to fruit, crops, vegetation
H3	Severe	20-**30**	>300	0.8 - 1.2	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25-**40**	>500	1.0 - 1.6	Widespread glass damage, vehicle bodywork damage
H5	Destructive	30-**50**	>800	1.2 - 2.0	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40-**60**		1.6 - 2.4	Bodywork of grounded aircraft dented,

	Intensity Category	Typical Hail Diameter (mm)*	Probable Kinetic Energy, J-m^2	mm to inch conversion (inches)	Typical Damage Impacts
					brick walls pitted
H7	Destructive	50-**75**		2.0 - 3.0	Severe roof damage, risk of serious injuries
H8	Destructive	60-**90**		1.6 - 3.5	(Severest recorded in the British Isles) Severe damage to aircraft bodywork
H9	Super Hailstorms	75-**100**		3.0 - 3.9	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>100			Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

Source: http://www.torro.org.uk/site/hscale.php

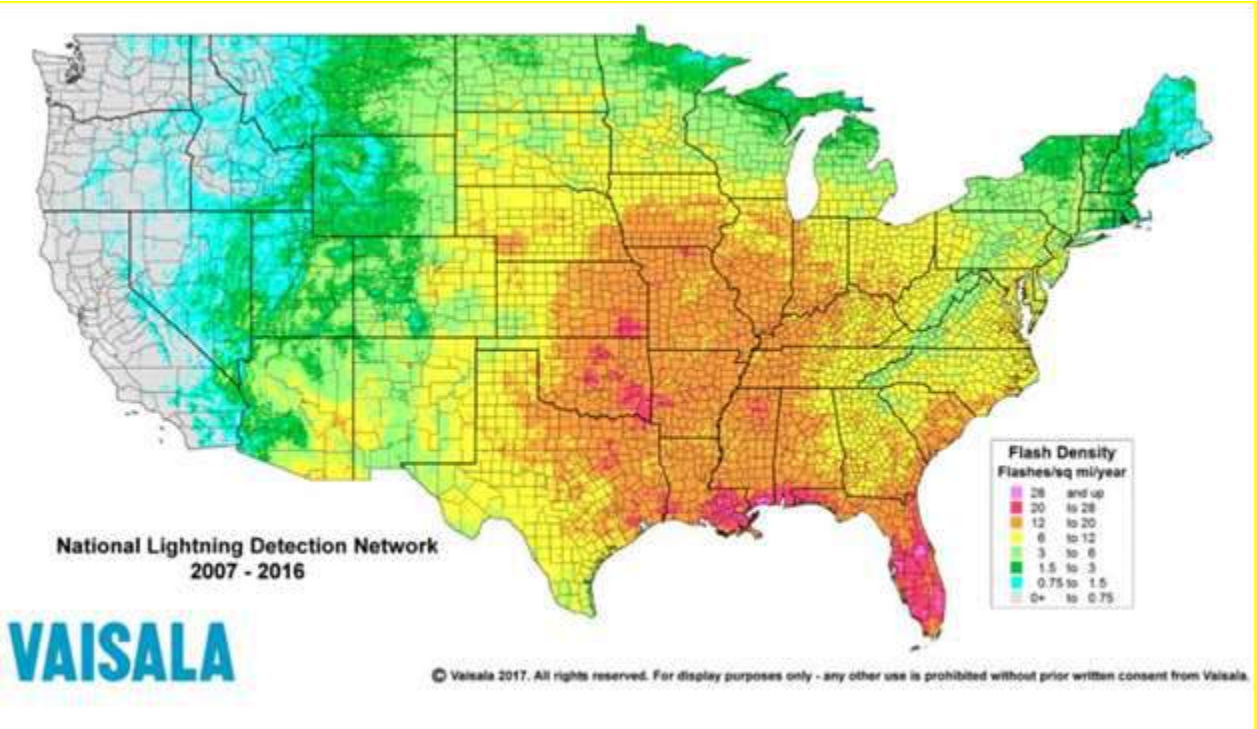
LIGHTNING

Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes the thunder which often accompanies lightning strikes. While most often affiliated with severe thunderstorms, lightning may also strike outside of heavy rain and might occur as far as 10 miles away from any rainfall.

Lightning strikes occur in very small, localized areas. For example, they may strike a building, electrical transformer, or even a person. According to FEMA, lightning injures an average of 300 people and kills 80 people each year in the United States. Direct lightning strikes also have the ability to cause significant damage to buildings, critical facilities, and infrastructure largely by igniting a fire. Lightning is also responsible for igniting wildfires that can result in widespread damages to property.

Figure 5.17 shows the Vaisala's U.S. National Lightning Detection Network which indicates the average flash density per foot per square kilometer per year.

FIGURE 5.17: LIGHTNING FLASH DENSITY IN THE UNITED STATES



Source: Vaisala U.S. National Lightning Detection Network

5.13.2 Location and Spatial Extent

THUNDERSTORM / HIGH WIND

A thunderstorm event is an atmospheric hazard, and thus has no geographic boundaries. It is typically a widespread event that can occur in all regions of the United States. However, thunderstorms are most common in the central and southern states because atmospheric conditions in those regions are favorable for generating these powerful storms. It is assumed that the MEMA District 8 Region has uniform exposure to an event and the spatial extent of an impact could be large.

HAILSTORM

Hailstorms frequently accompany thunderstorms, so their locations and spatial extents typically coincide. It is assumed that the MEMA District 8 Region is uniformly exposed to severe thunderstorms; therefore, all areas of the region are equally exposed to hail which may be produced by such storms.

LIGHTNING

Lightning occurs randomly, therefore it is impossible to predict where and with what frequency it will strike. It is assumed that all of the MEMA District 8 Region is uniformly exposed to lightning.

5.13.3 Historical Occurrences

THUNDERSTORM / HIGH WIND

Severe storms resulted in 11 disaster declarations in the MEMA District 8 Region between 1971 and 2019.[12] According to National Centers for Environmental Information, there have been 1,360 reported thunderstorm and high wind events since 1957 in the MEMA District 8 Region.[13] These events caused over $425M in damages. There were also reports of four fatalities and nine injuries. **Table 5.22** summarizes this information. Detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event are presented in the jurisdiction-specific annexes.

TABLE 5.22: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN THE MEMA DISTRICT 8 REGION

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Covington County	**191**	**0/0**	**$$3,199,067**
Collins	50	0/0	$1,017,872
Mount Olive	20	0/0	$442,317
Seminary	19	0/0	$213,420
Unincorporated Area	102	0/0	$1,029,141
Jefferson Davis County	**170**	**0/0**	**$2,205,513**
Bassfield	29	0/0	$309,589
Prentiss	52	0/0	$583,390
Unincorporated Area	89	0/0	$1,312,534
Jones County	**397**	**4/3**	**$7,554.192**
Ellisville	31	0/0	$756,008
Laurel	79	2/1	$2,054,391
Sandersville	26	0/0	$1,332,184
Soso	16	0/0	$148,985
Unincorporated Area	245	2/1	$3,252,624
Marion County	**176**	**0/1**	**$$3,005,059**
Columbia	68	0/0	$1,360,465
Unincorporated Area	108	0/1	$1,677,594
Perry County	**87**	**0/0**	**$2,125,045**
Beaumont	10	0/0	$69,388
New Augusta	18	0/0	$197,899
Richton	18	0/0	$203,767
Unincorporated Area	41	0/0	$1,653,991
Wayne County	**97**	**0/7**	**$752,732**
State Line	7	0/0	$67,209
Waynesboro	24	0/0	$216,918
Unincorporated Area	66	0/7	$321,605

[12]Not all of the participating counties were declared disaster areas for these storms. A complete listing of historical disaster declarations, including the affected counties, can be found in Section 4: Hazard Identification.

[13] These thunderstorm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional thunderstorm events have occurred in the MEMA District 8 Region. As additional local data becomes available, this hazard profile will be amended.

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Forrest County	**476**	**5/48**	**$11,192,700**
Hattiesburg	163	3/46	$7,567,500
Petal	54	1/0	$803,500
Unincorporated Area	259	1/2	$2,821,700
MEMA DISTRICT 8 REGION TOTAL	**1,360**	**9/57**	**$425,773,491**

Source: National Centers for Environmental Information

HAILSTORM

According to the National Centers for Environmental Information, 675 recorded hailstorm events have affected the MEMA District 8 Region since 1962.[14] **Table 5.23** is a summary of the hail events in the MEMA District 8 Region. Detailed information about each event that occurred in the region is provided in the jurisdiction-specific annexes. In all, hail occurrences resulted in over $12.3M in property damages, the majority of which were reported in Jones and Marion County. Hail ranged in diameter from 0.5 inches to 4.5 inches. It should be noted that hail is notorious for causing substantial damage to cars, roofs, and other areas of the built environment that may not be reported to the National Centers for Environmental Information. Furthermore, high losses in Jones and Marion County indicate that neighboring counties may also be subject to additional, unreported losses. Therefore, it is likely that damages are greater than the reported value. Additionally, a single storm event may have affected multiple counties.

TABLE 5.23: SUMMARY OF HAIL OCCURRENCES IN THE MEMA DISTRICT 8 REGION

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Covington County	**61**	**0/0**	**$438,622**
Collins	10	0/0	$42,397
Mount Olive	12	0/0	$40,118
Seminary	12	0/0	$283,360
Unincorporated Area	27	0/0	$72,747
Jefferson Davis County	**78**	**0/0**	**$604,108**
Bassfield	21	0/0	$90,140
Prentiss	17	0/0	$145,178
Unincorporated Area	40	0/0	$368,790
Jones County	**188**	**0/0**	**$1,154,554**
Ellisville	16	0/0	$20,855
Laurel	48	0/0	$47,409
Sandersville	11	0/0	$1,537
Soso	8	0/0	$1,051,231
Unincorporated Area	105	0/0	$33,522

[14] These hail events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional hail events have affected the MEMA District 8 Region. As additional local data becomes available, this hazard profile will be amended.

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Marion County	**124**	**0/0**	**$1,467,543**
Columbia	39	0/0	$506,316
Unincorporated Area	85	0/0	$961,227
Perry County	**41**	**0/0**	**$24,356**
Beaumont	7	0/0	$3,800
New Augusta	6	0/0	$15,489
Richton	11	0/0	$5,067
Unincorporated Area	17	0/0	$0
Wayne County	**55**	**0/0**	**$16,573**
State Line	2	0/0	$0
Waynesboro	11	0/0	$1,180
Unincorporated Area	42	0/0	$15,393
Forrest County	**166**	**0/0**	**$5,985,000**
Hattiesburg	60	0/0	$5,031,000
Petal	21	0/0	$26,000
Unincorporated Area	85	0/0	$928,000
MEMA DISTRICT 8 REGION TOTAL	**675**	**0/0**	**$12,330,212**

Source: National Centers for Environmental Information

LIGHTNING

According to the National Centers for Environmental Information, there have been a total of 37 recorded lightning events in the MEMA District 8 Region since 1995.[15] These events resulted in over $1.8M in damages, as listed in summary **Table 5.24**. Furthermore, lightning has caused three injuries in the MEMA District 8 Region. Detailed information on historical lightning events can be found in the jurisdiction-specific annexes.

TABLE 5.24: SUMMARY OF LIGHTNING OCCURRENCES IN THE MEMA DISTRICT 8 REGION

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Covington County	**3**	**0/0**	**$40,000**
Collins	0	0/0	$0
Mount Olive	0	0/0	$0
Seminary	1	0/0	$15,000
Unincorporated Area	2	0/0	$25,000
Jefferson Davis County	**5**	**0/0**	**$431,396**
Bassfield	1	0/0	$380,031
Prentiss	2	0/0	$16,365
Unincorporated Area	2	0/0	$35,000
Jones County	**15**	**0/2**	**$651,993**
Ellisville	1	0/0	$25,750

[15] These lightning events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional lightning events have occurred in the MEMA District 8 Region. As additional local data becomes available, this hazard profile will be amended.

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Laurel	4	0/0	$117,850
Sandersville	0	0/0	$0
Soso	0	0/0	$0
Unincorporated Area	10	0/2	$508,393
Marion County	**1**	**0/0**	**$200,000**
Columbia	1	0/0	$200,000
Unincorporated Area	0	0/0	$0
Perry County	**1**	**0/0**	**$60,000**
Beaumont	0	0/0	$0
New Augusta	0	0/0	$0
Richton	1	0/0	$60,000
Unincorporated Area	0	0/0	$0
Wayne County	**5**	**0/2**	**$135,618**
State Line	0	0/0	$0
Waynesboro	5	0/2	$135,618
Unincorporated Area	0	0/0	$0
Forrest County	**22**	**2/1**	**$1,165,000**
Hattiesburg	6	1/0	$252,000
Petal	7	1/0	$415,000
Unincorporated Area	9	0/1	$498,000
MEMA DISTRICT 8 REGION TOTAL	**37**	**4/4**	**$1,884,007**

Source: National Centers for Environmental Information

5.13.4 Probability of Future Occurrences

THUNDERSTORM / HIGH WIND

Given the high number of previous events, it is certain that thunderstorm events, including straight-line wind events, will occur in the future. This results in a probability level of highly likely (100 percent annual probability) for the entire planning area.

HAILSTORM

Based on historical occurrence information, it is assumed that the probability of future hail occurrences is likely (10 – 100 percent annual probability). Since hail is an atmospheric hazard, it is assumed that the entire MEMA District 8 Region has equal exposure to this hazard. It can be expected that future hail events will continue to cause minor damage to property and vehicles throughout the region.

LIGHTNING

Although there was not a high number of historical lightning events reported throughout the MEMA District 8 Region via NCEI data, it is a regular occurrence accompanied by thunderstorms. In fact, lightning events will assuredly happen on an annual basis, though all events will not cause damage. According to Vaisala's U.S. National Lightning Detection Network (NLDN®), the MEMA District 8 Region is located in an area of the country that experienced an average of 6 to 8 lightning flashes per square

kilometer per year between 1997 and 2010. Therefore, the probability of future events is highly likely (100 percent annual probability). It can be expected that future lightning events will continue to threaten life and cause minor property damages throughout the region.

5.14 TORNADO

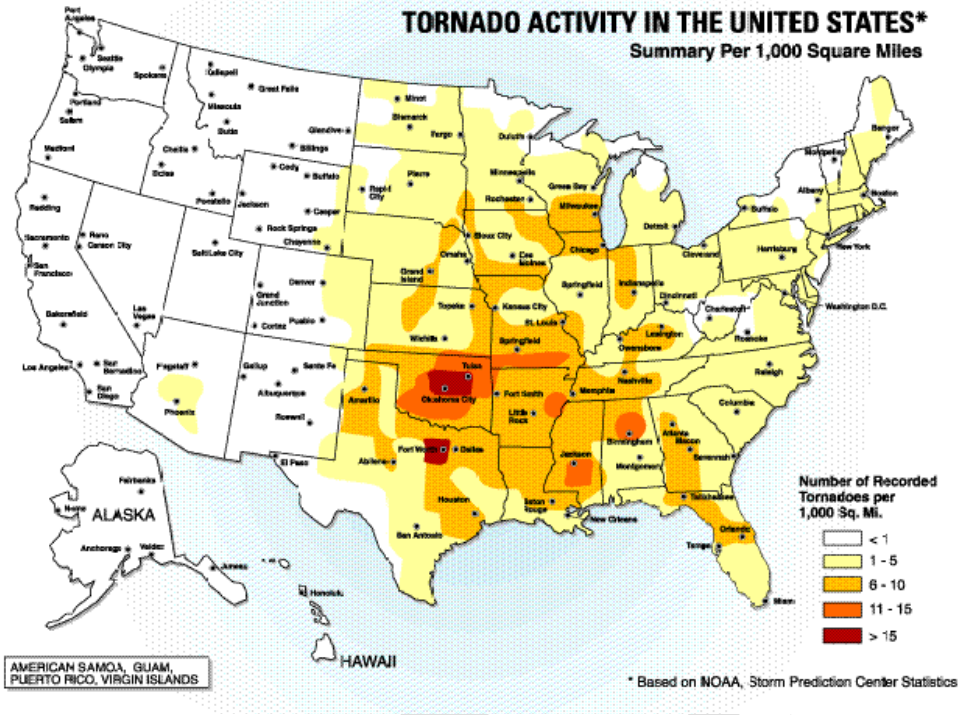
5.14.1 Background

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. Tornadoes are most often generated by thunderstorm activity (but sometimes result from hurricanes and other tropical storms) when cool, dry air intersects and overrides a layer of warm, moist air forcing the warm air to rise rapidly. The damage caused by a tornado is a result of the high wind velocity and wind-blown debris, also accompanied by lightning or large hail. According to the National Weather Service, tornado wind speeds normally range from 40 miles per hour to more than 300 miles per hour. The most violent tornadoes have rotating winds of 250 miles per hour or more and are capable of causing extreme destruction and turning normally harmless objects into deadly missiles.

Each year, an average of over 1,253 tornadoes is reported nationwide[16] According to the NOAA Storm Prediction Center (SPC), the highest concentration of tornadoes in the United States has been in Oklahoma, Texas, Kansas, and Florida respectively. Although the Great Plains region of the Central United States does favor the development of the largest and most dangerous tornadoes (earning the designation of "tornado alley"), Florida experiences the greatest number of tornadoes per square mile of all U.S. states (SPC, 2002). **Figure 5.15** shows tornado activity in the United States based on the number of recorded tornadoes per 1,000 square miles.

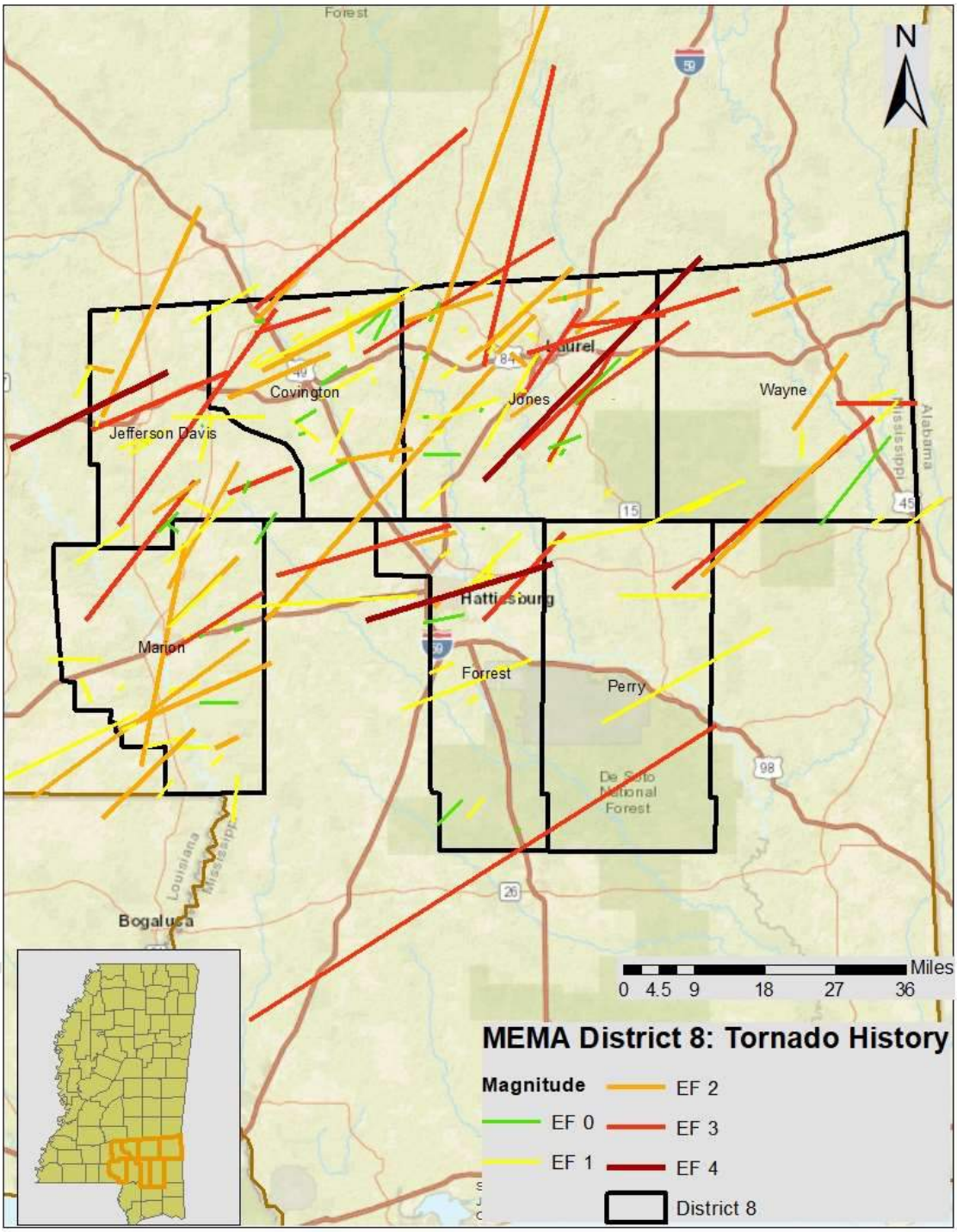
[16] NOAA, 2019.

1221 **FIGURE 5.18: TORNADO ACTIVITY IN THE UNITED STATES**



1222
1223 *Source: Federal Emergency Management Agency*
1224

FIGURE 5.19: TORNADO HISTORY MEMA DISTRICT 8 REGION



Source: NOAA

Tornadoes are more likely to occur during the months of March through May and are most likely to form in the late afternoon and early evening. Most tornadoes are a few dozen yards wide and touch down briefly, but even small short-lived tornadoes can inflict tremendous damage. Highly destructive tornadoes may carve out a path over a mile wide and several miles long.

The destruction caused by tornadoes ranges from light to inconceivable depending on the intensity, size, and duration of the storm. Typically, tornadoes cause the greatest damage to structures of light construction, including residential dwellings (particularly mobile homes). Tornadic magnitude is reported according to the Fujita and Enhanced Fujita Scales. Tornado magnitudes prior to 2005 were determined using the traditional version of the Fujita Scale (**Table 5.25**). Tornado magnitudes that were determined in 2005 and later were determined using the Enhanced Fujita Scale (**Table 5.26**).

TABLE 5.25: THE FUJITA SCALE (EFFECTIVE PRIOR TO 2005)

F-SCALE NUMBER	INTENSITY	WIND SPEED	TYPE OF DAMAGE DONE
F0	GALE TORNADO	40–72 MPH	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages to sign boards.
F1	MODERATE TORNADO	73–112 MPH	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
F2	SIGNIFICANT TORNADO	113–157 MPH	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
F3	SEVERE TORNADO	158–206 MPH	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.
F4	DEVASTATING TORNADO	207–260 MPH	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
F5	INCREDIBLE TORNADO	261–318 MPH	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel re-enforced concrete structures badly damaged.
F6	INCONCEIVABLE TORNADO	319–379 MPH	These winds are very unlikely. The small area of damage they might produce would probably not be recognizable along with the mess produced by F4 and F5 wind that would surround the F6 winds. Missiles, such as cars and refrigerators would do serious secondary damage that could not be directly identified as F6 damage. If this level is ever achieved, evidence for it might only be found in some manner of ground swirl pattern, for it may never be identifiable through engineering studies.

Source: National Weather Service

TABLE 5.26 THE ENHANCED FUJITA SCALE (EFFECTIVE 2005 AND LATER)

EF-SCALE NUMBER	INTENSITY PHRASE	3 SECOND GUST (MPH)	TYPE OF DAMAGE DONE
EF0	GALE	65–85	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages to sign boards.
EF1	MODERATE	86–110	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
EF2	SIGNIFICANT	111–135	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
EF3	SEVERE	136–165	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.
EF4	DEVASTATING	166–200	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
EF5	INCREDIBLE	Over 200	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel re-enforced concrete structures badly damaged.

Source: National Weather Service

5.14.2 Location and Spatial Extent

Tornadoes occur throughout the state of Mississippi, and thus the MEMA District 8 Region. Tornadoes typically impact a relatively small area, but damage may be extensive. Event locations are completely random, and it is not possible to predict specific areas that are more susceptible to tornado strikes over time. Therefore, it is assumed that the MEMA District 8 Region is uniformly exposed to this hazard.

5.14.3 Historical Occurrences

Tornadoes resulted in 14 disaster declarations in the MEMA District 8 Region between 1973 and 2019.[17] According to the National Centers for Environmental Information, there have been a total of 243 recorded tornado events in the MEMA District 8 Region since 1950 (**Table 5.27**), resulting in almost $211M in property damages.[18] In addition, 18 fatalities and 788 injuries were reported. The magnitude of these tornadoes ranges from F0 to F4 in intensity, although an F5 event is possible. Detailed information on historical tornado events can be found in the jurisdiction-specific annexes.

[17]Not all of the participating counties were declared disaster areas for these storms. A complete listing of historical disaster declarations, including the affected counties, can be found in Section 4: Hazard Identification.

[18] These tornado events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional tornadoes have occurred in the MEMA District 8 Region. As additional local data becomes available, this hazard profile will be amended.

TABLE 5.27: SUMMARY OF TORNADO OCCURRENCES IN THE MEMA DISTRICT 8 REGION

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Covington County	**46**	**0/123**	**$58,710,702**
Collins	7	0/0	$2,227,644
Mount Olive	5	0/0	$208,984
Seminary	2	0/0	$102,688
Unincorporated Area	32	0/132	$56,171,386
Jefferson Davis County	**27**	**0/11**	**$9,340,538**
Bassfield	6	0/0	$987,816
Prentiss	2	0/0	$39,144
Unincorporated Area	19	0/11	$8,313,578
Jones County	**62**	**11/478**	**$194,246,349**
Ellisville	5	0/0	$56,868
Laurel	5	0/0	$12,745,780
Sandersville	0	0/0	$0
Soso	2	0/0	$212,541
Unincorporated Area	52	11/478	$181,231,160
Marion County	**35**	**3/63**	**$34,664,606**
Columbia	9	3/50	$26,179,455
Unincorporated Area	26	0/13	$8,485,151
Perry County	**17**	**2/24**	**$4,492,368**
Beaumont	1	0/0	$11,074
New Augusta	2	0/0	$80,456
Richton	0	0/0	$0
Unincorporated Area	14	2/24	$4,400,838
Wayne County	**22**	**2/0**	**$61,670,052**
State Line	4	0/0	$117,133
Waynesboro	2	0/0	$31,720
Unincorporated Area	16	2/0	$61,521,199
Forrest County	**34**	**0/79**	**$35,459,000**
Hattiesburg	7	0/68	$31,152,000
Petal	1	0/0	$200,000
Unincorporated Area	26	0/11	$4,107,000
MEMA DISTRICT 8 REGION TOTAL	**243**	**18/778**	**$398,583,615**

Source: National Centers for Environmental Information

There have been several significant tornado events in the MEMA District 8 Region. The text below describes one of the major events and associated impacts on the region.

Jones County — On February 28, 1987, a 1.25 mile-wide F4 tornado in Glade (unincorporated Jones County) was recorded as the second widest tornado on record in Mississippi. This tornado resulted in 6 deaths, 250 injuries, and $55,563,194 in damages.

Marion County- On December 23, 2014, a tornado first touched down just east of Pearl River just south of Columbia. It quickly became strong and moved northeast impacting the southeast side of Columbia. The tornado remained on the ground through Marion County before lifting as is approached the Lamar County line. Numerous business, homes, mobile homes, a Nation Guard building, and power poles / lines were heavily damaged or destroyed. There were three deaths as a direct result of the tornado.

Forrest County- On January 21, 2017, an early morning event impacted areas south of I-20 in Mississippi. Most notably, an EF-3 tornado tracked through Lamar and Forrest counties, killing four people in Hattiesburg and injuring over 50 others. In addition, damaging winds, large hail, and flash flooding occurred in other areas across south Mississippi. The evening event impacted a larger portion of the ArkLaMiss, and brought wind damage as well as large hail and a strong tornado.

5.14.4 Probability of Future Occurrences

According to historical information, tornado events pose a significant threat to the MEMA District 8 Region. The probability of future tornado occurrences affecting MEMA District 8 Region is likely (10 – 100 percent annual probability).

OTHER HAZARDS

5.15 HAZARDOUS MATERIALS INCIDENTS

5.15.1 Background

HAZARDOUS MATERIALS

Hazardous materials can be found in many forms and quantities that can potentially cause death; serious injury; long-lasting health effects; and damage to buildings, homes, and other property in varying degrees. Such materials are routinely used and stored in many homes and businesses and are also shipped daily on the nation's highways, railroads, waterways, and pipelines. This subsection on the hazardous material hazard is intended to provide a general overview of the hazard, and the threshold for identifying fixed and mobile sources of hazardous materials is limited to general information on rail, highway, and fixed HAZMAT sites under the Toxic Release Inventory determined to be of greatest significance as appropriate for the purposes of this plan.

Hazardous material (HAZMAT) incidents can apply to fixed facilities as well as mobile, transportation-related accidents in the air, by rail, on the nation's highways, and on the water. Approximately 6,774 HAZMAT events occur each year, 5,517 of which are highway incidents, 991 are railroad incidents, and 266 are due to other causes.[19] In essence, HAZMAT incidents consist of solid, liquid, and/or gaseous contaminants that are released from fixed or mobile containers, whether by accident or by design as with an intentional terrorist attack. A HAZMAT incident can last hours to days, while some chemicals can be corrosive or otherwise damaging over longer periods of time. In addition to the primary release, explosions and/or fires can result from a release, and contaminants can be extended beyond the initial area by persons, vehicles, water, wind, and possibly wildlife as well.

[19] FEMA, 1997.

Hazardous material incidents can include the spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of a hazardous material, but exclude: (1) any release which results in exposure to poisons solely within the workplace with respect to claims which such persons may assert against the employer of such persons; (2) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel or pipeline pumping station engine; (3) release of source, byproduct, or special nuclear material from a nuclear incident; and (4) the normal application of fertilizer.

PIPELINES

Pipelines in the United States are used to transport and distribute a number of products from their extraction point to sites where those materials are utilized throughout the country. Pipelines are most commonly used to transport energy sources such as natural gas and petroleum products but are also often used in the transportation of other hazardous liquids. Transportation of these products via pipeline is abundant in the United States due to the cost-effectiveness of the process which allows quick movement with relatively minimal cost.

Generally, pipelines are safe and effective, transporting materials where they are needed without incident. However, many pipelines in the United States were installed over 60 years ago and were made with materials such as cast and wrought iron or bare steel which degrade over time. This presents a definitive danger to people and property as a leak or spill of hazardous products from a degraded pipeline could prove disastrous, causing costly damage to property and injury or death.

As a result, there has been a recent movement to replace many of these older pipelines with newer materials such as plastics that can reduce the risk of a pipeline failure and a hazard incident. In 2011, the Pipeline Safety, Regulatory Certainty, and Job Creation Act was passed and called for the US Department of Transportation to conduct a state by state survey of pipelines and accelerate repairs of aging infrastructure.

In Mississippi, the regulatory authority for pipelines is shared by the US Office of Pipeline Safety (OPS) and the Mississippi Public Service Commission (MPSC). In 2011, the MPSC corrected 273 natural gas pipeline violations and found no hazardous liquid violations.[20]

METH LABS

Methamphetamine, or meth, is a highly addictive drug that is affecting a rapidly growing sector of the US population. Many sources identify meth as the fastest growing drug epidemic in the country and it is dangerous not only to those who use it, but to a large number of people who are impacted incidentally by the production process.

In terms of Emergency Management, one of the primary dangers of meth labs is that the process of producing meth is a chemical one that requires super heating products that can cause explosions if not monitored and maintained properly. This is especially concerning since, as the National Institute on Drug Abuse reports, the relative simplicity of the process results in the product being manufactured by people

[20] Mississippi Enforcement Program, 2011 (http://primis.phmsa.dot.gov/comm/reports/stenforce/StateEnfDet_state_MS.html?nocache=6913&nocache=1411)

who are non-skilled in chemistry or advanced science, increasing the chances of production errors and explosive fires.

One of the most dangerous aspects of methamphetamine production is that, because the product is illegal, most production operations are clandestine and are purposefully difficult for authorities to identify. This presents a challenge because unlike other hazardous materials, there is no way to regulate or track meth lab location or size. Often, a meth lab is not identified until an incident has already taken place, causing an increased danger to responders and citizens alike.

Furthermore, an increased danger results from the fact that, unlike a typical structural fire, the chemicals involved in meth production can create explosions and the release of toxic chemical gases which present additional risk of harm to anyone in the vicinity. Exposure to these chemicals can cause anything from eye/skin irritation to long term respiratory diseases.

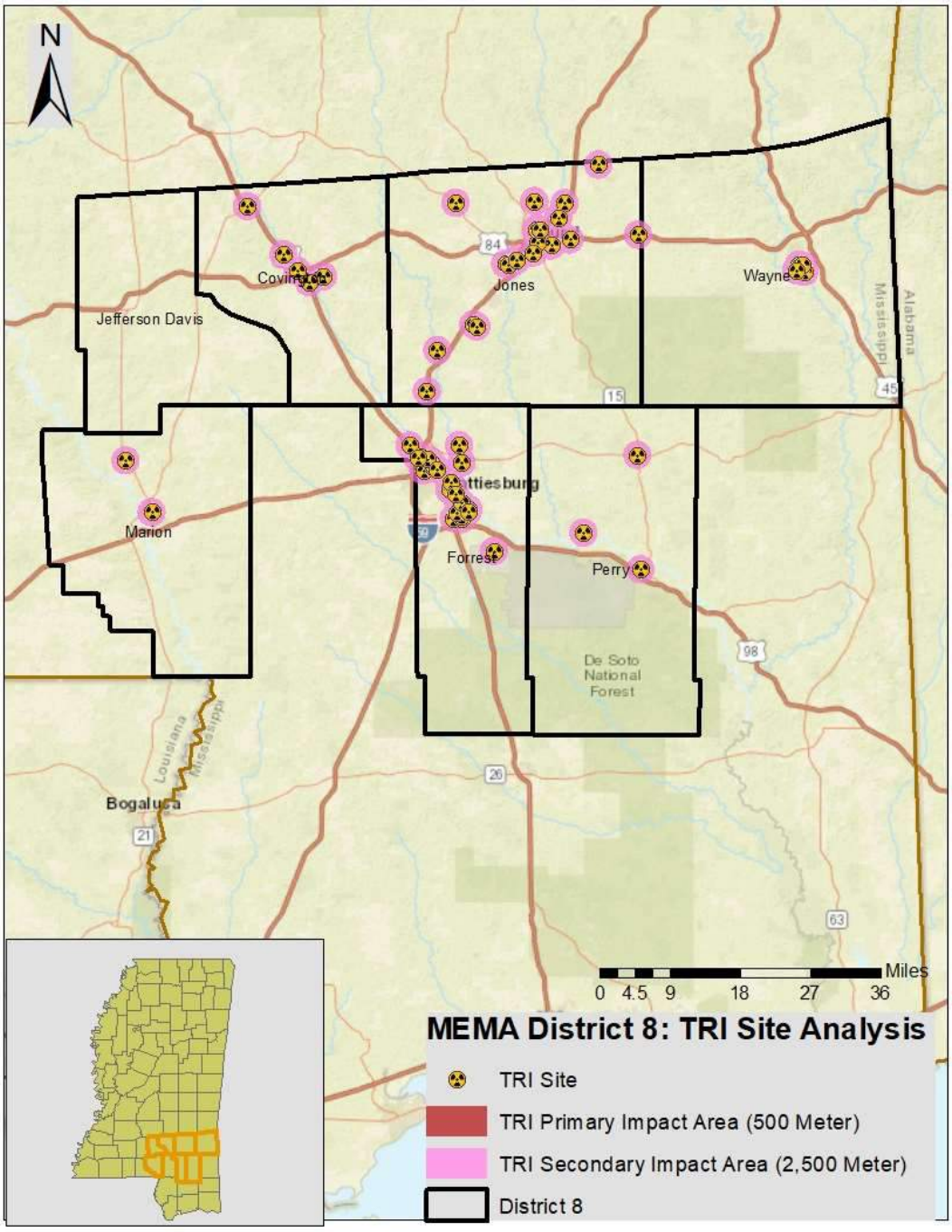
Recently there has been an increased emphasis on training first responders to recognize the signs of meth labs and act accordingly. However, the potential consequences of a meth lab incident combined with the challenge of identifying these sites presents a real risk to communities and is a hazard that local emergency managers should recognize.

5.15.2 Location and Spatial Extent

HAZARDOUS MATERIALS

As a result of the 1986 Emergency Planning and Community Right to Know Act (EPCRA), the Environmental Protection Agency provides public information on hazardous materials. One facet of this program is to collect information from industrial facilities on the releases and transfers of certain toxic agents. This information is then reported in the Toxic Release Inventory (TRI). TRI sites indicate where such activity is occurring. The MEMA District 8 Region has numerous TRI sites. These sites are shown in **Figure 5.16.**

FIGURE 5.20: TOXIC RELEASE INVENTORY (TRI) SITES IN THE MEMA DISTRICT 8 REGION



Source: EPA

In additional to "fixed" hazardous materials locations, hazardous materials may also impact the region via roadways and rail. Many roads in the region are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially at risk to an incident.

PIPELINES

Pipelines exist throughout the state of Mississippi and throughout the MEMA District 8 Region. Across the state, there are over 3,400 miles of hazardous liquid line, 10,600 miles of gas transmission lines, and 15,700 miles of gas distribution lines. In the MEMA District 8 Region, there are 1,248 miles of gas lines and 822 miles of hazardous liquid lines. For more specific description of the location of pipelines in the MEMA District 8 region, please see the maps located in the respective county annexes of this plan.

METH LABS

As mentioned above, one of the greatest concerns about meth labs is that they are clandestine in nature. Additionally, once a meth lab has been identified, police authorities generally attempt to eliminate the site as quickly as possible. Therefore, it is nearly impossible to identify specific locations for meth labs and instead, the entire planning area is considered to be at risk to this hazard.

5.15.3 Historical Occurrences

HAZARDOUS MATERIALS

The U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) lists historical occurrences throughout the nation. A "serious incident" is a hazardous materials incident that involves:

- a fatality or major injury caused by the release of a hazardous material,
- the evacuation of 25 or more persons as a result of release of a hazardous material or exposure to fire,
- a release or exposure to fire which results in the closure of a major transportation artery,
- the alteration of an aircraft flight plan or operation,
- the release of radioactive materials from Type B packaging,
- the release of over 11.9 galls or 88.2 pounds of a severe marine pollutant, or
- the release of a bulk quantity (over 199 gallons or 882 pounds) of a hazardous material.

However, prior to 2002, a hazardous material "serious incident" was defined as follows:

- a fatality or major injury due to a hazardous material,
- closure of a major transportation artery or facility or evacuation of six or more person due to the presence of hazardous material, or
- a vehicle accident or derailment resulting in the release of a hazardous material.

Table 5.28 summarizes the HAZAMAT incidents reported in the MEMA District 8 Region. Detailed information on these events is presented in the jurisdiction-specific annexes.

TABLE 5.28: SUMMARY OF HAZMAT INCIDENTS IN THE MEMA DISTRICT 8 REGION

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Covington County	**24**	**1/0**	**$19,750**
Collins	21	1/0	$9,650
Mount Olive	3	0/0	$10,100
Seminary	0	0/0	$0
Unincorporated Area	0	0/0	$0
Jefferson Davis County	**1**	**0/0**	**$55,300**
Bassfield	0	0/0	$0
Prentiss	1	0/0	$55,300
Unincorporated Area	0	0/0	$0
Jones County	**54**	**1/0**	**$102,315**
Ellisville	2	0/0	$0
Laurel	37	0/0	$96,021
Sandersville	4	0/0	$400
Soso	0	0/0	$0
Unincorporated Area	11	1/0	$5,915
Marion County	**5**	**0/1**	**$317,999**
Columbia	4	0/0	$340
Unincorporated Area	1	0/1	$317,659
Perry County	**7**	**0/0**	**$0**
Beaumont	0	0/0	$0
New Augusta	5	0/0	$0
Richton	2	0/0	$0
Unincorporated Area	0	0/0	$0
Wayne County	**6**	**0/1**	**$4,450**
State Line	0	0/0	$0
Waynesboro	5	0/1	$400
Unincorporated Area	1	0/0	$4,050
Forrest County	**0**	**0/0**	**$0**
Hattiesburg	0	0/0	$0
Petal	0	0/0	$0
Unincorporated Area	0	0/0	$0
MEMA DISTRICT 8 REGION TOTAL	**97**	**2/2**	**$499,814**

Source: USDOT PHMSA

PIPELINES

Between 2002 and 2019, there have been four pipeline incidents in the MEMA District 8 Region. These incidents are listed in **Table 5.29** below.

TABLE 5.29: SUMMARY OF HAZMAT INCIDENTS IN THE MEMA DISTRICT 8 REGION

Location	Date	Operator	Deaths / Injuries	Property Damage
Columbia	8/4/2004	Gulf South Pipeline Company	0/0	$106,991
Collins	4/11/2009	Transmontaigne Operating Company	0/0	$85,904

Location	Date	Operator	Deaths / Injuries	Property Damage
Columbia	9/10/2009	Gulf South Pipeline Company	0/0	$103,511
Petal	4/22/2003	N/A	0/0	$55,300
MEMA DISTRICT 8 REGION TOTAL			**0/0**	**$351,706**

Source: USDOT PHMSA

METH LABS

Meth lab incidents have occurred at various times throughout the MEMA District 8 Region. Although there is not an extensive documented record of these events, they have occurred in the past and are generally confined to single sites, often in residential areas.

5.15.4 Probability of Future Occurrence

HAZARDOUS MATERIALS

Given the location of twenty-two toxic release inventory sites in the MEMA District 8 Region and several serious roadway incidents, it is possible that a hazardous material incident may occur in the region, though it is unlikely (less than one percent annual probability). County and town officials are mindful of this possibility and take precautions to prevent such an event from occurring. Furthermore, there are detailed plans in place to respond to an occurrence.

PIPELINES

Since there have been three major pipeline incidents and there are over 2,000 miles of gas and hazardous liquid lines in the region, it is anticipated that there will be future pipeline incidents in the MEMA District 8 Region. However, because the chances of an incident are small relative to the spatial extent of pipelines, the probability is considered to be possible.

METH LABS

Meth lab incidents will likely continue to occur throughout the MEMA District 8 Region. Although it is difficult to predict where exactly these incidents would occur, the probability that they will is possible.

5.16 CYBER TERRORISM

A cyber-attack is a malicious, intentional attempt to breach the information technology (IT) infrastructure of an individual or organization. The State of Mississippi defines a cyberterrorism incident as any adverse premeditated, politically, financially or maliciously motivated attack against informational systems. A cyberterrorism event can impact one or more of the State and its counties', corresponding departments' and divisions' information assets by the following ways, which includes, but are not limited to, the following:

- Unauthorized use
- Denial of Service

- Malicious code
- Network system failures
- Application system failures
- Unauthorized disclosure or loss of information
- Information security breach
- Structured Query Language (SQL) Injection

Incidents can be the result of any of the following:

- Intentional and unintentional acts
- Actions of employees
- Actions of vendors or constituents
- Actions of third parties
- External or internal acts
- Credit card fraud
- Potential policy violations
- Natural disasters and power failures
- Acts related to violence, warfare or terrorism
- Serious wrongdoing

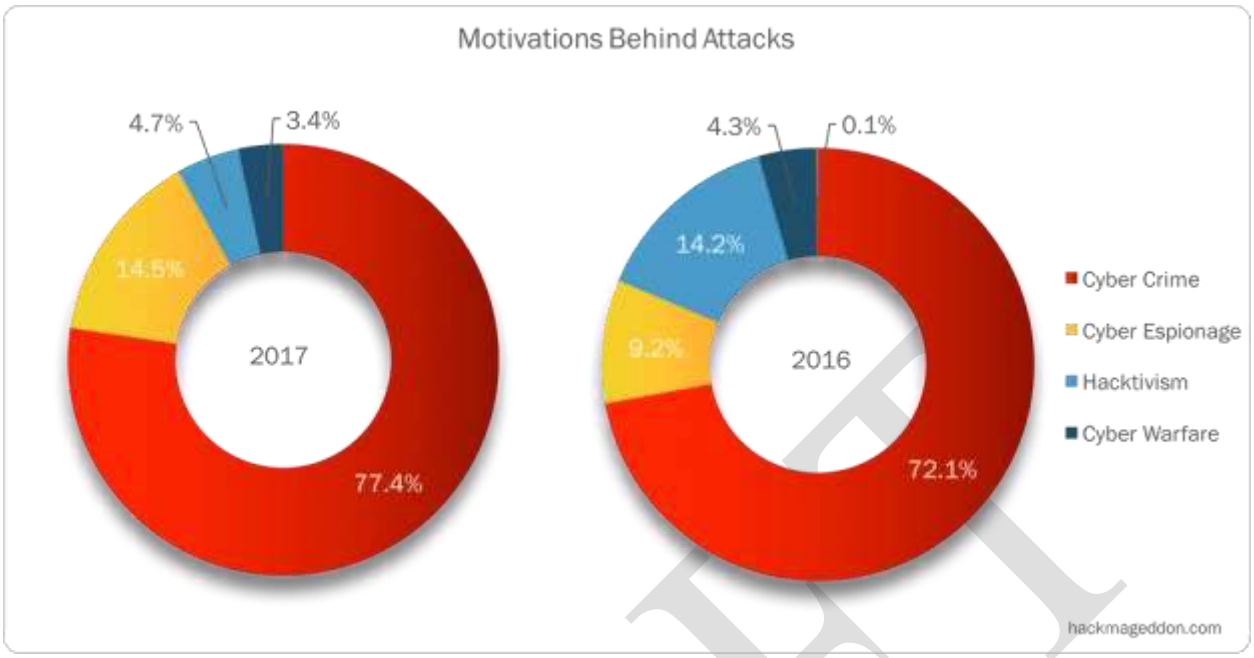
The motives behind cyberterrorism attacks can vary. However, according to Hackmageddon, a comprehensive website that catalogs cyber-attacks through timelines and statistics, the top four motives in 2017 are listed in the table below.

TABLE 5.30: TOP 4 MOTIVES FOR CYBERTERRORISM

Motives	Definitions
Cyber Crime	Crime that involves or carried out by a computer and a network. The computer may have been used in the commission of a crime, or it may be the target.
Cyber Espionage	The act or practice of obtaining secrets and information without the permission and knowledge of the holder of the information from individuals, competitors, rivals, groups, governments and enemies for personal, economic, political or military advantage using methods on the Internet, networks or individual computers through the use of proxy servers, cracking techniques and malicious software including Trojan horses and spyware.
Hacktivism	Refers to the use of computers and any other IT system and network to debate and sustain a political issue, promote free speech, and support human rights. Hacktivism is mainly interpreted by society as the transposition of the protest and the civil disobedience into cyberspace.
Cyber Warfare	Actions by a nation-state to penetrate another nation's computers or networks for the purposes of causing damage or disruption.

The figure below, Figure 3.21 describes the differences between 2016 and 2017. According to research, Cyber Crime confirmed its crown from 2016 into 2017 with a similar percentage 77.4% versus 72.1% in 2016. Hacktivism events fell down to 4.3% in 2017, from 14.2% in 2016. Cyber Espionage had an opposite trend, soaring to 14.5% from 4.3%. Cyber Warfare reported a slight decrease to 3.4% in 2017 from 4.3% in 2016.

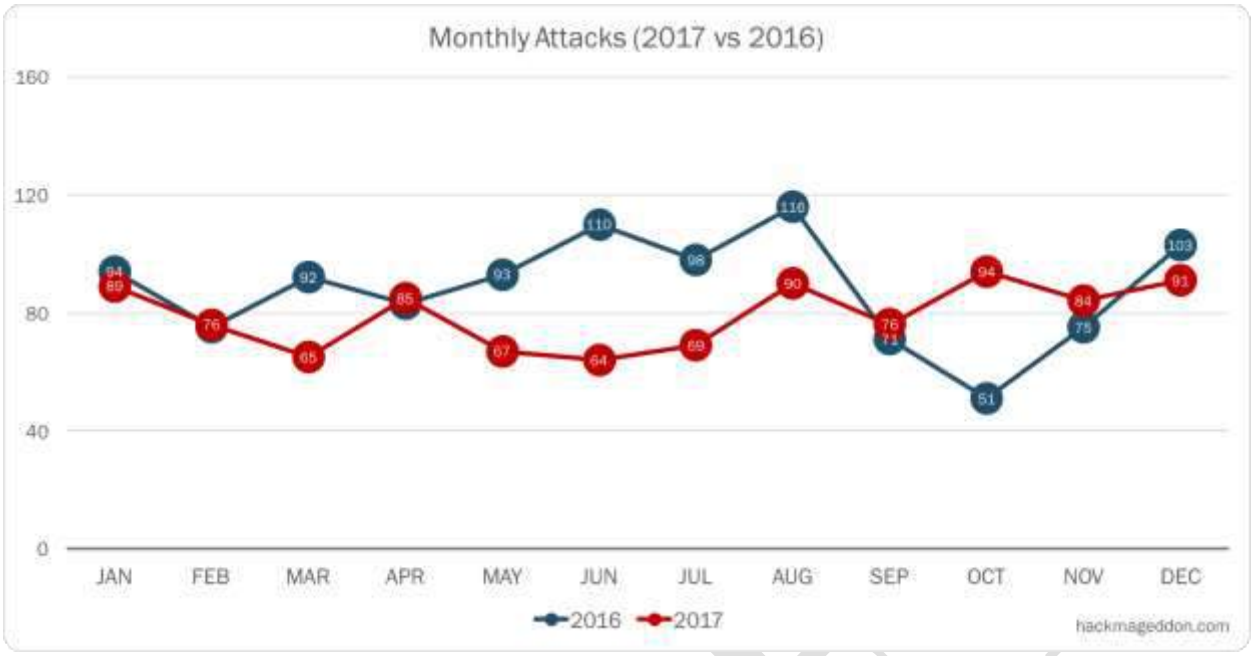
FIGURE 3.21: TOP 4 MOTIVES FOR CYBERTERRORISM



According to Hackmageddon, in comparison to 1,061 events collected in 2016, 950 events were collected in 2017, which is approximately a 10% decrease. Despite a minor number of events being recorded, 2017 was characterized by large scale attacks like WannaCry. WannaCry is a ransomware cryptoworm, which targeted computers running the Microsoft Windows operating system by encrypting data and demanding ransom payments in the Bitcoin cryptocurrency. It is considered a network worm because it also includes a "transport" mechanism to automatically spread itself. The ransomware encrypting files required victims to pay anywhere from $300 - $600 to recover their documents. This attack affected over 200,000 victims and over 300,000 computers were infected.

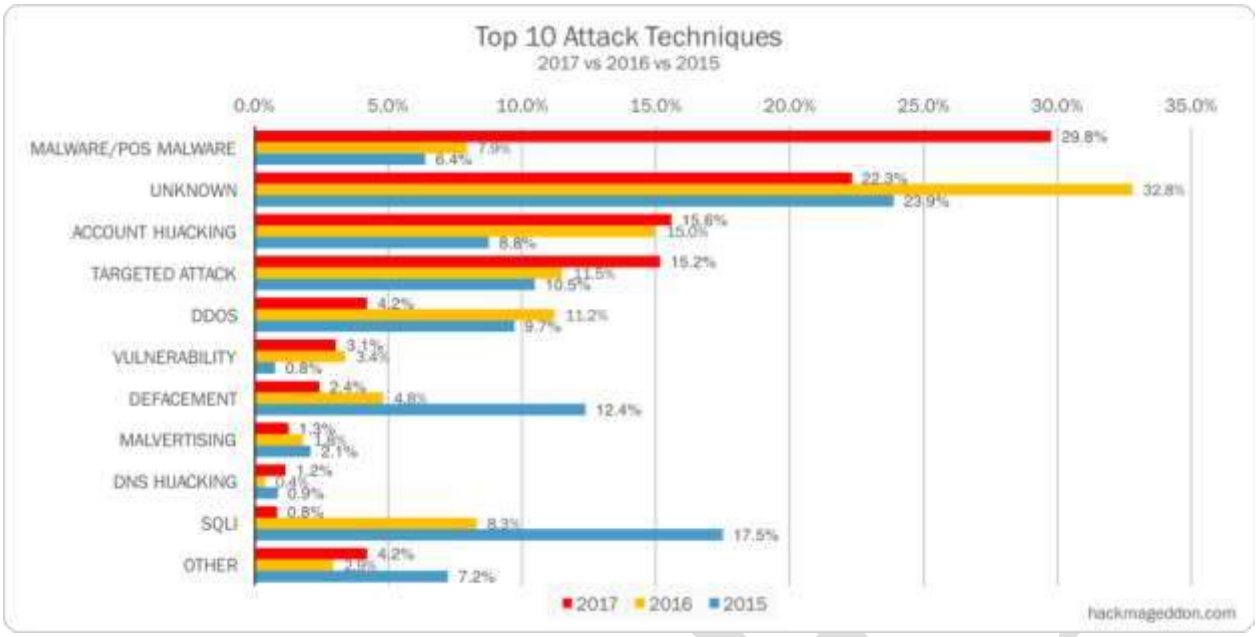
The **Monthly Attacks** chart shows that the level of activity has been generally lower in 2017 in comparison with 2017, with the exception of October.

FIGURE 3-22: MONTHLY ATTACKS



The type of cyberterrorism attacks varies. Hackmageddon recognizes at least 10 different kinds. As the figure below demonstrates, 2017 has been the year of Malware. Account hijackings were essentially in line with the findings of 2016 where typically vulnerabilities were exploited. Targeted attacks rose to 15.2% and Hacktivism fell continuously. The potential reason for this may be the increasing emergence of cyber- attacks through ransomware, which implements Distributed Denial of Service (DDOS) and Structured Query Language injection (SQLi). A DDOS attack is an attempt to make a machine or network resource unavailable to its intended users, such as to temporarily or indefinitely interrupt or suspend services of a host connected to the Internet. SQLi is a common attack vector that uses malicious SQL code for backend database manipulation to access information that was not intended to be displayed. This information may include any number of items, including sensitive company data, user lists or private customer details.

FIGURE 3-23: TOP 10 ATTACK TECHNIQUES



Source: *Hackmageddon.com*

5.16.2 Location and Spatial Extent

The cyberterrorism hazard is not geography-based. Attacks can originate from any computer to affect any other computer in the world. If a system is connected to the Internet or operating on a wireless frequency, it is susceptible to exploitation. Targets of cyberterrorism can be individual computers, networks, organizations, business sectors, or governments. Financial institutions and retailers are often targeted to extract personal and financial data that can be used to steal money from individuals and banks.

When a cyber security incident occurs, the State of Mississippi uses the following factors to evaluate its severity:

- Nature of the attack
- Criticality of systems that are (or could be) made unavailable
- Value of the information compromised (if any)
- Number of people, agencies, or functions impacted
- Business considerations
- Public relations
- Effects on the State's entire IT enterprise

Cyberterrorism may range from the infection of a single machine by a common computer virus to a large-scale, organized incident that cripples an organization or infrastructure.

5.16.3 Historical Occurrences

Even there have been no disruption of services within State government, Mississippi is no stranger to similar types of cyberterrorism attacks. In 2017, a Lebanese national executed a distributed denial of

service (DDOS) attack on a Ridgeland business. The hacker utilized a computer in Lebanon to extort payments from the Ridgeland business while conducting computer attacks to interfere with its computer business and operations. This type of act is considered a denial-of-service attack, where an attacker attempts to prevent legitimate users from accessing information or services, preventing one from accessing email, websites, online accounts (banking, etc.), or other services that rely on the affected computer.

Even as this plan is being updated, the City of Atlanta has been held hostage by a ransomware attack for 6-days and counting. So far, the hackers are asking $51,000 in Bitcoin to unlock the city's systems. Luckily, emergency services such as 911 calls and control of wastewater treatment have been exempt from the attack.

To date, most experts believe this one of the most sustained, coordinated and consequential cyberterrorism attacks ever mounted against a major American city. The assault on Atlanta, the core of a metropolitan area of about 6 million people, represented a serious escalation from other recent cyberattacks on American cities, like the one last year in Dallas where hackers gained the ability to set off tornado sirens in the middle of the might.

Actions are taken by the Department of Information Technology Services to mitigate security risks presented by, for example, blocking IP address ranges, identifying vulnerable servers, performing scans as necessary, opening Help Desk tickets to scan/check machines, etc. Losses can include loss of productivity, financial theft, and the exposure of secure information. To date, no specific losses from cyberterrorism that have affected the State are available.

5.16.4 Probability of Future Occurrences

As is the case for any large governmental organization, the State of Mississippi will continue to be impacted and compelled to respond to cyberterrorisms in the future. The nature of these attacks is projected to evolve in sophistication over time. The State has taken a proactive position in its cyber security efforts and is expected to remain vigilant in its efforts to prevent attacks from occurring and/or disrupting business operations. The reality remains that many computers and networks in organizations of all sizes and industries around the United States will continue to suffer intrusion attempts on a daily basis from viruses and malware that are passed through web sites and emails.

5.17 CONCLUSIONS ON HAZARD RISK

The hazard profiles presented in this section were developed using best available data and result in what may be considered principally a qualitative assessment as recommended by FEMA in its "How-to" guidance document titled *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA Publication 386-2). It relies heavily on historical and anecdotal data, stakeholder input, and professional and experienced judgment regarding observed and/or anticipated hazard impacts. It also carefully considers the findings in other relevant plans, studies, and technical reports.

5.17.1 Hazard Extent

Table 5.31 describes the extent of each natural hazard identified for the MEMA District 8 Region. The extent of a hazard is defined as its severity or magnitude, as it relates to the planning area.

1656

TABLE 5.31: EXTENT OF MEMA DISTRICT 8 REGION HAZARDS

Flood-related Hazards

Flood

Flood extent can be measured by the amount of land and property in the floodplain as well as flood height and velocity.

Flood depth and velocity are recorded via United States Geological Survey stream gages throughout the region. While a gage does not exist for each participating jurisdiction, there is one at or near many areas. The greatest peak discharge recorded for the region was in Columbia in Marion County in 1874. Water reached a discharge of 165,000 cubic feet per second and the stream gage height was recorded at 31.00 feet. Additional peak discharge readings and gage heights are in the table below.

Jurisdiction	Date	Peak Discharge (cfs)	Gage Height (ft)
Covington County			
Leaf River near Collins	April 1856	56,000	33.00
Okatoma Cr Trib at Mount Olive	4/13/1974	318	6.21
Seminary	--	--	--
Jefferson Davis County			
Bassfield	--	--	--
Goines Draw near Prentiss	4/12/1974	610	9.10
Jones County			
Ellisville	--	--	--
Tallahala Creek at Laurel	12/9/1919	38,300	26.00
Sandersville	--	--	--
Soso	--	--	--
Marion County			
Pearl River near Columbia	1874	165,000	31.00
Perry County			
Leaf River at Beaumont	1900	150,000	34.00
Leaf River near New Augusta	1900	120,000	36.00
Thompson Creek at Richton	3/3/2001	10,900	16.63
Wayne County			
State Line	--	--	--
Chickasawhay River near Waynesboro	April 1900	73,000	50.30
Forrest County			
Hattiesburg	--	--	--
Petal	1974	610	9.10

Erosion

The extent of erosion can be defined by the measurable rate of erosion that

	occurs. There are no erosion rate records located in the MEMA District 8 Region.
Dam Failure	Dam Failure extent is defined using the Mississippi Division of Environmental Quality criteria. Nineteen dams are classified as high-hazard in the region.
Winter Storm and Freeze	The extent of winter storms can be measured by the amount of snowfall received (in inches). Official long-term snow records are not kept for any areas in the MEMA District 8 Region. However, the greatest snowfall reported in Jackson (northwest of the region) was 11.7 inches in 1904 and in Meridian (north of the region) was 14.0 inches in 1963.
Fire-related Hazards	
Drought / Heat Wave	Drought extent is defined by the U.S. Drought Monitor Classifications which include Abnormally Dry, Moderate Drought, Severe Drought, Extreme Drought, and Exceptional Drought. According to the U.S. Drought Monitor Classifications, the most severe drought condition is Exceptional. All of the participating counties have received this ranking at least once over the eighteen-year reporting period. The extent of extreme heat can be measured by the record high temperature recorded. Official long-term temperature records are not kept for any areas in the MEMA District 8 Region. However, the highest recorded temperature in Hattiesburg (located between Marion and Perry Counties) was 106°F in 1989.
Wildfire	Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2008-2018. The greatest number of fires to occur and number of acres burned occurred in Marion County. Analyzing the data by county indicates the following wildfire hazard extent for each county. ***Covington County*** The average number of fires per year was 26.9. The average number of acres burned per year was 212. The average number of acres burned was 7.9. ***Jefferson Davis County*** The average number of fires per year was 65. The average number of acres burned per year was 559. The average number of acres burned was 8.8. ***Jones County*** The average number of fires per year was 51.4. The average number of acres burned per year was 390.2. The average number of acres burned was 13.2. ***Marion County*** The average number of fires per year was 53.4. The average number of acres burned per year was 507.7. The average number of acres burned was 9.5. ***Perry County*** The average number of fires per year was 25.4. The average number of acres burned per year was 348.7. The average number of acres burned was 13.7. ***Wayne County*** The average number of fires per year was 32.8. The average number of acres burned per year was 317.8. The average number of acres burned was 9.7. ***Forrest County***

	The average number of fires per year was 47.8. The average number of acres burned per year was 510.6. The average number of acres burned was 8.8.
Geologic Hazards	
Earthquake	Earthquake extent can be measured by the Richter Scale (Table 5.15) and the Modified Mercalli Intensity (MMI) scale (Table 5.16) and the distance of the epicenter from the MEMA District 8 Region. According to data provided by the National Geophysical Data Center, no recorded earthquakes have been located in the region. However, the greatest MMI to impact the region was reported in Covington, Jones, and Marion County with a MMI of IV (moderate) with a correlating Richter Scale measurement of less than 4.8. Additionally, USGS data shows the MEMA District 8 Region lies within an approximate zone of level "2" to "3" ground acceleration. This indicates that the region exists within an area of moderate seismic risk.
Landslide	As noted above in the landslide profile, there is no extensive history of landslides in the MEMA District 8 Region and landslide events typically occur in isolated areas. This provides a challenge when trying to determine an accurate extent for the landslide hazard. However, when using USGS landslide susceptibility index, extent can be measured with incidence, which is between low and moderate in the MEMA District 8 Region. There is also susceptibility throughout the region.
Expansive Soils	As noted above in the expansive soils profile, there is no historical record of significant expansive soil events in the MEMA District 8 Region. Again, this provides a challenge when trying to determine an accurate extent for the expansive soils hazard. However, when using USGS data on soils with clay swelling potential, extent can be measured with swelling potential, which is high in less than 50 percent of the soils in the MEMA District 8 Region.
Wind-related Hazards	
Hurricane and Tropical Storm	Hurricane extent is defined by the Saffir-Simpson Scale which classifies hurricanes into Category 1 through Category 5 (Table 5.19). The greatest classification of hurricane to traverse directly through the MEMA District 8 Region was Hurricane Camille, which was a Category 3 hurricane when it passed through the region. One additional Category 3 hurricanes has also passed through the region (an unnamed hurricane in 1855).
Thunderstorm / Hail / Lightning	Thunderstorm extent is defined by the number of thunder events and wind speeds reported. According to a 63-year history from the National Centers for Environmental Information, the strongest recorded wind event in the MEMA District 8 Region was reported on June 5, 1998 at 80 knots (approximately 92 mph). It should be noted that future events may exceed these historical occurrences. Hail extent can be defined by the size of the hail stone. The largest hail stone reported in the MEMA District 8 Region was 4.0 inches (last reported on April 7, 2003 in). It should be noted that future events may exceed this. According to the Vaisala's flash density map (Figure 5.16), the MEMA District 8 Region is located in an area that experiences 6 to 8 lightning flashes per square kilometer per year. It should be noted that future lightning occurrences may exceed these figures.
Tornado	Tornado hazard extent is measured by tornado occurrences in the US provided by FEMA (Figure 5.17) as well as the Fujita/Enhanced Fujita Scale (Tables 5.25 and

	5.26). The greatest magnitude reported in the MEMA District 8 Region was an F4 (last reported on February 28, 1987).
Other Hazards	
Hazardous Materials Incident	According to USDOT PHMSA, the largest hazardous materials incident reported in the region is 7,980 LGA released on the highway in Collins (Covington County). It should be noted that larger events are possible. A pipeline incident could have a potentially large impact in terms of extent. Based on recent history, the largest spill in the last 10 years in Mississippi caused over 10,000 barrels of hazardous liquid to be spilled. Because of the generally small-scale nature of most meth labs, the extent of a fire or explosion that was caused by a meth lab incident would likely not be larger than a few acres.
Cyber Terrorism	

5.17.2 Priority Risk Index

In order to draw some meaningful planning conclusions on hazard risk for the MEMA District 8 Region, the results of the hazard profiling process were used to generate countywide hazard classifications according to a "Priority Risk Index" (PRI). The purpose of the PRI is to categorize and prioritize all potential hazards for the MEMA District 8 Region as high, moderate, or low risk. Combined with the asset inventory and quantitative vulnerability assessment provided in the next section, the summary hazard classifications generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for the MEMA District 8 Region to consider as part of their proposed mitigation strategy.

The prioritization and categorization of identified hazards for the MEMA District 8 Region is based principally on the PRI, a tool used to measure the degree of risk for identified hazards in a particular planning area. The PRI is used to assist the MEMA District 8 Regional Hazard Mitigation Council (RHMC) in gaining consensus on the determination of those hazards that pose the most significant threat to the MEMA District 8 counties based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective planning tool for classifying and prioritizing hazard risks in the MEMA District 8 Region based on standardized criteria.

The application of the PRI results in numerical values that allow identified hazards to be ranked against one another (the higher the PRI value, the greater the hazard risk). PRI values are obtained by assigning varying degrees of risk to five categories for each hazard (probability, impact, spatial extent, warning time, and duration). Each degree of risk has been assigned a value (1 to 4) and an agreed upon weighting factor[21], as summarized in **Table 5.30**. To calculate the PRI value for a given hazard, the assigned risk value for each category is multiplied by the weighting factor. The sum of all five categories equals the final PRI value, as demonstrated in the example equation below:

[21] The HMC, based upon any unique concerns or factors for the planning area, may adjust the PRI weighting scheme during future plan updates.

PRI VALUE = [(PROBABILITY x .30) + (IMPACT x .30) + (SPATIAL EXTENT x .20) + (WARNING TIME x .10) + (DURATION x .10)]

According to the weighting scheme and point system applied, the highest possible value for any hazard is 4.0. When the scheme is applied for the MEMA District 8 Region, the highest PRI value is 3.2 (hurricane and tropical storm). Prior to being finalized, PRI values for each identified hazard were reviewed and accepted by the members of the RHMC.

1693 **TABLE 5.32: PRIORITY RISK INDEX FOR THE MEMA DISTRICT 8 REGION**

PRI Category	Degree of Risk			Assigned Weighting Factor
	Level	Criteria	Index Value	
Probability	Unlikely	Less than 1% annual probability	1	30%
	Possible	Between 1 and 10% annual probability	2	
	Likely	Between 10 and 100% annual probability	3	
	Highly Likely	100% annual probability	4	
Impact	Minor	Very few injuries, if any. Only minor property damage and minimal disruption on quality of life. Temporary shutdown of critical facilities.	1	30%
	Limited	Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one day.	2	
	Critical	Multiple deaths/injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one week.	3	
	Catastrophic	High number of deaths/injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for 30 days or more.	4	
Spatial Extent	Negligible	Less than 1% of area affected	1	20%
	Small	Between 1 and 10% of area affected	2	
	Moderate	Between 10 and 50% of area affected	3	
	Large	Between 50 and 100% of area affected	4	
Warning Time	More than 24 hours	Self explanatory	1	10%
	12 to 24 hours	Self explanatory	2	
	6 to 12 hours	Self explanatory	3	
	Less than 6 hours	Self explanatory	4	
Duration	Less than 6 hours	Self explanatory	1	10%
	Less than 24 hours	Self explanatory	2	
	Less than one week	Self explanatory	3	
	More than one week	Self explanatory	4	

1694

5.17.3 Priority Risk Index Results

Table 5.33 summarizes the degree of risk assigned to each category for all initially identified hazards based on the application of the PRI. Assigned risk levels were based on the detailed hazard profiles developed for this section, as well as input from the RHMC. The results were then used in calculating PRI values and making final determinations for the risk assessment.

TABLE 5.33: SUMMARY OF PRI RESULTS FOR THE MEMA DISTRICT 8 REGION

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Flood-related Hazards						
Flood	Likely	Limited	Small	6 to 12 hours	Less than 24 hours	**2.4**
Erosion	Possible	Minor	Small	More than 24 hours	More than 1 week	**1.8**
Dam Failure	Unlikely	Critical	Moderate	More than 24 hours	Less than 6 hours	**2.0**
Winter Storm and Freeze	Possible	Limited	Large	More than 24 hours	Less than 24 hours	**2.3**
Fire-related Hazards						
Drought / Heat Wave	Highly Likely	Minor	Large	More than 24 hours	More than 1 week	**2.8**
Wildfire	Likely	Minor	Small	Less than 6 hours	Less than 1 week	**2.1**
Geologic Hazards						
Earthquake	Unlikely	Minor	Moderate	Less than 6 hours	Less than 6 hours	**1.7**
Landslide	Unlikely	Minor	Small	Less than 6 hours	Less than 6 hours	**1.5**
Expansive Soils	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Wind-related Hazards						
Hurricane and Tropical Storm	Likely	Catastrophic	Large	More than 24 hours	Less than 24 hours	**3.2**
Thunderstorm Wind / High Wind	Highly Likely	Limited	Moderate	Less than 6 hours	Less than 6 hours	**2.9**
Hailstorm	Likely	Minor	Small	Less than 6 hours	Less than 6 hours	**2.1**
Lighting	Highly Likely	Limited	Negligible	Less than 6 hours	Less than 6 hours	**2.5**
Tornado	Likely	Critical	Small	Less than 6 hours	Less than 6 hours	**2.7**
Other Hazards						
Hazardous Materials Incident	Unlikely	Limited	Small	Less than 6 hours	Less than 24 hours	**1.9**
Pipeline Incident	Possible	Limited	Small	Less than 6 hours	Less than 24 hours	**2.2**
Meth Lab Incident	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Cyber Terrorism	Unlikely	Limited	Small	Less than 6 hours	Less than 24 hours	**1.9**

5.17 FINAL DETERMINATIONS

The conclusions drawn from the hazard profiling process for the MEMA District 8 Region, including the PRI results and input from the RHMC, resulted in the classification of risk for each identified hazard according to three categories: High Risk, Moderate Risk, and Low Risk (**Table 5.31**). For purposes of

these classifications, risk is expressed in relative terms according to the estimated impact that a hazard will have on human life and property throughout all of the MEMA District 8 Region. A more quantitative analysis to estimate potential dollar losses for each hazard has been performed separately and is described in Section 6: *Vulnerability Assessment*. It should be noted that although some hazards are classified below as posing low risk, their occurrence of varying or unprecedented magnitudes is still possible in some cases and their assigned classification will continue to be evaluated during future plan updates.

TABLE 5.30: CONCLUSIONS ON HAZARD RISK FOR THE MEMA DISTRICT 8 REGION

HIGH RISK	Hurricane and Tropical Storm Thunderstorm Wind / High Wind Tornado Flood
MODERATE RISK	Drought / Heat Wave Dam Failure Lightning Hailstorm Pipeline Incident Hazardous Material Incident Wildfire
LOW RISK	Winter Storm and Freeze Expansive Soils Erosion Earthquake Landslide Hazardous Material Incident Wildfire Meth Lab Incident Cyber Terrorism

SECTION 6

VULNERABILITY ASSESSMENT

This section identifies and quantifies the vulnerability of the MEMA District 8 Region to the significant hazards identified in the previous sections (*Hazard Identification and Profiles*). It consists of the following subsections:

- 6.1 Overview
- 6.2 Methodology
- 6.3 Explanation of Data Sources
- 6.4 Asset Inventory
- 6.5 Vulnerability Assessment Results
- 6.6 Conclusions on Hazard Vulnerability

44 CFR Requirement

44 CFR Part 201.6(c)(2)(ii): The risk assessment shall include a description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. The description shall include an overall summary of each hazard and its impact on the community. 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 losses to vulnerable structures identified in paragraph (c)(2)(ii)(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.

6.1 OVERVIEW

This section builds upon the information provided in Section 4: *Hazard Identification and* Section 5*: Hazard Profiles* by identifying and characterizing an inventory of assets in the MEMA District 8 Region. In addition, the potential impact and expected amount of damages caused to these assets by each identified hazard event is assessed. The primary objective of the vulnerability assessment is to quantify exposure and the potential loss estimates for each hazard. In doing so, the MEMA District 8 counties and their participating jurisdictions may better understand their unique risks to identified hazards and be better prepared to evaluate and prioritize specific hazard mitigation actions.

This section begins with an explanation of the methodology applied to complete the vulnerability assessment, followed by a summary description of the asset inventory as compiled for the MEMA District 8 Region. The remainder of this section focuses on the results of the assessment conducted.

6.2 METHODOLOGY

This vulnerability assessment was conducted using three distinct methodologies: (1) A stochastic risk assessment; (2) a geographic information system (GIS)-based analysis; and (3) a risk modeling software

analysis. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation, including historical occurrence information provided in the *Hazard Identification* and *Analysis* sections. A brief description of the three different approaches is provided on the following pages.

6.2.1 Stochastic Risk Assessment

The stochastic risk assessment methodology was applied to analyze hazards of concern that were outside the scope of hazard risk models and the GIS-based risk assessment. This includes hazards that do not have geographically-definable boundaries and are therefore excluded from spatial analysis through GIS. A stochastic risk methodology was used for the following hazards:

- Dam Failure
- Drought
- Erosion
- Hailstorm
- Landslide
- Lightning
- Thunderstorm Wind
- Tornado
- Winter Storm and Freeze

Many of the hazards listed above are considered atmospheric and have the potential to affect all buildings and all populations. For many of these hazards listed above, no additional analysis was performed. When possible, annualized loss estimates were determined using the best available data on historical losses from sources including NOAA's National Centers for Environmental Information records, MEMA District 8 Region county hazard mitigation plans, and local knowledge. Annualized loss is the estimated long-term weighted average value of losses to property in any single year in a specified geographic area (i.e., municipal jurisdiction or county). Annualized loss estimates were generated by totaling the amount of property damage over the period of time for which records were available and calculating the average annual loss. Given the standard weighting analysis, losses can be readily compared across hazards providing an objective approach for evaluating mitigation alternatives.

For the dam failure[1], drought, erosion, and landslide hazards, no data with historical property damages was available. Therefore, annualized potential losses for these hazards are presumed to be negligible. Drought, hailstorm, lightning, thunderstorm wind, tornado, and winter storm and freeze have the potential to impact the entire MEMA District 8 region. The results for these hazards are found at the end of this section in **Table 6.12**.

[1] As noted in Section 5: *Hazard Profiles*, Dam failure could be catastrophic to areas in the inundation area. Due to a lack of a data, no additional analysis was performed. Further, local MEMA District 8 officials indicate that separate dam failure plans have been completed for their counties to identify risk and response measures. There was no local knowledge of critical facilities being at risk to dam failure. As additional data becomes available, more in-depth analysis will be conducted.

6.2.2 GIS-Based Analysis

Other hazards have specified geographic boundaries that permit additional using Geographic Information Systems (GIS). These hazards include:

- Hazardous Material Incident
- Wildfire

The objective of the GIS-based analysis was to determine the estimated vulnerability of critical facilities and populations for the identified hazards in the MEMA District 8 Region using best available geospatial data. Digital data was collected from local, regional, state, and national sources for hazards and buildings. This included local records for critical facilities and infrastructure when available. ESRI® ArcGIS™ 10.5 was used to assess hazard vulnerability utilizing digital hazard data, as well as local building data. Using these data layers, hazard vulnerability can be quantified by estimating the assessed building value for parcels and/or buildings determined to be located in identified hazard areas. To estimate vulnerable populations in hazard areas, digital Census 2010 data by census tract was obtained. This was intersected with hazard areas to determine exposed population counts. Unfortunately, due to the large scale of census tracts, the results are limited, but will be revised with population by census block when available. The results of the analysis provided an estimate of the number of people and critical facilities, as well as the replacement value of buildings, determined to be potentially at risk to those hazards with delineable geographic hazard boundaries.

6.2.3 Risk Modeling Software Analysis

A risk modeling software was used for the following hazards:

- Earthquake
- Flood
- Hurricane and Tropical Storm

There are several models that exist to model hazards. HAZUS-MH 4.2 was used in this vulnerability assessment to address the aforementioned hazards.

HAZUS-MH

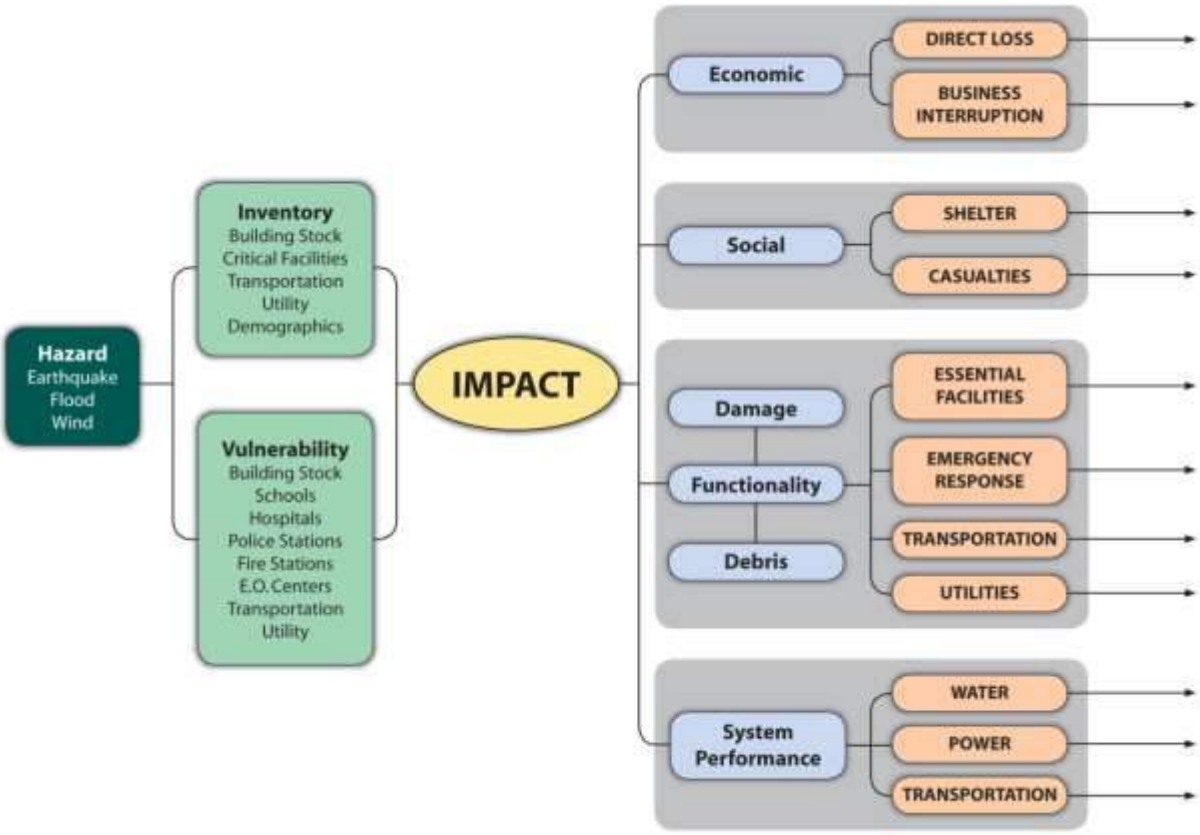
HAZUS-MH ("HAZUS") is a standardized loss estimation software program developed by FEMA. It is built upon an integrated GIS platform to conduct analysis at a regional level (i.e., not on a structure-by-structure basis). The HAZUS risk assessment methodology is parametric, in that distinct hazard and inventory parameters (e.g., wind speed and building types) can be modeled using the software to determine the impact (i.e., damages and losses) on the built environment.

The MEMA District 8 Regional Risk Assessment utilized HAZUS-MH to produce hazard damage loss estimations for hazards for the planning area. At the time

this analysis was completed, HAZUS-MH 4.2 was used to estimate potential damages from hurricane winds, flooding and earthquake hazards using HAZUS-MH methodology. Although the program can also model losses for flood and storm surge, it was not used in this Risk Assessment.

Figure 6.1 illustrates the conceptual model of the HAZUS-MH methodology.

FIGURE 6.1: CONCEPTUAL MODEL OF HAZUS-MH METHODOLOGY



HAZUS-MH is capable of providing a variety of loss estimation results. Some additional results based on location-specific scenarios may also be presented to provide a complete picture of hazard vulnerability.

Loss estimates provided in this vulnerability assessment are based on best available data and methodologies. The results are an approximation of risk. These estimates should be used to understand relative risk from hazards and potential losses. Uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment. Uncertainties also result from approximations and simplifications that are necessary for a comprehensive analysis (e.g., incomplete inventories, non-specific locations, demographics, or economic parameters).

All conclusions are presented in "Conclusions on Hazard Vulnerability" at the end of this section.

6.3 EXPLANATION OF DATA SOURCES

FLOOD

HAZUS-MH 4.2 was used to assess flood vulnerability for the Region. The scenario chosen was a probabilistic 100-year event and reports expected building damages, debris generation, shelter requirements, and economic losses.

WILDFIRE

The data used to determine vulnerability to wildfire in the MEMA District 8 Region is based on GIS data called the Wildfire Hazard Potential (WHP 2014). It was provided for use in this plan by the Mississippi Forestry Commission.

EARTHQUAKE

HAZUS-MH 4.2 (as described above) was used to assess earthquake vulnerability. Default HAZUS-MH methodologies were used to determine the probability of damage for a 100-year frequency event and reports expected building damages, debris generation, shelter requirements, and economic losses.

LANDSLIDE

As a result of the low susceptibility and low incidence of landslide for counties in the MEMA District 8 Region, a GIS-based vulnerability analysis was not carried out for this plan. USGS Landslide Susceptibility Index data was evaluated along with historic occurrences to determine landslide vulnerability and vulnerability was determined to be consistently low throughout the region.

HURRICANE AND TROPICAL STORM WIND

HAZUS-MH 4.2 (as described above) was used to assess wind vulnerability. For the hurricane wind analysis, a probabilistic scenario was created to estimate damage in the MEMA District 8 Region. Default HAZUS wind speed data, damage functions, and methodology were used in to determine the probability of damage for 100-year frequency events (also known as a return period) in the scenario.

HAZARDOUS MATERIALS INCIDENT

For the fixed hazardous materials incident analysis, Toxic Release Inventory (TRI) data was used. The Toxics Release Inventory is a publicly available database from the federal Environmental Protection Agency (EPA) that contains information on toxic chemical releases and other waste management activities reported annually by certain covered industry groups as well as federal facilities. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and expanded by the Pollution Prevention Act of 1990. Each year, facilities that meet certain activity thresholds must report their releases and other waste management activities for listed toxic chemicals to EPA and to their state or tribal entity. A facility must report if it meets the following three criteria:

- The facility falls within one of the following industrial categories: manufacturing; metal mining; coal mining; electric generating facilities that combust coal and/or oil; chemical wholesale

distributors; petroleum terminals and bulk storage facilities; RCRA Subtitle C treatment, storage, and disposal (TSD) facilities; and solvent recovery services;

- Has 10 or more full-time employee equivalents; and
- Manufactures or processes more than 25,000 pounds or otherwise uses more than 10,000 pounds of any listed chemical during the calendar year. Persistent, bioaccumulative, and toxic (PBT) chemicals are subject to different thresholds of 10 pounds, 100 pounds, or 0.1 grams depending on the chemical.

For the mobile hazardous materials incident analysis, transportation data including major highways and railroads were obtained from the Mississippi Department of Environmental Quality. This data is ArcGIS compatible, lending itself to buffer analysis to determine risk.

6.4 ASSET INVENTORY

An inventory of geo-referenced assets within the MEMA District 8 counties and jurisdictions was compiled in order to identify and characterize those properties potentially at risk to the identified hazards[2]. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. Under this assessment, two categories of physical assets were created and then further assessed through GIS analysis. Additionally, social assets are addressed to determine population at risk to the identified hazards.

6.4.1 Physical and Improved Assets

The two categories of physical assets consist of:

1. Improved Property Includes all improved properties in the MEMA District 8 Region according to HAZUS-MH 4.2. HAZUS-MH 4.2 building count data was utilized to determine the number of buildings that were present in the planning area. This data is presented to show potential vulnerability; however, this data was not analyzed to show impacts from hazards.

   HAZUS inventory data provides an estimate of the number of buildings in the study region. The economic exposure is also presented to be referenced with any HAZUS-related results.

2. Critical Facilities: Critical facilities vary by jurisdiction. For this Vulnerability Assessment, facilities were used from HAZUS-MH which includes fire stations, police station, medical care facilities, schools, and emergency operation centers. When provided, local data was used to supplement the HAZUS data. It should be noted that this listing is not all-inclusive for assets located in the region, but it is anticipated that it will be expanded during future plan updates as more geo-referenced data becomes available for use in GIS analysis.

The following tables provide a detailed listing of the geo-referenced assets that have been identified for inclusion in the vulnerability assessment for the MEMA District 8 Region.

[2] While potentially not all-inclusive for MEMA District 8, "georeferenced" assets include those assets for which specific location data is readily available for connecting the asset to a specific geographic location for purposes of GIS analysis.

Table 6.1 lists the number of parcels and the total assessed value of improvements for participating areas of the MEMA District 8 Region (study area of vulnerability assessment).[3] HAZUS-MH 4.2 was utilized to determine the number of parcels, total improved assets and building counts to complete the analysis.

TABLE 6.1: IMPROVED PROPERTY IN THE MEMA DISTRICT 8 REGION

Location	Number of Parcels	Total Assessed Value of Improvements
Covington County	**8,877**	**$1,613,517,000**
Forrest County	**28,780**	**$7,621,195,000**
Jefferson Davis County	**5,782**	**$852,147,000**
Jones County	**29,059**	**$5,912,251,000**
Marion County	**12,536**	**$2,186,833,000**
Perry County	**5,608**	**$874,179,000**
Wayne County	**9,627**	**$,1501,381,000**
MEMA DISTRICT 8 REGION TOTAL	**100,269**	**$19,060,122,000**

*Improvement values for these communities were obtained from HAZUS -MH**.**

Table 6.2 lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools located in the MEMA District 8 Region according to HAZUS-MH Version 2.1 with some modifications. In addition, **Figure 6.2** shows the locations of essential facilities in the MEMA District 8 Region. **Table 6.12**, near the end of this section, shows a complete list of the critical facilities by name, as well as the hazards that affect each facility. As noted previously, this list is not all-inclusive and only includes information provided by the counties.

TABLE 6.2: CRITICAL FACILITY INVENTORY IN THE MEMA DISTRICT 8 REGION

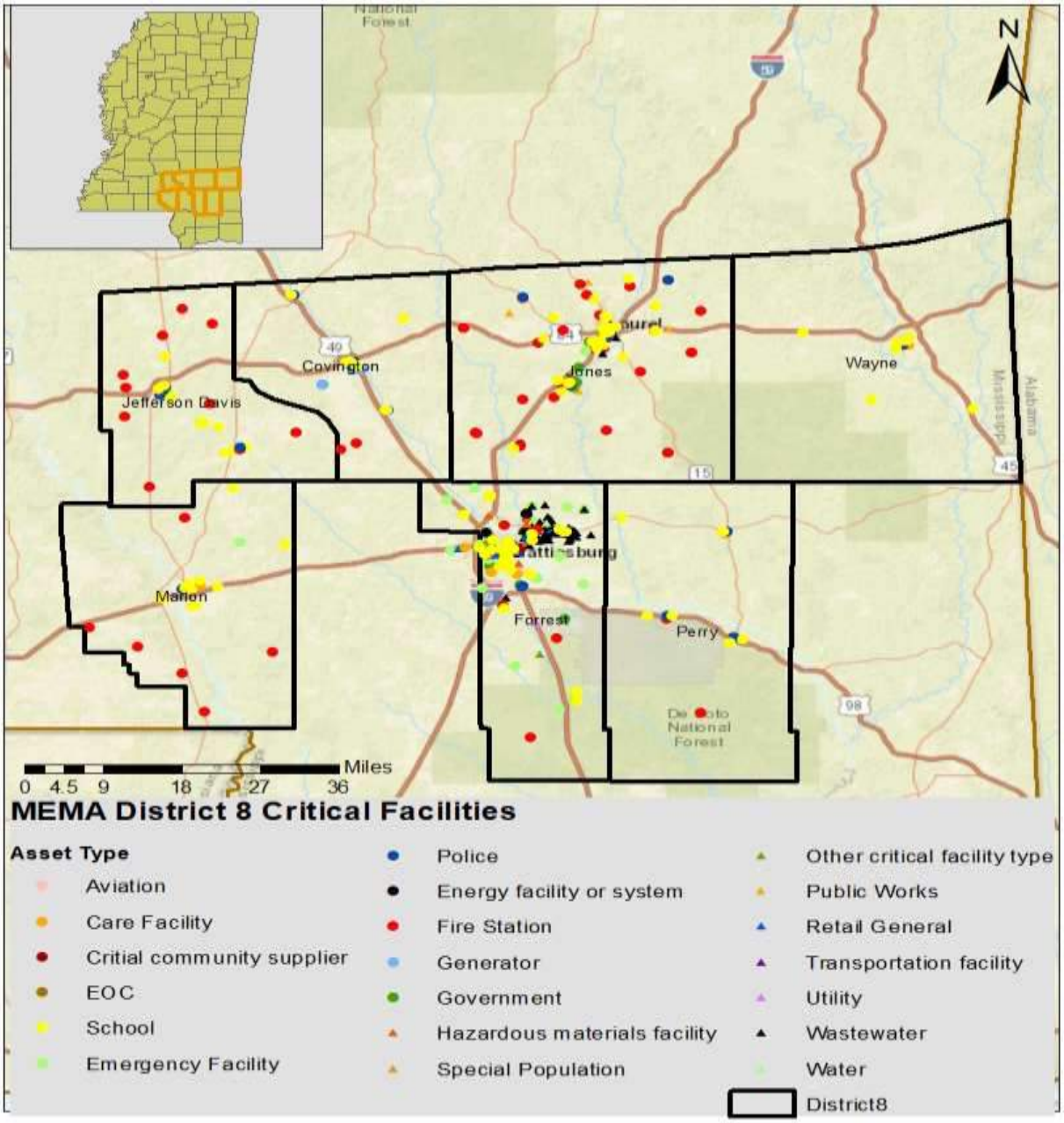
Location	Fire Stations	Police Stations	Medical Care Facilities	EOC	Schools
Covington County	**2**	**3**	**1**	**0**	**10**
Collins	1	2	1	0	5
Mount Olive	1	1	0	0	1
Seminary	0	0	0	0	4
Unincorporated Area	0	0	0	0	0
Jefferson Davis County	**2**	**1**	**1**	**1**	**8**
Bassfield	1	0	0	0	3
Prentiss	1	1	1	1	4
Unincorporated Area	0	0	0	0	1
Jones County	**2**	**3**	**1**	**1**	**22**
Ellisville	0	0	0	0	3
Laurel	1	2	1	1	18
Sandersville	0	1	0	0	0
Soso	1	0	0	0	0
Unincorporated Area	0	0	0	0	1

[3] Total assessed values for improvements is based on HAZUS data. .

Location	Fire Stations	Police Stations	Medical Care Facilities	EOC	Schools
Marion County	**3**	**2**	**1**	**1**	**11**
Columbia	2	2	1	1	8
Unincorporated Area	1	0	0	0	3
Perry County	**1**	**2**	**1**	**0**	**6**
Beaumont	1	0	0	0	1
New Augusta	0	1	0	0	2
Richton	0	1	1	0	2
Unincorporated Area	0	0	0	0	1
Wayne County	**2**	**2**	**1**	**1**	**9**
State Line	0	0	0	0	0
Waynesboro	2	2	1	1	8
Unincorporated Area	0	0	0	0	1
Forrest County	**25**	**3**	**2**	**1**	**26**
Hattiesburg	8	1	2	1	14
Petal	3	1	0	0	5
Unincorporated Area	14	1	0	0	7
MEMA DISTRICT 8 REGION TOTAL	**37**	**16**	**8**	**5**	**92**

247 *Source: HAZUS-MH and Planning Committee*

FIGURE 6.2: CRITICAL FACILITY LOCATIONS IN THE MEMA DISTRICT 8 REGION



Source: HAZUS-MH and local jurisdictions

6.4.2 Social Vulnerability

In addition to identifying those assets potentially at risk to identified hazards, it is important to identify and assess those particular segments of the resident population in the MEMA District 8 Region that are potentially at risk to these hazards.

Table 6.3 lists the population by jurisdiction according to U.S. Census 2010. The total population in the MEMA District 8 Region according to Census data was 234,907 persons. Additional population estimates are presented in Section 3: *Community Profile*.

TABLE 6.3: TOTAL POPULATION IN THE MEMA DISTRICT 8 REGION

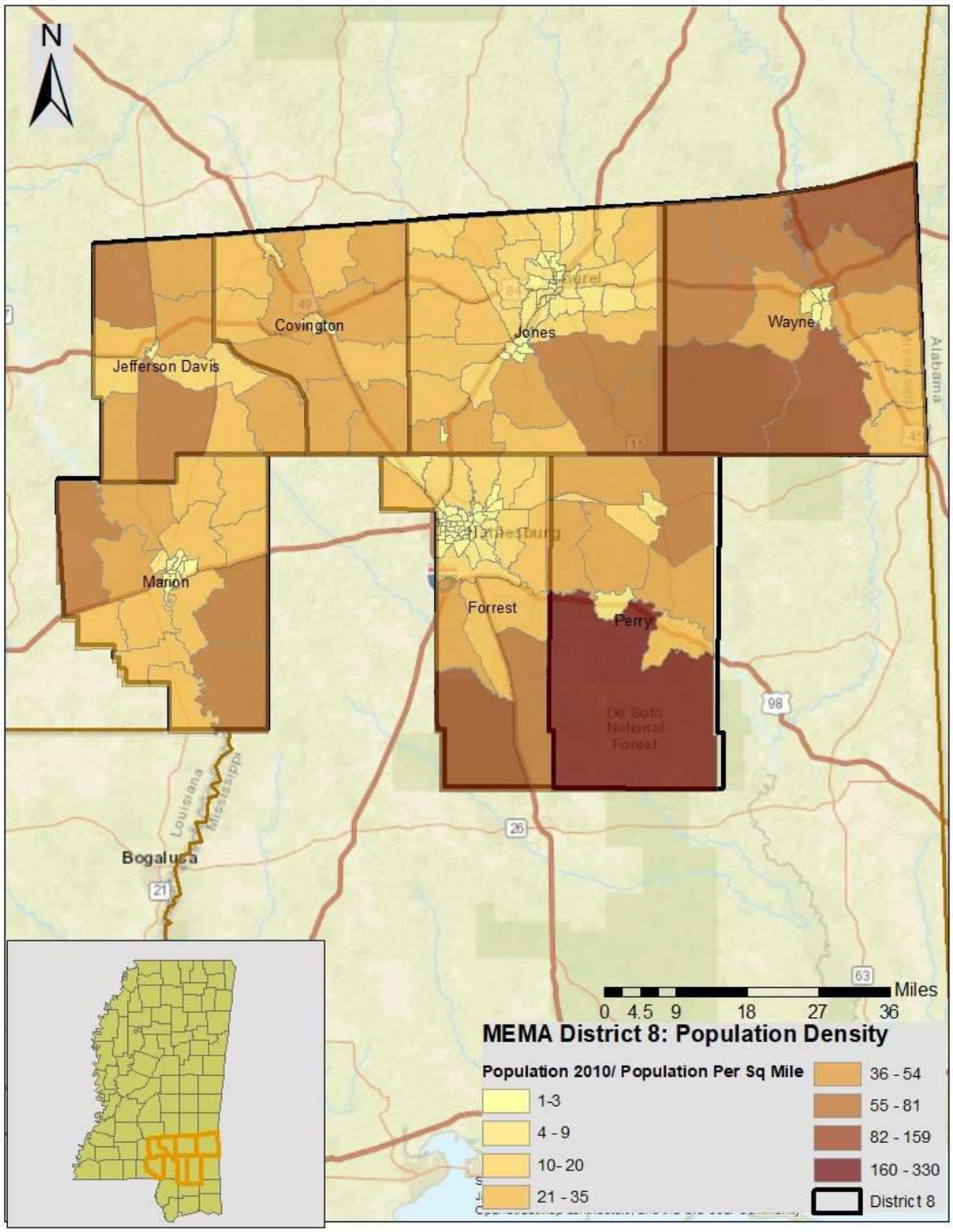
Location	Total 2010 Population	2017 Population Estimates
Covington County	19,568	19,079
Jefferson Davis County	12,487	11,314
Jones County	67,761	67,930
Marion County	27,088	25,069
Perry County	12,249	12,032
Wayne County	20,747	20,446
Forrest County	75,007	75,471
MEMA DISTRICT 8 REGION TOTAL	**234,907**	**231,341**

Source: U.S. Census 2010

In addition, **Figure 6.3** illustrates the population density per square mile by census tract as it was reported by the U.S. Census Bureau in 2010.[4] As can be seen in the figure the population is spread out, with concentrations in Laurel, Columbia, and Waynesboro.

[4] Population by census block was not available at the time this plan was completed.

FIGURE 6.3: POPULATION DENSITY IN THE MEMA DISTRICT 8 REGION



Source: U.S. Census Bureau, 2010

6.5 VULNERABILITY ASSESSMENT RESULTS

As noted earlier, only hazards with a specific geographic boundary, available modeling tool, or sufficient historical data allow for further analysis. Those results are presented here. All other hazards are assumed to impact the entire planning region (drought, hailstorm, lightning, thunderstorm wind, tornado, and winter storm and freeze) or, due to lack of data, analysis would not lead to credible results (dam and levee failure, erosion, expansive soils, and landslide). The total region exposure, and thus risk, was presented in **Table 6.1**.

The hazards to be further analyzed in this subsection include: flood, wildfire, earthquake, hurricane and tropical storm winds, and hazardous materials incident.

6.5.1 Flood

Historical evidence indicates that the MEMA District 8 Region is susceptible to flood events. A total of 178 flood events have been reported by the National Centers for Environmental Information resulting in $41.3 million dollars in damages.

As the HAZUS-MH model suggests below, and historical occurrences confirm, any flood activity in the area is likely to inflict damage to the planning area. HAZUS-MH 4.2 estimates a total of 100,269 buildings in the region, which have an aggregate replacement value of $20,560,000,000. Approximately 92% of the buildings in the area are associated with residential housing. While this number is not an exact representation of assessed tax value, it is helpful in assessing the results of the HAZUS-MH scenario.

For the flood hazard vulnerability assessment, a probabilistic scenario, 100-year event, was created to estimate damages to the planning area. HAZUS-MH estimates that approximately 450 buildings would be at least moderately damaged. This is approximately 53% of the buildings in the scenario. There is an estimated number of 96 buildings that would be damaged beyond repair. The table below shows the damage categories by general occupancy.

TABLE 6.4 EXPECTED DAMAGE CATEGORIES BY GENERAL OCCUPANCY

HAZUS-MH 4.2 Flood Model: Expected Building Damage by Occupancy

	1-10	11-20	21-30	31-40	41-50	>50
	Count	Count	Count	Count	Count	Count
Agriculture	0	0	0	0	0	0
Commercial	0	4	0	0	0	1
Education	1	0	0	0	0	0
Government	0	0	0	0	0	0
Industrial	0	0	0	0	0	0
Religion	0	1	0	0	0	0
Residential	60	158	77	68	50	95
Total	**61**	**163**	**77**	**68**	**50**	**96**

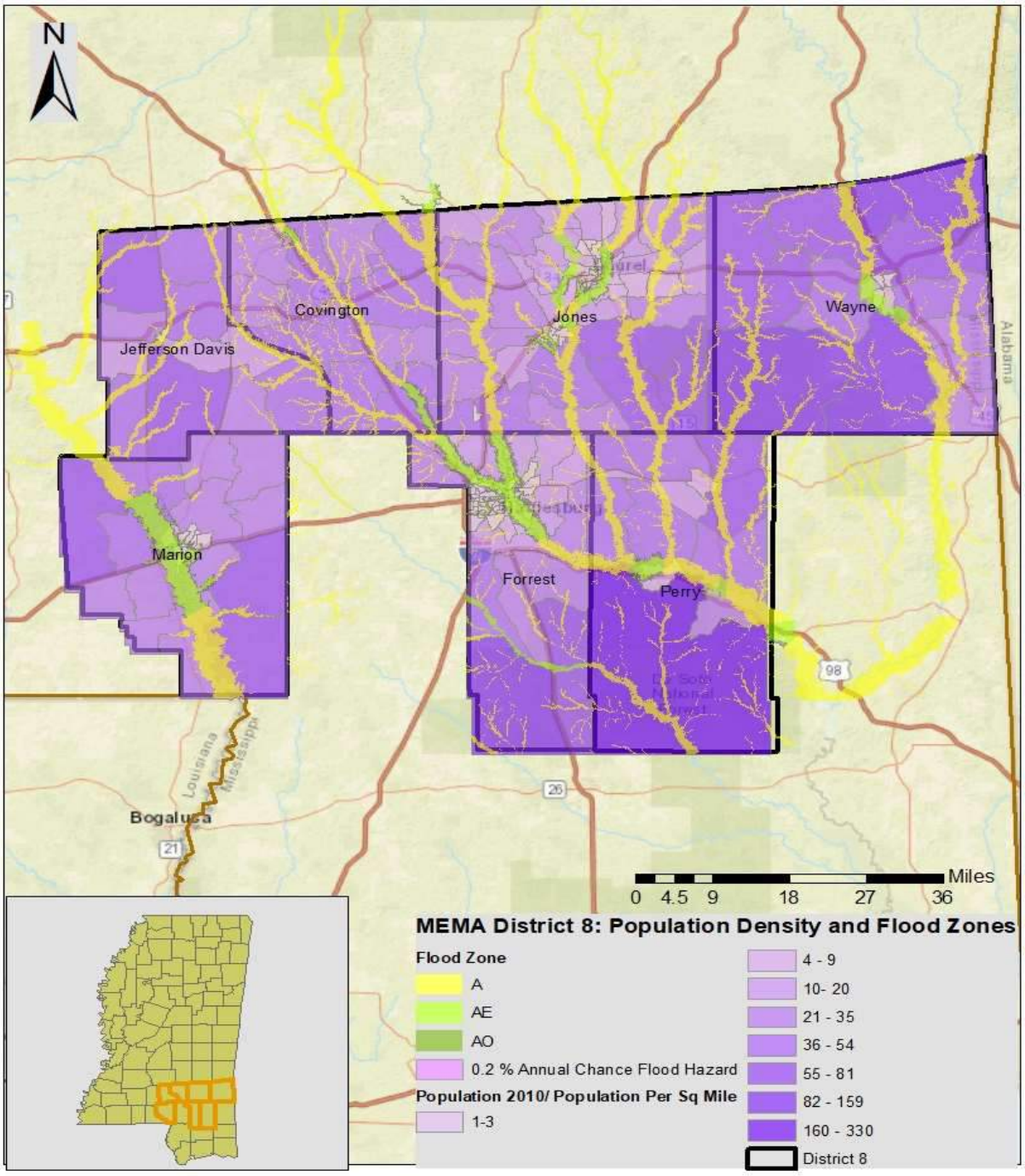
ECONOMIC IMPACT

HAZUS-MH estimates the total economic loss for the district would be $674.05 million dollars, which represents 19.32% of the total replacement value of the scenario buildings.

SOCIAL VULNERABILITY

Figure 6.4 is presented to gain a better understanding of at-risk population by evaluating census tract level population data against mapped floodplains. There are areas of concern in several of the municipal population centers in this region including Columbia, Waynesboro, Laurel, Ellsville, New Augusta, and Collins. Indeed, nearly every incorporated municipality is potentially at risk of being impacted by flooding in some areas of its jurisdiction. Therefore, further investigation in these areas may be warranted.

FIGURE 6.4 : POPULATION DENSITY NEAR FLOODPLAINS



Source: FEMA DFIRM, U.S. Census 2010

In the HAZUS scenario, the model estimates 2,324 households would be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 182 people would seek temporary shelter in public shelters.

CRITICAL FACILITIES

The critical facility analysis revealed that there are fifty-four critical facilities located in floodplain. (Please note, as previously noted, this analysis does not consider building elevation, which may negate risk.) Facilities include five fire stations, seven police stations, thirteen schools, fourteen wastewater facilities and two EOCs. A list of specific critical facilities and their associated risk can be found in **Table 6.12** at the end of this section.

TABLE 6.5 FLOOD SCENARIO ESSENTIAL FACILITY EXPECTED DAMAGES

HAZUS-MH 4.2 Flood Model: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	At Least Substantial Damage > 50%	Loss of Use > 50% on day 1
Emergency Operation Centers	3	0	0	0
Fire Stations	33	2	0	2
Hospitals	6	0	0	0
Police Stations	26	1	0	1
Schools	99	6	0	6

In conclusion, a flood has the potential to impact many existing and future buildings, facilities, and populations in the MEMA District 8 Region, though some areas are at a higher risk than others. All types of structures in a floodplain are at-risk, though elevated structures will have a reduced risk. Such site-specific vulnerability determinations are outside the scope of this assessment but will be considered during future plan updates. Furthermore, areas subject to repetitive flooding should be analyzed for potential mitigation actions.

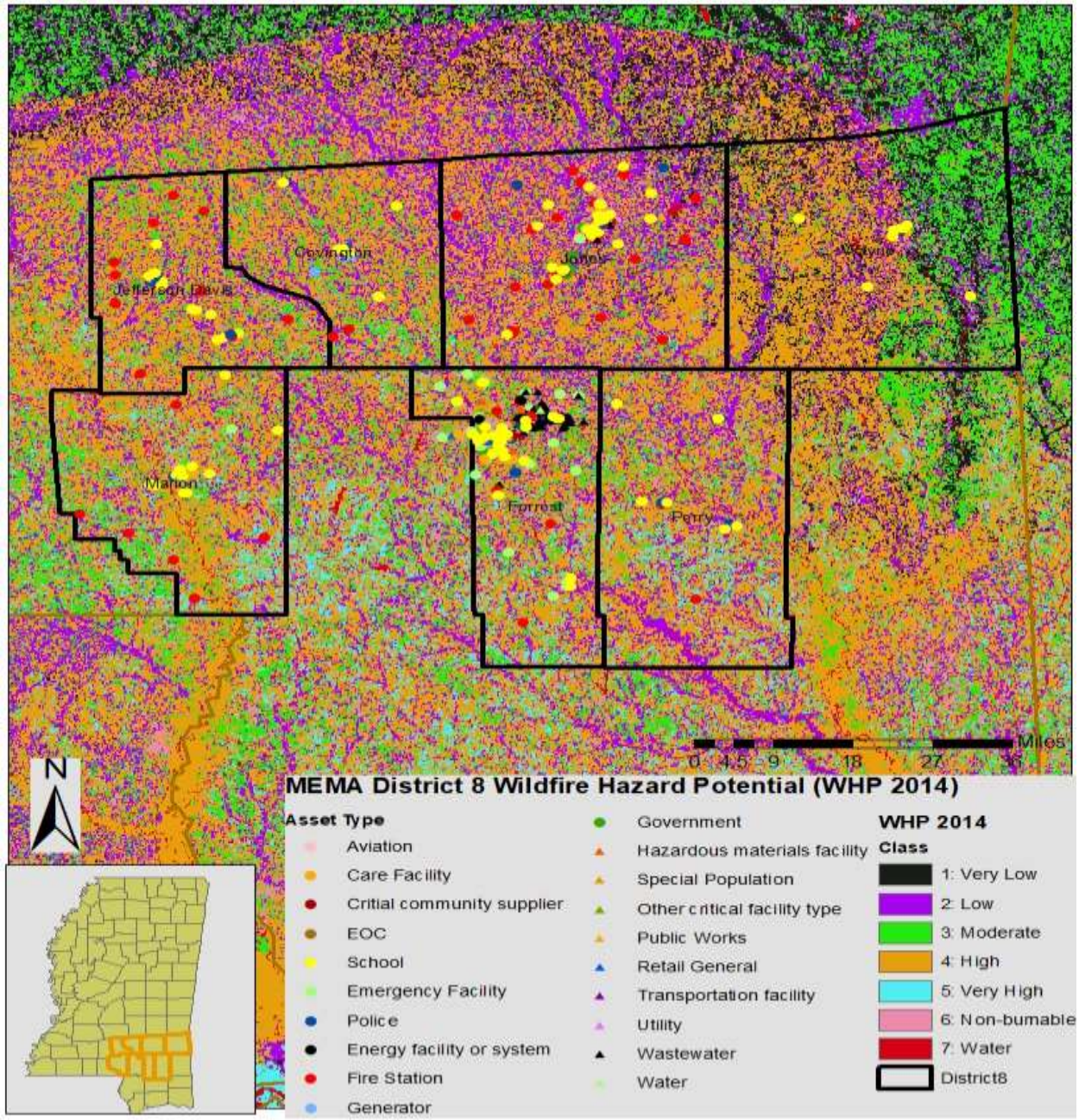
6.5.2 Wildfire

Although historical evidence indicates that the MEMA District 8 Region is susceptible to wildfire events, there are few reports of damage.

To estimate exposure to wildfire, the wildfire hazard potential (WHP 2014) data provided via the US Forest Service was utilized. A GIS analysis was performed with the WHP dataset and identified critical facilities throughout MEMA District 8. The resulting analysis identified the hazard area each facility fell within to show the level of vulnerability for the identified facilities.

Figure 6.5 shows the wildfire hazard potential for MEMA District 8. According to the data, a majority of the region falls within the very low to moderate classification.

FIGURE 6.5: WILDFIRE RISK AREAS IN THE MEMA DISTRICT 8 REGION



Source: Wildfire Hazard Potential (US Forest Service 2014)

SOCIAL VULNERABILITY

Given some level of susceptibility across the entire MEMA District 8 Region, it is assumed that the total population is at risk to the wildfire hazard. Determining the exact number of people in certain wildfire zones is difficult with existing data and could be misleading.

CRITICAL FACILITIES

The critical facility analysis revealed that there are 4 critical facilities located in the wildfire hazard potential area (very high), 97 critical facilities located in the (High) and 52 critical facilities in the (moderate) . A list of specific critical facilities and their associated risk can be found in Table 6.12 at the end of this section.

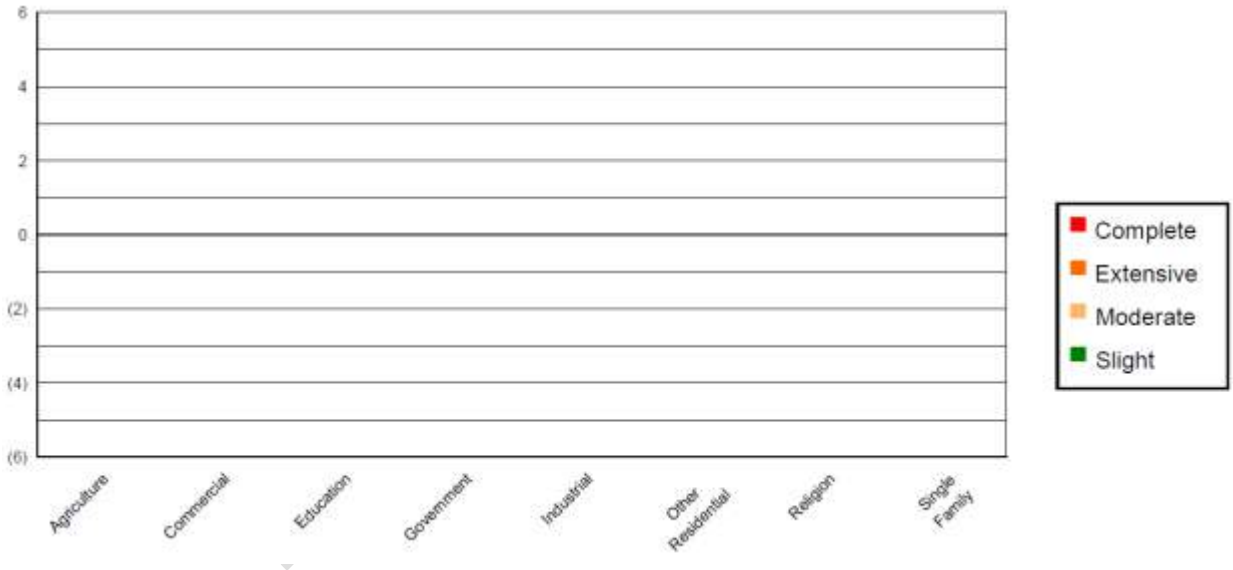
In conclusion, a wildfire event has the potential to impact many existing and future buildings, critical facilities, and populations in the MEMA District 8 Region.

6.5.3 Earthquake

As the HAZUS-MH model suggests below, and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the planning area. HAZUS-MH 4.2 estimates a total of 100,269 buildings in the region, which have an aggregate replacement value of $20,560,000,000. Approximately 92% of the buildings in the area are associated with residential housing. While this number is not an exact representation of assessed tax value, it is helpful in assessing the results of the HAZUS-MH scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS-MH estimates that approximately 0 buildings would be at least moderately damaged. The figure shows the damage categories by general occupancy.

Figure 6.6 Damage Categories by General Occupancy



As the figure shows, no damages were identified by building occupancy type. Figure 6.6 provides the details of these findings by occupancy type and Figure 6.6 provides the details by building type.

Table 6.6 shows the expected building damages by occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	367.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Commercial	5560.00	5.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	201.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Government	205.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial	1339.00	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Residential	22433.00	22.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Religion	796.00	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Single Family	69368.00	69.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**100,269**		**0**		**0**		**0**		**0**	

Table 6.6 Earthquake Scenario Expected Building Damages by Building Type

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	69337.64	69.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steel	2559.46	2.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete	658.38	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precast	664.25	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RM	252.87	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
URM	7296.40	7.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MH	19500.00	19.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**100,269**		**0**		**0**		**0**		**0**	

*Note:
RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Transportation and Utility Damage

HAZUS-MH estimated damages to highways, railways, light rail, bus facilities, ferry facilities, port facilities, and airports. Of these, no damages were expected.

Figure 6.7 Earthquake Scenario- Expected Damages to Transportation System

System	Component	Number of Locations_				
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	300	0	0	300	300
	Bridges	1,164	0	0	1,164	1,164
	Tunnels	0	0	0	0	0
Railways	Segments	174	0	0	174	174
	Bridges	8	0	0	8	8
	Tunnels	0	0	0	0	0
	Facilities	2	0	0	2	2
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	1	0	0	1	1
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	5	0	0	5	5
	Runways	6	0	0	6	6

HAZUS-MH estimated damages to utility system facilities, pipelines, potable water, and electric power systems. Relatively minor utility system facility damages were estimated; no system was estimated to be damaged.

Figure 6.8 Earthquake Scenario- Expected Damages to Utility System

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	2	0	0	2	2
Waste Water	24	0	0	24	24
Natural Gas	11	0	0	11	11
Oil Systems	0	0	0	0	0
Electrical Power	2	0	0	2	2
Communication	26	0	0	26	26

Figure 6.9 Earthquake Scenario- Expected Damages to Utility System

System	Total Pipelines Length (miles)	Number of Leaks	Number of Breaks
Potable Water	13,467	4	1
Waste Water	8,080	2	0
Natural Gas	5,387	1	0
Oil	0	0	0

Debris Generation

As part of the model, HAZUS-MH estimated the amount of debris that would be generated by the event. The types of debris considered were brick/wood and reinforced concrete/steel. HAZUS-MH estimated that a total of 0 tons of debris would be generated by the event.

Economic Loss

HAZUS-MH estimated economic losses for the scenario event. All told, HAZUS-MH estimated losses at $30K, including buildings and lifelines. 100 percent of the losses were related to transportation and utility lifelines. The figure below provides additional details of these estimated losses.

Figure 6.9 Earthquake Scenario Economic Loss Estimates

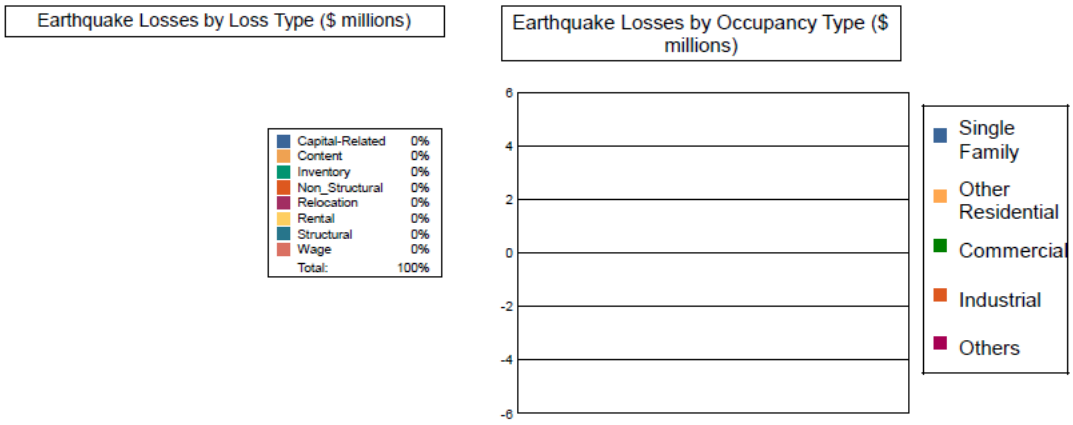


Table 11: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Capital-Related	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Rental	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Relocation	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Subtotal	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
Capital Stock Losses							
	Structural	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Non_Structural	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Content	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Inventory	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Subtotal	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
	Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

SOCIAL VULNERABILITY

It can be assumed that all existing future populations are at risk to the earthquake hazard. No fatalities or injuries were reported in the above HAZUS-MH arbitrary scenario.

CRITICAL FACILITIES

The HAZUS-MH probabilistic analysis indicated that no critical facilities would sustain measurable damage in an earthquake event. However, all critical facilities should be considered at-risk to minor damage, should an event occur. Specific vulnerabilities for these assets will be greatly dependent on their individual design and the mitigation measures in place, where appropriate. Such site-specific vulnerability determinations are outside the scope of this assessment but will be considered during future plan updates.

Table 6.7 Earthquake Scenario Essential Facility Expected Damages

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	6	0	0	6
Schools	99	0	0	99
EOCs	3	0	0	3
PoliceStations	26	0	0	26
FireStations	33	0	0	33

In conclusion, an earthquake has the potential to impact all existing and future buildings, facilities, and populations in the MEMA District 8 Region. The HAZUS-MH scenario indicates that minimal damage is expected from an earthquake occurrence. While the MEMA District 8 Region may not experience a large earthquake (there are none on record), localized damage is possible with an occurrence.

6.5.4 Hurricane and Tropical Storm

Historical evidence indicates that the MEMA District 8 has an elevated risk to the hurricane and tropical storm hazard. There have been eight disaster declarations due to hurricanes (Hurricane Camille, Hurricane Frederic, Hurricane Georges, Hurricane Ivan, Hurricane Dennis, Hurricane Gustav, Hurricane Katrina, and Hurricane Isaac) in the region. Several tracks have come near or traversed through the MEMA District 8 Region, as shown and discussed in Section 5: *Hazard Profiles- Hurricane Section*.

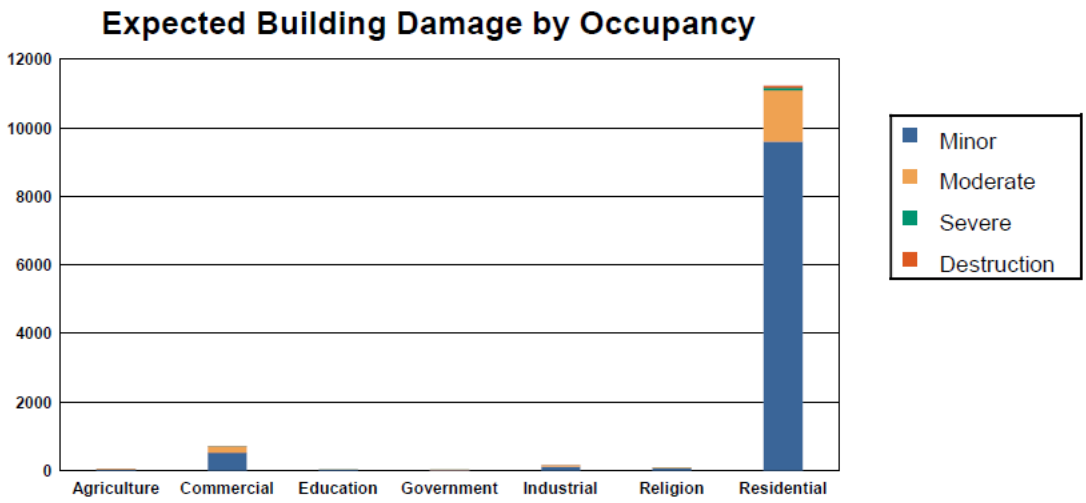
Hurricanes and tropical storms can cause damage through numerous additional hazards such as flooding, erosion, tornadoes, and high winds, thus it is difficult to estimate total potential losses from these cumulative effects. The current HAZUS-MH hurricane model only analyzes hurricane winds and is not capable of modeling and estimating cumulative losses from all hazards associated with hurricanes; therefore, only hurricane winds are analyzed in this section. It can be assumed that all existing and future buildings and populations are at risk to the hurricane and tropical storm hazard. HAZUS-MH 4.2

was used to determine vulnerability to the hazard for a 100-Year event. There are an estimated 100,269 buildings in the region with a total building replacement value of $20,562,000,000.

For this plan update, the risk assessment for Hurricane and Tropical Storm winds was developed using HAZUS-MH v.4.2. A 100-year probabilistic scenario was created and modeled. The results are presented in the following pages.

HAZUS-MH estimated that at least 1,892 buildings would be at least moderately damaged by the event; this is lover two percent of the buildings in the Region. 69 buildings would be completely destroyed. The figure below shows the distribution of damage by type of occupancy.

Figure 6.10 HAZUS-MH Hurricane Scenario Expected Damage by Occupancy Type (100-Year Probabilistic Event)



As the figure shows, most building damage is expected to be in residential structures. Table 6.7 provides the details of these findings by occupancy type; Figure 6.6 provides the details by building type

Table 6.7 Hurricane and Tropical Storm 100-Year Event Scenario Expected Building Damages by Building Type

	None		Minor		Moderate		Severe		Destruction	
Occupancy	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	318.32	86.74	29.26	7.97	12.46	3.40	6.28	1.71	0.68	0.18
Commercial	4,857.45	87.36	520.18	9.36	167.23	3.01	14.93	0.27	0.21	0.00
Education	177.72	88.42	18.13	9.02	4.73	2.36	0.43	0.21	0.00	0.00
Government	184.69	90.09	16.03	7.82	3.92	1.91	0.36	0.18	0.00	0.00
Industrial	1,197.09	89.40	110.80	8.27	27.48	2.05	3.49	0.26	0.15	0.01
Religion	709.84	89.18	70.44	8.85	14.56	1.83	1.16	0.15	0.00	0.00
Residential	80,567.71	87.76	9,599.19	10.46	1,497.84	1.63	68.38	0.07	67.88	0.07
Total	**88,012.82**		**10,364.01**		**1,728.22**		**95.02**		**68.92**	

Table 6.8 Hurricane and Tropical Storm 100-Year Event Scenario Expected Building Damages by Building Type

Building Type	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	1,143	87.07	125	9.54	42	3.21	2	0.18	0	0.00
Masonry	6,507	86.34	746	9.90	265	3.52	17	0.22	1	0.02
MH	18,930	97.10	347	1.78	158	0.81	5	0.03	54	0.28
Steel	2,245	87.66	210	8.21	95	3.69	11	0.43	0	0.01
Wood	59,775	86.21	8,475	12.22	1,006	1.45	59	0.08	23	0.03

Economic Losses

HAZUS-MH estimated economic losses for the scenario event. The total economic loss estimated for the hurricane is 349.5 million dollars, which represents 1.70 % of the total replacement value of the region's buildings. The building related losses are broken into two categories: direct property damage losses and business interruption losses. The direct property damage losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the hurricane. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the hurricane. The total property damage losses were 350 million dollars. 9% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 88% of the total loss. Table 5 below provides a summary of the losses associated with the building damage.

Table 6.9 Hurricane Building Related Economic Losses from 100-Year Event

(Thousands of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Property Damage						
	Building	214,500.60	16,229.37	2,300.49	3,736.01	236,766.46
	Content	72,063.76	5,023.75	1,018.72	1,153.29	79,259.52
	Inventory	0.00	113.31	180.80	35.44	329.55
	Subtotal	**286,564.35**	**21,366.43**	**3,500.01**	**4,924.73**	**316,355.53**
Business Interruption Loss						
	Income	35.68	2,516.08	33.76	508.01	3,093.53
	Relocation	12,522.06	3,275.14	216.19	844.90	16,858.30
	Rental	6,839.21	1,556.71	28.29	63.66	8,487.88
	Wage	83.56	2,497.93	56.28	2,110.18	4,747.95
	Subtotal	**19,480.52**	**9,845.85**	**334.52**	**3,526.76**	**33,187.65**

Debris *Generation*

As part of the scenario, HAZUS-MH estimated the amount of debris that would be generated by the event. The types of debris considered were brick/wood, reinforced concrete/steel, eligible tree debris, and other tree debris. The model estimates that a total of 2,165,680 tons of debris will be generated. Of

the total amount, 2,024,447 tons (93%) is Other Tree Debris. Of the remaining 141,233 tons, Brick/Wood comprises 21% of the total, Reinforced Concrete/Steel comprises of 0% of the total, with the remainder being Eligible Tree Debris. If the building debris tonnage is converted to an estimated number of truckloads, it will require 1190 truckloads (@25 tons/truck) to remove the building debris generated by the hurricane. The number of Eligible Tree Debris truckloads will depend on how the 111,483 tons of Eligible Tree Debris are collected and processed. The volume of tree debris generally ranges from about 4 cubic yards per ton for chipped or compacted tree debris to about 10 cubic yards per ton for bulkier, uncompacted debris.

SOCIAL VULNERABILITY

HAZUS estimates the number of households that are expected to be displaced from their homes due to the hurricane and the number of displaced persons that will require accommodations. The model estimates 276 households to be displaced due to the hurricane. Of these, 85 people (out of a total population of 234,835) will seek temporary shelter in public shelters.

CRITICAL FACILITIES

Before the hurricane, the region had 1,154 hospital beds available for use. On the day of the hurricane, the model estimates that 1154 hospital beds (only 100.00%) are available for use by patients already in the hospital and those injured by the hurricane. After one week, 100.00% of the beds will be in service. By 30 days, 100.00% will be operational.

The HAZUS-MH probabilistic analysis indicated that several essential facilities would be impacted. Table 6.10 shows the types of facilities as well as expected function after an event.

Table 6.10 Hurricane / Tropical Storm Scenario Essential Facility Expected Damages

		# Facilities		
Classification	Total	Probability of at Least Moderate Damage > 50%	Probability of Complete Damage > 50%	Expected Loss of Use < 1 day
EOCs	3	0	0	3
Fire Stations	33	0	0	33
Hospitals	6	0	0	6
Police Stations	26	0	0	26
Schools	99	0	0	73

In conclusion, a hurricane event has the potential to impact many existing and future buildings, critical facilities, and populations in the MEMA District 8 Region.

6.5.5 Hazardous Materials Incident

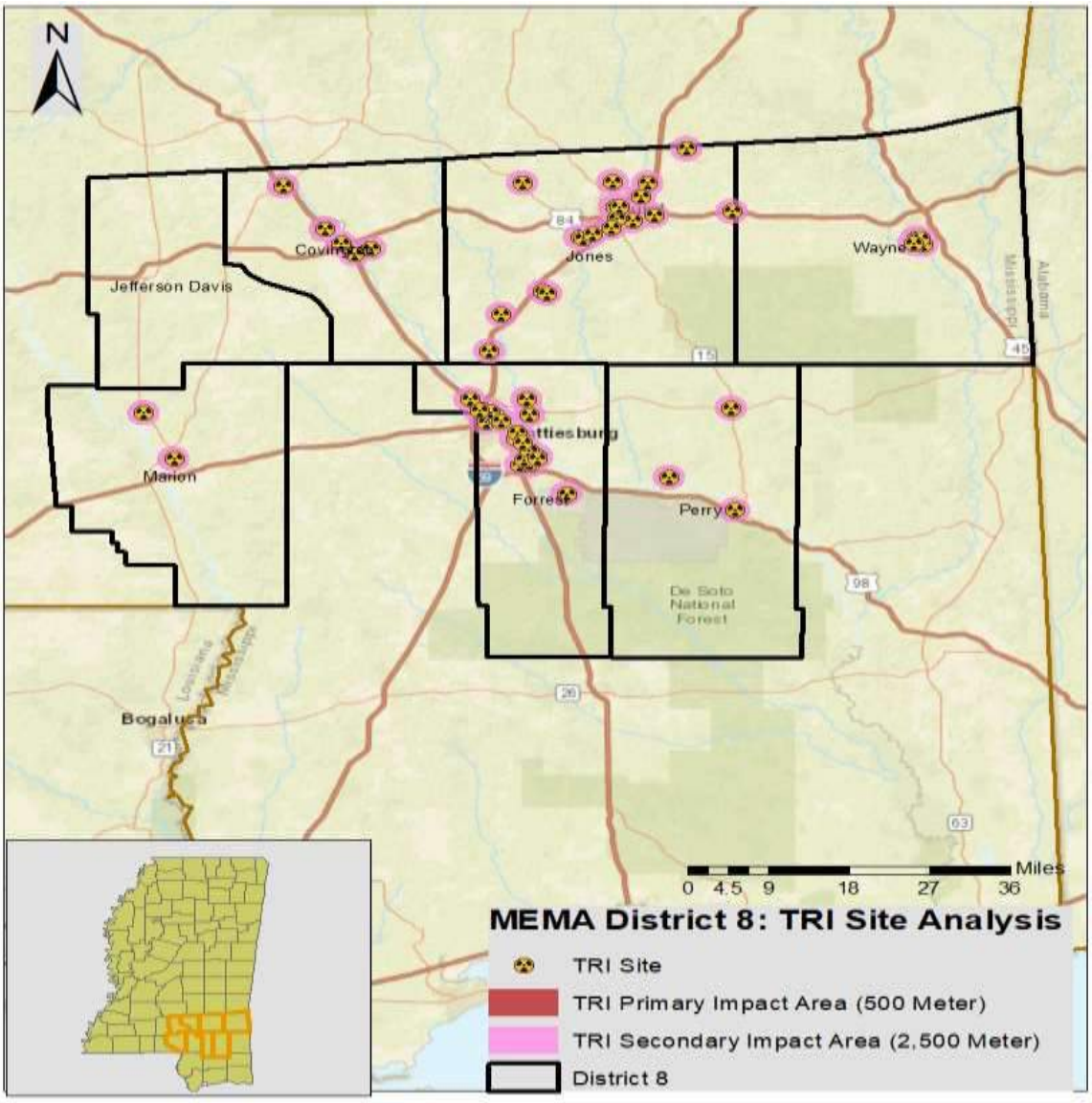
Although historical evidence and existing Toxic Release Inventory sites indicate that the MEMA District 8 Region is susceptible to hazardous materials events, there are few reports of damage.

Most hazardous materials incidents that occur are contained and suppressed before destroying any property or threatening lives. However, they can have a significant negative impact. Such events can

cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. In a hazardous materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions will directly affect how the hazard develops. Certain chemicals may travel through the air or water, affecting a much larger area than the point of the incidence itself. Non-compliance with fire and building codes, as well as failure to maintain existing fire and containment features, can substantially increase the damage from a hazardous materials release. The duration of a hazardous materials incident can range from hours to days. Warning time is minimal to none.

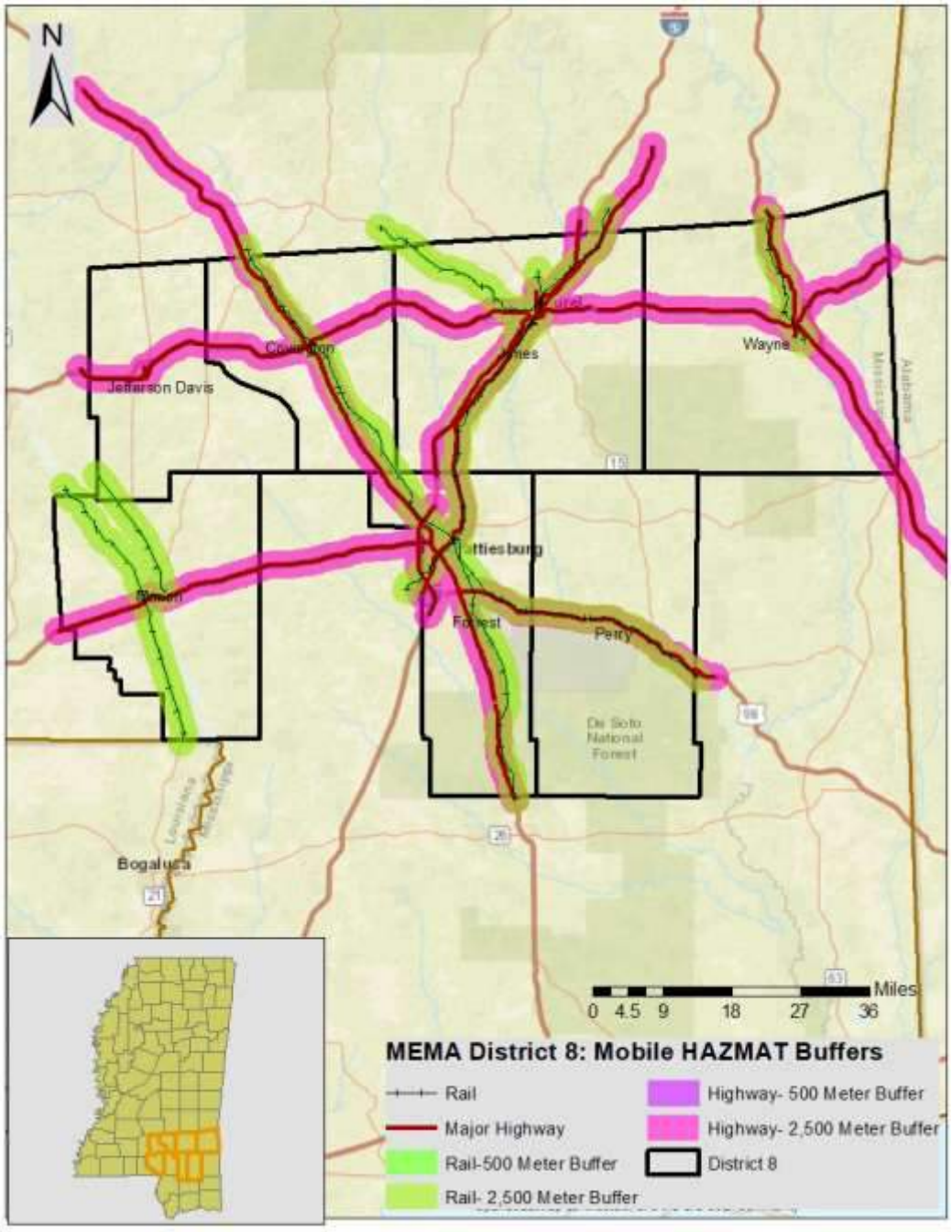
In order to conduct the vulnerability assessment for this hazard, GIS analysis was used for fixed and mobile areas. In both scenarios, two sizes of buffers—500 and 2,500 meters—were used. These areas are assumed to respect the different levels of effect: immediate (primary) and secondary. Primary and secondary impact sites were selected based on guidance from FEMA 426, Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings and engineering judgment. For the fixed site analysis, geo-referenced TRI listed toxic sites in the MEMA District 8 Region, along with buffers, were used for analysis as shown in **Figure 6.11.** For the mobile analysis, the major roads (Interstate highway, U.S. highway, and State highway) and railroads, where hazardous materials are primarily transported that could adversely impact people and buildings, were used for the GIS buffer analysis. **Figure 6.12** shows the areas used for mobile toxic release buffer analysis.

579 **FIGURE 6.11: TRI SITES WITH BUFFERS IN THE MEMA DISTRICT 8 REGION**



580
581 *Source: EPA*

582 **FIGURE 6.12: MOBILE HAZMAT BUFFERS IN THE MEMA DISTRICT 8 REGION**



583
584
585 ***SOCIAL VULNERABILITY***
586
587 Given high susceptibility across the entire MEMA District 8 Region, it is assumed that the total
588 population is at risk. It should be noted that areas of population concentration (near Laurel and
589 Waynesboro, for example) may be at an elevated risk due to a greater burden to evacuate population
590 quickly.
591

CRITICAL FACILITIES

Fixed Site Analysis:
The critical facility analysis for fixed TRI sites revealed that there are 198 facilities located in a hazmat risk zone. This includes 61 schools, 20 police stations, 18 fire stations, 13 medical care facilities, and 2 EOCs. A list of specific critical facilities and their associated risk can be found in **Table 6.12** at the end of this section.

Mobile Analysis:
The critical facility analysis for transportation corridors in MEMA District 8 revealed that there are 105 critical facilities located in the 500M Highway mobile HAZMAT buffer areas valued at over $366M, and there are 103 critical facilities located in the 500M Railway mobile HAZMAT buffer areas valued at approximately $103M.

Expanding to a 2500M HAZMAT risk zone reveals that there are 179 critical facilities located in the highway mobile HAZMAT buffer areas valued at over $538M. There are 182 critical facilities located in the railway mobile HAZMAT buffer area valued at nearly $508M. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

In conclusion, a hazardous material incident has the potential to impact many existing and future buildings, critical facilities, and populations in the MEMA District 8 Region. Those areas in a primary buffer area at the highest risk, though all areas carry some vulnerability due to variations in condition that could alter the impact area (i.e., direction and speed of wind, volume of release, etc). Further, incidents from neighboring counties could also impact the county and participating jurisdictions.

6.6 CONCLUSIONS ON HAZARD VULNERABIILTY

The results of this vulnerability assessment are useful in at least three ways:

- Improving our understanding of the risk associated with the natural hazards in the MEMA District 8 Region through better understanding of the complexities and dynamics of risk, how levels of risk can be measured and compared, and the myriad of factors that influence risk. An understanding of these relationships is critical in making balanced and informed decisions on managing the risk.
- Providing a baseline for policy development and comparison of mitigation alternatives. The data used for this analysis presents a current picture of risk in the MEMA District 8 Region. Updating this risk "snapshot" with future data will enable comparison of the changes in risk with time. Baselines of this type can support the objective analysis of policy and program options for risk reduction in the region.
- Comparing the risk among the natural hazards addressed. The ability to quantify the risk to all these hazards relative to one another helps in a balanced, multi-hazard approach to risk management at each level of governing authority. This ranking provides a systematic framework to compare and prioritize the very disparate natural hazards that are present in the MEMA District 8 Region. This final step in the risk assessment provides the necessary information for local officials to craft a mitigation strategy to focus resources on only those hazards that pose the most threat to the MEMA District 8 Region counties.

Exposure to hazards can be an indicator of vulnerability. Economic exposure can be identified through locally assessed values for improvements (buildings), and social exposure can be identified by estimating the population exposed to each hazard. This information is especially important for decision-makers to use in planning for evacuation or other public safety related needs.

The types of assets included in these analyses include all building types in the participating jurisdictions. Specific information about the types of assets that are vulnerable to the identified hazards is included in each hazard subsection (for example all building types are considered at risk to the winter storm hazard and commercial, residential, and government owned facilities are at risk to repetitive flooding, etc).

As noted previously, all existing and future buildings and populations (including critical facilities) are vulnerable to atmospheric hazards including drought, hailstorm, hurricane and tropical storm, lightning, thunderstorm wind, tornado, and winter storm and freeze. Some buildings may be more vulnerable to these hazards based on locations, construction, and building type. **Table 6.4** shows the critical facilities vulnerable to additional hazards analyzed in this section. The table lists those assets that are determined to be exposed to each of the identified hazards (marked with an "**X**").

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TABLE 6.4: AT-RISK CRITICAL FACILITIES

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
COVINGTON COUNTY																					
City of Collins Fire Department	Fire Department	X	X	X	X	X	X	X	X							X	X	X		X	Non-burnable
Collins City Police Dept	Police Station	X	X	X	X	X		X	X				X			X	X	X	X	X	Non-burnable
COLLINS ELEMENTARY	School	X	X	X	X	X		X	X				X			X	X	X	X	X	Non-burnable
COLLINS FIRE STATION	Fire Station	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
COLLINS HIGH SCHOOL	School	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
COLLINS MAINTENANCE BUILDING	Government	X	X	X	X	X		X	X				X			X	X	X	X	X	Non-burnable
COLLINS MIDDLE SCHOOL	School	X	X	X	X	X		X	X						X	X	X	X		X	Non-burnable
COLLINS POLICE STATION	Police Station	X	X	X	X	X		X	X									X			Moderate
COLLINS POLICE STATION	Generator	X	X	X	X	X		X	X									X			Moderate
COVINGTON CO VOCATIONAL TECHNICAL	School	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
COVINGTON COUNTY ALTERNATIVE SCHOOL	School	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
Covington County Sheriff	Police Station	X	X	X	X	X	X	X	X							X	X	X		X	Non-burnable

[5] As noted previously, these facilities could be at risk to dam failure if located in an inundation area. Data was not available to conduct such an analysis. There was no local knowledge of these facilities being at risk to dam failure. As additional data becomes available, more in-depth analysis will be conducted.

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
EOC	Generator	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**				X			X		X	X	X	High
HOPEWELL ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X												Non-burnable
LAGOON	Generator	X	X	X	X	X		X	X						X	X		X	X	X	Moderate
WATER WELL 1	Generator	X	X	X	X	X		X	X				X			X	X	X		X	Moderate
WATER WELL 4	Generator	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
MOUNT OLIVE ATTENDANCE CENTER	School	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
CLEM VOLUNTEER FIRE DEPT	Fire Station	X	X	X	X	X		X	X												High
Hot Coffee Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
Mt Olive City Police Dept	Police Station	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
East Covington Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												Moderate
SEMINARY ATTENDANCE CENTER	School	X	X	X	X	X		X	X									X	X	X	Non-burnable
SEMINARY BAPTIST KINDERGARTEN	School	X	X	X	X	X		X	X									X	X	X	Non-burnable
Seminary Town Police Dept	Police Station	X	X	X	X	X		X	X									X	X	X	Non-burnable
Southwest Covington Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X							X	X	X		X	Very High
Jefferson Davis County																					
BASSFIELD HIGH SCHOOL	School	**X**	**X**	**X**	**X**	**X**		**X**	**X**												Moderate

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Bassfield Police Dept	Police Station	X	X	X	X	X		X	X												Non-burnable
Bassfield Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												Low
CARVER ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X												High
G W CARVER ELEMENTARY SCHOOL	School Safe Room	X	X	X	X	X		X	X												Moderate
GOOD HOPE FIRE DEPT	Fire Station	X	X	X	X	X	X	X	X												High
JEFFERSON DAVIS HIGH SCHOOL	School Safe Room	X	X	X	X	X		X	X												High
TOWN OF BASSFIELD FIRE DEPT	Fire Station	X	X	X	X	X		X	X												Non-burnable
JDCS LEARNING CENTER/ACADEMIC SUCCESS/ALTERNATIVE	School Safe Room	X	X	X	X	X		X	X												High
JEFF DAVIS CO VOC TECH CENTER	School	X	X	X	X	X		X	X												High
JEFFERSON DAVIS CO VO TECH	School Safe Room	X	X	X	X	X		X	X												High
RED HOUSE FIRE DEPT	Fire Station	X	X	X	X	X		X	X												High
OAKVALE VOLUNTEER FIRE DEPT/SOCIETY HILL STATION	Fire Station	X	X	X	X	X		X	X												Non-burnable
CLEM VOLUNTEER FIRE DEPT/WILLIAMSON MILL STATION	Fire Station	X	X	X	X	X		X	X												High
GRANBY FIRE DEPT	Fire Station	X	X	X	X	X		X	X												Moderate
GRANBY FIRE DEPT	Fire Station	X	X	X	X	X		X	X												Moderate

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Highway 84 West Fire Station Inc.	Fire Department	X	X	X	X	X		X	X									X			High
HWY 84 WEST FIRE STATION	Fire Station	X	X	X	X	X		X	X												Low
HWY 84 WEST FIRE STATION	Fire Station	X	X	X	X	X		X	X												Low
J E JOHNSON ELEMENTARY	School	X	X	X	X	X		X	X												High
J E JOHNSON ELEMENTARY SCHOOL	School Safe Room	X	X	X	X	X	X	X	X								X	X			Non-burnable
J E JOHNSON HEAD START/FIVE COUNTY	School Safe Room	X	X	X	X	X		X	X									X			High
JEFFERSON DAVIS COUNTY ADMINISTRATION BUILDING	Government	X	X	X	X	X	X	X	X								X	X			Non-burnable
JEFFERSON DAVIS COUNTY COURTHOUSE	Government	X	X	X	X	X		X	X								X	X			Non-burnable
JEFFERSON DAVIS COUNTY EMA/EOC	EOC	X	X	X	X	X	X	X	X								X	X			Non-burnable
JEFFERSON DAVIS COUNTY SHERIFF'S OFFICE	Police/Government Offices	X	X	X	X	X		X	X								X	X			Non-burnable
Jefferson Davis Sheriff	Police Station	X	X	X	X	X		X	X								X	X			Non-burnable
Mississippi Dept Corrections	Police Station	X	X	X	X	X		X	X								X	X			Non-burnable
PRENTISS CHRISTIAN SCHOOL	School Safe Room	X	X	X	X	X		X	X									X			Moderate
PRENTISS CHRISTIAN SCHOOL	School	X	X	X	X	X	X	X	X									X			Moderate
PRENTISS CITY HALL	Government	X	X	X	X	X	X	X	X								X	X			Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER							
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Prentiss Fire Department	Fire Department	X	X	X	X	X	X	X	X								X	X			Non-burnable
PRENTISS INSTITUTE (MAIN BLDG)(ROSENWALD BLDG)	School Safe Room	X	X	X	X	X		X	X									X			Non-burnable
PRENTISS REG HOSP & CARE FACIL	Care Facility	X	X	X	X	X	X	X	X								X	X			Non-burnable
PRENTISS REGIONAL EXTENDED CARE FACILITY	Care Facility	X	X	X	X	X	X	X	X								X	X			High
PRENTISS REGIONAL HOSPITAL	Care Facility	X	X	X	X	X	X	X	X								X	X			Non-burnable
PRENTISS SENIOR HIGH SCHOOL	School	X	X	X	X	X	X	X	X								X	X			Non-burnable
TOWN OF PRENTISS FIRE DEPT/POLICE DEPT	Police/Government Offices	X	X	X	X	X		X	X								X	X			High
NEW MEDINAH ISLAMIC SCHOOL SYS	School	X	X	X	X	X		X	X												Moderate
Jones County																					
Adult Detention Facility	Special Population	X	X	X	X	X	X	X	X								X	X		X	Non-burnable
Beat 4 Barn	Public Works	X	X	X	X	X		X	X									X		X	Low
City Hall	Government offices	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
Court House District 1	Government offices	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
Ellisville Fire Department	Fire Department	X	X	X	X	X		X	X								X	X	X	X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
ELLISVILLE LOWER ELEMENTARY SCHOOL	School	X	X	X	X	X	X	X	X								X	X	X	X	Non-burnable
Ellisville Police Dept	Police Station	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
ELLISVILLE STATE SCHOOL	School	X	X	X	X	X	X	X	X				X				X	X	X	X	Non-burnable
Fire Station #1	Fire Station	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
Fire Station #2	Fire Station	X	X	X	X	X	X	X	X				X				X	X		X	Non-burnable
Fire Station #3	Fire Station	X	X	X	X	X	X	X	X								X	X	X	X	High
Johnson VFD	Fire Station	X	X	X	X	X		X	X												Low
Juvenille Detention Facility	Special Population	X	X	X	X	X	X	X	X								X	X		X	Non-burnable
Maintenance Building (county wide)	Government offices	X	X	X	X	X	X	X	X								X	X		X	Non-burnable
Police Department	Police/Government Offices	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
Public Works	Government offices	X	X	X	X	X		X	X				X				X	X	X	X	High
Public Works	Government offices	X	X	X	X	X	X	X	X								X	X	X	X	Low
Public Works	Government offices	X	X	X	X	X	X	X	X								X	X	X	X	Moderate
Public Works	Government offices	X	X	X	X	X		X	X									X		X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER							
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Public Works	Government offices	X	X	X	X	X		X	X									X		X	Very Low
SOUTH JONES ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X				X				X	X		X	Low
SOUTH JONES HIGH SCHOOL	School	X	X	X	X	X	X	X	X								X	X	X	X	Non-burnable
South Jones VFD	Fire Station	X	X	X	X	X		X	X												Low
Southwest Jones VFD	Fire Station	X	X	X	X	X		X	X												Low
A P FATHEREE VOC TECH SCHOOL	School	X	X	X	X	X		X	X							X	X	X		X	Moderate
Beat 1 Barn	Public Works	X	X	X	X	X		X	X												High
Beat 3 Barn	Public Works	X	X	X	X	X		X	X								X	X			Non-burnable
Beat 5 Barn	Public Works	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
Calhoun VFD	Fire Station	X	X	X	X	X		X	X								X	X		X	Non-burnable
Court House District 2	Government offices	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
EAST JONES ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X							X	X	X			High
Emergency Operations Center	EOC	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
Fire Dept Central Station #1	Fire Station	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
Fire Dept Station #2	Fire Station	X	X	X	X	X		X	X							X	X	X	X	X	High
Fire Dept Station #4	Fire Station	X	X	X	X	X		X	X				X			X		X	X	X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Fire Dept Station #5	Fire Station	X	X	X	X	X		X	X							X		X		X	Non-burnable
Fire Dept Station #6	Fire Station	X	X	X	X	X		X	X						X	X		X	X	X	Low
General Aviation (Hesler-Noble Field)	Aviation	X	X	X	X	X		X	X						X	X		X	X	X	Low
GLADE ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X												Low
Glade VFD	Fire Station	X	X	X	X	X		X	X												Moderate
IMMACULATE CONCEPTION SCHOOL	School	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
Jones Cnty Sheriff-Processing	Police Station	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
Jones County Civil Defense	Emergency Facility	X	X	X	X	X		X	X						X	X		X	X	X	Non-burnable
Jones County Sheriff-Records	Police Station	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
LAUREL CHRISTIAN SCHOOL	School	X	X	X	X	X		X	X							X	X	X		X	High
Laurel City Hall	Government offices	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
Laurel City Police Dept	Police Station	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
LAUREL EDUCATION CENTER	School	X	X	X	X	X		X	X							X	X	X		X	Low
Laurel Fire Department	Fire Department	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
LAUREL HIGH SCHOOL	School	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
LAUREL HIGH SCHOOL VOC	School	X	X	X	X	X		X	X							X		X	X	X	Non-

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
COMPLEX																					burnable
M & M Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												Non-burnable
MASON ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X							X		X		X	Low
NORA DAVIS MAGNET SCHOOL	School	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
NORTHEAST JONES HIGH SCHOOL	School	X	X	X	X	X		X	X							X	X	X			High
OAK PARK ELEMENTARY SCHOOL	School	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
PINE BELT EDUCATIONAL CENTER	School	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
Pleasant Ridge VFD	Fire Station	X	X	X	X	X		X	X								X	X			High
Police Dept	Police/Government Offices	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
Powers Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X							X	X	X			Non-burnable
Public Works Facility	Government offices	X	X	X	X	X		X	X							X		X		X	Low
R H Watkins High School	School Safe Room	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
Rushton VFD	Fire Station	X	X	X	X	X		X	X												High
Safe Room / Shelter	School Safe Room	X	X	X	X	X	X	X	X							X	X	X	X	X	Moderate
Sewer Department	Wastewater	X	X	X	X	X		X	X				X			X	X	X		X	Moderate
Sewer Department	Wastewater	X	X	X	X	X		X	X				X			X		X		X	Moderate

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
SHADY GROVE ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X											X	High
Shady Grove VFD	Fire Station	X	X	X	X	X		X	X												High
Shady Grove VFD	Fire Department	X	X	X	X	X		X	X												High
SHARON ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X												Non-burnable
Sharon VFD	Fire Station	X	X	X	X	X		X	X												High
Sheriff's Department	Police/Government Offices	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
SOUTH CENTRAL REGIONAL MED CTR	Care Facility	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
ST JOHNS DAY SCHOOL	School	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
STAINTON ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X							X		X		X	Non-burnable
Stewart Jones Middle School	School Safe Room	X	X	X	X	X		X	X				X			X	X	X	X	X	Non-burnable
THE STAR REACH CENTER	School	X	X	X	X	X		X	X							X		X			Low
Water Department	Wastewater	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
Water Department	Wastewater	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
Water Department	Wastewater	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
WEST JONES ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X								X	X			Low

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
WEST JONES HIGH SCHOOL	School	X	X	X	X	X		X	X											X	Moderate
MOSELLE ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X									X		X	High
Moselle VFD	Fire Station	X	X	X	X	X		X	X								X	X	X	X	High
Southwest Jones Volunteer Fire Departmen	Fire Department	X	X	X	X	X		X	X												High
Union VFD	Fire Station	X	X	X	X	X		X	X								X	X	X	X	High
Ovett Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												Moderate
Police Dept	Police Station	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
Sandersville VFD	Fire Station	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
Beat 2 Barn	Public Works	X	X	X	X	X		X	X												High
Hebron Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X								X	X			Low
Soso Police Dept	Police Station	X	X	X	X	X		X	X						X	X			X	X	Non-burnable
Soso VFD	Fire Station	X	X	X	X	X	X	X	X						X	X			X	X	Non-burnable
Marion County																					
COLUMBIA ACADEMY	School	**X**	**X**	**X**	**X**	**X**		**X**	**X**								X	X			Non-burnable
COLUMBIA ELEMENTARY SCHOOL	School	**X**	**X**	**X**	**X**	**X**	X	**X**	**X**							X		X	X	X	Non-burnable
Columbia Fire Department	Fire Department	**X**	**X**	**X**	**X**	**X**		**X**	**X**				X			X		X	X	X	Moderate

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
COLUMBIA HIGH SCHOOL	School	X	X	X	X	X		X	X					X		X		X		X	Non-burnable
Columbia Police Dept	Police Station	X	X	X	X	X		X	X				X			X		X	X	X	Non-burnable
Columbia Police Investigator	Police Station	X	X	X	X	X		X	X				X			X		X	X	X	Moderate
COLUMBIA PRIMARY SCHOOL	School	X	X	X	X	X	X	X	X							X		X		X	Non-burnable
EAST COLUMBIA HIGH SCHOOL	School	X	X	X	X	X		X	X									X			Non-burnable
EAST MARION ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X									X			Moderate
EAST MARION HIGH SCHOOL	School	X	X	X	X	X		X	X									X			Moderate
EAST MARION PRIMARY SCHOOL	School	X	X	X	X	X		X	X									X			Moderate
JEFFERSON MIDDLE SCHOOL	School	X	X	X	X	X	X	X	X							X				X	Non-burnable
MARION CO VOC COMPLEX	School	X	X	X	X	X		X	X									X			Non-burnable
Marion County Civil Defense	Emergency Facility	X	X	X	X	X		X	X												High
Marion County Sheriff Dept	Police Station	X	X	X	X	X	X	X	X							X		X	X	X	Non-burnable
MARION GENERAL HOSPITAL	Care Facility	X	X	X	X	X		X	X									X		X	Non-burnable
Pine Burr Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												Very High
Tri-Community Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												High

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
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Southwest Marion Volunteer Fire Departme	Fire Department	X	X	X	X	X		X	X												Low
Southwest Marion Volunteer Fire Departme	Fire Department	X	X	X	X	X		X	X									X			Non-burnable
WEST MARION ELEMENTARY	School	X	X	X	X	X		X	X									X	X	X	Non-burnable
WEST MARION HIGH SCHOOL	School	X	X	X	X	X		X	X									X	X	X	Non-burnable
WEST MARION JUNIOR HIGH SCHOOL	School	X	X	X	X	X		X	X									X	X	X	Non-burnable
WEST MARION PRIMARY SCHOOL	School	X	X	X	X	X		X	X				X				X	X	X	X	Non-burnable
Southwest Marion Volunteer Fire Departme	Fire Department	X	X	X	X	X		X	X										X	X	Non-burnable
Southwest Marion Volunteer Fire Departme	Fire Department	X	X	X	X	X		X	X												Very High
Perry County																					
BEAUMONT ELEMENTARY SCHOOL	School	**X**	**X**	**X**	**X**	**X**	X	**X**	**X**							X		X		X	High
Beaumont Police Dept	Police Station	**X**	**X**	**X**	**X**	**X**	X	**X**	**X**							X	X	X	X	X	Low
Beaumont Volunteer Fire Company	Fire Department	**X**	**X**	**X**	**X**	**X**	X	**X**	**X**							X	X	X		X	Non-burnable
PERRY COUNTY ALTERNATIVE CENTER	School	**X**	**X**	**X**	**X**	**X**		**X**	**X**							X	X	X	X	X	High
NEW AUGUSTA ELEMENTARY SCHOOL	School	**X**	**X**	**X**	**X**	**X**		**X**	**X**					X			X	X	X	X	Low

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
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PERRY CENTRAL HIGH SCHOOL	School	X	X	X	X	X		X	X								X	X	X	X	High
PERRY CO VOC COMPLEX	School	X	X	X	X	X		X	X								X	X	X	X	High
Perry County Sheriff's Dept	Police Station	X	X	X	X	X		X	X					X			X	X	X	X	Non-burnable
Town of New Augusta Volunteer Fire Depar	Fire Department	X	X	X	X	X		X	X								X	X	X	X	High
PERRY COUNTY GENERAL HOSPITAL	Care Facility	X	X	X	X	X		X	X							X					Non-burnable
RICHTON ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X							X					Non-burnable
RICHTON HIGH SCHOOL	School	X	X	X	X	X		X	X							X					Non-burnable
Richton Police Dept	Police Station	X	X	X	X	X	X	X	X							X					Non-burnable
Wayne County																					
BUCKATUNNA ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X									X			High
BEAT FOUR ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X								X	X			High
CLARA ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X												Very Low
WAYNE ACADEMY	School	X	X	X	X	X		X	X									X	X	X	Low
WAYNE CO VOCATIONAL COMPLEX	School	X	X	X	X	X	X	X	X							X	X	X		X	Non-burnable
WAYNE COUNTY ALTERNATIVE SCHOOL	School	X	X	X	X	X	X	X	X							X	X	X		X	Non-burnable
Wayne County Civil Defense	Emergency Facility	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
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WAYNE COUNTY HIGH SCHOOL	School	X	X	X	X	X	X	X	X								X	X		X	Low
Wayne County Sheriff	Police Station	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
Wayne County VFD	Fire Department	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
WAYNE GENERAL HOSPITAL	Care Facility	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
WAYNESBORO ELEMENTARY SCH	School	X	X	X	X	X	X	X	X								X	X		X	Non-burnable
Waynesboro Fire Department	Fire Department	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
WAYNESBORO MIDDLE SCHOOL	School	X	X	X	X	X		X	X							X	X	X		X	Low
Waynesboro Police Clerk	Police Station	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
Waynesboro Police Dept	Police Station	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
Forrest County																					
Brooklyn Utility Association	Water system facility	X	X	X	X	X		X	X									X		X	Very High
Brooklyn VFD	Emergency services center	X	X	X	X	X		X	X									X	X	X	Non-burnable
FORREST COUNTY AGRICULTURAL HI SCH	School	X	X	X	X	X		X	X									X	X	X	Non-burnable
Forrest County Agricultural High School Safe Room	School Safe Room	X	X	X	X	X		X	X									X	X	X	Non-burnable
Forrest County AHS	School/Lbrary	X	X	X	X	X		X	X									X	X	X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
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Forrest County District 5 Barn	Emergency Service/Repair	X	X	X	X	X		X	X									X		X	Non-burnable
Janice VFD	Fire Department	X	X	X	X	X		X	X												High
SOUTH FORREST ATTENDANCE CENTER	School	X	X	X	X	X		X	X									X	X	X	Non-burnable
South Forrest Attendance Center Safe Room	School Safe Room	X	X	X	X	X		X	X									X	X	X	Non-burnable
9TH GRADE ACADEMY - HHS	School	X	X	X	X	X		X	X							X		X		X	Non-burnable
AAA Ambulance Service	Medical/health care offices	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
ALPHA CHRISTIAN SCHOOL	School	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
Bedford Care Center of Hattiesburg	Health Care/Nursing Home	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
BLAIR CENTER HATTIESBURG HIGH	School	X	X	X	X	X		X	X							X		X		X	Non-burnable
Bobby L. Chain Airport	Medical/health care offices	X	X	X	X	X		X	X						X	X			X	X	Non-burnable
BURNEY ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X							X		X		X	Non-burnable
Camp Shelby	Government offices	X	X	X	X	X		X	X							X					Non-burnable
CENTRAL BAPTIST SCHOOL	School	X	X	X	X	X		X	X							X	X	X		X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER							
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City of Hattiesburg	Water system facility	X	X	X	X	X		X	X					X	X	X	X	X	X	X	X	Non-burnable
City of Hattiesburg	Government offices	X	X	X	X	X		X	X							X		X	X	X		Non-burnable
City of Hattiesburg- Utility	Energy facility or system	X	X	X	X	X		X	X					X	X	X		X	X	X		Non-burnable
Clean Earth	Hazardous materials facility	X	X	X	X	X		X	X								X	X		X		High
Department of Human Services	Government office/economic assisticance	X	X	X	X	X		X	X							X	X	X	X	X		Non-burnable
DIXIE ATTENDANCE CENTER	School	X	X	X	X	X		X	X									X				High
Dixie Attendance Center Safe Room	School Safe Room	X	X	X	X	X		X	X									X				High
Dixie Community Utility Association	Utility/Water system facility	X	X	X	X	X		X	X									X				Non-burnable
Dixie Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X									X				Non-burnable
EARL TRAVILLION ATTENDANCE CENTER	School	X	X	X	X	X		X	X							X			X	X		High
Earl Travillion Elementary	School/Lbrary	X	X	X	X	X		X	X							X			X	X		High
Entex Gas Pipeline Station	Energy facility or system	X	X	X	X	X		X	X							X	X	X	X	X		Non-burnable
FEMA Community Shelter	Education	X	X	X	X	X		X	X						X	X	X	X		X		Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
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Forrest County Circuit Court	Government	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
Forrest County Circuit Courthouse	Government offices	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
Forrest County Coroner's Office	Government Office/Emergency Service	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
Forrest County District 1 Barn	Emergency Service/Repair	X	X	X	X	X		X	X									X			High
Forrest County District 2 Barn	Emergency Service/Repair	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
Forrest County District 2 Central Shop	Emergency Service/Repair	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
Forrest County Evaluation Center	Government/Emergency Service	X	X	X	X	X		X	X								X	X	X	X	Low
Forrest County Health Department	Medical/health care offices	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
Forrest County Junvenile Detention Center	Police/Government Offices	X	X	X	X	X		X	X				X		X	X		X	X	X	Non-burnable
Forrest County Justice Cuort	Government office/legal	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
Forrest County MultiPurpose Center	Government office/other facility	X	X	X	X	X		X	X						X	X	X	X		X	Non-burnable
Forrest County Schools-Administrative Offices	Other critical facility	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
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	type/Education																				
Forrest County Sheriff	Police Station	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
Forrest County Sheriff's Department	Emergency/Police	X	X	X	X	X		X	X						X	X	X	X		X	Non-burnable
Forrest County Sheriff's Service Center	Emergency/Police	X	X	X	X	X		X	X						X	X	X	X		X	Non-burnable
FORREST GENERAL HOSPITAL	Care Facility	X	X	X	X	X		X	X							X	X	X		X	High
Forrrest County District 4 Barn	Emergency Service/Repair	X	X	X	X	X		X	X									X	X	X	Non-burnable
Glendale Utility District	Water system facility	X	X	X	X	X		X	X							X		X		X	Non-burnable
GRACE CHRISTIAN ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
Hattiesburg Clinic	Medical/health care offices	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
Hattiesburg Convalescent Center	Medical/health care offices	X	X	X	X	X	X	X	X							X		X	X	X	Non-burnable
Hattiesburg Fire Department	Fire Department	X	X	X	X	X		X	X							X	X	X	X	X	Moderate
Hattiesburg Fire Department #1	Emergency services center	X	X	X	X	X		X	X							X	X	X	X	X	Moderate
Hattiesburg Fire Department #3	Emergency services center	X	X	X	X	X		X	X						X	X			X	X	Non-burnable
Hattiesburg Fire Department #4	Emergency	X	X	X	X	X		X	X				X			X	X	X		X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
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	services center																				
Hattiesburg Fire Department #5	Emergency services center	X	X	X	X	X	X	X	X							X		X	X	X	Moderate
Hattiesburg Fire Department #6	Emergency services center	X	X	X	X	X		X	X							X	X	X			Non-burnable
Hattiesburg Fire Department #7	Emergency services center	X	X	X	X	X		X	X								X	X		X	Low
Hattiesburg Fire Department #8	Emergency sevices center	X	X	X	X	X		X	X								X	X			Non-burnable
Hattiesburg High School	Education	X	X	X	X	X		X	X							X		X		X	Non-burnable
Hattiesburg Medical Supply	Emergency services center	X	X	X	X	X		X	X									X		X	Non-burnable
Hattiesburg Police Chief	Police Station	X	X	X	X	X		X	X												Non-burnable
Hattiesburg Police Department	Critial community supplier	X	X	X	X	X	X	X	X				X			X		X	X	X	Non-burnable
HAWKINS ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X				X			X	X	X		X	Moderate
Jessie L. Brown Tax Services Building	Emergency services center	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
Lillie Burney Elementary	Education	X	X	X	X	X		X	X							X		X		X	Non-burnable
Loyalton of Hattiesburg	Hospital/Nursing Home	X	X	X	X	X		X	X									X		X	Non-burnable
MARY BETHUNE ALTERNATIVE	School	X	X	X	X	X		X	X							X		X	X	X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
McLaurin VFD	Emergency services center	X	X	X	X	X		X	X									X	X	X	Non-burnable
McLaurin/Dantzler VFD Station #2	Emergency services center	X	X	X	X	X		X	X												High
Merit Health Medical Group	Medical/health care offices	X	X	X	X	X		X	X								X	X			Non-burnable
Mississippi Power	Energy facility or system	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
Mississippi Power Company	Energy facility or system	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
Monroe Hall, LLC- Bedford Care Center	Hospital/Nursing Home	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
MONTESSORI CHILDRENS HOUSE	School	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
N R BURGER MIDDLE SCHOOL	School	X	X	X	X	X		X	X							X		X		X	High
NORTH FORREST ATTENDANCE CENTER	School	X	X	X	X	X		X	X									X			Moderate
North Forrest Elementary	School/Lbrary	X	X	X	X	X		X	X									X			Moderate
North Forrest Elementary Safe Room	School Safe Room	X	X	X	X	X		X	X									X			Moderate
NORTH FORREST HIGH SCHOOL	School	X	X	X	X	X		X	X									X			Moderate
North Forrest High School Safe Room	School Safe Room	X	X	X	X	X		X	X									X			Moderate
North Forrest VFD	Fire Department	X	X	X	X	X		X	X							X				X	High
North Forrest VFD Station #1	Emergency	X	X	X	X	X		X	X							X				X	High

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
	services center																				
North Forrest VFD Station #2	Emergency services center	X	X	X	X	X		X	X											X	High
Old Federal Building	Government offices /City Court	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
Paul B. Johnson State Park	Other critical facility type	X	X	X	X	X		X	X									X			Water
PRESBYTERIAN CHRISTIAN SCHOOL	School	X	X	X	X	X	X	X	X									X		X	Low
RAWLS SPRINGS ATTENDANCE CENTER	School	X	X	X	X	X		X	X					X		X	X	X	X	X	High
Rawls Springs Utility District	Waste water control facility	X	X	X	X	X		X	X				X			X	X	X	X	X	Low
Rawls Springs VFD	Emergency services center	X	X	X	X	X		X	X								X	X		X	Moderate
Resinall Mississippi, Inc.	Hazardous materials facility	X	X	X	X	X		X	X						X	X		X	X	X	Moderate
ROWAN ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X							X		X		X	Non-burnable
Sacred Heart School	School/Lbrary	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
SACRED HEART SCHOOL	School	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
Sam's Club #6503	Retail General	X	X	X	X	X		X	X								X	X			Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
South MS Chapter of the American Red Cross	Transportation facility/ Emergency services center	X	X	X	X	X		X	X							X		X		X	Non-burnable
South MS Electric Power Association	Utility	X	X	X	X	X		X	X								X	X		X	Non-burnable
Southeast MS Rural Health Initiative, Inc.	Medical/health care offices	X	X	X	X	X		X	X							X		X		X	Non-burnable
Southern Bone and Joint Specialists	Medical/health care offices	X	X	X	X	X		X	X								X	X		X	High
Spire Energy	Utility	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
THAMES ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X							X		X		X	High
The Emergency Management District	Emergency services center	X	X	X	X	X	X	X	X								X	X		X	Moderate
U.S. Postal Service	Other critical facility type	X	X	X	X	X		X	X							X	X	X			High
U.S. Postal Service	Other critical facility type	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
University of Southern Mississippi	School/Lbrary	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
University of Southern Mississippi Public Safety	Other critical facility type	X	X	X	X	X		X	X						X	X	X	X		X	Non-burnable
USM Physical Plant	Other critical facility type	X	X	X	X	X		X	X						X	X		X		X	Non-burnable
Walmart Supercenter #2717	Retail General	X	X	X	X	X		X	X								X	X		X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER							
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Walmart Supercenter #916	Retail General	X	X	X	X	X		X	X								X	X			Non-burnable
WOODLEY ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X							X	X	X			Non-burnable
Carnes VFD	Emergency services center	X	X	X	X	X		X	X												Low
Carnes Volunteer Fire & Rescue Departmen	Fire Department	X	X	X	X	X		X	X												Low
Barrontown Utility District	Water system facility	X	X	X	X	X		X	X												Low
Bedford Care Center of Petal	Hospital/ Nursing Home	X	X	X	X	X		X	X					X		X		X		X	High
Diversified CPC	Energy facility or system	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
Dixie Electric Power Association	Energy facility or system	X	X	X	X	X		X	X												Moderate
Dixie Pipeline Company	Transportation facility	X	X	X	X	X		X	X					X	X	X	X	X	X	X	Non-burnable
Eastabuchie Utility Association	Water system facility	X	X	X	X	X		X	X									X		X	Non-burnable
Enterprise Products Operating LP	Hazardous materials facility	X	X	X	X	X		X	X				X			X	X	X	X	X	Non-burnable
Forrest County District 3 Barn	Emergency Service/Repair	X	X	X	X	X		X	X												Low
Lone Star NGL	Hazardous materials	X	X	X	X	X		X	X				X		X	X	X	X	X	X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
	facility																				
Macedonia VFD	Emergency services center	X	X	X	X	X		X	X												Low
Macedonia VFD Station #2	Emergency services center	X	X	X	X	X		X	X												High
Macedonia VFD Station #3	Emergency services center	X	X	X	X	X		X	X									X		X	Non-burnable
MidCoast Energy (Enbridge Petroleum)	Energy facility or system	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
Petal City Hall	Government offices	X	X	X	X	X		X	X							X		X		X	Non-burnable
Petal City Police Dept	Police Station	X	X	X	X	X	X	X	X							X		X		X	Non-burnable
Petal City Public Works Dept.	Government offices	X	X	X	X	X		X	X				X			X	X	X	X	X	Moderate
Petal Civic Center	Emergency Shelter	X	X	X	X	X		X	X							X		X		X	Non-burnable
PETAL ELEMENTARY	School	X	X	X	X	X		X	X												Non-burnable
Petal Elementary School	Education	X	X	X	X	X		X	X												Non-burnable
Petal Fire Department	Fire Department	X	X	X	X	X	X	X	X							X		X		X	Moderate
Petal Fire Station #1	Emergency services center	X	X	X	X	X	X	X	X							X		X		X	Moderate
Petal Fire Station #2	Emergency services center	X	X	X	X	X		X	X							X		X		X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Petal Fire Station #3	Emergency services center	X	X	X	X	X		X	X												Non-burnable
Petal Gas Storage	Energy facility or system	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
PETAL HIGH	School	X	X	X	X	X		X	X												Non-burnable
Petal High School	Education	X	X	X	X	X		X	X												Non-burnable
Petal High School Safe Room	School Safe Room	X	X	X	X	X		X	X												Non-burnable
Petal Lift Station	Water system facility	X	X	X	X	X		X	X				X			X		X		X	High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X				X			X	X	X	X	X	High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X							X		X		X	High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X							X					High
Petal Lift Station	Wastewater	X	X	X	X	X	X	X	X					X		X		X	X	X	High
Petal Lift Station	Wastewater	X	X	X	X	X	X	X	X							X		X		X	High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X							X					High
Petal Lift Station	Water system facility	X	X	X	X	X		X	X							X		X		X	Low
Petal Lift Station	Wastewater	X	X	X	X	X		X	X							X					Low
Petal Lift Station	Wastewater	X	X	X	X	X		X	X							X				X	Moderate
Petal Lift Station	Wastewater	X	X	X	X	X		X	X				X			X		X		X	Moderate
Petal Lift Station	Wastewater	X	X	X	X	X		X	X							X					Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Petal Lift Station	Wastewater	X	X	X	X	X		X	X					X		X	X	X	X	X	Non-burnable
Petal Lift Station	Wastewater	X	X	X	X	X		X	X				X			X	X	X	X	X	Non-burnable
Petal Lift Station	Wastewater	X	X	X	X	X		X	X				X			X	X	X	X	X	Non-burnable
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												High
Petal Lift Station	Water system facility	X	X	X	X	X		X	X												Low
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Low
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Low
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Low
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Low
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Low
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Low
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Moderate
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Moderate
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Moderate
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Moderate
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Moderate
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Petal Lift Station	Wastewater	X	X	X	X	X	X	X	X												Non-burnable
Petal Lift Station	Wastewater	X	X	X	X	X		X	X									X		X	Non-burnable
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Non-burnable
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Water
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Water
Petal Lift Station	Wastewater	X	X	X	X	X		X	X												Water
Petal Lower Elementary Safe Room	School Safe Room	X	X	X	X	X		X	X												Non-burnable
PETAL MIDDLE SCHOOL	School	X	X	X	X	X	X	X	X						X	X		X		X	Non-burnable
Petal Middle School Safe Room	School Safe Room	X	X	X	X	X	X	X	X						X	X		X		X	Non-burnable
Petal Plant A- Water Well	Water system facility	X	X	X	X	X		X	X							X		X		X	High
Petal Plant B- Water Well	Water	X	X	X	X	X	X	X	X						X	X		X		X	Non-burnable
Petal Plant C- Water Well and Tank	Water	X	X	X	X	X		X	X												Moderate
Petal Police Department	Emergency services center	X	X	X	X	X	X	X	X							X		X		X	Non-burnable
Petal Post Office	Government offices	X	X	X	X	X	X	X	X						X	X		X		X	Non-burnable
Petal Primary School	School Safe Room	X	X	X	X	X		X	X												Low

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[5]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Petal Primary School Safe Room	School Safe Room	X	X	X	X	X		X	X												Low
Petal Stand Pipe (for Plants A & B)	Wastewater	X	X	X	X	X		X	X							X		X		X	High
Petal Upper Elementary School Safe Room	School Safe Room	X	X	X	X	X		X	X							X		X		X	Moderate
RUNNELSTOWN ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X									X			High
Sunrise Utlitiy	Emergency services center	X	X	X	X	X		X	X												Non-burnable
Sunrise VFD	Emergency services center	X	X	X	X	X		X	X												Non-burnable
Sunrise VFD Station #2	Emergency services center	X	X	X	X	X		X	X												High
Targa	Hazardous materials facility	X	X	X	X	X		X	X				X			X	X	X	X	X	Non-burnable
W L SMITH	School	X	X	X	X	X		X	X							X		X		X	Moderate
Walmart Supercenter #887	Retail General	X	X	X	X	X		X	X				X								Non-burnable

SECTION 7

CAPABILITY ASSESSMENT

This section of the Plan discusses the capability of the MEMA District 8 Region to implement hazard mitigation activities. It consists of the following four subsections:

- 7.1 What is a Capability Assessment?
- 7.2 Conducting the Capability Assessment
- 7.3 Capability Assessment Findings
- 7.4 Linking the Capability Assessment

7.1 WHAT IS A CAPABILITY ASSESSMENT

The purpose of conducting a capability assessment is to determine the ability of a local jurisdiction to implement a comprehensive mitigation strategy and to identify potential opportunities for establishing or enhancing specific mitigation policies, programs, or projects[1]. As in any planning process, it is important to try to establish which goals, objectives, and/or actions are feasible based on an understanding of the organizational capacity of those agencies or departments tasked with their implementation. A capability assessment helps to determine which mitigation actions are practical, and likely to be implemented over time, given a local government's planning and regulatory framework, level of administrative and technical support, amount of fiscal resources, and current political climate.

A capability assessment has two primary components: 1) an inventory of a local jurisdiction's relevant plans, ordinances, or programs already in place and 2) an analysis of its capacity to carry them out. Careful examination of local capabilities will detect any existing gaps, shortfalls, or weaknesses with ongoing government activities that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. A capability assessment also highlights the positive mitigation measures already in place or being implemented at the local government level, which should continue to be supported and enhanced through future mitigation efforts.

The capability assessment completed for the MEMA District 8 Region serves as a critical planning step and an integral part of the foundation for designing an effective hazard mitigation strategy. Coupled with the Risk Assessment, the Capability Assessment helps identify and target meaningful mitigation actions for incorporation in the Mitigation Strategy portion of the Hazard Mitigation Plan. It not only helps establish the goals and objectives for the region to pursue under this Plan, but it also ensures that those goals and objectives are realistically achievable under given local conditions.

[1] While the Final Rule for implementing the Disaster Mitigation Act of 2000 does not require a local capability assessment to be completed for local hazard mitigation plans, it is a critical step in developing a mitigation strategy that meets the needs of the region while taking into account their own unique abilities. The Rule does state that a community's mitigation strategy should be "based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools" (44 CFR, Part 201.6(c)(3)).

7.2 CONDUCTING THE CAPABILITY ASSESSMENT

In order to facilitate the inventory and analysis of local government capabilities within the MEMA District 8 counties, each participating jurisdiction took part in a mini workshop to go over any updates or changes from the previous capability assessment. Discussions in the mini workshop focused on a variety of capability indicators, such as existing local plans, policies, programs, or ordinances that contribute to and/or hinder the region's ability to implement hazard mitigation actions. Other indicators included information related to the region's fiscal, administrative, and technical capabilities, such as access to local budgetary and personnel resources for mitigation purposes. The current political climate, an important consideration for any local planning or decision-making process, was also evaluated with respect to hazard mitigation.

At a minimum, discussion results provide an extensive inventory of existing local plans, ordinances, programs, and resources that are in place or under development in addition to their overall effect on hazard loss reduction. However, results can also serve to identify gaps, weaknesses, or conflicts that counties and local jurisdictions can recast as opportunities for specific actions to be proposed as part of the hazard mitigation strategy.

7.3 CAPABILITY ASSESSMENT FINDINGS

The findings of the capability assessment are summarized in this Plan to provide insight into the relevant capacity of the MEMA District 8 Region to implement hazard mitigation activities.

7.3.1 Planning and Regulatory Capability

Planning and regulatory capability is based on the implementation of plans, ordinances, and programs that demonstrate a local jurisdiction's commitment to guiding and managing growth, development, and redevelopment in a responsible manner while maintaining the general welfare of the community. It includes emergency response and mitigation planning, comprehensive land use planning, and transportation planning; the enforcement of zoning or subdivision ordinances and building codes that regulate how land is developed and structures are built; as well as protecting environmental, historic, and cultural resources in the community. Although some conflicts can arise, these planning initiatives generally present significant opportunities to integrate hazard mitigation principles and practices into the local decision-making process.

This assessment is designed to provide a general overview of the key planning and regulatory tools and programs that are in place or under development for the MEMA District 8 Region along with their potential effect on loss reduction. This information will help identify opportunities to address existing gaps, weaknesses, or conflicts with other initiatives in addition to integrating the implementation of this Plan with existing planning mechanisms where appropriate.

Table 7.1 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for the MEMA District 8 Region. A checkmark (✓) indicates that the given item is currently in place and being implemented. An asterisk (*) indicates that the given item is currently being developed for future implementation. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the MEMA District 8 Regional Hazard Mitigation Plan.

83

TABLE 7.1: RELEVANT PLANS, ORDINANCES, AND PROGRAMS

Planning / Regulatory Tool	COVINGTON COUNTY	Collins	Mount Olive	Seminary	FORREST COUNTY	Hattiesburg	Petal	JEFFERSON DAVIS COUNTY	Bassfield	Prentiss	JONES COUNTY	Ellisville	Laurel	Sandersville	Soso	MARION COUNTY	Columbia	PERRY COUNTY	Beaumont	New Augusta	Richton	WAYNE COUNTY	State Line	Waynesboro
Hazard Mitigation Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Comprehensive Land Use Plan			✓			✓	✓		✓	✓		✓	✓				✓			✓	✓			✓
Floodplain Management Plan						✓																		
Open Space Management Plan (or Parks & Rec/Greenway Plan)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Stormwater Management Plan/Ordinance					✓	✓	✓						✓											✓
Natural Resource Protection Plan																								
Flood Response Plan																								
Emergency Operations Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Continuity of Operations Plan	✓							✓			✓	✓	✓	✓	✓	✓		✓				✓	✓	✓
Evacuation Plan																						✓	✓	✓
Disaster Recovery Plan																								
Capital Improvements Plan													✓											✓
Economic Development Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Historic Preservation Plan																								
Flood Damage Prevention Ordinance	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
Zoning Ordinance		✓	✓	✓		✓	✓		✓	✓		✓	✓				✓			✓	✓			✓
Subdivision Ordinance		✓	✓		✓	✓	✓		✓	✓	✓	✓	✓			✓	✓			✓	✓			✓
Unified Development Ordinance						✓																		

Planning / Regulatory Tool	COVINGTON COUNTY	Collins	Mount Olive	Seminary	FORREST COUNTY	Hattiesburg	Petal	JEFFERSON DAVIS COUNTY	Bassfield	Prentiss	JONES COUNTY	Ellisville	Laurel	Sandersville	Soso	MARION COUNTY	Columbia	PERRY COUNTY	Beaumont	New Augusta	Richton	WAYNE COUNTY	State Line	Waynesboro
Post-Disaster Redevelopment Ordinance																								✓
Building Code		✓		✓		✓	✓		✓	✓		✓	✓				✓	✓	✓	✓	✓			✓
Fire Code						✓	✓		✓	✓			✓											✓
National Flood Insurance Program (NFIP)	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
NFIP Community Rating System						✓		✓		✓														

A more detailed discussion on the region's planning and regulatory capability follows.

7.3.2 Emergency Management

Hazard mitigation is widely recognized as one of the four primary phases of emergency management. The three other phases include preparedness, response, and recovery. In reality, each phase is interconnected with hazard mitigation, as **Figure 7.1** suggests. Opportunities to reduce potential losses through mitigation practices are most often implemented before disaster strikes, such as the elevation of flood prone structures or the continuous enforcement of policies that prevent and regulate development that is vulnerable to hazards due to its location, design, or other characteristics. Mitigation opportunities will also be presented during immediate preparedness or response activities, such as installing storm shutters in advance of a hurricane, and certainly during the long-term recovery and redevelopment process following a hazard event.

FIGURE 7.1: THE FOUR PHASES OF EMERGENCY MANAGEMENT

Planning for each phase is a critical part of a comprehensive emergency management program and a key to the successful implementation of hazard mitigation actions. As a result, the Capability Assessment Survey asked several questions across a range of emergency management plans in order to assess the MEMA District 8 Region's willingness to plan and their level of technical planning proficiency.

Hazard Mitigation Plan: A hazard mitigation plan represents a community's blueprint for how it intends to reduce the impact of natural and human-caused hazards on people and the built environment. The essential elements of a hazard mitigation plan include a risk assessment, capability assessment, and mitigation strategy.

- Each of the seven counties participating in this multi-jurisdictional plan has previously adopted a hazard mitigation plan. Each participating municipality was included in its respective county's plan.

Disaster Recovery Plan: A disaster recovery plan serves to guide the physical, social, environmental, and economic recovery and reconstruction process following a disaster. In many instances, hazard mitigation principles and practices are incorporated into local disaster recovery plans with the intent of capitalizing on opportunities to break the cycle of repetitive disaster losses. Disaster recovery plans can also lead to the preparation of disaster redevelopment policies and ordinances to be enacted following a hazard event.

- None of the counties or municipalities participating in this multi-jurisdictional plan has adopted a disaster recovery plan. The jurisdictions should consider developing a plan to guide the recovery and reconstruction process following a disaster.

Emergency Operations Plan: An emergency operations plan outlines responsibilities and the means by which resources are deployed during and following an emergency or disaster.

- Each of the seven counties participating in this multi-jurisdictional plan maintains a comprehensive emergency management plan through its respective County Emergency Management Agency. Each participating municipality is covered by its respective county's plan.

Continuity of Operations Plan: A continuity of operations plan establishes a chain of command, line of succession, and plans for backup or alternate emergency facilities in case of an extreme emergency or disaster event.

- Covington, Jefferson Davis, Jones, Marion Perry and Wayne Counties have adopted Continuity of Operations plans since that last mitigation plan update.

7.3.3 General Planning

The implementation of hazard mitigation activities often involves agencies and individuals beyond the emergency management profession. Stakeholders may include local planners, public works officials, economic development specialists, and others. In many instances, concurrent local planning efforts will help to achieve or complement hazard mitigation goals, even though they are not designed as such. Therefore, the Capability Assessment Survey also asked questions regarding general planning capabilities and the degree to which hazard mitigation is integrated into other on-going planning efforts in the MEMA District 8 Region.

Comprehensive Land Use Plan: A comprehensive land use plan establishes the overall vision for what a community wants to be and serves as a guide for future governmental decision making. Typically a comprehensive plan contains sections on demographic conditions, land use, transportation elements, and community facilities. Given the broad nature of the plan and its regulatory standing in many communities, the integration of hazard mitigation measures into the comprehensive plan can enhance the likelihood of achieving risk reduction goals, objectives, and actions.

- None of the counties participating in this multi-jurisdictional plan has adopted comprehensive land use plans.
- Several of the participating municipalities adopted community development and comprehensive plans in the 1970s, including Mount Olive, Bassfield, Prentiss, Ellisville, Laurel, Columbia, New Augusta, Hattiesburg, Petal and Richton.
- The City of Waynesboro adopted a city comprehensive plan in 1998. The Board of Alderman discussed updating or developing a new comprehensive plan in 2010.

Capital Improvements Plan: A capital improvements plan guides the scheduling of spending on public improvements. A capital improvements plan can serve as an important mechanism for guiding future development away from identified hazard areas. Limiting public spending in hazardous areas is one of the most effective long-term mitigation actions available to local governments.

- None of the counties participating in this multi-jurisdictional plan have adopted a capital improvements plan.
- The Cites of Laurel and Waynesboro are the only participating municipalities with a capital improvement plan in place.

Historic Preservation Plan: A historic preservation plan is intended to preserve historic structures or districts within a community. An often overlooked aspect of the historic preservation plan is the assessment of buildings and sites located in areas subject to natural hazards and the identification of ways to reduce future damages. This may involve retrofitting or relocation techniques that account for the need to protect buildings that do not meet current building standards or are within a historic district that cannot easily be relocated out of harm's way.

- None of the counties or municipalities participating in this multi-jurisdictional plan has a historic preservation plan.

Zoning Ordinance: Zoning represents the primary means by which land use is controlled by local governments. As part of a community's police power, zoning is used to protect the public health, safety, and welfare of those in a given jurisdiction that maintains zoning authority. A zoning ordinance is the mechanism through which zoning is typically implemented. Since zoning regulations enable municipal governments to limit the type and density of development, a zoning ordinance can serve as a powerful tool when applied in identified hazard areas.

- None of the counties participating in this multi-jurisdictional plan has adopted zoning ordinances.
- Several of the participating municipalities adopted zoning ordinances in the 1970s and 1980s, including Collins, Mount Olive, Bassfield, Prentiss, Ellisville, Laurel, Columbia, New Augusta, Seminary, Hattiesburg, Petal and Richton. Waynesboro also adopted a zoning ordinance more recently in 1998.

Subdivision Ordinance: A subdivision ordinance is intended to regulate the development of residential, commercial, industrial, or other uses, including associated public infrastructure, as land is subdivided into buildable lots for sale or future development. Subdivision design that accounts for natural hazards can dramatically reduce the exposure of future development.

- Jones County and the Cities of Ellisville and Laurel have each adopted subdivision regulations.
- Forrest County and the Cities of Hattiesburg and Petal have each adopted subdivision regulations.
- Marion County adopted rather extensive subdivision regulations in 2005. The City of Columbia also has subdivision regulations that were adopted in 1969 and amended in 1980.
- Several additional participating municipalities adopted subdivision ordinances in the 1960s and 1970s, including Collins, Mount Olive, Bassfield, Prentiss, New Augusta, and Richton. Waynesboro also adopted subdivision regulations concurrently with its zoning ordinance more recently in 1998.

Building Codes, Permitting, and Inspections: Building codes regulate construction standards. In many communities, permits, and inspections are required for new construction. Decisions regarding the adoption of building codes (that account for hazard risk), the type of permitting process required both before and after a disaster, and the enforcement of inspection protocols all affect the level of hazard risk faced by a community.

- Mississippi adopted the 2006 complete family of International Codes (I-Codes) as the minimum codes for its statewide building code in 2011. This means that if a jurisdiction chooses to adopt a code or update their current codes they must be at a minimum one or more of the 2006 family of I-Codes. Additionally, all state buildings, leased or owned, must meet the requirements set forth in the 1997 Standard Building Code.
- Jones County, Perry County, and Wayne County have adopted building codes.
- The following participating municipalities have also adopted building codes: Collins, Seminary, Bassfield, Prentiss, Ellisville, Laurel, Columbia, Beaumont, New Augusta, Richton, Hattiesburg, Petal and Waynesboro.

The adoption and enforcement of building codes by local jurisdictions is routinely assessed through the Building Code Effectiveness Grading Schedule (BCEGS) program developed by the Insurance Services Office, Inc. (ISO).[2] In Mississippi, the Mississippi State Rating Bureau assesses the building codes in effect in a particular community and how the community enforces its building codes *with special emphasis on mitigation of losses from natural hazards*. The results of BCEGS assessments are routinely provided to ISO's member private insurance companies, which in turn may offer ratings credits for new buildings constructed in communities with strong BCEGS classifications. The concept is that communities with well-enforced, up-to-date codes should experience fewer disaster-related losses and, as a result, should have lower insurance rates.

In conducting the assessment, ISO collects information related to personnel qualification and continuing education as well as the number of inspections performed per day. This type of information combined with local building codes is used to determine a grade for that jurisdiction. The grades range from 1 to 10 with a BCEGS grade of 1 representing exemplary commitment to building code enforcement and a grade of 10 indicating less than minimum recognized protection.

[2] Participation in BCEGS is voluntary and may be declined by local governments if they do not wish to have their local building codes evaluated.

7.3.4 Floodplain Management

Flooding represents the greatest natural hazard facing the nation. At the same time, the tools available to reduce the impacts associated with flooding are among the most developed when compared to other hazard-specific mitigation techniques. In addition to approaches that cut across hazards such as education, outreach, and the training of local officials, the *National Flood Insurance Program* (NFIP) contains specific regulatory measures that enable government officials to determine where and how growth occurs relative to flood hazards. Participation in the NFIP is voluntary for local governments; however, program participation is strongly encouraged by FEMA as a first step for implementing and sustaining an effective hazard mitigation program. It is therefore used as part of this assessment as a key indicator for measuring local capability.

In order for a county or municipality to participate in the NFIP, they must adopt a local flood damage prevention ordinance that requires jurisdictions to follow established minimum building standards in the floodplain. These standards require that all new buildings and substantial improvements to existing buildings will be protected from damage by a 100-year flood event and that new development in the floodplain will not exacerbate existing flood problems or increase damage to other properties.

A key service provided by the NFIP is the mapping of identified flood hazard areas. Once completed, the Flood Insurance Rate Maps (FIRMs) are used to assess flood hazard risk, regulate construction practices, and set flood insurance rates. FIRMs are an important source of information to educate residents, government officials, and the private sector about the likelihood of flooding in their community.

Table 7.2 provides NFIP policy and claim information for each participating jurisdiction in the MEMA District 8 Region. Each of the jurisdictions that are participating in the development of this plan that also participate in the NFIP are committed to maintaining and enforcing their floodplain management ordinances and regulating new development in floodplains.

TABLE 7.2: NFIP POLICY AND CLAIM INFORMATION

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance in Force	Closed Claims	Total Payments to Date
COVINGTON COUNTY†	12/15/90	4/5/10	63	$7,483,100	27	$357,325
Collins	8/5/85	4/5/10(M)	16	$3,121,600	18	$124,503
Mount Olive	9/15/89	4/5/10	1	$54,200	3	$46,982
Seminary	4/5/10	4/5/10(M)	0	$0	0	$0
FORREST COUNTY	12/17/10	12/17/10(M)	7	$762,600	0	$0
Hattiesburg	--	--	--	--	--	--
Petal	12/17/10	12/17/10(M)	0	$0	2	$4,613
JEFFERSON DAVIS COUNTY†	12/17/10	12/17/10(M)	7	$762,600	0	$0

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance in Force	Closed Claims	Total Payments to Date
Bassfield*	--	--	--	--	--	--
Prentiss	1/1/86	12/17/10(M)	0	$0	2	$4,613
JONES COUNTY	2/16/90	9/29/10	133	$17,174,300	28	$237,123
Ellisville	9/30/77	9/29/10	24	$2,281,200	5	$46,027
Laurel	9/15/77	9/29/10	254	$30,415,800	75	$398,815
Sandersville*	--	--	--	--	--	--
Soso*	--	--	--	--	--	--
MARION COUNTY†	9/28/79	7/18/11	189	$29,435,100	248	$2,337,509
Columbia	9/28/79	7/18/11	197	$27,315,800	303	$3,612,752
PERRY COUNTY†	9/1/87	12/16/11	86	$10,072,300	38	$131,996
Beaumont	8/16/88	12/16/11	11	$3,209,400	16	$32,703
New Augusta	4/2/86	12/16/11	10	$804,800	12	$51,683
Richton	4/15/86	12/16/11(M)	4	$553,000	1	$42,415
WAYNE COUNTY†	8/16/88	7/18/11	44	$6,960,900	6	$117,636
State Line	8/19/85	7/18/11(M)	1	$22,900	1	$6,924
Waynesboro	8/16/88	7/18/11	32	$3,136,500	17	$134,036

†Includes unincorporated areas of county only
*Community does not participate in the NFIP
(M) – No Elevation Determined, All Zone A, C and X
Source: NFIP Community Status information as of 3/31/13; NFIP claims and policy information as of 5/15/13

Community Rating System: An additional indicator of floodplain management capability is the active participation of local jurisdictions in the Community Rating System (CRS). The CRS is an incentive-based program that encourages counties and municipalities to undertake defined flood mitigation activities that go beyond the minimum requirements of the NFIP by adding extra local measures to provide protection from flooding. All of the 18 creditable CRS mitigation activities are assigned a range of point values. As points are accumulated and reach identified thresholds, communities can apply for an improved CRS class rating. Class ratings, which range from 10 to 1, are tied to flood insurance premium reductions as shown in **Table 7.3**. As class rating improves (the lower the number the better), the percent reduction in flood insurance premiums for NFIP policyholders in that community increases.

TABLE 7.3: CRS PREMIUM DISCOUNTS, BY CLASS

CRS Class	Premium Reduction
1	45%
2	40%
3	35%
4	30%
5	25%
6	20%
7	15%
8	10%
9	5%
10	0

Source: *FEMA*

Community participation in the CRS is voluntary. Any community that is in full compliance with the rules and regulations of the NFIP may apply to FEMA for a CRS classification better than class 10. The CRS application process has been greatly simplified over the past several years based on community comments. Changes were made with the intent to make the CRS more user-friendly and make extensive technical assistance available for communities who request it.

- Jefferson Davis County and the City of Prentise participate in the CRS as well as the City of Hattiesburg. Participation in the CRS program should be considered as a mitigation action by the jurisdictions currently participating in the NFIP. The program would be most beneficial to Jones County, the City of Laurel, Marion County, and the City of Columbia, which each have over 100 NFIP policies in force.

Flood Damage Prevention Ordinance: A flood damage prevention ordinance establishes minimum building standards in the floodplain with the intent to minimize public and private losses due to flood conditions.

- All communities participating in the NFIP are required to adopt a local flood damage prevention ordinance. All counties and municipalities participating in this hazard mitigation plan, with the exception of Bassfield, Sandersville, and Soso, also participate in the NFIP and they all have adopted flood damage prevention ordinances.

Floodplain Management Plan: A floodplain management plan (or a flood mitigation plan) provides a framework for action regarding corrective and preventative measures to reduce flood-related impacts.

- The City of Hattiesburg is the only participating municipality that has adopted a floodplain management plan to help prevent damages associated with flooding and flood loss.

Open Space Management Plan*:* An open space management plan is designed to preserve, protect, and restore largely undeveloped lands in their natural state and to expand or connect areas in the public domain such as parks, greenways, and other outdoor recreation areas. In many instances, open space management practices are consistent with the goals of reducing hazard losses, such as the preservation of wetlands or other flood-prone areas in their natural state in perpetuity.

- All of the participating counties or municipalities are included in the Southern Mississippi Planning and Development District (SMPDD) Regional Open Space Plan that was written in 1973.

Stormwater Management Plan: A stormwater management plan is designed to address flooding associated with stormwater runoff. The stormwater management plan is typically focused on design and construction measures that are intended to reduce the impact of more frequently occurring minor urban flooding.

- Forrest County, Cities of Hattiesburg, Petal and Waynesboro have adopted a stormwater management plan or ordinance.
- The City of Laurel adopted a stormwater detention requirements ordinance in 2000.

7.3.6 Administrative and Technical Capability

The ability of a local government to develop and implement mitigation projects, policies, and programs is directly tied to its ability to direct staff time and resources for that purpose. Administrative capability can be evaluated by determining how mitigation-related activities are assigned to local departments and if there are adequate personnel resources to complete these activities. The degree of intergovernmental coordination among departments will also affect administrative capability for the implementation and success of proposed mitigation activities.

Technical capability can generally be evaluated by assessing the level of knowledge and technical expertise of local government employees, such as personnel skilled in using Geographic Information Systems (GIS) to analyze and assess community hazard vulnerability. The Capability Assessment Survey was used to capture information on administrative and technical capability through the identification of available staff and personnel resources.

Table 7.4 provides a summary of the Capability Assessment Survey results for the MEMA District 8 Region with regard to relevant staff and personnel resources. A checkmark (✓) indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill.

TABLE 7.4: RELEVANT STAFF / PERSONNEL RESOURCES

Staff / Personnel Resource	COVINGTON COUNTY	Collins	Mount Olive	Seminary	FORREST COUNTY	Hattiesburg	Petal	JEFFERSON DAVIS COUNTY	Bassfield	Prentiss	JONES COUNTY	Ellisville	Laurel	Sandersville	Soso	MARION COUNTY	Columbia	PERRY COUNTY	Beaumont	New Augusta	Richton	WAYNE COUNTY	State Line	Waynesboro
Planners with knowledge of land development / land management practices					✓	✓	✓				✓		✓					✓						

Staff / Personnel Resource	COVINGTON COUNTY	Collins	Mount Olive	Seminary	FORREST COUNTY	Hattiesburg	Petal	JEFFERSON DAVIS COUNTY	Bassfield	Prentiss	JONES COUNTY	Ellisville	Laurel	Sandersville	Soso	MARION COUNTY	Columbia	PERRY COUNTY	Beaumont	New Augusta	Richton	WAYNE COUNTY	State Line	Waynesboro
Engineers or professionals trained in construction practices related to buildings and/or infrastructure	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Planners or engineers with an understanding of natural and/or human-caused hazards	✓				✓	✓	✓				✓	✓	✓	✓	✓			✓	✓			✓	✓	✓
Emergency Manager	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Floodplain Manager	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓
Land Surveyors					✓	✓	✓											✓				✓	✓	✓
Scientists familiar with the hazards of the community	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Staff with education or expertise to assess the community's vulnerability to hazards	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Personnel skilled in GIS and/or HAZUS					✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Resource development staff or grant writers	✓	✓	✓	✓				✓	✓	✓	✓							✓						

Credit for having a floodplain manager was given to those jurisdictions that have a flood damage prevention ordinance, and therefore an appointed floodplain administrator, regardless of whether the appointee was dedicated solely to floodplain management. Credit was given for having a scientist familiar with the hazards of the community if a jurisdiction has a Cooperative Extension Service or Soil and Water Conservation Department. Credit was also given for having staff with education or expertise to assess the community's vulnerability to hazards if a staff member from the jurisdiction was a participant on the existing hazard mitigation plan's planning committee.

7.3.7 Fiscal Capability

The ability of a local government to take action is often closely associated with the amount of money available to implement policies and projects. This may take the form of outside grant funding awards or locally-based revenue and financing. The costs associated with mitigation policy and project implementation vary widely. In some cases, policies are tied primarily to staff time or administrative costs associated with the creation and monitoring of a given program. In other cases, direct expenses are linked to an actual project, such as the acquisition of flood-prone homes, which can require a substantial commitment from local, state, and federal funding sources.

The Capability Assessment Survey was used to capture information on the region's fiscal capability through the identification of locally available financial resources.

Table 7.5 provides a summary of the results for the MEMA District 8 Region with regard to relevant fiscal resources. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard mitigation purposes (including match funds for state and federal mitigation grant funds) according to the previous county hazard mitigation plans.

TABLE 7.5: RELEVANT FISCAL RESOURCES

Fiscal Tool / Resource	COVINGTON COUNTY	Collins	Mount Olive	Seminary	FORREST COUNTY	Hattiesburg	Petal	JEFFERSON DAVIS COUNTY	Bassfield	Prentiss	JONES COUNTY	Ellisville	Laurel	Sandersville	Soso	MARION COUNTY	Columbia	PERRY COUNTY	Beaumont	New Augusta	Richton	WAYNE COUNTY	State Line	Waynesboro
Capital Improvement Programming		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
Community Development Block Grants	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Special Purpose Taxes (or taxing districts)						✓																✓	✓	✓
Gas / Electric Utility Fees																						✓	✓	✓
Water / Sewer Fees																						✓	✓	✓
Stormwater Utility Fees						✓																		
Development Impact Fees																								
General Obligation, Revenue, and/or Special Tax Bonds					✓	✓	✓															✓	✓	✓

Fiscal Tool / Resource	COVINGTON COUNTY	Collins	Mount Olive	Seminary	FORREST COUNTY	Hattiesburg	Petal	JEFFERSON DAVIS COUNTY	Bassfield	Prentiss	JONES COUNTY	Ellisville	Laurel	Sandersville	Soso	MARION COUNTY	Columbia	PERRY COUNTY	Beaumont	New Augusta	Richton	WAYNE COUNTY	State Line	Waynesboro
Partnering Arrangements or Intergovernmental Agreements	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

7.3.8 Political Capability

One of the most difficult capabilities to evaluate involves the political will of a jurisdiction to enact meaningful policies and projects designed to reduce the impact of future hazard events. Hazard mitigation may not be a local priority or may conflict with or be seen as an impediment to other goals of the community, such as growth and economic development. Therefore, the local political climate must be considered in designing mitigation strategies as it could be the most difficult hurdle to overcome in accomplishing their adoption and implementation.

The Capability Assessment Workshop was used to capture information on political capability of the MEMA District 8 Region. Previous county-level hazard mitigation plans were reviewed for general examples of local political capability, such as guiding development away from identified hazard areas, restricting public investments or capital improvements within hazard areas, or enforcing local development standards that go beyond minimum state or federal requirements (i.e., building codes, floodplain management, etc.).

- The previous county hazard mitigation plans identified existing ordinances that address natural hazards or are related to hazard mitigation, such as emergency management, comprehensive zoning, subdivision regulations, comprehensive land use plans, and flood zone ordinances.
- During the months immediately following a disaster, local public opinion in the region is more likely to shift in support of hazard mitigation efforts.

7.4Linking the Capability Assessment with the Risk Assessment and the Mitigation Strategy

The conclusions of the Risk Assessment and Capability Assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the HMC considered not only each jurisdiction's level of hazard risk, but also their existing capability to minimize or eliminate that risk.

SECTION 8

MITIGATION STRATEGY

This section of the Plan provides the blueprint for the participating jurisdictions in the MEMA District 8 Region to follow in order to become less vulnerable to its identified hazards. It is based on general consensus of the Regional Hazard Mitigation Council (RHMC) and the findings and conclusions of the *Capability Assessment* and *Risk Assessment*. It consists of the following five subsections:

- 8.1 Introduction
- 8.2 Mitigation Goals
- 8.3 Identification and Analysis of Mitigation Techniques
- 8.4 Selection of Mitigation Techniques for the MEMA District 8 Region
- 8.5 Plan Update Requirement

8.1 INTRODUCTION

The intent of the Mitigation Strategy is to provide the communities in the MEMA District 8 Region with the goals that will serve as guiding principles for future mitigation policy and project administration, along with an analysis of mitigation techniques deemed available to meet those goals and reduce the impact of identified hazards. It is designed to be comprehensive, strategic, and functional in nature:

- In being *comprehensive*, the development of the strategy includes a thorough review of all hazards and identifies extensive mitigation measures intended to not only reduce the future impacts of high risk hazards, but also to help the region achieve compatible economic, environmental, and social goals.
- In being *strategic*, the development of the strategy ensures that all policies and projects proposed for implementation are consistent with pre-identified, long-term planning goals.
- In being *functional,* each proposed mitigation action is linked to established priorities and assigned to specific departments or individuals responsible for their implementation with target completion deadlines. When necessary, funding sources are identified that can be used to assist in project implementation.

The first step in designing the Mitigation Strategy includes the identification of mitigation goals. Mitigation goals represent broad statements that are achieved through the implementation of more specific mitigation actions. These actions include both hazard mitigation policies (such as the regulation of land in known hazard areas through a local ordinance) and hazard mitigation projects that seek to address specifically targeted hazard risks (such as the acquisition and relocation of a repetitive loss structure).

The second step involves the identification, consideration, and analysis of available mitigation measures to help achieve the identified mitigation goals. This is a long-term, continuous process sustained through the development and maintenance of this Plan. Alternative mitigation measures will continue

to be considered as future mitigation opportunities are identified, as data and technology improve, as mitigation funding becomes available, and as this Plan is maintained over time.

The third and last step in designing the Mitigation Strategy is the selection and prioritization of specific mitigation actions for the communities in the MEMA District 8 Region (provided separately in Section 9: *Mitigation Action Plan*). Each county and participating jurisdiction has its own Mitigation Action Plan (MAP) that reflects the needs and concerns of that jurisdiction. The MAP represents an unambiguous and functional plan for action and is considered to be the most essential outcome of the mitigation planning process.

The MAP includes a prioritized listing of proposed hazard mitigation actions (policies and projects) for the MEMA District 8 counties and jurisdictions to complete. Each action has accompanying information, such as those departments or individuals assigned responsibility for implementation, potential funding sources, and an estimated target date for completion. The MAP provides those departments or individuals responsible for implementing mitigation actions with a clear roadmap that also serves as an important tool for monitoring success or progress over time. The cohesive collection of actions listed in the MAP can also serve as an easily understood menu of mitigation policies and projects for those local decision makers who want to quickly review the recommendations and proposed actions of the Regional Hazard Mitigation Plan.

In preparing each Mitigation Action Plan for the MEMA District 8 Region, officials considered the overall hazard risk and capability to mitigate the effects of hazards as recorded through the risk and capability assessment process, in addition to meeting the adopted mitigation goals and unique needs of the community.

8.1.1 Mitigation Action Prioritization

In the previous versions of MEMA District 8 county plans, not all actions were prioritized. In addition, there needed to be consistency among the counties and jurisdiction regarding how they prioritized their actions. Therefore, for the 2013 MEMA District 8 Regional plan, the RHMC members were tasked with establishing a priority for each action. Prioritization of the proposed mitigation actions was based on the following six factors:

- Effect on overall risk to life and property
- Ease of implementation
- Political and community support
- A general economic cost/benefit review[1]
- Funding availability
- Continued compliance with the NFIP

[1] Only a general economic cost/benefit review was considered by the RHMC through the process of selecting and prioritizing mitigation actions. Mitigation actions with "high" priority were determined to be the most cost effective and most compatible with the participating jurisdictions' unique needs. A more detailed cost/benefit analysis will be applied to particular projects prior to the application for or obligation of funding, as appropriate.

The point of contact for each county helped coordinate the prioritization process by reviewing each action and working with the lead agency/department responsible to determine a priority for each action using the six factors listed above.

Using these criteria, actions were classified as high, moderate, or low priority by the participating jurisdiction officials.

8.2 MITIGATION GOALS

44 CFR Requirement
44 CFR Part 201.6(c)(3)(i): The mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

The primary goal of all local governments is to promote the public health, safety, and welfare of its citizens. In keeping with this standard, the MEMA District 8 counties and the participating municipalities have developed five goal statements for local hazard mitigation planning in the region. In developing these goals, the previous six county hazard mitigation plans were reviewed to determine areas of consistency. The project consultant reviewed the goals from each of the six existing plans that were combined to form this regional plan. Many of the goals were similar and, therefore, regional goals were formulated based on commonalities found between the goals in each plan. **Table 8.1** provides a listing of all of the existing mitigation goals from the ten plans that are being combined. During Planning Committee Workshop it was determined to merge the goals from Forrest County into the existing MEMA District 8 Hazard Mitigation Plan goals. Table 8.1 shows the merge.

As a result of reviewing the existing goals, five proposed regional goals were presented to the Hazard Mitigation for their consideration. The proposed goals were reviewed, voted on, and accepted by the HMC at their second meeting. This process of combining goals from the previous plans served to highlight the planning process that had occurred in each county prior to joining this regional planning effort. Each goal, purposefully broad in nature, serves to establish parameters that were used in developing more mitigation actions. The MEMA District 8 Regional Mitigation Goals are presented in **Table 8.2**. Consistent implementation of actions over time will ensure that community goals are achieved.

TABLE 8.1: EXISTING MITIGATION GOALS

Proposed Goal	Forrest County
Provide **education** about potential hazards and risks and expand **awareness** of protective measures that can be taken to minimize the potential loss of life and damage to property.	Goal 1
Invest in community **facilities and infrastructure** to ensure the safety of individuals, reduce damage to public buildings, and ensure continuity of emergency services.	Goal 2

Enhance **preparedness and effective response** to technological or transportation hazards.	Goal 3
Enhance and improve the ability to **mitigate potential loss of revenue from civil hazards**.	Goal 4
Maintain unique **quality of life and environmental attributes** that protect the community from hazards.	Goal 5

TABLE 8.2: MEMA DISTRICT 8 REGIONAL MITIGATION GOALS

	Goal
Goal #1	Develop a sustainable, comprehensive mitigation program to ensure safer communities.
Goal #2	Reduce or avoid loss of life, injury, and damage to property, the economy, and the environment.
Goal #3	Enhance preparedness and effective response to hazards.
Goal #4	Strengthen and improve local mitigation capabilities.
Goal #5	Increase public awareness of hazard mitigation, hazard risk, and protective measures that can be taken to minimize potential loss and damage.

8.3 IDENTIFICATION AND ANALYSIS OF MITIGATION TECHNIQUES

44 CFR Requirement

44 CFR Part 201.6(c)(3)(ii): The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effect of each hazard, with particular emphasis on new and existing buildings and infrastructure.

In formulating the Mitigation Strategy for the MEMA District 8 Region, a wide range of activities were considered in order to help achieve the established mitigation goals, in addition to addressing any specific hazard concerns. These activities were discussed during the MEMA District 8 Regional Hazard Mitigation Planning meetings. In general, all activities considered by the RHMC can be classified under one of the following six (6) broad categories of mitigation techniques: Prevention, Property Protection, Natural Resource Protection, Structural Projects, Emergency Services, and Public Awareness and Education. These are discussed in detail below.

8.3.1 Prevention

Preventative activities are intended to keep hazard problems from getting worse, and are typically administered through government programs or regulatory actions that influence the way land is developed and buildings are built. They are particularly effective in reducing a community's future

vulnerability, especially in areas where development has not occurred or capital improvements have not been substantial. Examples of preventative activities include:

- Planning and zoning
- Building codes
- Open space preservation
- Floodplain regulations
- Stormwater management regulations
- Drainage system maintenance
- Capital improvements programming
- Riverine / fault zone setbacks

8.3.2 Property Protection

Property protection measures involve the modification of existing buildings and structures to help them better withstand the forces of a hazard, or removal of the structures from hazardous locations. Examples include:

- Acquisition
- Relocation
- Building elevation
- Critical facilities protection
- Retrofitting (e.g., windproofing, floodproofing, seismic design techniques, etc.)
- Safe rooms, shutters, shatter-resistant glass
- Insurance

8.3.3 Natural Resource Protection

Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas and their protective functions. Such areas include floodplains, wetlands, steep slopes, and sand dunes. Parks, recreation, or conservation agencies and organizations often implement these protective measures. Examples include:

- Floodplain protection
- Watershed management
- Riparian buffers
- Forest and vegetation management (e.g., fire resistant landscaping, fuel breaks, etc.)
- Erosion and sediment control
- Wetland preservation and restoration
- Habitat preservation
- Slope stabilization

8.3.4 Structural Projects

Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard event through construction. They are usually designed by engineers and managed or maintained by public works staff. Examples include:

- Reservoirs
- Dams / levees / dikes / floodwalls
- Diversions / detention / retention
- Channel modification
- Storm sewers

8.3.5 Emergency Services

Although not typically considered a "mitigation" technique, emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples include:

- Warning systems
- Evacuation planning and management
- Emergency response training and exercises
- Sandbagging for flood protection
- Installing temporary shutters for wind protection

8.3.6 Public Education and Awareness

Public education and awareness activities are used to advise residents, elected officials, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their property. Examples of measures to educate and inform the public include:

- Outreach projects
- Speaker series / demonstration events
- Hazard map information
- Real estate disclosure
- Library materials
- School children educational programs
- Hazard expositions

8.4 SELECTION OF MITIGATION TECHNIQUES FOR THE MEMA DISTRICT 8 REGION

In order to determine the most appropriate mitigation techniques for the communities in the MEMA District 8 Region, the RHMC members thoroughly reviewed and considered the findings of the *Capability Assessment* and *Risk Assessment* to determine the best activities for their respective communities. Other considerations included the effect of each mitigation action on overall risk to life and property, its ease of implementation, its degree of political and community support, its general cost-effectiveness, and funding availability (if necessary).

8.5 PLAN UPDATE REQUIREMENT

In keeping with FEMA requirements for plan updates, the Mitigation Actions identified in the previous MEMA District 8 county plans were evaluated to determine their 2020 implementation status. Updates on the implementation status of each action are provided. The mitigation actions provided in Section 9*: Mitigation Action Plan* include the mitigation actions from the previous plans as well as any new mitigation actions proposed through the 2020 planning process.

SECTION 9

MITIGATION ACTION PLAN

This section includes the listing of the mitigation actions proposed by the participating jurisdictions in MEMA District 8. It consists of the following two subsections:

- 9.1 Overview
- 9.2 Mitigation Action Plans

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44 CFR Requirement
44 CFR Part 201.6(c)(3)(iii): The mitigation strategy shall include 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.

9.1 OVERVIEW

As described in the previous section, the Mitigation Action Plan, or MAP, provides a functional plan of action for each jurisdiction. It is designed to achieve the mitigation goals established in Section 8: *Mitigation Strategy* and will be maintained on a regular basis according to the plan maintenance procedures established in Section 10: *Plan Maintenance*.

Each proposed mitigation action has been identified as an effective measure (policy or project) to reduce hazard risk for the MEMA District 8 Region. Each action is listed in the MAP in conjunction with background information such as hazard(s) addressed, relative priority, and estimated cost. Other information provided in the MAP includes potential funding sources to implement the action should funding be required (not all proposed actions are contingent upon funding). Most importantly, implementation mechanisms are provided for each action, including the designation of a lead agency or department responsible for carrying the action out as well as a timeframe for its completion. These implementation mechanisms ensure that the MEMA District 8 Regional Hazard Mitigation Plan remains a functional document that can be monitored for progress over time. The proposed actions are not listed in priority order, though each has been assigned a priority level of "high," "moderate," or "low" as described below and in Section 8 (page 8.2).

The Mitigation Action Plan is organized by mitigation strategy category (Prevention, Property Protection, Natural Resource Protection, Structural Projects, Emergency Services, or Public Education and Awareness). The following are the key elements described in the Mitigation Action Plan:

- Hazard(s) Addressed—Hazard which the action addresses.
- Relative Priority—High, moderate, or low priority as assigned by the jurisdiction.
- Funding Sources—Local, State, or Federal sources of funds are noted here, where applicable.
- Estimated Cost—Anticipated cost of the action.
- Responsible Party—Department responsible for undertaking the action.

- Target Completion Date—Date by which the action the action should be completed. More information is provided when possible.
- 2013 Action Implementation Status—Indication of completion, progress, deferment, or no change since the previous plan. If the action is new, that will be noted here.

9.2 MITIGATION ACTION PLANS

Covington County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	County	Annual plan review	Completed but ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA, County BOS	Ongoing	Completed but ongoing
P-3	Consider adoption of flood damage prevention ordinance in Covington County.	FL	High	Self-funded	No cost	County, County Floodplain Administrator	Ongoing	Implemented April 2008 ongoing implementation
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County	Ongoing	Ongoing
P-5	Continue to maintain and upgrade the County's drainage facilities.	HU, TS, FL, BH	High	Self-funded	Unknown	County BOS, County Road Crews	Annual review	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Deferred until funding can be allocated
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Deferred until funding can be allocated
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County	Within 2 years	Deferred until funding can be allocated
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County	Within 2 years	Deferred until funding can be allocated
P-10	Incorporate the hazard mitigation plan into the comprehensive emergency management plan.	All	Medium	N/A	No additional cost	County	Ongoing	Implemented and ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County	Ongoing	Implemented and ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County	Ongoing	Implemented and ongoing
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County	Within 2 years	Deferred until funding can be allocated
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Deferred
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Ongoing	Implemented and ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conversation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for MS Coastal Plain, County	Within 5 years	Deferred until funding can be allocated
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Ongoing	Implemented and ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS	Ongoing	Implemented and ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA, County	Within 2 years	Deferred until funding can be allocated
ES-4	Explore potential sites for a new shelter and/or special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	County, EMA, County	Within 2 years	Deferred until funding can be allocated

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-5	Improve disaster communication systems within the County.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Ongoing task
ES-6	Consider generators for local radio station service areas and /or other critical faciilities	TO, HU, TS	High	HMGP	Unknown	County EMA	Contingent upon funding	Contingent on funding
ES-7	Install warning sirens in the County.	TO, HU	High	HMGP	Unknown	County EMA	Contingent upon funding	Added two sirens FY '13 and added eight sirens in 2016. Action is ongoing.
ES-8	Enhance or upgrade emergency response communications or Central Dispatch and other communications equipment.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Planning upgrade 11 of 17. Action is ongoing.
ES-9	Explore upgrade/enhancement of 911 system in Covington County.	All	Medium	HMGP	Unknown	County EMA, County	Within 2 years; Contingent upon funding	Planning upgrade in 8 years
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, County	Within 5 years; Contingent upon funding	Deferred until funding becomes available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HGMP	Unknown	County	Ongoing	Implemented, Update critical facilities list on an annual basis
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	Implemented, FY'13 develop COOP/COG Plan. Revisions made in 2019. Maintained and ongoing action
ES-15	Host a meeting to review Covington County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County	Ongoing	Updated CEMP 2013. Newly adopted in 2019

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-16	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SFER, COPS, FIRE	Unknown	County	Ongoing	Implemented, as grants/funds become available
ES-17	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	County	Within 2 years	Implemented, as grants/funds become available
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County		Delete
SP-2	Acquisition / Demolition / Relocation or Elevation, Reconstruction of flood prone structures	FL	Medium	FEMA, MEMA,	TBD	County EMA	2024	New
SP-2	Individual Saferooms	TS, T	Medium	FEMA, MEMA	TBD	County EMA	2024	New

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	Range	Medium	Self-funded, MEMA	Low cost	County	Ongoing	Implemented, Started FY'09. Ongoing action
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	Implemented and ongoing
PEA-3	Encourage development of Family Disaster Plans.	All	High	Self-funded, COPS FIRE	Low or no cost	County EMA	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, County	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	N/A	No additional cost	County/Towns/City	Ongoing	Implemented, County/Towns/ City has adopted NFIP

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County	Within 3 years	Deferred
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	County	Ongoing	Implemented,, Education at EMA annual workshop. Ongoing action

FL = Flood HU = Hurricane TS = Tropical Storm TO = Tornado TH = Thunderstorm BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

County EMA = Covington County Emergency Management Agency County BOS = Covington County Board of Supervisors

City of Collins Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	County	Annual plan review	Completed but ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA, County BOS	Ongoing	Completed but ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No cost	County, County Floodplain Administrator	Ongoing	Implemented April 2008 ongoing implementation
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County	Ongoing	Ongoing
P-5	Continue to maintain and upgrade the County's drainage facilities.	HU, TS, FL, BH	High	Self-funded	Unknown	County BOS, County Road Crews	Annual review	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Deferred until funding can be allocated
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Deferred until funding can be allocated
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County, City	Within 2 years	Deferred until funding can be allocated
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County, City	Within 2 years	Deferred until funding can be allocated
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County, City	Ongoing	Implemented and ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County, City	Ongoing	Implemented and ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, City	Ongoing	Implemented and ongoing
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County, City	Within 2 years	Deferred until funding can be allocated
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County, City	Within 2 years; Next round of HMGP funding	Deferred
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, City	Ongoing	Implemented and ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conversation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for MS Coastal Plain, County, City	Within 5 years	Deferred until funding can be allocated
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Ongoing	Implemented and ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS, City	Ongoing	Implemented and ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA, City	Within 2 years	Deferred until funding can be allocated
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	County, EMA, City	Within 2 years	Deferred until funding can be allocated

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-5	Improve disaster communication systems within the County.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Ongoing task
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	HMGP	Unknown	County EMA	Contingent upon funding	Contingent on funding
ES-7	Install warning sirens in the County.	TO, HU	High	HMGP	Unknown	County EMA	Contingent upon funding	Added two sirens FY '13 and added eight sirens in 2016. Action is ongoing.
ES-8	Enhance Central Dispatch and other communications equipment.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Planning upgrade 11 of 17. Action is ongoing.
ES-9	Explore upgrade/enhancement of 911 system in Covington County.	All	Medium	HMGP	Unknown	County EMA, City	Within 2 years; Contingent upon funding	Planning upgrade in 8 years
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, City	Within 5 years; Contingent upon funding	Deferred until funding becomes available
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA, City	Ongoing	Implemented, Evacuation plans/maps available upon request

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HGMP	Unknown	County, City	Ongoing	Implemented, Update critical facilities list on an annual basis
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, City	Within 5 years; Annual review	Implemented, FY'13 develop COOP/COG Plan. Revisions made in 2019. Maintained and ongoing action
ES-15	Host a meeting to review Covington County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	City	Ongoing	Updated CEMP 2013. Newly adopted in 2019
ES-16	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SFER, COPS, FIRE	Unknown	County, City	Ongoing	Implemented, as grants/funds become available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-17	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	City	Within 2 years	Implemented, as grants/funds become available
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, City		Delete
SP-2	Acquisition / Demolition / Relocation or Elevation, Reconstruction of flood prone structures	FL	Medium	FEMA, MEMA,	TBD	County EMA	2024	New
SP-2	Individual Saferooms	TS, T	Medium	FEMA, MEMA	TBD	County EMA	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	Range	Medium	Self-funded, MEMA	Low cost	City	Ongoing	Implemented, Started FY'09. Ongoing action
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	Implemented and ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-3	Encourage development of Family Disaster Plans.	All	High	Self-funded, COPS FIRE	Low or no cost	County EMA	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, City	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	N/A	No additional cost	County/Towns/City	Ongoing	Implemented, County/Towns/ City has adopted NFIP
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, City	Within 3 years	Deferred

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	County, City	Ongoing	Implemented,, Education at EMA annual workshop. Ongoing action

FL = Flood HU = Hurricane TS = Tropical Storm TO = Tornado TH = Thunderstorm BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

County EMA = Covington County Emergency Management Agency County BOS = Covington County Board of Supervisors

Town of Mount Olive Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	Low to Medium	N/A	No additional costs	County, Town	Within 5 years	Annual plan review	Completed but ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Medium to High	Self-funded	No additional cost	County, Town	Within 2 years	Ongoing	Completed but ongoing
P-3	Strictly enforce the flood damage prevention ordinances.	High	Self-funded	No cost	County, Town	Within 2 years	Ongoing	Implemented April 2008 ongoing implementation
P-4	Consider adoption of subdivision regulations.	Medium	Self-funded	No additional cost	County, Town	Concurrent with prep. of Comp Plan	Ongoing	Ongoing
P-5	Continue to maintain and upgrade the County's drainage facilities.	Low to Medium	Self-funded	No cost	County, Town	Within 5 years	Annual review	Ongoing
P-6	Consider adoption of a comprehensive drainage plan.	Medium to High	Self-funded	No additional cost	County, Town	Within 2 years	Within 5 years	Deferred until funding can be allocated
P-7	Map the easements and rights-of-way of roadways and drainage ways.	High	CDBG, MSDA	Unknown	County, Town	Within 2 years	Within 5 years	Deferred until funding can be allocated

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-8	Support the development of a shared geographic data system for land use and site planning.	Medium	Self-funded	No additional cost	County, Town	Concurrent with prep. of Comp Plan	Within 2 years	Deferred until funding can be allocated
P-9	Develop a comprehensive development plan.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 2 years	Deferred until funding can be allocated
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium to High	Self-funded	No additional cost	County, Town	Ongoing	Implemented and ongoing
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County, Town	Ongoing	Implemented and ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, Town	Ongoing	Implemented and ongoing
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County, Town	Within 2 years	Deferred until funding can be allocated

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County, Town	Within 2 years; Next round of HMGP funding	Deferred
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Ongoing	Implemented and ongoing
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conversation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for MS Coastal Plain, County, Town	Within 5 years	Deferred until funding can be allocated
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Ongoing	Implemented and ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS, Town	Ongoing	Implemented and ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA, Town	Within 2 years	Deferred until funding can be allocated
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	County, EMA, Town	Within 2 years	Deferred until funding can be allocated
ES-5	Improve disaster communication systems within the County.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Ongoing task
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	HMGP	Unknown	County EMA	Contingent upon funding	Contingent on funding
ES-7	Install warning sirens in the County.	TO, HU	High	HMGP	Unknown	County EMA	Contingent upon funding	Added two sirens FY '13 and added eight sirens in 2016. Action is ongoing.
ES-8	Enhance Central Dispatch and other communications equipment.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Planning upgrade 11 of 17. Action is ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-9	Explore upgrade/enhancement of 911 system in Covington County.	All	Medium	HMGP	Unknown	County EMA, Town	Within 2 years; Contingent upon funding	Planning upgrade in 8 years
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, Town	Within 5 years; Contingent upon funding	Deferred until funding becomes available
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA, Town	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HGMP	Unknown	County, Town	Ongoing	Implemented, Update critical facilities list on an annual basis
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Within 5 years; Annual review	Implemented, FY'13 develop COOP/COG Plan. Revisions made in 2019. Maintained and ongoing action

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-15	Host a meeting to review Covington County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	Town	Ongoing	Updated CEMP 2013. Newly adopted in 2019
ES-16	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SFER, COPS, FIRE	Unknown	County, Town	Ongoing	Implemented, as grants/funds become available
ES-17	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	Town	Within 2 years	Implemented, as grants/funds become available
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town		Delete
SP-2	Acquisition / Demolition / Relocation or Elevation, Reconstruction of flood prone structures	FL	Medium	FEMA, MEMA,	TBD	County EMA	2024	New
SP-2	Individual Saferooms	TS, T	Medium	FEMA, MEMA	TBD	County EMA	2024	New

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	Range	Medium	Self-funded, MEMA	Low cost	Town	Ongoing	Implemented, Started FY'09. Ongoing action
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	Implemented and ongoing
PEA-3	Encourage development of Family Disaster Plans.	All	High	Self-funded, COPS FIRE	Low or no cost	County EMA	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, Town	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	N/A	No additional cost	County/Towns/City	Ongoing	Implemented, County/Towns/ City has adopted NFIP

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years	Deferred
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	County, Town	Ongoing	Implemented,, Education at EMA annual workshop. Ongoing action

FL = Flood HU = Hurricane TS = Tropical Storm TO = Tornado TH = Thunderstorm BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

County EMA = Covington County Emergency Management Agency County BOS = Covington County Board of Supervisors

Town of Seminary Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	County, Town	Annual plan review	Completed but ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA, County BOS, Town	Ongoing	Completed but ongoing
P-3	Strictly enforce the flood damage prevention ordinances.	FL	High	Self-funded	No cost	Town Floodplain Administrator	Ongoing	Implemented April 2008 ongoing implementation
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County, Town	Ongoing	Ongoing
P-5	Continue to maintain and upgrade the County's drainage facilities.	HU, TS, FL, BH	High	Self-funded	Unknown	County BOS, County Road Crews, Town	Annual review	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years	Deferred until funding can be allocated
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years	Deferred until funding can be allocated
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County, Town	Within 2 years	Deferred until funding can be allocated
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA		County, Town	Within 2 years	Deferred until funding can be allocated
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County, Town	Ongoing	Implemented and ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County, Town	Ongoing	Implemented and ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, Town	Ongoing	Implemented and ongoing
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County, Town	Within 2 years	Deferred until funding can be allocated
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County, Town	Within 2 years; Next round of HMGP funding	Deferred
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Ongoing	Implemented and ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conversation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for MS Coastal Plain, County, Town	Within 5 years	Deferred until funding can be allocated
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Ongoing	Implemented and ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS, Town	Ongoing	Implemented and ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA, Town	Within 2 years	Deferred until funding can be allocated
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	County, EMA, Town	Within 2 years	Deferred until funding can be allocated

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-5	Improve disaster communication systems within the County.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Ongoing task
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	HMGP	Unknown	County EMA	Contingent upon funding	Contingent on funding
ES-7	Install warning sirens in the County.	TO, HU	High	HMGP	Unknown	County EMA	Contingent upon funding	Added two sirens FY '13 and added eight sirens in 2016. Action is ongoing.
ES-8	Enhance Central Dispatch and other communications equipment.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Planning upgrade 11 of 17. Action is ongoing.
ES-9	Explore upgrade/enhancement of 911 system in Covington County.	All	Medium	HMGP	Unknown	County EMA, Town	Within 2 years; Contingent upon funding	Planning upgrade in 8 years
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, Town	Within 5 years; Contingent upon funding	Deferred until funding becomes available
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA, Town	Ongoing	Implemented, Evacuation plans/maps available upon request

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HGMP	Unknown	County, Town	Ongoing	Implemented, Update critical facilities list on an annual basis
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Within 5 years; Annual review	Implemented, FY'13 develop COOP/COG Plan. Revisions made in 2019. Maintained and ongoing action
ES-15	Host a meeting to review Covington County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	Town	Ongoing	Updated CEMP 2013. Newly adopted in 2019
ES-16	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SFER, COPS, FIRE	Unknown	County, Town	Ongoing	Implemented, as grants/funds become available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-17	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	Town	Within 2 years	Implemented, as grants/funds become available
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town		Delete
SP-2	Acquisition / Demolition / Relocation or Elevation, Reconstruction of flood prone structures	FL	Medium	FEMA, MEMA,	TBD	County EMA	2024	New
SP-2	Individual Saferooms	TS, T	Medium	FEMA, MEMA	TBD	County EMA	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	Range	Medium	Self-funded, MEMA	Low cost	Town	Ongoing	Implemented, Started FY'09. Ongoing action
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	Implemented and ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-3	Encourage development of Family Disaster Plans.	All	High	Self-funded, COPS FIRE	Low or no cost	County EMA	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, Town	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	N/A	No additional cost	County/Towns/City	Ongoing	Implemented, County/Towns/ City has adopted NFIP
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years	Deferred

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	County, Town	Ongoing	Implemented,, Education at EMA annual workshop. Ongoing action

FL = Flood HU = Hurricane TS = Tropical Storm TO = Tornado TH = Thunderstorm BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

County EMA = Covington County Emergency Management Agency County BOS = Covington County Board of Supervisors

Forrest County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	None needed	No additional cost	County	Annual review	Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	Emergency Management District, County	Within 1 year; Upon request	Ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	County Floodplain Administrator	Ongoing	Ongoing
P-4	Consider adoption of subdivision regulations in Forrest County.	TH, FL, HU, TS	High	Self-funded	No cost	County	Ongoing	Completed and Ongoing as Needed
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	Self-funded	Part of annual County budget	County BOS, County Road Crews	Annual review	Ongoing as Funding Is Available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	No additional cost	County	Within 5 years	The County is still considering this action/Ongoing
P-7	Map the easements and rights-of-way of roadways and drainage ways. **Goal 4 Action #2*	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	The County is still considering this action/Ongoing
P-8	Support the development of a shared geographic data system for land use and site planning. **Goal 4 Action #1*	All	High	Self-funded	No additional cost	County	Ongoing	Ongoing
P-9	Develop a comprehensive development plan. **Goal 1 Action #3*	All	Low	CDBG, MSDA	Unknown	County	Within 5 years	The County is still considering this action
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	CDBG, MSDA	No additional cost	County	Concurrent with prep. of Comp Plan	The County is still considering this action/Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-11	Address the threat of unhealthy trees that are near critical facilities. **Goal 1 Action #7*	High Winds, Winter Storms and Hail	Medium	Local funds and Grant Sources	T TBD	City Urban Forestry, Forrest County Road Department, Forrest County Planning Department and Emergency Management	Ongoing	Ongoing
P-12	Address the local need of debris removal and related items after a storm . **Goal 3 Action #1*	High Winds, Flooding, Landslides, Winter Storms, and Hail	High	HMGP and other grant sources	$500,000	Forrest County Road Department, Forrest County Planning Department and Emergency Management	Ongoing	Ongoing
P-13	Preserve classified, confidential and/or important governmental documents. **Goal 4 Action #3*	All Hazards	High	Local and Grant Sources	TBD	County	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	High	Self-funded	No additional cost $10,000,000-$15,000,000	County	Within 5 years	Two Completed and Ten Underway. Action is Ongoing
PP-2	Ensure that structures in floodplain areas are elevated. **Goal 1 Action #1*	FL	High	Self-funded	No additional cost	County	2024	New construction is regulated by the flood damage prevention ordinance. Existing structures in the flood zone that need to be elevated will be evaluated on a case by case basis pending funding and desire to be elevated. /Ongoing
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County	2024	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County	2024	Ongoing as funding becomes available
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	2024	Ongoing pending funding availability
PP-6	Actively pursue and buy those properties that are considered repetitive loss properties. **Goal 1 Action #4*	FL	High	HMGP, PDM, FMA Self-funded	TBD	County	2024	Ongoing
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust of MS Coastal Plain; County	2024	Ongoing pending funding availability

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	Emergency Management District	2024	Ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	Emergency Management District, County	Within 2 years	Ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters. **Goal 1 Action #8*	All	High	HMGP	Unknown	Emergency Management District, County	Within 2 years	Ongoing
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	Emergency Management District, County	Within 2 years	Ongoing
ES-5	Improve disaster communication systems within the County.	All	High	State, Federal, Local funds	Unknown	Emergency Management District, County	2024	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-6	Consider generators for local radio station service areas.	All	High	State, Federal funds	Unknown	Emergency Management District, County	Contingent upon funding	Ongoing
ES-7	Install warning sirens in each jurisdiction. **Goal 2 Action #3*	All	High	State, Federal, Local funds	Unknown	Emergency Management District, County	Contingent upon funding	Ongoing pending funding availability 5 Installed and Ongoing
ES-8	Explore upgrade/enhancement of 911 system in Forrest County.	All	Medium	HMGP	Unknown	Emergency Management District, County	Within 2 years; Contingent upon funding	Ongoing – contingent on funding Some Portions complete
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	Emergency Management District, County	Ongoing	Completed pending upgrades
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, Emergency Management District	Within 2 years	Ongoing
ES-11	Enhance identification of evacuation routes through distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	Emergency Management District	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-12	Ensure continuity of utility services for public buildings and other critical facilities. **Goal 1 Action #2*	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Ongoing – contingent on funding
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	Ongoing – contingent on funding
ES-14	Host a meeting to review Forrest County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	Emergency Management District, County	Ongoing	Completed
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	Ongoing – contingent on funding. Added paid firemen and approximately five fire trucks for Districts 2, 3, and 5.
ES-16	Adoption of building codes in Forrest County. **Goal 1 Action #5*	All Hazards	Medium	Local	TBD	County	2025	Deferred

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County	Within 2 years	Ongoing as needed
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County	Within 2 years	Ongoing – contingent on funding
PEA-2	Provide education and outreach materials to citizens and visitors. **Goal 2 Action #2*	All	High	Self-funded	No cost	Emergency Management District	Within 1 year	Ongoing – contingent on funding
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	Emergency Management District	Annual presentations	Ongoing – contingent on funding
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	Emergency Management District, County	Upon request	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program. **Goal 2 Action #1*	FL	High	Self-funded	N/A	Emergency Management District, County	Ongoing	The County continues to participate in the NFIP and encourages the jurisdictions within the County to also join.
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County	Within 3 years	The County is still considering joining the CRS.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	Medium	DHS, SAFER, COPS, FIRE, Others	TBD	County	Within 2 years	Ongoing – contingent on funding
PEA-8	Discourage development within the Special Flood Hazard Area and in the floodway. **Goal 1 Action #6*	Flood	Medium	HMGP	TBD	County	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards JDCEMA = Forrest County Emergency Management Agency County BOS = Forrest County Board of Supervisors **Denotes Action item from 2013 Forrest County HMP, no numbering methodology was utilized in the 2013 planning process, numbers were assigned based on Goal and associated action item on pages 5-2 and 5-3.*								

Town of Hattiesburg Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	Self-funded	No additional cost	County, Town Emergency Management District	Annual review	Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	No additional cost	Emergency Management District, County, Town	Within 1 year; Upon request	Ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	Town Floodplain Administrator	Ongoing	Ongoing
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	FL	High	Self-funded	No additional cost	Town	Ongoing	Completed and Ongoing as Needed
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	Self-funded	Budget restraints	County BOS, County Road Crews, Town	Annual review	Ongoing as Funding Is Available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years	The Town is still considering this action/Ongoing
P-7	Map the easements and rights-of-way of roadways and drainage ways. **Goal 4 Action #2*	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years	The Town is still considering this action/Ongoing
P-8	Support the development of a shared geographic data system for land use and site planning. **Goal 4 Action #1*	All	Medium to High	Self-funded	No additional cost	County, Town	Ongoing	Ongoing
P-9	Develop a comprehensive development plan. **Goal 1 Action #3*	All	High	CDBG, MSDA	Unknown	County, Town, Emergency Management District	Within 5 years	The Town is still considering this action

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	Self-funded	No additional cost	County, Town, Emergency Management District	Concurrent with prep. of Comp Plan	Complete and Ongoing
P-11	Address the threat of unhealthy trees that are near critical facilities. **Goal 1 Action #7*	High Winds, Winter Storms and Hail	Medium	Local funds and Grant Sources	T TBD	City Urban Forestry, Forrest County Road Department, Forrest County Planning Department and Emergency Management	Ongoing	Ongoing
P-12	Address the local need of debris removal and related items after a storm . **Goal 3 Action #1*	High Winds, Flooding, Landslides, Winter Storms, and Hail	High	HMGP and other grant sources	$500,000	Forrest County Road Department, Forrest County Planning Department and Emergency Management	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-13	Preserve classified, confidential and/or important governmental documents. **Goal 4 Action #3*	All Hazards	High	Local and Grant Sources	TBD	County and City	Ongoing	Ongoing
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County, Town	Within 5 years	Two Completed and Ten Underway. Action is Ongoing
PP-2	Ensure that structures in floodplain areas are elevated. **Goal 1 Action #1*	FL	High	Self-funded	No additional cost	County, Town	2024	New construction is regulated by the flood damage prevention ordinance. Existing structures in the flood zone that need to be elevated will be evaluated on a case by case basis pending funding and desire to be elevated. /Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County, Town	2024	Ongoing
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Budget restraints	County, Town	2024	Ongoing as funding becomes available
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	2024	Ongoing pending funding availability
PP-6	Actively pursue and buy those properties that are considered repetitive loss properties. **Goal 1 Action #4*	FL	High	HMGP, PDM, FMA Self-funded	TBD	County	2024	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust of MS Coastal Plain; County, Town	2024	Ongoing pending funding availability
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	Emergency Management District	2024	Ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	Emergency Management District, Town	Within 2 years	Ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters. **Goal 1 Action #8*	All	High	HMGP	Unknown	Emergency Management District, County, Town	Within 2 years	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	Emergency Management District, County, Town	Within 2 years	Ongoing
ES-5	Improve disaster communication systems within the County.	All	High	State, Federal, Local funds	Unknown	Emergency Management District, County	2024	Ongoing
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	State, Federal funds	Unknown	Emergency Management District, County	Contingent upon funding	Ongoing
ES-7	Install warning sirens in each jurisdiction. **Goal 2 Action #3*	TO, HU, TS	High	State, Federal, Local funds	Unknown	Emergency Management District, County	Contingent upon funding	Ongoing pending funding availability 5 Installed and Ongoing
ES-8	Explore upgrade/enhancement of 911 system in Forrest County.	All	Medium	HMGP	Unknown	Emergency Management District, County, Town	Within 2 years; Contingent upon funding	Ongoing – contingent on funding Some Portions complete
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	Emergency Management District, County, Town	Ongoing	Completed pending upgrades

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, Emergency Management District, Town	Within 2 years	Ongoing
ES-11	Enhance identification of evacuation routes through distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	Emergency Management District	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities. **Goal 1 Action #2*	All	High	HMGP	No additional costs	County, Town	Within 2 years; Next round of HMGP funding	Ongoing – contingent on funding
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town, Emergency Management District	Within 5 years; Annual review	Ongoing – contingent on funding
ES-14	Host a meeting to review Forrest County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County, Town, Emergency Management District	Ongoing	Completed

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	Ongoing – contingent on funding. Added paid firemen and approximately five fire trucks for Districts 2, 3, and 5.
ES-16	Adoption of building codes in Forrest County. **Goal 1 Action #5*	All Hazards	Medium	Local	TBD	County and City	2025	Deferred
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years	Ongoing as needed
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County, Town	Within 2 years	Ongoing – contingent on funding
PEA-2	Provide education and outreach materials to citizens and visitors. **Goal 2 Action #2*	All	High	Self-funded	No cost	Emergency Management District	Within 1 year	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	Emergency Management District	Annual presentations	Ongoing – contingent on funding
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County, Town	Upon request	Ongoing – contingent on funding
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program. **Goal 2 Action #1*	FL	High	Self-funded	N/A	County	Ongoing	The County continues to participate in the NFIP and encourages the jurisdictions within the County to also join.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years	The County is still considering joining the CRS.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Within 2 years	Ongoing – contingent on funding
PEA-8	Discourage development within the Special Flood Hazard Area and in the floodway. **Goal 1 Action #6*	Flood	Medium	HMGP	TBD	County and City	Ongoing	Ongoing

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

JDCEMA = Forrest County Emergency Management Agency County BOS = Forrest County Board of Supervisors
**Denotes Action item from 2013 Forrest County HMP, no numbering methodology was utilized in the 2013 planning process, numbers were assigned based on Goal and associated action item on pages 5-2 and 5-3.*

Town of Petal Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	None needed	No additional cost	County	Annual review	Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	JDCEMA, County	Within 1 year; Upon request	Ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	County Floodplain Administrator	Ongoing	Ongoing
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	TH, FL, HU, TS	High	Self-funded	No cost	County	Ongoing	Completed and Ongoing as Needed
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	Self-funded	Part of annual County budget	County BOS, County Road Crews	Annual review	Ongoing as Funding Is Available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	No additional cost	County	Within 5 years	The Town is still considering this action/Ongoing
P-7	Map the easements and rights-of-way of roadways and drainage ways. **Goal 4 Action #2*	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	The Town is still considering this action/Ongoing
P-8	Support the development of a shared geographic data system for land use and site planning. **Goal 4 Action #1*	All	Medium to High	Self-funded	No additional cost	County	Ongoing	Ongoing
P-9	Update the existing Petal Comprehensive Development Plan. **Goal 1 Action #3*	All	High	CDBG, MSDA	Unknown	County	Within 5 years	The Town is still considering this action
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	CDBG, MSDA	No additional cost	County	Concurrent with prep. of Comp Plan	The Town is still considering this action/Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-11	Address the threat of unhealthy trees that are near critical facilities. **Goal 1 Action #7*	High Winds, Winter Storms and Hail	Medium	Local funds and Grant Sources	T TBD	City Urban Forestry, Forrest County Road Department, Forrest County Planning Department and Emergency Management	Ongoing	Ongoing
P-12	Address the local need of debris removal and related items after a storm . **Goal 3 Action #1*	High Winds, Flooding, Landslides, Winter Storms, and Hail	High	HMGP and other grant sources	$500,000	Forrest County Road Department, Forrest County Planning Department and Emergency Management	Ongoing	Ongoing
P-13	Preserve classified, confidential and/or important governmental documents. **Goal 4 Action #3*	All Hazards	High	Local and Grant Sources	TBD	County and City	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-14	Provide first responders in Petal with necessary equipment and training to respond to gas plant disasters. **Goal 3 Action #2*	HAZMAT	High	HMGP	$850,000	City of Petal Fire Department	Ongoing	Ongoing
P-15	Develop a police response unit in Petal designed to deter acts of terrorism. **Goal 3 Action #3*	Terrorism	High	Grant Sources	TBD	City of Petal Fire Department	Ongoing	Ongoing
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	HU, TS, TO, TH	Medium	Self-funded	No additional cost	Within 5 years	Two Completed and Ten Underway. Action is Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-2	Ensure that structures in floodplain areas are elevated. **Goal 1 Action #1*	FL	FL	High	Self-funded	No additional cost	2024	New construction is regulated by the flood damage prevention ordinance. Existing structures in the flood zone that need to be elevated will be evaluated on a case by case basis pending funding and desire to be elevated. /Ongoing
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	HU, TS, TO, HW	High	Self-funded	No additional cost	2024	Ongoing
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	All	High	HMGP	Unknown	2024	Ongoing as funding becomes available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	2024	Ongoing pending funding availability
PP-6	Actively pursue and buy those properties that are considered repetitive loss properties. **Goal 1 Action #4*	FL	High	HMGP, PDM, FMA Self-funded	TBD	County	2024	Ongoing
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust of MS Coastal Plain; County, Town	2024	Ongoing pending funding availability

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	JDCEMA	2024	Ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	JDCEMA, County	Within 2 years	Ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters. **Goal 1 Action #8*	All	High	HMGP	Unknown	JDCEMA, County	Within 2 years	Ongoing
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	JDCEMA, County	Within 2 years	Ongoing
ES-5	Improve disaster communication systems within the County.	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	2024	Ongoing
ES-6	Consider generators for local radio station service areas.	All	High	State, Federal funds	Unknown	JDCEMA, County	Contingent upon funding	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-7	Install warning sirens in each jurisdiction. **Goal 2 Action #3*	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	Contingent upon funding	Ongoing pending funding availability 5 Installed and Ongoing
ES-8	Explore upgrade/enhancement of 911 system in Forrest County.	All	Medium	HMGP	Unknown	JDCEMA, County	Within 2 years; Contingent upon funding	Ongoing – contingent on funding Some Portions complete
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	JDCEMA, County	Ongoing	Completed pending upgrades
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, JDCEMA	Within 2 years	Ongoing
ES-11	Enhance identification of evacuation routes through distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	JDCEMA	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities. **Goal 1 Action #2*	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	Ongoing – contingent on funding
ES-14	Host a meeting to review Forrest County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County	Ongoing	Completed
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	Ongoing – contingent on funding. Added paid firemen and approximately five fire trucks for Districts 2, 3, and 5.
ES-16	Adoption of building codes in Forrest County. **Goal 1 Action #5*	All Hazards	Medium	Local	TBD	County and City	2025	Deferred

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years	Ongoing as needed
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County, Town	Within 2 years	Ongoing – contingent on funding
PEA-2	Provide education and outreach materials to citizens and visitors. **Goal 2 Action #2*	All	High	Self-funded	No cost	JDCEMA	Within 1 year	Ongoing – contingent on funding
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	JDCEMA	Annual presentations	Ongoing – contingent on funding
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	JDCEMA, County, Town	Upon request	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program. **Goal 2 Action #1*	FL	High	Self-funded	N/A	Town	Ongoing	The County continues to participate in the NFIP and encourages the jurisdictions within the County to also join.
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years	The County is still considering joining the CRS.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Within 2 years	Ongoing – contingent on funding
PEA-8	Discourage development within the Special Flood Hazard Area and in the floodway. **Goal 1 Action #6*	Flood	Medium	HMGP	TBD	County and City	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards JDCEMA = Forrest County Emergency Management County BOS = Forrest County Board of Supervisors **Denotes Action item from 2013 Forrest County HMP, no numbering methodology was utilized in the 2013 planning process, numbers were assigned based on Goal and associated action item on pages 5-2 and 5-3.*								

Jefferson Davis County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	None needed	No additional cost	County	Annual review	Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	JDCEMA, County	Annual review	Ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	County Floodplain Administrator	Ongoing	Ongoing
P-4	Consider adoption of subdivision regulations in Jefferson Davis County.	TH, FL, HU, TS	High	Self-funded	No cost	County	2024	Ongoing
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	Self-funded	Part of annual County budget	County BOS, County Road Crews	Annual review	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	No additional cost	County	Within 5 years	The County is still considering this action
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	The County is still considering this action
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County	2024	Ongoing
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County	Within 2 years	The County is still considering this action
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	CDBG, MSDA	No additional cost	County	Concurrent with prep. of Comp Plan	Pending status change in action P-9

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County	Within 5 years	Pending funding availability
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County	Within 3 years	Ongoing/New construction is regulated by the flood damage prevention ordinance. Existing structures in the flood zone that need to be elevated will be evaluated on a case by case basis pending funding and desire to be elevated.
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County	Annual Review	Ongoing/Pending Funding availability

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Ongoing as funding becomes available
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Next round of HMGP funding	Ongoing pending funding availability
PP-6	Property Acquisitions and elevations of flood prone structures	FL	Medium	FEMA, HMGP, PDM	N/A	County	2024	New
PP-7	Construct new multipurpose EOC facility to serve as EOC and safe room for emergency personnel during disaster situations.	All Hazards	High	FEMA, HMGP, PGM Local Sources	$3,000,000- $10,000.00	County	2024	New
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust of MS Coastal Plain; County	Within 5 years	Ongoing pending funding availability

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	JDCEMA	Annual Review	Ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	JDCEMA, County	Ongoing	Completed/Ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	JDCEMA, County	Annual Review	Ongoing
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	JDCEMA, County	Completed	Completed/Ongoing
ES-5	Improve disaster communication systems within the County.	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	Ongoing	Ongoing Pending Funding
ES-6	Consider generators for local radio station service areas.	All	High	State, Federal funds	Unknown	JDCEMA, County	Contingent upon funding	Deferred. No radio station within the county as of the last year.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-7	Install warning sirens in each jurisdiction.	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	Contingent upon funding	Ongoing pending funding availability 2 sites have been completed in 2018
ES-8	Explore upgrade/enhancement of 911 system in Jefferson Davis County.	All	Medium	HMGP	Unknown	JDCEMA, County Sheriff	Contingent upon funding	Ongoing – contingent on funding
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	JDCEMA, County Sheriff	Contingent upon funding	Ongoing – contingent on funding
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, JDCEMA	Annual Review	Ongoing
ES-11	Enhance identification of evacuation routes through distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	JDCEMA	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Ongoing – contingent on funding	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	Ongoing – contingent on funding
ES-14	Host a meeting to review Jefferson Davis County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County	Annual Review	Ongoing as needed
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	Ongoing – contingent on funding
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County	Within 2 years	Ongoing as needed
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County	Ongoing	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	JDCEMA	Ongoing	Ongoing – contingent on funding
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	JDCEMA	Annual presentations	Ongoing – contingent on funding
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	JDCEMA, County	Upon request	Ongoing – contingent on funding
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	N/A	JDCEMA, County	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County	Ongoing	The County is still considering joining the CRS.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	DHS, SAFER, COPS, FIRE, Others		County	Ongoing	Ongoing – contingent on funding
PEA-8	Develop/encourage water conservation measures during times of shortage	Drought	Medium	HMGP	N/A	County	2024	New

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

JDCEMA = Jefferson Davis County Emergency Management Agency County BOS = Jefferson Davis County Board of Supervisors

Town of Bassfield Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	Self-funded	No additional cost	County, Town	Annual review	Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	No additional cost	JDCEMA, County, Town	Annual review	Ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	Town Floodplain Administrator	Ongoing	Ongoing
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	FL	High	Self-funded	No additional cost	Town	2024	Ongoing
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	Self-funded	Budget restraints	County BOS, County Road Crews, Town	Annual review	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years	The County is still considering this action
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years	The County is still considering this action
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County, Town	2024	Ongoing
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County, Town	Within 2 years	The County is still considering this action
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	Self-funded	No additional cost	County, Town	Concurrent with prep. of Comp Plan	Pending status change in action P-9

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County, Town	Within 5 years	Pending funding availability
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, Town	Within 3 years	Ongoing/New construction is regulated by the flood damage prevention ordinance. Existing structures in the flood zone that need to be elevated will be evaluated on a case by case basis pending funding and desire to be elevated.
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County, Town	Annual Review	Ongoing/Pending Funding availability

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Budget restraints	County, Town	Within 2 years; Next round of HMGP funding	Ongoing as funding becomes available
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Within 5 years; Next round of HMGP funding	Ongoing pending funding availability
PP-6	Property Acquisitions and elevations of flood prone structures	FL	Medium	FEMA, HMGP, PDM	N/A	County	2024	New
PP-7	Construct new multipurpose EOC facility to serve as EOC and safe room for emergency personnel during disaster situations.	All Hazards	High	FEMA, HMGP, PGM Local Sources	$3,000,000- $10,000.00	County	2024	New
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust of MS Coastal Plain; County, Town	Within 5 years	Ongoing pending funding availability

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	JDCEMA	Annual Review	Ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	JDCEMA, Town	Ongoing	Completed/Ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	JDCEMA, County, Town	Annual Review	Ongoing
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	JDCEMA, County, Town	Completed	Completed/Ongoing
ES-5	Improve disaster communication systems within the County.	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	Ongoing	Ongoing Pending Funding
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	State, Federal funds	Unknown	JDCEMA, County	Contingent upon funding	Deferred. No radio station within the county as of the last year.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-7	Install warning sirens in each jurisdiction.	TO, HU, TS	High	State, Federal, Local funds	Unknown	JDCEMA, County	Contingent upon funding	Ongoing pending funding availability 2 sites have been completed in 2018
ES-8	Explore upgrade/enhancement of 911 system in Jefferson Davis County.	All	Medium	HMGP	Unknown	JDCEMA, County, Town	Contingent upon funding	Ongoing – contingent on funding
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	JDCEMA, County, Town	Contingent upon funding	Ongoing – contingent on funding
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, JDCEMA, Town	Annual Review	Ongoing
ES-11	Enhance identification of evacuation routes through distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	JDCEMA	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	No additional costs	County, Town	Ongoing – contingent on funding	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Within 5 years; Annual review	Ongoing – contingent on funding
ES-14	Host a meeting to review Jefferson Davis County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County, Town	Annual Review	Ongoing as needed
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	Ongoing – contingent on funding
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years	Ongoing
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County, Town	Ongoing	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	JDCEMA	Ongoing	Ongoing – contingent on funding
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	JDCEMA	Annual presentations	Ongoing – contingent on funding
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	JDCEMA, County, Town	Upon request	Ongoing – contingent on funding
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	N/A	JDCEMA, County	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Ongoing	The County is still considering joining the CRS.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	Ongoing – contingent on funding
PEA-8	Develop/encourage water conservation measures during times of shortage	Drought	Medium	HMGP	N/A	County	2024	New

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

JDCEMA = Jefferson Davis County Emergency Management Agency County BOS = Jefferson Davis County Board of Supervisors

Town of Prentiss Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	None needed	No additional cost	County	Annual review	Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	JDCEMA, County	Annual review	Ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	County Floodplain Administrator	Ongoing	Ongoing
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	TH, FL, HU, TS	High	Self-funded	No cost	County	2024	Ongoing
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	Self-funded	Part of annual County budget	County BOS, County Road Crews	Annual review	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	No additional cost	County	Within 5 years	The County is still considering this action
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	The County is still considering this action
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County	2024	Ongoing
P-9	Update the existing Prentiss Comprehensive Development Plan.	All	High	CDBG, MSDA	Unknown	County	Within 2 years	The County is still considering this action
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	CDBG, MSDA	No additional cost	County	Concurrent with prep. of Comp Plan	Pending status change in action P-9

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	HU, TS, TO, TH	Medium	Self-funded	No additional cost	Within 5 years	Pending funding availability
PP-2	Ensure that structures in floodplain areas are elevated.	FL	FL	High	Self-funded	No additional cost	Within 3 years	Ongoing/New construction is regulated by the flood damage prevention ordinance. Existing structures in the flood zone that need to be elevated will be evaluated on a case by case basis pending funding and desire to be elevated.
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	HU, TS, TO, HW	High	Self-funded	No additional cost	Annual Review	Ongoing/Pending Funding availability

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	All	High	HMGP	Unknown	Within 2 years; Next round of HMGP funding	Ongoing as funding becomes available
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Within 5 years; Next round of HMGP funding	Ongoing pending funding availability
PP-6	Property Acquisitions and elevations of flood prone structures	FL	Medium	FEMA, HMGP, PDM	N/A	County	2024	New
PP-7	Construct new multipurpose EOC facility to serve as EOC and safe room for emergency personnel during disaster situations.	All Hazards	High	FEMA, HMGP, PGM Local Sources	$3,000,000- $10,000.00	County	2024	New
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust of MS Coastal Plain; County, Town	Within 5 years	Ongoing pending funding availability

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	JDCEMA	Annual Review	Ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	JDCEMA, County	Ongoing	Completed/Ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	JDCEMA, County	Annual Review	Ongoing
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	JDCEMA, County	Completed	Completed/Ongoing
ES-5	Improve disaster communication systems within the County.	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	Ongoing	Ongoing Pending Funding
ES-6	Consider generators for local radio station service areas.	All	High	State, Federal funds	Unknown	JDCEMA, County	Contingent upon funding	Deferred. No radio station within the county as of the last year.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-7	Install warning sirens in each jurisdiction.	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	Contingent upon funding	Ongoing pending funding availability 2 sites have been completed in 2018
ES-8	Explore upgrade/enhancement of 911 system in Jefferson Davis County.	All	Medium	HMGP	Unknown	JDCEMA, County	Contingent upon funding	Ongoing – contingent on funding
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	JDCEMA, County	Contingent upon funding	Ongoing – contingent on funding
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, JDCEMA	Annual Review	Ongoing
ES-11	Enhance identification of evacuation routes through distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	JDCEMA	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Ongoing – contingent on funding	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	Ongoing – contingent on funding
ES-14	Host a meeting to review Jefferson Davis County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County	Annual Review	Ongoing as needed
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	Ongoing – contingent on funding
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years	Ongoing as needed
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County, Town	Ongoing	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	JDCEMA	Ongoing	Ongoing – contingent on funding
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	JDCEMA	Annual presentations	Ongoing – contingent on funding
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	JDCEMA, County, Town	Upon request	Ongoing – contingent on funding
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	N/A	Town	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Ongoing	The County is still considering joining the CRS.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	Ongoing – contingent on funding
PEA-8	Develop/encourage water conservation measures during times of shortage	Drought	Medium	HMGP	N/A	County	2024	New

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

JDCEMA = Jefferson Davis County Emergency Management County BOS = Jefferson Davis County Board of Supervisors

Jones County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Explore solutions to reduce or eliminate sources of stagnant water and address methods to eradicate insects, birds, etc that may carry diseases.	FL	Low	To be determined	To be determined	To be determined	2014	Completed
P-2	Coordinate a floodplain management council with representatives from each of the participating jurisdictions. Conduct meetings to educate and develop a floodplain management program that will address future development and administration of a floodplain program.	FL	High	Local Budget and FMA	To be determined	Jones County	To be determined	Completed
P-3	Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.	FL	Moderate	To be determined	To be determined	Jones County	2024	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-4	Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.	Multi	High	To be determined	To be determined	Jones County Emergency Management Agency	Annual	Completed/Ongoing
P-5	Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.	Multi	Moderate	CDBD, Federal, State and Local	$150,000	Jones County Board of Supervisors	3-5 years	Ongoing
P-6	Continue to enforce building codes and exceed the standards when proven cost-effective to withstand higher wind forces that could be delivered by a natural disaster. Develop and training program for city employees	Multi	Moderate	Local Funds	$20,000	Municipalities	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Property Protection								
PP-1	Upon receipt of the new floodplain maps, review repetitive loss structures and implement a plan to complete the acquisition process.	FL	Moderate	FMA	To be determined	Jones County	2024	Ongoing
Natural Resource Protection								
NRP-1	Evaluate streams and identify potential projects to mitigate stream bank restoration.	FL	Moderate	To be determined	To be determined	Jones County	Ongoing as projects are identified	Completed/Ongoing
Emergency Services								
ES-1	Develop a drought council to implement an emergency response plan for the County	DR	Moderate	To be determined	To be determined	Jones County Emergency Management Agency	N/A	Deferred—No drought council
ES-2	Jones County proposes to build a FEMA 361 Shelter to be located at the South Mississippi State Fairgrounds in Laurel, MS. This site will give easy access to I-59, highway 84 and highway 11.	HU	High	HMGP and State Global Match	$3,250,000	Jones County	2011	Delete

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-3	Install generators at the following critical facilities: Jones County Courthouse – Laurel – 150 KW- $49,000 Jones County Courthouse – Ellisville – 150 KW - $49,000 Jones County Annex Building – 150 KW - $49,000 Jones County Maintenance Facility - $25 KW - $35,000	Multi	High	HMGP	$182,000	Jones County Board of Supervisors	2009	Delete
ES-4	Install emergency notification warning systems at the following facilities: Pleasant Ridge VFD West Jones High/Middle School City of Soso City of Sandersville Moselle VFD North Jones Elementary Glade Elementary School Northeast Jones School	Multi	High	HMGP	$155,556	Jones County Board of Supervisors	2010	Delete
ES-5	Identify and implement automated mass notification/warning system County wide	All Hazards	High	TBD	$15,000-$20,000 Annually	Jones County and Municipalities	2024	New

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Structural Projects								
SP-1	Develop a floodplain council with representatives from each jurisdiction to develop and monitor development within the floodplain.	FL	Moderate	To be determined	To be determined	Jones County	2014	Completed. Delete
SP-2	Flood Elevations	FL	Medium	FEMA	N/A	Jones County	2024	New
Public Education and Awareness								
PEA-1	Partner with various stakeholder groups to develop an all hazard public outreach and education program.	Multi	High	To be determined	To be determined	Jones County	Ongoing	Completed/Ongoing
PEA-2	Become a Firewise Community	WUF	High	To be determined	To be determined	Jones County		Delete

DR = Drought FL = Flood HU = Hurricane WUF = Wild/Urban Fire

City of Ellisville Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Explore solutions to reduce or eliminate sources of stagnant water and address methods to eradicate insects, birds, etc that may carry diseases.	FL	Low	To be determined	To be determined	To be determined	2014	Completed
P-2	Coordinate a floodplain management council with representatives from each of the participating jurisdictions. Conduct meetings to educate and develop a floodplain management program that will address future development and administration of a floodplain program.	FL	High	Local Budget and FMA	To be determined	Jones County	To be determined	Completed
P-3	Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.	FL	Moderate	To be determined	To be determined	Jones County	2024	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-4	Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.	Multi	High	To be determined	To be determined	Jones County Emergency Management Agency	Annual	Completed/Ongoing
P-5	Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.	Multi	Moderate	CDBD, Federal, State and Local	$150,000	Jones County Board of Supervisors	3-5 years	Ongoing
P-6	Continue to enforce building codes and exceed the standards when proven cost-effective to withstand higher wind forces that could be delivered by a natural disaster. Develop and training program for city employees	Multi	Moderate	Local Funds	$20,000	Jones County Board of Supervisors	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Property Protection								
PP-1	Upon receipt of the new floodplain maps, review repetitive loss structures and implement a plan to complete the acquisition process.	FL	Moderate	FMA	To be determined	Jones County	2024	Ongoing
Natural Resource Protection								
NRP-1	Evaluate streams and identify potential projects to mitigate stream bank restoration.	FL	Moderate	To be determined	To be determined	Jones County	Ongoing as projects are identified	Completed/Ongoing
Emergency Services								
ES-1	Develop a drought council to implement an emergency response plan for the County	DR	Moderate	To be determined	To be determined	Jones County Emergency Management Agency	N/A	Deferred—No drought council
ES-2	Jones County proposes to build a FEMA 361 Shelter to be located at the South Mississippi State Fairgrounds in Laurel, MS. This site will give easy access to I-59, highway 84 and highway 11.	HU	High	HMGP and State Global Match	$3,250,000	Jones County	2011	Delete
ES-3	Install a 35-KW generator to support the Ellisville City Hall during a hazard event.	Multi	High	HMGP	$31,000	Emergency Services	2009	Delete

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-4	Identify and implement automated mass notification/warning system County wide	All Hazards	High	TBD	$15,000-$20,000 Annually	Jones County and Municipalities	2024	New
Structural Projects								
SP-1	Develop a floodplain council with representatives from each jurisdiction to develop and monitor development within the floodplain.	FL	Moderate	To be determined	To be determined	Jones County	2014	Completed. Delete
SP-2	Flood Elevations	FL	Medium	FEMA	N/A	Jones County	2024	New
Public Education and Awareness								
PEA-1	Partner with various stakeholder groups to develop an all hazard public outreach and education program.	Multi	High	To be determined	To be determined	Jones County	Ongoing	Completed/Ongoing
PEA-2	Become a Firewise Community	WUF	High	To be determined	To be determined	Jones County		Delete
DR = Drought FL = Flood HU = Hurricane WUF = Wild/Urban Fire								

City of Laurel Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Explore solutions to reduce or eliminate sources of stagnant water and address methods to eradicate insects, birds, etc that may carry diseases.	FL	Low	To be determined	To be determined	To be determined	2014	Completed
P-2	Coordinate a floodplain management council with representatives from each of the participating jurisdictions. Conduct meetings to educate and develop a floodplain management program that will address future development and administration of a floodplain program.	FL	High	Local Budget and FMA	To be determined	Jones County	To be determined	Completed
P-3	Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.	FL	Moderate	To be determined	To be determined	Jones County	2024	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-4	Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.	Multi	High	To be determined	To be determined	Jones County Emergency Management Agency	Annual	Completed/Ongoing
P-5	Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.	Multi	Moderate	CDBD, Federal, State and Local	$150,000	Jones County Board of Supervisors	3-5 years	Ongoing
P-6	Continue to enforce building codes and exceed the standards when proven cost-effective to withstand higher wind forces that could be delivered by a natural disaster. Develop and training program for city employees	Multi	Moderate	Local Funds	$20,000	Jones County Board of Supervisors	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Property Protection								
PP-1	Upon receipt of the new floodplain maps, review repetitive loss structures and implement a plan to complete the acquisition process.	FL	Moderate	FMA	To be determined	Jones County	2024	Ongoing
Natural Resource Protection								
NRP-1	Evaluate streams and identify potential projects to mitigate stream bank restoration.	FL	Moderate	To be determined	To be determined	Jones County	Ongoing as projects are identified	Completed/Ongoing
Emergency Services								
ES-1	Develop a drought council to implement an emergency response plan for the County	DR	Moderate	To be determined	To be determined	Jones County Emergency Management Agency	N/A	Deferred—No drought council
ES-2	Jones County proposes to build a FEMA 361 Shelter to be located at the South Mississippi State Fairgrounds in Laurel, MS. This site will give easy access to I-59, highway 84 and highway 11.	HU	High	HMGP and State Global Match	$3,250,000	Jones County	2011	Delete

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-3	Install generators at the following critical facilities: Laurel City Hall -150KW - $49,000 LT Ellis Center – Special needs shelter – 45 KW - $49,000 Laurel Fire Department Station 2 – 16KW- $12,000 Laurel Fire Department Station 6 – 16KW- $12,000	Multi	High	HMGP	$122,000	City of Laurel	2009	Delete
ES-4	Identify and implement automated mass notification/warning system County wide	All Hazards	High	TBD	$15,000-$20,000 Annually	Jones County and Municipalities	2024	New
Structural Projects								
SP-1	Develop a floodplain council with representatives from each jurisdiction to develop and monitor development within the floodplain.	FL	Moderate	To be determined	To be determined	Jones County	2014	Completed. Delete
SP-2	Flood Elevations	FL	Medium	FEMA	N/A	Jones County	2024	New
Public Education and Awareness								
PEA-1	Partner with various stakeholder groups to develop an all hazard public outreach and education program.	Multi	High	To be determined	To be determined	Jones County	Ongoing	Completed/Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PEA-2	Become a Firewise Community	WUF	High	To be determined	To be determined	Jones County		Delete

DR = Drought FL = Flood HU = Hurricane WUF = Wild/Urban Fire

Town of Sandersville Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Explore solutions to reduce or eliminate sources of stagnant water and address methods to eradicate insects, birds, etc that may carry diseases.	FL	Low	To be determined	To be determined	To be determined	2014	Completed
P-2	Coordinate a floodplain management council with representatives from each of the participating jurisdictions. Conduct meetings to educate and develop a floodplain management program that will address future development and administration of a floodplain program.	FL	High	Local Budget and FMA	To be determined	Jones County	To be determined	Completed
P-3	Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.	FL	Moderate	To be determined	To be determined	Jones County	2024	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-4	Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.	Multi	High	To be determined	To be determined	Jones County Emergency Management Agency	Annual	Completed/Ongoing
P-5	Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.	Multi	Moderate	CDBD, Federal, State and Local	$150,000	Jones County Board of Supervisors	3-5 years	Ongoing
P-6	Continue to enforce building codes and exceed the standards when proven cost-effective to withstand higher wind forces that could be delivered by a natural disaster. Develop and training program for city employees	Multi	Moderate	Local Funds	$20,000	Jones County Board of Supervisors	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Property Protection								
PP-1	Upon receipt of the new floodplain maps, review repetitive loss structures and implement a plan to complete the acquisition process.	FL	Moderate	FMA	To be determined	Jones County	2024	Ongoing
Natural Resource Protection								
NRP-1	Evaluate streams and identify potential projects to mitigate stream bank restoration.	FL	Moderate	To be determined	To be determined	Jones County	Ongoing as projects are identified	Completed/Ongoing
Emergency Services								
ES-1	Develop a drought council to implement an emergency response plan for the County	DR	Moderate	To be determined	To be determined	Jones County Emergency Management Agency	N/A	Deferred—No drought council
ES-2	Jones County proposes to build a FEMA 361 Shelter to be located at the South Mississippi State Fairgrounds in Laurel, MS. This site will give easy access to I-59, highway 84 and highway 11.	HU	High	HMGP and State Global Match	$3,250,000	Jones County	2011	Delete

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-3	Install emergency notification warning systems at the Town of Sandersville	Multi	High	HMGP	$155,556	Jones County Board of Supervisors	2009	Delete
ES-4	Identify and implement automated mass notification/warning system County wide	All Hazards	High	TBD	$15,000-$20,000 Annually	Jones County and Municipalities	2024	New
Structural Projects								
SP-1	Develop a floodplain council with representatives from each jurisdiction to develop and monitor development within the floodplain.	FL	Moderate	To be determined	To be determined	Jones County	2014	Completed. Delete
SP-2	Flood Elevations	FL	Medium	FEMA	N/A	Jones County	2024	New
Public Education and Awareness								
PEA-1	Partner with various stakeholder groups to develop an all hazard public outreach and education program.	Multi	High	To be determined	To be determined	Jones County	Ongoing	Completed/Ongoing
PEA-2	Become a Firewise Community	WUF	High	To be determined	To be determined	Jones County		Delete

DR = Drought FL = Flood HU = Hurricane WUF = Wild/Urban Fire

Town of Soso Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Explore solutions to reduce or eliminate sources of stagnant water and address methods to eradicate insects, birds, etc that may carry diseases.	FL	Low	To be determined	To be determined	To be determined	2014	Completed
P-2	Coordinate a floodplain management council with representatives from each of the participating jurisdictions. Conduct meetings to educate and develop a floodplain management program that will address future development and administration of a floodplain program.	FL	High	Local Budget and FMA	To be determined	Jones County	To be determined	Completed
P-3	Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.	FL	Moderate	To be determined	To be determined	Jones County	2024	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-4	Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.	Multi	High	To be determined	To be determined	Jones County Emergency Management Agency	Annual	Completed/Ongoing
P-5	Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.	Multi	Moderate	CDBD, Federal, State and Local	$150,000	Jones County Board of Supervisors	3-5 years	Ongoing
P-6	Continue to enforce building codes and exceed the standards when proven cost-effective to withstand higher wind forces that could be delivered by a natural disaster. Develop and training program for city employees	Multi	Moderate	Local Funds	$20,000	Jones County Board of Supervisors	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Property Protection								
PP-1	Upon receipt of the new floodplain maps, review repetitive loss structures and implement a plan to complete the acquisition process.	FL	Moderate	FMA	To be determined	Jones County	2024	Ongoing
Natural Resource Protection								
NRP-1	Evaluate streams and identify potential projects to mitigate stream bank restoration.	FL	Moderate	To be determined	To be determined	Jones County	Ongoing as projects are identified	Completed/Ongoing
Emergency Services								
ES-1	Develop a drought council to implement an emergency response plan for the County	DR	Moderate	To be determined	To be determined	Jones County Emergency Management Agency	N/A	Deferred—No drought council
ES-2	Jones County proposes to build a FEMA 361 Shelter to be located at the South Mississippi State Fairgrounds in Laurel, MS. This site will give easy access to I-59, highway 84 and highway 11.	HU	High	HMGP and State Global Match	$3,250,000	Jones County	2011	Delete

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-3	Install emergency notification warning systems at the Town of Soso	Multi	High	HMGP	$155,556	Jones County Board of Supervisors	2009	Delete
ES-4	Identify and implement automated mass notification/warning system County wide	All Hazards	High	TBD	$15,000-$20,000 Annually	Jones County and Municipalities	2024	New
Structural Projects								
SP-1	Develop a floodplain council with representatives from each jurisdiction to develop and monitor development within the floodplain.	FL	Moderate	To be determined	To be determined	Jones County	2014	Completed. Delete
SP-2	Flood Elevations	FL	Medium	FEMA	N/A	Jones County	2024	New
Public Education and Awareness								
PEA-1	Partner with various stakeholder groups to develop an all hazard public outreach and education program.	Multi	High	To be determined	To be determined	Jones County	Ongoing	Completed/Ongoing
PEA-2	Become a Firewise Community	WUF	High	To be determined	To be determined	Jones County		Delete

DR = Drought FL = Flood HU = Hurricane WUF = Wild/Urban Fire

Marion County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	County	Annual review	Complete. High risk areas are identified in the hazard mitigation plan. Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	TBD	MCEMA, County	Within 1 year; Upon request	Ongoing – the County is currently working to develop a GIS shapefile that identifies the vulnerable populations in the County.
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	CDBG, HMGP, PDM, USDA Rural Dev, Self-funding	TBD	County Floodplain Administrator	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	FL	High	CDBG, HMGP, PDM, USDA Rural Dev, Self-funding	TBD	County BOS	Ongoing	Ongoing
P-5	Continue to maintain and upgrade drainage facilities.	HI, TS, FL, BH	High	CDBG, HMGP, PDM, USDA Rural Dev, Self-funding	Unknown	County BOS, County Road Crews	Annual review	Ongoing as funding becomes available
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Ongoing/Pending staff availability and funding
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Ongoing /Pending staff availability and funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	CDBG, HMGP, PDM, USDA Rural Dev, Self-funding	No additional cost	County	2024	Ongoing/Pending staff availability and funding
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County	Within 2 years	Ongoing/Pending staff availability and funding
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County	Concurrent with prep. of Comp Plan	Ongoing/Pending staff availability and funding
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County	Within 5 years	Pending staff availability and funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	TBD	County	Within 3 years	The flood damage prevention ordinance ensures that new construction in the floodplain is elevate. Existing floodprone structures are evaluated on a case by case basis pending funding and willingness of property owner.
PP-3	Ensure that new public buildings are designed and built to hurricane resistant buildings codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County	Within 2 years	Ongoing
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	CDBG, HMGP, PDM, USDA Rural Dev,	Unknown	County	Within 2 years; Next round of HMGP funding	Ongoing pending funding availability

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Next round of HMGP funding	Ongoing
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	TBD	MS Land Trust, Land Trust for MS Coastal Plain, County	Within 5 years	Ongoing pending funding availability
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	MCEMA	Within 2 years	Ongoing pending staff availability and funding
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	TBD	MCEMA, County	Ongoing/Within 2 years	Ongoing/Pending staff availability and funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	TBD	MCEMA, County	Within 2 years	Ongoing/Pending staff availability and funding
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	TBD	MCEMA, County	2024	Ongoing/Pending staff availability and funding
ES-5	Improve disaster communication systems within the county.	All	High	CDBG, HMGP, PDM, USDA Rural Dev, Self-funding	TBD	MCEMA	Ongoing	Ongoing/Pending staff availability and funding
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	HMGP	TBD	MCEMA	Contingent upon funding	Pending funding
ES-7	Install warning sirens.	TO, HU, TS	High	HMGP	$350,000-$400,000	MCEMA	Contingent upon funding	Pending funding
ES-8	Enhance Central Dispatch.	All	Medium	HMGP	Unknown	MCEMA, County	Ongoing	Initial upgrades completed in 2018/Ongoing
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	MCEMA, County	Within 2 years; Contingent upon funding	Ongoing/Pending funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	TBD	County BOS, MCEMA	Annual Review	Ongoing
ES-11	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	MCEMA	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Ongoing pending funding availability
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Annual review	Completed/Ongoing
ES-14	Host a meeting to review Marion County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County	Annual Review	Ongoing
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	Ongoing/Pending staff availability and funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
SP-2	Generators for all existing and future fire stations and 911 critical facilities including comm tower sites	All	High	CDBG, HMGP, PDM, USDA Rural Dev, Self-funding	TBD	MCEMA, County	2024	New
SP-3	Elevation/Acquisition Rep Loss properties	FL	Medium /High	HMGP, PDM	TBD	MCEMA, County	2024	New
SP-4	Harden existing structures to serve as safe rooms (schools, emergency shelters).	All	High	CDBG, HMGP, PDM, USDA Rural Dev, Self-funding	TBD	MCEMA, County	2024	New
SP-5	Construct community multipurpose facilities/saferooms in vulnerable communities throughout the county.	All	High	CDBG, HMGP, PDM, USDA Rural Dev, Self-funding	TBD	MCEMA, County	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County	Ongoing	Ongoing pending funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	TBD	MCEMA	Annual Review	Ongoing
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	MCEMA	Annual presentations	Ongoing
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	TBD	MCEMA, County	Upon request	Ongoing
PEA-5	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	DHS, SAFER, COPS, FIRE, Others	TBD	County	Annual Review	Ongoing

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

MCEMA = Marion County Emergency Management Agency County BOS = Marion County Board of Supervisors

City of Columbia Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	City	Annual review	Complete. High risk areas are identified in the hazard mitigation plan. Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	MCEMA, City	Within 1 year; Upon request	Ongoing – the County is currently working to develop a GIS shapefile that identifies the vulnerable populations in the County.
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	City Floodplain Administrator	Ongoing	Ongoing
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	FL	High	Self-funded	No additional cost	County BOS, City	Ongoing	Ongoing
P-5	Continue to maintain and upgrade drainage facilities.	HI, TS, FL, BH	High	Self-funded	Unknown	County BOS, County Road Crews, City	Annual review	Ongoing as funding becomes available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, City	Within 5 years	Ongoing/Pending staff availability and funding
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	City	Within 5 years	Ongoing /Pending staff availability and funding
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County, City	2024	Ongoing/Pending staff availability and funding
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County, City	Within 2 years	Ongoing/Pending staff availability and funding
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County, City	Concurrent with prep. of Comp Plan	Ongoing/Pending staff availability and funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	City	Within 5 years	Pending staff availability and funding
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, City	Within 3 years	The flood damage prevention ordinance ensures that new construction in the floodplain is elevate. Existing floodprone structures are evaluated on a case by case basis pending funding and willingness of property owner.
PP-3	Ensure that new public buildings are designed and built to hurricane resistant buildings codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	City	Within 2 years	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	City	Within 2 years; Next round of HMGP funding	Ongoing pending funding availability
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	City	Within 5 years; Next round of HMGP funding	Ongoing
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for MS Coastal Plain, County	Within 5 years	Ongoing pending funding availability
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	MCEMA	Within 2 years	Ongoing pending staff availability and funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	MCEMA, City	Ongoing/Within 2 years	Ongoing/Pending staff availability and funding
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	MCEMA, City	Within 2 years	Ongoing/Pending staff availability and funding
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	MCEMA, City	2024	Ongoing/Pending staff availability and funding
ES-5	Improve disaster communication systems within the county.	All	High	Unknown	Unknown	MCEMA	Ongoing	Ongoing/Pending staff availability and funding
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	HMGP	Unknown	MCEMA	Contingent upon funding	Pending funding
ES-7	Install warning sirens.	TO, HU	High	HMGP	Unknown	MCEMA	Contingent upon funding	Pending funding
ES-8	Enhance Central Dispatch.	All	Medium	HMGP	Unknown	MCEMA, City	Ongoing	Initial upgrades completed in 2018/Ongoing
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	MCEMA, City	Within 2 years; Contingent upon funding	Ongoing/Pending funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, MCEMA, City	Annual Review	Ongoing
ES-11	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	MCEMA	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	City	Within 2 years; Next round of HMGP funding	Ongoing pending funding availability
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	City	Annual review	Completed/Ongoing
ES-14	Host a meeting to review Marion County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	City	Annual Review	Ongoing
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, City	Ongoing	Ongoing/Pending staff availability and funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	City	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
SP-2	Generators for all existing and future fire stations and 911 critical facilities including comm tower sites	All	High	CDBG, HMGP, PDM, USDA Rural Dev, Self-funding	TBD	MCEMA, County	2024	New
SP-3	Elevation/Acquisition Rep Loss properties	FL	Medium /High	HMGP, PDM	TBD	MCEMA, County	2024	New
SP-4	Harden existing structures to serve as safe rooms (schools, emergency shelters).	All	High	CDBG, HMGP, PDM, USDA Rural Dev, Self-funding	TBD	MCEMA, County	2024	New
SP-5	Construct community multipurpose facilities/saferooms in vulnerable communities throughout the county.	All	High	CDBG, HMGP, PDM, USDA Rural Dev, Self-funding	TBD	MCEMA, County	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	City	Ongoing	Ongoing pending funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	MCEMA	Annual Review	Ongoing
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	MCEMA	Annual presentations	Ongoing
PEA-4	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	High	Self-funded	No additional cost	MCEMA, City	Upon request	Ongoing
PEA-5	Provide education and outreach materials to citizens and visitors.	All	High	DHS, SAFER, COPS, FIRE, Others	Unknown	City	Annual Review	Ongoing

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

MCEMA = Marion County Emergency Management Agency County BOS = Marion County Board of Supervisors

Perry County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	TBD	County	Annual review	This action has been implemented/Ongoing. High risk areas are identified in this hazard mitigation plan.
P-2	Site-locate vulnerable populations on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	TBD	County EMA, County BOS	Within 1 year; Upon request	This action has been deferred until funding is available to implement the action.
P-3	Consider adoption of flood damage prevention ordinance in Perry County.	FL	High	Self-funded	No cost	County, County Floodplain Administrator	Ongoing	This action has been implemented. Completed
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County	Ongoing	This action has been deferred.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev. Self-funded	TBD	County BOS, County Road Crews	Annual review	This action has been implemented/Ongoing.
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years funding availability	Deferred based on funding availability.
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years of funding availability	This action has been deferred due to lack of funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev. Self-funded	TBD	County	Within 2 years of funding availability	Deferred based on funding availability.
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	TBD	County	Within 2 years of funding availability	Deferred based on funding availability.
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	TBD	County	Concurrent with prep. of Comp Plan	This action has been deferred.
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev. Self-funded	TBD	County	Within 5 years of funding availability	This action has been implemented/Ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-2	Ensure that structures in floodplain areas are elevated. Including Repetitive Loss Properties	FL	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev. Self-funded	TBD	County	Within 3 years of funding availability	This action has been implemented and ongoing.
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev. Self-funded	TBD	County	Annual Review	This action has been implemented and ongoing.
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	TBD	County	Within 2 years; Next round of HMGP funding	This action has been deferred awaiting funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HGMP, USDA Rural Dev., CDBG, Small Muni. Grant	TBD	County	Annual Review	This action has been completed and ongoing.
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for the MS Coastal Plain, County	Within 5 years	No action taken.
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Annual Review	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	HGMP, USDA Rural Dev., CDBG, Small Muni. Grant Self-funded	Unknown	County EMA, County BOS	Within 2 years with funding availability	This action has been deferred awaiting funding.
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA	Within 2 years	This action has been completed and ongoing.
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA, County	Within 2 years	This action has been completed. No Change
ES-5	Improve disaster communication systems within the County.	All	High	HGMP, USDA Rural Dev., CDBG, Small Muni. Grant Self-funded	Unknown	County EMA	Ongoing	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-6	Consider generators for local radio station service areas.	HU, TO, TS	Medium	HMGP	Unknown	County EMA	Contingent upon funding	This action has been completed.
ES-7	Install warning sirens in the County.	TO, HU	Medium	HMGP	Unknown	County EMA	Contingent upon funding	This action has been deferred. Due to lack of funding
ES-8	Enhance Central Dispatch and other communications equipment.	All	Medium	HMGP	Unknown	County EMA	Within 2 years; Contingent upon funding	This action has been completed and ongoing.
ES-9	Explore upgrade/enhancement of 911 system in Perry County.	All	Low to Medium	HMGP, Self Funded	Unknown	County EMA	Within 5 years; Contingent upon funding	This action has been completed and ongoing.
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, County	Within 5 years; Contingent upon funding	In process included in new 911 system.
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA	Annual Review	This action has been implemented and ongoing.
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-13	Ensure continuity of utility services for public buildings and other critical facilities. This includes purchasing backup generators and/or transfer switches to existing and future critical assets.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	This action has been implemented and ongoing.
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Annual review	This action has been implemented.
ES-15	Explore funding sources to renovate existing County Multi-Purpose Center into Emergency Operations Center.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	This action has been deleted.
ES-16	Host a meeting to review Perry County Comprehensive Emergency Management Plan.	All	Medium	Self-funded	No additional cost	County	Annual Meeting	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-17	Actively search for identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	This action has been implemented.
ES-18	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	County	Ongoing	This action has been implemented and ongoing.
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County	Within 2 years of funding availability.	Deferred due to lack of funding.
SP-2	Acquisitions of RL/SRL Properties	FL	High	FEMA, HMGP and PDM	TBD	County	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	MEMA, FEMA, EMI		County	Ongoing	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	This action has been implemented and ongoing.
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA	Annual presentations	This action has been implemented and ongoing.
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, County	Upon request	This action has been implemented and ongoing.
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been completed and ongoing .

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County	Within 3 years`	No action taken.

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RH = Roadway Hazards
TT = Transportation and Technological Hazards CH = Civil Hazards

County EMA = Perry County Emergency Management Agency County BOS = Perry County Board of Supervisors

Town of Beaumont Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	Town	Annual review	This action has been implemented/Ongoing. High risk areas are identified in this hazard mitigation plan.
P-2	Site-locate vulnerable populations on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA, County BOS, Town	Within 1 year; Upon request	This action has been deferred until funding is available to implement the action.
P-3	Strictly enforce the Flood Damage Prevention Ordinance	FL	High	Self-funded	No cost	Town Floodplain Administrator	Ongoing	This action has been implemented. Completed
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County, Town	Ongoing	This action has been deferred.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	Unknown	County BOS, County Road Crews, Town	Annual review	This action has been implemented/Ongoing.
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years funding availability	Deferred based on funding availability.
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years of funding availability	This action has been deferred due to lack of funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Within 2 years of funding availability	Deferred based on funding availability.
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA		County, Town	Within 2 years of funding availability	Deferred based on funding availability.
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County, Town	Concurrent with prep. of Comp Plan	This action has been deferred.
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	Town	Within 5 years of funding availability	This action has been implemented/Ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Within 3 years of funding availability	This action has been implemented and ongoing.
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Annual Review	This action has been implemented and ongoing.
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County, Town	Within 2 years; Next round of HMGP funding	This action has been deferred awaiting funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HGMP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Annual Review	This action has been completed and ongoing.
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for the MS Coastal Plain, County	Within 5 years	No action taken.
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Annual Review	This action has been implemented and ongoing.
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS, Town	Within 2 years with funding availability	This action has been deferred awaiting funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA, Town	Within 2 years	This action has been completed and ongoing.
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA, County, Town	Within 2 years	This action has been completed. No Change
ES-5	Improve disaster communication systems within the County.	All	High	HMGP	Unknown	County EMA	Ongoing	This action has been implemented and ongoing.
ES-6	Consider generators for local radio station service areas.	HU, TS, FL	High	HMGP	Unknown	County EMA, County	Contingent upon funding	This action has been completed.
ES-7	Install warning sirens in the County.	All	Medium	Unknown	Unknown	County EMA	Contingent upon funding	This action has been deferred. Due to lack of funding
ES-8	Enhance Central Dispatch and other communications equipment.	All	Medium	HMGP	Unknown	County EMA	Within 2 years; Contingent upon funding	This action has been completed and ongoing. Cities do not have their own dispatch- they use county resource.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-9	Explore upgrade/enhancement of 911 system in Perry County.	All	Low to Medium	HMGP	Unknown	County EMA	Within 5 years; Contingent upon funding	This action has been completed and ongoing.
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, County	Within 5 years; Contingent upon funding	In process included in new 911 system.
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA	Annual Review	This action has been implemented and ongoing.
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been implemented and ongoing.
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	This action has been implemented and ongoing.
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	2024	Deferred

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-15	Explore funding sources to renovate existing County Multi-Purpose Center into Emergency Operations Center.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	This action has been deleted.
ES-16	Host a meeting to review Perry County Comprehensive Emergency Management Plan.	All	Medium	Self-funded	No additional cost	County	Annual Meeting	This action has been implemented and ongoing.
ES-17	Actively search for identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	This action has been implemented.
ES-18	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	County, Town	Ongoing	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years of funding availability.	Deferred due to lack of funding.
SP-2	Acquisitions of RL/SRL Properties	FL	High	FEMA, HMGP and PDM	TBD	County	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	MEMA, FEMA, EMI	Unknown	County	Ongoing	This action has been implemented and ongoing.
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	This action has been implemented and ongoing.
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA	Annual presentations	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, County	Upon request	This action has been implemented and ongoing.
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been completed and ongoing .

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years`	No action taken.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	Civil Hazards	High	Self-funded, SBA, SCORE	Low or no cost	County, Town	Within 2 years	This action has been deferred.

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
RH = Roadway Hazards
TT = Transportation and Technological Hazards CH = Civil Hazards

County EMA = Perry County Emergency Management Agency County BOS = Perry County Board of Supervisors

Town of New Augusta Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	Town	Annual review	This action has been implemented/Ongoing. High risk areas are identified in this hazard mitigation plan.
P-2	Site-locate vulnerable populations on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA, County BOS, Town	Within 1 year; Upon request	This action has been deferred until funding is available to implement the action.
P-3	Strictly enforce the Flood Damage Prevention Ordinance	FL	High	Self-funded	No cost	Town Floodplain Administrator	Ongoing	This action has been implemented. Completed
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County, Town	Ongoing	This action has been deferred.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	Unknown	County BOS, County Road Crews, Town	Annual review	This action has been implemented/Ongoing.
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years funding availability	Deferred based on funding availability.
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years of funding availability	This action has been deferred due to lack of funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County	Within 2 years of funding availability	Deferred based on funding availability.
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County	Within 2 years of funding availability	Deferred based on funding availability.
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County	Concurrent with prep. of Comp Plan	This action has been deferred.
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	Town	Within 5 years of funding availability	This action has been implemented/Ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Within 3 years of funding availability	This action has been implemented and ongoing.
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Annual Review	This action has been implemented and ongoing.
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County, Town	Within 2 years; Next round of HMGP funding	This action has been deferred awaiting funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HGMP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Annual Review	This action has been completed and ongoing.
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for the MS Coastal Plain, County	Within 5 years	No action taken.
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Annual Review	This action has been implemented and ongoing.
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS	Within 2 years with funding availability	This action has been deferred awaiting funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA	Within 2 years	This action has been completed and ongoing.
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA, County	Within 2 years	This action has been completed. No Change
ES-5	Improve disaster communication systems within the County.	All	Medium	Unknown	Unknown	County EMA	Ongoing	This action has been implemented and ongoing.
ES-6	Consider generators for local radio station service areas.	HU, TO, TS	Medium	HMGP	Unknown	County EMA	Contingent upon funding	This action has been completed.
ES-7	Install warning sirens in the County.	TO, HU	Medium	HMGP	Unknown	County EMA	Contingent upon funding	This action has been deferred. Due to lack of funding. Two sirens installed in New Augusta since previous plan.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-8	Enhance Central Dispatch and other communications equipment.	All	Medium	HMGP	Unknown	County EMA	Within 2 years; Contingent upon funding	This action has been completed and ongoing. Cities do not have their own dispatch- use County resource.
ES-9	Explore upgrade/enhancement of 911 system in Perry County.	All	Low to Medium	HMGP	Unknown	County EMA	Within 5 years; Contingent upon funding	This action has been completed and ongoing.
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, County	Within 5 years; Contingent upon funding	In process included in new 911 system.
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA	Annual Review	This action has been implemented and ongoing.
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been implemented and ongoing.
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	2024	Deferred
ES-15	Explore funding sources to renovate existing County Multi-Purpose Center into Emergency Operations Center.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	This action has been deleted.
ES-16	Host a meeting to review Perry County Comprehensive Emergency Management Plan.	All	Medium	Self-funded	No additional cost	County	Annual Meeting	This action has been implemented and ongoing.
ES-17	Actively search for identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	This action has been implemented.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-18	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	County, Town	Ongoing	This action has been implemented and ongoing.
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years of funding availability.	Deferred due to lack of funding.
SP-2	Acquisitions of RL/SRL Properties	FL	High	FEMA, HMGP and PDM	TBD	County	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	MEMA, FEMA, EMI	Unknown	Town	Ongoing	This action has been implemented and ongoing.
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	This action has been implemented and ongoing.
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA	Annual presentations	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, Town	Upon request	This action has been implemented and ongoing.
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been completed and ongoing .

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years`	No action taken.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	Civil Hazards	High	Self-funded, SBA, SCORE	Low or no cost	County, Town	Within 2 years	This action has been deferred.

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
RH = Roadway Hazards
TT = Transportation and Technological Hazards CH = Civil Hazards

County EMA = Perry County Emergency Management Agency County BOS = Perry County Board of Supervisors

Town of Richton Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	Town	Annual review	This action has been implemented/Ongoing. High risk areas are identified in this hazard mitigation plan.
P-2	Site-locate vulnerable populations on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA, County BOS, Town	Within 1 year; Upon request	This action has been deferred until funding is available to implement the action.
P-3	Strictly enforce the Flood Damage Prevention Ordinance	FL	High	Self-funded	No cost	Town Floodplain Administrator	Ongoing	This action has been implemented. Completed
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County, Town	Ongoing	This action has been deferred.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	Unknown	County BOS, County Road Crews, Town	Annual review	This action has been implemented/Ongoing.
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years funding availability	Deferred based on funding availability.
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years of funding availability	This action has been deferred due to lack of funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Within 2 years of funding availability	Deferred based on funding availability.
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County, Town	Within 2 years of funding availability	Deferred based on funding availability.
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County, Town	Concurrent with prep. of Comp Plan	This action has been deferred.
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	Town	Within 5 years of funding availability	This action has been implemented/Ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Within 3 years of funding availability	This action has been implemented and ongoing.
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Annual Review	This action has been implemented and ongoing.
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County, Town	Within 2 years; Next round of HMGP funding	This action has been deferred awaiting funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HGMP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Annual Review	This action has been completed and ongoing.
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for the MS Coastal Plain, County	Within 5 years	No action taken.
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Annual Review	This action has been implemented and ongoing.
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS, Town	Within 2 years with funding availability	This action has been deferred awaiting funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA	Within 2 years	This action has been completed and ongoing.
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA, County	Within 2 years	This action has been completed. No Change
ES-5	Improve disaster communication systems within the County.	All	Medium	Unknown	Unknown	County EMA	Ongoing	This action has been implemented and ongoing.
ES-6	Consider generators for local radio station service areas.	HU, TO, TS	Medium	HMGP	Unknown	County EMA	Contingent upon funding	This action has been completed.
ES-7	Install warning sirens in the County.	TO, HU	Medium	HMGP	Unknown	County EMA	Contingent upon funding	This action has been deferred. Due to lack of funding
ES-8	Enhance Central Dispatch and other communications equipment.	All	Medium	HMGP	Unknown	County EMA	Within 2 years; Contingent upon funding	This action has been completed and ongoing. Cities do not have their own dispatch- they use county resource.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-9	Explore upgrade/enhancement of 911 system in Perry County.	All	Low to Medium	HMGP	Unknown	County EMA	Within 5 years; Contingent upon funding	This action has been completed and ongoing.
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, County	Within 5 years; Contingent upon funding	In process included in new 911 system.
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA	Annual Review	This action has been implemented and ongoing.
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been implemented and ongoing.
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	This action has been implemented and ongoing.
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	2024	Deferred

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-15	Explore funding sources to renovate existing County Multi-Purpose Center into Emergency Operations Center.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	This action has been deleted.
ES-16	Host a meeting to review Perry County Comprehensive Emergency Management Plan.	All	Medium	Self-funded	No additional cost	County	Annual Meeting	This action has been implemented and ongoing.
ES-17	Actively search for identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	This action has been implemented.
ES-18	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	County, Town	Ongoing	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years of funding availability.	Deferred due to lack of funding.
SP-2	Acquisitions of RL/SRL Properties	FL	High	FEMA, HMGP and PDM	TBD	County	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	MEMA, FEMA, EMI	Unknown	Town	Ongoing	This action has been implemented and ongoing.
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	This action has been implemented and ongoing.
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA	Annual presentations	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, Town	Upon request	This action has been implemented and ongoing.
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been completed and ongoing .

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years`	No action taken.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	Civil Hazards	High	Self-funded, SBA, SCORE	Low or no cost	County, Town	Within 2 years	This action has been deferred.

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
RH = Roadway Hazards
TT = Transportation and Technological Hazards CH = Civil Hazards

County EMA = Perry County Emergency Management Agency County BOS = Perry County Board of Supervisors

Wayne County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	County	Annual review	Action ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA	Within 1 year; Upon request	Action ongoing
P-3	Consider adoption of flood damage prevention ordinance in Wayne County.	FL	High	Self-funded	No cost	County, County Floodplain Administrator	Ongoing	Action ongoing. Implemented 2011.
P-4	Consider adoption of subdivision regulations in Wayne County.	TH, FL, HU, TS	Medium	Self-funded	No cost	County	Ongoing	Deferred
P-5	Monitor flood levels of local rivers.	FL	High	HMGP	Unknown	County	Within 5 years	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-6	Continue to maintain and upgrade drainage facilities within the County.	HU, TS, FL, BH	High	Self-funded	Unknown	County	Within 2 years; Next round of HMGP funding; Annual review	Action ongoing. Some progress implemented-clean out ditches annually.
P-7	Consider adoption of a comprehensive drainage plan.	HU, TS, FL, NH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Annual review	Deferred. Waynesboro is mapping drainage areas and it will include elevations, cross sections, and flow directions.
P-8	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Action ongoing
P-9	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Ongoing	Completed September 2019

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-10	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County	Within 2 years	Action ongoing
P-11	Develop a comprehensive plan.	All	High	CDBG, MSDA	Unknown	County		Completed. Delete
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County	Within 5 years	Action ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County	Within 3 years	Action ongoing
PP-3	Continue to retrofit public buildings to withstand natural hazards such as hurricanes and flooding.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Action ongoing
PP-4	Ensure that public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO	High	Self-funded	No additional cost	County	Within 1 year	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 2 years; Next round of HMGP funding	Action ongoing
PP-6	Elevation and Acquisition of Flood prone structures	FL	Medium	HMA, MEMA	TBD	County	2024	New
PP-7	Generators and hook-ups for critical facilities	TH, HU, TS, TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-8	Warning sirens throughout planning area	TH, TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-9	Individual saferooms throughout planning area	TO	Medium	HMA, MEMA	$5,000+	County	2024	New
PP-10	361 Saferooms were needed- location is TBD	TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-11	Elevation of critical facilities, such as pumps, and equipment	FL	Medium	HMA, MEMA	TBD	County	2024	New
PP-12	Floodproofing measures for critical facilities prone to flood	FL	Medium	HMA, MEMA	TBD	County	2024	New

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Medium	Donation	Low or no cost	MS Land Trust, Land Trust for the MS Coastal Plain, County	Within 5 years	Action ongoing
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Within 2 years	Action ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County SD, County VFDs	Within 2 years	Action ongoing. Waynesboro has reverse call back system in place as of 2018.
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters and adding safe rooms.	All	High	HMGP	Unknown	County EMA	Within 2 years	Action ongoing
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA	Within 2 years	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-5	Improve disaster communication systems within the County.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing. MSWINN at Fire Department and all use social media.
ES-6	Explore establishment of a County-wide central dispatch system.	All	High	HMGP	Unknown	County EMA		Action completed. Delete
ES-7	Ensure that emergency sirens are in place county-wide.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-8	Install warning informers in buildings that house vulnerable populations.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-9	Install Alert FM service at radio station.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action completed
ES-10	Upgrade Emergency Broadcast System capabilities.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	HU, TS	Medium	Self-funded	No additional cost	County	Within 2 years	Action ongoing
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	HU, TS	Medium	Self-funded	No additional cost	County	Within 1 year	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Action ongoing
ES-14	Host a meeting to review Wayne County Comprehensive Emergency Management Plan.	TT	High	Self-funded	No additional cost	County LEPC, County	Within 2 years; Next round of HMGP funding	Action ongoing
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	Action ongoing
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County	Within 2 years	Action ongoing
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County	Within 2 years	Action ongoing
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Within 1 year	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA, County Fire Coordinator	Within 1 year; Annual presentations	Action ongoing
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL; Multiple	High	Self-funded	No additional cost	County EMA	Upon request	Action ongoing
PEA-5	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	County	Within 2 years	Action ongoing
PEA-6	Education and outreach regarding drought and water conservation procedures	All	Medium	Self-funded	Low or no cost	County	2024	New

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards TT = Transportation and Technological Hazards
RH = Roadway Hazards CH = Civil Hazards

County EMA = Wayne County Emergency Management Agency County SD = Wayne County Sheriff's Dept. County VFD = Wayne County Volunteer Fire Dept. County LEPC = Wayne County Local Emergency Planning Committee

Town of State Line Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	Town	Annual review	Action ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA	Within 1 year; Upon request	Action ongoing
P-3	Consider adoption of flood damage prevention ordinance in Wayne County.	FL	High	Self-funded	No additional cost	County, County Floodplain Administrator	Ongoing	Action ongoing. Implemented 2011.
P-4	Consider adoption of subdivision regulations in Wayne County.	TH, FL, HU, TS	Medium	Self-funded	No cost	County	Ongoing	Deferred
P-5	Monitor flood levels of local rivers.	FL	High	HMGP	Unknown	Town	Within 5 years	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-6	Continue to maintain and upgrade drainage facilities within the County.	HU, TS, FL, BH	High	Self-funded	Unknown	Town	Within 2 years; Next round of HMGP funding; Annual review	Action ongoing. Some progress implemented-clean out ditches annually.
P-7	Consider adoption of a comprehensive drainage plan.	HU, TS, FL, NH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	Town	Annual review	Deferred. Waynesboro is mapping drainage areas and it will include elevations, cross sections, and flow directions.
P-8	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	Town	Within 5 years	Action ongoing
P-9	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Ongoing	Completed September 2019

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-10	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	Town	Within 2 years	Action ongoing
P-11	Develop a comprehensive plan.	All	High	CDBG, MSDA	Unknown	Town		Completed. Delete
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	Town	Within 5 years	Action ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, Town	Within 3 years	Action ongoing
PP-3	Continue to retrofit public buildings to withstand natural hazards such as hurricanes and flooding.	All	High	HMGP	Unknown	Town	Within 2 years; Next round of HMGP funding	Action ongoing
PP-4	Ensure that public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO	High	Self-funded	No additional cost	Town	Within 1 year	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Within 2 years; Next round of HMGP funding	Action ongoing
PP-6	Elevation and Acquisition of Flood prone structures	FL	Medium	HMA, MEMA	TBD	County	2024	New
PP-7	Generators and hook-ups for critical facilities	TH, HU, TS, TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-8	Warning sirens throughout planning area	TH, TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-9	Individual saferooms throughout planning area	TO	Medium	HMA, MEMA	$5,000+	County	2024	New
PP-10	361 Saferooms were needed- location is TBD	TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-11	Elevation of critical facilities, such as pumps, and equipment	FL	Medium	HMA, MEMA	TBD	County	2024	New
PP-12	Floodproofing measures for critical facilities prone to flood	FL	Medium	HMA, MEMA	TBD	County	2024	New

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Medium	Donation	Low or no cost	MS Land Trust, Land Trust for the MS Coastal Plain, Town	Within 5 years	Action ongoing
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Within 2 years	Action ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County SD, County VFDs	Within 2 years	Action ongoing. Waynesboro has reverse call back system in place as of 2018.
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters and adding safe rooms.	All	High	HMGP	Unknown	County EMA	Within 2 years	Action ongoing
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA	Within 2 years	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-5	Improve disaster communication systems within the County.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing. MSWINN at Fire Department and all use social media.
ES-6	Explore establishment of a County-wide central dispatch system.	All	High	HMGP	Unknown	County EMA		Action completed. Delete
ES-7	Ensure that emergency sirens are in place county-wide.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-8	Install warning informers in buildings that house vulnerable populations.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-9	Install Alert FM service at radio station.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action completed
ES-10	Upgrade Emergency Broadcast System capabilities.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	HU, TS	Medium	Self-funded	No additional cost	Town	Within 2 years	Action ongoing
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	HU, TS	Medium	Self-funded	No additional cost	Town	Within 1 year	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County, Town	Within 2 years; Next round of HMGP funding	Action ongoing
ES-14	Host a meeting to review Wayne County Comprehensive Emergency Management Plan.	TT	High	Self-funded	No additional cost	County LEPC, County, Town	Within 2 years; Next round of HMGP funding	Action ongoing
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	Action ongoing
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years	Action ongoing
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	Town	Within 2 years	Action ongoing
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Within 1 year	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA, County Fire Coordinator	Within 1 year; Annual presentations	Action ongoing
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL; Multiple	High	Self-funded	No additional cost	County EMA	Upon request	Action ongoing
PEA-5	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	Town	Within 2 years	Action ongoing
PEA-6	Education and outreach regarding drought and water conservation procedures	All	Medium	Self-funded	Low or no cost	County	2024	New

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards TT = Transportation and Technological Hazards
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County EMA = Wayne County Emergency Management Agency County SD = Wayne County Sheriff's Dept. County VFD = Wayne County Volunteer Fire Dept. County LEPC = Wayne County Local Emergency Planning Committee

City of Waynesboro Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High		No additional cost	City	Annual review	Action ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA	Within 1 year; Upon request	Action ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	City Floodplain Administrator	Ongoing	Action ongoing. Implemented 2011.
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	TH, FL, HU, TS	Medium	Self-funded	No additional cost	City	Ongoing	Deferred
P-5	Monitor flood levels of local rivers.	FL	High	HMGP	Unknown	City	Within 5 years	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-6	Continue to maintain and upgrade drainage facilities within the County.	HU, TS, FL, BH	High	Self-funded	Unknown	City	Within 2 years; Next round of HMGP funding; Annual review	Action ongoing. Some progress implemented-clean out ditches annually.
P-7	Consider adoption of a comprehensive drainage plan.	HU, TS, FL, NH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	City	Annual review	Deferred. Waynesboro is mapping drainage areas and it will include elevations, cross sections, and flow directions.
P-8	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	City	Within 5 years	Action ongoing
P-9	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, City	Ongoing	Completed September 2019

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-10	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	City	Within 2 years	Action ongoing
P-11	Develop a comprehensive plan.	All	High	CDBG, MSDA	Unknown	City		Completed. Delete
P-12	Develop City-wide H&H study	FL	High	Self-Funded	Unknown	City	2024	New
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	City	Within 5 years	Action ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, City	Within 3 years	Action ongoing
PP-3	Continue to retrofit public buildings to withstand natural hazards such as hurricanes and flooding.	All	High	HMGP	Unknown	City	Within 2 years; Next round of HMGP funding	Action ongoing
PP-4	Ensure that public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO	High	Self-funded	No additional cost	City	Within 1 year	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, City	Within 2 years; Next round of HMGP funding	Action ongoing
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PP-8	Warning sirens throughout planning area	TH, TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-9	Individual saferooms throughout planning area	TO	Medium	HMA, MEMA	$5,000+	County	2024	New
PP-10	361 Saferooms were needed- location is TBD	TO	Medium	HMA, MEMA	TBD	County	2024	New
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ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Within 2 years	Action ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County SD, County VFDs	Within 2 years	Action ongoing. Waynesboro has reverse call back system in place as of 2018.
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters and adding safe rooms.	All	High	HMGP	Unknown	County EMA	Within 2 years	Action ongoing
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA	Within 2 years	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-5	Improve disaster communication systems within the County.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing. MSWINN at Fire Department and all use social media.
ES-6	Explore establishment of a County-wide central dispatch system.	All	High	HMGP	Unknown	County EMA		Action completed. Delete
ES-7	Ensure that emergency sirens are in place county-wide.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-8	Install warning informers in buildings that house vulnerable populations.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-9	Install Alert FM service at radio station.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action completed
ES-10	Upgrade Emergency Broadcast System capabilities.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	HU, TS	Medium	Self-funded	No additional cost	City	Within 2 years	Action ongoing
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	HU, TS	Medium	Self-funded	No additional cost	City	Within 1 year	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County, City	Within 2 years; Next round of HMGP funding	Action ongoing
ES-14	Host a meeting to review Wayne County Comprehensive Emergency Management Plan.	TT	High	Self-funded	No additional cost	County LEPC, County, City	Within 2 years; Next round of HMGP funding	Action ongoing
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, City	Ongoing	Action ongoing
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, City	Within 2 years	Action ongoing
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	City	Within 2 years	Action ongoing
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Within 1 year	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA, County Fire Coordinator	Within 1 year; Annual presentations	Action ongoing
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL; Multiple	High	Self-funded	No additional cost	County EMA	Upon request	Action ongoing
PEA-5	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	City	Within 2 years	Action ongoing
PEA-6	Education and outreach regarding drought and water conservation procedures	All	Medium	Self-funded	Low or no cost	County	2024	New

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards TT = Transportation and Technological Hazards
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County EMA = Wayne County Emergency Management Agency County SD = Wayne County Sheriff's Dept. County VFD = Wayne County Volunteer Fire Dept. County LEPC = Wayne County Local Emergency Planning Committee

SECTION 10

PLAN MAINTENANCE

This section discusses how the MEMA District 8 Mitigation Strategy and Mitigation Action Plan will be implemented and how the Regional Hazard Mitigation Plan will be evaluated and enhanced over time. This section also discusses how the public will continue to be involved in a sustained hazard mitigation planning process. It consists of the following three subsections:

- 10.1 Implementation and Integration
- 10.2 Monitoring, Evaluation, and Enhancement
- 10.3 Continued Public Involvement

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44 CFR Requirement
44 CFR Part201.6(c)(4)(i): The plan shall include a plan maintenance process that includes a section describing the method and schedule of monitoring, evaluating and updating the mitigation plan within a five-year cycle. ***44 CFR Part 201.6(c)(4)(ii):*** The plan maintenance process shall include 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

10.1 IMPLEMENTATION AND INTEGRATION

Each agency, department, or other partner participating under the MEMA District 8 Regional Hazard Mitigation Plan is responsible for implementing specific mitigation actions as prescribed in the Mitigation Action Plan. Every proposed action listed in the Mitigation Action Plan is assigned to a specific "lead" agency or department in order to assign responsibility and accountability and increase the likelihood of subsequent implementation.

In addition to the assignment of a local lead department or agency, an implementation time period or a specific implementation date has been assigned in order to assess whether actions are being implemented in a timely fashion. The counties in the MEMA District 8 Region will seek outside funding sources to implement mitigation projects in both the pre-disaster and post-disaster environments. When applicable, potential funding sources have been identified for proposed actions listed in the Mitigation Action Plan.

The participating jurisdictions will integrate this Hazard Mitigation Plan into relevant city and county government decision-making processes or mechanisms, where feasible. This includes integrating the requirements of the Hazard Mitigation Plan into other local planning documents, processes, or mechanisms, such as comprehensive or capital improvement plans, when appropriate. The members of the MEMA District 8 Regional Hazard Mitigation Council (RHMC) will remain charged with ensuring that the goals and mitigation actions of new and updated local planning documents for their agencies or

departments are consistent, or do not conflict with, the goals and actions of the Hazard Mitigation Plan, and will not contribute to increased hazard vulnerability in the MEMA District 8 Region.

Since the previous County-level plans were adopted, each County and participating jurisdiction has worked to integrate the hazard mitigation plan into other planning mechanisms where applicable/feasible. Examples of how this integration has occurred have been documented in the Implementation Status discussion provided for each of the mitigation actions found in Section 9. Specific examples of how integration has occurred include:

- Integrating the mitigation plan into reviews and updates of floodplain management ordinances;
- Integrating the mitigation plan into reviews and updates of County emergency operations plans;
- Integrating the mitigation plan into review and updates of building codes; and
- Integrating the mitigation plan into the capital improvements plan through identification of mitigation actions that require local funding

Opportunities to further integrate the requirements of this Plan into other local planning mechanisms shall continue to be identified through future meetings of the RHMC, individual county meetings, and the annual review process described herein. Although it is recognized that there are many possible benefits to integrating components of this Plan into other local planning mechanisms, the development and maintenance of this stand-alone Regional Hazard Mitigation Plan is deemed by the MEMA District 8 RHMC to be the most effective and appropriate method to implement local hazard mitigation actions at this time.

10.2 MONITORING, EVALUATION, AND ENHANCEMENT

Periodic revisions and updates of the Hazard Mitigation Plan are required to ensure that the goals of the Plan are kept current, taking into account potential changes in hazard vulnerability and mitigation priorities. In addition, revisions may be necessary to ensure that the Plan is in full compliance with applicable federal and state regulations. Periodic evaluation of the Plan will also ensure that specific mitigation actions are being reviewed and carried out according to the Mitigation Action Plan.

When determined necessary, the MEMA District 8 RHMC shall meet in March of every year to evaluate the progress attained and to revise, where needed, the activities set forth in the Plan. The findings and recommendations of the RHMC shall be documented in the form of a report that can be shared with interested municipal and County Council members. The RHMC will also meet following any disaster events warranting a reexamination of the mitigation actions being implemented or proposed for future implementation. This will ensure that the Plan is continuously updated to reflect changing conditions and needs within the region. MEMA will be responsible for reconvening the RHMC for these reviews.

FIVE YEAR PLAN REVIEW

The Plan will be thoroughly reviewed by the RHMC every five years to determine whether there have been any significant changes in the region that may, in turn, necessitate changes in the types of mitigation actions proposed. New development in identified hazard areas, an increased exposure to

hazards, an increase or decrease in capability to address hazards, and changes to federal or state legislation are examples of factors that may affect the necessary content of the Plan.

The plan review provides MEMA District 8 county officials with an opportunity to evaluate those actions that have been successful and to explore the possibility of documenting potential losses avoided due to the implementation of specific mitigation measures. The plan review also provides the opportunity to address mitigation actions that may not have been successfully implemented as assigned. MEMA will be responsible for reconvening the RHMC and conducting the five-year review.

During the five-year plan review process, the following questions will be considered as criteria for assessing the effectiveness and appropriateness of the Plan:

- Do the goals address current and expected conditions?
- Has the nature or magnitude of risks changed?
- Are the current resources appropriate for implementing the Plan?
- Are there implementation problems, such as technical, political, legal or coordination issues with other agencies?
- Have the outcomes occurred as expected?
- Did County departments participate in the plan implementation process as assigned?

Following the five-year review, any revisions deemed necessary will be summarized and implemented according to the reporting procedures and plan amendment process outlined herein. Upon completion of the review and update/amendment process, the MEMA District 8 Regional Hazard Mitigation Plan will be submitted to the State Hazard Mitigation Officer at MEMA for final review and approval in coordination with the Federal Emergency Management Agency (FEMA).

DISASTER DECLARATION

Following a disaster declaration, the MEMA District 8 Regional Hazard Mitigation Plan will be revised as necessary to reflect lessons learned, or to address specific issues and circumstances arising from the event. It will be the responsibility of MEMA to reconvene the RHMC and ensure the appropriate stakeholders are invited to participate in the plan revision and update process following declared disaster events.

REPORTING PROCEDURES

The results of the five-year review will be summarized by the RHMC in a report that will include an evaluation of the effectiveness of the Plan and any required or recommended changes or amendments. The report will also include an evaluation of implementation progress for each of the proposed mitigation actions, identifying reasons for delays or obstacles to their completion along with recommended strategies to overcome them.

PLAN AMENDMENT PROCESS

Upon the initiation of the amendment process, the MEMA District 8 counties will forward information on the proposed change(s) to all interested parties including, but not limited to, all directly affected

County departments, residents, and businesses. Information will also be forwarded to MEMA. This information will be disseminated in order to seek input on the proposed amendment(s) for no less than a 45-day review and comment period.

At the end of the 45-day review and comment period, the proposed amendment(s) and all comments will be forwarded to the RHMC for final consideration. The RHMC will review the proposed amendment along with the comments received from other parties, and if acceptable, the committee will submit a recommendation for the approval and adoption of changes to the Plan.

In determining whether to recommend approval or denial of a Plan amendment request, the following factors will be considered by the RHMC:

- There are errors, inaccuracies, or omissions made in the identification of issues or needs in the Plan.
- New issues or needs have been identified which are not adequately addressed in the Plan.
- There has been a change in information, data, or assumptions from those on which the Plan is based.

Upon receiving the recommendation from the RHMC, and prior to adoption of the Plan, the participating jurisdictions will hold a public hearing, if deemed necessary. The governing bodies of each participating jurisdiction will review the recommendation from the RHMC (including the factors listed above) and any oral or written comments received at the public hearing. Following that review, the governing bodies will take one of the following actions:

- Adopt the proposed amendments as presented;
- Adopt the proposed amendments with modifications;
- Refer the amendments request back to the RHMC for further revision; or
- Defer the amendment request back to the RHMC for further consideration and/or additional hearings.

10.3 CONTINUED PUBLIC INVOLVEMENT

44 CFR Requirement
44 CFR Part 201.6(c)(4)(iii): The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process

Public participation is an integral component to the mitigation planning process and will continue to be essential as this Plan evolves over time. As described above, significant changes or amendments to the Plan shall require a public hearing prior to any adoption procedures.

Other efforts to involve the public in the maintenance, evaluation, and revision process will be made as necessary. These efforts may include:

- Advertising meetings of the RHMC in local newspapers, public bulletin boards and/or County office buildings;

- Designating willing and voluntary citizens and private sector representatives as official members of the RHMC;
- Utilizing local media to update the public on any maintenance and/or periodic review activities taking place;
- Utilizing the MEMA District 8 county websites to advertise any maintenance and/or periodic review activities taking place; and
- Keeping copies of the Plan in public libraries.

Annex A
Covington County

This annex includes jurisdiction-specific information for Covington County and its participating municipalities. It consists of the following five subsections:

- A.1 Covington County Community Profile
- A.2 Covington County Risk Assessment
- A.3 Covington County Vulnerability Assessment
- A.4 Covington County Capability Assessment
- A.5 Covington County Mitigation Strategy

A.1 COVINGTON COUNTY COMMUNITY PROFILE

A.1.1 Geography and the Environment

Covington County is located in south central Mississippi just 63 miles south of Jackson, the state's capital, and provides easy access to other parts of the state and nation. It comprises one city and two towns, the City of Collins, the Town of Mount Olive, and the Town of Seminary, as well as many small unincorporated communities. An orientation map is provided as **Figure A.1**.

The county is an agricultural area consisting of approximately 60 percent commercial forestland. The total area of the county is 415 square miles, 1 square mile of which is water area. Additionally, the Okatoma River carves a winding path through the county, running through all three municipalities. Each year, several thousand tourists travel from across the Southeast to canoe and kayak a portion of the river from Seminary to Sanford.

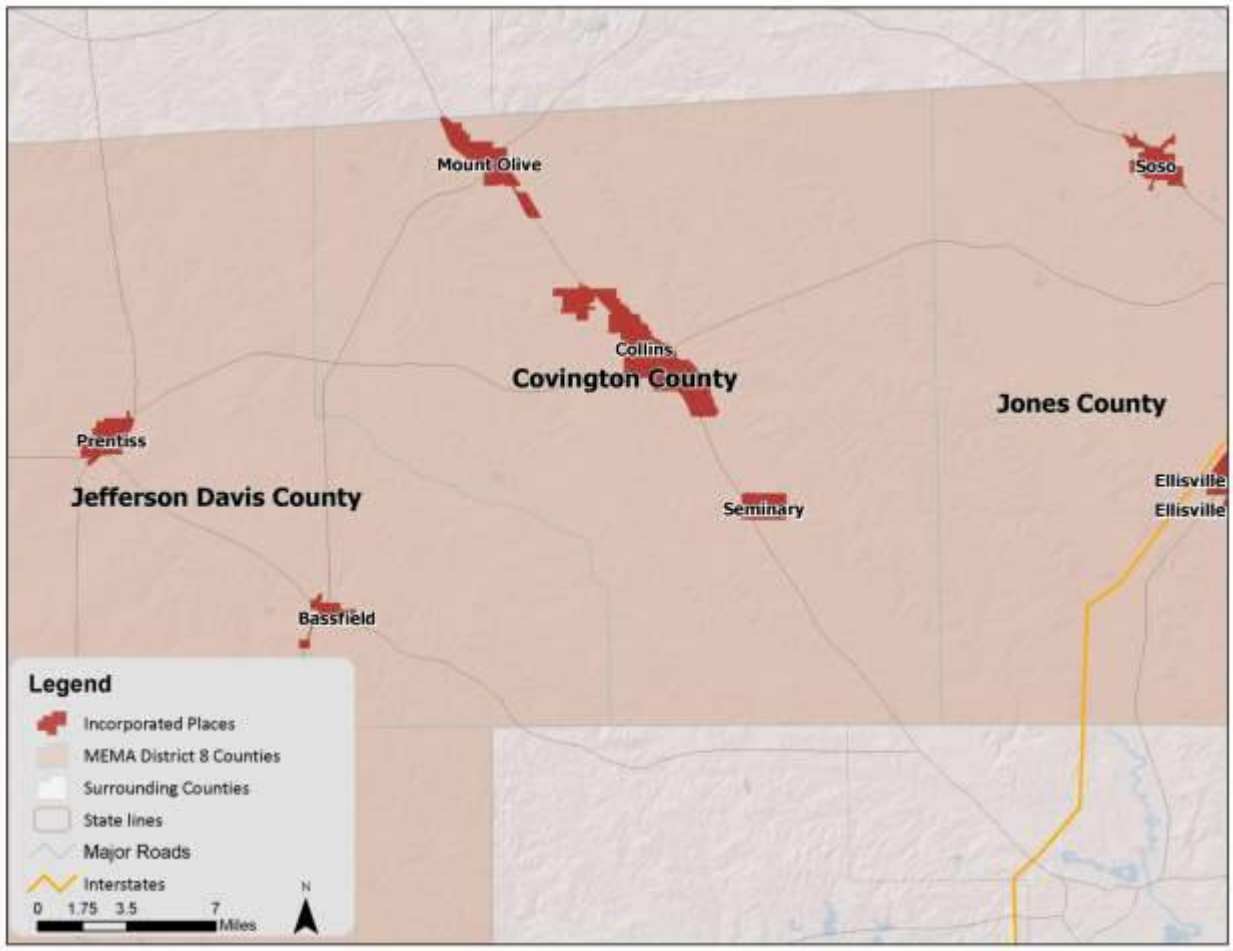
In Covington County, the summers are long, hot, and muggy; the winters are short and cold; and it is wet and partly cloudy year-round. Over the course of the year, the temperature typically varies from 39°F to 91°F and is rarely below 25°F or above 96°F. The hot season lasts for 4.1 months, from May 20 to September 25, with an average daily high temperature above 84°F. The hottest day of the year is July 22, with an average high of 91°F and low of 72°F. The cool season lasts for 2.8 months, from November 30 to February 22, with an average daily high temperature below 65°F. The coldest day of the year is January 17, with an average low of 39°F and high of 59°F.

A wet day is one with at least 0.04 inches of liquid or liquid-equivalent precipitation. The chance of wet days in Covington County varies throughout the year. The wetter season lasts 3.0 months, from May 29 to August 28, with a greater than 36% chance of a given day being a wet day. The chance of a wet day peaks at 51% on July 19. The drier season lasts 9.0 months, from August 28 to May 29. The smallest chance of a wet day is 21% on October 5.

Among wet days, we distinguish between those that experience rain alone, snow alone, or a mixture of the two. Based on this categorization, the most common form of precipitation throughout the year is rain alone, with a peak probability of 51% on July 19. To show variation within the months and not just

the monthly totals, we show the rainfall accumulated over a sliding 31-day period centered around each day of the year. Covington County experiences significant seasonal variation in monthly rainfall. Rain falls throughout the year in Covington County. The most rain falls during the 31 days centered around February 14, with an average total accumulation of 5.6 inches. The least rain falls around October 4, with an average total accumulation of 3.0 inches.

FIGURE A.1: COVINGTON COUNTY ORIENTATION MAP



A.1.2 Population and Demographics

According to the 2010 Census, Covington County has a population of 19,568 people. The county has seen a slight growth in population between 2000 and 2010, and the population density is 47 people per square mile. However, between the last official Census and the proposed estimates, there has been a decline. Per the Census Reports, in 2017, Covington County had a population of 19,079 which is a 1.9 percent decline. The household income is $36,471, which grew 15.1 percent. Population counts from the US Census Bureau for 1990, 2000, and 2010 for the county and all of the participating jurisdictions are presented in **Table A.1**. Estimates for 2017 are also included.

TABLE A.1: POPULATION COUNTS FOR COVINGTON COUNTY

Jurisdiction	1990 Census Population	2000 Census Population	2010 Census Population	% Change 2000-2010	Estimated 2017 Census Population
Covington County	**16,527**	**19,407**	**19,568**	**0.8%**	**19,079**
Collins	2,541	2,683	2,586	-3.6%	2,481
Mount Olive	914	893	982	10.0%	936
Seminary	231	335	314	-6.3%	301

Source: US Census Bureau

Based on the 2010 Census, the median age of residents of Covington County is 37.6 years and per the 2017 estimates, that has not changed. The racial characteristics of the county are presented in **Table A.2** and will remain the same as the census data has not been officially updated. Due to the population decrease, the racial characteristics differ slightly. The population is 34.9 percent for black or African American persons and 1.9 percent are Hispanic or Latino. Whites continue to make up the majority of the population in the county, accounting for 63 percent of the population.

TABLE A.2: DEMOGRAPHICS OF COVINGTON COUNTY

Jurisdiction	White Persons, Percent (2010)	Black Persons, Percent (2010)	American Indian or Alaska Native, Percent (2010)	Other Race, Percent (2010)	Persons of Hispanic Origin, Percent (2010) *
Covington County	**63.0%**	**34.9%**	**0.1%**	**1.0%**	**1.9%**
Collins	44.2%	51.1%	0.1%	3.4%	4.2%
Mount Olive	43.5%	55.1%	0.3%	0.0%	0.9%
Seminary	94.9%	3.5%	0.6%	1.0%	1.6%

*Hispanics may be of any race, so also are included in applicable race categories

Source: US Census Bureau

A.1.3 Housing

According to the 2010 US Census, there are 8,501 housing units in Covington County, the majority of which are single family homes or mobile homes. Per 2018 estimates, the total number of houses rose to 16,649 units. However, the median home value is $87,100, which shows growth by at least 6.22 percent. Housing information for the county and three towns is presented in **Table A.3**. As shown in the table, the three incorporated towns have a slightly lower percentage of seasonal housing units compared to the unincorporated county.

TABLE A.3: HOUSING CHARACTERISTICS OF COVINGTON COUNTY

Jurisdiction	Housing Units (2000)	Housing Units (2010)	Seasonal Units, Percent (2010)	Median Home Value (2007-2011)	Housing Units (2018)	Median Home Value (2018)
Covington County	**8,083**	**8,501**	**2.2%**	**$78,900**	**8,739**	**$77,600**
Collins	1,012	1,026	1.0%	$93,300	1,249	$93,595

Jurisdiction	Housing Units (2000)	Housing Units (2010)	Seasonal Units, Percent (2010)	Median Home Value (2007-2011)	Housing Units (2018)	Median Home Value (2018)
Mount Olive	396	458	0.9%	$76,500	462	$73,598
Seminary	150	148	2.7%	$104,200	153	$134,091

Source: US Census Bureau

A.1.4 Infrastructure

TRANSPORTATION

There are several US and state highways that serve Covington County and link it with other regions of Mississippi as well as the neighboring states of Louisiana, Arkansas, Tennessee, and Alabama. To the south, US Highway 49 serves the county directly and leads to the Mississippi Gulf Coast. Northward, US Highway 49 connects with Interstate 55 in Jackson, leading to Memphis, St. Louis, and the Great Lakes Region. In addition, US Highway 84 provides a route to major cities east and west. State Highways 35, 37, 532, 535, 588, 589, 590, and 598 link Covington County with the six neighboring counties.

Covington County enjoys the close proximity of the Jackson International Airport as well as the Hattiesburg-Laurel Regional Airport.

Covington County is also served by the Canadian National Railroad, but there is no passenger service offered at this time.

UTILITIES

Electrical power in Covington County is provided by several sources, including Mississippi Power Company, Southern Pine, Dixie Electric, South Mississippi Electric Power Association, Entergy, and the City of Collins.

Water and sewer service is provided to residents by the City of Collins and a variety of lift stations and rural water associations, including Cold Springs Water Association, Northwest Covington Water Association, Okatoma Water Association, Salem Water Association, Southwest Jones Water Association, and Willow Grove Water Association.

COMMUNITY FACILITIES

There are a number of buildings and community facilities located throughout Covington County. According to the data collected for the vulnerability assessment (Section 6.4.1), there are 12 fire stations, 3 police stations, and 10 public schools located within the county.

There is one hospital located in Covington County. Covington County Hospital is a 25-bed medical-surgical hospital located in the City of Collins.

Recreation-oriented tourism is one of Covington County's assets. There are two lakes offering quality outdoor opportunities in the County. Lake Mike Connor is located west of Collins and offers freshwater fishing, RV camping, swimming, picnicking, hiking, boating, and Florida Bass Fishing. Dry Creek Water

park, located in the Mount Olive area, offers camping, swimming, picnicking, hiking, boating, numerous ball fields, tennis courts, and swimming facilities. Also, the Okatoma River provides the only white water rapids in the state and offers unique opportunities for fishing and canoeing.

A.1.5 Land Use

Many areas of Covington County are undeveloped or sparsely developed due to the county's location just off the Gulf Coast and the conservation of land in state and national parks. There are a few incorporated municipalities located throughout the region, and these areas are where the region's population is generally concentrated. The incorporated areas are also where many businesses, commercial uses, and institutional uses are located. Land uses in the balance of the county generally consist of rural residential development, agricultural uses, and recreational areas.

A.1.6 Employment and Industry

According to the Mississippi Employment Security Commission, in 2018, Covington County had an average annual employment of 5,350 workers and an average unemployment rate of 8.2 percent (compared to 6.0 percent for the state). In 2018, the Manufacturing industry employed 26.2 percent of the County's workforce followed by Retail Trade (11.2%), and Transportation and Warehousing (8.0%). The average annual wage in 2018 for Covington County was $35,880 compared to $41,236 for the State of Mississippi.

A.2 COVINGTON COUNTY RISK ASSESSMENT

This subsection includes hazard profiles for each of the significant hazards identified in Section 4: *Hazard Identification* as they pertain to Covington County. Each hazard profile includes a description of the hazard's location and extent, notable historical occurrences, and the probability of future occurrences. Additional information can be found in Section 5: *Hazard Profiles*.

A.2.1 Flood

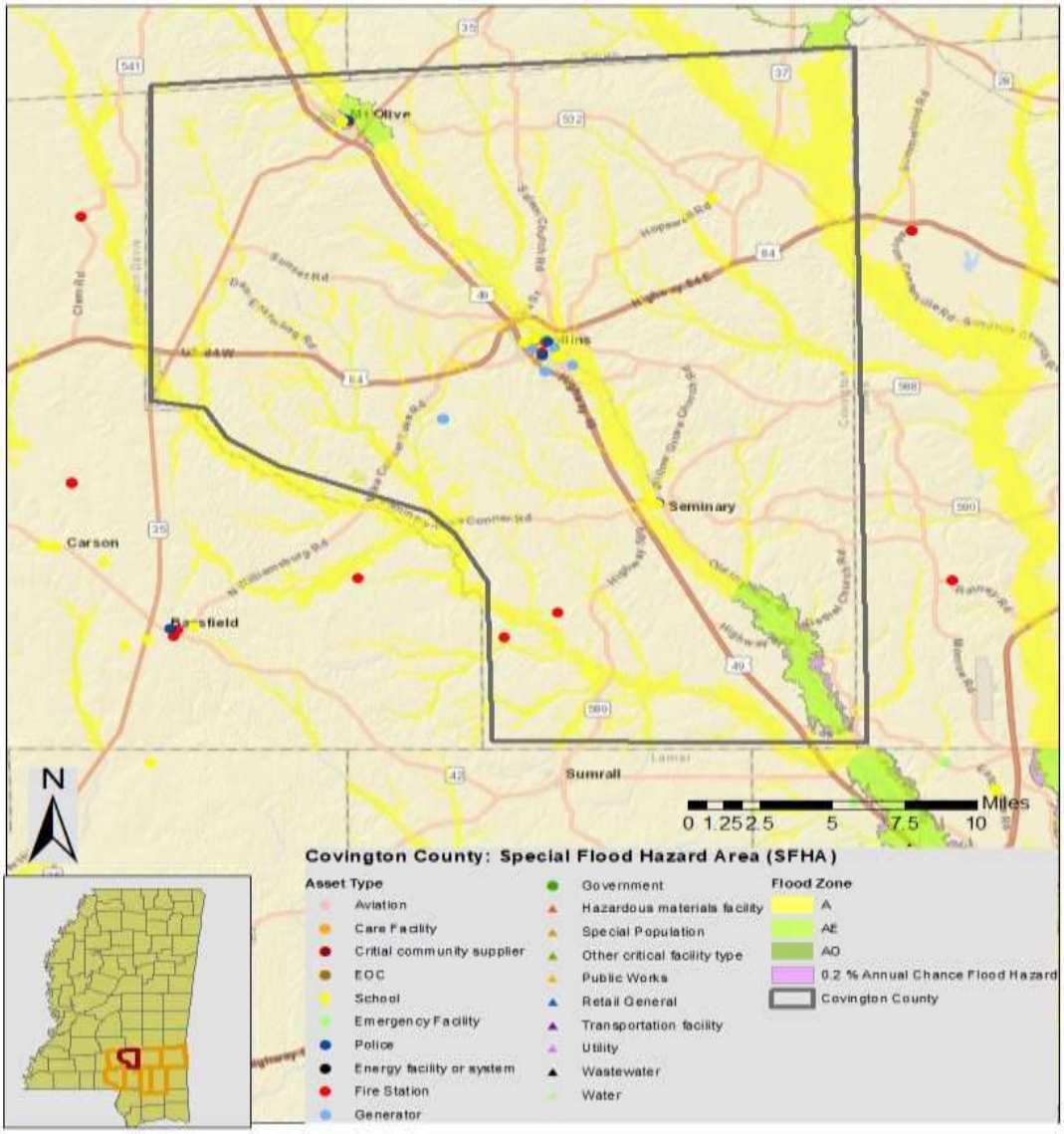
LOCATION AND SPATIAL EXTENT

There are areas in Covington County that are susceptible to flood events. Special flood hazard areas in the county were mapped using Geographic Information System (GIS) and FEMA Digital Flood Insurance Rate Maps (DFIRM).[1] This includes Zone A (1-percent annual chance floodplain), Zone AE (1-percent annual chance floodplain with elevation), and the 0.2-percent annual chance floodplain. According to GIS analysis, of the 412 square miles that make up Covington County, there are 80 square miles of land in zones A and AE (1-percent annual chance floodplain/100-year floodplain) and 1 square mile of land in the 0.2-percent annual chance floodplain (500-year floodplain).

These flood zone values account for 19.7 percent of the total land area in Covington County. It is important to note that while FEMA digital flood data is recognized as best available data for planning purposes, it does not always reflect the most accurate and up-to-date flood risk. Flooding and flood-related losses often do occur outside of delineated special flood hazard areas.

[1] The county-level DFIRM data used for Covington County were updated in 2010.

FIGURE A.2: SPECIAL FLOOD HAZARD AREAS IN COVINGTON COUNTY



Source: Federal Emergency Management Agency

HISTORICAL OCCURRENCES

Floods resulted in three disaster declarations in Covington County in 1974, 1983, and 1990.[2] Information from the National Centers for Environmental Information was used to ascertain historical flood events. The National Centers for Environmental Information reported a total of 26 events in Covington County since 1998.[3] A summary of these events is presented in **Table A.4**. These events accounted for over $3.3 million in property damage in the county. Specific information on flood events, including date, type of flooding, and deaths and injuries, can be found in **Table A.5**.

[2]A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.
[3] These events are only inclusive of those reported by NCEI. It is likely that additional occurrences have occurred and have gone unreported.

187

188 **TABLE A.4: SUMMARY OF FLOOD OCCURRENCES IN COVINGTON COUNTY**

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Collins	6	0/0	$258,689
Mount Olive	3	0/0	$314,460
Seminary	4	0/0	$45,130
Unincorporated Area	13	0/0	$2,762,537
COVINGTON COUNTY TOTAL	**26**	**0/0**	**$3,380,816**

Source: National Centers for Environmental Information

189

190 **TABLE A.5: HISTORICAL FLOOD EVENTS IN COVINGTON COUNTY**

Location	Date	Type	Deaths / Injuries	Property Damage*
Collins				
COLLINS	07-MAR-98	FLASH FLOOD	0/0	$0
COLLINS	02-MAR-01	FLASH FLOOD	0/0	$0
COLLINS	03-SEP-01	FLASH FLOOD	0/0	$35,644
COLLINS	09-MAR-11	FLASH FLOOD	0/0	$53,045
COLLINS	10-MAR-16	FLASH FLOOD	0/0	$20,000
COLLINS	11-MAR-16	FLASH FLOOD	0/0	$150,000
Mount Olive				
MT OLIVE	21-FEB-03	FLASH FLOOD	0/0	$21,386
MT OLIVE	21-FEB-03	FLASH FLOOD	0/0	$6,720
MT OLIVE	12-APR-09	FLASH FLOOD	0/0	$253,354
MT OLIVE	10-MAR-16	FLASH FLOOD	0/0	$30,000
Seminary				
SEMINARY	14-DEC-09	FLASH FLOOD	0/0	$5,628
SEMINARY	08-MAR-11	FLASH FLOOD	0/0	$4,502
SEMINARY	10-FEB-16	FLASH FLOOD	0/0	$25,000
SEMINARY	11-MAR-16	FLASH FLOOD	0/0	$10,000
Unincorporated Area				
COUNTYWIDE	01-MAR-01	FLASH FLOOD	0/0	$0
COUNTYWIDE	02-MAR-01	FLASH FLOOD	0/0	$14,258
COUNTYWIDE	03-MAR-01	FLASH FLOOD	0/0	$0
COUNTYWIDE	03-MAR-01	FLASH FLOOD	0/0	$14,258
COUNTYWIDE	03-MAR-01	FLASH FLOOD	0/0	$0
COUNTYWIDE	03-MAR-01	FLASH FLOOD	0/0	$0
COUNTYWIDE	05-FEB-04	FLASH FLOOD	0/0	$268,783
SOUTH PORTION	31-MAR-05	FLASH FLOOD	0/0	$326,193
SOUTHEAST PORTION	01-APR-05	FLASH FLOOD	0/0	$101,342
SOUTHEAST PORTION	29-AUG-05	FLASH FLOOD	0/0	$380,031
WILLIAMSBURG	15-DEC-09	FLASH FLOOD	0/0	$5,628
COLLINS JAYCEE ARPT	08-MAR-11	FLASH FLOOD	0/0	$42,436
PICKERING	18-FEB-12	FLASH FLOOD	0/0	$10,609
PICKERING	20-FEB-14	FLASH FLOOD	0/0	$30,000
WILLIAMSBURG	21-FEB-14	FLOOD	0/0	$10,000

Location	Date	Type	Deaths / Injuries	Property Damage*
SMITH	01-JAN-15	FLASH FLOOD	0/0	$5,000
HOT COFFEE	10-MAR-16	FLASH FLOOD	0/0	$8,000
LUX	11-MAR-16	FLASH FLOOD	0/0	$25,000
SMITH	11-MAR-16	FLASH FLOOD	0/0	$7,000
HOT COFFEE	11-MAR-16	FLASH FLOOD	0/0	$4,000
SANFORD	11-MAR-16	FLASH FLOOD	0/0	$10,000
SANFORD	06-JUN-17	FLASH FLOOD	0/0	$1,500,000

Source: National Centers for Environmental Information

HISTORICAL SUMMARY OF INSURED FLOOD LOSSES

Recently, FEMA issued a directive that prevents states or local governments from sharing NFIP information such as rep loss or severe rep loss data with third parties. Third parties are considered as consultants, contractors, etc. As a result, for continuity of information so that the reader with have an idea of the historical occurrences along with the corresponding damage amounts, the decision was made to leave the existing information in the plan.

According to FEMA flood insurance policy records as of March 2013, there have been 48 flood losses reported in Covington County through the National Flood Insurance Program (NFIP) since 1978, totaling nearly $529,000 in claims payments. Currently, this remains the best available data. A summary of these figures for the county is provided in **Table A.6**. It should be emphasized that these numbers include only those losses to structures that were insured through the NFIP policies, and for losses in which claims were sought and received. It is likely that many additional instances of flood loss in Covington County were either uninsured, denied claims payment, or not reported.

TABLE A.6: SUMMARY OF INSURED FLOOD LOSSES IN COVINGTON COUNTY

Location	Flood Losses	Claims Payments
Collins	18	$124,503
Mount Olive	3	$46,982
Seminary	0	$0
Unincorporated Area	27	$357,325
COVINGTON COUNTY TOTAL	**48**	**$528,810**

Source: FEMA, NFIP

REPETITIVE LOSS PROPERTIES

No updates to this section can be provided at this time. Information normally used to update this section is not currently accessible. As a result, this information will remain the same for historical purposes.

As of May 2013, there are eight non-mitigated repetitive loss properties located in Covington County, which accounted for 18 losses and more than $291,000 in claims payments under the NFIP. The average claim amount for these properties is $16,168. All eight of the properties are single family residential. Without mitigation these properties will likely continue to experience flood losses. **Table A.7** presents detailed information on repetitive loss properties and NFIP claims and policies for Covington County. Currently, this remains the best available data.

TABLE A.7: REPETITIVE LOSS PROPERTIES IN COVINGTON COUNTY

Location	Number of Properties	Types of Properties	Number of Losses	Building Payments	Content Payments	Total Payments	Average Payment
Collins	0	--	0	$0	$0	$0	$0
Mount Olive	0	--	0	$0	$0	$0	$0
Seminary	0	--	0	$0	$0	$0	$0
Unincorporated Area	8	8 single family	18	$227,470	$63,562	$291,033	$16,169
COVINGTON COUNTY TOTAL	**8**		**18**	**$227,470**	**$63,562**	**$291,033**	**$16,169**

Source: National Flood Insurance Program

PROBABILITY OF FUTURE OCCURRENCES

Due to the unpredictable nature of this hazard, flood events will remain a threat in Covington County, and the probability of future occurrences will remain likely (between 10 and 100 percent annual probability). The participating jurisdictions and unincorporated areas have risk to flooding, though not all areas will experience flood. The probability of future flood events based on magnitude and according to best available data is illustrated in the figures above**,** which indicates those areas susceptible to the 1-percent annual chance flood (100-year floodplain) and the 0.2-percent annual chance flood (500-year floodplain).

It can be inferred from the floodplain location maps, previous occurrences, and repetitive loss properties that risk varies throughout the county. For example, the northeast corner of the county has more floodplain and thus a higher risk of flood than the northwest corner of the county. Flood is not the greatest hazard of concern but will continue to occur and cause damage. Therefore, mitigation actions may be warranted, particularly for repetitive loss properties.

A.2.2 Erosion

LOCATION AND SPATIAL EXTENT

Erosion in Covington County is typically caused by flash flooding events. Unlike coastal areas, areas of concern for erosion in Covington County are primarily rivers and streams. Generally, vegetation helps to prevent erosion in the area, and it is not an extreme threat to any of the participating counties and jurisdictions. No areas of concern were reported by the planning committee.

HISTORICAL OCCURRENCES

Several sources were vetted to identify areas of erosion in Covington County. This includes searching local newspapers, interviewing local officials, and reviewing previous hazard mitigation plans. No historical erosion occurrences were found in these sources.

Covington County has a flood damage prevention ordinance that includes measures to limit erosion, such as preventing damaging increases in erosion and controlling filling, grading, dredging, and other

development which may increase erosion. Such actions will continue to be implemented as necessary throughout the county.

PROBABILITY OF FUTURE OCCURRENCES

Erosion remains a natural, dynamic, and continuous process for Covington County, and it will continue to occur. The annual probability level assigned for erosion is possible (between 1 and 10 percent annually).

A.2.3 Dam Failure

LOCATION AND SPATIAL EXTENT

According to the Mississippi Division of Environmental Quality, there is one dam's status was elevated to a high hazard dam. The high hazard dam is listed by name in **Table A.8**. According to a consensus of local government officials and the Regional Hazard Mitigation Council, a majority of these dams would not pose a major threat in a breach or failure occurrence.

TABLE A.8: COVINGTON COUNTY HIGH HAZARD DAMS

Dam Name	Hazard Potential
Covington County	
DRY CREEK WATERSHED STRUCTURE 3 DAM	High

Source: Mississippi Division of Environmental Quality

HISTORICAL OCCURRENCES

There is no record of dam breaches in Covington County. However, several breach scenarios in the county could be catastrophic.

PROBABILITY OF FUTURE OCCURRENCES

Given the current dam inventory and historic data, a dam breach is unlikely (less than 1 percent annual probability) in the future. However, as has been demonstrated in the past, regular monitoring is necessary to prevent these events.

A.2.4 Winter Storm and Freeze

LOCATION AND SPATIAL EXTENT

Nearly the entire continental United States is susceptible to winter storm and freeze events. Some ice and winter storms may be large enough to affect several states, while others might affect limited, localized areas. The degree of exposure typically depends on the normal expected severity of local winter weather. Covington County is not typically affected by major severe winter weather conditions

and seldom receives extremely devastating winter weather, even during the winter months. Given the atmospheric nature of the hazard the entire county has uniform exposure to a winter storm.

HISTORICAL OCCURRENCES

According to the National Centers for Environmental Information, there have been a total of two recorded winter storm events in Covington County since 2008 (**Table A.9**).[4] These events resulted in almost $350,000 in damages. Detailed information on the recorded winter storm events can be found in **Table A.10**.[5]

TABLE A.9: SUMMARY OF WINTER STORM EVENTS IN COVINGTON COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Covington County	6	0/0	$349,819

Source: National Centers for Environmental Information

TABLE A.10: HISTORICAL WINTER STORM IMPACTS IN COVINGTON COUNTY

Location	Date	Type	Deaths / Injuries	Property Damage*
Collins				
None Reported	--	--	--	--
Mount Olive				
None Reported	--	--	--	--
Seminary				
None Reported	--	--	--	--
Unincorporated Area				
COVINGTON COUNTY	19-JAN-08	HEAVY SNOW	0/0	$289,819
COVINGTON COUNTY	11-DEC-08	HEAVY SNOW	0/0	$0
COVINGTON COUNTY	28-JAN-14	HEAVY SNOW	0/0	$0
COVINGTON COUNTY	06-JAN-17	WINTER WEATHER	0/0	$10,000
COVINGTON COUNTY	07-DEC-17	HEAVY SNOW	0/0	$50,000
COVINGTON COUNTY	16-JAN-18	WINTER WEATHER	0/0	$0

Source: National Centers for Environmental Information

There have been several severe winter weather events in Covington County. The text below describes one of the major events and associated impacts on the county. Similar impacts can be expected with severe winter weather.

January 2008 Winter Storm

This storm produced heavy snow across the region, with an average of three to four inches of snow. Some heavier amounts, between four to five inches, also fell in isolated areas. At the height of the snow, temperatures fell to near freezing, and accumulations occurred on roadways resulting in a number of traffic accidents. Additionally, some power outages occurred in the heaviest snow band due

[4] These ice and winter storm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is certain that additional winter storm conditions have affected Covington County.
[5] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

to the weight of wet snow on limbs and lines. The heaviest snow fell in the areas around Covington, Jefferson Davis, and Jones Counties.

Winter storms throughout the county have several negative externalities including hypothermia, cost of snow and debris cleanup, business and government service interruption, traffic accidents, and power outages. Furthermore, citizens may resort to using inappropriate heating devices that could to fire or an accumulation of toxic fumes.

January 2018 Winter Storm

During the early morning hours of January 15th, a strong artic cold front was quickly moving through the Central Plains towards the Deep South, ushering in a brutally cold artic airmass behind the frontal passage.

This snowfall occurred after sunset and quickly accumulated on roads causing extremely dangerous driving conditions during the evening and overnight hours. Another atypical aspect of this snow event was that the snow itself was very dry and powdery as it fell with temperatures will into the 20's. Snow fell across the county, with accumulations of up to 1.5 inches.

PROBABILITY OF FUTURE OCCURRENCES

Winter storm events will continue to occur in Covington County. According to historical information, the annual probability is possible (between 1 and 10 percent).

FIRE-RELATED HAZARDS

A.2.5 Drought

LOCATION AND SPATIAL EXTENT

Drought and heat waves typically cover a large area and cannot be confined to any geographic or political boundaries. Furthermore, it is assumed that Covington County would be uniformly exposed to drought and heat waves, making the spatial extent potentially widespread. It is also notable that drought and extreme heat conditions typically do not cause significant damage to the built environment but may exacerbate wildfire conditions.

HISTORICAL OCCURRENCES

Drought

According to the U.S. Drought Monitor, Covington County had drought levels (including abnormally dry) in all of the last nineteen years (2000-2018). **Table A.9** shows the most severe drought classification for each year, according to U.S. Drought Monitor classifications. It should be noted that the U.S. Drought Monitor also estimates what percentage of the county is in each classification of drought severity. For example, the most severe classification reported may be exceptional but a majority of the county may actually be in a less severe condition.

TABLE A. 9: HISTORICAL DROUGHT OCCURRENCES IN COVINGTON COUNTY

Abnormally Dry | Moderate Drought | Severe Drought | Extreme Drought | Exceptional Drought

	Covington County
2000	**EXCEPTIONAL**
2001	MODERATE
2002	MODERATE
2003	ABNORMAL
2004	ABNORMAL
2005	ABNORMAL
2006	**EXTREME**
2007	**EXTREME**
2008	MODERATE
2009	MODERATE
2010	SEVERE
2011	**EXTREME**
2012	MODERATE
2015	SEVERE
2016	SEVERE

Source: U.S. Drought Monitor

There were at least 3 reported drought events between 2015 – 2016 for Covington County according to the National Centers for Environmental Information. All three combined accounted for at least $101,000 in crop damages.

Heat Wave

The National Centers for Environmental Information was used to determine historical heat wave occurrences in the county.

July 2005 – A five-day heat wave covered the area. Temperatures were consistently above 95 degrees. One heat-stress fatality was reported in Covington County. The agricultural industry was hit particularly hard in the cattle and catfish sectors. Water supply issues were encountered by cities and a burn ban was implemented due to the high fire risk.

August 2005 - A heat wave covering the south began in mid-August and lasted about 10 days. High temperatures were consistently over 95 degrees and surpassed 100 degrees on some days. It was the first time since August 2000 that 100-degree temperatures reached the area.

July 2006 – A short heat wave impacted most of the area temperatures in the 90s to around 100 for five straight days.

August 2007 – A heat wave gripped most of the area with the warmest temperatures since 2000. It lasted from August 5th to the 16th.

PROBABILITY OF FUTURE OCCURRENCES

Drought

Based on historical occurrence information, it is assumed that all of Covington County has a probability level of highly likely (100 percent annual probability) for future drought events. However, the extent (or magnitude) of drought and the amount of geographic area covered by drought, varies with each year. Historic information indicates that there is a much lower probability for extreme, long-lasting drought conditions.

Heat Wave

Based on historical occurrence information, it is assumed that all of Covington County has a probability level of highly likely (100 percent annual probability) for future heat wave events.

A.2.6 Wildfire

LOCATION AND SPATIAL EXTENT

The entire county is at risk to a wildfire occurrence. However, several factors such as drought conditions or high levels of fuel on the forest floor may make a wildfire more likely. Furthermore, areas in the urban-wildland interface are particularly susceptible to fire hazard as populations abut formerly undeveloped areas. The Fire Occurrence Areas in the figure below give an indication of historic location.

HISTORICAL OCCURRENCES

Based on data from the Mississippi Forestry Commission from 2008 to 2018, Covington County experiences an average of 26.9 wildfires annually which burn an average of 212 acres per year. The data indicates that most of these fires are small, averaging three acres per fire. **Table A.10** provides a summary of wildfire occurrences in Covington County and **Table A.13** lists the number of reported wildfire occurrences in the county between the years 2008 and 2018.

TABLE A.102: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2008 -2018) *

	Covington County
Average Number of Fires per year	26.9
Average Number of Acres Burned per year	212
Average Number of Acres Burned per fire	7.9

*These values reflect averages over a 10-year period.
Source: Mississippi Forestry Commission

TABLE A.11: HISTORICAL WILDFIRE OCCURRENCES IN COVINGTON COUNTY

Year	2008	2010	2011	2012	2013	2014	2015	2016	2017	2018
Covington County										
Number of Fires	33	25	54	21	10	17	52	31	13	13
Number of Acres Burned	9.3	4.7	8.9	5.7	8.6	10.4	7.4	7.2	10.4	6.8

Source: Mississippi Forestry Commission
**No data reported for 2009*

PROBABILITY OF FUTURE OCCURRENCES

Wildfire events will be an ongoing occurrence in Covington County. The likelihood of wildfires increases during drought cycles and abnormally dry conditions. Fires are likely to stay small in size but could increase due local climate and ground conditions. Dry, windy conditions with an accumulation of forest floor fuel (potentially due to ice storms or lack of fire) could create conditions for a large fire that spreads quickly. It should also be noted that some areas do vary somewhat in risk. For example, highly developed areas are less susceptible unless they are located near the urban-wildland boundary. The risk will also vary due to assets. Areas in the urban-wildland interface will have much more property at risk, resulting in increased vulnerability and need to mitigate compared to rural, mainly forested areas. In this case, the participating jurisdictions appear to have a similar risk to the surrounding areas. The probability assigned to Covington County for future wildfire events is likely (a 10 and 100 percent annual probability).

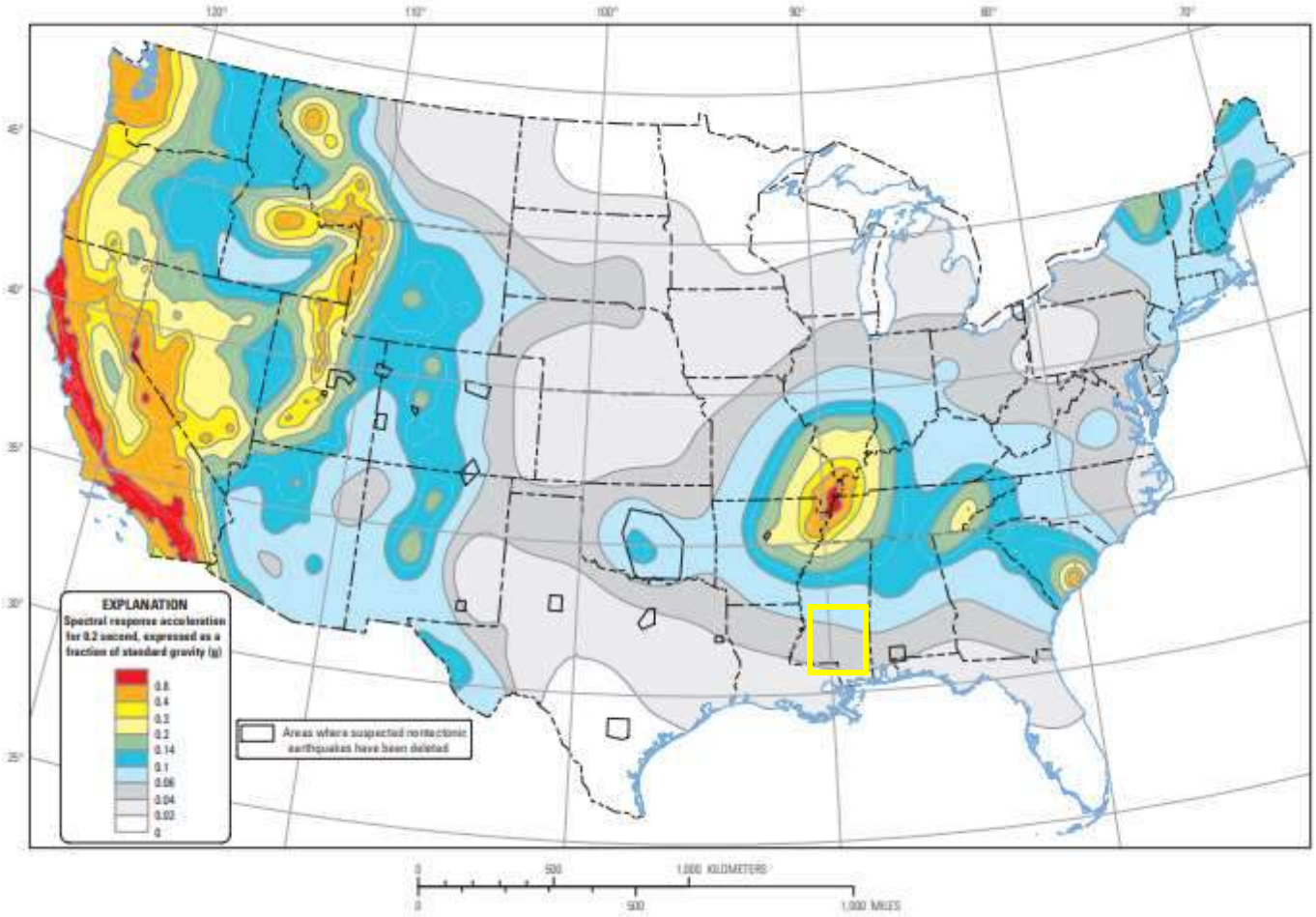
GEOLOGIC HAZARDS

A.2.7 Earthquake

LOCATION AND SPATIAL EXTENT

Figure A.4 shows the intensity level associated with Covington County, based on the national USGS map of peak acceleration with 10 percent probability of exceedance in 50 years. It is the probability that ground motion will reach a certain level during an earthquake. The data show peak horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake) with a 10 percent probability of exceedance in 50 years. The map was compiled by the U.S. Geological Survey (USGS) Geologic Hazards Team, which conducts global investigations of earthquake, geomagnetic, and landslide hazards. According to this map, Covington County lies within an approximate zone of level .04 ground acceleration. This indicates that the county exists within an area of moderate seismic risk.

460 **FIGURE A.4: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS**



461

462 *Source: USGS, 2019*

463

464 ***HISTORICAL OCCURRENCES***

465

466 No earthquakes are known to have affected Covington County since 1638. **Table A.11** provides a
467 summary of earthquake events reported by the National Geophysical Data Center between 1638 and
468 1985.[6]

469

470 **TABLE A.12: SUMMARY OF SEISMIC ACTIVITY IN COVINGTON COUNTY**

Location	Number of Occurrences	Greatest MMI Reported	Richter Scale Equivalent
Collins	0	--	--
Mount Olive	0	--	--
Seminary	0	--	--
Unincorporated Area	0	-	--
COVINGTON COUNTY TOTAL	**0**	**--**	**--**

Source: National Geophysical Data Center

[6] Due to reporting mechanisms, not all earthquakes events were recorded during this time.

PROBABILITY OF FUTURE OCCURRENCES

The probability of significant, damaging earthquake events affecting Covington County is unlikely. However, it is possible that future earthquakes resulting in light to moderate perceived shaking and damages ranging from none to very light will affect the county. The annual probability level for the county is estimated to be less than 1 percent (unlikely).

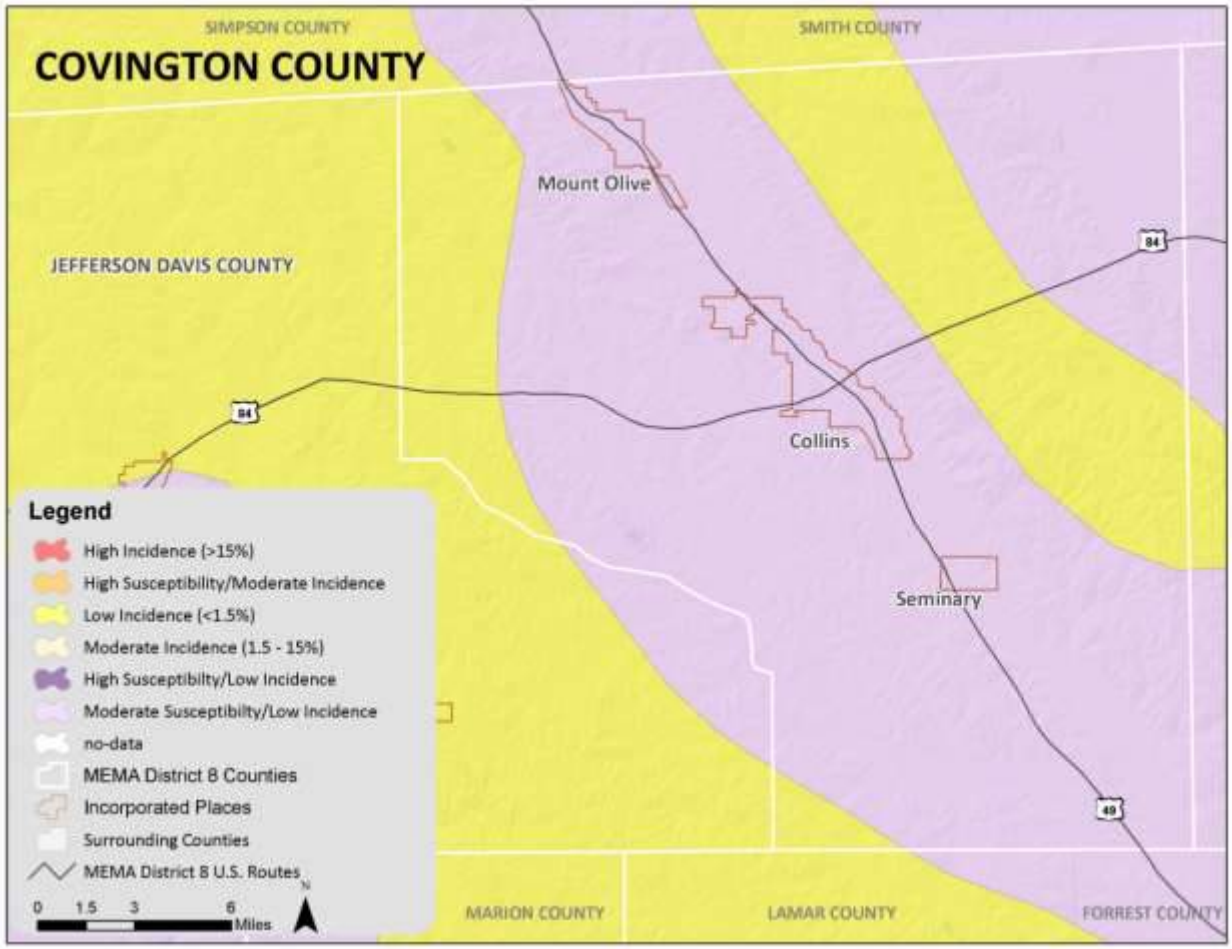
A.2.8 Landslide

LOCATION AND SPATIAL EXTENT

Landslides occur along steep slopes when the pull of gravity can no longer be resisted (often due to heavy rain). Human development can also exacerbate risk by building on previously undevelopable steep slopes. The most frequent and widespread damaging landslides in the U.S. are induced by prolonged or heavy rainfall. The majority of rainfall-induced landslides are shallow, small, and move quickly.[i] Landslides are possible throughout Covington County.

According to **Figure A.5** below, the entire county falls under a low incidence area (yellow and light purple). This indicates that less than 1.5 percent of the area is involved in landsliding. The areas in yellow are defined as low incidence and low susceptibility. The areas in light purple, however, indicate that a moderate susceptibility to landsliding activity is present. There are no changes with susceptibility to the landslide hazard since the last plan update.

FIGURE A.5: LANDSLIDE SUSCEPTIBILITY AND INCIDENCE MAP OF COVINGTON COUNTY



Source: USGS

HISTORICAL OCCURRENCES

There is no extensive history of landslides in Covington County. Landslide events typically occur in isolated areas. NCDI does not show any landslide events for Covington County.

PROBABILITY OF FUTURE OCCURRENCES

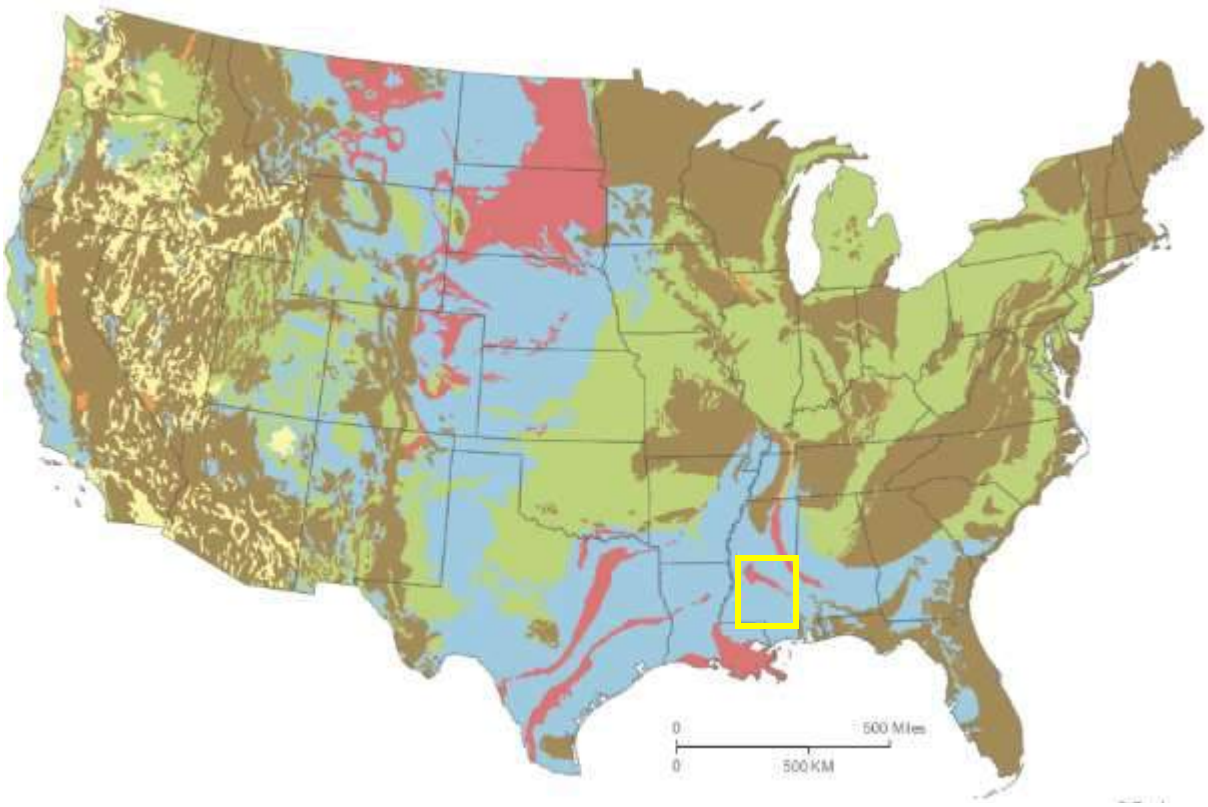
Based on historical information and the USGS susceptibility index, the probability of future landslide events is unlikely (less than 1 percent probability). The USGS data indicates that the all areas in Covington County have a low landslide incidence rate. However, some areas are reported as having moderate susceptibility to landsliding activity. Local conditions may become more favorable for landslides due to heavy rain, for example. This would increase the likelihood of occurrence. It should also be noted that some areas in Covington County have greater risk than others given factors such as steepness on slope and modification of slopes.

A.2.9 Expansive Soils

LOCATION AND SPATIAL EXTENT

Due to the amount of clay minerals present in Covington County, expansive soils present a threat to the county. Areas underlain by soils with swelling potential are shown in **Figure A.6**. Covington County is located in the blue area, which is underlain with generally less than 50 percent clay having high swelling potential.

FIGURE A.6: SWELLING CLAYS IN MISSISSIPPI



Source: USGS

HISTORICAL OCCURRENCES

There is no historical record of significant expansive soil events in Covington County. However, expansive soils can cause considerable damage to structural foundations in the county, although they do not pose a significant threat to human life.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical information, the probability of future expansive soil events is possible (between 1 and 100 percent annually).

WIND-RELATED HAZARDS

A.2.10 Hurricane and Tropical Storm

LOCATION AND SPATIAL EXTENT

Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact Covington County. All areas in Covington County are equally susceptible to hurricane and tropical storms.

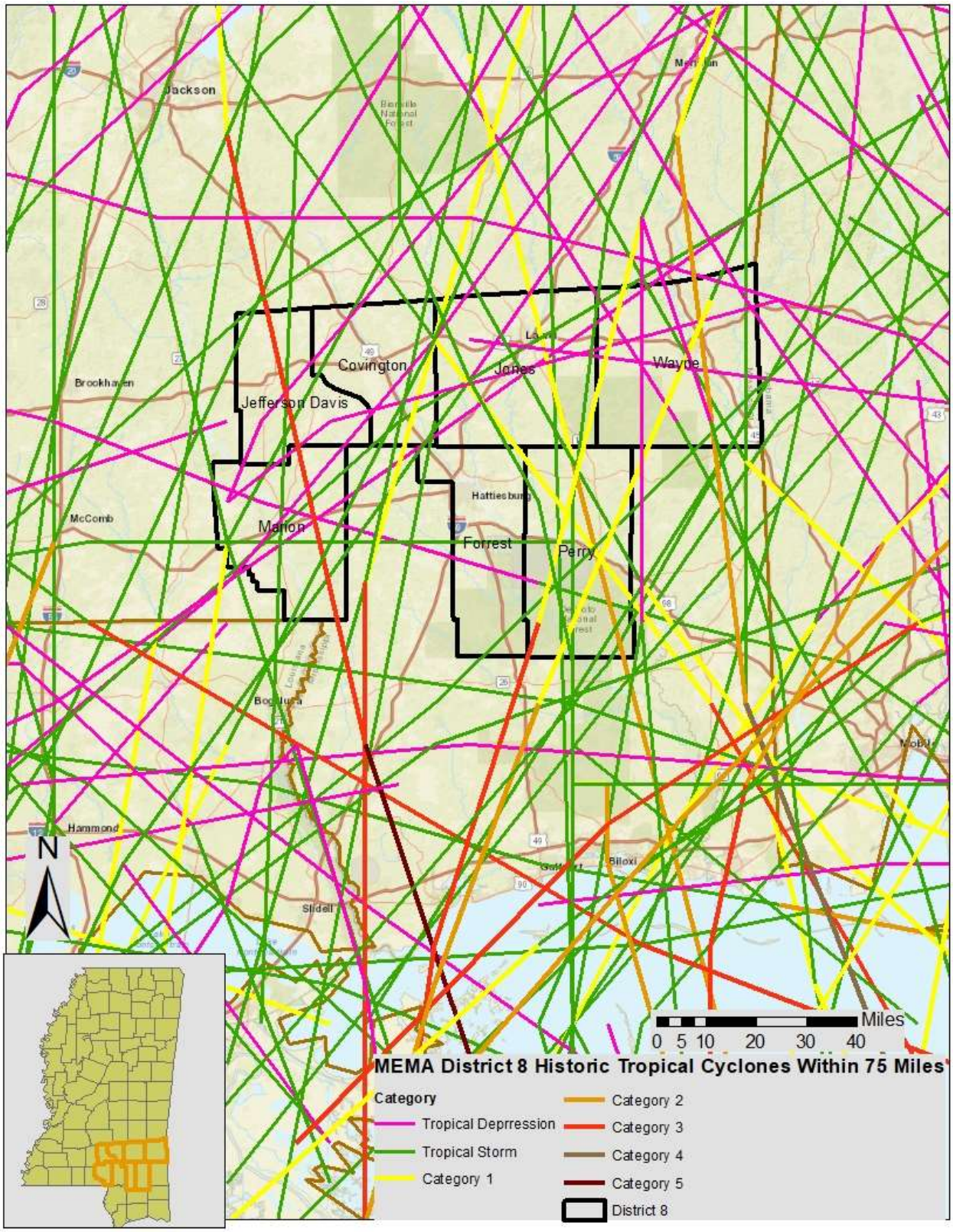
HISTORICAL OCCURRENCES

According to the National Hurricane Center's historical storm track records, a total of 54 hurricanes have passed within 75 miles of Covington County since 1851. This includes 1 category 5 storm, 0 category 4 storms, 7 category 3 storms, 7 category 2 storms, 7 category 1 storms, and 32 tropical storms as shown in **Figure A.7**.[7]

Of the recorded storm events, a total of eight tracks passed directly through the county including Hurricanes Katrina (2005) and Bill (2003). All storms where tropical storms when they traversed the county except Hurricane Katrina, which passed through the county as category 1 hurricane. **Table A.125** provides the detail for each storm that passed through the county including date of occurrence, name (if applicable), maximum wind speed (as recorded when traversing the county) and category of the storm based on the Saffir-Simpson Scale.

[7] These storm track statistics do not include extra-tropical storms. Though these related hazard events are less severe in intensity, they may cause significant local impact in terms of rainfall and high winds.

566 **FIGURE A.7: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF COVINGTON COUNTY**



567
568 *Source: National Oceanic and Atmospheric Administration; National Hurricane Center*
569

TABLE A.135: HISTORICAL STORM TRACKS WITHIN 75 MILES OF COVINGTON COUNTY (1850–2018)

Date of Occurrence	Storm Name	Maximum Wind Speed (miles per hour)	Storm Category
9/8/1893	NOT NAMED	63	Tropical Storm
6/13/1912	NOT NAMED	57	Tropical Storm
9/30/1915	NOT NAMED	69	Tropical Storm
7/6/1916	NOT NAMED	63	Tropical Storm
7/27/1936	NOT NAMED	40	Tropical Storm
9/4/1948	NOT NAMED	57	Tropical Storm
7/1/2003	BILL	52	Tropical Storm
8/29/2005	KATRINA	92	Category 1
9/5/2018	GORDON		Tropical Depression

Source: National Hurricane Center

Federal records indicate that disaster declarations were made in 1969 (Hurricane Camille), 1979 (Hurricane Frederic), 1998 (Hurricane Georges), 2004 (Hurricane Ivan), 2005 (Hurricane Dennis), 2005 (Hurricane Katrina), and 2012 (Hurricane Isaac).[8] Hurricane and tropical storm events can cause substantial damage in the area due to high winds and flooding.

Flooding and high winds from hurricanes and tropical storms can cause damage throughout the county. Anecdotes are available from NCEI for the major storms that have impacted the county as found below:

Hurricane Lili – October 3, 2002
Hurricane Lili brought thunderstorm bands, strong winds, and associated tornadoes that created damage across central Mississippi. Most of the damage was caused by downed trees. The highest actual wind gust was measured at 56 miles per hour. Ground over most of the area was saturated from the combined rainfall of Lili and Isidore (which affected the same areas a week earlier), and this allowed tropical storm force winds to easily push down trees area-wide. Rainfall amounts were over 3 inches in the most persistent rainbands. Estimated damage across central Mississippi from Lili was $500,000.

Hurricane Ivan – September 16, 2004
Thousands of trees were blown down across Eastern Mississippi during the event as well as hundreds of power lines. The strong wind itself did not cause much structural damage, however the fallen trees did. These downed trees accounted for several hundred homes, mobile homes and businesses to be damaged or destroyed. Most locations across Eastern Mississippi reported sustained winds between 30 and 40 mph with Tropical Storm force gusts between 48 and 54 mph. The strongest reported winds occurred in Newton, Lauderdale and Oktibbeha Counties.

Overall, rainfall totals were held in check as Ivan steadily moved north. The heaviest rains were confined to far Eastern Mississippi where 3 to 4 inches fell over a 15 hour period. Due to the duration of the rain no flooding was reported. Across Eastern Mississippi, Hurricane Ivan was responsible for one fatality. This fatality occurred in Brooksville (Noxubee County) when a tree fell on a man. Damage from Ivan was estimated at $200 million.

[8] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

Hurricane Katrina – August 25, 2005
Hurricane Katrina will likely go down as the worst and costliest natural disaster in United States history. The amount of destruction, the cost of damaged property/agriculture and the large loss of life across the affected region has been overwhelming. Catastrophic damage was widespread across a large portion of the Gulf Coast region. The devastation was not only confined to the coastal region, widespread and significant damage occurred well inland up to the Hattiesburg area and northward past Interstate 20.

Devastation from Hurricane Katrina was widespread across the region. Hurricane force winds were common across the area. The region received sustained winds of 60-80 mph with gusts ranging from 80-120 mph. There was widespread damage to trees and power lines. Wind damage to structures was also widespread, with roofs blown off or partially peeled. Hundreds of signs were shredded or blown down. Businesses sustained structural damage. Power outages lasted from a few days to as long as four weeks. Agriculture and timber industries were severely impacted. Row crops, including cotton, rice, corn, and soybeans, took a hard hit. Other impacted industries were the catfish industry, dairy and cattle industry, and nursery businesses.

Hurricane Gordon (Tropical Depression) – September 9, 2018
As Tropical Storm Gordon moved further inland, it was downgraded to a tropical depression. Gusty winds still occurred as the center moved through central Mississippi. A few trees were blown down across portions of Covington County.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical evidence, the probability level of future occurrence is likely (annual probability between 10 and 100 percent). Given the regional nature of the hazard, all areas in the county are equally exposed to this hazard. However, when the county is impacted, the damage could be catastrophic, threatening lives and property throughout the planning area.

A.2.11 Thunderstorm

LOCATION AND SPATIAL EXTENT

Thunderstorm / High Wind
A thunderstorm event is an atmospheric hazard, and thus has no geographic boundaries. It is typically a widespread event that can occur in all regions of the United States. However, thunderstorms are most common in the central and southern states because atmospheric conditions in those regions are favorable for generating these powerful storms. Also, Covington County typically experiences several straight-line wind events each year. These wind events can and have caused significant damage. It is assumed that Covington County has uniform exposure to an event and the spatial extent of an impact could be large.

Hailstorm
Hailstorms frequently accompany thunderstorms, so their locations and spatial extents coincide. It is assumed that Covington County is uniformly exposed to severe thunderstorms; therefore, all areas of the county are equally exposed to hail which may be produced by such storms.

Lightning

Lightning occurs randomly, therefore it is impossible to predict where and with what frequency it will strike. It is assumed that all of Covington County is uniformly exposed to lightning.

HISTORICAL OCCURRENCES

Thunderstorm / High Wind

Severe storms resulted in three disaster declarations in Covington County in 1983, 1990, and 1992.[9] According to NCEI, there have been 191 reported thunderstorm and high wind events since 1969 in Covington County.[10] These events caused over $3.2 million in damages. **Table A.1613** summarizes this information. **Table A.17** presents detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event. [11]

TABLE A.146: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN COVINGTON COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Collins	50	0/0	$1,071,872
Mount Olive	20	0/0	$442,317
Seminary	19	0/0	$213,420
Unincorporated Area	102	0/0	$1,029,141
COVINGTON COUNTY TOTAL	**191**	**0/0**	**$3,199,067**

Source: National Centers for Environmental Information

TABLE A.157: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN COVINGTON COUNTY

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Collins					
Collins	17-NOV-93	THUNDERSTORM WINDS	0 kts.	0/0	$875
Collins	07-MAR-95	THUNDERSTORM WINDS	0 kts.	0/0	$3,314
Collins	01-JUN-95	THUNDERSTORM WINDS	0 kts.	0/0	$3,314
COLLINS	21-FEB-97	TSTM WIND	0 kts.	0/0	$1,573
COLLINS	27-MAY-97	TSTM WIND	0 kts.	0/0	$3,146
COLLINS	10-FEB-98	TSTM WIND	0 kts.	0/0	$1,549
COLLINS	09-FEB-99	TSTM WIND	0 kts.	0/0	$30,252
COLLINS	08-MAR-99	TSTM WIND	0 kts.	0/0	$75,629
COLLINS	08-MAR-99	TSTM WIND	0 kts.	0/0	$3,025
COLLINS	11-JUN-99	TSTM WIND	0 kts.	0/0	$15,126
COLLINS	26-JUL-99	TSTM WIND	0 kts.	0/0	$12,101

[9] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.
[10] These thunderstorm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional thunderstorm events have occurred in Covington County. As additional local data becomes available, this hazard profile will be amended.
[11] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
COLLINS	09-JAN-00	TSTM WIND	0 kts.	0/0	$1,469
COLLINS	03-APR-00	TSTM WIND	0 kts.	0/0	$11,748
COLLINS	03-AUG-00	TSTM WIND	0 kts.	0/0	$2,937
COLLINS	06-OCT-00	TSTM WIND	0 kts.	0/0	$4,406
COLLINS	29-NOV-01	TSTM WIND	0 kts.	0/0	$1,426
COLLINS	17-MAY-02	TSTM WIND	0 kts.	0/0	$6,921
COLLINS	07-JUL-02	TSTM WIND	50 kts.	0/0	$1,384
COLLINS	08-JUL-02	TSTM WIND	0 kts.	0/0	$1,384
COLLINS	03-AUG-02	TSTM WIND	0 kts.	0/0	$2,768
COLLINS	25-AUG-02	TSTM WIND	0 kts.	0/0	$2,768
COLLINS	17-MAY-03	TSTM WIND	50 kts.	0/0	$6,720
COLLINS	17-JUL-03	TSTM WIND	50 kts.	0/0	$2,688
COLLINS	03-AUG-03	TSTM WIND	50 kts.	0/0	$2,688
COLLINS	18-NOV-03	TSTM WIND	52 kts.	0/0	$1,344
COLLINS	01-MAY-04	TSTM WIND	55 kts.	0/0	$52,191
COLLINS	01-JUN-04	TSTM WIND	50 kts.	0/0	$0
COLLINS	03-JUN-04	TSTM WIND	52 kts.	0/0	$3,914
COLLINS	28-JUN-04	TSTM WIND	55 kts.	0/0	$3,914
COLLINS	16-JUL-04	TSTM WIND	53 kts.	0/0	$0
COLLINS	24-NOV-04	TSTM WIND	55 kts.	0/0	$1,305
COLLINS	07-JAN-05	TSTM WIND	66 kts.	0/0	$633,385
COLLINS	07-JAN-05	TSTM WIND	70 kts.	0/0	$63,339
COLLINS	13-JAN-05	TSTM WIND	58 kts.	0/0	$12,668
COLLINS	15-NOV-05	TSTM WIND	50 kts.	0/0	$0
COLLINS	20-MAR-06	TSTM WIND	58 kts.	0/0	$0
COLLINS	23-JUN-06	TSTM WIND	50 kts.	0/0	$12,299
COLLINS	18-JUL-06	TSTM WIND	50 kts.	0/0	$0
COLLINS	29-AUG-06	TSTM WIND	50 kts.	0/0	$0
Collins	13-FEB-07	THUNDERSTORM WIND	50 kts.	0/0	$0
Collins	14-APR-07	THUNDERSTORM WIND	50 kts.	0/0	$17,911
Collins	10-AUG-07	THUNDERSTORM WIND	50 kts.	0/0	$0
Collins	27-AUG-07	THUNDERSTORM WIND	50 kts.	0/0	$0
Collins	29-JAN-08	THUNDERSTORM WIND	55 kts.	0/0	$0
Collins	12-APR-09	THUNDERSTORM WIND	61 kts.	0/0	$0
Collins	22-AUG-10	THUNDERSTORM WIND	55 kts.	0/0	$16,391
COLLINS	15-FEB-16	THUNDERSTORM WIND	50 kts.	0/0	$5,000
COLLINS	11-JUL-16	THUNDERSTORM WIND	60 kts.	0/0	$35,000
COLLINS	28-NOV-16	THUNDERSTORM WIND	50 kts.	0/0	$5,000
COLLINS	02-JAN-17	THUNDERSTORM WIND	50 kts.	0/0	$9,000
Mount Olive					
Mt. Olive	01-JUN-95	THUNDERSTORM WINDS	0 kts.	0/0	$8,286
MT OLIVE	23-JUN-97	TSTM WIND	0 kts.	0/0	$3,146
MT OLIVE	10-MAR-00	TSTM WIND	0 kts.	0/0	$2,937
MT OLIVE	21-MAY-01	TSTM WIND	0 kts.	0/0	$1,426
MT OLIVE	17-MAY-02	TSTM WIND	0 kts.	0/0	$1,384
MT OLIVE	17-MAY-02	TSTM WIND	0 kts.	0/0	$1,384

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
MT OLIVE	02-JUN-03	TSTM WIND	53 kts.	0/0	$13,439
MT OLIVE	27-JUN-04	TSTM WIND	53 kts.	0/0	$1,305
MT OLIVE	30-APR-05	TSTM WIND	55 kts.	0/0	$5,067
MT OLIVE	09-MAR-06	TSTM WIND	50 kts.	0/0	$0
MT OLIVE	10-MAY-06	TSTM WIND	52 kts.	0/0	$0
Mt. Olive	19-JUN-07	THUNDERSTORM WIND	60 kts.	0/0	$29,851
Mt. Olive	12-FEB-08	THUNDERSTORM WIND	60 kts.	0/0	$81,149
Mt. Olive	03-MAY-09	THUNDERSTORM WIND	65 kts.	0/0	$225,102
Mt. Olive	15-AUG-10	THUNDERSTORM WIND	53 kts.	0/0	$16,391
Mt. Olive	31-MAY-12	THUNDERSTORM WIND	50 kts.	0/0	$15,450
MT OLIVE	02-SEP-14	THUNDERSTORM WIND	43 kts.	0/0	$1,000
MT OLIVE	04-JUL-15	THUNDERSTORM WIND	50 kts.	0/0	$10,000
MT OLIVE	02-JAN-17	THUNDERSTORM WIND	50 kts.	0/0	$5,000
MT OLIVE	14-APR-18	THUNDERSTORM WIND	50 kts.	0/0	$20,000
Seminary					
Seminary	27-JAN-94	THUNDERSTORM WINDS	0 kts.	0/0	$85,228
Seminary	09-MAR-94	THUNDERSTORM WINDS	0 kts.	0/0	$852
Seminary	15-APR-94	THUNDERSTORM WINDS	0 kts.	0/0	$ 8,523
SEMINARY	05-MAR-96	TSTM WIND/HAIL	40 kts.	0/0	$805
SEMINARY	27-FEB-99	TSTM WIND	0 kts.	0/0	$3,025
SEMINARY	30-JUL-99	TSTM WIND	0 kts.	0/0	$3,025
SEMINARY	31-AUG-00	TSTM WIND	0 kts.	0/0	$22,028
SEMINARY	31-AUG-00	TSTM WIND	0 kts.	0/0	$2,937
SEMINARY	13-DEC-00	TSTM WIND	52 kts.	0/0	$1,469
SEMINARY	12-MAR-01	TSTM WIND	0 kts.	0/0	$7,129
SEMINARY	04-JUN-01	TSTM WIND	0 kts.	0/0	$1,426
SEMINARY	24-NOV-04	TSTM WIND	55 kts.	0/0	$1,305
SEMINARY	07-JAN-05	TSTM WIND	62 kts.	0/0	$12,668
Seminary	24-FEB-07	THUNDERSTORM WIND	50 kts.	0/0	$0
SEMINARY	13-JUN-14	THUNDERSTORM WIND	50 kts.	0/0	$0
SEMINARY	21-JAN-17	THUNDERSTORM WIND	60 kts.	0/0	$35,000
SEMINARY	16-JUN-17	THUNDERSTORM WIND	60 kts.	0/0	$5,000
SEMINARY	14-APR-18	THUNDERSTORM WIND	52 kts.	0/0	$3,000
SEMINARY	07-AUG-18	THUNDERSTORM WIND	50 kts.	0/0	$20,000
Unincorporated Area					
COVINGTON COUNTY	13-APR-69	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	13-JUL-69	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	01-APR-71	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	07-MAY-75	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	08-MAY-77	TSTM WIND	0 kts.	0/0	$0

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
COVINGTON COUNTY	13-DEC-77	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	18-APR-78	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	10-JUL-81	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	12-JUN-82	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	05-APR-83	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	11-DEC-83	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	26-MAR-88	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	18-APR-88	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	15-JUL-88	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	15-FEB-90	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	14-APR-91	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	22-APR-91	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	02-DEC-91	TSTM WIND	0 kts.	0/0	$0
COVINGTON COUNTY	18-MAR-92	TSTM WIND	0 kts.	0/0	$0
Hot Coffee	17-JUL-94	THUNDERSTORM WINDS	0 kts.	0/0	$852
Sanford	27-OCT-95	THUNDERSTORM WINDS	0 kts.	0/0	$3,314
Southeast Mississippi	11-NOV-95	THUNDERSTORM WINDS	0 kts.	0/0	$49,715
SANFORD	18-MAR-96	TSTM WIND	50 kts.	0/0	
SANFORD	13-JUL-96	TSTM WIND	0 kts.	0/0	$1,609
COUNTYWIDE	05-JUN-98	TSTM WIND	0 kts.	0/0	$15,489
SANFORD	20-JUN-98	TSTM WIND	0 kts.	0/0	$7,744
COUNTYWIDE	22-JAN-99	TSTM WIND	0 kts.	0/0	$3,025
WILLIAMSBURG	03-JAN-00	TSTM WIND	0 kts.	0/0	$2,937
WILLIAMSBURG	18-JUL-00	TSTM WIND	0 kts.	0/0	$29,371
COUNTYWIDE	22-JUL-00	TSTM WIND	0 kts.	0/0	$7,343
COUNTYWIDE	10-AUG-00	TSTM WIND	0 kts.	0/0	$7,343
SANFORD	19-JAN-01	TSTM WIND	0 kts.	0/0	$1,426
COUNTYWIDE	29-JAN-01	TSTM WIND	0 kts.	0/0	$11,406
SANFORD	16-FEB-01	TSTM WIND	0 kts.	0/0	$1,426
SANFORD	12-MAR-01	TSTM WIND	0 kts.	0/0	$7,129
HOT COFFEE	13-JUN-01	TSTM WIND	0 kts.	0/0	$1,426
COUNTYWIDE	13-OCT-01	TSTM WIND	0 kts.	0/0	$1,426
COUNTYWIDE	08-APR-02	TSTM WIND	0 kts.	0/0	$1,384

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
COUNTYWIDE	03-OCT-02	TSTM WIND	0 kts.	0/0	$4,153
COUNTYWIDE	06-APR-03	TSTM WIND	55 kts.	0/0	$20,159
COUNTYWIDE	27-NOV-03	TSTM WIND	50 kts.	0/0	$6,720
COUNTYWIDE	27-NOV-03	TSTM WIND	50 kts.	0/0	$6,720
WILLIAMSBURG	24-NOV-04	TSTM WIND	55 kts.	0/0	$1,305
SANFORD	22-MAR-05	TSTM WIND	67 kts.	0/0	$19,002
SANFORD	21-JUL-05	TSTM WIND	53 kts.	0/0	$0
HOT COFFEE	30-JUL-06	TSTM WIND	50 kts.	0/0	$0
SANFORD	23-SEP-06	TSTM WIND	53 kts.	0/0	$18,448
Sanford	15-NOV-06	THUNDERSTORM WIND	57 kts.	0/0	$0
COLLINS JAYCEE ARPT	04-JAN-07	THUNDERSTORM WIND	50 kts.	0/0	$0
Gandsi	29-JAN-08	THUNDERSTORM WIND	55 kts.	0/0	$0
Williamsburg	29-JAN-08	THUNDERSTORM WIND	55 kts.	0/0	$0
Gandsi	12-FEB-08	THUNDERSTORM WIND	70 kts.	0/0	$86,946
COLLINS JAYCEE ARPT	03-MAY-08	THUNDERSTORM WIND	50 kts.	0/0	$0
COLLINS JAYCEE ARPT	15-JUN-08	THUNDERSTORM WIND	55 kts.	0/0	$23,185
Sanford	17-JUN-08	THUNDERSTORM WIND	50 kts.	0/0	$0
Hot Coffee	25-JUN-08	THUNDERSTORM WIND	60 kts.	0/0	$2,319
Arbo	02-AUG-08	THUNDERSTORM WIND	60 kts.	0/0	$0
PICKERING	07-AUG-08	THUNDERSTORM WIND	50 kts.	0/0	$0
Smith	12-APR-09	THUNDERSTORM WIND	55 kts.	0/0	$0
Williamsburg	03-MAY-09	THUNDERSTORM WIND	60 kts.	0/0	$56,275
Lux	05-MAY-09	THUNDERSTORM WIND	50 kts.	0/0	$563
COLLINS JAYCEE ARPT	12-MAY-09	THUNDERSTORM WIND	50 kts.	0/0	$1,801
PICKERING	09-DEC-09	THUNDERSTORM WIND	50 kts.	0/0	$3,377
COLLINS JAYCEE ARPT	15-JUN-10	THUNDERSTORM WIND	52 kts.	0/0	$21,855
Gandsi	17-JUN-10	THUNDERSTORM WIND	52 kts.	0/0	$27,318
Hot Coffee	17-JUN-10	THUNDERSTORM WIND	63 kts.	0/0	$49,173
COLLINS JAYCEE ARPT	17-JUN-10	THUNDERSTORM WIND	58 kts.	0/0	$27,318
Smith	01-FEB-11	THUNDERSTORM WIND	50 kts.	0/0	
Gandsi	04-APR-11	THUNDERSTORM WIND	62 kts.	0/0	$58,350
COLLINS JAYCEE ARPT	13-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$21,218
COLLINS JAYCEE ARPT	21-AUG-11	THUNDERSTORM WIND	50 kts.	0/0	$1,061
Hot Coffee	11-JUN-12	THUNDERSTORM WIND	50 kts.	0/0	$15,450
PICKERING	09-AUG-12	THUNDERSTORM WIND	50 kts.	0/0	$0
Williamsburg	15-AUG-12	THUNDERSTORM WIND	50 kts.	0/0	$1,030
Hot Coffee	20-DEC-12	THUNDERSTORM WIND	50 kts.	0/0	$1,030
COVINGTON COUNTY	20-FEB-14	STRONG WIND	43 kts.	0/0	$1,000
COVINGTON COUNTY	21-FEB-14	STRONG WIND	45 kts.	0/0	$40,000

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
HOT COFFEE	28-APR-14	THUNDERSTORM WIND	50 kts.	0/0	$13,000
HOT COFFEE	28-JUN-14	THUNDERSTORM WIND	35 kts.	0/0	$5,000
COVINGTON COUNTY	03-AUG-14	STRONG WIND	40 kts.	0/0	$3,000
GANDSI	09-AUG-14	THUNDERSTORM WIND	50 kts.	0/0	$1,000
SANFORD	13-OCT-14	THUNDERSTORM WIND	50 kts.	0/0	$0
SMITH	03-JAN-15	THUNDERSTORM WIND	52 kts.	0/0	$10,000
WILLIAMSBURG	20-MAY-15	THUNDERSTORM WIND	52 kts.	0/0	$6,000
GANDSI	13-JUN-15	THUNDERSTORM WIND	50 kts.	0/0	$25,000
ARBO	24-JUN-15	THUNDERSTORM WIND	55 kts.	0/0	$10,000
WILLIAMSBURG	24-JUN-15	THUNDERSTORM WIND	55 kts.	0/0	$3,000
COVINGTON COUNTY	17-NOV-15	STRONG WIND	42 kts.	0/0	$10,000
COVINGTON COUNTY	02-FEB-16	STRONG WIND	35 kts.	0/0	$3,000
GANDSI	15-FEB-16	THUNDERSTORM WIND	50 kts.	0/0	$7,000
PICKERING	25-SEP-16	THUNDERSTORM WIND	50 kts.	0/0	$8,000
COVINGTON COUNTY	28-NOV-16	STRONG WIND	35 kts.	0/0	$5,000
COVINGTON COUNTY	22-JUN-17	STRONG WIND	35 kts.	0/0	$7,000
HOT COFFEE	01-JAN-17	THUNDERSTORM WIND	55 kts.	0/0	$20,000
GANDSI	21-JAN-17	THUNDERSTORM WIND	55 kts.	0/0	$20,000
HOT COFFEE	16-JUN-17	THUNDERSTORM WIND	55 kts.	0/0	$60,000
SMITH	16-JUN-17	THUNDERSTORM WIND	65 kts.	0/0	$50,000
GANDSI	23-SEP-17	THUNDERSTORM WIND	60 kts.	0/0	$75,000
ORA	23-SEP-17	THUNDERSTORM WIND	50 kts.	0/0	$5,000
WILLIAMSBURG	23-SEP-17	THUNDERSTORM WIND	50 kts.	0/0	$5,000
GANDSI	16-AUG-18	THUNDERSTORM WIND	50 kts.	0/0	$5,000
SMITH	11-NOV-18	THUNDERSTORM WIND	50 kts.	0/0	$3,000

Source: National Centers for Environmental Information

Hailstorm

According to the National Centers for Environmental Information, 61 recorded hailstorm events have affected Covington County since 1995.[12] **Table A.14** is a summary of the hail events in Covington County. **Table A.159** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over $438,000 in property damages. Hail ranged in diameter from 0.75 inches to 2.5 inches. It should be noted that hail is notorious for causing substantial damage to cars, roofs, and other areas of the built environment that may not be reported to the National Centers for Environmental Information. Therefore, it is likely that damages are greater than the reported value.

[12] These hail events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional hail events have affected Covington County. As additional local data becomes available, this hazard profile will be amended.

677 **TABLE A.16: SUMMARY OF HAIL OCCURRENCES IN COVINGTON COUNTY**

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Collins	10	0/0	$42,397
Mount Olive	12	0/0	$40,118
Seminary	12	0/0	$283,360
Unincorporated Area	27	0/0	$72,747
COVINGTON COUNTY TOTAL	**61**	**0/0**	**$438,622**

Source: National Centers for Environmental Information

678

679 **TABLE A.17: HISTORICAL HAIL OCCURRENCES IN COVINGTON COUNTY**

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Collins				
Collins	13-JUN-96	0.88 in.	0/0	$0
Collins	26-JAN-96	1.00 in.	0/0	$0
Collins	10-MAR-00	1.00 in.	0/0	$0
Collins	10-MAR-00	1.75 in.	0/0	$14,685
Collins	20-AUG-03	0.75 in.	0/0	$1,344
Collins	30-MAR-05	0.75 in.	0/0	$0
Collins	04-DEC-05	0.75 in.	0/0	$0
Collins	07-JUN-11	1.00 in.	0/0	$21,218
Collins/Jaycee Airport	08-JAN-12	1.25 in.	0/0	$5,150
COLLINS	11-JUL-16	.88 IN.	0/0	$0
Mount Olive				
Mt. Olive	01-NOV-97	0.75 in.	0/0	$0
Mt. Olive	22-APR-97	0.75 in.	0/0	$0
Mt. Olive	02-APR-00	0.75 in.	0/0	$0
Mt. Olive	15-JUN-03	0.75 in.	0/0	$1,344
Mt. Olive	25-APR-03	1.75 in.	0/0	$13,439
Mt. Olive	06-APR-05	1.00 in.	0/0	$0
Mt. Olive	06-APR-05	1.75 in.	0/0	$25,335
Mt. Olive	06-APR-05	1.00 in.	0/0	$0
Mt. Olive	10-MAY-06	0.75 in.	0/0	$0
Mt. Olive	03-FEB-06	1.00 in.	0/0	$0
Mt. Olive	23-APR-10	1.00 in.	0/0	$0
Mt. Olive	23-APR-10	1.00 in.	0/0	$0
Seminary				
Seminary	27-OCT-95	1.75 in.	0/0	$0
Seminary	28-MAY-96	0.75 in.	0/0	$0
Seminary	17-MAY-03	0.75 in.	0/0	$1,344
Seminary	03-MAY-03	1.00 in.	0/0	$1,344
Seminary	26-MAR-05	2.75 in.	0/0	$253,354
Seminary	08-MAY-06	0.75 in.	0/0	$0
Seminary	03-FEB-06	1.00 in.	0/0	$0
Seminary	20-JUN-08	0.75 in.	0/0	$0
Seminary	10-JAN-08	0.75 in.	0/0	$0

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Seminary	03-JAN-09	0.75 in.	0/0	$0
Seminary	20-JAN-10	1.00 in.	0/0	$27,318
Seminary	17-MAR-16	.88 IN.	0/0	$0
Unincorporated Area				
COVINGTON COUNTY	11-APR-62	0.75 in.	0/0	$0
COVINGTON COUNTY	07-MAY-75	0.75 in.	0/0	$0
COVINGTON COUNTY	03-MAY-84	1.75 in.	0/0	$0
COVINGTON COUNTY	18-MAY-86	1.00 in.	0/0	$0
COVINGTON COUNTY	26-MAR-88	0.75 in.	0/0	$0
COVINGTON COUNTY	24-MAY-88	1.00 in.	0/0	$0
COVINGTON COUNTY	04-NOV-88	1.00 in.	0/0	$0
COVINGTON COUNTY	05-MAR-89	1.75 in.	0/0	$0
COVINGTON COUNTY	16-FEB-90	1.75 in.	0/0	$0
COVINGTON COUNTY	09-APR-91	0.75 in.	0/0	$0
Ellisville	27-OCT-95	0.88 in.	0/0	$0
Hot Coffee	24-APR-03	0.75 in.	0/0	$1,344
Hot Coffee	25-APR-03	1.50 in.	0/0	$6,720
Sanford	03-MAY-03	1.00 in.	0/0	$1,344
Sanford	22-APR-05	0.88 in.	0/0	$0
Hot Coffee	22-APR-05	2.50 in.	0/0	$63,339
Hot Coffee	20-MAR-06	0.88 in.	0/0	$0
Sanford	08-MAY-06	1.00 in.	0/0	$0
Hot Coffee	19-JUL-06	0.75 in.	0/0	$0
Sanford	10-JAN-08	1.75 in.	0/0	$0
Sanford	17-JUN-08	0.75 in.	0/0	$0
Hot Coffee	25-JUN-08	0.75 in.	0/0	$0
Williamsburg	09-DEC-08	0.75 in.	0/0	$0
Williamsburg	09-DEC-08	0.88 in.	0/0	$0
Williamsburg	12-MAY-09	0.75 in.	0/0	$0
SMITH	03-AUG-14	1.00 in.	0/0	$0
HOT COFFEE	18-MAR-15	1.00 in.	0/0	$0

Source: National Centers for Environmental Information

Lightning

According to the National Centers for Environmental Information, there have been three recorded lightning events in Covington County since 1950, as listed in summary **Table A.20**.[13] However, it is likely that more lightning events have in fact impacted the county. Many of the reported events are those that caused damage, and it should be expected that damages are likely much higher for this hazard than what is reported.

[13] These lightning events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional lightning events have occurred in Covington County. As additional local data becomes available, this hazard profile will be amended.

688 **TABLE A.18: SUMMARY OF LIGHTNING OCCURRENCES IN COVINGTON COUNTY**

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Collins	0	0/0	$0
Mount Olive	0	0/0	$0
Seminary	1	0/0	$15,000
Unincorporated Area	2	0/0	$25,000
COVINGTON COUNTY TOTAL	**3**	**0/0**	**$40,000**

Source: National Centers for Environmental Information

689

690 **TABLE A.21: HISTORICAL LIGHTNING OCCURRENCES IN COVINGTON COUNTY**

Location	Date	Deaths / Injuries	Property Damage*	Details
Collins				
None Reported	--	--	--	--
Mount Olive				
None Reported	--	--	--	--
Seminary				
Seminary	04-JUL-14	0/0	$15,0000	A home was struck along Highway 540.
Unincorporated Area				
Arbo	24-JUN-15	0/0	$15,0000	A house on Jerry Drive was struck by lightning.
Gandsi	23-SEP-17	0/0	$5,0000	Lightning started a fire in a stand of trees near MS Highway 588 and Abercrombie-Knight Road northeast of Seminary.

691 *Source: National Centers for Environmental Information*

692

693

694 ***PROBABILITY OF FUTURE OCCURRENCES***

695

696 **Thunderstorm / High Wind**

697 Given the high number of previous events, it is certain that wind events, including straight-line wind and
698 thunderstorm wind, will occur in the future. This results in a probability level of highly likely (100
699 percent annual probability) for future wind events for the entire county.

700

701 **Hailstorm**

702 Based on historical occurrence information, it is assumed that the probability of future hail occurrences
703 is likely (10 – 100 percent annual probability). Since hail is an atmospheric hazard (coinciding with
704 thunderstorms), it is assumed that Covington County has equal exposure to this hazard. It can be
705 expected that future hail events will continue to cause minor damage to property and vehicles
706 throughout the county.

707

708 **Lightning**

709 Although there were no historical lightning events reported in Covington County via NCEI data, it is a
710 regular occurrence accompanied by thunderstorms. In fact, lightning events will assuredly happen on an
711 annual basis, though not all events will cause damage. According to Vaisala's U.S. National Lightning

Detection Network (NLDN®), Covington County is located in an area of the country that experienced an average of 6 to 8 lightning flashes per square kilometer per year between 1997 and 2010. Therefore, the probability of future events is highly likely (100 percent annual probability). It can be expected that future lightning events will continue to threaten life and cause minor property damages throughout the county.

A.2.12 Tornado

LOCATION AND SPATIAL EXTENT

Tornadoes occur throughout the state of Mississippi, and thus in Covington County. Tornadoes typically impact a relatively small area, but damage may be extensive. Event locations are completely random, and it is not possible to predict specific areas that are more susceptible to tornado strikes over time. Therefore, it is assumed that Covington County is uniformly exposed to this hazard.

HISTORICAL OCCURRENCES

Tornadoes resulted in three disaster declarations in Covington County in 1983, 1990, and 1992.[14] According to the National Centers for Environmental Information, there have been a total of 46 recorded tornado events in Covington County since 1952 (**Table A.22**), resulting in over $56 million in property damages.[15] In addition, 132 injuries were reported. The magnitude of these tornadoes ranges from F0 to F3 in intensity, although an F5 event is possible. Detailed information on historic tornado events can be found in **Table A.16**.

TABLE A.19: SUMMARY OF TORNADO OCCURRENCES IN COVINGTON COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Collins	7	0/0	$2,227,644
Mount Olive	5	0/0	$208,984
Seminary	2	0/0	$102,688
Unincorporated Area	32	0/132	$56,171,386
COVINGTON COUNTY TOTAL	**46**	**0/132**	**$58,710,702**

Source: National Centers for Environmental Information

TABLE A.20: HISTORICAL TORNADO IMPACTS IN COVINGTON COUNTY

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Collins					
Collins	30-MAR-93	F0	0/0	$875	A school teacher watched a funnel cloud until it touched down briefly and destroyed a chicken house.

[14] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.
[15] These tornado events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional tornadoes have occurred in Covington County. As additional local data becomes available, this hazard profile will be amended.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Collins	04-DEC-93	F0	0/0	$87,452	The second floor of a sawmill was blown off, several windows were broken out, and a few trees were blown down.
Collins	14-APR-99	F3	0/0	$1,210,072	This strong tornado tracked across northeast Covington County before entering northwest Jones County. Many homes were damaged with several homes receiving major damage. Numerous trees and power lines were blown down and there were many livestock fatalities.
Collins	01-MAY-04	F1	0/0	$32,619	This weak tornado briefly touched down 7 miles west northwest of Collins and damaged a mobile home, sheared many trees about 15 feet above the ground and downed several large trees.
Collins	01-MAY-04	F1	0/0	$13,048	This is the continuation of the Jefferson Davis county tornado that moved just to the north of the Terrell community and into Covington county. This tornado stayed on the ground for 3 more miles, downing numerous trees, before dissipating 6 miles west southwest of Collins.
Collins	20-DEC-07	F1	0/0	$835,837	This tornado touched down just south of Collins to just southeast of the Highway 84 and 37 intersection. The damage began on the south side of Collins where a billboard was blown over and a warehouse building was destroyed. Numerous trees were uprooted and snapped as the tornado tracked east-northeast. The tornado reached its peak intensity and maximum width along Dennis Knight Road. Here, numerous large trees were snapped and uprooted including a swath where a large majority of the trees were snapped off. The tornado continued moving east-northeast, where the roof of a chicken house was completely removed and caused minor to moderate roof damage to two homes.
Collins	26-APR-11	F1	0/0	$47,741	A short lived tornado touched down just south of Collins on Kola Road and destroyed two barns and downed a few trees and many limbs. The concrete foundation of the barn, which was attached to metal poles, was pulled out of the ground. Also, a nearby FEMA trailer suffered some minor damage as the tornado passed with some skirting pulled away from another trailer. Maximum winds were around 95 mph.
Mount Olive					
Mt. Olive	06-APR-05	F0	0/0	$6,334	This brief tornado touched down on the eastern side of Mt. Olive and damaged a few trees. The tornado was observed by a storm chaser as it briefly touched down.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Mt. Olive	06-APR-05	F0	0/0	$6,334	This strong tornado developed from a long lived supercell thunderstorm, which had a history of producing tornadoes, that moved across a large portion of Southern and Central Mississippi. The tornado touched down just N of Mount Olive, in Covington county, and stayed on the ground for 28 miles across most of Smith county, where it dissipated around the Ted community just inside Jasper county. Where the tornado first touched down it was weak, F0, and only downed a few trees. As it moved NE, into Smith county, it quickly gained strength. F1 to F2 type damaged occurred across SW Smith county where hundreds of trees were snapped or uprooted and several homes and outbuildings had part or all of their roofs blown off. As the strong tornado approached Mize, MS, it became stronger and reached it maximum intensity, F3. Here the tornado was 600 yards wide and was significantly damaging nearly all the trees in its path. One mile to the SW of Mize, a mobile home was destroyed. The most significant damage occurred in Mize where the Attendance Center was nearly demolished. The top floor of the Attendance Center was almost completely taken off, 3 portable classrooms were destroyed along with several large light poles bent or snapped. The tornado continued to the NE toward the Center Ridge community. The damage between Mize and Center Ridge, a distance of nearly 9 miles, ranged between F2 and F3. Along Providence Road, a barn was destroyed, 2 homes were significantly damaged and a church was heavily damaged. The tornado crossed State Highway 37 and continued toward the Center Ridge community. Here, many more trees were uprooted along with several structures demolished or sustaining significant damage. As the tornado tracked toward Sylvarena, it began to weaken and become smaller. From this point, to where it dissipated in Jasper county, damage was confined to trees snapped and uprooted. This tornado affected 3 counties and had a total path length of 28 miles.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Mt. Olive	03-MAY-09	F1	0/0	$11,255	The tornado began and tracked across rural northeast Jefferson Davis County, far northwest Covington County and then into southeast Simpson County. Snapped and uprooted large hardwood and softwood trees occurred along the path. The most intense damage occurred in the Saratoga Community in southeast Simpson County. A travel trailer was completely destroyed and two chicken houses were heavily damaged. Snapped pine trees fell on a church and damaged a roof and some shingle damage occurred on a few other homes. Skirting was blown off of a mobile home and a chicken house was damaged near the Simpson and Smith county line. Maximum winds were 100 mph. The track began three miles north of Clem and ended four miles north northeast of Mount Olive. Total path length across the 3 counties was around 9 miles.
Mt. Olive	03-MAY-09	F1	0/0	$135,061	This tornado touched down just south of Mt. Olive and tracked generally northeast into southeast Smith County near Taylorsville. Along the path, numerous trees were uprooted and snapped. A tree fell on a house just south of Mt. Olive and several signs were downed and a TV antenna was bent. Several houses also received shingle damage. The total path was around 20 miles with maximum winds around 100 mph.
Mt. Olive	06-APR-18	F1	0/0	$50,000	This tornado touched down near the Jefferson Davis-Covington County line along Lucas Hollow Road. It continued southeast, crossing the county line. Some large limbs and trees were snapped and uprooted at this location. It then crossed Lucas Hollow Road again before crossing Leonard Road. A tornado debris signature was indicated on radar in these locations. The tornado uprooted and snapped many trees in this region. It also overturned a small tractor trailer on Oakvale Road and caused some minor shingle damage to a home. After crossing Oakvale Road twice, the tornado lifted before crossing Highway 35. The maximum winds in this tornado was 105 mph and total path length was 2.91 miles. The maximum path width was 440 yards.
Seminary					
Seminary	27-NOV-03	F0	0/0	$2,688	This weak tornado touched down southwest of Seminary and moved northeast snapping numerous trees before it lifted 1.5 miles south of Seminary.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Seminary	28-DEC-15	F1	0/0	$100,000	This brief tornado touched down 2.5 miles southwest of Seminary and tracked to the northeast before crossing Seminary Sumrall Road where it destroyed a barn and snapped some trees. As it crossed the road, a shed was destroyed and more trees were uprooted and snapped. The tornado then crossed Tower Road and shortly after caused severe damage to a carport that fell on a vehicle. The tornado then crossed Seminary Mike Conner Road where it uprooted some trees. The tornado continued northeast and right before crossing Highway 49, several trailers were blown onto the highway and a fireworks stand was destroyed. Numerous trees were snapped in the area as the tornado crossed the highway. The tornado continued on the ground crossing Evergreen Church Road and Ray Harvey Road where it snapped more trees. In this area it produced severe roof damage to a home and snapped trees. The tornado then crossed Watts Road where large limbs were downed and a trampoline was destroyed. The tornado lifted soon after crossing Watts Road north of Seminary. The maximum estimated winds were 95mph.
Unincorporated Area					
COVINGTON COUNTY	29-JUL-52		0/0	$238,034	
COVINGTON COUNTY	20-FEB-54	F2	0/0	$2,352,500	
COVINGTON COUNTY	13-APR-69	F1	0/0	$0	
COVINGTON COUNTY	13-APR-69	F2	0/11	$1,719,135	
COVINGTON COUNTY	21-APR-72	F2	0/8	$1,512,322	
COVINGTON COUNTY	31-MAR-81	F2	0/2	$694,780	
COVINGTON COUNTY	05-SEP-86	F1	0/0	$576,329	
COVINGTON COUNTY	20-APR-92	F1	0/0	$449,975	
COVINGTON COUNTY	21-NOV-92	F3	0/100	$44,997,486	

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
COVINGTON COUNTY	11-NOV-95		0/2	$828,584	The tornado started at 0455 am one mile south of Mount Olive and moved east and lifted two miles northeast of Smith at 0505. Seven homes were severely damaged or destroyed. There were an unknown number of houses with at least some damage. Three mobile homes were destroyed. Three metal buildings were severely damaged. Numerous cars were totaled or severely damaged. Numerous trees were blown down along the path. Four chicken houses were demolished and nearly 20,000 chickens perished. The two injuries occurred in one of the mobile homes.
Hot Coffee	30-APR-05	F0	0/0	$63,339	This weak tornado touched down just to the west of Hot Coffee and tracked northeast for 3 miles. Several trees were snapped and uprooted along the path along with a few damaged outbuildings.
Hot Coffee	20-MAR-06	F0	0/0	$0	This weak tornado snapped and downed a number of trees around Hot Coffee.
Hot Coffee	20-DEC-07	F1	0/0	$95,524	This tornado was brief and touched down just inside the Covington County border with Jones County. The roofs were blown off of two mobile homes with extensive debris strewn. One home had a part of the roof removed along with numerous pine trees snapped and uprooted in a convergent path.
Arbo	12-FEB-08	F1	0/0	$231,855	This brief tornado touched down just southeast of Mt. Olive and tracked for about a mile to the northeast. Multiple large pine trees were snapped or uprooted, and the roof of a few chicken houses were peeled off. Maximum winds were around 105 mph.
Williamsburg	04-SEP-11	F1	0/0	$26,523	Two barns were heavily damaged along the tornado path. One home suffered minor roof and structural damage. A number of trees were snapped and uprooted. A wooden light pole was snapped and a couple of power lines downed. Maximum winds were estimated at 90 mph.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Williamsburg	07-APR-14	F2	0/8	$2,000,000	This tornado touched down just to the west of Sunset-Williamsburg Rd. Several trees were snapped at this location. The tornado moved northeast where it crossed Sunset Rd and Rock Hill Rd. Snapped & uprooted trees were the main damage. As the tornado neared and crossed Highway 49, the intensity increased to a high-end EF-1. Multiple power lines were downed along with numerous trees, two homes had minor damage along Rock Hill Rd. A home had a portion of the roof removed along Highway 49. As the tornado crossed Byrd Town Rd, more high-end tree damage occurred with some minor damage to a home and a couple mobile homes. Several sheds and carports were destroyed here as well. The tornado increased in intensity to a low-end EF-2 as it crossed George Speed Rd. Here significant tree damage was noted with hundreds of snapped or uprooted pines and hardwoods. A few homes had minor damage as they were on the edges of the tornadic circulation. The tornado weakened some as it moved just north of Jones Chapel Rd and across Highway 532. The tornado increased and reached peak intensity, EF-2 (125 mph), as it crossed Vester Pickering Rd. Three mobile homes were destroyed with one well-built brick home having the roof entirely removed. Heavy tree damaged was noted here with power poles and power lines down. Just to the north of Hot Coffee, a large church was heavily damaged with part of the roof removed and some outer brick fallen off the outer wall. Five other brick buildings had minor/major roof damage along with the windows blown out. Dozens of trees were snapped and uprooted here and along Highway 35. The tornado continued to the northeast toward the Leaf River where more trees were snapped and downed. The tornado dissipated just inside Jones County where some trees were damaged. Total path length was 16.5 miles. Maximum winds were around 125 mph.
Arbo	03-JAN-15	F1	0/0	$20,000	The tornado began along Sunset Road, where the roof of a mobile home was damaged. It continued northeast and snapped trees along Cooley Spring-Coulter Road and Stroud Road before it lifted. The estimated maximum wind speed was 90 mph.
Arbo	03-JAN-15	F1	0/0	$40,000	This tornado snapped numerous trees along its path from the east end of Stroud Road. It moved east northeast across Burtons Creek Road. It lifted near Rock Hill Road. The most impressive tree damage occurred along Burtons Creek Road and this is where it reached its peak intensity. The estimated wind speed was 110 mph.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Williamsburg	17-AUG-15	F0	0/0	$15,000	This tornado downed numerous large limbs and snapped off the tops of several trees along its path. Two power poles were downed when limbs fell on power lines, taking the poles down. A carport was flipped by the tornado. The estimated peak wind was 75 mph.
Arbo	02-JAN-17	F2	0/0	$100,000	This tornado touched down about a mile west of Highway 49, near Rock Hill Road, and tracked quickly northeast doing a variety of tree and structural damage along its relatively short path length. A few structures received heavy damage near the crossing point of Highway 49 with a few large chicken coops being destroyed or receiving extensive damage about a mile east of Highway 49. The tornado then continued on for a few more miles doing lesser amounts of damage to a few structures before lifting just after crossing County Road 532. The maximum estimated wind speeds were 115mph.
Hot Coffee	22-JAN-18	F1	0/1	$30,000	An EF-1 tornado touched down in northeast Covington County along Highway 532 causing minor tree damage as it tracked northeast towards Gilmore Road. As the tornado continued its northeast track, it became its strongest as it approached Hwy 37 near J. Nelson Drive and Jewel Owens Lane. At this location the tornado uprooted and snapped several large trees and damaged a few structures, including homes. The tornado continued into northwest Jones County where a double wide mobile home was pushed off of its foundation and 3 sheds and a barn was destroyed on Carter Dees Road. An occupant of the mobile home suffered a minor injury. The tornado lifted just after this damage occurred. Total path length was 7.51 miles and estimated max wind speed was 100 mph.
Ora	06-APR-18	F1	0/0	$30,000	This tornado touched down southeast of Mount Olive just to the west of Linda Sanford Lane, near the intersection of William Warren Road. Some trees were snapped and uprooted along and just west of William Warren Road. It then continued east-southeast before crossing Salem Church Road. Some large limbs were snapped in this area. It then crossed Rocky Valley Road, where some limbs were snapped, and a few pine trees were uprooted. Also, some minor shingle damage occurred to a home. The tornado became weaker and lifted soon after crossing the road. The maximum estimated winds with this tornado were 90mph.

Source: National Centers for Environmental Information

739

PROBABILITY OF FUTURE OCCURRENCES

According to historical information, tornado events pose a significant threat to Covington County. The probability of future tornado occurrences affecting Covington County is likely (10 – 100 percent annual probability).

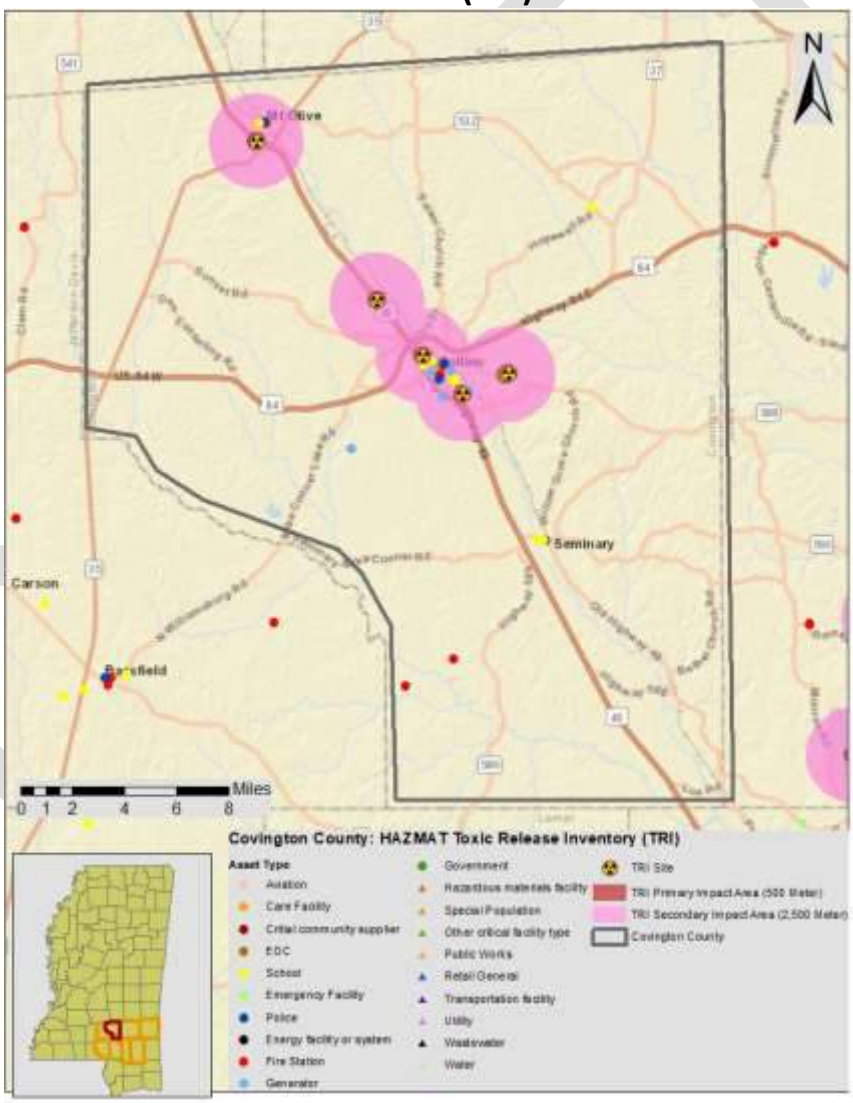
A.2.13 Hazardous Materials Incidents

LOCATION AND SPATIAL EXTENT

Hazardous Materials

Covington County has four TRI sites. These sites are shown in **Figure A.8.**

FIGURE A.8: TOXIC RELEASE INVENTORY (TRI) SITES IN COVINGTON COUNTY



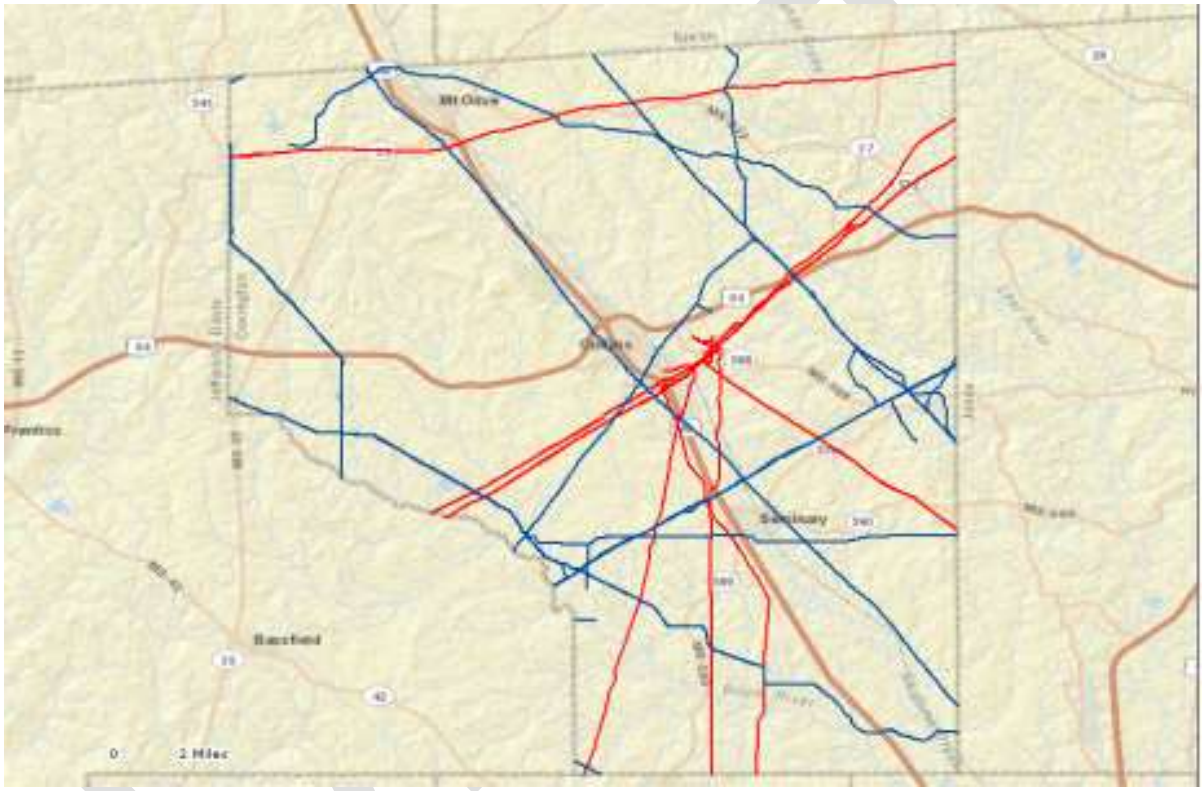
Source: EPA

In addition to "fixed" hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially at risk to an incident.

Pipelines

There are two distinct types of pipelines that are used in the transport of potentially hazardous materials, gas lines and hazardous liquid lines. **Figure A.9** shows the trunk lines for each of these material types but does not show the gathering or distribution pipelines. Gas lines are in blue and hazardous liquid lines are in red. This data has not changed since the last plan update.

FIGURE A.9: PIPELINES IN COVINGTON COUNTY



Source: Pipeline and Hazardous Materials Safety Administration

Meth Labs

One of the greatest concerns about meth labs is that they are clandestine in nature. Additionally, once a meth lab has been identified, police authorities generally attempt to eliminate the site as quickly as possible. Therefore, it is nearly impossible to identify specific locations for meth labs and instead, the entire planning area is considered to be at risk to this hazard.

HISTORICAL OCCURRENCES

Hazardous Materials

There has been a total of 24 recorded HAZMAT incidents in Covington County since 1972 (**Table A.24**), resulting in $19,750 in property damages. In addition, one death was reported. **Table A.17** presents detailed information on historic HAZMAT incidents in Covington County as reported by the U.S.

Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA). There are no changes to this data since the last plan update.

TABLE A.21: SUMMARY OF HAZMAT INCIDENTS IN COVINGTON COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Collins	21	1/0	$9,650
Mount Olive	3	0/0	$10,100
Seminary	0	0/0	$0
Unincorporated Area	0	0/0	$0
COVINGTON COUNTY TOTAL	**24**	**1/0**	**$19,750**

Source: USDOT PHMSA

TABLE A.22: HAZMAT INCIDENTS IN COVINGTON COUNTY

Report Number	Date	City	Mode	Serious Incident?	Fatalities/ Injuries	Damages ($)	Quantity Released
Collins							
I-1978060526	5/22/1978	COLLINS	Highway	0	0/1	$0	25 LGA
I-1975020457	12/20/1974	COLLINS	Highway	0	0/0	$0	0
I-1976110129	9/30/1976	COLLINS	Highway	0	0/0	$0	111 LGA
I-1976030757	3/6/1976	COLLINS	Highway	0	0/0	$0	50 LGA
I-2011100178	9/7/2011	COLLINS	Highway	0	0/0	$3,575	20 LGA
I-1987050470	5/15/1987	COLLINS	Highway	0	0/0	$0	25 LGA
I-2009030553	3/3/2009	COLLINS	Highway	0	0/0	$6,075	30 LGA
I-1992070574	5/13/1992	COLLINS	Highway	0	0/0	$0	20 LGA
I-1996020224	1/13/1996	COLLINS	Highway	0	0/0	$0	0.125 LGA
I-1976081113	7/30/1976	COLLINS	Highway	0	0/0	$0	0
I-1978031024	3/11/1978	COLLINS	Highway	0	0/0	$0	38 LGA
I-1973110156	10/16/1973	COLLINS	Highway	0	0/0	$0	0
I-1976120500	11/26/1976	COLLINS	Highway	0	0/0	$0	66 LGA
I-2002090335	6/11/2002	COLLINS	Highway	0	0/0	$0	1 LGA
I-1977080146	7/19/1977	COLLINS	Highway	0	0/0	$0	58 LGA
I-1973020096	1/18/1973	COLLINS	Highway	0	0/0	$0	0
I-1972070013	6/24/1972	COLLINS	Highway	0	0/0	$0	0
I-1974050269	4/26/1974	COLLINS	Highway	0	0/0	$0	0
I-1974010238	1/3/1974	COLLINS	Highway	0	0/0	$0	0
I-1986100193	9/30/1986	COLLINS	Highway	1	1/0	$0	7,980 LGA
I-1974070383	6/12/1974	COLLINS	Highway	0	0/0	$0	0
Mount Olive							
I-2009030262	2/26/2009	MOUNT OLIVE	Highway	0	0/0	$10,100	15 LGA
I-1978080318	7/24/1978	MOUNT OLIVE	Highway	1	0/0	$0	300 LGA
I-1978050598	5/3/1978	MOUNT OLIVE	Highway	1	0/0	$0	200 LGA
Seminary							
None Reported	--	--	--	--	--	--	--
Unincorporated Area							
None Reported	--	--	--	--	--	--	--

Report Number	Date	City	Mode	Serious Incident?	Fatalities/ Injuries	Damages ($)	Quantity Released

Source: USDOT PHMSA

Pipelines

Between 2002 and 2013, there has been 1 pipeline incident in Covington County. It occurred in 2009 and there were no deaths or injuries. The property damage was estimated at $85,904.

Meth Labs

Meth lab incidents have occurred at various times throughout Covington County. Although there is not an extensive documented record of these events, they have occurred in the past and are generally confined to single sites, often in residential areas.

PROBABILITY OF FUTURE OCCURRENCES

Hazardous Materials

Given the location of four toxic release inventory sites in Covington County and several roadway and rail incidents, it is possible that a hazardous material incident may occur in the county (between one percent and ten percent annual probability). County and town officials are mindful of this possibility and take precautions to prevent such an event from occurring. Furthermore, there are detailed plans in place to respond to an occurrence.

Although there are just four TRI sites and a limited record of previous events in the county, hazardous materials incidents will continue to be a threat. The county may also be impacted by neighboring counties which also face risk due to TRI sites and narrow roadways.

Pipelines

Since there has been 1 major pipeline incident and there are 448 miles of gas and hazardous liquid lines in the region, it is anticipated that there will be future pipeline incidents in Covington County, so they are considered possible.

Meth Labs

Meth lab incidents will likely continue to occur throughout Covington County. Although it is difficult to predict where exactly these incidents would occur, the probability that they will is possible.

A.2.14 Cyber Attack

A cyber-attack is a malicious, intentional attempt to breach the information technology (IT) infrastructure of an individual or organization. The State of Mississippi defines a cyberterrorism incident as any adverse premeditated, politically, financially or maliciously motivated attack against informational systems. A cyberterrorism event can impact one or more of Covington County's and its, corresponding departments' and divisions' information assets by the following ways, which includes, but are not limited to, the following:

- Unauthorized use
- Denial of Service
- Malicious code

- Network system failures
- Application system failures
- Unauthorized disclosure or loss of information
- Information security breach
- Structured Query Language (SQL) Injection

LOCATION AND HAZARD EXTENT

The cyberterrorism hazard is not geographically based. Attacks can originate from any computer to affect any other computer in the world. If a system is connected to the Internet or operating on a wireless frequency, it is susceptible to exploitation. Targets of cyberterrorism can be individual computers, networks, organizations, business sectors, or governments. Financial institutions and retailers are often targeted to extract personal and financial data that can be used to steal money from individuals and banks.

HISTORICAL OCCURRENCES

There have been no known historical occurrences to have occurred in in Covington County to date.

PROBABILITY OF FUTURE OCCURRENCES

As is the case for any governmental organization, there will always be the potential for impact for Covington County. As such, the county will continue to be compelled to respond to cyberterrorisms in the future. The nature of these attacks is projected to evolve in sophistication over time. Covington County will take a proactive position in its cyber security efforts and is expected to remain vigilant in its efforts to prevent attacks from occurring and/or disrupting business operations.

The reality remains that many computers and networks in organizations of all sizes and industries around the United States will continue to suffer intrusion attempts on a daily basis from viruses and malware that are passed through web sites and emails. Again, the potential for harm via this hazard is always present.

A.2.15 Conclusions on Hazard Risk

The hazard profiles presented above were developed using best available data and result in what may be considered principally a qualitative assessment as recommended by FEMA in its “How-to” guidance document titled *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA Publication 386-2). It relies heavily on historical and anecdotal data, stakeholder input, and professional and experienced judgment regarding observed and/or anticipated hazard impacts. It also carefully considers the findings in other relevant plans, studies, and technical reports.

HAZARD EXTENT

Table A.18 describes the extent of each natural hazard identified for Covington County. The extent of a hazard is defined as its severity or magnitude, as it relates to the planning area.

880 **TABLE A.23: EXTENT OF COVINGTON COUNTY HAZARDS**

Flood-related Hazards	
Flood	Flood extent can be measured by the amount of land and property in the floodplain as well as flood height and velocity. The amount of land in the floodplain accounts for 19.7 percent of the total land area in Covington County. Flood depth and velocity are recorded via United States Geological Survey stream gages throughout the region. While a gage does not exist for each participating jurisdiction, there is one at or near many areas. The greatest peak discharge recorded for the county was at the Leaf River near Collins in 1856. Water reached a discharge of 56,000 cubic feet per second and the stream gage height was recorded at 33.00 feet.
Erosion	The extent of erosion can be defined by the measurable rate of erosion that occurs. There are no erosion rate records located in Covington County.
Dam Failure	Dam failure extent is defined using Mississippi Division of Environmental Quality criteria. There is one high hazard dam in the county.
Winter Storm and Freeze	The extent of winter storms can be measured by the amount of snowfall received (in inches). Official long-term snow records are not kept for Covington County. However, the greatest snowfall reported in Jackson (northwest of the county) was 11.7 inches in 1904 and in Meridian (northeast of the county) was 14.0 inches in 1963.
Fire-related Hazards	
Drought / Heat Wave	Drought extent is defined by the U.S. Drought Monitor Classifications which include Abnormally Dry, Moderate Drought, Severe Drought, Extreme Drought, and Exceptional Drought. According to the U.S. Drought Monitor Classifications, the most severe drought condition is Exceptional. Covington County has received this ranking once over the sixteen-year reporting period. The extent of extreme heat can be measures by the record high temperature recorded. Official long-term temperature records are not kept for any areas in Covington County. However, the highest recorded temperature in Hattiesburg (southeast of the county) was 106°F in 1989.
Wildfire	Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2008-2018. The greatest number of fires to occur in Covington County in any year was 52 in 2015. The greatest number of acres to burn in the county in a single year occurred in both 2014 and 2017 when 10.1 acres were burned. Although this data lists the extent that has occurred, larger and more frequent wildfires are possible throughout the county.
Geologic Hazards	
Earthquake	Earthquake extent can be measured by the Richter Scale and the Modified Mercalli Intensity (MMI) scale and the distance of the epicenter from Covington County. According to data provided by the National Geophysical Data Center, no recorded earthquakes have been located in the county. However, the greatest MMI to impact Covington County was reported with an MMI of IV (moderate) with a correlating Richter Scale measurement of less than 4.8. Additionally, USGS data shows Covington County lies within an approximate zone of level .04 ground acceleration. This indicates that the county exists within an area of moderate seismic risk.
Landslide	As noted above in the landslide profile, there is no extensive history of landslides in Covington County and landslide events typically occur in isolated areas. This

	provides a challenge when trying to determine an accurate extent for the landslide hazard. However, when using USGS landslide susceptibility index, extent can be measured with incidence, which is low throughout the county. There is also susceptibility throughout the county.
Expansive Soils	As noted above in the expansive soils profile, there is no historical record of significant expansive soil events in Covington County. Again, this provides a challenge when trying to determine an accurate extent for the expansive soils hazard. However, when using USGS data on soils with clay swelling potential, extent can be measured with swelling potential, which is high in less than 50 percent of the soils Covington County.
Wind-related Hazards	
Hurricane and Tropical Storm	Hurricane extent is defined by the Saffir-Simpson Scale which classifies hurricanes into Category 1 through Category 5. The greatest classification of hurricane to traverse directly through Covington County was a Category 1 storm (Hurricane Katrina in 2005) which carried tropical force winds of 92 miles per hour upon arrival in the county.
Thunderstorm / Hail / Lightning	Thunderstorm extent is defined by the number of thunder events and wind speeds reported. According to a 63-year history from the National Centers for Environmental Information, the strongest recorded wind event in Covington County was last reported on February 12, 2008 at 70 knots (approximately 81 mph). It should be noted that future events may exceed these historical occurrences. Hail extent can be defined by the size of the hail stone. The largest hail stone reported in Covington County was 2.75 inches (on March 26, 2005). It should be noted that future events may exceed this. According to the Vaisala's flash density map, Covington County is located in an area that experiences 6 to 8 lightning flashes per square kilometer per year. It should be noted that future lightning occurrences may exceed these figures.
Tornado	Tornado hazard extent is measured by tornado occurrences in the US provided by FEMA as well as the Fujita/Enhanced Fujita Scale. The greatest magnitude reported in Covington County was an F3 (last reported on April 14, 1999).
Other Hazards	
Hazardous Materials Incident	According to USDOT PHMSA, the largest hazardous materials incident reported in the county is 7,980 LGA released on the highway in Collins. It should be noted that larger events are possible. A pipeline incident could have a potentially large impact in terms of extent. Based on recent history, the largest spill in the last 10 years in Mississippi caused over 10,000 barrels of hazardous liquid to be spilled. Because of the generally small-scale nature of most meth labs, the extent of a fire or explosion that was caused by a meth lab incident would likely not be larger than a few acres.
Cyber Attack	The extent of cyberterrorism is difficult to estimate. Attacks can originate from any computer to affect any other computer in the world. The resulting damages depends on the demands of the cyberterrorist.

PRIORITY RISK INDEX RESULTS

In order to draw some meaningful planning conclusions on hazard risk for Covington County, the results of the hazard profiling process were used to generate countywide hazard classifications according to a "Priority Risk Index" (PRI). More information on the PRI and how it was calculated can be found in Section 5.16.2.

Table A.19 summarizes the degree of risk assigned to each category for all initially identified hazards based on the application of the PRI. Assigned risk levels were based on the detailed hazard profiles developed for this section, as well as input from the Regional Hazard Mitigation Council. The results were then used in calculating PRI values and making final determinations for the risk assessment.

TABLE A.24: SUMMARY OF PRI RESULTS FOR COVINGTON COUNTY

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Flood-related Hazards						
Flood	Likely	Limited	Moderate	6 to 12 hours	Less than 24 hours	**2.6**
Erosion	Possible	Minor	Small	More than 24 hours	More than 1 week	**1.8**
Dam Failure	Unlikely	Critical	Moderate	More than 24 hours	Less than 6 hours	**2.0**
Winter Storm and Freeze	Possible	Limited	Large	More than 24 hours	Less than 24 hours	**2.3**
Fire-related Hazards						
Drought / Heat Wave	Highly Likely	Minor	Large	More than 24 hours	More than 1 week	**2.8**
Wildfire	Likely	Minor	Small	Less than 6 hours	Less than 1 week	**2.1**
Geologic Hazards						
Earthquake	Unlikely	Minor	Moderate	Less than 6 hours	Less than 6 hours	**1.7**
Landslide	Unlikely	Minor	Small	Less than 6 hours	Less than 6 hours	**1.5**
Expansive	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Wind-related Hazards						
Hurricane and Tropical Storm	Likely	Catastrophic	Large	More than 24 hours	Less than 24 hours	**3.2**
Thunderstorm Wind / High Wind	Highly Likely	Limited	Moderate	Less than 6 hours	Less than 6 hours	**2.9**
Hailstorm	Likely	Minor	Small	Less than 6 hours	Less than 6 hours	**2.1**
Lighting	Highly Likely	Limited	Negligible	Less than 6 hours	Less than 6 hours	**2.5**
Tornado	Likely	Critical	Small	Less than 6 hours	Less than 6 hours	**2.7**
Other Hazards						
Hazardous Materials Incident	Unlikely	Limited	Small	Less than 6 hours	Less than 24 hours	**1.9**
Pipeline Incident	Possible	Limited	Small	Less than 6 hours	Less than 24 hours	**2.2**
Meth Lab Incident	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Cyber Attack	Possible					

A.2.16 Final Determinations on Hazard Risk

The conclusions drawn from the hazard profiling process for Covington County, including the PRI results and input from the Regional Hazard Mitigation Council, resulted in the classification of risk for each identified hazard according to three categories: High Risk, Moderate Risk, and Low Risk (**Table A.20**). For purposes of these classifications, risk is expressed in relative terms according to the estimated impact that a hazard will have on human life and property throughout all Covington County. A more quantitative analysis to estimate potential dollar losses for each hazard has been performed separately, and is described in Section 6: *Vulnerability Assessment* and below in Section A.3. It should be noted that although some hazards are classified below as posing low risk, their occurrence of varying or unprecedented magnitudes is still possible in some cases and their assigned classification will continue to be evaluated during future plan updates.

TABLE A.25: CONCLUSIONS ON HAZARD RISK FOR COVINGTON COUNTY

HIGH RISK	Hurricane and Tropical Storm Thunderstorm Wind / High Wind Tornado Flood
MODERATE RISK	Drought / Heat Wave Lightning Hailstorm Pipeline Incident Hazardous Material Incident Wildfire
LOW RISK	Winter Storm and Freeze Dam Failure Expansive Soils Erosion Earthquake Landslide Meth Lab Incident Cyber Attack

A.3 COVINGTON COUNTY VULNERABILITY ASSESSMENT

This subsection identifies and quantifies the vulnerability of Covington County to the significant hazards previously identified. This includes identifying and characterizing an inventory of assets in the county and assessing the potential impact and expected amount of damages caused to these assets by each identified hazard event. More information on the methodology and data sources used to conduct this assessment can be found in Section 6: *Vulnerability Assessment*.

A.3.1 Asset Inventory

Table A.21 lists the estimated number of improved properties and the total value of improvements for Covington County and its participating jurisdictions (study area of vulnerability assessment). This data was obtained from HAZUS-MH 4.2.

TABLE A.26: IMPROVED PROPERTY IN COVINGTON COUNTY

Location	Number of Parcels	Total Assessed Value of Improvements
Covington County	**8,877**	**$1,613,517,000**

*Improvement values for these communities were obtained from HAZUS-MH 4.2

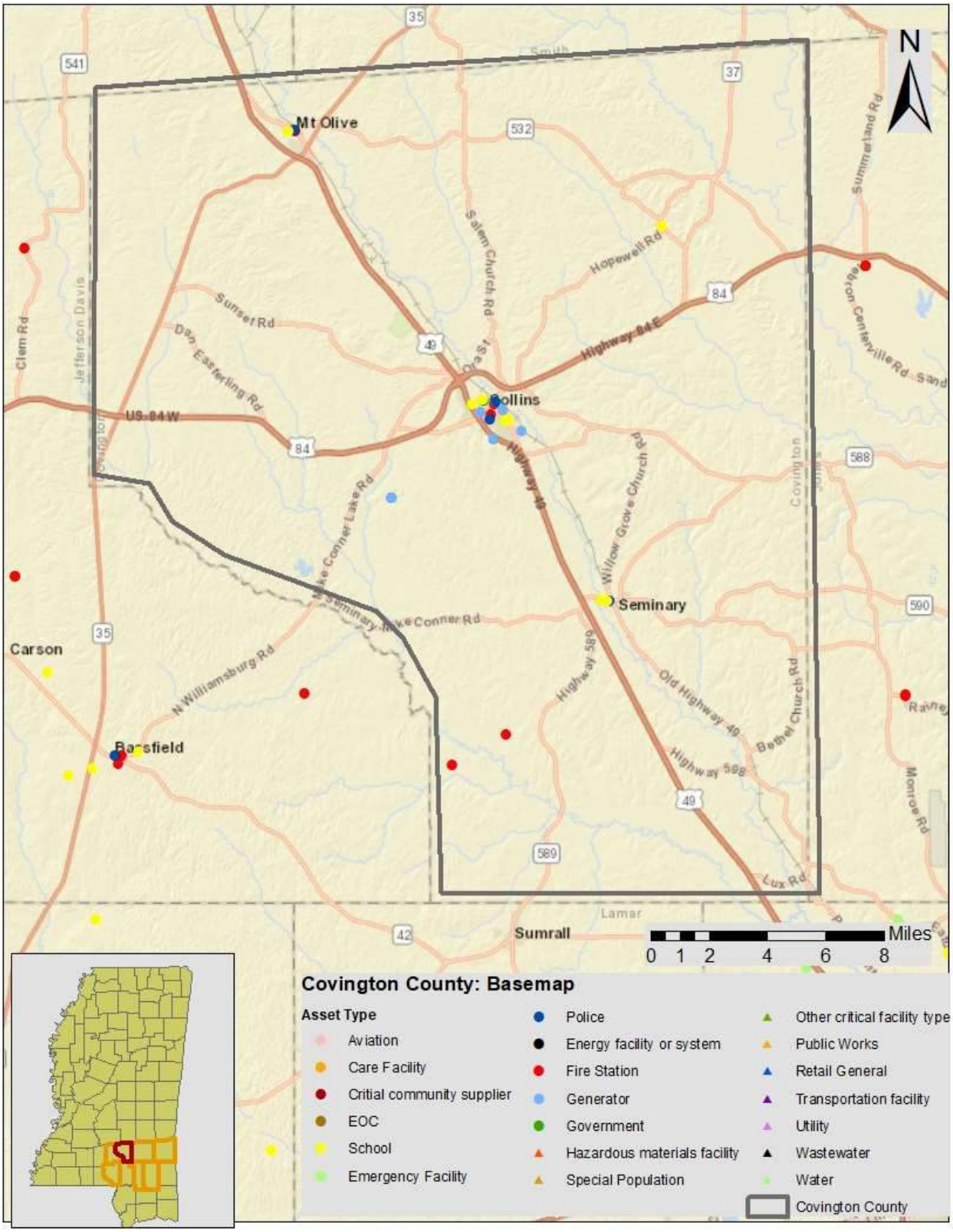
Table A.30 lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools and other critical facilities located in Covington County. HAZUS-MH 4.2 was used to obtain the critical facilities for the county and that data was modified to reflect more recent changes. In addition, **Figure A.10** shows the locations of essential facilities in Covington County. **Table A.32** near the end of this section, shows a complete list of the critical facilities by name, as well as the hazards that affect each facility. As noted previously, this list is not all-inclusive and only includes information provided by the county.

TABLE A.30: CRITICAL FACILITY INVENTORY IN COVINGTON COUNTY

Location	Fire Stations	Police Stations	Medical Care Facilities	EOC	Schools
Covington County	**12**	**3**	**1**	**1**	**10**
Collins	2	1	1	1	5
Mount Olive	1	1	0	0	2
Seminary	1	1	0	0	2
Unincorporated Area	8	0	0	0	1

Source: HAZUS-MH 4.2 and Planning Committee

940 **FIGURE A.3: CRITICAL FACILITY LOCATIONS IN COVINGTON COUNTY**



941
942 *Source: HAZUS-MH 4.2*
943

A.3.2 Social Vulnerability

In addition to identifying those assets potentially at risk to identified hazards, it is important to identify and assess those particular segments of the resident population in Covington County that are potentially at risk to these hazards.

Table A.31 lists the population by jurisdiction according to U.S. Census 2010 population estimates. The results are presented at the county-wide level. The total population in Covington County according to Census data is 19,568 persons. Additional population estimates are presented above in Section A.1.

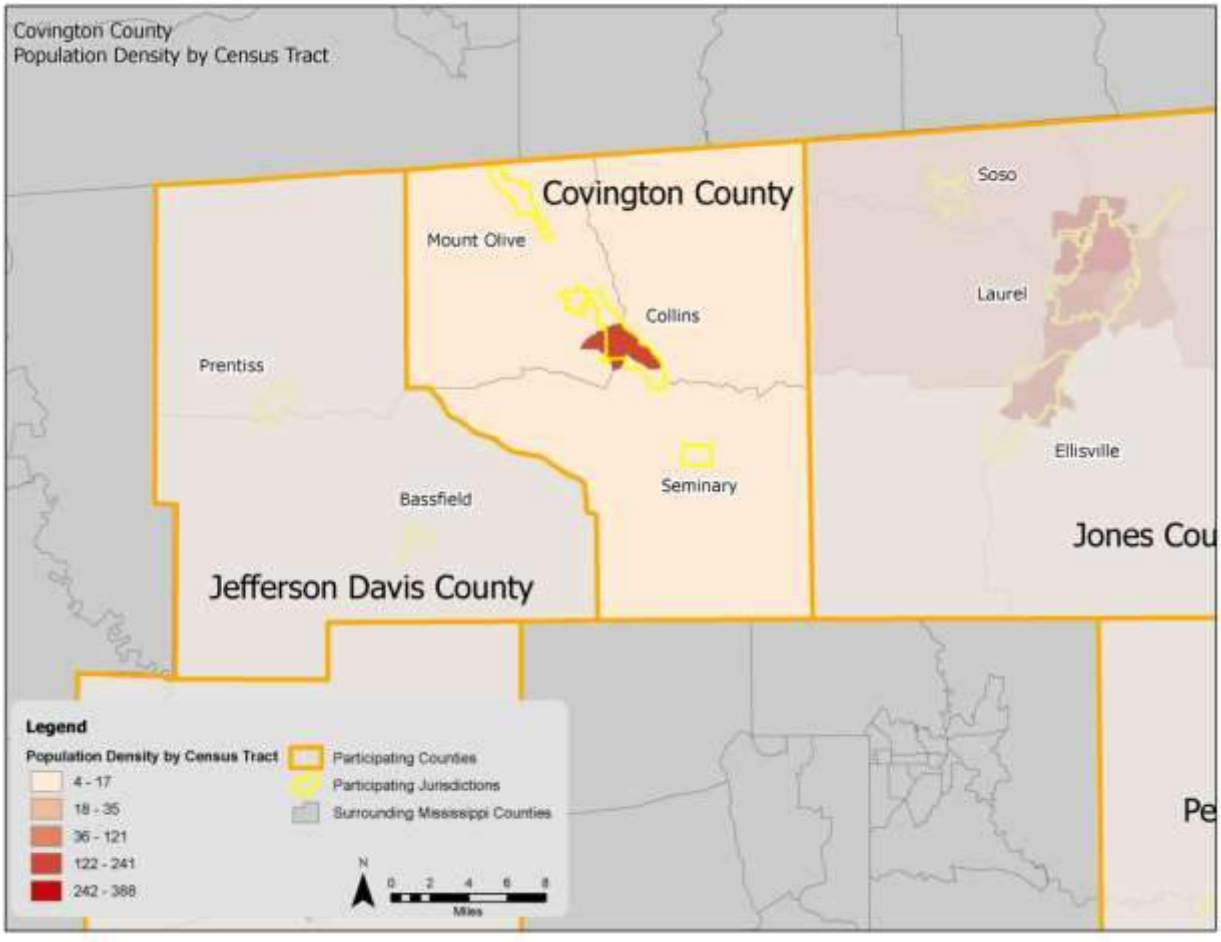
TABLE A.31: TOTAL POPULATION IN COVINGTON COUNTY

Location	Total 2010 Population
Collins	2,586
Mount Olive	982
Seminary	314
Unincorporated Area	15,686
COVINGTON COUNTY TOTAL	**19,568**

Source: U.S. Census 2010

In addition, **Figure A.2** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2010.[16] This information has not changed since the last plan update.

FIGURE A.4: POPULATION DENSITY IN COVINGTON COUNTY



Source: U.S. Census Bureau, 2010

[16] Population by census block was not available at the time this plan was completed.

A.3.3 Vulnerability Assessment Results

As noted in Section 6: *Vulnerability Assessment*, only hazards with a specific geographic boundary, available modeling tool, or sufficient historical data allow for further analysis. Those results, specific to Covington County, are presented here. All other hazards are assumed to impact the entire planning region (drought, hailstorm, lightning, thunderstorm wind, tornado, and winter storm and freeze) or, due to lack of data, analysis would not lead to credible results (dam and levee failure, erosion, expansive soils, and landslide). The total county exposure, and thus risk, was presented in **Table A.29**.

The hazards to be further analyzed in this section include: flood, wildfire, earthquake, hurricane and tropical storm winds, and hazardous materials incident.

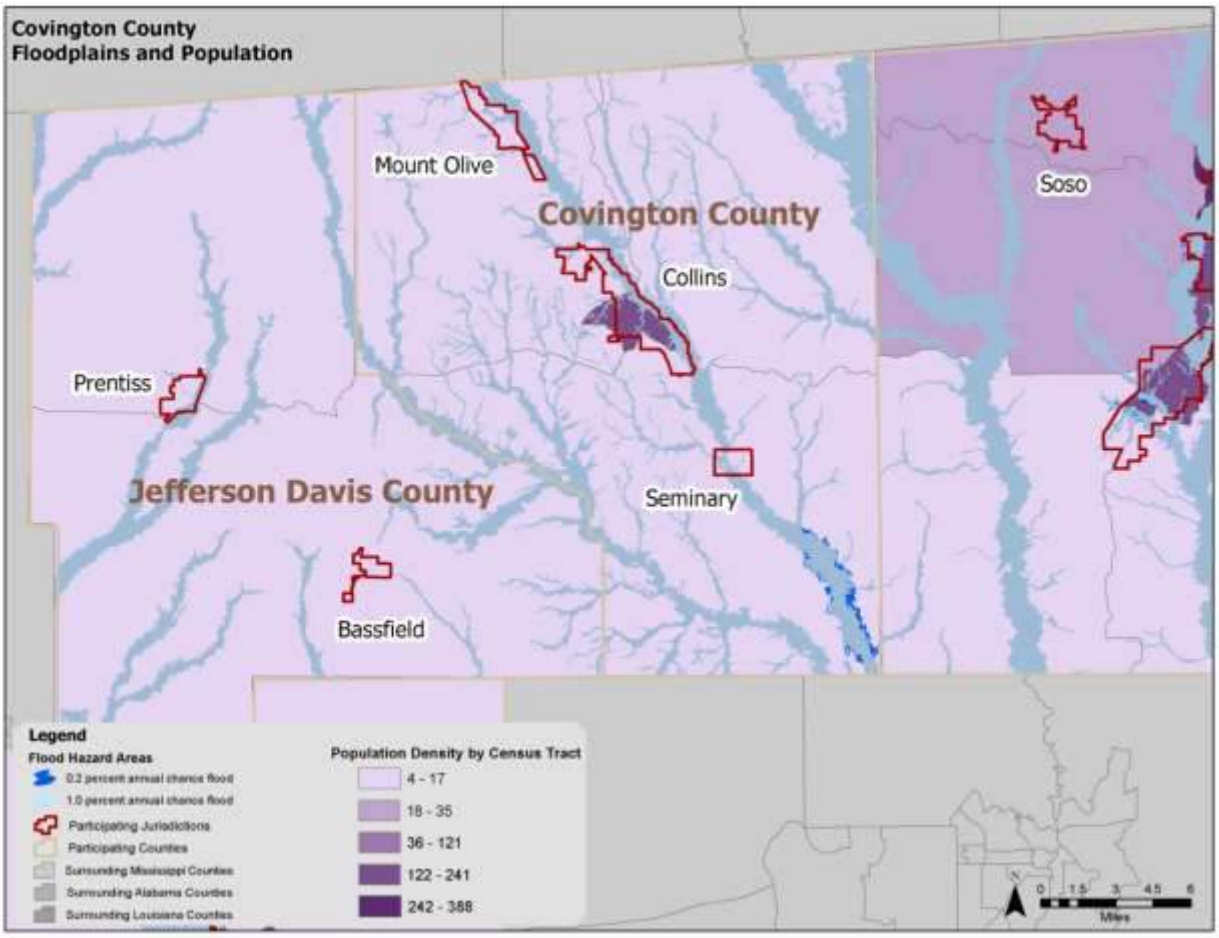
FLOOD

Historical evidence indicates that Covington County is susceptible to flood events. A total of 24 flood events have been reported by the National Centers for Environmental Information resulting in $3.096M in damages.

Social Vulnerability

Since 2010 population was available at the tract level, it was difficult to determine a reliable figure on population at-risk to flood due to tract level population data. **Figure A.15** is presented to gain a better understanding of at-risk population.

988 **FIGURE A.5 : POPULATION DENSITY NEAR FLOODPLAINS**



989
990 *Source: FEMA DFIRM, U.S. Census 2010*
991
992 **Critical Facilities**
993 The critical facility analysis revealed that there are six critical facilities located in the Covington County
994 1.0-percent annual chance floodplain valued at over $5.9M based on FEMA DFIRM boundaries and GIS
995 analysis. There are no critical facilities located in the 0.2 percent annual chance floodplain. A list of
996 specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.
997
998 In conclusion, a flood has the potential to impact many existing and future buildings and populations in
999 Covington County, though some areas are at a higher risk than others. All types of structures in a
1000 floodplain are at-risk, though elevated structures will have a reduced risk. As noted, the floodplains
1001 used in this analysis include the 100-year and 500-year FEMA regulated floodplain boundaries. It is
1002 certainly possible that more severe events could occur beyond these boundaries or urban (flash)
1003 flooding could impact additional structures. Such site-specific vulnerability determinations are outside
1004 the scope of this assessment but will be considered during future plan updates. Furthermore, areas
1005 subject to repetitive flooding should be analyzed for potential mitigation actions.
1006

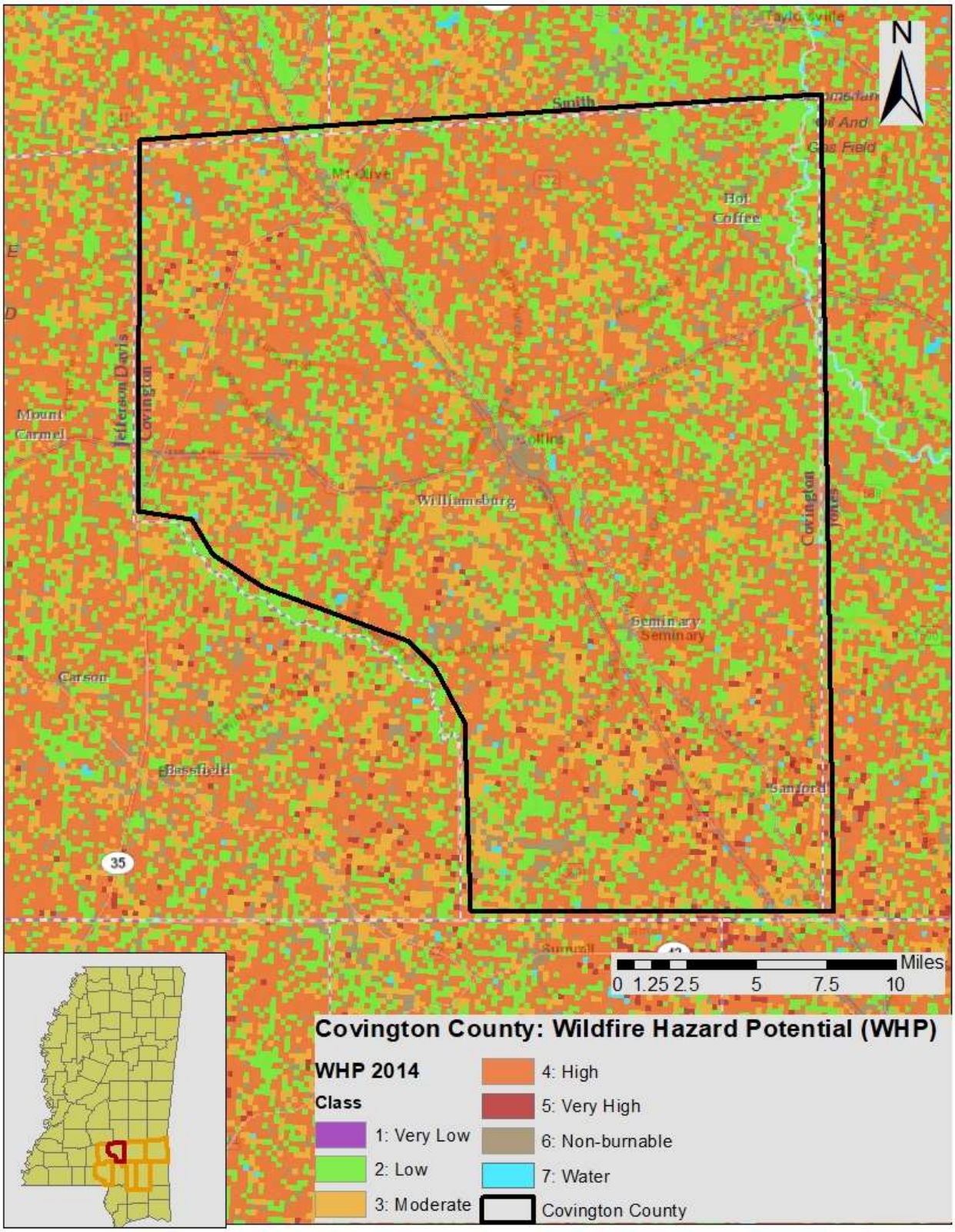
WILDFIRE

Although historical evidence indicates that Covington County is susceptible to wildfire events, there are few reports of damage.

To estimate exposure to wildfire, the wildfire hazard potential (WHP 2014) data provided via the US Forest Service was utilized. A GIS analysis was performed with the WHP dataset and identified critical facilities throughout MEMA District 8 in order to show the level of vulnerability.

Figure A.16 shows the wildfire hazard potential for Covington County. Most of the planning areas falls within the low to high category.

1018 **FIGURE A.6: WILDFIRE RISK AREAS IN COVINGTON COUNTY**



1019
1020 *Source: U.S. Forrest Service*

Social Vulnerability

Although not all areas have equal vulnerability, there is some susceptibility across the entire county. It is assumed that the total population is at risk to the wildfire hazard. Determining the exact number of people in certain wildfire zones is difficult with existing data and could be misleading.

Critical Facilities

The critical facility analysis revealed that there are five critical facilities located in an area considered moderate risk valued at nearly $1.2M. There are two critical facilities located in an area considered high risk valued at $1.1M, and there is an additional structure located in an area considered very high risk. It should be noted, however, that several factors could impact the spread of a wildfire putting all facilities at risk. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

In conclusion, a wildfire event has the potential to impact many existing and future buildings, critical facilities, and populations in Covington County.

EARTHQUAKE

The HAZUS-MH earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS-MH model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS-MH 4.2 estimates a total exposure of approximately $20,561,000 which includes buildings, inventory, and contents throughout the region. While this number is not an exact representation of assessed tax value, it is helpful in assessing the results of the HAZUS-MH scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS-MH estimates that no buildings would be moderately damaged.

Social Vulnerability

It can be assumed that all existing future populations are at risk to the earthquake hazard. No fatalities or injuries were reported in the above HAZUS-MH arbitrary scenario.

Critical Facilities

There are 25 critical facilities identified for Covington County, valued at $52,176,304. All are vulnerable to the earthquake hazard.

An earthquake has the potential to impact all existing and future buildings, facilities, and populations in Covington County. While Covington County may not experience a large earthquake, localized damage is possible with an occurrence. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

HURRICANE AND TROPICAL STORM

Historical evidence indicates that Covington County has an elevated risk to the hurricane and tropical storm hazard. Several tracks have come near or traversed through the county, as shown and discussed in Section A.2.10.

Hurricanes and tropical storms can cause damage through numerous additional hazards such as flooding, erosion, tornadoes, and high winds, thus it is difficult to estimate total potential losses from these cumulative effects. The current HAZUS-MH hurricane model only analyzes hurricane winds and is not capable of modeling and estimating cumulative losses from all hazards associated with hurricanes; therefore, only hurricane winds are analyzed in this section. It can be assumed that all existing and future buildings and populations are at risk to the hurricane and tropical storm hazard. HAZUS-MH 4.2 was used to determine vulnerability to the hazard for a 100-Year event. There are an estimated 100,000 buildings in the region with a total building replacement value of $20,562,000. A 100-year probabilistic scenario was created and modeled. HAZUS-MH estimated that approximately 1,892 buildings would be at least moderately damaged by the event; this is over two percent of the buildings in the Region. There is an estimated 69 buildings that would be damaged beyond repair.

Economic Losses

HAZUS-MH estimated economic losses for the scenario event. HAZUS-MH estimated losses at $349.5M, which represents 1.7 percent of the total replacement value of the region's buildings. Nine percent of the losses were related to business interruption in the scenario region. 88 percent of the losses were sustained by residential structures.

Debris Generation

As part of the scenario, HAZUS-MH estimated the amount of debris that would be generated by the event. The types of debris considered were brick/wood, reinforced concrete/steel, eligible tree debris, and other tree debris. HAZUS-MH estimated that a total of 2,165,680 tons of debris would be generated by the event. Of that amount, 93 percent would be other tree debris, approximately 1.5 percent would be brick/wood, and the rest would comprise of would be eligible tree debris and brick/wood. Assuming a load of 25 tons per truck, this would equate to 1,190 truckloads of debris from this scenario.

Social Vulnerability

Given equal susceptibility across the county, it is assumed that the total population is at risk to the hurricane and tropical storm hazard.

Critical Facilities

Given equal vulnerability across Covington County, all critical facilities are considered to be at risk. Some buildings may perform better than others in the face of such an event due to construction and age, among other factors. There are 25 critical facilities identified for Covington County, valued at $52,176,304. Some buildings may perform better than others in the face of such an event due to construction and age, among other factors. Determining individual building response is beyond the scope of this plan. However, this plan will consider mitigation action for especially vulnerable and/or critical facilities to mitigation against the effects of the hurricane hazard. A list of specific critical facilities can be found in **Table A.32** at the end of this section.

In conclusion, a hurricane event has the potential to impact many existing and future buildings, critical facilities, and populations in Covington County. Hurricane events can cause substantial damage in their wake including fatalities, extensive debris clean-up, and extended power outages.

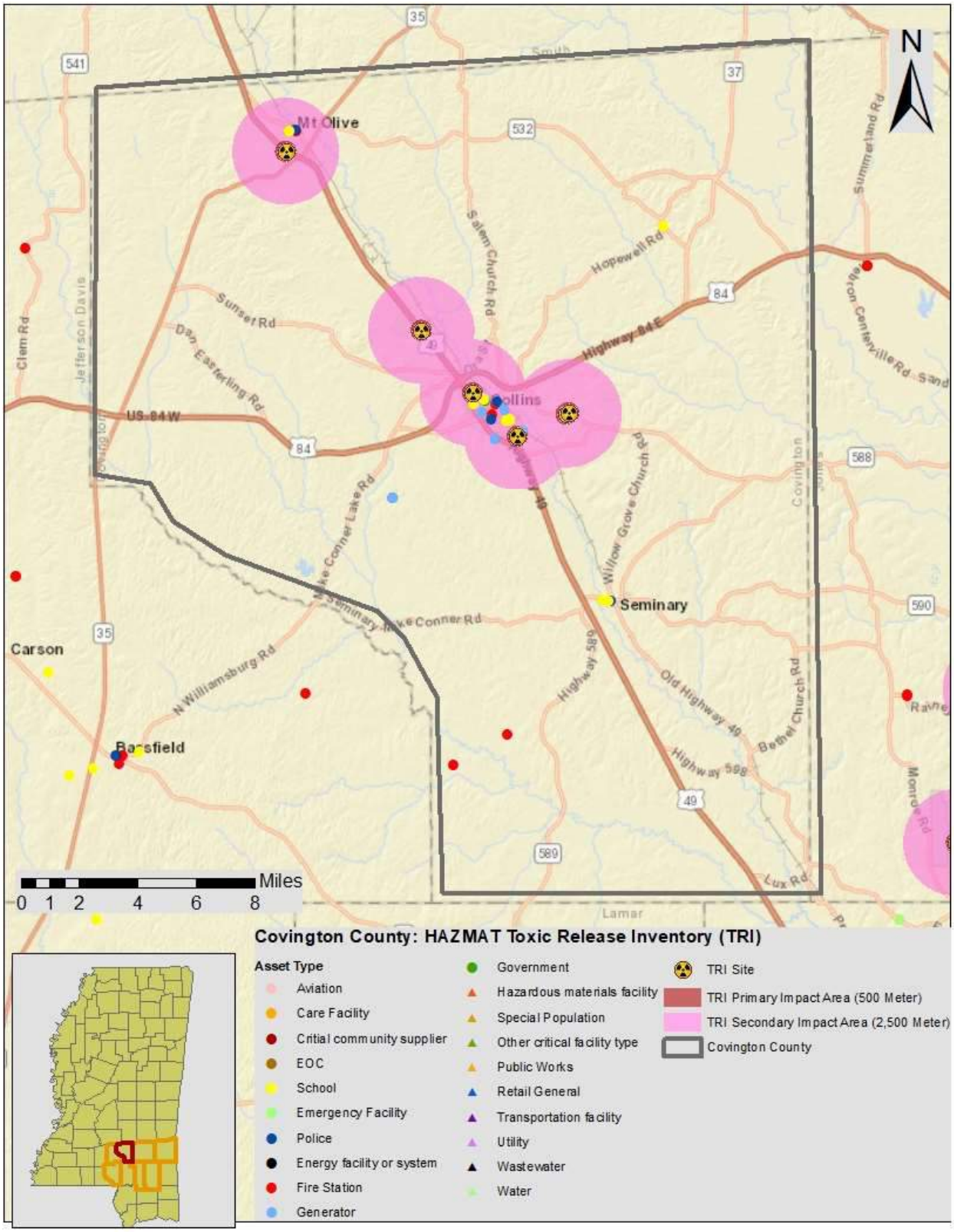
HAZARDOUS MATERIALS INCIDENT

Although historical evidence and existing Toxic Release Inventory sites indicate that Covington County is susceptible to hazardous materials events, there are few reports of damage.

Most hazardous materials incidents that occur are contained and suppressed before destroying any property or threatening lives. However, they can have a significant negative impact. Such events can cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. In a hazardous materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions will directly affect how the hazard develops. Certain chemicals may travel through the air or water, affecting a much larger area than the point of the incidence itself. Non-compliance with fire and building codes, as well as failure to maintain existing fire and containment features, can substantially increase the damage from a hazardous materials release. The duration of a hazardous materials incident can range from hours to days. Warning time is minimal to none.

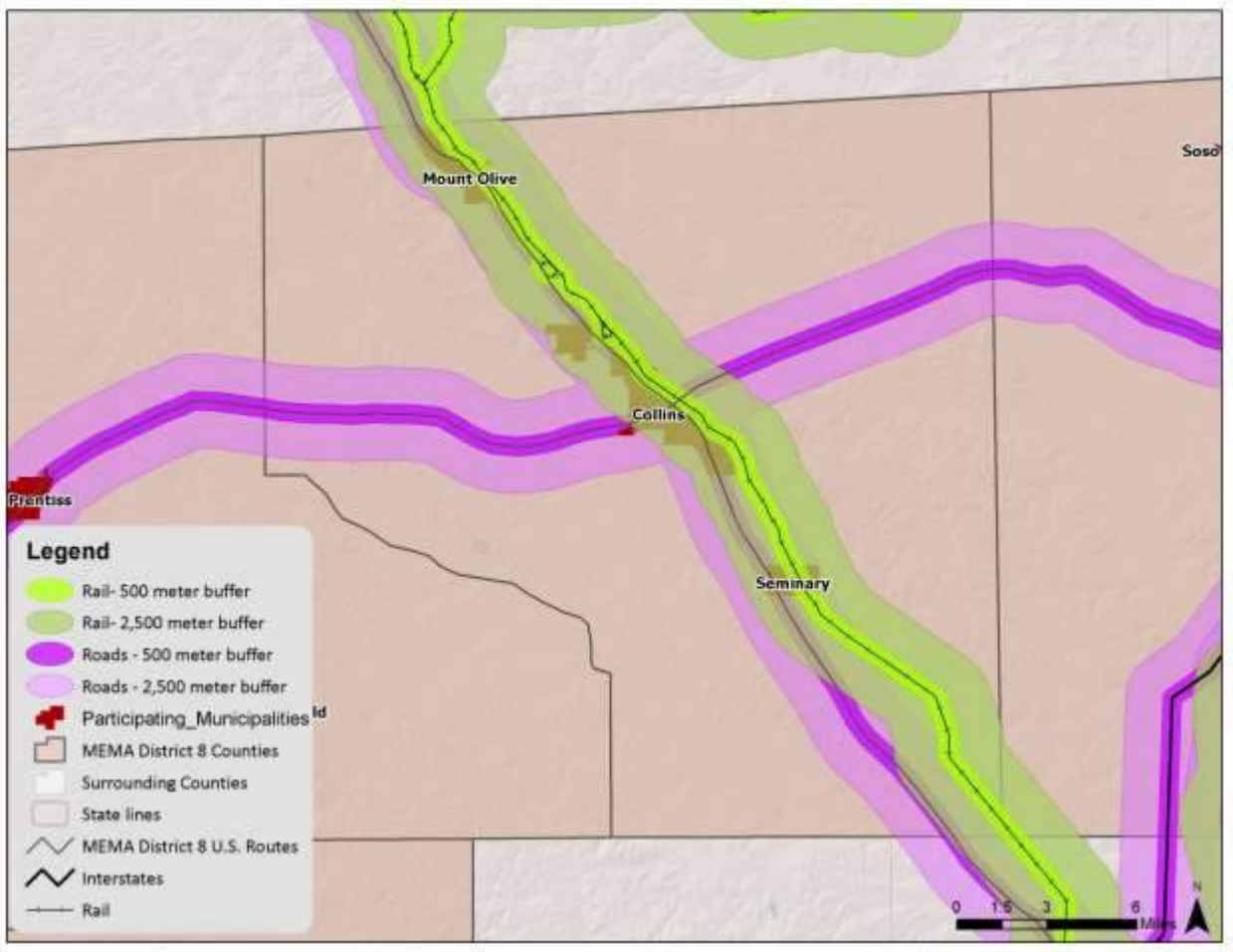
In order to conduct the vulnerability assessment for this hazard, GIS analysis was used for fixed and mobile areas. In both scenarios, two sizes of buffers—500 and 2,500 meters—were used. These areas are assumed to respect the different levels of effect: immediate (primary) and secondary. Primary and secondary impact sites were selected based on guidance from FEMA 426, Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings and engineering judgment. For the fixed site analysis, geo-referenced TRI listed toxic sites in Covington County, along with buffers, were used for analysis as shown in **Figure A.17.** For the mobile analysis, the major roads (Interstate highway, U.S. highway, and State highway) and railroads, where hazardous materials are primarily transported that could adversely impact people and buildings, were used for the GIS buffer analysis. **Figure A.18** shows the areas used for mobile toxic release buffer analysis. The mobile toxic release buffer data did not change since the last plan update.

FIGURE A.7 : TRI SITES WITH BUFFERS IN COVINGTON COUNTY



Source: EPA

FIGURE A.8 : MOBILE HAZMAT BUFFERS IN COVINGTON COUNTY



Social Vulnerability

Given high susceptibility across the entire county, it is assumed that the total population is at risk to a hazardous materials incident. It should be noted that areas of population concentration may be at an elevated risk due to a greater burden to evacuate population quickly.

Critical Facilities

Fixed Site Analysis:

The critical facility analysis for fixed TRI sites revealed that there are two critical facilities that would be impacted by only the 500M HAZMAT risk zone, which are valued at over $5.2M. There are 16 critical facilities that would be impacted by the 2500M HAZMAT risk zone, valued at over $30M. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

Mobile Analysis:

The critical facility analysis for transportation corridors in Covington County revealed that there are 9 critical facilities located in the 500M Highway mobile HAZMAT buffer areas valued at over $12M, and there are 14 critical facilities located in the 500M Railway mobile HAZMAT buffer areas valued at approximately $40.8M.

Expanding to a 2500M HAZMAT risk zone reveals that all critical facilities located in the highway mobile HAZMAT buffer areas are vulnerable, and there are 19 critical facilities located in the railway mobile HAZMAT buffer area that are vulnerable. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

In conclusion, a hazardous material incident has the potential to impact many existing and future buildings, critical facilities, and populations in Covington County. Those areas in a primary buffer are at the highest risk, though all areas carry some vulnerability due to variations in conditions that could alter the impact area (i.e., direction and speed of wind, volume of release, etc). Further, incidents from neighboring counties could also impact the county and participating jurisdictions.

CONCLUSIONS ON HAZARD VULNERABILITY

Table A.32 shows the critical facilities vulnerable to additional hazards analyzed in this section. The table lists those assets that are determined to be exposed to each of the identified hazards (marked with an "**X**").

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TABLE A.32: AT-RISK CRITICAL FACILITIES IN COVINGTON COUNTY

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[17]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
COVINGTON COUNTY																					
City of Collins Fire Department	Fire Department	X	X	X	X	X	X	X	X							X	X	X		X	Non-burnable
Collins City Police Dept	Police Station	X	X	X	X	X		X	X				X			X	X	X	X	X	Non-burnable
COLLINS ELEMENTARY	School	X	X	X	X	X		X	X				X			X	X	X	X	X	Non-burnable
COLLINS FIRE STATION	Fire Station	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
COLLINS HIGH SCHOOL	School	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
COLLINS MAINTENANCE BUILDING	Government	X	X	X	X	X		X	X				X			X	X	X	X	X	Non-burnable
COLLINS MIDDLE SCHOOL	School	X	X	X	X	X		X	X						X	X	X	X		X	Non-burnable
COLLINS POLICE STATION	Police Station	X	X	X	X	X		X	X									X			Moderate
COLLINS POLICE STATION	Generator	X	X	X	X	X		X	X									X			Moderate
COVINGTON CO VOCATIONAL TECHNICAL	School	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
COVINGTON COUNTY ALTERNATIVE SCHOOL	School	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
Covington County Sheriff	Police Station	X	X	X	X	X	X	X	X							X	X	X		X	Non-

[17] As noted previously, these facilities could be at risk to dam failure if located in an inundation area. Data was not available to conduct such an analysis. There was no local knowledge of these facilities being at risk to dam failure. As additional data becomes available, more in-depth analysis will be conducted.

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[17]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
																					burnable
EOC	Generator	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**				X			X		X	X	X	High
HOPEWELL ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X												Non-burnable
LAGOON	Generator	X	X	X	X	X		X	X						X	X		X	X	X	Moderate
WATER WELL 1	Generator	X	X	X	X	X		X	X				X			X	X	X		X	Moderate
WATER WELL 4	Generator	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
MOUNT OLIVE ATTENDANCE CENTER	School	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
CLEM VOLUNTEER FIRE DEPT	Fire Station	X	X	X	X	X		X	X												High
Hot Coffee Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
Mt Olive City Police Dept	Police Station	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
East Covington Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												Moderate
SEMINARY ATTENDANCE CENTER	School	X	X	X	X	X		X	X									X	X	X	Non-burnable
SEMINARY BAPTIST KINDERGARTEN	School	X	X	X	X	X		X	X									X	X	X	Non-burnable
Seminary Town Police Dept	Police Station	X	X	X	X	X		X	X									X	X	X	Non-burnable
Southwest Covington Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X							X	X	X		X	Very High

A.4 COVINGTON COUNTY CAPABILITY ASSESSMENT

This subsection discusses the capability of Covington County to implement hazard mitigation activities. More information on the purpose and methodology used to conduct the assessment can be found in Section 7: *Capability Assessment*.

A.4.1 Planning and Regulatory Capability

Table A.41 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for Covington County. A checkmark (✓) indicates that the given item is currently in place and being implemented. An asterisk (*) indicates that the given item is currently being developed for future implementation. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the MEMA District 8 Regional Hazard Mitigation Plan.

TABLE A.271: RELEVANT PLANS, ORDINANCES, AND PROGRAMS

Planning Tool/Regulatory Tool	Hazard Mitigation Plan	Comprehensive Land Use Plan	Floodplain Management Plan	Open Space Management Plan (Parks & Rec/Greenway Plan	Stormwater Management Plan/Ordinance	Natural Resource Protection Plan	Flood Response Plan	Emergency Operations Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	National Flood Insurance Program (NFIP)	NFIP Community Rating System
COVINGTON COUNTY	✓							✓	✓				✓		✓							✓	
Collins	✓			✓				✓					✓		✓	✓	✓			✓	✓	✓	
Mount Olive	✓	✓		✓				✓					✓		✓	✓	✓					✓	
Seminary	✓			✓				✓					✓		✓	✓				✓		✓	

A more detailed discussion on the county's planning and regulatory capabilities follows.

EMERGENCY MANAGEMENT

Hazard Mitigation Plan

Covington County has previously adopted a hazard mitigation plan. The City of Collins, the Town of Mount Olive, and the Town of Seminary were also included in this plan.

Emergency Operations Plan

Covington County maintains an emergency operations plan through its Emergency Management Agency. The City of Collins, the Town of Mount Olive, and the Town of Seminary are each covered by this plan.

GENERAL PLANNING

Comprehensive Land Use Plan

Covington County has not adopted a county comprehensive land use plan. However, the Town of Mount Olive adopted a community development plan in 1978.

Zoning Ordinance

Covington County does not have a zoning ordinance in place. However, the City of Collins and the Town of Mount Olive have zoning ordinances that were adopted in 1987 and 1978, respectively.

Subdivision Ordinance

Covington County does not have a subdivision ordinance in place. However, the City of Collins and the Town of Mount Olive adopted subdivision regulations in 1973 and 1978, respectively.

Building Codes, Permitting, and Inspections

Covington County has not adopted a building code. However, the City of Collins and the Town of Seminary have both adopted building codes.

FLOODPLAIN MANAGEMENT

Table A.22 provides NFIP policy and claim information for each participating jurisdiction in Covington County.

TABLE A.28: NFIP POLICY AND CLAIM INFORMATION

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance in Force	Closed Claims	Total Payments to Date
COVINGTON COUNTY†	12/15/90	4/5/10	63	$7,483,100	27	$357,325
Collins	8/5/85	4/5/10(M)	16	$3,121,600	18	$124,503
Mount Olive	9/15/89	4/5/10	1	$54,200	3	$46,982
Seminary	4/5/10	4/5/10(M)	0	$0	0	$0

†Includes unincorporated areas of county only

(M) – No Elevation Determined, All Zone A, C and X

Source: NFIP Community Status information as of 3/31/13; NFIP claims and policy information as of 5/15/13

Flood Damage Prevention Ordinance

All communities participating in the NFIP are required to adopt a local flood damage prevention ordinance. Covington County, the City of Collins, the Town of Mount Olive, and the Town of Seminary all participate in the NFIP and have adopted flood damage prevention ordinances.

Open Space Management Plan

Covington County, the City of Collins, the Town of Mount Olive, and the Town of Seminary are all included in the Southern Mississippi Planning and Development District (SMPDD) Regional Open Space Plan that was written in 1973.

A.4.2 Administrative and Technical Capability

Table A.23 provides a summary of the capability assessment results for Covington County with regard to relevant staff and personnel resources. A checkmark (✓) indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill.

TABLE A.29: RELEVANT STAFF / PERSONNEL RESOURCES

Staff / Personnel Resource	Planners with knowledge of land development/land management practices	Engineers or professionals trained in construction practices related to buildings and/or infrastructure	Planners or engineers with an understanding of natural and/or human-caused hazards	Emergency Manager	Floodplain Manager	Land Surveyors	Scientists familiar with the hazards of the community	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS and/or Hazus	Resource development staff or grant writers
COVINGTON COUNTY		✓	✓	✓	✓		✓	✓		✓
Collins		✓		✓	✓		✓	✓		✓
Mount Olive		✓		✓	✓		✓	✓		✓
Seminary		✓		✓	✓		✓	✓		✓

Credit for having a floodplain manager was given to those jurisdictions that have a flood damage prevention ordinance, and therefore an appointed floodplain administrator, regardless of whether the appointee was dedicated solely to floodplain management. Credit was given for having a scientist familiar with the hazards of the community if a jurisdiction has a Cooperative Extension Service or Soil and Water Conservation Department. Credit was also given for having staff with education or expertise to assess the community's vulnerability to hazards if a staff member from the jurisdiction was a participant on the existing hazard mitigation plan's planning committee.

A.4.3 Fiscal Capability

Table A.24 provides a summary of the results for Covington County with regard to relevant fiscal resources. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard

mitigation purposes (including match funds for state and federal mitigation grant funds) according to the previous county hazard mitigation plan.

TABLE A.30: RELEVANT FISCAL RESOURCES

Fiscal Tool / Resource	Capital Improvement Programming	Community Development Block Grants (CDBG)	Special Purpose Taxes (or taxing districts)	Gas/Electric Utility Fees	Water/Sewer Fees	Stormwater Utility Fees	Development Impact Fees	General Obligation, Revenue, and/or Special Tax Bonds	Partnering Arrangements or Intergovernmental Agreements
COVINGTON COUNTY		✓							✓
Collins	✓	✓							✓
Mount Olive	✓	✓							✓
Seminary		✓							✓

A.4.4 Political Capability

During the months immediately following a disaster, local public opinion in Covington County is more likely to shift in support of hazard mitigation efforts.

A.5 COVINGTON COUNTY MITIGATION STRATEGY

This subsection provides the blueprint for Covington County to follow in order to become less vulnerable to its identified hazards. It is based on general consensus of the Regional Hazard Mitigation Council and the findings and conclusions of the capability assessment and risk assessment. Additional Information can be found in Section 8: *Mitigation Strategy* and Section 9: *Mitigation Action Plan*.

A.5.1 Mitigation Goals

Covington County developed five mitigation goals in coordination with the other participating MEMA District 8 Region jurisdictions. The regional mitigation goals are presented in **Table A.25**.

TABLE A.31: MEMA DISTRICT 8 REGIONAL MITIGATION GOALS

	Goal
Goal #1	Develop a sustainable, comprehensive mitigation program to ensure safer communities.

	Goal
Goal #2	Reduce or avoid loss of life, injury, and damage to property, the economy, and the environment.
Goal #3	Enhance preparedness and effective response to hazards.
Goal #4	Strengthen and improve local mitigation capabilities.
Goal #5	Increase public awareness of hazard mitigation, hazard risk, and protective measures that can be taken to minimize potential loss and damage.

A.5.2 Mitigation Action Plan

The mitigation actions proposed by Covington County, the City of Collins, the Town of Mount Olive, and the Town of Seminary are listed in the following individual Mitigation Action Plans.

Covington County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	County	Annual plan review	Completed but ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA, County BOS	Ongoing	Completed but ongoing
P-3	Consider adoption of flood damage prevention ordinance in Covington County.	FL	High	Self-funded	No cost	County, County Floodplain Administrator	Ongoing	Implemented April 2008 ongoing implementation
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County	Ongoing	Ongoing
P-5	Continue to maintain and upgrade the County's drainage facilities.	HU, TS, FL, BH	High	Self-funded	Unknown	County BOS, County Road Crews	Annual review	Ongoing
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Deferred until funding can be allocated
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Deferred until funding can be allocated

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County	Within 2 years	Deferred until funding can be allocated
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County	Within 2 years	Deferred until funding can be allocated
P-10	Incorporate the hazard mitigation plan into the comprehensive emergency management plan.	All	Medium	N/A	No additional cost	County	Ongoing	Implemented and ongoing
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County	Ongoing	Implemented and ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County	Ongoing	Implemented and ongoing
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County	Within 2 years	Deferred until funding can be allocated
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Deferred
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Ongoing	Implemented and ongoing
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conversation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for MS Coastal Plain, County	Within 5 years	Deferred until funding can be allocated

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Ongoing	Implemented and ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS	Ongoing	Implemented and ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA, County	Within 2 years	Deferred until funding can be allocated
ES-4	Explore potential sites for a new shelter and/or special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	County, EMA, County	Within 2 years	Deferred until funding can be allocated
ES-5	Improve disaster communication systems within the County.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Ongoing task
ES-6	Consider generators for local radio station service areas and /or other critical faciilities	TO, HU, TS	High	HMGP	Unknown	County EMA	Contingent upon funding	Contingent on funding
ES-7	Install warning sirens in the County.	TO, HU	High	HMGP	Unknown	County EMA	Contingent upon funding	Added two sirens FY '13 and added eight sirens in 2016. Action is ongoing.
ES-8	Enhance or upgrade emergency response communications or Central Dispatch and other communications equipment.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Planning upgrade 11 of 17. Action is ongoing.
ES-9	Explore upgrade/enhancement of 911 system in Covington County.	All	Medium	HMGP	Unknown	County EMA, County	Within 2 years; Contingent upon funding	Planning upgrade in 8 years

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, County	Within 5 years; Contingent upon funding	Deferred until funding becomes available
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HGMP	Unknown	County	Ongoing	Implemented, Update critical facilities list on an annual basis
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	Implemented, FY'13 develop COOP/COG Plan. Revisions made in 2019. Maintained and ongoing action
ES-15	Host a meeting to review Covington County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County	Ongoing	Updated CEMP 2013. Newly adopted in 2019
ES-16	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SFER, COPS, FIRE	Unknown	County	Ongoing	Implemented, as grants/funds become available
ES-17	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	County	Within 2 years	Implemented, as grants/funds become available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County		Delete
SP-2	Acquisition / Demolition / Relocation or Elevation, Reconstruction of flood prone structures	FL	Medium	FEMA, MEMA,	TBD	County EMA	2024	New
SP-2	Individual Saferooms	TS, T	Medium	FEMA, MEMA	TBD	County EMA	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	Range	Medium	Self-funded, MEMA	Low cost	County	Ongoing	Implemented, Started FY'09. Ongoing action
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	Implemented and ongoing
PEA-3	Encourage development of Family Disaster Plans.	All	High	Self-funded, COPS FIRE	Low or no cost	County EMA	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, County	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	N/A	No additional cost	County/Towns/ City	Ongoing	Implemented, County/Towns/ City has adopted NFIP

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County	Within 3 years	Deferred
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	County	Ongoing	Implemented,, Education at EMA annual workshop. Ongoing action

FL = Flood HU = Hurricane TS = Tropical Storm TO = Tornado TH = Thunderstorm BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

County EMA = Covington County Emergency Management Agency County BOS = Covington County Board of Supervisors

City of Collins Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	County	Annual plan review	Completed but ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA, County BOS	Ongoing	Completed but ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No cost	County, County Floodplain Administrator	Ongoing	Implemented April 2008 ongoing implementation
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County	Ongoing	Ongoing
P-5	Continue to maintain and upgrade the County's drainage facilities.	HU, TS, FL, BH	High	Self-funded	Unknown	County BOS, County Road Crews	Annual review	Ongoing
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Deferred until funding can be allocated
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Deferred until funding can be allocated

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County, City	Within 2 years	Deferred until funding can be allocated
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County, City	Within 2 years	Deferred until funding can be allocated
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County, City	Ongoing	Implemented and ongoing
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County, City	Ongoing	Implemented and ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, City	Ongoing	Implemented and ongoing
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County, City	Within 2 years	Deferred until funding can be allocated
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County, City	Within 2 years; Next round of HMGP funding	Deferred
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, City	Ongoing	Implemented and ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conversation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for MS Coastal Plain, County, City	Within 5 years	Deferred until funding can be allocated
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Ongoing	Implemented and ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS, City	Ongoing	Implemented and ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA, City	Within 2 years	Deferred until funding can be allocated
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	County, EMA, City	Within 2 years	Deferred until funding can be allocated
ES-5	Improve disaster communication systems within the County.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Ongoing task
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	HMGP	Unknown	County EMA	Contingent upon funding	Contingent on funding
ES-7	Install warning sirens in the County.	TO, HU	High	HMGP	Unknown	County EMA	Contingent upon funding	Added two sirens FY '13 and added eight sirens in 2016. Action is ongoing.
ES-8	Enhance Central Dispatch and other communications equipment.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Planning upgrade 11 of 17. Action is ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-9	Explore upgrade/enhancement of 911 system in Covington County.	All	Medium	HMGP	Unknown	County EMA, City	Within 2 years; Contingent upon funding	Planning upgrade in 8 years
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, City	Within 5 years; Contingent upon funding	Deferred until funding becomes available
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA, City	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HGMP	Unknown	County, City	Ongoing	Implemented, Update critical facilities list on an annual basis
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, City	Within 5 years; Annual review	Implemented, FY'13 develop COOP/COG Plan. Revisions made in 2019. Maintained and ongoing action
ES-15	Host a meeting to review Covington County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	City	Ongoing	Updated CEMP 2013. Newly adopted in 2019
ES-16	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SFER, COPS, FIRE	Unknown	County, City	Ongoing	Implemented, as grants/funds become available
ES-17	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	City	Within 2 years	Implemented, as grants/funds become available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, City		Delete
SP-2	Acquisition / Demolition / Relocation or Elevation, Reconstruction of flood prone structures	FL	Medium	FEMA, MEMA,	TBD	County EMA	2024	New
SP-2	Individual Saferooms	TS, T	Medium	FEMA, MEMA	TBD	County EMA	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	Range	Medium	Self-funded, MEMA	Low cost	City	Ongoing	Implemented, Started FY'09. Ongoing action
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	Implemented and ongoing
PEA-3	Encourage development of Family Disaster Plans.	All	High	Self-funded, COPS FIRE	Low or no cost	County EMA	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, City	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	N/A	No additional cost	County/Towns/ City	Ongoing	Implemented, County/Towns/ City has adopted NFIP

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, City	Within 3 years	Deferred
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	County, City	Ongoing	Implemented,, Education at EMA annual workshop. Ongoing action

FL = Flood HU = Hurricane TS = Tropical Storm TO = Tornado TH = Thunderstorm BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

County EMA = Covington County Emergency Management Agency County BOS = Covington County Board of Supervisors

Town of Mount Olive Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	Low to Medium	N/A	No additional costs	County, Town	Within 5 years	Annual plan review	Completed but ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Medium to High	Self-funded	No additional cost	County, Town	Within 2 years	Ongoing	Completed but ongoing
P-3	Strictly enforce the flood damage prevention ordinances.	High	Self-funded	No cost	County, Town	Within 2 years	Ongoing	Implemented April 2008 ongoing implementation
P-4	Consider adoption of subdivision regulations.	Medium	Self-funded	No additional cost	County, Town	Concurrent with prep. of Comp Plan	Ongoing	Ongoing
P-5	Continue to maintain and upgrade the County's drainage facilities.	Low to Medium	Self-funded	No cost	County, Town	Within 5 years	Annual review	Ongoing
P-6	Consider adoption of a comprehensive drainage plan.	Medium to High	Self-funded	No additional cost	County, Town	Within 2 years	Within 5 years	Deferred until funding can be allocated
P-7	Map the easements and rights-of-way of roadways and drainage ways.	High	CDBG, MSDA	Unknown	County, Town	Within 2 years	Within 5 years	Deferred until funding can be allocated
P-8	Support the development of a shared geographic data system for land use and site planning.	Medium	Self-funded	No additional cost	County, Town	Concurrent with prep. of Comp Plan	Within 2 years	Deferred until funding can be allocated
P-9	Develop a comprehensive development plan.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 2 years	Deferred until funding can be allocated

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium to High	Self-funded	No additional cost	County, Town	Ongoing	Implemented and ongoing
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County, Town	Ongoing	Implemented and ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, Town	Ongoing	Implemented and ongoing
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County, Town	Within 2 years	Deferred until funding can be allocated
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County, Town	Within 2 years; Next round of HMGP funding	Deferred
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Ongoing	Implemented and ongoing
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conversation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for MS Coastal Plain, County, Town	Within 5 years	Deferred until funding can be allocated

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Ongoing	Implemented and ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS, Town	Ongoing	Implemented and ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA, Town	Within 2 years	Deferred until funding can be allocated
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	County, EMA, Town	Within 2 years	Deferred until funding can be allocated
ES-5	Improve disaster communication systems within the County.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Ongoing task
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	HMGP	Unknown	County EMA	Contingent upon funding	Contingent on funding
ES-7	Install warning sirens in the County.	TO, HU	High	HMGP	Unknown	County EMA	Contingent upon funding	Added two sirens FY '13 and added eight sirens in 2016. Action is ongoing.
ES-8	Enhance Central Dispatch and other communications equipment.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Planning upgrade 11 of 17. Action is ongoing.
ES-9	Explore upgrade/enhancement of 911 system in Covington County.	All	Medium	HMGP	Unknown	County EMA, Town	Ongoing	Updated 911 Equipment to NG911
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, Town	Within 5 years; Contingent upon funding	Deferred until funding becomes available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA, Town	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HGMP	Unknown	County, Town	Ongoing	Implemented, Update critical facilities list on an annual basis. Applied for FEMA funding of new generator.
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Within 5 years; Annual review	Implemented, FY'13 develop COOP/COG Plan. Revisions made in 2019. Maintained and ongoing action
ES-15	Host a meeting to review Covington County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	Town	Ongoing	Updated CEMP 2013. Newly adopted in 2019
ES-16	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SFER, COPS, FIRE	Unknown	County, Town	Ongoing	Implemented, as grants/funds become available
ES-17	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	Town	Within 2 years	Implemented, as grants/funds become available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town		Delete
SP-2	Acquisition / Demolition / Relocation or Elevation, Reconstruction of flood prone structures	FL	Medium	FEMA, MEMA,	TBD	County EMA	2024	New
SP-2	Individual Saferooms	TS, T	Medium	FEMA, MEMA	TBD	County EMA	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	Range	Medium	Self-funded, MEMA	Low cost	Town	Ongoing	Implemented, Started FY'09. Ongoing action
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	Implemented and ongoing
PEA-3	Encourage development of Family Disaster Plans.	All	High	Self-funded, COPS FIRE	Low or no cost	County EMA	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, Town	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	N/A	No additional cost	County/Towns/ City	Ongoing	Implemented, County/Towns/ City has adopted NFIP

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years	Deferred
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	County, Town	Ongoing	Implemented,, Education at EMA annual workshop. Ongoing action

FL = Flood HU = Hurricane TS = Tropical Storm TO = Tornado TH = Thunderstorm BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

County EMA = Covington County Emergency Management Agency County BOS = Covington County Board of Supervisors

Town of Seminary Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	County, Town	Annual plan review	Completed but ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA, County BOS, Town	Ongoing	Completed but ongoing
P-3	Strictly enforce the flood damage prevention ordinances.	FL	High	Self-funded	No cost	Town Floodplain Administrator	Ongoing	Implemented April 2008 ongoing implementation
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County, Town	Ongoing	Ongoing
P-5	Continue to maintain and upgrade the County's drainage facilities.	HU, TS, FL, BH	High	Self-funded	Unknown	County BOS, County Road Crews, Town	Annual review	Ongoing
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years	Deferred until funding can be allocated
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years	Deferred until funding can be allocated

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County, Town	Within 2 years	Deferred until funding can be allocated
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA		County, Town	Within 2 years	Deferred until funding can be allocated
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County, Town	Ongoing	Implemented and ongoing
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County, Town	Ongoing	Implemented and ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, Town	Ongoing	Implemented and ongoing
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County, Town	Within 2 years	Deferred until funding can be allocated
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County, Town	Within 2 years; Next round of HMGP funding	Deferred
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Ongoing	Implemented and ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conversation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for MS Coastal Plain, County, Town	Within 5 years	Deferred until funding can be allocated
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Ongoing	Implemented and ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS, Town	Ongoing	Implemented and ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA, Town	Within 2 years	Deferred until funding can be allocated
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	County, EMA, Town	Within 2 years	Deferred until funding can be allocated
ES-5	Improve disaster communication systems within the County.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Ongoing task
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	HMGP	Unknown	County EMA	Contingent upon funding	Contingent on funding
ES-7	Install warning sirens in the County.	TO, HU	High	HMGP	Unknown	County EMA	Contingent upon funding	Added two sirens FY '13 and added eight sirens in 2016. Action is ongoing.
ES-8	Enhance Central Dispatch and other communications equipment.	All	High	Unknown	Unknown	County EMA	Contingent on funding	Planning upgrade 11 of 17. Action is ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-9	Explore upgrade/enhancement of 911 system in Covington County.	All	Medium	HMGP	Unknown	County EMA, Town	Within 2 years; Contingent upon funding	Planning upgrade in 8 years
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, Town	Within 5 years; Contingent upon funding	Deferred until funding becomes available
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA, Town	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	Implemented, Evacuation plans/maps available upon request
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HGMP	Unknown	County, Town	Ongoing	Implemented, Update critical facilities list on an annual basis
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Within 5 years; Annual review	Implemented, FY'13 develop COOP/COG Plan. Revisions made in 2019. Maintained and ongoing action
ES-15	Host a meeting to review Covington County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	Town	Ongoing	Updated CEMP 2013. Newly adopted in 2019
ES-16	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SFER, COPS, FIRE	Unknown	County, Town	Ongoing	Implemented, as grants/funds become available
ES-17	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	Town	Within 2 years	Implemented, as grants/funds become available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town		Delete
SP-2	Acquisition / Demolition / Relocation or Elevation, Reconstruction of flood prone structures	FL	Medium	FEMA, MEMA,	TBD	County EMA	2024	New
SP-2	Individual Saferooms	TS, T	Medium	FEMA, MEMA	TBD	County EMA	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	Range	Medium	Self-funded, MEMA	Low cost	Town	Ongoing	Implemented, Started FY'09. Ongoing action
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	Implemented and ongoing
PEA-3	Encourage development of Family Disaster Plans.	All	High	Self-funded, COPS FIRE	Low or no cost	County EMA	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, Town	Ongoing	Implemented through annual presentations/ Workshops. Ongoing action
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	N/A	No additional cost	County/Towns/ City	Ongoing	Implemented, County/Towns/ City has adopted NFIP

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years	Deferred
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	County, Town	Ongoing	Implemented,, Education at EMA annual workshop. Ongoing action

FL = Flood HU = Hurricane TS = Tropical Storm TO = Tornado TH = Thunderstorm BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

County EMA = Covington County Emergency Management Agency County BOS = Covington County Board of Supervisors

[i] USGS. Landslide Hazard, Retrieved August 2019 from, https://www.usgs.gov/natural-hazards/landslide-hazards/science/rainfall-induced-landslides

Annex B
Forrest County

This annex includes jurisdiction-specific information for Forrest County and its participating municipalities. It consists of the following five subsections:

- B.1 Forrest County Community Profile
- B.2 Forrest County Risk Assessment
- B.3 Forrest County Vulnerability Assessment
- B.4 Forrest County Capability Assessment
- B.5 Forrest County Mitigation Strategy

B.1 FORREST COUNTY COMMUNITY PROFILE

B.1.1 Geography and the Environment

Forrest County is located in south central Mississippi approximately 90-miles from Jackson, the capitol city and 50-miles from the Mississippi Gulf Coast. It comprises two cities, the City of Hattiesburg and the City of Petal. An orientation map is provided as **Figure B.1**.

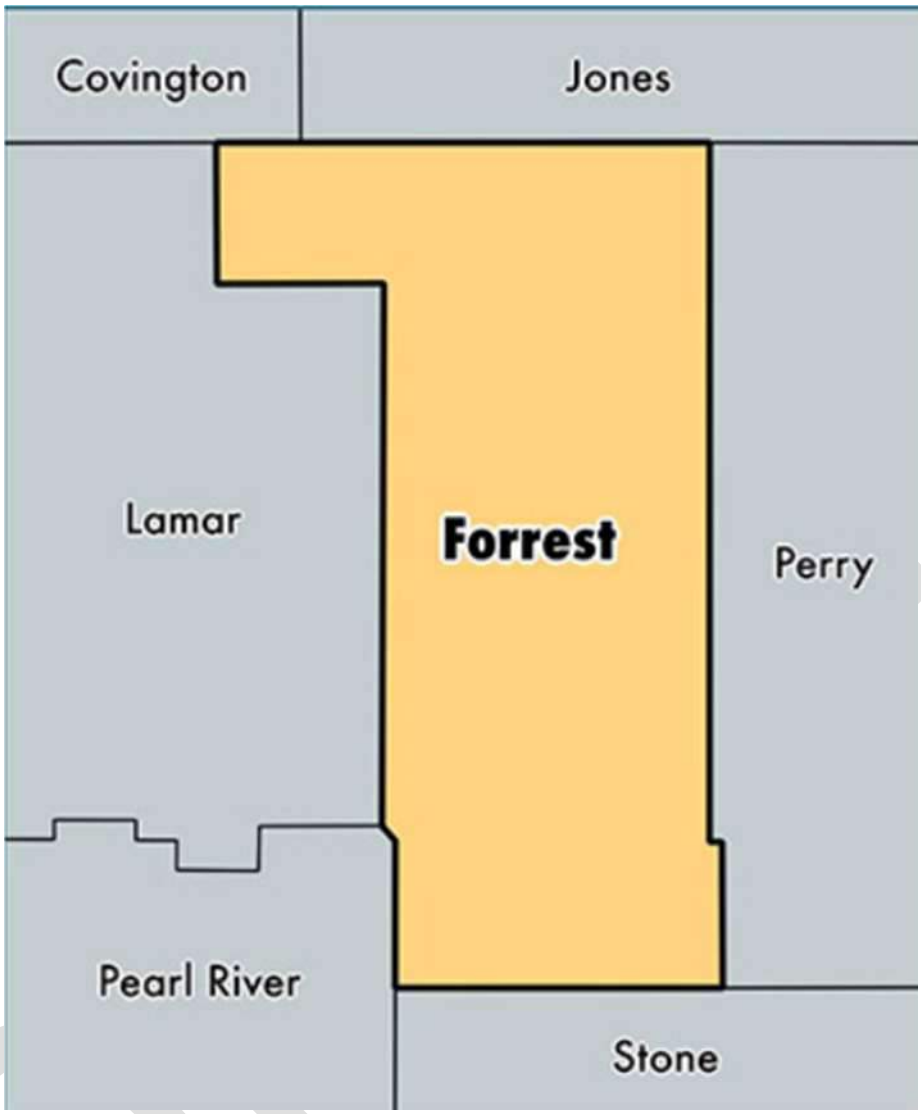
The county is a rural area of which 65 percent is characterized as forest land devoted primarily to timber production and recreation hunting. The total area of the county is 470 square miles, less than 4 square miles of which is water area.

In Forrest County, the summers are long, hot, and oppressive; the winters are short and cold; and it is wet and partly cloudy year-round. Over the course of the year, the temperature typically varies from 31°F to 93°F and is rarely below 28°F or above 97°F.

The hot season lasts for 5 months, from May to September, with an average daily temperature of 91°F. The hottest month of the year is August, with an average high of 92°F and low of 72°F. The cool season lasts for 3 months, from November to February, with an average daily high temperature 60°F. The coldest month of the year is January, with an average low of 31°F and high of 54°F.

The average daily rainfall for Forrest County is 0.17 inches with an average of 62.47” annually. The chance of wet days in Forrest County varies throughout the year. The wetter season lasts six months from November through April. Among wet days, we distinguish between those that experience rain alone, snow alone, or a mixture of the two. Based on this categorization, the most common form of precipitation throughout the year is rain alone. In 2018, the most rain fell in August with a total of 9.03” and the least rain fell in June with a total of 2.65”.

FIGURE B.1: FORREST COUNTY ORIENTATION MAP



B.1.2 Population and Demographics

According to the 2010 Census, Forrest County has a population of 75,007 people. The county has seen almost 3.08 percent growth between 2000 and 2010, and the population density is 160 people per square mile. The population saw a slight increase. Per the Census Reports, in 2017, Forrest County had a population of 75,471, which is a .614 percent increase since 2010. The household income is $39,555, which grew by 6.86 percent. Population counts from the US Census Bureau for 1990, 2000, and 2010 for the county and both of the participating jurisdictions are presented in **Table B.1**. Estimates for 2017 are also included.

TABLE B.1: POPULATION COUNTS FOR FORREST COUNTY

Jurisdiction	1990 Census Population	2000 Census Population	2010 Census Population	% Change 2000-2010	Estimated 2017 Census Population
Forrest County	**68,325**	**72,156**	**75,007**	**3.8%**	**75,471**
Hattiesburg	45,232	45,246	45,798	1.2%	46,377
Petal	7,897	9,724	10,477	7.2%	10,633

Source: US Census Bureau

Based on the 2010 Census, the median age of residents of Forrest County is 32.0 years. The racial characteristics of the county are presented in **Table B.2** and will remain the same as the census data has not been officially updated. However, according to the estimates provided by the Census Reports, the median age in 2017 remained the same at 32 years. The population of black persons is 36.8 percent and 3.04 percent is Hispanic or Latino. Whites make up the majority of the population in the county, accounting for 57.1 percent of the population.

TABLE B.2: DEMOGRAPHICS OF FORREST COUNTY

Jurisdiction	White Persons, Percent (2010)	Black Persons, Percent (2010)	American Indian or Alaska Native, Percent (2010)	Other Race, Percent (2010)	Persons of Hispanic Origin, Percent (2010)*
Forrest County	**57.0%**	**37.8%**	**0.4%**	**1.5%**	**2.9%**
Hattiesburg	40.5%	53.5%	0.1%	2.3%	2.8%
Petal	77.4%	13.4%	0.7%	1.8%	5.8%

*Hispanics may be of any race, so also are included in applicable race categories

Source: US Census Bureau

B.1.3 Housing

According to the 2010 US Census, there are 29,913 housing units in Forrest County, the majority of which are single family homes or mobile homes. Per 2018 estimates, the total number of houses increased to 32,282 units. However, the median home value is $114,700, which increased by at least 3.05 percent. Housing information for the county and two cities is presented in **Table B.3**. As shown in the table, Hattiesburg has a significantly higher percentage of seasonal housing units compared to Petal and the unincorporated county.

TABLE B.3: HOUSING CHARACTERISTICS OF FORREST COUNTY

Jurisdiction	Housing Units (2000)	Housing Units (2010)	Housing Units (2018)	Median Home Value (2018)
Forrest County	**16,420**	**29,913**	**33,282**	**$114,000**
Hattiesburg	144	144	145	$86,111
Petal	537	498	511	$111,650

Source: US Census Bureau

B.1.4 Infrastructure

TRANSPORTATION

Forrest County is located near the center of the southeast portion of Mississippi. The City of Hattiesburg is the county seat and is known as the "Hub City" because of its strategic location between New Orleans, Louisiana; Mobile, Alabama; Gulfport, Mississippi; and Jackson, Mississippi. The County is well served with a transportation network that includes one interstate highway and three U.S. highways. Interstate 59 is a north-south route that enters the County from Pearl River County to the southwest and runs in a northeasterly direction through Forrest County into Jones County to the north. U.S. Highway 49 bisects Forrest County from the southeast corner of the County to the northwest corner. U.S. Highway 11 is also a north-south route, while U.S. 98 is an east-west route. State Highways 42 and 13 are both east-west routes. Highway 42 is in the northern most portion fo the county while Highway 13 is in the southern most portion of the county.

The city of Hattiesburg maintains the Hattiesburg Bobby L. Chain Municipal Airport (HBG) in the Hattiesburg/Forrest County Industrial Park. Located four miles south of the city center, the municipal airport provides business and general aviation services for much of South Mississippi. Commercial air transportation is available at the Hattiesburg-Laurel Regional Airport, 40-minutes drive from the South end of the county. International airports in Jackson, Gulfport, and New Orleans are all also within about a 100-mile radius of Forrest County.

There is passenger and freight rail service available in Hattiesburg.

UTILITIES

Electrical power in Forrest County is provided by several electrical power associations, including Mississippi Power Company and Cooperative Energy.

Water and sewer service is provided to rural residents of Forrest County water associations by aerated lagoons. Each of the municipalities have their own water and sewer departments.

COMMUNITY FACILITIES

There are a number of buildings and community facilities located throughout Forrest County. According to the data collected for the vulnerability assessment (Section 6.4.1), there are 10 fire stations, 3 police stations, and 5 public schools located within the county. There are also two universities.

There is one hospital located in Forrest County. Forrest General Hospital is a 545 inpatient bed facility with a 400-bed medical-surgical hospital located in the City of Hattiesburg.

Forrest County proudly claims to be the "Gateway to the Longleaf Trace," a 41-mile linear park that offers premier running, biking, hiking, and equestrian trails. The Longleaf Trace is one of the longest "Rails to Trails" conversion in the United States. Another major attraction in the county is State Park, located two miles south of Hattiesburg city limits. The 225-acre lake is one of 21 state fishing lakes operated by the MS Department of Wildlife, Fisheries, and Parks. Water skiing is allowed on certain

days and times and additional amenities include boat rental, camp sites, restrooms, a covered pavilion, and a picnic area with grills.

B.1.5 Land Use

Many areas of Forrest County are undeveloped or sparsely developed due to the county's location just off the Gulf Coast and the conservation of land in state and national parks. There are a few incorporated municipalities located throughout the region, and these areas are where the region's population is generally concentrated. The incorporated areas are also where many businesses, commercial uses, and institutional uses are located. Land uses in the balance of the county generally consist of rural residential development, agricultural uses, and recreational areas.

B.1.6 Employment and Industry

According to the Mississippi Employment Security Commission (MESC), in 2018, Forrest County had an average annual employment of 32,270 workers and an average unemployment rate of 4.4% percent. According to the MESC, in 2018, the Government Agencies employed 26.8% percent of the workforce followed by Educational Services (13.3%) and Manufacturing (9.7%). The average annual wage in Forrest County was $ 42,389.

B.2 FORREST COUNTY RISK ASSESSMENT

This subsection includes hazard profiles for each of the significant hazards identified in Section 4: *Hazard Identification* as they pertain to Forrest County. Each hazard profile includes a description of the hazard's location and extent, notable historical occurrences, and the probability of future occurrences. Additional information can be found in Section 5: *Hazard Profiles*.

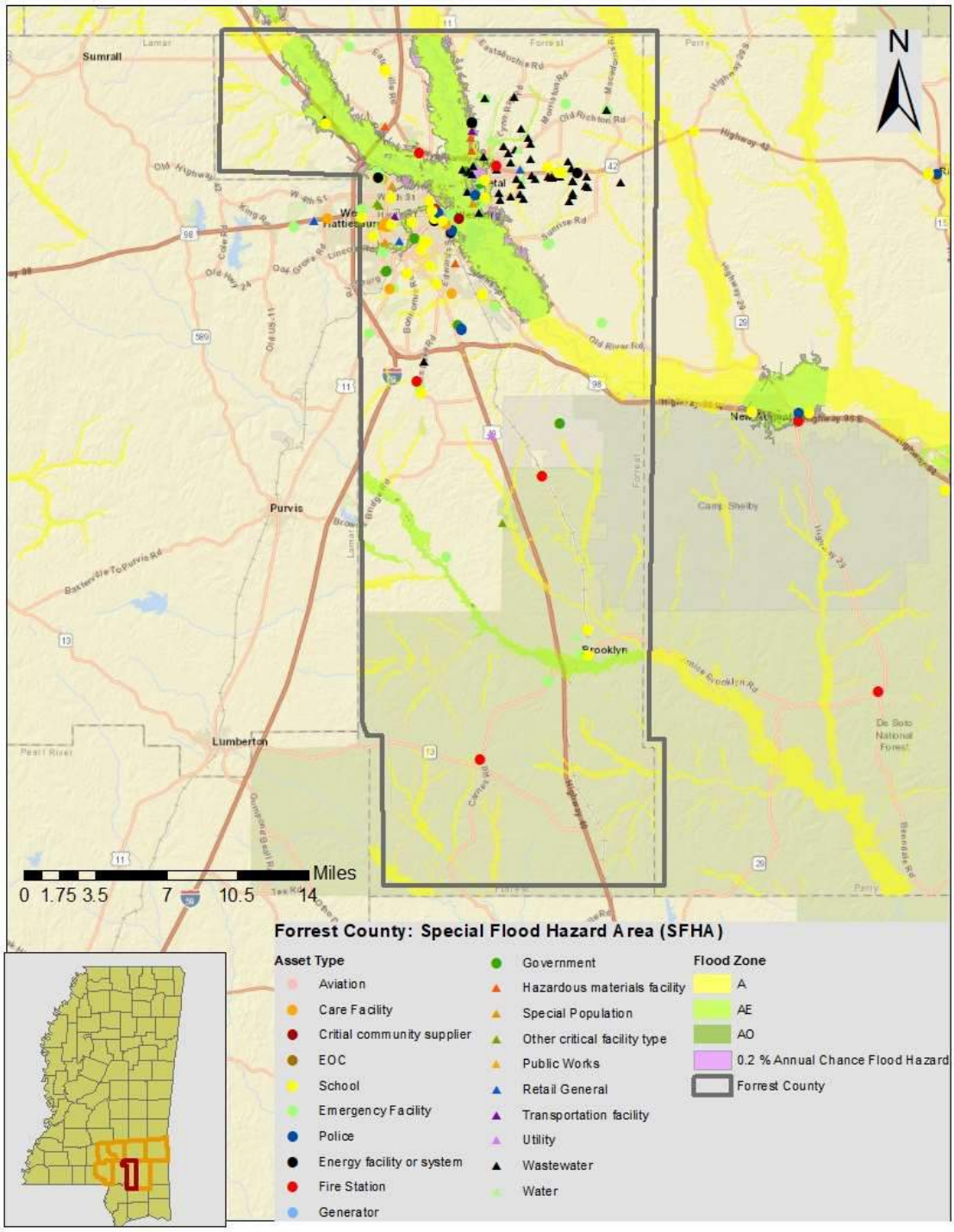
B.2.1 Flood

LOCATION AND SPATIAL EXTENT

There are areas in Forrest County that are susceptible to flood events. Special flood hazard areas in the county were mapped using Geographic Information System (GIS) and FEMA Digital Flood Insurance Rate Maps (DFIRM).[1] This includes Zone A (1-percent annual chance floodplain), Zone AE (1-percent annual chance floodplain with elevation), and the 0.2-percent annual chance floodplain).

[1] The county-level DFIRM data used for Forrest County were updated in 2010.

FIGURE B.2: SPECIAL FLOOD HAZARD AREAS IN FORREST COUNTY



Source: Federal Emergency Management Agency

HISTORICAL OCCURRENCES

Floods resulted in eight disaster declarations in Forrest County in 1950 and 2018.[2] Information from the National Centers for Environmental Information was used to ascertain historical flood events. The National Centers for Environmental Information reported a total of 109 events in Forrest County since 1997.[3] A summary of these events is presented in **Table B.4**. These events accounted for over $4.1 million in property damage in the county. Specific information on flood events, including date, type of flooding, and deaths and injuries, can be found in **Table B.5**.

TABLE B.4: SUMMARY OF FLOOD OCCURRENCES IN FORREST COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Hattiesburg	42	0/0	$2,994,000
Petal	12	0/0	$419,000
Unincorporated Area	55	1/0	$699,559
FORREST COUNTY TOTAL	**109**	**1/0**	**$4,139,000**

Source: National Centers for Environmental Information

TABLE B.5: HISTORICAL FLOOD EVENTS IN FORREST COUNTY

Location	Date	Type	Deaths / Injuries	Property Damage*
Hattiesburg				
Hattiesburg	07-JAN-98	FLASH FLOOD	0/0	$500,000
Hattiesburg	07-MAR-98	FLASH FLOOD	0/0	$50,000
Hattiesburg	02-MAR-01	FLASH FLOOD	0/0	$0
Hattiesburg	03-MAR-01	FLASH FLOOD	0/0	$0
Hattiesburg	04-SEP-01	FLASH FLOOD	0/0	$100,000
Hattiesburg	13-DEC-01	FLASH FLOOD	0/0	$0
Hattiesburg	21-JUN-03	FLASH FLOOD	0/0	$30,000
Hattiesburg	27-JUN-03	FLASH FLOOD	0/0	$1,000
Hattiesburg	30-JUN-03	FLASH FLOOD	0/0	$10,000
Hattiesburg	20-AUG-03	FLASH FLOOD	0/0	$20,000
Hattiesburg	24-FEB-04	FLASH FLOOD	0/0	$45,000
Hattiesburg	01-JUN-04	FLASH FLOOD	0/0	$300,000
Hattiesburg	01-JUN-04	FLASH FLOOD	0/0	$2,000
Hattiesburg	06-JUL-04	FLASH FLOOD	0/0	$0
Hattiesburg	14-APR-07	FLASH FLOOD	0/0	$400,000
Hattiesburg	29-JUN-08	FLASH FLOOD	0/0	$600,000
Hattiesburg	16-MAY-09	FLASH FLOOD	0/0	$2,000
Hattiesburg	24-JAN-10	FLASH FLOOD	0/0	$5,000
Hattiesburg	05-MAR-11	FLASH FLOOD	0/0	$1,000
Hattiesburg	24-JUL-11	FLASH FLOOD	0/0	$10,000
Hattiesburg	18-FEB-12	FLASH FLOOD	0/0	$0
Hattiesburg	21-MAR-12	FLASH FLOOD	0/0	$50,000
Hattiesburg	18-JUL-12	FLASH FLOOD	0/0	$6,000
Hattiesburg	29-AUG-12	FLASH FLOOD	0/0	$20,000

[2]A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.
[3] These events are only inclusive of those reported by NCEI. It is likely that additional occurrences have occurred and have gone unreported.

Location	Date	Type	Deaths / Injuries	Property Damage*
Hattiesburg	06-JUN-13	FLASH FLOOD	0/0	$0
Hattiesburg	13-AUG-13	FLASH FLOOD	0/0	$0
Hattiesburg	04-FEB-14	FLASH FLOOD	0/0	$10,000
Hattiesburg	20-FEB-14	FLASH FLOOD	0/0	$5,000
Hattiesburg	24-DEC-15	FLASH FLOOD	0/0	$3,000
Hattiesburg	10-MAR-16	FLASH FLOOD	0/0	$2,000
Hattiesburg	31-MAR-16	FLASH FLOOD	0/0	$1,000
Hattiesburg	31-MAR-16	FLASH FLOOD	0/0	$15,000
Hattiesburg	31-MAR-16	FLASH FLOOD	0/0	$15,000
Hattiesburg	21-JAN-17	FLASH FLOOD	0/0	$700,000
Hattiesburg	22-JUN-17	FLASH FLOOD	0/0	$20,000
Hattiesburg	09-AUG-17	FLASH FLOOD	0/0	$20,000
Hattiesburg	09-AUG-17	FLASH FLOOD	0/0	$5,000
Hattiesburg	18-AUG-18	FLASH FLOOD	0/0	$7,000
Hattiesburg	01-NOV-18	FLASH FLOOD	0/0	$20,000
Hattiesburg	27-DEC-18	FLASH FLOOD	0/0	$7,000
Hattiesburg	23-JAN-19	FLASH FLOOD	0/0	$2,000
Hattiesburg	23-JAN-19	FLASH FLOOD	0/0	$10,000
Petal				
Petal	12-JUN-01	FLASH FLOOD	0/0	$25,000
Petal	26-SEP-02	FLASH FLOOD	0/0	$1,000
Petal	02-SEP-08	FLASH FLOOD	0/0	$130,000
Petal	01-JUN-10	FLASH FLOOD	0/0	$25,000
Petal	22-JUL-14	FLASH FLOOD	0/0	$3,000
Petal	16-SEP-14	FLASH FLOOD	0/0	$30,000
Petal	08-AUG-17	FLASH FLOOD	0/0	$5,000
Petal	09-AUG-17	FLASH FLOOD	0/0	$10,000
Petal	06-JUL-18	FLASH FLOOD	0/0	$5,000
Petal	18-AUG-18	FLASH FLOOD	0/0	$10,000
Petal	27-DEC-18	FLASH FLOOD	0/0	$75,000
Petal	23-JAN-19	FLASH FLOOD	0/0	$100,000
Unincorporated Area				
Brooklyn	18-JUN-97	FLASH FLOOD	0/0	$0
Countywide	29-JAN-99	FLASH FLOOD	1/0	$500,000
Countywide	13-MAR-99	FLASH FLOOD	0/0	$0
Countywide	03-MAR-01	FLASH FLOOD	0/0	$0
Countywide	11-JUN-01	FLASH FLOOD	0/0	$1,000
Countywide	11-JUN-01	FLASH FLOOD	0/0	$6,000
Countywide	13-OCT-01	FLASH FLOOD	0/0	$0
Countywide	16-AUG-03	FLASH FLOOD	0/0	$10,000
Countywide	31-MAR-05	FLASH FLOOD	0/0	$40,000
North Portion	01-APR-05	FLASH FLOOD	0/0	$100,000
Countywide	29-AUG-05	FLASH FLOOD	0/0	$300,000
Rock Hill	05-SEP-08	FLASH FLOOD	0/0	$20,000
Dixie Pine	25-MAR-09	FLASH FLOOD	0/0	$200,000
Rock HIll	27-MAR-09	FLASH FLOOD	0/0	$50,000
Macedonia	12-APR-09	FLASH FLOOD	0/0	$400,000

Location	Date	Type	Deaths / Injuries	Property Damage*
Ragland	13-APR-09	FLASH FLOOD	0/0	$200,000
Bonhomie	04-MAY-09	FLASH FLOOD	0/0	$15,000
Rawls Springs	16-SEP-09	FLASH FLOOD	0/0	$5,000
Brooklyn	14-DEC-09	FLASH FLOOD	0/0	$25,000
McLaurin	08-MAR-11	FLASH FLOOD	0/0	$250,000
Bonhomie	09-MAR-11	FLASH FLOOD	0/0	$20,000
Epps	07-JUN-11	FLASH FLOOD	0/0	$5,000
Riverside	12-JUL-11	FLASH FLOOD	0/0	$5,000
Carnes	12-JUL-11	FLASH FLOOD	0/0	$5,000
Riverside	05-SEP-11	FLASH FLOOD	0/0	$50,000
Maybank	26-JAN-12	FLASH FLOOD	0/0	$5,000
McLaurin	22-MAR-12	FLASH FLOOD	0/0	$50,000
Bonhomie	14-APR-13	FLASH FLOOD	0/0	$100,000
Riverside	28-APR-13	FLASH FLOOD	0/0	$0
Dixie Pine	05-JUL-15	FLASH FLOOD	0/0	$1,000
McCallum	11-MAR-16	FLASH FLOOD	0/0	$8,000
Rawls Springs	11-MAR-16	FLASH FLOOD	0/0	$40,000
Dixie Pine	11-MAR-16	FLASH FLOOD	0/0	$50,000
Glendale	11-MAR-16	FLASH FLOOD	0/0	$30,000
Dragon	11-MAR-16	FLASH FLOOD	0/0	$300,000
Rock Hill	11-MAR-16	FLASH FLOOD	0/0	$20,000
Carnes	17-MAR-16	FLASH FLOOD	0/0	$10,000
Dixie Pine	31-MAR-16	FLASH FLOOD	0/0	$10,000
Riverside	14-APR-16	FLASH FLOOD	0/0	$10,000
Riverside	13-DEC-16	FLASH FLOOD	0/0	$5,000
Riverside	01-JAN-17	FLASH FLOOD	0/0	$3,000
Fruitland Park	02-JAN-17	FLASH FLOOD	0/0	$2,000
Dixie Pine	02-JAN-17	FLASH FLOOD	0/0	$1,000
Bonhomie	30-APR-17	FLASH FLOOD	0/0	$15,000
Maybank	06-JUN-17	FLASH FLOOD	0/0	$700,000
Macedonia	16-JUN-17	FLASH FLOOD	0/0	$20,000
Carnes	24-JUL-17	FLASH FLOOD	0/0	$5,000
Carnes	24-JUL-17	FLASH FLOOD	0/0	$7,000
Carnes	24-JUL-17	FLASH FLOOD	0/0	$7,000
Dixie Pine	10-AUG-17	FLASH FLOOD	0/0	$30,000
Glendale	16-AUG-17	FLASH FLOOD	0/0	$3,000
Riverside	27-DEC-18	FLASH FLOOD	0/0	$75,000
Dixie Pine	27-DEC-18	FLASH FLOOD	0/0	$150,000
Maybank	27-DEC-18	FLASH FLOOD	0/0	$300,000
Rawls Springs	28-DEC-18	FLASH FLOOD	0/0	$300,000
Dixie Pine	23-JAN-19	FLASH FLOOD	0/0	$2,000

Source: National Centers for Environmental Information

HISTORICAL SUMMARY OF INSURED FLOOD LOSSES

Recently, FEMA issued a directive that prevents states or local governments from sharing NFIP information such as rep loss or severe rep loss data with third parties. Third parties are considered as consultants, contractors, etc. As a result, for continuity of information so that the reader with have an

idea of the historical occurrences along with the corresponding damage amounts, the decision was made to leave the existing information in the plan.

According to FEMA flood insurance policy records as of March 2016, there have been $243,475 flood losses reported in Forrest County through the National Flood Insurance Program (NFIP). A summary of these figures for the county is provided in **Table B.6**. It should be emphasized that these numbers include only those losses to structures that were insured through the NFIP policies, and for losses in which claims were sought and received. It is likely that many additional instances of flood loss in Forrest County were either uninsured, denied claims payment, or not reported.

TABLE B.6: SUMMARY OF INSURED FLOOD LOSSES IN FORREST COUNTY

Location	Flood Losses	Claims Payments
Hattiesburg	23	$243,475
Petal	0	$
Unincorporated Area	0	$0
FORREST COUNTY TOTAL	**23**	**$243,475**

Source: FEMA, NFIP, Planning Committee

REPETITIVE LOSS PROPERTIES

No updates to this section can be provided at this time. Information normally used to update this section is not currently accessible. As a result, this information will remain the same for historical purposes.

As of May 2018, there are no non-mitigated repetitive loss properties located in Forrest County. **Table B.7** presents detailed information on repetitive loss properties and NFIP claims and policies for Forrest County. This remains the best available data.

TABLE B.7: REPETITIVE LOSS PROPERTIES IN FORREST COUNTY

Location	Number of Properties	Types of Properties	Number of Losses	Building Payments	Content Payments	Total Payments	Average Payment
Hattiesburg	22	20 Residential 2 Commercial	74	$935,515.82	$443,494.19	$1,379,010.01	$689,505.005
Petal	0	--	0	$0	$0	$0	$0
Unincorporated Area	0	--	0	$0	$0	$0	$0
FORREST COUNTY TOTAL	**22**		**74**	**$935,515.82**	**$443,494.19**	**$1,379,010.01**	**$689,505.005**

Source: Planning Committee

The previous Forrest County Hazard Mitigation Plan did not contain information on insured flood losses or repetitive loss and severe repetitive loss structures. At the time of the plan update, this information was provided by the Planning Committee for inclusion in the plan.

PROBABILITY OF FUTURE OCCURRENCES

Due to the unpredictable nature of this hazard, flood events will remain a threat in Forrest County, and

the probability of future occurrences will remain likely (between 10 and 100 percent annual probability). The participating jurisdictions and unincorporated areas have risk to flooding, though not all areas will experience flood. The probability of future flood events based on magnitude and according to best available data is illustrated in the figures above**,** which indicates those areas susceptible to the 1-percent annual chance flood (100-year floodplain) and the 0.2-percent annual chance flood (500-year floodplain).

It can be inferred from the floodplain location maps, previous occurrences, and repetitive loss properties that risk varies throughout the region. For example, the areas near Petal has more floodplain and thus a higher risk of flood than areas near Hattiesburg. Flood is not the greatest hazard of concern but will continue to occur and cause damage. Therefore, mitigation actions may be warranted, particularly for repetitive loss properties.

B.2.2 Erosion

LOCATION AND SPATIAL EXTENT

Erosion in Forrest County is typically caused by flash flooding events. Unlike coastal areas, areas of concern for erosion in Forrest County are primarily rivers and streams. Generally, vegetation helps to prevent erosion in the area, and it is not an extreme threat to any of the participating counties and jurisdictions. No areas of concern were reported by the planning committee.

HISTORICAL OCCURRENCES

Several sources were vetted to identify areas of erosion in Forrest County. This includes searching local newspapers, interviewing local officials, and reviewing previous hazard mitigation plans. No historical erosion occurrences were found in these sources.

Forrest County has a flood damage prevention ordinance that includes measures to limit erosion, such as restricting uses that result in damaging increases in erosion. Such actions will continue to be implemented as necessary throughout the region.

PROBABILITY OF FUTURE OCCURRENCES

Erosion remains a natural, dynamic, and continuous process for Forrest County, and it will continue to occur. The annual probability level assigned for erosion is possible (between 1 and 10 percent annually).

B.2.3 Dam Failure

LOCATION AND SPATIAL EXTENT

According to the Mississippi Division of Environmental Quality, there are seven high hazard dams in Forrest County.[4] At least two dams, Lake B Dam and Lakeland Drive Lake Dam were initially rate low and a non-applicable status, respectively. Both have of their ratings have been escalated to high. However, there are no recorded incidents of dam failure or breech of dams in Forrest County. In 1983 however, a

[4] The list of high hazard dams obtained from the Mississippi Division of Environmental Quality was reviewed and amended by local officials to the best of their knowledge.

dam in neighboring Lamar County failed causing a significant amount of damages in the City of Hattiesburg. Beginning in 2006, owners of lakes are required to have an Emergency Action Plan on file with the State of Mississippi and local emergency management office.

According to a consensus of local government officials and the Regional Hazard Mitigation Council, a majority of these dams would not pose a major threat in a breach or failure occurrence

TABLE B.8: FORREST COUNTY HIGH HAZARD DAMS

Dam Name	Hazard Potential
Forrest County	
LYNN CARTLAGE LAKE DAM	High
COUNTRY CLUB LAKE	High
LAKE SEHOY (USM CAMPUS LAKE) DAM	High
LAKE B DAM	High
FORTIETH PLACE DAM	High
PLEASANT RIDGE ESTATES DAM	High
LAKELAND DRIVE LAKE DAM	High

Source: Mississippi Division of Environmental Quality

HISTORICAL OCCURRENCES

There is no record of dam breaches in Forrest County. However, several breach scenarios in the county could be catastrophic.

PROBABILITY OF FUTURE OCCURRENCES

Given the current dam inventory and historic data, a dam breach is unlikely (less than 1 percent annual probability) in the future. However, as has been demonstrated in the past, regular monitoring is necessary to prevent these events.

B.2.4 Winter Storm and Freeze

LOCATION AND SPATIAL EXTENT

Nearly the entire continental United States is susceptible to winter storm and freeze events. Some ice and winter storms may be large enough to affect several states, while others might affect limited, localized areas. The degree of exposure typically depends on the normal expected severity of local winter weather. Forrest County is not typically affected by major severe winter weather conditions and seldom receives extremely devastating winter weather, even during the winter months. Given the atmospheric nature of the hazard the entire county has uniform exposure to a winter storm.

HISTORICAL OCCURRENCES

According to the National Centers for Environmental Information, there have been a total of eight recorded winter storm events in Forrest County since 2002 (**Table B.8**).[5] These events resulted in almost $305,000 in damages. Detailed information on the recorded winter storm events can be found in **Table B.9**.[6]

TABLE B.9: SUMMARY OF WINTER STORM EVENTS IN FORREST COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Forrest County	6	0/0	$305,000

Source: National Centers for Environmental Information

TABLE B.10: HISTORICAL WINTER STORM IMPACTS IN FORREST COUNTY

Location	Date	Type	Deaths / Injuries	Property Damage*
Hattiesburg				
None Reported	--	--	--	--
Petal				
None Reported	--	--	--	--
Unincorporated Area				
FORREST COUNTY	01-JAN-02	HEAVY SNOW	0/0	$5,000
FORREST COUNTY	19-JAN-08	HEAVY SNOW	0/0	$0
FORREST COUNTY	11-DEC-08	WINTER WEATHER	0/0	$0
FORREST COUNTY	04-DEC-09	HEAVY SNOW	0/0	$0
FORREST COUNTY	11-FEB-10	HEAVY SNOW	0/0	$300,000
FORREST COUNTY	09-JAN-11	WINTER WEATHER	0/0	$0
FORREST COUNTY	08-DEC-17	WINTER WEATHER	0/0	$0
FORREST COUNTY	16-JAN-18	WINTER WEATHER	0/0	$0

Source: National Centers for Environmental Information

There have been a couple of severe winter weather events in Forrest County. The text below describes one of the major events and associated impacts on the county. Similar impacts can be expected with severe winter weather.

January 2010 Winter Storm

This storm produced heavy snow across the region, with an average of three to four inches of snow. Some heavier amounts, between four to five inches, also fell in isolated areas. At the height of the snow, temperatures fell to near freezing, and accumulations occurred on roadways resulting in a number of traffic accidents. Additionally, some power outages occurred in the heaviest snow band due to the weight of wet snow on limbs and lines. The heaviest snow fell in the areas around Covington, Forrest, and Jones Counties.

[5] These ice and winter storm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is certain that additional winter storm conditions have affected Forrest County.

[6] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

Winter storms throughout the county have several negative externalities including hypothermia, cost of snow and debris cleanup, business and government service interruption, traffic accidents, and power outages. Furthermore, citizens may resort to using inappropriate heating devices that could lead to fire or an accumulation of toxic fumes.

PROBABILITY OF FUTURE OCCURRENCES

Winter storm events will continue to occur in Forrest County. According to historical information, the annual probability is possible (between 1 and 10 percent).

FIRE-RELATED HAZARDS

B.2.5 Drought

LOCATION AND SPATIAL EXTENT

Drought and heat waves typically cover a large area and cannot be confined to any geographic or political boundaries. Furthermore, it is assumed that Forrest County would be uniformly exposed to drought and heat waves, making the spatial extent potentially widespread. It is also notable that drought and extreme heat conditions typically do not cause significant damage to the built environment but may exacerbate wildfire conditions.

HISTORICAL OCCURRENCES

Drought

According to the U.S. Drought Monitor, Forrest County had drought levels (including abnormally dry) in all of the last eighteen years (2000-2018). **Table B.10** shows the most severe drought classification for each year, according to U.S. Drought Monitor classifications. It should be noted that the U.S. Drought Monitor also estimates what percentage of the county is in each classification of drought severity. For example, the most severe classification reported may be exceptional, but a majority of the county may actually be in a less severe condition.

TABLE B. 11: HISTORICAL DROUGHT OCCURRENCES IN FORREST COUNTY

Abnormally Dry | Moderate Drought | Severe Drought | Extreme Drought | Exceptional Drought

	Forrest County
2000	**EXCEPTIONAL**
2001	MODERATE
2002	MODERATE
2003	ABNORMAL
2004	ABNORMAL
2005	ABNORMAL
2006	**EXTREME**
2007	**EXTREME**
2008	MODERATE
2009	MODERATE
2010	SEVERE
2011	**EXTREME**
2012	MODERATE

Source: U.S. Drought Monitor

The National Centers for Environmental reported seven drought events for Forrest County, which caused approximately $2 million in crop damages.

Heat Wave

The National Centers for Environmental Information was used to determine historical heat wave occurrences in the county.

October 2006 - The first half of October started off with high pressure in control and little or no rainfall over most areas. The second half of October closed out the D2 drought conditions

June 2007 - The month of June did not offer much rain as most of the forecast area saw less than 40% of the normal rainfall. If you would go back to the start of the drought, the portion of the forecast area under the drought has only seen 5 to 20% of the annual rainfall. Historical climate sites are running some 15 to 20 inches below normal for rainfall with deficits now higher than the yearly total. With the drought conditions reaching extreme levels, area farmers and crops began feeling the effects. Many crops from corn to soybeans was affected with yields forecasted to be much less than normal by harvest time. The quality of the crops was affected as well due to the dry conditions. The total losses were estimated at $400,000.

October 2010 - The dry stretch resulted in severe (D2) drought conditions to expand during the month with even the portions of extreme (D3) drought conditions expanding as well. Crops were put under stress under the warm and dry conditions. Rainfall was 1 to 2 inches below normal for the month. This resulted in severe drought conditions across the county by the end of the month. Some rain of 0.5 to 1 inch did affect the county toward the end of the month. This provided some brief relief to the drought conditions. The total losses were estimated at $500,000.

PROBABILITY OF FUTURE OCCURRENCES

Drought

Based on historical occurrence information, it is assumed that all of Forrest County has a probability level of highly likely (100 percent annual probability) for future drought events. However, the extent (or magnitude) of drought and the amount of geographic area covered by drought, varies with each year. Historic information indicates that there is a much lower probability for extreme, long-lasting drought conditions.

Heat Wave

Based on historical occurrence information, it is assumed that all of Forrest County has a probability level of highly likely (100 percent annual probability) for future heat wave events.

B.2.6 Wildfire

LOCATION AND SPATIAL EXTENT

The entire county is at risk to a wildfire occurrence. However, several factors such as drought conditions or high levels of fuel on the forest floor, may make a wildfire more likely. Furthermore, areas in the urban-wildland interface are particularly susceptible to fire hazard as populations abut formerly undeveloped areas. The Fire Occurrence Areas in the figure below give an indication of historic location.

HISTORICAL OCCURRENCES

Based on data from the Mississippi Forestry Commission from 2008 to 2018, Forrest County experiences an average of 49 wildfires annually which burn an average of 511 acres per year. The data indicates that most of these fires are small, averaging nine acres per fire. **Table B.11** provides a summary of wildfire occurrences in Forrest County and **Table B.12** lists the number of reported wildfire occurrences in the county between the years 2008 and 2018.

TABLE B.12: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2008 -2018) *

	Forrest County
Average Number of Fires per year	47.8
Average Number of Acres Burned per year	510.6
Average Number of Acres Burned per fire	8.8

*These values reflect averages over a 10-year period.
Source: Mississippi Forestry Commission

TABLE B.13: HISTORICAL WILDFIRE OCCURRENCES IN FORREST COUNTY

Year	2008	2010	2011	2012	2013	2014	2015	2016	2017	2018
Forrest County										
Number of Fires	32	33	59	25	27	21	7	17	8	10

Year	2008	2010	2011	2012	2013	2014	2015	2016	2017	2018
Number of Acres Burned	482	112	742	391	177	104	167	167	55	156

Source: Mississippi Forestry Commission

PROBABILITY OF FUTURE OCCURRENCES

Wildfire events will be an ongoing occurrence in Forrest County. The likelihood of wildfires increases during drought cycles and abnormally dry conditions. Fires are likely to stay small in size but could increase due local climate and ground conditions. Dry, windy conditions with an accumulation of forest floor fuel (potentially due to ice storms or lack of fire) could create conditions for a large fire that spreads quickly. It should also be noted that some areas do vary somewhat in risk. For example, highly developed areas are less susceptible unless they are located near the urban-wildland boundary. The risk will also vary due to assets. Areas in the urban-wildland interface will have much more property at risk, resulting in increased vulnerability and need to mitigate compared to rural, mainly forested areas. In this case, the participating jurisdictions appear to have a similar risk to the surrounding areas. The probability assigned to Forrest County for future wildfire events is likely (a 10 and 100 percent annual probability).

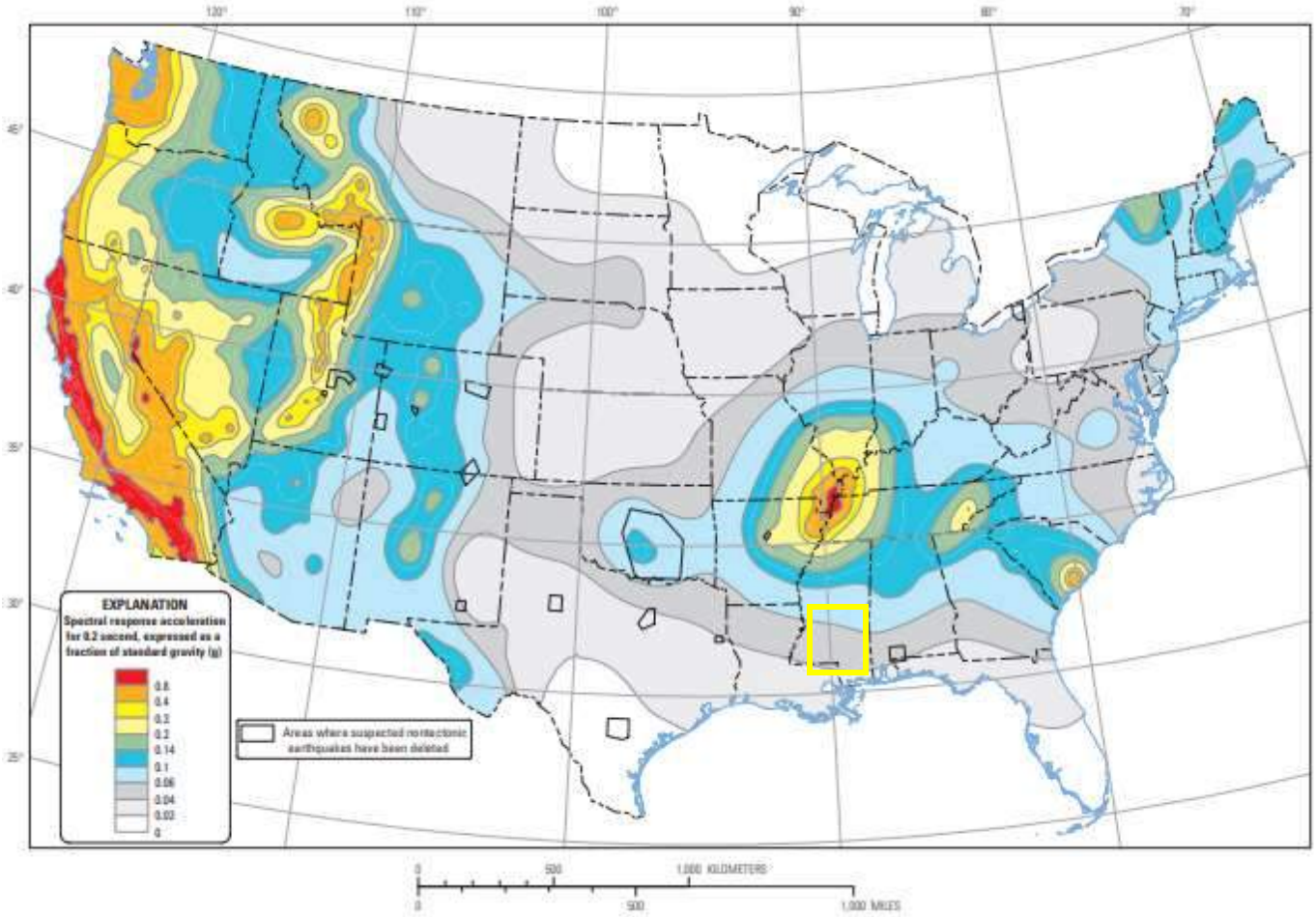
GEOLOGIC HAZARDS

B.2.7 Earthquake

LOCATION AND SPATIAL EXTENT

Figure B.3 shows the intensity level associated with Forrest County, based on the national USGS map of peak acceleration with 10 percent probability of exceedance in 50 years. It is the probability that ground motion will reach a certain level during an earthquake. The data show peak horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake) with a 10 percent probability of exceedance in 50 years. The map was compiled by the U.S. Geological Survey (USGS) Geologic Hazards Team, which conducts global investigations of earthquake, geomagnetic, and landslide hazards. According to this map, Forrest County lies within an approximate zone of level .04 ground acceleration. This indicates that the county exists within an area of moderate seismic risk.

441 **FIGURE B.3: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS**



442

443 *Source: USGS, 2018*

444

445 ***HISTORICAL OCCURRENCES***

446

447 No earthquakes are known to have affected Forrest County since 1638. **Table B.13** provides a summary
448 of earthquake events reported by the National Geophysical Data Center between 1638 and 1985.[7]

449

450 **TABLE B.14: SUMMARY OF SEISMIC ACTIVITY IN FORREST COUNTY**

Location	Number of Occurrences	Greatest MMI Reported	Richter Scale Equivalent
Hattiesburg	0	--	--
Petal	0	--	--
Unincorporated Area	0	--	--
FORREST COUNTY TOTAL	**0**	**--**	**--**

Source: National Geophysical Data Center

451

[7] Due to reporting mechanisms, not all earthquakes events were recorded during this time.

PROBABILITY OF FUTURE OCCURRENCES

The probability of significant, damaging earthquake events affecting Forrest County is unlikely. However, it is possible that future earthquakes resulting in light to moderate perceived shaking and damages ranging from none to very light will affect the county. The annual probability level for the region is estimated to be less than 1 percent (unlikely).

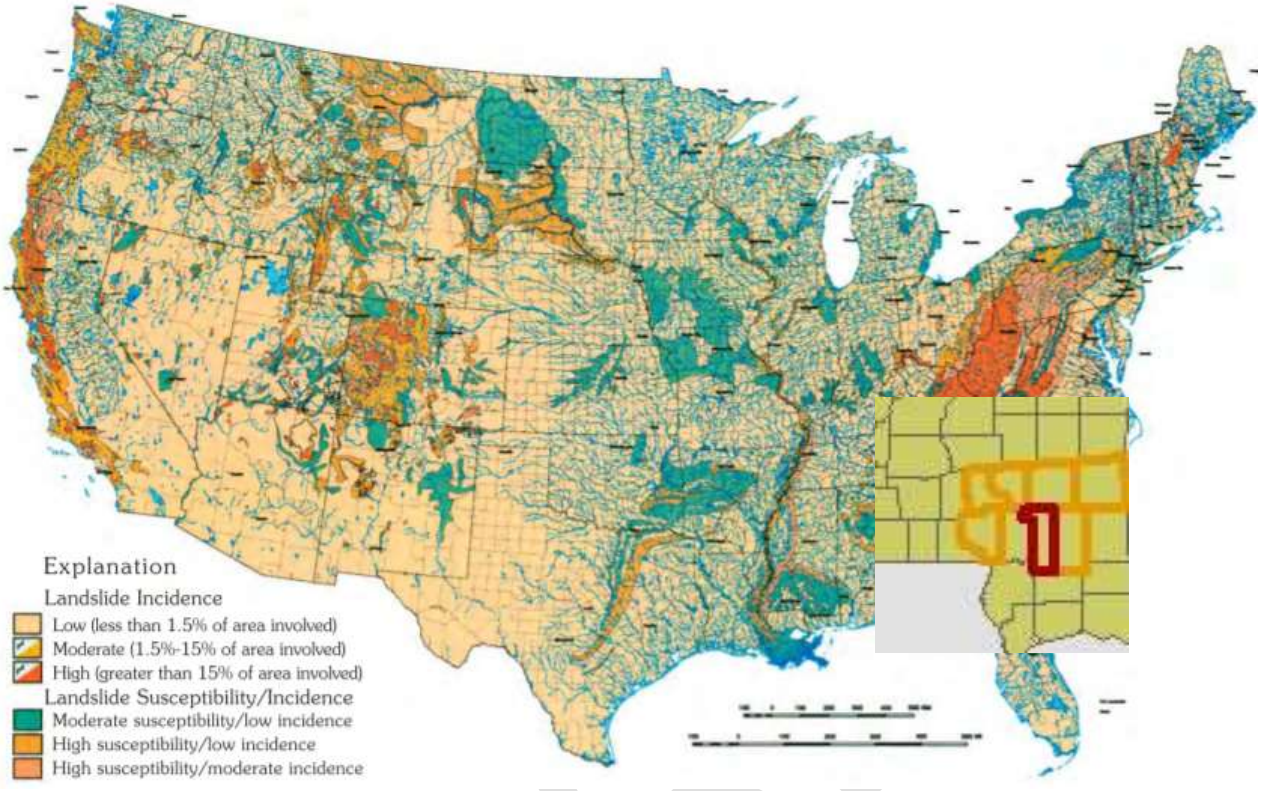
B.2.8 Landslide

LOCATION AND SPATIAL EXTENT

Landslides occur along steep slopes when the pull of gravity can no longer be resisted (often due to heavy rain). Human development can also exacerbate risk by building on previously undevelopable steep slopes. The most frequent and widespread damaging landslides in the U.S. are induced by prolonged or heavy rainfall. The majority of rainfall-induced landslides are shallow, small, and move quickly.[i] Landslides are possible throughout Forrest County.

According to **Figure B.4** below, the entire county falls under a moderate possibility low incidence area (teal).

FIGURE B.4: LANDSLIDE SUSCEPTIBILITY AND INCIDENCE MAP OF FORREST COUNTY



Source: USGS

HISTORICAL OCCURRENCES

There is no extensive history of landslides in Forrest County. Landslide events typically occur in isolated areas.

PROBABILITY OF FUTURE OCCURRENCES

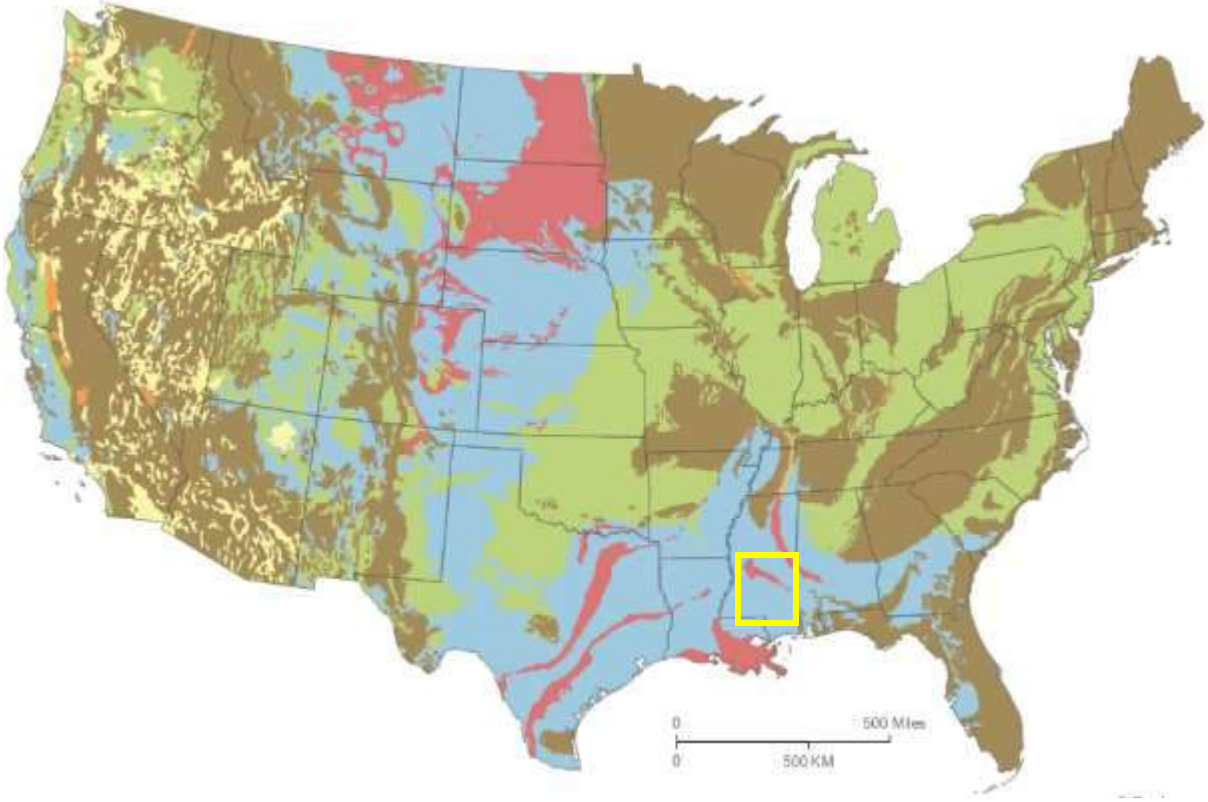
Based on historical information and the USGS susceptibility index, the probability of future landslide events is unlikely (less than 1 percent probability). The USGS data indicates that the all areas in Forrest County have a low landslide incidence rate. However, some areas are reported as having moderate susceptibility to landsliding activity. Local conditions may become more favorable for landslides due to heavy rain, for example. This would increase the likelihood of occurrence. It should also be noted that some areas in Forrest County have greater risk than others given factors such as steepness on slope and modification of slopes.

B.2.9 Expansive Soils

LOCATION AND SPATIAL EXTENT

Due to the amount of clay minerals present in Forrest County, expansive soils present a threat to the county. Areas underlain by soils with swelling potential are shown in **Figure B.5**. The areas in blue are underlain with generally less than 50 percent clay having high swelling potential.

FIGURE B.5: SWELLING CLAYS IN MISSISSIPPI



Source: USGS

HISTORICAL OCCURRENCES

There is no historical record of significant expansive soil events in Forrest County. However, expansive soils can cause considerable damage to structural foundations in the county, although they do not pose a significant threat to human life.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical information, the probability of future expansive soil events is possible (between 1 and 100 percent annually).

WIND-RELATED HAZARDS

B.2.10 Hurricane and Tropical Storm

LOCATION AND SPATIAL EXTENT

Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact Forrest County. All areas in Forrest County are equally susceptible to hurricane and tropical storms.

HISTORICAL OCCURRENCES

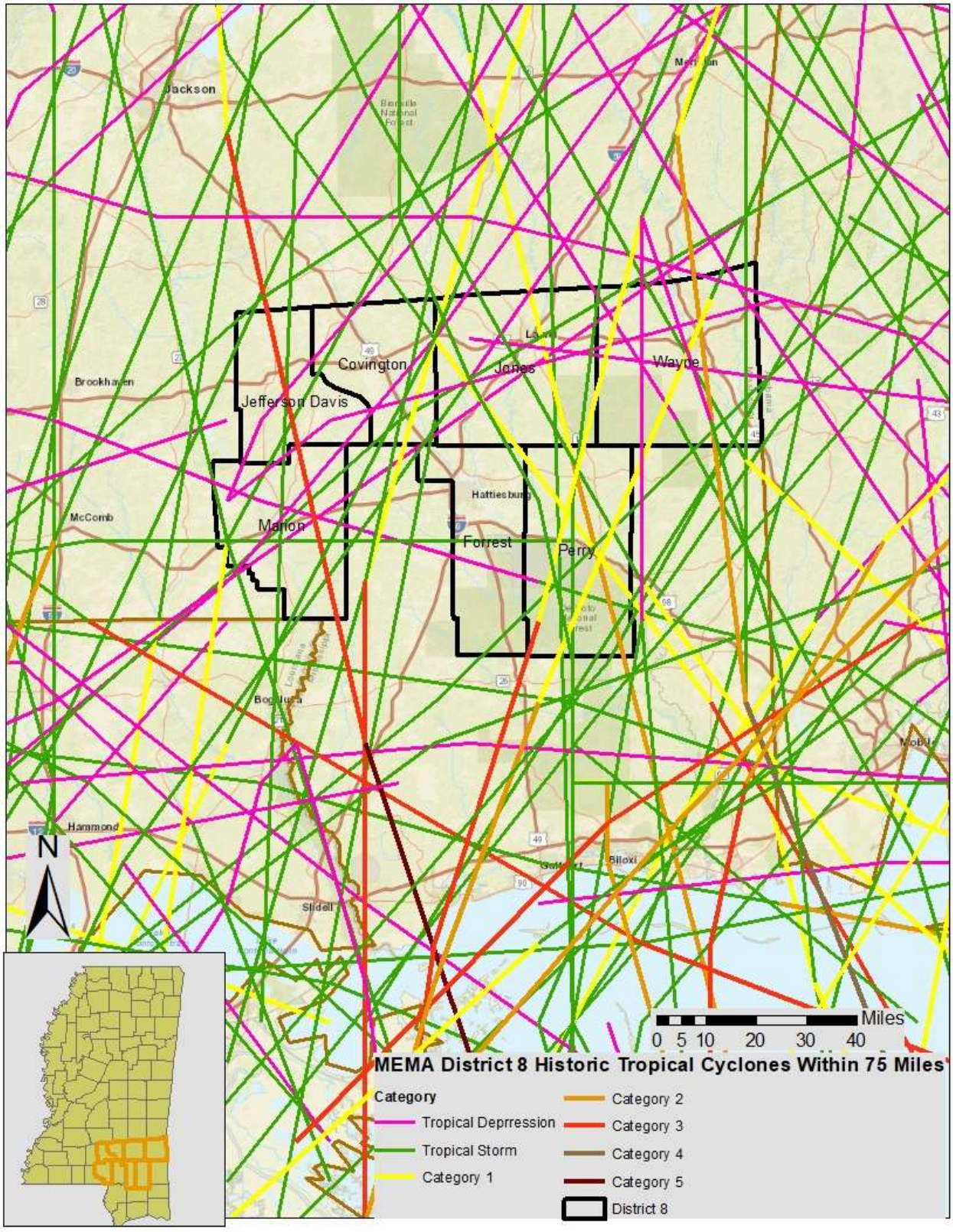
The National Centers for Environmental Information has not reported any hurricane hazards affecting the area during this planning period. As a result, the information will remain the same.

According to the National Hurricane Center's historical storm track records, a total of 54 hurricanes have passed within 75 miles of Forrest County since 1851. This includes 1 category 5 storm, 0 category 4 storms, 3 category 3 storms, 6 category 2 storms, 7 category 1 storms, and 37 tropical storms as shown in **Figure B.6**.[8]

A total of five tracks passed directly through the county including Hurricanes Camille (1969), Edith (1971), and Isidore (2002). All storms where tropical storms when they traversed the county except Hurricane Camille and Hurricane Katrina, which passed through the county as category 3 hurricane. **Table 5.14** provides the detail for each storm that passed through the county including date of occurrence, name (if applicable), maximum wind speed (as recorded when traversing the county) and category of the storm based on the Saffir-Simpson Scale.

FIGURE B.6: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF FORREST COUNTY

[8] These storm track statistics do not include extra-tropical storms. Though these related hazard events are less severe in intensity, they may cause significant local impact in terms of rainfall and high winds.



Source: National Oceanic and Atmospheric Administration; National Hurricane Center

TABLE B.15: HISTORICAL STORM TRACKS WITHIN 75 MILES OF FORREST COUNTY (1850–2018)

Date of Occurrence	Storm Name	Maximum Wind Speed (miles per hour)	Storm Category
10/10/1905	NOT NAMED	40	Tropical Storm
9/30/1915	NOT NAMED	69	Tropical Storm
8/18/1969	CAMILLE	115	Category 3
9/16/1971	EDITH	69	Tropical Storm
9/26/2002	ISIDORE	63	Tropical Storm
8/29/2005	KATRINA	130	Category 3

Source: National Hurricane Center

Federal records indicate that disaster declarations were made in 1969 (Hurricane Camille), 1998 (Hurricane Georges), 2004 (Hurricane Ivan), 2005 (Hurricane Dennis), 2005 (Hurricane Katrina), 2008 (Hurricane Gustav), and 2012 (Hurricane Isaac).[9] Hurricane and tropical storm events can cause substantial damage in the area due to high winds and flooding.

Flooding and high winds from hurricanes and tropical storms can cause damage throughout the county. Anecdotes are available from NCEI for the major storms that have impacted the county as found below:

Hurricane Katrina – August 29, 2005

Hurricane Katrina will likely go down as the worst and costliest natural disaster in United States history. The amount of destruction, the cost of damaged property/agriculture and the large loss of life across the affected region has been overwhelming. Catastrophic damage was widespread across a large portion of the Gulf Coast region. The devastation was not only confined to the coastal region, widespread and significant damage occurred well inland up to the Hattiesburg area and northward past Interstate 20.

Devastation from Hurricane Katrina was widespread across the region. Hurricane force winds were common across the area. The region received sustained winds of 60-80 mph with gusts ranging from 80-120 mph. There was widespread damage to trees and power lines. Wind damage to structures was also widespread, with roofs blown off or partially peeled. Hundreds of signs were shredded or blown down. Businesses sustained structural damage. Power outages lasted from a few days to as long as four weeks. Agriculture and timber industries were severely impacted. Row crops, including cotton, rice, corn, and soybeans, took a hard hit. Other impacted industries were the catfish industry, dairy and cattle industry, and nursery businesses.

Hurricane Rita – September 5, 2005

Hurricane Rita brought heavy rainfall, tropical storm force winds, and tornados to the region. Rainfall amounts ranged from 4-7 inches, which resulted in flooding. Winds between 25-35 mph, with gusts up to 40-50 mph, downed trees and power lines.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical evidence, the probability level of future occurrence is likely (annual probability between 10 and 100 percent). Given the regional nature of the hazard, all areas in the county are

[9] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

equally exposed to this hazard. However, when the county is impacted, the damage could be catastrophic, threatening lives and property throughout the planning area.

B.2.11 Thunderstorm

LOCATION AND SPATIAL EXTENT

Thunderstorm / High Wind

A thunderstorm event is an atmospheric hazard, and thus has no geographic boundaries. It is typically a widespread event that can occur in all regions of the United States. However, thunderstorms are most common in the central and southern states because atmospheric conditions in those regions are favorable for generating these powerful storms. Also, Forrest County typically experiences several straight-line wind events each year. These wind events can and have caused significant damage. It is assumed that Forrest County has uniform exposure to an event and the spatial extent of an impact could be large.

Hailstorm

Hailstorms frequently accompany thunderstorms, so their locations and spatial extents coincide. It is assumed that Forrest County is uniformly exposed to severe thunderstorms; therefore, all areas of the county are equally exposed to hail which may be produced by such storms.

Lightning

Lightning occurs randomly, therefore it is impossible to predict where and with what frequency it will strike. It is assumed that all of Forrest County is uniformly exposed to lightning.

HISTORICAL OCCURRENCES

Thunderstorm / High Wind

Severe storms resulted in eight disaster declarations in Forrest County in 1980, 1983, 1990, 2001, 2013, 2016, 2017, and 2018.[10] According to NCEI, there have been 136 reported thunderstorm and high wind events since 1970 in Forrest County.[11] These events caused over $1.5 million in damages. **Table B.15** summarizes this information. **Table B.16** presents detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event.[12]

TABLE B.16: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN FORREST COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Hattiesburg	163	3/46	$7,567,500
Petal	54	1/0	$803,500
Unincorporated Area	259	1/2	$2,821,700

[10] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

[11] These thunderstorm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional thunderstorm events have occurred in Forrest County. As additional local data becomes available, this hazard profile will be amended.

[12] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
FORREST COUNTY TOTAL	476	5/48	$11,192,700

Source: National Centers for Environmental Information

629

630 **TABLE B.17: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN**

631 **FORREST COUNTY**

Location	Date	Type	Magnitude	Deaths/ Injuries	Property Damage*
Hattiesburg					
Hattiesburg	17-JAN-94	THUNDERSTORM WIND	0 kts.	0/0	$5,000
Hattiesburg	15-APR-94	THUNDERSTORM WIND	0 kts.	0/0	$500
Hattiesburg	09-JUN-94	THUNDERSTORM WIND	0 kts.	0/0	$500
Hattiesburg	07-MAR-95	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Hattiesburg	20-APR-95	THUNDERSTORM WIND	0 kts.	0/0	$10,000
Hattiesburg	21-APR-95	THUNDERSTORM WIND	0 kts.	0/0	$3,000
Hattiesburg	01-JUN-95	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Hattiesburg	13-JUL-95	THUNDERSTORM WIND	0 kts.	0/0	$3,000
Hattiesburg	02-NOV-95	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Hattiesburg	17-DEC-95	THUNDERSTORM WIND	0 kts.	0/0	$3000
Hattiesburg	17-DEC-95	THUNDERSTORM WIND	0 kts.	0/0	$5,000
Hattiesburg	18-MAR-96	THUNDERSTORM WIND	0 kts.	0/0	$100,000
Hattiesburg	28-MAY-96	THUNDERSTORM WIND	0 kts.	0/0	$0
Hattiesburg	19-AUG-96	THUNDERSTORM WIND	0 kts.	0/0	$100,000
Hattiesburg	26-OCT-96	THUNDERSTORM WIND	0 kts.	0/1	$50,000
Hattiesburg	22-APR-97	THUNDERSTORM WIND	0 kts.	0/0	$3,000
Hattiesburg	27-APR-97	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Hattiesburg	03-MAY-97	THUNDERSTORM WIND	0 kts.	0/0	$1,000
Hattiesburg	07-JAN-98	THUNDERSTORM WIND	0 kts.	0/0	$1,000
Hattiesburg	05-JUN-98	THUNDERSTORM WIND	0 kts.	2/45	$1,000,000
Hattiesburg	20-JUN-98	THUNDERSTORM WIND	0 kts.	0/0	$4,000
Hattiesburg	09-MAR-99	THUNDERSTORM WIND	0 kts.	0/0	$8,000
Hattiesburg	09-MAR-99	THUNDERSTORM WIND	0 kts.	0/0	$10,000
Hattiesburg	23-MAY-99	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Hattiesburg	02-AUG-99	THUNDERSTORM WIND	0 kts.	0/0	$10,000
Hattiesburg	27-MAR-00	THUNDERSTORM WIND	0 kts.	0/0	$20,000
Hattiesburg	27-MAR-00	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Hattiesburg	02-MAY-00	THUNDERSTORM WIND	0 kts.	0/0	$5,000
Hattiesburg	25-JUN-00	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Hattiesburg	26-JUN-00	THUNDERSTORM WIND	0 kts.	0/0	$1,000
Hattiesburg	16-JUL-00	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Hattiesburg	25-AUG-00	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Hattiesburg	06-OCT-00	THUNDERSTORM WIND	0 kts.	0/0	$3,000
Hattiesburg	09-NOV-00	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Hattiesburg	29-JAN-01	THUNDERSTORM WIND	0 kts.	0/0	$3,000
Hattiesburg	12-MAR-01	THUNDERSTORM WIND	0 kts.	0/0	$25,000
Hattiesburg	13-JUN-01	THUNDERSTORM WIND	0 kts.	0/0	$20,000
Hattiesburg	17-AUG-01	THUNDERSTORM WIND	0 kts.	0/0	$2,000

Location	Date	Type	Magnitude	Deaths/ Injuries	Property Damage*
Hattiesburg	13-OCT-01	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Hattiesburg	13-DEC-01	THUNDERSTORM WIND	0 kts.	0/0	$1,000
Hattiesburg	13-DEC-01	THUNDERSTORM WIND	0 kts.	0/0	$1,000
Hattiesburg	08-APR-02	THUNDERSTORM WIND	0 kts.	0/0	$1,000
Hattiesburg	28-JUL-02	THUNDERSTORM WIND	0 kts.	0/0	$1,000
Hattiesburg	24-DEC-02	THUNDERSTORM WIND	60 kts.	0/0	$10,000
Hattiesburg	24-DEC-02	THUNDERSTORM WIND	60 kts.	0/0	$7,000
Hattiesburg	31-DEC-02	THUNDERSTORM WIND	65 kts.	0/0	$6,000
Hattiesburg	03-JUN-03	THUNDERSTORM WIND	50 kts.	0/0	$5,000
Hattiesburg	22-JUL-03	THUNDERSTORM WIND	53 kts.	0/0	$20,000
Hattiesburg	27-JUN-04	THUNDERSTORM WIND	43 kts.	0/0	$1,000
Hattiesburg	27-JUN-04	THUNDERSTORM WIND	43 kts.	0/0	$1,000
Hattiesburg	02-JUL-04	THUNDERSTORM WIND	53 kts.	0/0	$3,000
Hattiesburg	27-NOV-04	THUNDERSTORM WIND	61 kts.	0/0	$15,000
Hattiesburg	07-JAN-05	THUNDERSTORM WIND	57 kts.	0/0	$5,000
Hattiesburg	22-MAR-05	THUNDERSTORM WIND	56 kts.	0/0	$5,000
Hattiesburg	30-APR-05	THUNDERSTORM WIND	52 kts.	0/0	$15,000
Hattiesburg	29-MAY-05	THUNDERSTORM WIND	55 kts.	0/0	$30,000
Hattiesburg	09-JUL-05	THUNDERSTORM WIND	50 kts.	0/0	$0
Hattiesburg	20-MAR-06	THUNDERSTORM WIND	50 kts.	0/0	$0
Hattiesburg	08-MAY-06	THUNDERSTORM WIND	50 kts.	0/0	$50,000
Hattiesburg	24-MAY-06	THUNDERSTORM WIND	50 kts.	0/0	$0
Hattiesburg	23-JUN-06	THUNDERSTORM WIND	53 kts.	0/0	$20,000
Hattiesburg	19-JUL-06	THUNDERSTORM WIND	52 kts.	0/0	$1,000
Hattiesburg	15-AUG-06	THUNDERSTORM WIND	60 kts.	0/0	$100,000
Hattiesburg	05-JAN-07	THUNDERSTORM WIND	53 kts.	0/0	$0
Hattiesburg	05-JAN-07	THUNDERSTORM WIND	55 kts.	0/0	$5,000
Hattiesburg	14-APR-07	THUNDERSTORM WIND	50 kts.	0/0	$14,000
Hattiesburg	14-APR-07	THUNDERSTORM WIND	50 kts.	0/0	$15,000
Hattiesburg	13-JUL-07	THUNDERSTORM WIND	50 kts.	0/0	$0
Hattiesburg	18-OCT-07	THUNDERSTORM WIND	50 kts.	0/0	$12,000
Hattiesburg	07-AUG-08	THUNDERSTORM WIND	50 kts.	0/0	$0
Hattiesburg	10-DEC-08	THUNDERSTORM WIND	55 kts.	0/0	$60,000
Hattiesburg	02-APR-09	THUNDERSTORM WIND	58 kts.	0/0	$2,500
Hattiesburg	04-JUL-09	THUNDERSTORM WIND	50 kts.	0/0	$0
Hattiesburg	09-OCT-09	THUNDERSTORM WIND	55 kts.	0/0	$3,000
Hattiesburg	05-JUN-10	THUNDERSTORM WIND	58 kts.	0/0	$5,000
Hattiesburg	16-JUL-10	THUNDERSTORM WIND	52 kts.	0/0	$0
Hattiesburg	04-AUG-10	THUNDERSTORM WIND	45 kts.	0/0	$4,000
Hattiesburg	04-AUG-10	THUNDERSTORM WIND	50 kts.	0/0	$15,000
Hattiesburg	07-JUN-11	THUNDERSTORM WIND	54 kts.	0/0	$0
Hattiesburg	07-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Hattiesburg	07-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$30,000
Hattiesburg	04-JUL-11	THUNDERSTORM WIND	56 kts.	0/0	$0
Hattiesburg	04-JUL-11	THUNDERSTORM WIND	56 kts.	0/0	$100,000
Hattiesburg	13-JUL-11	THUNDERSTORM WIND	50 kts.	0/0	$30,000
Hattiesburg	23-AUG-11	THUNDERSTORM WIND	51 kts.	0/0	$0

Location	Date	Type	Magnitude	Deaths/ Injuries	Property Damage*
Hattiesburg	03-APR-12	THUNDERSTORM WIND	50 kts.	0/0	$5,000
Hattiesburg	31-MAY-12	THUNDERSTORM WIND	50 kts.	0/0	$20,000
Hattiesburg	29-DEC-12	THUNDERSTORM WIND	50 kts.	0/0	$3,000
Hattiesburg	20-FEB-14	THUNDERSTORM WIND	53 kts.	0/0	$5,000
Hattiesburg	18-JUL-14	THUNDERSTORM WIND	53 kts.	0/0	$3,000
Hattiesburg	30-JUL-15	THUNDERSTORM WIND	49 kts.	0/0	$100
Hattiesburg	08-AUG-15	THUNDERSTORM WIND	54 kts.	0/0	$10,000
Hattiesburg	15-FEB-16	THUNDERSTORM WIND	50 kts.	0/0	$20,000
Hattiesburg	06-JUL-16	THUNDERSTORM WIND	50 kts.	0/0	$4,000
Hattiesburg	16-JUN-17	THUNDERSTORM WIND	39 kts.	0/0	$2,000
Hattiesburg	31-JUN-18	THUNDERSTORM WIND	50 kts.	0/0	$15,000
Hattiesburg	18-AUG-18	THUNDERSTORM WIND	55 kts.	0/0	$25,000
Petal					
Petal	09-JUN-94	THUNDERSTORM WIND	0 kts.	0/0	$500
Petal	13-JAN-95	THUNDERSTORM WIND	0 kts.	0/0	$15,000
Petal	10-JUL-98	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Petal	03-APR-00	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Petal	10-AUG-00	THUNDERSTORM WIND	0 kts.	0/0	$2,000
Petal	19-JAN-02	THUNDERSTORM WIND	0 kts.	0/0	$1,000
Petal	17-MAY-02	THUNDERSTORM WIND	0 kts.	0/0	$1,000
Petal	17-MAY-03	THUNDERSTORM WIND	50 kts.	0/0	$10,000
Petal	21-JUN-04	THUNDERSTORM WIND	53 kts.	0/0	$1,000
Petal	22-JUN-04	THUNDERSTORM WIND	35 kts.	0/0	$1,000
Petal	22-APR-00	THUNDERSTORM WIND	50 kts.	0/0	$0
Petal	08-MAY-06	THUNDERSTORM WIND	60 kts.	0/0	$50,000
Petal	19-JUL-06	THUNDERSTORM WIND	60 kts.	0/0	$25,000
Petal	14-APR-07	THUNDERSTORM WIND	61 kts.	0/0	$60,000
Petal	19-JUN-07	THUNDERSTORM WIND	55 kts.	0/0	$80,000
Petal	15-MAY-08	THUNDERSTORM WIND	50 kts.	0/0	$0
Petal	26-MAY-08	THUNDERSTORM WIND	50 kts.	0/0	$0
Petal	27-JUN-08	THUNDERSTORM WIND	50 kts.	0/0	$10,000
Petal	12-AUG-08	THUNDERSTORM WIND	50 kts.	0/0	$12,000
Petal	05-MAY-09	THUNDERSTORM WIND	50 kts.	0/0	$0
Petal	03-AUG-10	THUNDERSTORM WIND	52 kts.	0/0	$15,000
Petal	11-JUL-11	THUNDERSTORM WIND	50 kts.	0/0	$8,000
Petal	11-JUN-12	THUNDERSTORM WIND	55 kts.	0/0	$50,000
Petal	13-OCT-14	THUNDERSTORM WIND	53 kts.	0/0	$0
Petal	04-JUL-15	THUNDERSTORM WIND	63 kts.	0/0	$7,000
Petal	23-FEB-16	THUNDERSTORM WIND	55 kts.	0/0	$10,000
Unincorporated Area					
FORREST COUNTY	01-JUL-63	THUNDERSTORM WIND	75 kts.	0/0	$0
FORREST COUNTY	15-MAY-66	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	20-JUL-66	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	18-JUN-68	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	27-DEC-68	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	09-JUL-69	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	01-FEB-70	THUNDERSTORM WIND	60 kts.	0/0	$0

Location	Date	Type	Magnitude	Deaths/ Injuries	Property Damage*
FORREST COUNTY	12-MAY-71	THUNDERSTORM WIND	65 kts.	0/0	$0
FORREST COUNTY	25-JUN-72	THUNDERSTORM WIND	60 kts.	0/0	$0
FORREST COUNTY	21-JAN-73	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	29-OCT-74	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	10-JAN-75	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	07-MAY-75	THUNDERSTORM WIND	70 kts.	0/0	$0
FORREST COUNTY	21-JUL-75	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	13-JUL-76	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	12-MAR-77	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	13-AUG-78	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	12-JUN-82	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	05-MAR-83	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	05-APR-83	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	04-JUN-83	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	24-MAR-84	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	03-MAY-84	THUNDERSTORM WIND	52kts.	0/0	$0
FORREST COUNTY	04-FEB-86	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	14-MAY-87	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	15-JUL-88	THUNDERSTORM WIND	75 kts.	0/0	$0
FORREST COUNTY	18-MAY-89	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	10-JAN-90	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	27-MAY-90	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	02-AUG-90	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	14-APR-91	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	05-MAY-91	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	03-JUN-91	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	15-FEB-92	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	29-JUN-92	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	09-JUL-92	THUNDERSTORM WIND	0 kts.	0/0	$0
FORREST COUNTY	16-JUL-92	THUNDERSTORM WIND	0 kts.	0/0	$0
MAYBANK	27-JAN-94	TSTM WIND	0 kts.	0/0	$500
BROOKLYN	25-MAR-94	TSTM WIND	0 kts.	0/0	$500
GLENDALE	05-NOV-94	TSTM WIND	0 kts.	0/0	$6,000
BROOKLYN	21-APR-95	TSTM WIND	0 kts.	0/0	$5,000
BROOKLYN	01-JUN-95	TSTM WIND	0 kts.	0/0	$10,000
FORREST COUNTY	26-JUL-95	THUNDERSTORM WIND	0 kts.	0/0	$2,000
GLENDALE	17-DEC-95	THUNDERSTORM WIND	52 kts.	0/0	$10,000
DIXIE	18-DEC-95	THUNDERSTORM WIND	0 kts.	0/0	$10,000
BROOKLYN	13-JUL-97	THUNDERSTORM WIND	0 kts.	0/0	$2,000
GLENDALE	20-JUN-98	THUNDERSTORM WIND	0 kts.	0/0	$2,000
FRUITLAND PARK	10-JUL-98	THUNDERSTORM WIND	0 kts.	0/0	$10,000
DIXIE PINE	02-JAN-99	THUNDERSTORM WIND	0 kts.	0/0	$10,000
COUNTY WIDE	22-JAN-99	THUNDERSTORM WIND	0 kts.	0/0	$25,000
COUNTY WIDE	27-FEB-99	THUNDERSTORM WIND	0 kts.	0/0	$2,000
COUNTY WIDE	09-MAR-99	THUNDERSTORM WIND	0 kts.	0/0	$40,000
BROOKLYN	25-AUG-99	THUNDERSTORM WIND	0 kts.	0/0	$2,000
BROOKLYN	25-JUN-00	THUNDERSTORM WIND	0 kts.	0/0	$2,000

Location	Date	Type	Magnitude	Deaths/ Injuries	Property Damage*
COUNTY WIDE	22-JUL-00	THUNDERSTORM WIND	0 kts.	0/0	$10,000
MCLAURIN	10-AUG-00	THUNDERSTORM WIND	0 kts.	0/0	$1,000
MAEDONIA	25-AUG-00	THUNDERSTORM WIND	0 kts.	0/0	$2,000
CARNES	13-DEC-00	THUNDERSTORM WIND	0 kts.	0/0	$1,000
BROOKLYN	19-JAN-01	THUNDERSTORM WIND	0 kts.	0/0	$15,000
COUNTY WIDE	11-JUN-01	THUNDERSTORM WIND	0 kts.	0/0	$18,000
COUNTY WIDE	12-MAR-01	THUNDERSTORM WIND	0 kts.	0/0	$10,000
ROCK HILL	12-MAR-01	THUNDERSTORM WIND	0 kts.	0/0	$1,000
CARNES	07-JUL-02	THUNDERSTORM WIND	52 kts.	0/0	$5,000
COUNTY WIDE	26-SEP-02	THUNDERSTORM WIND	0 kts.	0/0	$3,000
COUNTY WIDE	07-APR-03	THUNDERSTORM WIND	50 kts.	0/0	$10,000
CENTRAL PORTION	14-JUN-03	THUNDERSTORM WIND	50 kts.	0/0	$1,000
CARNES	20-AUG-03	THUNDERSTORM WIND	52 kts.	0/0	$3,000
BROOKLYN	26-OCT-03	THUNDERSTORM WIND	50 kts.	0/0	$1,000
BROOKLYN	24-NOV-04	THUNDERSTORM WIND	53 kts.	0/0	$0
BROOKLYN	02-JUL-05	THUNDERSTORM WIND	55 kts.	0/0	$5,000
FORREST COUNTY	09-MAR-06	THUNDERSTORM WIND	39 kts.	0/0	$1,000
FORREST COUNTY	30-JUL-06	THUNDERSTORM WIND	38 kts.	0/0	$5,000
MCLAURIN	15-AUG-06	STRONG WIND	53 kts.	0/0	$30,000
BROOKLYN	17-OCT-06	THUNDERSTORM WIND	50 kts.	0/0	$0
MCLAURIN	27-OCT-06	THUNDERSTORM WIND	53 kts.	0/0	$2,000
MCLAURIN	15-NOV-06	THUNDERSTORM WIND	50 kts.	0/0	$20,000
FORREST COUNTY	24-JUN-07	THUNDERSTORM WIND	43 kts.	0/0	$0
RAWLS SPRING	31-AUG-07	THUNDERSTORM WIND	50 kts.	0/0	$100
FORREST COUNTY	15-DEC-07	THUNDERSTORM WIND	39 kts.	0/0	$25,000
DIXIE PINE	10-JAN-08	THUNDERSTORM WIND	70 kts.	0/0	$0
FORREST COUNTY	29-JAN-08	THUNDERSTORM WIND	39 kts.	0/0	$50,000
RIVERSIDE	31-JAN-08	THUNDERSTORM WIND	53 kts.	0/0	$60,000
MCLAURIN	03-MAR-08	THUNDERSTORM WIND	66 kts.	0/0	$5,000
CARNES	03-MAR-08	THUNDERSTORM WIND	58 kts.	0/0	$10,000
MCCALLUM	18-APR-08	THUNDERSTORM WIND	50 kts.	0/0	$0
RAGLAND	18-APR-08	THUNDERSTORM WIND	50 kts.	0/0	$5,000
BONHOMIE	03-MAY-08	THUNDERSTORM WIND	68 kts.	0/0	$30,000
CARNES	20-JUN-08	THUNDERSTORM WIND	60 kts.	0/0	$0
MCLAURIN	21-JUN-08	THUNDERSTORM WIND	50 kts.	0/0	$0
BONHOMIE	25-JUN-08	THUNDERSTORM WIND	50 kts.	0/0	$0
MCLAURIN	28-JUN-08	THUNDERSTORM WIND	55 kts.	0/0	$2,000
DIXIE PINE	29-JUL-08	THUNDERSTORM WIND	61 kts.	0/0	$75,000
GLENDALE	02-AUG-08	THUNDERSTORM WIND	53 kts.	0/0	$0
MACEDONIA	27-MAR-09	THUNDERSTORM WIND	61 kts.	0/0	$0
RAWLS SPRINGS	02-APR-09	THUNDERSTORM WIND	50 kts.	0/0	$5,000
GLENDALE	12-APR-09	THUNDERSTORM WIND	60 kts.	0/0	$10,000
RAWLS SPRINGS	03-MAY-09	THUNDERSTORM WIND	53 kts.	0/0	$3,000
MACEDONIA	04-MAY-09	THUNDERSTORM WIND	50 kts.	0/0	$0
MCCALLUM	04-JUL-09	THUNDERSTORM WIND	50 kts.	0/0	$0
BROOKLYN	01-AUG-09	THUNDERSTORM WIND	50 kts.	0/0	$0
GLENDALE	29-JAN-10	THUNDERSTORM WIND	55 kts.	0/0	$35,000

Location	Date	Type	Magnitude	Deaths/ Injuries	Property Damage*
FORREST COUNTY	01-MAR-10	STRONG WIND	36 kts.	0/0	$1,000
CARNES	24-APR-10	THUNDERSTORM WIND	50 kts.	0/0	$0
BROOKLYN	15-JUN-10	THUNDERSTORM WIND	43 kts.	0/0	$8,000
DIXIE PINE	15-JUN-10	THUNDERSTORM WIND	55 kts.	0/0	$3,000
BROOKLYN	15-AUG-10	THUNDERSTORM WIND	39 kts.	0/0	$10,000
RAWLS SPRINGS	15-AUG-10	THUNDERSTORM WIND	53 kts.	0/0	$5,000
FORREST COUNTY	22-AUG-10	STRONG WIND	50 kts.	0/0	$1,000
EATONVILLE	04-APR-11	THUNDERSTORM WIND	60 kts.	0/0	$200,000
MACEDONIA	13-MAY-11	THUNDERSTORM WIND	50 kts.	0/0	$0
PALMERS CROSSING	07-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$75,000
BROOKLYN	08-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$5,000
MAXIE	10-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$1,000
RIVERSIDE	13-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$1,000
BONHOMIE	21-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$5,000
BROOKLYN	04-JUL-11	THUNDERSTORM WIND	39 kts.	0/0	$500
ROCK HILL	24-AUG-11	THUNDERSTORM WIND	50 kts.	0/0	$3,000
FORREST COUNTY	04-SEP-11	STRONG WIND	35 kts.	0/0	$3,000
FORREST COUNTY	05-SEP-11	STRONG WIND	39 kts.	0/0	$4,000
MACEDONIA	02-APR-12	THUNDERSTORM WIND	50 kts.	0/0	$1,000
EATONVILLE	18-JUL-12	THUNDERSTORM WIND	43 kts.	0/0	$100
EATONVILLE	06-AUG-12	THUNDERSTORM WIND	50 kts.	0/0	$0
EPPS	06-AUG-12	THUNDERSTORM WIND	50 kts.	0/0	$0
BONHOMIE	09-AUG-12	THUNDERSTORM WIND	56 kts.	0/0	$20,000
MACEDONIA	04-SEP-12	THUNDERSTORM WIND	50 kts.	0/0	$2,000
MACEDONIA	11-APR-13	THUNDERSTORM WIND	60 kts.	0/0	$100,000
DIXIE PINE	13-AUG-13	THUNDERSTORM WIND	50 kts.	0/0	$1,000
FORREST COUNTY	20-FEB-14	STRONG WIND	35 kts.	1/0	$50,000
DIXIE PINE	28-MAR-14	THUNDERSTORM WIND	50 kts.	0/0	$1,000
MCLAURIN	24-JUN-14	THUNDERSTORM WIND	52 kts.	0/0	$3,000
ROCK HILL	16-NOV-14	THUNDERSTORM WIND	52 kts.	0/0	$2,000
ROCK HILL	15-APR-15	THUNDERSTORM WIND	55 kts.	0/0	$10,000
BONHOMIE	05-JUL-15	THUNDERSTORM WIND	50 kts.	0/0	$3,000
CARNES	08-AUG-15	THUNDERSTORM WIND	52 kts.	0/0	$5,000
MCLAURIN	17-MAR-16	THUNDERSTORM WIND	50 kts.	0/0	$10,000
CARNES	17-MAR-16	THUNDERSTORM WIND	52 kts.	0/0	$6,000
ROCK HILL	17-MAR-16	THUNDERSTORM WIND	50 kts.	0/0	$15,000
MCLAURIN	19-MAY-16	THUNDERSTORM WIND	50 kts.	0/0	$10,000
FORREST COUNTY	17-JUN-16	THUNDERSTORM WIND	50 kts.	0/0	$7,000
RIVERSIDE	17-JUN-16	THUNDERSTORM WIND	55 kts.	0/0	$5,000
ROCK HILL	17-JUN-16	THUNDERSTORM WIND	50 kts.	0/0	$20,000
ROCK HILL	25-SEP-16	THUNDERSTORM WIND	50 kts.	0/0	$5,000
FORREST COUNTY	28-NOV-16	THUNDERSTORM WIND	39 kts.	0/0	$5,000
EPPS	02-JAN-17	THUNDERSTORM WIND	50 kts.	0/0	$5,000
MAXIE	02-JAN-17	THUNDERSTORM WIND	55 kts.	0/0	$40,000
RAGLAND	02-JAN-17	THUNDERSTORM WIND	50 kts.	0/0	$5,000
BONHOMIE	30-MAR-17	THUNDERSTORM WIND	50 kts.	0/0	$3,000
FORREST COUNTY	03-APR-17	THUNDERSTORM WIND	50 kts.	0/0	$7,000

Location	Date	Type	Magnitude	Deaths/ Injuries	Property Damage*
MAYBANK	30-APR-17	THUNDERSTORM WIND	50 kts.	0/0	$8,000
GLENDALE	21-MAY-17	THUNDERSTORM WIND	50 kts.	0/0	$16,000
BROOKLYN	16-JUN-17	THUNDERSTORM WIND	55 kts.	0/0	$3,000
GLENDALE	16-JUN-17	THUNDERSTORM WIND	55 kts.	0/0	$10,000
MACEDONIA	16-JUN-17	THUNDERSTORM WIND	55 kts.	0/0	$10,000
FORREST COUNTY	22-JUN-17	STRONG WIND	35 kts.	0/0	$3,000
FORREST COUNTY	22-JUN-17	STRONG WIND	35 kts.	0/0	$3,000
FORREST COUNTY	22-JUN-17	STRONG WIND	35 kts.	0/1	$5,000
MAXIE	07-JUL-17	THUNDERSTORM WIND	50 kts.	0/0	$5,000
MACEDONIA	19-SEP-17	THUNDERSTORM WIND	48 kts.	0/0	$2,000
BONHOMIE	14-APR-18	THUNDERSTORM WIND	56 kts.	0/0	$30,000
MACEDONIA	14-APR-18	THUNDERSTORM WIND	52 kts.	0/0	$15,000
GLENDALE	19-JUL-18	THUNDERSTORM WIND	50 kts.	0/0	$10,000
RAWLS SPRINGS	01-NOV-18	THUNDERSTORM WIND	50 kts.	0/0	$3,000
BONHOMIE	01-NOV-18	THUNDERSTORM WIND	50 kts.	0/0	$10,000
EPPS	01-NOV-18	THUNDERSTORM WIND	52 kts.	0/0	$8,000

*All damage may not have been reported.
Source: National Centers for Environmental Information

Hailstorm

According to the National Centers for Environmental Information, 160 recorded hailstorm events have affected Forrest County since 1965.[13] **Table B.17** is a summary of the hail events in Forrest County. **Table B.18** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over $6 million in property damages. Hail ranged in diameter from 0.75 inches to 2.75 inches. It should be noted that hail is notorious for causing substantial damage to cars, roofs, and other areas of the built environment that may not be reported to the National Centers for Environmental Information. Therefore, it is likely that damages are greater than the reported value. However, NCEI noted minimal monetary damages for this planning period.

TABLE B.18: SUMMARY OF HAIL OCCURRENCES IN FORREST COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Hattiesburg	60	0/0	$5,031,000
Petal	21	0/0	$26,000
Unincorporated Area	85	0/0	$928,000
FORREST COUNTY TOTAL	**166**	**0/0**	**$5,985,000**

Source: National Centers for Environmental Information

TABLE B.19: HISTORICAL HAIL OCCURRENCES IN FORREST COUNTY

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Hattiesburg				
Hattiesburg	27-JAN-94	0.75 in.	0/0	$0

[13] These hail events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional hail events have affected Forrest County. As additional local data becomes available, this hazard profile will be amended.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Hattiesburg	09-JUN-94	1.75 in.	0/0	$0
Hattiesburg	26-JUL-95	0.75 in.	0/0	$0
Hattiesburg	26-JAN-96	2.75 in.	0/0	$250,000
Hattiesburg	18-MAR-96	1.75 in.	0/0	$2,000,000
Hattiesburg	18-MAR-96	2.75 in.	0/0	$2,000,000
Hattiesburg	18-MAR-96	0.75 in.	0/0	$0
Hattiesburg	19-AUG-96	0.75 in.	0/0	$0
Hattiesburg	30-NOV-96	1.00 in.	0/0	$0
Hattiesburg	29-MAR-97	0.75 in.	0/0	$0
Hattiesburg	29-MAR-97	1.00 in.	0/0	$0
Hattiesburg	22-APR-97	1.00 in.	0/0	$0
Hattiesburg	28-MAY-97	0.88 in.	0/0	$100,000
Hattiesburg	28-MAY-97	1.75 in.	0/0	$0
Hattiesburg	23-DEC-97	1.75 in.	0/0	$100,000
Hattiesburg	28-JAN-98	1.75 in.	0/0	$0
Hattiesburg	26-FEB-98	0.88 in.	0/0	$0
Hattiesburg	07-MAR-98	1.00 in.	0/0	$0
Hattiesburg	17-APR-98	0.75 in.	0/0	$0
Hattiesburg	17-APR-98	1.75 in.	0/0	$0
Hattiesburg	17-APR-98	1.75 in.	0/0	$0
Hattiesburg	17-APR-98	1.00 in.	0/0	$0
Hattiesburg	17-APR-98	0.88 in.	0/0	$0
Hattiesburg	29-JAN-99	0.75 in.	0/0	$35,000
Hattiesburg	14-APR-99	1.75 in.	0/0	$0
Hattiesburg	23-MAY-99	0.88 in.	0/0	$0
Hattiesburg	23-APR-00	1.00 in.	0/0	$3,000
Hattiesburg	22-JUL-00	1.00 in.	0/0	$0
Hattiesburg	25-AUG-00	0.75 in.	0/0	$0
Hattiesburg	30-AUG-00	0.75 in.	0/0	$0
Hattiesburg	31-AUG-00	0.75 in.	0/0	$0
Hattiesburg	31-AUG-00	0.75 in.	0/0	$15,000
Hattiesburg	31-AUG-00	1.75 in.	0/0	$0
Hattiesburg	05-SEP-00	0.75 in.	0/0	$8,000
Hattiesburg	02-MAY-01	1.75 in.	0/0	$0
Hattiesburg	02-MAY-01	0.75 in.	0/0	$0
Hattiesburg	12-MAR-02	0.88 in.	0/0	$0
Hattiesburg	24-DEC-02	0.75 in.	0/0	$1,000
Hattiesburg	06-MAR-03	0.88 in.	0/0	$5,000
Hattiesburg	06-MAR-03	1.00 in.	0/0	$1,000
Hattiesburg	25-APR-03	1.00 in.	0/0	$10,000
Hattiesburg	25-APR-03	1.75 in.	0/0	$300,000
Hattiesburg	25-APR-03	2.50 in.	0/0	$1,000
Hattiesburg	25-APR-03	0.75 in.	0/0	$1,000
Hattiesburg	25-APR-03	0.75 in.	0/0	$1,000
Hattiesburg	20-AUG-03	0.88 in.	0/0	$0
Hattiesburg	11-MAY-04	1.00 in.	0/0	$0
Hattiesburg	22-MAR-05	0.88 in.	0/0	$0

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Hattiesburg	01-APR-05	0.75 in.	0/0	$0
Hattiesburg	06-APR-05	0.88 in.	0/0	$0
Hattiesburg	11-APR-05	0.88 in.	0/0	$80,000
Hattiesburg	22-APR-05	1.75 in.	0/0	$0
Hattiesburg	30-APR-05	0.75 in.	0/0	$100,000
Hattiesburg	29-MAY-05	1.75 in.	0/0	$0
Hattiesburg	24-MAY-06	0.88 in.	0/0	$0
Hattiesburg	19-JUL-06	0.75 in.	0/0	$0
Hattiesburg	01-MAR-07	0.75 in.	0/0	$0
Hattiesburg	01-MAR-10	0.88 in.	0/0	$0
Hattiesburg	04-JUL-11	1.25 in.	0/0	$0
Hattiesburg	18-MAR-13	1.00 in.	0/0	$0
Hattiesburg	30-APR-17	1.75 in.	0/0	$20,000
Petal				
Petal	20-APR-93	1.75 in.	0/0	$5,000
Petal	14-APR-96	1.75 in.	0/0	$0
Petal	07-MAR-98	1.00 in.	0/0	$0
Petal	17-APR-98	0.75 in.	0/0	$0
Petal	01-JUL-98	0.88 in.	0/0	$0
Petal	25-AUG-99	1.00 in.	0/0	$0
Petal	26-APR-00	0.88 in.	0/0	$0
Petal	20-JUL-00	1.00 in.	0/0	$10,000
Petal	10-AUG-00	0.88 in.	0/0	$0
Petal	31-AUG-00	0.88 in.	0/0	$0
Petal	01-MAR-01	1.00 in.	0/0	$0
Petal	12-MAR-02	0.88 in.	0/0	$0
Petal	07-MAR-03	0.75 in.	0/0	$1,000
Petal	21-APR-06	0.88 in.	0/0	$0
Petal	08-MAY-06	1.25 in.	0/0	$10,000
Petal	13-FEB-07	0.88 in.	0/0	$0
Petal	29-JUL-08	1.00 in.	0/0	$0
Petal	22-FEB-10	1.00 in.	0/0	$0
Petal	02-APR-12	1.00 in.	0/0	$0
Petal	29-JUN-13	1.00 in.	0/0	$0
Petal	11-SEP-16	.75 in.	0/0	$0
Unincorporated Area				
FORREST COUNTY	19-APR-65	1.75 in.	0/0	$0
FORREST COUNTY	12-FEB-71	1.75 in.	0/0	$0
FORREST COUNTY	09-APR-75	1.75 in.	0/0	$0
FORREST COUNTY	09-APR-75	1.75 in.	0/0	$0
FORREST COUNTY	07-MAY-75	1.75 in.	0/0	$0
FORREST COUNTY	03-APR-79	1.00 in.	0/0	$0
FORREST COUNTY	11-JUN-82	1.75 in.	0/0	$0
FORREST COUNTY	12-JUN-82	1.75 in.	0/0	$0
FORREST COUNTY	03-MAY-84	1.75 in.	0/0	$0
FORREST COUNTY	10-FEB-86	0.75 in.	0/0	$0
FORREST COUNTY	10-AUG-86	1.00 in.	0/0	$0

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
FORREST COUNTY	20-MAR-89	0.75 in.	0/0	$0
FORREST COUNTY	29- MAR -89	1.00 in.	0/0	$0
FORREST COUNTY	14-MAY-90	0.75 in.	0/0	$0
GLENDALE	15-MAR-95	0.75 in.	0/0	$0
BROOKLYN	18-MAR-96	1.75 in.	0/0	$0
MACEDONIA	18-MAR-96	1.75 in.	0/0	$500,000
BROOKLYN	24-MAR-96	1.75 in.	0/0	$0
BROOKLYN	29-MAR-97	1.75 in.	0/0	$0
CARNES	25-OCT-97	0.88 in.	0/0	$0
CARNES	17-APR-98	4.50 in.	0/0	$50,000
BROOKLYN	17-APR-98	0.88 in.	0/0	$0
DIXIE PINE	17-APR-98	4.50 in.	0/0	$0
BROOKLYN	25-AUG-99	1.75 in.	0/0	$0
BROOKLYN	27-JUN-00	1.75 in.	0/0	$5,000
MCLAURIN	31-JUN-00	1.00 in.	0/0	$15,000
GLENDALE	26-AUG-00	1.75 in.	0/0	$0
CARNES	13-DEC-00	1.00 IN	0/0	$6,000
MCCALLUM	12-FEB-02	1.00 in.	0/0	$0
BROOKLYN	12-FEB-02	0.88 in.	0/0	$0
CARNES	07-JUL-02	1.00 in.	0/0	$0
BONHOMIE	23-DEC-02	0.88 in.	0/0	$0
MCLAURIN	23-DEC-02	0.75 in.	0/0	$0
MCCALLUM	06-MAR-03	0.75 in.	0/0	$0
MCCALLUM	06-MAR-03	0.88 in.	0/0	$0
MCLAURIN	25-APR-03	1.00 in.	0/0	$0
MCLAURIN	25-MAY-03	1.00 in.	0/0	$0
MCLAURIN	23-FEB-04	0.75 in.	0/0	$1,000
CARNES	30-MAR-05	1.00 in.	0/0	$0
ROCK HILL	31-MAR-05	1.75 in.	0/0	$0
MCCALLUM	01-APR-05	0.75 in.	0/0	$0
ROCK HILL	06-APR-05	1.00 in.	0/0	$15,000
RAWLS SPRINGS	08-MAY-06	1.75 in.	0/0	$50,000
BROOKLYN	24-MAY-06	0.75 in.	0/0	$100,00
CARNES	19-JUL-06	0.88 in.	0/0	$0
BONHOMIE	10-JAN-08	in.	0/0	$100,000
MCLAURIN	12-FEB-08	in.	0/0	$0
CARNES	12-FEB-08	in.	0/0	$0
ROCK HILL	17-FEB-08	in.	0/0	$0
MCLAURIN	09-JUN-08	in.	0/0	$0
MCLAURIN	09-JUN-08	in.	0/0	$0
BROOKLYN	14-JUN-08	in.	0/0	$0
BROOKLYN	14-JUN-08	in.	0/0	$0
MCLAURIN	20-JUN-08	in.	0/0	$0
MCLAURIN	20-JUN-08	in.	0/0	$0
CARNES	20-JUN-08	in.	0/0	$0
MAXIE	25-JUN-08	in.	0/0	$0
RAWLS SPRINGS	03-JAN-09	in.	0/0	$0

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
BONHOMIE	27-FEB-09	in.	0/0	$3,000
ROCK HILL	31-FEB-09	in.	0/0	$20,000
RAWLS SPRINGS	13-APR-09	in.	0/0	$0
CARNES	12-MAY-09	in.	0/0	$0
BROOKLYN	14-MAY-09	in.	0/0	$0
BONHOMIE	30-JUN-09		0/0	$0
BROOKLYN	04-AUG-09		0/0	$0
MAMMOTH SPRINGS	21-FEB-10		0/0	$0
ROCK HILL	24-APR-10		0/0	$0
ROCK HILL	08-MAR-11		0/0	$0
MCLAURIN	08-MAR-11		0/0	$0
BROOKLYN	15-APR-11		0/0	$0
ROCK HILL	26-MAY-11		0/0	$50,000
MCLAURIN	26-MAY-11		0/0	$20,000
BROOKLYN	06-JUN-11		0/0	$15,000
BROOKLYN	06-JUN-11		0/0	$5,000
MCLAURIN	07-JUN-11		0/0	$30,000
BROOKLYN	08-JUN-11		0/0	$20,000
BROOKLYM	10-JUN-11		0/0	$10,000
RIVERSIDE	28-SEP-11		0/0	$0
EPPS	02-FEB-12		0/0	$0
ROCK HILL	15-APR-15		0/0	$6,000
MCLAURIN	15-APR-15		0/0	$0
MCLAURIN	17-MAR-16		0/0	$0
MCLAURIN	17-JUN-16		0/0	$0
ROCK HILL	21-JAN-17		0/0	$0
MCLAURIN	21-JAN-17		0/0	$0

*All damage may not have been reported.
Source: National Centers for Environmental Information

Lightning

According to the National Centers for Environmental Information, there have been 22 recorded lightning events in Forrest County since 1996. These events resulted in almost $1.2 million in damages as listed in summary **Table B.19**.[14] However, it is likely that more lightning events have in fact impacted the county. Many of the reported events are those that caused damage, and it should be expected that damages are likely much higher for this hazard than what is reported. Detailed information on historical lightning events can be found in **Table B.20**.

TABLE B.20: SUMMARY OF LIGHTNING OCCURRENCES IN FORREST COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Hattiesburg	6	1/0	$252,000
Petal	7	1/0	$415,000

[14] These lightning events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is certain that additional lightning events have occurred in Forrest County. As additional local data becomes available, this hazard profile will be amended.

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Unincorporated Area	9	0/1	$498,000
FORREST COUNTY TOTAL	**22**	**2/1**	**$1,165,000**

Source: National Centers for Environmental Information

656

657 **TABLE B.21: HISTORICAL LIGHTNING OCCURRENCES IN FORREST COUNTY**

Location	Date	Deaths / Injuries	Property Damage*	Details
Hattiesburg				
Hattiesburg	13-JUN-96	1/0	$0	A National Guard sergeant was killed when lightning deflected off a tree and struck him while loading a truck.
Hattiesburg	21-JUL-05	0/0	$200,00	Lightning damaged two homes in Hattiesburg.
Hattiesburg	19-JUN-07	0/0	$10,000	Lightning struck an apartment complex on North 38th Avenue.
Hattiesburg	16-MAY-09	0/0	$2,000	Three trees were struck by lighting and fell on some power lines.
Hattiesburg	14-DEC-09	0/0	$10,000	Two homes were struck by lightning around the Hattiesburg Metro Area.
Hattiesburg	25-JUL-11	0/0		Two residences were struck by lightning. Several traffic signals were out in the area.
Petal				
Petal	20-JUL-00	1/0	$0	A woman went into cardiac arrest and died the next day after being struck by lightning while feeding ducks at a pond. At the time, her husband said there was the sound of thunder in the distance, but not nearby.
Petal	21-JUL-05	0/0	$50,000	Two houses were struck by lightning near Petal.
Petal	03-AUG-10	0/0	$25,000	Lightning damaged a house in the Sunrise Community.
Petal	08-MAR-11	0/0	$15,000	Lightning struck the Dixie Electric substation knocking out power in the area.
Petal	20-AUG-15	0/0	$75,000	A house fire was caused by lightning on East 7th Avenue.
Petal	30-APR-17	0/0	$150,000	Lightning struck a tree and caught the top floor of a nearby apartment complex on fire. Lightning also struck a power pole and the falling lines caught a mobile home on fire.
Petal	06-JUL-18	0/0	$100,000	A house fire was caused by a lightning strike.
Unincorporated Area				
Carnes	01-APR-05	0/0	$150,000	Lightning struck a house in Carnes and severely damaged the structure.
Eatonville	26-MAY-08	0/0	$10,000	A home was struck by lightning.
Palmers Crossing	09-JUN-08	0/0	$250,000	A home was struck by lightning on the south end of Hattiesburg. This then caused a fire which spread to a mobile home next door.
McLaurin	09-JUN-08	0/0	$15,000	A shed was struck by lightning and caught fire.
Carnes	16-JUL-09	0/1	$0	An 18 year old male was struck by lightning in the Carnes Community.

Location	Date	Deaths / Injuries	Property Damage*	Details
Bonhomie	04-AUG-10		$10,000	A mobile home was struck by lightning.
Ragland	08-JUN-11		$3,000	Seventy seven Air Force cadets were in tents close to a power pole that was struck by lightning. The cadets were all taken to the hospital as a precautionary measure. No injures were confirmed.
Macedonia	05-AUG-16		$30,000	Lightning struck a home. It caused roof damage along with sheetrock damage inside the home.
Macedonia	12-JUL-17		$30,000	Lightning struck a home. It caused roof damage along with sheetrock damage inside the home.

*All damage may not have been reported.
Source: National Centers for Environmental Information

PROBABILITY OF FUTURE OCCURRENCES

Thunderstorm / High Wind

Given the high number of previous events, it is certain that wind events, including straight-line wind and thunderstorm wind, will occur in the future. This results in a probability level of highly likely (100 percent annual probability) for future wind events for the entire county.

Hailstorm

Based on historical occurrence information, it is assumed that the probability of future hail occurrences is likely (10 – 100 percent annual probability). Since hail is an atmospheric hazard (coinciding with thunderstorms), it is assumed that Forrest County has equal exposure to this hazard. It can be expected that future hail events will continue to cause minor damage to property and vehicles throughout the county.

Lightning

Although there was not a high number of historical lightning events reported in Forrest County via NCEI data, it is a regular occurrence accompanied by thunderstorms. In fact, lightning events will assuredly happen on an annual basis, though not all events will cause damage. According to Vaisala's U.S. National Lightning Detection Network (NLDN®), Forrest County is located in an area of the country that experienced an average of 6 to 8 lightning flashes per square kilometer per year between 1997 and 2010. Therefore, the probability of future events is highly likely (100 percent annual probability). It can be expected that future lightning events will continue to threaten life and cause minor property damages throughout the county.

B.2.12 Tornado

LOCATION AND SPATIAL EXTENT

Tornadoes occur throughout the state of Mississippi, and thus in Forrest County. Tornadoes typically impact a relatively small area, but damage may be extensive. Event locations are completely random, and it is not possible to predict specific areas that are more susceptible to tornado strikes over time. Therefore, it is assumed that Forrest County is uniformly exposed to this hazard.

HISTORICAL OCCURRENCES

Tornadoes resulted in two disaster declarations in Forrest County in 1992 and 2009.[15] According to the National Centers for Environmental Information, there have been a total of 27 recorded tornado events in Forrest County since 1961 (**Table B.22**), resulting in over $9.3 million in property damages.[16] In addition, 11 injuries were reported, but none in this planning period. The magnitude of these tornadoes ranges from F0 to F4 in intensity, although an F5 event is possible. Detailed information on historic tornado events can be found in **Table B.23**.

TABLE B.22: SUMMARY OF TORNADO OCCURRENCES IN FORREST COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Hattiesburg	7	0/68	$31,152,000
Petal	1	0/0	$200,000
Unincorporated Area	26	0/11	$4,107,000
FORREST COUNTY TOTAL	**34**	**0/11**	**$35,459,000**

Source: National Centers for Environmental Information

TABLE B.23: HISTORICAL TORNADO IMPACTS IN FORREST COUNTY

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Hattiesburg					
Hattiesburg	07-MAR-95	F0	0/0	$5,000	The tornado touched down in Camp Shelby, a reserve base, and blew down 50 trees, but did not damage any structures.
Hattiesburg	05-JUN-98	F1	0/0	$20,000	This tornado blew down trees and a couple of signs. It also removed part of a roof of a building.
Hattiesburg	14-APR-99	F0	0/0	$0	This weak tornado touched down in Hattiesburg with no damage reported.
Hattiesburg	12-MAR-01	F1	0/5	$6,000,000	A supercell thunderstorm produced a tornado that moved out of Walthall County into Marion County, about two miles west of Kokomo. The total damage from the tornado in Forrest County was estimated to be around $6 million. In Forrest County, the tornado tracked through populated areas of Hattiesburg and Petal. The tornado caused major damage to 112 houses, one mobile home, eight businesses, and six vehicles. Additionally, the tornado caused minor damage to 223 houses, four mobile homes, and 21 businesses. Despite the widespread damage across three counties, no serious injuries were reported in the storms.

[15] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.
[16] These tornado events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional tornadoes have occurred in Forrest County. As additional local data becomes available, this hazard profile will be amended.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Hattiesburg	07-JAN-05	F1	0/0	$125,000	This tornado touched down just west of Interstate 59, 1 mile south of exit 59 for Highway 98, and tracked east for 2 miles crossing Browns Bridge Road and dissipating around Leffler Road. Just off Browns Bridge Road, one chicken house was destroyed and a mobile home had part of its roof torn off. Numerous trees were also blown down.
Hattiesburg	29-AUG-05	F1	0/0	$2,000,000	This brief tornado occurred in the eyewall of Katrina and touched down on the east side Hattiesburg. Across the brief path, dozens of large trees were uprooted and snapped.
Hattiesburg	10-FEB-13	F1	0/0	$25,00,000	The tornado then moved northeast into the heavily populated areas of Oak Grove and West Hattiesburg, including areas along Lincoln Road Extension, Weathersby Road, Oak Grove Road, and the area just south of Highway 98 along Clark, Lamar and Foxgate Avenues. Numerous homes were destroyed or suffered major damage, and a few homes showed evidence of The tornado continued across Highway 49 impacting multiple neighborhoods. Numerous roofs were blown off houses and many trees fell on houses and vehicles. The tornado crossed North Main Street causing significant damage to the Red Cross building, the Girl Scouts building, and bending large metal poles at the Hattiesburg High School athletic fields. The tornado then moved across east 7th Street causing significant damage to several large brick buildings. Damage in the area between north Main Street and east 7th Avenue was in the high-end EF-3 range with maximum winds around 160 mph. The tornado continued into Petal with the most significant damage occurring to an Ace Hardware store on South Main Street. Numerous homes in the vicinity of the hardware store also had roofs torn off and exterior walls collapsed. This damage was also rated high end EF-3 with maximum winds around 160 mph. In Forrest County, emergency management indicated that 133 homes were destroyed and 207 suffered major damage. There were 63 reported injuries.
Petal					
Petal	14-APR-07	F1	0/0	$2,000	This tornado briefly touched down in the Country Park Drive area east of the Sunrise Community. One home was significantly damaged as the enclosed carport was destroyed, several windows were blown out and some siding was blown off along with other roof damage. Numerous trees were snapped and uprooted with one power pole snapped.
Unincorporated Area					
FORREST CO.	02-MAY-57	F1	0/0	$0	

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
FORREST CO.	20-FEB-61	F1	0/0	$25,000	
FORREST CO.	12-DEC-65	F1	0/0	$250	Numerous trees and a boat shed were blown down.
FORREST CO.	20-JUL-66	F1	0/0	$250,000	Tornado destroyed one house and damaged several others including a church and the Elks Club at Palmer Crossing one mile south of Hattiesburg.
FORREST CO.	24-MAY-73	F1	0/0	$2,500	Trees uprooted and roof damaged when tornado touched down briefly.
FORREST CO.	18-APR-78	F1	0/0	$2,500	
FORREST CO.	07-MAY-82	F1	0/0	$250,000	The tornado touchdown ¾ miles south of the Forrest/Jones county line between highways 49 and 59 before moving into the Providence Community where two chicken houses were destroyed and one damaged, the roof of two stores were blown off, one house heavily damaged, and trees were uprooted falling on houses and across roads.
FORREST CO.	21-NOV-92	F1	0/5	$25,000	
FORREST CO.	04-DEC-93	F1	0/0	$250,000	A tornado touched down just north of the Hattiesburg airport. It moved northeast along an intermittent path and lifted near Runnelstown in Perry County. Most of the damage occurred in the Sunrise community just east of Hattiesburg where one house, two barns and a number of out buildings received major damage. In Runnelstown a garage was destroyed and a house received major roof damage. A resident of the Sunrise community minor injuries when he was lifted and carried 50 feet by the tornado..
FORREST CO.	16-FEB-01	F1	0/0	$250,000	
FORREST CO.	26-MAR-05	F1	0/0	$25,000	This tornado was observed by a police officer near USM. The damage extended along three blocks with four trees and three power poles being blown down.
Lumberton	17-OCT-07	F1	0/0	$50,000	Many trees and power lines were blown down. Two mobile homes were totally destroyed.
Lumberton	09-DEC-08	F1	0/0	$2,000	This tornado was observed by local law officials. The only damage was a few trees blown down.
Carnes	03-MAY-09	F1	0/0	$100,000	This short track tornado did a considerable amount of damage in the Carnes area. Two mobile home trailers were destroyed. Several sheds were destroyed. The roofs of a house and a church were damaged. Several barns were damaged. Numerous trees were blown down.
Carnes.	02-MAR-12	F0	0/0	$5,000	A few trees were blown down and minor damage was done to some property.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Rawls Springs	10-JUL-16	F1	0/0	$2,000	This was the end of the Lamar County F3 tornado which remained on the ground for 1 mile in extreme northwest Forrest County. Damage in this part of Forrest County was rated F1 and consisted of numerous trees snapped and downed near Lott Town Road. The total path length across Lamar and Forrest Counties was 13 miles.
Mammoth Springs	30-MAR-17	F0	0/0	$100,000	This tornado briefly touched down along Interstate 59. Numerous trees were snapped or uprooted along the Interstate and one car was blown off the Interstate causing 1 injury. A roof was blown off a garage and minor roof damage occurred to a home. Additionally, two metal doors were blown off metal buildings.
McLaurin	06-APR-18	F1	0/14	$1,500,000	This tornado touched down at Camp Shelby and snapped or uprooted numerous trees, and downed several power lines along the short path. Twelve buildings, mostly barracks, were damaged. Several buildings had the roofs severely damaged with one roof nearly completely torn off. Several walls of the barrack buildings collapsed where the roof support was lost. A hummer was turned over and windows were blown out of several other vehicles. Maximum wind speed was 110 mph.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Rock Hill	06-APR-18	F1	0/0	$700,000	This tornado began on the east side of Purvis, here it downed some limbs and small trees. The tornado intensified and widened at it approached and crossed Interstate 59 near Black Creek. Numerous trees and large limbs were snapped along the path as it moved through the area between the interstate and Highway 49. Additionally, a couple homes and outbuildings were damaged by limbs or trees falling on them. The tornado intensified again and narrowed as it approached Highway 49 and the south gate of Camp Shelby. A number of large trees were downed along the highway, and from there to the actual gate of Camp Shelby. One large tree fell on a mobile home on the east side of Highway 49, destroying it. Shingles were pulled off a couple commercial buildings along the highway as well and 2 power poles were snapped. This area was where the tornado reached its maximum intensity. As the tornado moved across Camp Shelby, it remained narrow, but not as intense, with winds likely in the 70 to 80 mph range. The tornado downed numerous large limbs and sporadic trees as it moved across the base. One large tree fell on base quarters home, causing serious damage to it, and another tree fell on a vehicle, destroying it. Some other minor roof damage was noted. The tornado continued causing sporadic tree damage as it crossed Highway 98 near the Perry County line where it dissipated. Maximum winds were around 105 mph. The total path length across Lamar and Forrest Counties was 15
McLaurin				$80,000	This tornado occurred just south of the first, longer track tornado, and was on the ground for just over a mile. A concentrated path of trees, in a convergent pattern, was blown down. Additionally, half the roof of a small church was peeled off.
Maxie				$2,000	A brief tornado touched down close to the intersection of Highway 49 and 13. A few trees blocked the south bound lane of Highway 49.
McLaurin				$500	The public observed a brief tornado touchdown off Highway 49 near Camp Shelby. Maximum winds were estimated at 70 mph
Bonhomie				$15,000	The tornado then crossed White Chapel Road causing extensive tree damage. It then moved into Forrest County and crossed over Interstate 59 knocking over several trees at a rest stop. The tornado then crossed Browns Bridge Road and Frye Road snapping numerous trees, one of which fell on a house. The tornado lifted shortly after crossing Frye Road.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Dragon	21-MAR-12	F0	0/0	$20,000	The tornado began off of Longleaf Drive with a couple of softwood trees snapped. One tree fell on a fence and damaged it. The tornado continued north to Eastabuchie Road, where a few more trees were snapped and a few shingles were torn off a roof. It crossed Eastabuchie Road and ended just north of the road snapping a few more trees. Maximum estimated wind speeds were 85 mph.
Fruitland Park	25-DEC-12	F2	0/4	$200,000	Numerous soft and hardwood trees were snapped and uprooted. Multiple power poles were snapped. Two double wide mobile homes were completely destroyed, a pickup truck was rolled, and a single-wide mobile home suffered major damage. Large oaks were uprooted and a travel trailer was demolished by a falling tree. Maximum wind speeds were estimated at 130 mph in Forrest County. This is the continuation of a longer tornado that started in Pearl River County at 3:10pm. This tornado was at it's strongest in Pearl River County with estimated wind speeds of 140 mph, which is EF-3 strength. The tornado finally ended in Greene County at 4:34pm. The total path length was 60.8 miles.

Source: National Centers for Environmental Information

Forrest County- On January 21, 2017, an early morning event impacted areas south of I-20 in Mississippi. Most notably, an EF-3 tornado tracked through Lamar and Forrest counties, killing four people in Hattiesburg and injuring over 50 others. In addition, damaging winds, large hail, and flash flooding occurred in other areas across south Mississippi. The evening event impacted a larger portion of the ArkLaMiss, and brought wind damage as well as large hail and a strong tornado.

PROBABILITY OF FUTURE OCCURRENCES

According to historical information, tornado events pose a significant threat to Forrest County. The probability of future tornado occurrences affecting Forrest County is likely (10 – 100 percent annual probability).

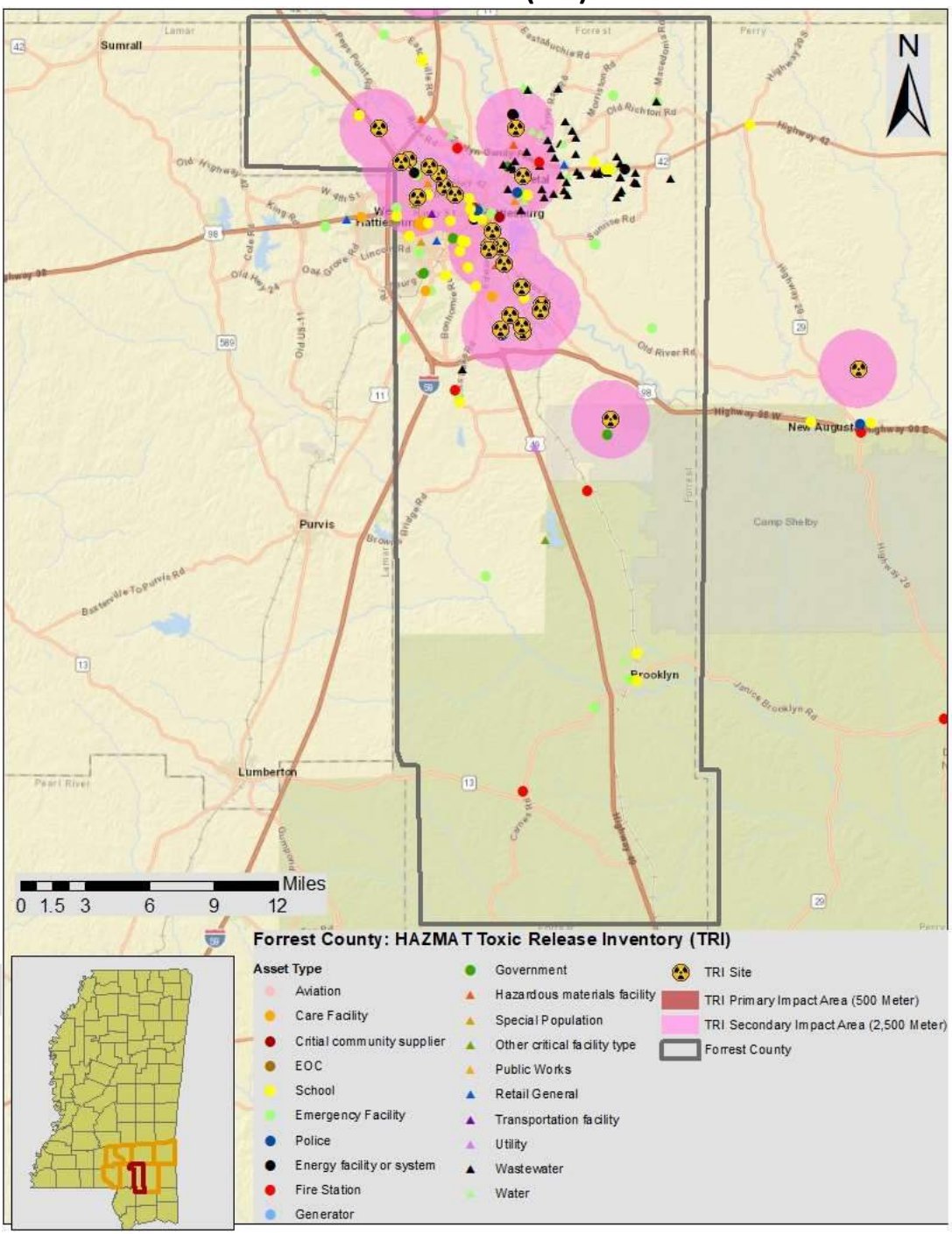
B.2.13 Hazardous Materials Incidents

LOCATION AND SPATIAL EXTENT

Hazardous Materials

Forrest County has numerous TRI sites as shown in **Figure B.7**.

FIGURE B.7: TOXIC RELEASE INVENTORY (TRI) SITES IN FORREST COUNTY



Source: EPA

In addition to "fixed" hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially at risk to an incident.

Pipelines

There are two distinct types of pipelines that are used in the transport of potentially hazardous materials, gas lines and hazardous liquid lines. As of December 11, 2001, all or portions of three oil and gas fields were located in Forrest County, Mississippi. The 2001 annual production for Forrest County was 7,796 barrels of oil, 81,511 thousand cubic feet of gas, and 26,714 barrels of water, from 11 wells as reported in the Mississippi State Oil and Gas Board's 2001 Annual Report.

Meth Labs

Meth lab incidents have occurred at various times throughout Forrest County. Although there is not an extensive documented record of these events, they have occurred in the past and are generally confined to single sites, often in residential areas.

HISTORICAL OCCURRENCES

Hazardous Materials

There has been a total of one recorded HAZMAT incident in Forrest County since 2003 (**Table B.24**), resulting in $55,300 in property damages. **Table B.25** presents detailed information on historic HAZMAT incidents in Forrest County as reported by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA).

TABLE B.24: SUMMARY OF HAZMAT INCIDENTS IN FORREST COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Hattiesburg	0	0/0	$0
Petal	0	0/0	$0
Unincorporated Area	0	0/0	$0
FORREST COUNTY TOTAL	**0**	**0/0**	**$0**

Source: USDOT PHMSA

TABLE B.25: HAZMAT INCIDENTS IN FORREST COUNTY

Report Number	Date	City	Mode	Serious Incident?	Fatalities/ Injuries	Damages ($)	Quantity Released
Hattiesburg							
None Reported	--	--	--	--	--	--	--
Petal							
I-2003120943	4/22/2003	PETAL	Highway	Yes	0/0	$55,300	200 LGA
Unincorporated Area							
None Reported	--	--	--	--	--	--	--

Source: USDOT PHMSA

Pipelines

Between 2002 and 2018, there have been no pipeline incidents in Forrest County.

Meth Labs

Meth lab incidents have occurred at various times throughout Forrest County. Although there is not an extensive documented record of these events, they have occurred in the past and are generally confined to single sites, often in residential areas.

PROBABILITY OF FUTURE OCCURRENCES

Hazardous Materials

There are several toxic release inventory sites in Forrest County; however, there is no incident on record. There has only been one roadway or rail incident, it is unlikely that a hazardous material incident may occur in the county (less than one percent annual probability). County and town officials are mindful of this possibility and take precautions to prevent such an event from occurring. Furthermore, there are detailed plans in place to respond to an occurrence.

Although there are several TRI sites and a very limited record of previous events in the county, hazardous materials incidents will continue to be a threat. The county may also be impacted by neighboring counties which also face risk due to TRI sites and narrow roadways.

Pipelines

Although there have been no major pipeline incidents, there are miles of gas and hazardous liquid lines in the region. Therefore, it is anticipated that there will be future pipeline incidents in Forrest County, and they are considered possible.

Meth Labs

Meth lab incidents will likely continue to occur throughout Forrest County. Although it is difficult to predict where exactly these incidents would occur, the probability that they will is possible.

B.2.14 Cyber Attacks

A cyber-attack is a malicious, intentional attempt to breach the information technology (IT) infrastructure of an individual or organization. The State of Mississippi defines a cyberterrorism incident as any adverse premeditated, politically, financially or maliciously motivated attack against informational systems. A cyberterrorism event can impact one or more of Forrest County's and its, corresponding departments' and divisions' information assets by the following ways, which includes, but are not limited to, the following:

- Unauthorized use
- Denial of Service
- Malicious code
- Network system failures
- Application system failures
- Unauthorized disclosure or loss of information
- Information security breach
- Structured Query Language (SQL) Injection

LOCATION AND HAZARD EXTENT

The cyberterrorism hazard is not geographically based. Attacks can originate from any computer to affect any other computer in the world. If a system is connected to the Internet or operating on a wireless frequency, it is susceptible to exploitation. Targets of cyberterrorism can be individual computers, networks, organizations, business sectors, or governments. Financial institutions and retailers are often targeted to extract personal and financial data that can be used to steal money from individuals and banks.

HISTORICAL OCCURRENCES

There have been no known historical occurrences to have occurred in in Forrest County to date.

PROBABILITY OF FUTURE OCCURRENCES

As is the case for any governmental organization, there will always be the potential for impact for Forrest County. As such, the county will continue to be compelled to respond to cyberterrorisms in the future. The nature of these attacks is projected to evolve in sophistication over time. Forrest County will take a proactive position in its cyber security efforts and is expected to remain vigilant in its efforts to prevent attacks from occurring and/or disrupting business operations.

The reality remains that many computers and networks in organizations of all sizes and industries around the United States will continue to suffer intrusion attempts on a daily basis from viruses and malware that are passed through web sites and emails. Again, the potential for harm via this hazard is always present.

B.2.15 Conclusions on Hazard Risk

The hazard profiles presented above were developed using best available data and result in what may be considered principally a qualitative assessment as recommended by FEMA in its “How-to” guidance document titled *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA Publication 386-2). It relies heavily on historical and anecdotal data, stakeholder input, and professional and experienced judgment regarding observed and/or anticipated hazard impacts. It also carefully considers the findings in other relevant plans, studies, and technical reports.

HAZARD EXTENT

Table B.21 describes the extent of each natural hazard identified for Forrest County. The extent of a hazard is defined as its severity or magnitude, as it relates to the planning area.

844

TABLE B.26: EXTENT OF FORREST COUNTY HAZARDS

Flood-related Hazards	
Flood	Flood extent can be measured by the amount of land and property in the floodplain as well as flood height and velocity. The amount of land in the floodplain accounts for 11.2 percent of the total land area in Forrest County. Flood depth and velocity are recorded via United States Geological Survey stream gages throughout the region. While a gage does not exist for each participating jurisdiction, there is one at or near many areas. The greatest peak discharge recorded for the county was at the Goines Draw near Petal in 1974. Water reached a discharge of 610 cubic feet per second and the stream gage height was recorded at 9.10 feet.
Erosion	The extent of erosion can be defined by the measurable rate of erosion that occurs. There are no erosion rate records located in Forrest County.
Dam Failure	Dam Failure extent is defined using the Mississippi Division of Environmental Quality criteria. Seven dams are classified as high-hazard in the county.
Winter Storm and Freeze	The extent of winter storms can be measured by the amount of snowfall received (in inches). Official long-term snow records are not kept for any areas in the MEMA District 8 Region. However, the greatest snowfall reported in Jackson (north of the county) was 11.7 inches in 1904 and in Meridian (northeast of the county) was 14.0 inches in 1963.
Fire-related Hazards	
Drought / Heat Wave	Drought extent is defined by the U.S. Drought Monitor Classifications which include Abnormally Dry, Moderate Drought, Severe Drought, Extreme Drought, and Exceptional Drought. According to the U.S. Drought Monitor Classifications, the most severe drought condition is Exceptional. Forrest County has received this ranking once over the eighteen-year reporting period. The extent of extreme heat can be measures by the record high temperature recorded. Official long-term temperature records are not kept for any areas in Forrest County. However, the highest recorded temperature in Hattiesburg (southeast of the county) was 106°F in 1989.
Wildfire	Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2008-2018. The greatest number of fires to occur in Forrest County in any year was 59 in 2011. The greatest number of acres to burn in the county in a single year occurred in 2011 when 742 acres were burned. Although this data lists the extent that has occurred, larger and more frequent wildfires are possible throughout the county.
Geologic Hazards	
Earthquake	Earthquake extent can be measured by the Richter Scale and the Modified Mercalli Intensity (MMI) scale and the distance of the epicenter from Forrest County. According to data provided by the National Geophysical Data Center, no recorded earthquakes have been located in the county. However, USGS data shows Forrest County lies within an approximate zone of level .04 ground acceleration. This indicates that the county exists within an area of moderate seismic risk.

Landslide	As noted above in the landslide profile, there is no extensive history of landslides in Forrest County and landslide events typically occur in isolated areas. This provides a challenge when trying to determine an accurate extent for the landslide hazard. However, when using USGS landslide susceptibility index, extent can be measured with incidence, which is low throughout the county. There is also susceptibility throughout the county.
Expansive Soils	As noted above in the expansive soils profile, there is no historical record of significant expansive soil events in Forrest County. Again, this provides a challenge when trying to determine an accurate extent for the expansive soils hazard. However, when using USGS data on soils with clay swelling potential, extent can be measured with swelling potential, which is high in less than 50 percent of the soils Forrest County.
Wind-related Hazards	
Hurricane and Tropical Storm	Hurricane extent is defined by the Saffir-Simpson Scale which classifies hurricanes into Category 1 through Category 5. The greatest classification of hurricane to traverse directly through Forrest County was a Category 3 storm (Hurricane Camille in 1969) which carried tropical force winds of 155 miles per hour upon arrival in the county.
Thunderstorm / Hail / Lightning	Thunderstorm extent is defined by the number of thunder events and wind speeds reported. According to a 63-year history from the National Centers for Environmental Information, the strongest recorded wind event in Forrest County was last reported on March 26, 2009 at 75 knots (approximately 86 mph). It should be noted that future events may exceed these historical occurrences. Hail extent can be defined by the size of the hail stone. The largest hail stone reported in Forrest County was 1.75 inches (last reported on April 2, 2012). It should be noted that future events may exceed this. According to the Vaisala's flash density map, Forrest County is located in an area that experiences 6 to 8 lightning flashes per square kilometer per year. It should be noted that future lightning occurrences may exceed these figures.
Tornado	Tornado hazard extent is measured by tornado occurrences in the US provided by FEMA as well as the Fujita/Enhanced Fujita Scale. The greatest magnitude reported in Forrest County was an F4 (reported on April 18, 1978).
Other Hazards	
Hazardous Materials Incident	According to USDOT PHMSA, the largest hazardous materials incident reported in the county is 200 LGA released on the highway in Petal. It should be noted that larger events are possible. A pipeline incident could have a potentially large impact in terms of extent. Based on recent history, the largest spill in the last 10 years in Mississippi caused over 10,000 barrels of hazardous liquid to be spilled. Because of the generally small-scale nature of most meth labs, the extent of a fire or explosion that was caused by a meth lab incident would likely not be larger than a few acres.
Cyber Attack	The extent of cyberterrorism is difficult to estimate. Attacks can originate from any computer to affect any other computer in the world. The resulting damages depends on the demands of the cyberterrorist.

845

PRIORITY RISK INDEX RESULTS

In order to draw some meaningful planning conclusions on hazard risk for Forrest County, the results of the hazard profiling process were used to generate countywide hazard classifications according to a "Priority Risk Index" (PRI). More information on the PRI and how it was calculated can be found in Section 5.16.2.

Table B.22 summarizes the degree of risk assigned to each category for all initially identified hazards based on the application of the PRI. Assigned risk levels were based on the detailed hazard profiles developed for this section, as well as input from the Regional Hazard Mitigation Council. The results were then used in calculating PRI values and making final determinations for the risk assessment.

TABLE B.27: SUMMARY OF PRI RESULTS FOR FORREST COUNTY

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Flood-related Hazards						
Flood	Likely	Limited	Small	6 to 12 hours	Less than 24 hours	**2.4**
Erosion	Possible	Minor	Small	More than 24 hours	More than 1 week	**1.8**
Dam Failure	Unlikely	Critical	Moderate	More than 24 hours	Less than 6 hours	**2.0**
Winter Storm and Freeze	Possible	Limited	Large	More than 24 hours	Less than 24 hours	**2.3**
Fire-related Hazards						
Drought / Heat Wave	Highly Likely	Minor	Large	More than 24 hours	More than 1 week	**2.8**
Wildfire	Likely	Minor	Small	Less than 6 hours	Less than 1 week	**2.1**
Geologic Hazards						
Earthquake	Unlikely	Minor	Moderate	Less than 6 hours	Less than 6 hours	**1.7**
Landslide	Unlikely	Minor	Small	Less than 6 hours	Less than 6 hours	**1.5**
Expansive Soils	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Wind-related Hazards						
Hurricane and Tropical Storm	Likely	Catastrophic	Large	More than 24 hours	Less than 24 hours	**3.2**
Thunderstorm Wind / High Wind	Highly Likely	Limited	Moderate	Less than 6 hours	Less than 6 hours	**2.9**
Hailstorm	Likely	Minor	Small	Less than 6 hours	Less than 6 hours	**2.1**
Lighting	Highly Likely	Limited	Negligible	Less than 6 hours	Less than 6 hours	**2.5**
Tornado	Likely	Critical	Small	Less than 6 hours	Less than 6 hours	**2.7**
Other Hazards						
Hazardous Materials Incident	Unlikely	Limited	Small	Less than 6 hours	Less than 24 hours	**1.9**
Pipeline Incident	Possible	Limited	Small	Less than 6 hours	Less than 24 hours	**2.2**
Meth Lab Incident	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Cyber-Attack	Unlikely					

B.2.16 Final Determinations on Hazard Risk

The conclusions drawn from the hazard profiling process for Forrest County, including the PRI results and input from the Regional Hazard Mitigation Council, resulted in the classification of risk for each identified hazard according to three categories: High Risk, Moderate Risk, and Low Risk (**Table B.28**). For purposes of these classifications, risk is expressed in relative terms according to the estimated impact that a hazard will have on human life and property throughout all of Forrest County. A more quantitative analysis to estimate potential dollar losses for each hazard has been performed separately and is described in Section 6: *Vulnerability Assessment* and below in Section B.3. It should be noted that although some hazards are classified below as posing low risk, their occurrence of varying or unprecedented magnitudes is still possible in some cases and their assigned classification will continue to be evaluated during future plan updates.

TABLE B.28: CONCLUSIONS ON HAZARD RISK FOR FORREST COUNTY

HIGH RISK	Hurricane and Tropical Storm Thunderstorm Wind / High Wind Tornado Flood
MODERATE RISK	Drought / Heat Wave Dam Failure Lightning Hailstorm Pipeline Incident Hazardous Material Incident Wildfire
LOW RISK	Winter Storm and Freeze Dam Failure Expansive Soils Erosion Earthquake Landslide Meth Lab Incident Cyber Attack

B.3 FORREST COUNTY VULNERABILITY ASSESSMENT

This subsection identifies and quantifies the vulnerability of Forrest County to the significant hazards previously identified. This includes identifying and characterizing an inventory of assets in the county and assessing the potential impact and expected amount of damages caused to these assets by each identified hazard event. More information on the methodology and data sources used to conduct this assessment can be found in Section 6: *Vulnerability Assessment*.

B.3.1 Asset Inventory

Table B.29 lists the estimated number of improved properties and the total value of improvements for Forrest County and its participating jurisdictions (study area of vulnerability assessment). This data was obtained from HAZUS-MH 4.2 since digital parcel data was not available in this county.

TABLE B.29: IMPROVED PROPERTY IN FORREST COUNTY

Location	Number of Improved Properties	Total Assessed Value of Improvements
Forrest County	28,780	$7,621,195,000

*Improvement values for these communities were obtained from HAZUS-MH 4.2

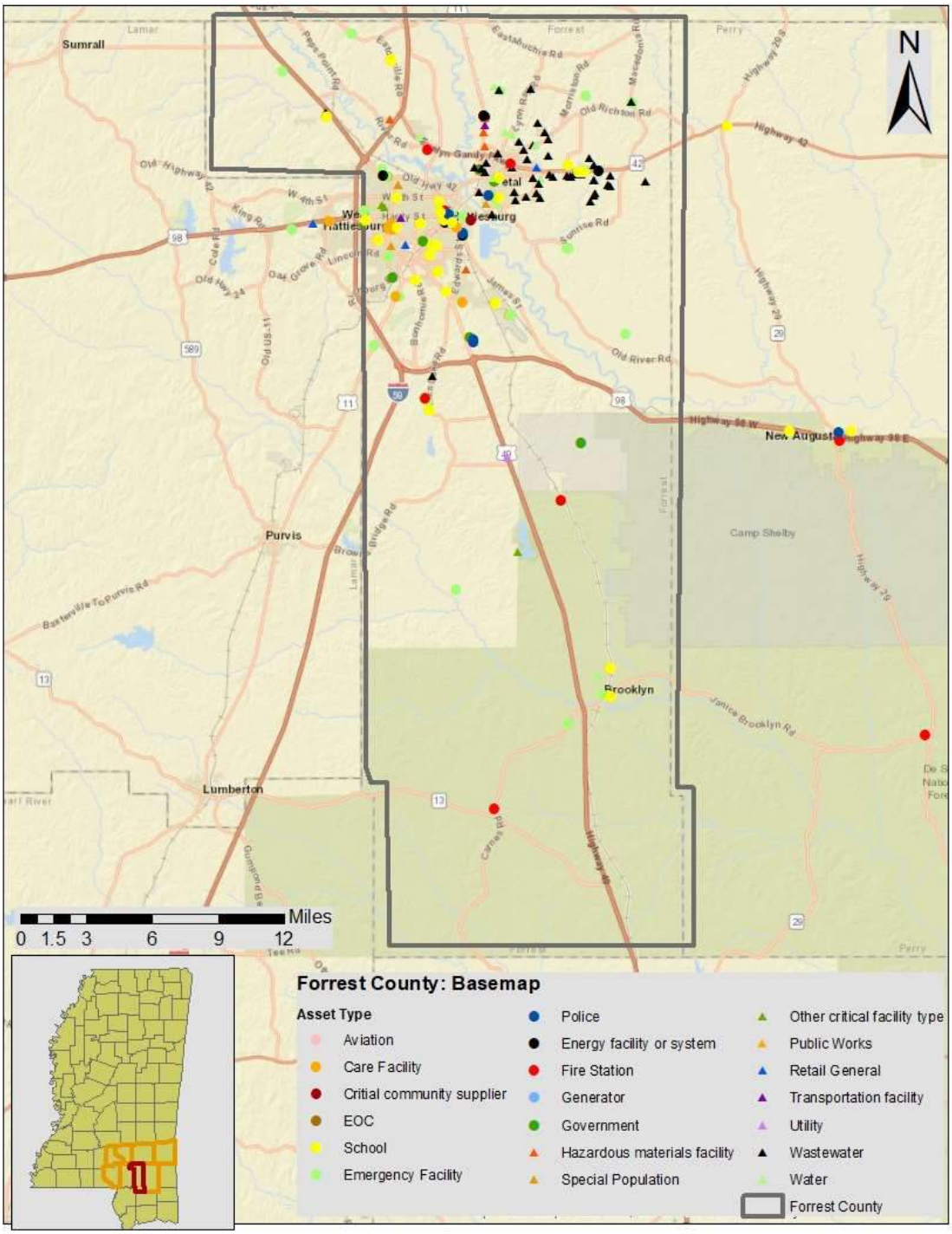
Table B.30 lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools and other critical facilities located in Forrest County. HAZUS-MH 4.2 was used to obtain the critical facilities for the county and this data was modified to reflect recent changes. In addition, **Figure B.8** shows the locations of essential facilities in Forrest County. **Table B.32**, near the end of this section, shows a complete list of the critical facilities by name, as well as the hazards that affect each facility. As noted previously, this list is not all-inclusive and only includes information provided by the county.

TABLE B.30: CRITICAL FACILITY INVENTORY IN FORREST COUNTY

Location	Fire Stations	Police Stations	Medical Care Facilities	EOC	Schools
Hattiesburg	8	1	2	1	14
Petal	3	1	0	0	5
Unincorporated Area	14	1	0	0	7
FORREST COUNTY TOTAL	**25**	**3**	**2**	**1**	**26**

Source: HAZUS-MH and Forrest County Emergency Management and Planning Committee
**The Forrest EOC is located in Hattiesburg.*

FIGURE B.8: CRITICAL FACILITY LOCATIONS IN FORREST COUNTY



Source: HAZUS-MH 4.2

B.3.2 Social Vulnerability

In addition to identifying those assets potentially at risk to identified hazards, it is important to identify and assess those particular segments of the resident population in Forrest County that are potentially at risk to these hazards.

Table B.23 lists the population by jurisdiction according to U.S. Census 2010 population estimates. Unfortunately, estimates were not available at the census block level, limited the results to county-wide estimates. The total estimated population in Forrest County according to the 2017 Census data is 75,471 persons. Additional population estimates are presented above in Section B.1.

TABLE B.31: TOTAL POPULATION IN FORREST COUNTY

Location	Estimated 2017 Population
Hattiesburg	46,377
Petal	10,633
Unincorporated Area	18,461
FORREST COUNTY TOTAL	**75,471**

Source: U.S. Census 2010

B.3.3 Vulnerability Assessment Results

As noted in Section 6: *Vulnerability Assessment*, only hazards with a specific geographic boundary, available modeling tool, or sufficient historical data allow for further analysis. Those results, specific to Forrest County, are presented here. All other hazards are assumed to impact the entire planning region (drought, hailstorm, lightning, thunderstorm wind, tornado, and winter storm and freeze) or, due to lack of data, analysis would not lead to credible results (dam and levee failure, erosion, expansive soils, and landslide). The total county exposure, and thus risk, was presented in **Table B.29**.

The hazards to be further analyzed in this section include: flood, wildfire, earthquake, hurricane and tropical storm winds, and hazardous materials incident.

FLOOD

Historical evidence indicates that Forrest County is susceptible to flood events. A total of 84 flood events have been reported by the National Centers for Environmental Information resulting in $7.6 million in damages.

Since digital parcel data was not available, an analysis of improved property was not completed as it was determined that an analysis using the inventory from HAZUS-MH 4.2 would have been inaccurate and the results would not have been useful.

Social Vulnerability

Since 2010 population was available at the tract level, it was difficult to determine a reliable figure on population at-risk to flood due to tract level population data

Critical Facilities

The critical facility analysis revealed that there are 15 critical facilities located in the Forrest County 1.0-percent annual chance floodplain, valued at over $10.8M. There are seven critical facilities located in the Forrest County 0.2-percent annual chance floodplain, valued at $5.6M. A list of specific critical facilities and their associated risk can be found in **Table B.32** at the end of this section.

In conclusion, a flood has the potential to impact many existing and future buildings and populations in Forrest County, though some areas are at a higher risk than others. All types of structures in a floodplain are at-risk, though elevated structures will have a reduced risk. As noted, the floodplains used in this analysis include the 100-year and 500-year FEMA regulated floodplain boundaries. It is certainly possible that more severe events could occur beyond these boundaries or urban (flash) flooding could impact additional structures. Such site-specific vulnerability determinations are outside the scope of this assessment but will be considered during future plan updates. Furthermore, areas subject to repetitive flooding should be analyzed for potential mitigation actions.

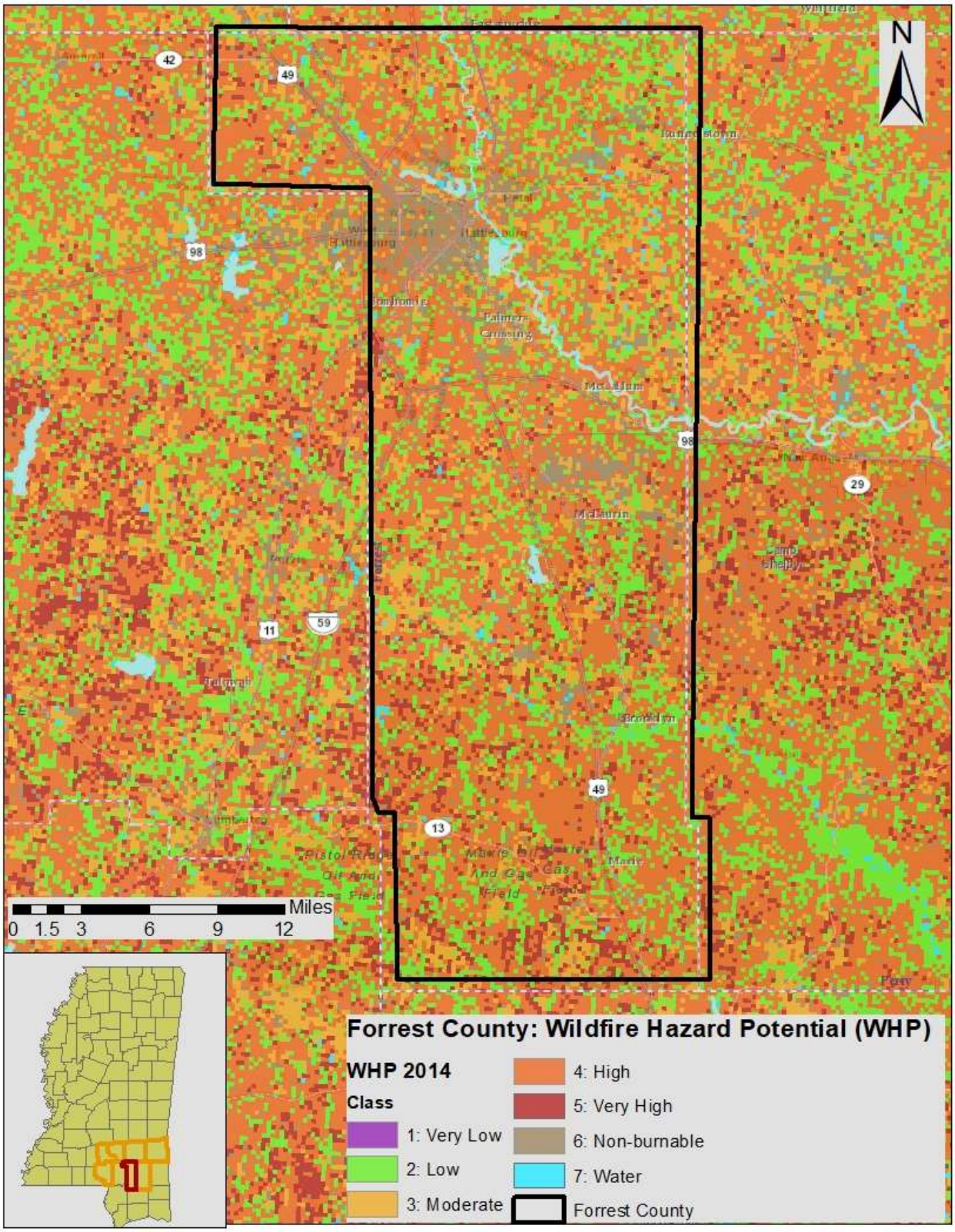
WILDFIRE

Although historical evidence indicates that Forrest County is susceptible to wildfire events, there are few reports of damage.

To estimate exposure to wildfire, the wildfire hazard potential (WHP 2014) data provided via the US Forest Service was utilized. A GIS analysis was performed with the WHP dataset and identified critical facilities throughout MEMA District 8 in order to show the level of vulnerability.

Figure B.10 shows the wildfire hazard potential for Forrest County. Most of the planning areas falls within the low to high category.

FIGURE B.10: WILDFIRE RISK AREAS IN FORREST COUNTY



Source: U.S. Forrest Service

Social Vulnerability

Although not all areas have equal vulnerability, there is some susceptibility across the entire county. It is assumed that the total population is at risk to the wildfire hazard. Determining the exact number of people in certain wildfire zones is difficult with existing data and could be misleading.

Critical Facilities

The critical facility analysis revealed that there are 18 critical facilities located in an area considered low risk valued at over $12.7M. There are 25 critical facilities located in an area considered moderate risk valued at $27.4M. There are 53 structures located in an area considered high risk, valued at over $124.7M. It should be noted, however, that several factors could impact the spread of a wildfire putting all facilities at risk. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

In conclusion, a wildfire event has the potential to impact many existing and future buildings, critical facilities, and populations in Forrest County.

EARTHQUAKE

The HAZUS-MH earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS-MH model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS-MH 4.2 estimates a total exposure of approximately $20,561,000 which includes buildings, inventory, and contents throughout the region. While this number is not an exact representation of assessed tax value, it is helpful in assessing the results of the HAZUS-MH scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS-MH estimates that no buildings would be moderately damaged.

Social Vulnerability

It can be assumed that all existing future populations are at risk to the earthquake hazard. No fatalities or injuries were reported in the above HAZUS-MH arbitrary scenario.

Critical Facilities

There are 206 critical facilities identified for Forrest County, valued at over $336M. All are vulnerable to the earthquake hazard.

In conclusion, an earthquake has the potential to impact all existing and future buildings, facilities, and populations in Forrest County. The HAZUS-MH scenario indicates that minimal damage is expected from an earthquake occurrence. While Forrest County may not experience a large earthquake (there are none on record), localized damage is possible with an occurrence. A list of specific critical facilities and their associated risk can be found in **Table B.32** at the end of this section.

HURRICANE AND TROPICAL STORM

Historical evidence indicates that Forrest County has an elevated risk to the hurricane and tropical storm hazard. Several tracks have come near or traversed through the county, as shown and discussed in Section B.2.10.

Hurricanes and tropical storms can cause damage through numerous additional hazards such as flooding, erosion, tornadoes, and high winds, thus it is difficult to estimate total potential losses from these cumulative effects. The current HAZUS-MH hurricane model only analyzes hurricane winds and is not capable of modeling and estimating cumulative losses from all hazards associated with hurricanes; therefore, only hurricane winds are analyzed in this section. It can be assumed that all existing and future buildings and populations are at risk to the hurricane and tropical storm hazard. HAZUS-MH 4.2 was used to determine vulnerability to the hazard for a 100-Year event. There are an estimated 100,000 buildings in the region with a total building replacement value of $20,562,000. A 100-year probabilistic scenario was created and modeled. HAZUS-MH estimated that approximately 1,892 buildings would be at least moderately damaged by the event; this is over two percent of the buildings in the Region. There is an estimated 69 buildings that would be damaged beyond repair.

Economic Losses

HAZUS-MH estimated economic losses for the scenario event. HAZUS-MH estimated losses at $349.5M, which represents 1.7 percent of the total replacement value of the region's buildings. Nine percent of the losses were related to business interruption in the scenario region. 88 percent of the losses were sustained by residential structures.

Debris Generation

As part of the scenario, HAZUS-MH estimated the amount of debris that would be generated by the event. The types of debris considered were brick/wood, reinforced concrete/steel, eligible tree debris, and other tree debris. HAZUS-MH estimated that a total of 2,165,680 tons of debris would be generated by the event. Of that amount, 93 percent would be other tree debris, approximately 1.5 percent would be brick/wood, and the rest would comprise of would be eligible tree debris and brick/wood. Assuming a load of 25 tons per truck, this would equate to 1,190 truckloads of debris from this scenario.

Social Vulnerability

Given equal susceptibility across the county, it is assumed that the total population is at risk to the hurricane and tropical storm hazard.

Critical Facilities

Given equal vulnerability across Forrest County, all critical facilities are considered to be at risk. Some buildings may perform better than others in the face of such an event due to construction and age, among other factors. There are 206 critical facilities identified for Forrest County, valued at $336M. Some buildings may perform better than others in the face of such an event due to construction and age, among other factors. Determining individual building response is beyond the scope of this plan. However, this plan will consider mitigation action for especially vulnerable and/or critical facilities to mitigation against the effects of the hurricane hazard. A list of specific critical facilities can be found in **Table A.32** at the end of this section.

In conclusion, a hurricane event has the potential to impact many existing and future buildings, critical facilities, and populations in Forrest County. Hurricane events can cause substantial damage in their wake including fatalities, extensive debris clean-up, and extended power outages.

HAZARDOUS MATERIALS INCIDENT

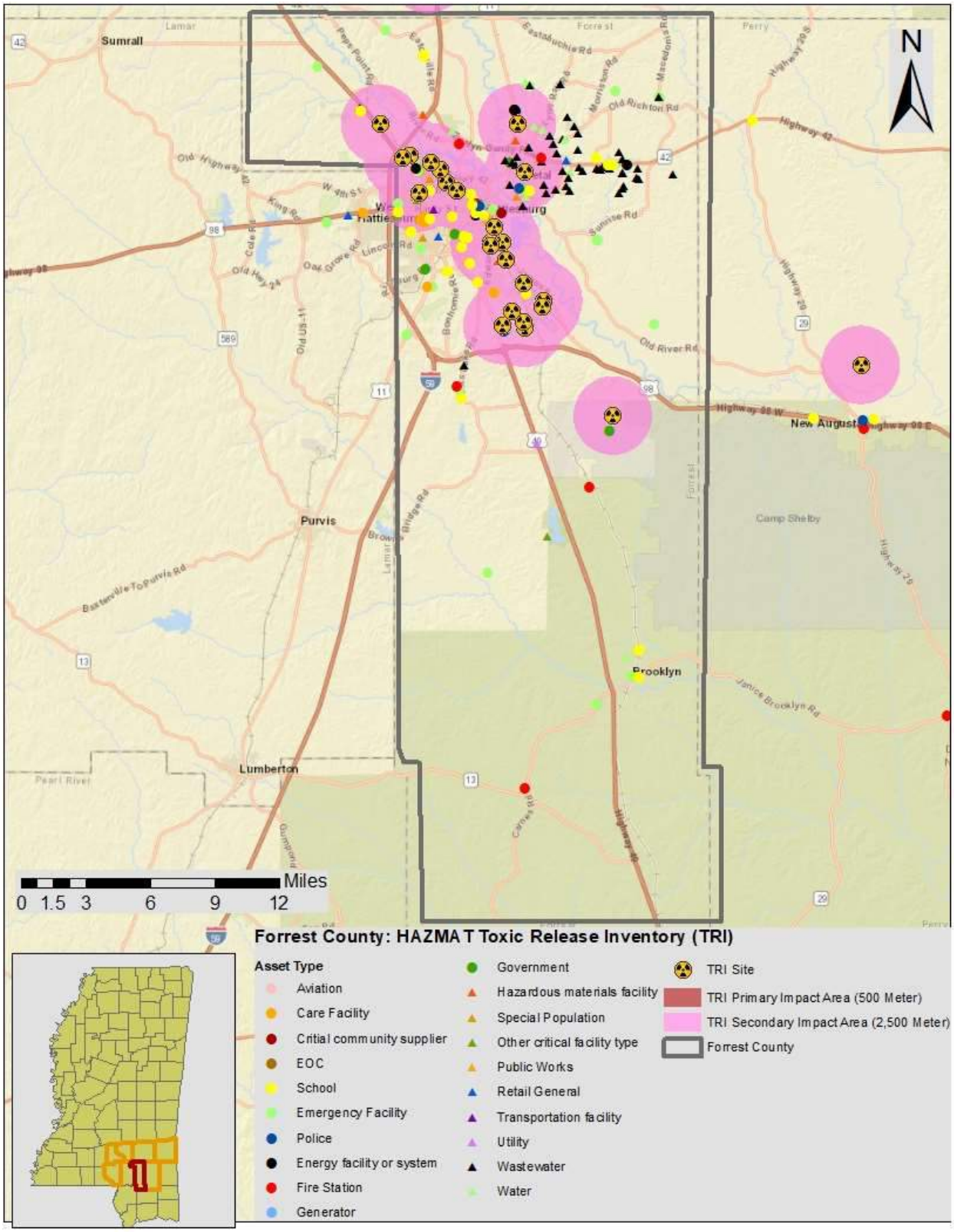
Although historical evidence and existing Toxic Release Inventory sites indicate that Forrest County is susceptible to hazardous materials events, there are few reports of damage.

Most hazardous materials incidents that occur are contained and suppressed before destroying any property or threatening lives. However, they can have a significant negative impact. Such events can cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. In a hazardous materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions will directly affect how the hazard develops. Certain chemicals may travel through the air or water, affecting a much larger area than the point of the incidence itself. Non-compliance with fire and building codes, as well as failure to maintain existing fire and containment features, can substantially increase the damage from a hazardous materials release. The duration of a hazardous materials incident can range from hours to days. Warning time is minimal to none.

In order to conduct the vulnerability assessment for this hazard, GIS intersection analysis was used for fixed and mobile areas and parcels.[17] In both scenarios, two sizes of buffers—500 and 2,500 meters—were used. These areas are assumed to respect the different levels of effect: immediate (primary) and secondary. Primary and secondary impact sites were selected based on guidance from FEMA 426, Reference Manual to Mitigate Potential Terrorist Attacks against Buildings and engineering judgment. For the fixed site analysis, geo-referenced TRI listed toxic sites in Forrest County, along with buffers, were used for analysis. There are several TRI sites located in Forrest County**.** For the mobile analysis, the major roads (Interstate highway, U.S. highway, and State highway) and railroads, where hazardous materials are primarily transported that could adversely impact people and buildings, were used for the GIS buffer analysis.

[17] This type of analysis will likely yield conservative results (generally higher than what is actually reported after an event).

1103 **FIGURE B.3 : TRI SITES WITH BUFFERS IN FORREST COUNTY**



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Social Vulnerability

Given high susceptibility across the entire county, it is assumed that the total population is at risk to a hazardous materials incident. It should be noted that areas of population concentration may be at an elevated risk due to a greater burden to evacuate population quickly.

Critical Facilities

Fixed Site Analysis:

The critical facility analysis for fixed TRI sites revealed that there are 18 critical facilities that would be impacted by only the 500M HAZMAT risk zone, which are valued at over $59.2M. There are 110 critical facilities that would be impacted by the 2500M HAZMAT risk zone, valued at over $297.5M. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

Mobile Analysis:

The critical facility analysis for transportation corridors in Covington County revealed that there are 15critical facilities located in the 500M Highway mobile HAZMAT buffer areas valued at over $8M, and there are 8 critical facilities located in the 500M Railway mobile HAZMAT buffer areas valued at approximately $3M.

Expanding to a 2500M HAZMAT risk zone reveals there are 130 critical facilities located in the highway mobile HAZMAT buffer areas are vulnerable, valued at over $330M. There are 119 critical facilities located in the railway mobile HAZMAT buffer area that are vulnerable, valued at over $319M. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

In conclusion, a hazardous material incident has the potential to impact many existing and future buildings, critical facilities, and populations in Forrest County. Those areas in a primary buffer are at the highest risk, though all areas carry some vulnerability due to variations in conditions that could alter the impact area (i.e., direction and speed of wind, volume of release, etc). Further, incidents from neighboring counties could also impact the county and participating jurisdictions.

CONCLUSIONS ON HAZARD VULNERABILITY

Table B.24 shows the critical facilities vulnerable to additional hazards analyzed in this section. The table lists those assets that are determined to be exposed to each of the identified hazards (marked with an "**X**").

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TABLE B.32: AT-RISK CRITICAL FACILITIES IN FORREST COUNTY

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER				
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[18]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT 500 METER	Mobile HZMT 2,500 meter	Wildfire
Forrest County																			
Forrest County EOC	EOC	X	X	X	X	X	X	X	X								X	X	
J. E. Johnson Elementary School	School	X	X	X	X	X	X	X	X									X	
Petal Police Department	Police Station	X	X	X	X	X	X	X	X								X	X	
Hattiesburg Fire Department	Fire Station	X	X	X	X	X	X	X	X										
Five County Child Development Program (Petal)	School	X	X	X	X	X	X	X	X								X	X	
Five County Child Development Program (Hattiesburg)	School	X	X	X	X	X	X	X	X										
Hattiesburg High School	School	X	X	X	X	X	X	X	X									X	
Carver Elementary School	School	X	X	X	X	X	X	X	X									X	
Forrest Community Hospital	Medical	X	X	X	X	X	X	X	X								X	X	
Forrest Sheriff	Police Station	X	X	X	X	X	X	X	X								X	X	
Petal Fire Department	Fire Station	X	X	X	X	X	X	X	X								X	X	
Petal Senior High School	School	X	X	X	X	X	X	X	X									X	
Petal Christian School	School	X	X	X	X	X	X	X	X								X	X	
Jeff Davis Co Voc Tech Center	School	X	X	X	X	X	X	X	X									X	

[18] As noted previously, these facilities could be at risk to dam failure if located in an inundation area. Data was not available to conduct such an analysis. There was no local knowledge of these facilities being at risk to dam failure. As additional data becomes available, more in-depth analysis will be conducted.

B.4 FORREST COUNTY CAPABILITY ASSESSMENT

This subsection discusses the capability of Forrest County to implement hazard mitigation activities. More information on the purpose and methodology used to conduct the assessment can be found in Section 7: *Capability Assessment*.

B.4.1 Planning and Regulatory Capability

Table B.25 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for Forrest County. A checkmark (✓) indicates that the given item is currently in place and being implemented. An asterisk (*) indicates that the given item is currently being developed for future implementation. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the MEMA District 8 Regional Hazard Mitigation Plan.

TABLE B.33: RELEVANT PLANS, ORDINANCES, AND PROGRAMS

Planning Tool/Regulatory Tool	Hazard Mitigation Plan	Comprehensive Land Use Plan	Floodplain Management Plan	Open Space Management Plan (Parks & Rec/Greenway Plan	Stormwater Management Plan/Ordinance	Natural Resource Protection Plan	Flood Response Plan	Emergency Operations Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	National Flood Insurance Program (NFIP)	NFIP Community Rating System
FORREST COUNTY	✓			✓	✓			✓					✓		✓		✓					✓	
Hattiesburg	✓	✓	✓	✓	✓			✓		✓	✓		✓		✓	✓	✓	✓		✓	✓	✓	✓
Petal	✓	✓		✓	✓			✓					✓		✓	✓	✓			✓	✓	✓	

A more detailed discussion on the county's planning and regulatory capabilities follows.

EMERGENCY MANAGEMENT

Hazard Mitigation Plan
Forrest County has previously adopted a hazard mitigation plan. The Town of Hattiesburg and the Town of Petal were also included in this plan.

Emergency Operations Plan
Forrest County maintains an emergency operations plan through its Emergency Management Agency. The Town of Hattiesburg and the Town of Petal are each covered by this plan.

GENERAL PLANNING

Comprehensive Land Use Plan
Forrest County has not adopted a county comprehensive land use plan. However, the Town of Hattiesburg adopted a community development plan in 1972 and Town of Petal adopted a comprehensive plan in 1973.

Zoning Ordinance
Forrest County does not have a zoning ordinance in place. However, the Town of Hattiesburg and Town of Petal have zoning ordinances that were adopted in 1972 and 1973, respectively.

Subdivision Ordinance
Forrest County does not have a subdivision ordinance in place. However, the Town of Hattiesburg and Town of Petal adopted subdivision regulations in 1972 and 1966, respectively.

Building Codes, Permitting, and Inspections
Forrest County has not adopted a building code. However, the Town of Hattiesburg and the Town of Petal have both adopted building codes.

FLOODPLAIN MANAGEMENT

Table B.26 provides NFIP policy and claim information for each participating jurisdiction in Forrest County.

TABLE B.34: NFIP POLICY AND CLAIM INFORMATION

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance in Force	Closed Claims	Total Payments to Date
FORREST COUNTY†	12/17/10	12/17/10(M)	7	$762,600	0	$0
Hattiesburg*	4/3/1970	3/16/2015	472	$500,296	1,092	$5,285,448
Petal	12/17/10	12/17/10(M)	0	$0	2	$4,613

†Includes unincorporated areas of county only
*Community does not participate in the NFIP
(M) – No Elevation Determined, All Zone A, C and X
Source: NFIP Community Status information as of 3/31/13; NFIP claims and policy information as of 5/15/13

Flood Damage Prevention Ordinance
All communities participating in the NFIP are required to adopt a local flood damage prevention ordinance. Forrest County, Town of Petal, and City of Hattiesburg all participate in the NFIP and have adopted flood damage prevention ordinances.

Open Space Management Plan
Forrest County, the Town of Hattiesburg, and the Town of Petal are all included in the Southern Mississippi Planning and Development District (SMPDD) Regional Open Space Plan that was written in 1973.

B.4.2 Administrative and Technical Capability

Table B.27 provides a summary of the capability assessment results for Forrest County with regard to relevant staff and personnel resources. A checkmark (✓) indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill.

TABLE B.35: RELEVANT STAFF / PERSONNEL RESOURCES

Staff / Personnel Resource	Planners with knowledge of land development/land management practices	Engineers or professionals trained in construction practices related to buildings and/or infrastructure	Planners or engineers with an understanding of natural and/or human-caused hazards	Emergency Manager	Floodplain Manager	Land Surveyors	Scientists familiar with the hazards of the community	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS and/or Hazus	Resource development staff or grant writers
FORREST COUNTY	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Hattiesburg	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Petal	✓	✓	✓	✓	✓	✓	✓	✓		

Credit for having a floodplain manager was given to those jurisdictions that have a flood damage prevention ordinance, and therefore an appointed floodplain administrator, regardless of whether the appointee was dedicated solely to floodplain management. Credit was given for having a scientist familiar with the hazards of the community if a jurisdiction has a Cooperative Extension Service or Soil and Water Conservation Department. Credit was also given for having staff with education or expertise to assess the community's vulnerability to hazards if a staff member from the jurisdiction was a participant on the existing hazard mitigation plan's planning committee.

B.4.3 Fiscal Capability

Table B.28 provides a summary of the results for Forrest County with regard to relevant fiscal resources. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard mitigation purposes (including match funds for state and federal mitigation grant funds) according to the previous county hazard mitigation plan.

TABLE B.36: RELEVANT FISCAL RESOURCES

Fiscal Tool / Resource	Capital Improvement Programming	Community Development Block Grants (CDBG)	Special Purpose Taxes (or taxing districts)	Gas/Electric Utility Fees	Water/Sewer Fees	Stormwater Utility Fees	Development Impact Fees	General Obligation, Revenue, and/or Special Tax Bonds	Partnering Arrangements or Intergovernmental Agreements
FORREST COUNTY	✓	✓						✓	✓
Hattiesburg	✓	✓	✓			✓		✓	✓
Petal	✓	✓						✓	✓

B.4.4 Political Capability

During the months immediately following a disaster, local public opinion in Forrest County is more likely to shift in support of hazard mitigation efforts.

B.5 FORREST COUNTY MITIGATION STRATEGY

This subsection provides the blueprint for Forrest County to follow in order to become less vulnerable to its identified hazards. It is based on general consensus of the Regional Hazard Mitigation Council and the findings and conclusions of the capability assessment and risk assessment. Additional Information can be found in Section 8: *Mitigation Strategy* and Section 9: *Mitigation Action Plan*.

B.5.1 Mitigation Goals

Forrest County developed five mitigation goals in coordination with the other participating MEMA District 8 Region jurisdictions. The regional mitigation goals are presented in **Table B.29**.

TABLE B.37: MEMA DISTRICT 8 REGIONAL MITIGATION GOALS

	Goal
Goal #1	Encourage the development and maintenance of facilities and infrastructure that will mitigate hazards
Goal #2	Foster an on-going community education program on hazard mitigation safety and preparation.
Goal #3	Enhance response procedures and capabilities.

	Goal
Goal #4	Utilize technology to protect and develop records and data.

B.5.2 Mitigation Action Plan

The mitigation actions proposed by Forrest County, the Town of Hattiesburg, and the Town of Petal are listed in the following individual Mitigation Action Plans.

Forrest County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	None needed	No additional cost	County	Annual review	Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	Emergency Management District, County	Within 1 year; Upon request	Ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	County Floodplain Administrator	Ongoing	Ongoing
P-4	Consider adoption of subdivision regulations in Forrest County.	TH, FL, HU, TS	High	Self-funded	No cost	County	Ongoing	Completed and Ongoing as Needed
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	Self-funded	Part of annual County budget	County BOS, County Road Crews	Annual review	Ongoing as Funding Is Available
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	No additional cost	County	Within 5 years	The County is still considering this action/Ongoing
P-7	Map the easements and rights-of-way of roadways and drainage ways. **Goal 4 Action #2*	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	The County is still considering this action/Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-8	Support the development of a shared geographic data system for land use and site planning. **Goal 4 Action #1*	All	High	Self-funded	No additional cost	County	Ongoing	Ongoing
P-9	Develop a comprehensive development plan. **Goal 1 Action #3*	All	Low	CDBG, MSDA	Unknown	County	Within 5 years	The County is still considering this action
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	CDBG, MSDA	No additional cost	County	Concurrent with prep. of Comp Plan	The County is still considering this action/Ongoing
P-11	Address the threat of unhealthy trees that are near critical facilities. **Goal 1 Action #7*	High Winds, Winter Storms and Hail	Medium	Local funds and Grant Sources	T TBD	City Urban Forestry, Forrest County Road Department, Forrest County Planning Department and Emergency Management	Ongoing	Ongoing
P-12	Address the local need of debris removal and related items after a storm . **Goal 3 Action #1*	High Winds, Flooding, Landslides, Winter Storms, and Hail	High	HMGP and other grant sources	$500,000	Forrest County Road Department, Forrest County Planning Department and Emergency Management	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-13	Preserve classified, confidential and/or important governmental documents. **Goal 4 Action #3*	All Hazards	High	Local and Grant Sources	TBD	County	Ongoing	Ongoing
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	High	Self-funded	No additional cost $10,000,000-$15,000,000	County	Within 5 years	Two Completed and Ten Underway. Action is Ongoing
PP-2	Ensure that structures in floodplain areas are elevated. **Goal 1 Action #1*	FL	High	Self-funded	No additional cost	County	2024	New construction is regulated by the flood damage prevention ordinance. Existing structures in the flood zone that need to be elevated will be evaluated on a case by case basis pending funding and desire to be elevated. /Ongoing
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County	2024	Ongoing
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County	2024	Ongoing as funding becomes available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	2024	Ongoing pending funding availability
PP-6	Actively pursue and buy those properties that are considered repetitive loss properties. **Goal 1 Action #4*	FL	High	HMGP, PDM, FMA Self-funded	TBD	County	2024	Ongoing
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust of MS Coastal Plain; County	2024	Ongoing pending funding availability
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	Emergency Management District	2024	Ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	Emergency Management District, County	Within 2 years	Ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters. **Goal 1 Action #8*	All	High	HMGP	Unknown	Emergency Management District, County	Within 2 years	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	Emergency Management District, County	Within 2 years	Ongoing
ES-5	Improve disaster communication systems within the County.	All	High	State, Federal, Local funds	Unknown	Emergency Management District, County	2024	Ongoing
ES-6	Consider generators for local radio station service areas.	All	High	State, Federal funds	Unknown	Emergency Management District, County	Contingent upon funding	Ongoing
ES-7	Install warning sirens in each jurisdiction. **Goal 2 Action #3*	All	High	State, Federal, Local funds	Unknown	Emergency Management District, County	Contingent upon funding	Ongoing pending funding availability 5 Installed and Ongoing
ES-8	Explore upgrade/enhancement of 911 system in Forrest County.	All	Medium	HMGP	Unknown	Emergency Management District, County	Within 2 years; Contingent upon funding	Ongoing – contingent on funding Some Portions complete
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	Emergency Management District, County	Ongoing	Completed pending upgrades
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, Emergency Management District	Within 2 years	Ongoing
ES-11	Enhance identification of evacuation routes through distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	Emergency Management District	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities. **Goal 1 Action #2*	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	Ongoing – contingent on funding
ES-14	Host a meeting to review Forrest County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	Emergency Management District, County	Ongoing	Completed
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	Ongoing – contingent on funding. Added paid firemen and approximately five fire trucks for Districts 2, 3, and 5.
ES-16	Adoption of building codes in Forrest County. **Goal 1 Action #5*	All Hazards	Medium	Local	TBD	County	2025	Deferred
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County	Within 2 years	Ongoing as needed
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County	Within 2 years	Ongoing – contingent on funding
PEA-2	Provide education and outreach materials to citizens and visitors. **Goal 2 Action #2*	All	High	Self-funded	No cost	Emergency Management District	Within 1 year	Ongoing – contingent on funding
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	Emergency Management District	Annual presentations	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	Emergency Management District, County	Upon request	Ongoing – contingent on funding
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program. **Goal 2 Action #1*	FL	High	Self-funded	N/A	Emergency Management District, County	Ongoing	The County continues to participate in the NFIP and encourages the jurisdictions within the County to also join.
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County	Within 3 years	The County is still considering joining the CRS.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	Medium	DHS, SAFER, COPS, FIRE, Others	TBD	County	Within 2 years	Ongoing – contingent on funding
PEA-8	Discourage development within the Special Flood Hazard Area and in the floodway. **Goal 1 Action #6*	Flood	Medium	HMGP	TBD	County	Ongoing	Ongoing

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

JDCEMA = Forrest County Emergency Management Agency County BOS = Forrest County Board of Supervisors
**Denotes Action item from 2013 Forrest County HMP, no numbering methodology was utilized in the 2013 planning process, numbers were assigned based on Goal and associated action item on pages 5-2 and 5-3.*

City of Hattiesburg Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	Self-funded	No additional cost	County, Town Emergency Management District	Annual review	Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	No additional cost	Emergency Management District, County, Town	Within 1 year; Upon request	Ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	Town Floodplain Administrator	Ongoing	Ongoing
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	FL	High	Self-funded	No additional cost	Town	Ongoing	Completed and Ongoing as Needed
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	Self-funded	Budget restraints	County BOS, County Road Crews, Town	Annual review	Ongoing as Funding Is Available
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years	The Town is still considering this action/Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-7	Map the easements and rights-of-way of roadways and drainage ways. **Goal 4 Action #2*	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years	The Town is still considering this action/Ongoing
P-8	Support the development of a shared geographic data system for land use and site planning. **Goal 4 Action #1*	All	Medium to High	Self-funded	No additional cost	County, Town	Ongoing	Ongoing
P-9	Develop a comprehensive development plan. **Goal 1 Action #3*	All	High	CDBG, MSDA	Unknown	County, Town, Emergency Management District	Within 5 years	The Town is still considering this action
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	Self-funded	No additional cost	County, Town, Emergency Management District	Concurrent with prep. of Comp Plan	Complete and Ongoing
P-11	Address the threat of unhealthy trees that are near critical facilities. **Goal 1 Action #7*	High Winds, Winter Storms and Hail	Medium	Local funds and Grant Sources	T TBD	City Urban Forestry, Forrest County Road Department, Forrest County Planning Department and Emergency Management	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-12	Address the local need of debris removal and related items after a storm . **Goal 3 Action #1*	High Winds, Flooding, Landslides, Winter Storms, and Hail	High	HMGP and other grant sources	$500,000	Forrest County Road Department, Forrest County Planning Department and Emergency Management	Ongoing	Ongoing
P-13	Preserve classified, confidential and/or important governmental documents. **Goal 4 Action #3*	All Hazards	High	Local and Grant Sources	TBD	County and City	Ongoing	Ongoing
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County, Town	Within 5 years	Two Completed and Ten Underway. Action is Ongoing
PP-2	Ensure that structures in floodplain areas are elevated. **Goal 1 Action #1*	FL	High	Self-funded	No additional cost	County, Town	2024	New construction is regulated by the flood damage prevention ordinance. Existing structures in the flood zone that need to be elevated will be evaluated on a case by case basis pending funding and desire to be elevated. /Ongoing
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County, Town	2024	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Budget restraints	County, Town	2024	Ongoing as funding becomes available
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	2024	Ongoing pending funding availability
PP-6	Actively pursue and buy those properties that are considered repetitive loss properties. **Goal 1 Action #4*	FL	High	HMGP, PDM, FMA Self-funded	TBD	County	2024	Ongoing
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust of MS Coastal Plain; County, Town	2024	Ongoing pending funding availability
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	Emergency Management District	2024	Ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	Emergency Management District, Town	Within 2 years	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters. **Goal 1 Action #8*	All	High	HMGP	Unknown	Emergency Management District, County, Town	Within 2 years	Ongoing
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	Emergency Management District, County, Town	Within 2 years	Ongoing
ES-5	Improve disaster communication systems within the County.	All	High	State, Federal, Local funds	Unknown	Emergency Management District, County	2024	Ongoing
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	State, Federal funds	Unknown	Emergency Management District, County	Contingent upon funding	Ongoing
ES-7	Install warning sirens in each jurisdiction. **Goal 2 Action #3*	TO, HU, TS	High	State, Federal, Local funds	Unknown	Emergency Management District, County	Contingent upon funding	Ongoing pending funding availability 5 Installed and Ongoing
ES-8	Explore upgrade/enhancement of 911 system in Forrest County.	All	Medium	HMGP	Unknown	Emergency Management District, County, Town	Within 2 years; Contingent upon funding	Ongoing – contingent on funding Some Portions complete
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	Emergency Management District, County, Town	Ongoing	Completed pending upgrades
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, Emergency Management District, Town	Within 2 years	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-11	Enhance identification of evacuation routes through distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	Emergency Management District	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities. **Goal 1 Action #2*	All	High	HMGP	No additional costs	County, Town	Within 2 years; Next round of HMGP funding	Ongoing – contingent on funding
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town, Emergency Management District	Within 5 years; Annual review	Ongoing – contingent on funding
ES-14	Host a meeting to review Forrest County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County, Town, Emergency Management District	Ongoing	Completed
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	Ongoing – contingent on funding. Added paid firemen and approximately five fire trucks for Districts 2, 3, and 5.
ES-16	Adoption of building codes in Forrest County. **Goal 1 Action #5*	All Hazards	Medium	Local	TBD	County and City	2025	Deferred
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years	Ongoing as needed

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County, Town	Within 2 years	Ongoing – contingent on funding
PEA-2	Provide education and outreach materials to citizens and visitors. **Goal 2 Action #2*	All	High	Self-funded	No cost	Emergency Management District	Within 1 year	Ongoing – contingent on funding
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	Emergency Management District	Annual presentations	Ongoing – contingent on funding
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County, Town	Upon request	Ongoing – contingent on funding
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program. **Goal 2 Action #1*	FL	High	Self-funded	N/A	County	Ongoing	The County continues to participate in the NFIP and encourages the jurisdictions within the County to also join.
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years	The County is still considering joining the CRS.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Within 2 years	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-8	Discourage development within the Special Flood Hazard Area and in the floodway. **Goal 1 Action #6*	Flood	Medium	HMGP	TBD	County and City	Ongoing	Ongoing

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

JDCEMA = Forrest County Emergency Management Agency County BOS = Forrest County Board of Supervisors
**Denotes Action item from 2013 Forrest County HMP, no numbering methodology was utilized in the 2013 planning process, numbers were assigned based on Goal and associated action item on pages 5-2 and 5-3.*

Town of Petal Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	None needed	No additional cost	County	Annual review	Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	JDCEMA, County	Within 1 year; Upon request	Ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	County Floodplain Administrator	Ongoing	Ongoing
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	TH, FL, HU, TS	High	Self-funded	No cost	County	Ongoing	Completed and Ongoing as Needed
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	Self-funded	Part of annual County budget	County BOS, County Road Crews	Annual review	Ongoing as Funding Is Available
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	No additional cost	County	Within 5 years	The Town is still considering this action/Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-7	Map the easements and rights-of-way of roadways and drainage ways. **Goal 4 Action #2*	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	The Town is still considering this action/Ongoing
P-8	Support the development of a shared geographic data system for land use and site planning. **Goal 4 Action #1*	All	Medium to High	Self-funded	No additional cost	County	Ongoing	Ongoing
P-9	Update the existing Petal Comprehensive Development Plan. **Goal 1 Action #3*	All	High	CDBG, MSDA	Unknown	County	Within 5 years	The Town is still considering this action
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	CDBG, MSDA	No additional cost	County	Concurrent with prep. of Comp Plan	The Town is still considering this action/Ongoing
P-11	Address the threat of unhealthy trees that are near critical facilities. **Goal 1 Action #7*	High Winds, Winter Storms and Hail	Medium	Local funds and Grant Sources	T TBD	City Urban Forestry, Forrest County Road Department, Forrest County Planning Department and Emergency Management	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-12	Address the local need of debris removal and related items after a storm . **Goal 3 Action #1*	High Winds, Flooding, Landslides, Winter Storms, and Hail	High	HMGP and other grant sources	$500,000	Forrest County Road Department, Forrest County Planning Department and Emergency Management	Ongoing	Ongoing
P-13	Preserve classified, confidential and/or important governmental documents. **Goal 4 Action #3*	All Hazards	High	Local and Grant Sources	TBD	County and City	Ongoing	Ongoing
P-14	Provide first responders in Petal with necessary equipment and training to respond to gas plant disasters. **Goal 3 Action #2*	HAZMAT	High	HMGP	$850,000	City of Petal Fire Department	Ongoing	Ongoing
P-15	Develop a police response unit in Petal designed to deter acts of terrorism. **Goal 3 Action #3*	Terrorism	High	Grant Sources	TBD	City of Petal Fire Department	Ongoing	Ongoing
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	HU, TS, TO, TH	Medium	Self-funded	No additional cost	Within 5 years	Two Completed and Ten Underway. Action is Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-2	Ensure that structures in floodplain areas are elevated. **Goal 1 Action #1*	FL	FL	High	Self-funded	No additional cost	2024	New construction is regulated by the flood damage prevention ordinance. Existing structures in the flood zone that need to be elevated will be evaluated on a case by case basis pending funding and desire to be elevated. /Ongoing
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	HU, TS, TO, HW	High	Self-funded	No additional cost	2024	Ongoing
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	All	High	HMGP	Unknown	2024	Ongoing as funding becomes available
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	2024	Ongoing pending funding availability
PP-6	Actively pursue and buy those properties that are considered repetitive loss properties. **Goal 1 Action #4*	FL	High	HMGP, PDM, FMA Self-funded	TBD	County	2024	Ongoing
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust of MS Coastal Plain; County, Town	2024	Ongoing pending funding availability

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	JDCEMA	2024	Ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	JDCEMA, County	Within 2 years	Ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters. **Goal 1 Action #8*	All	High	HMGP	Unknown	JDCEMA, County	Within 2 years	Ongoing
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	JDCEMA, County	Within 2 years	Ongoing
ES-5	Improve disaster communication systems within the County.	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	2024	Ongoing
ES-6	Consider generators for local radio station service areas.	All	High	State, Federal funds	Unknown	JDCEMA, County	Contingent upon funding	Ongoing
ES-7	Install warning sirens in each jurisdiction. **Goal 2 Action #3*	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	Contingent upon funding	Ongoing pending funding availability 5 Installed and Ongoing
ES-8	Explore upgrade/enhancement of 911 system in Forrest County.	All	Medium	HMGP	Unknown	JDCEMA, County	Within 2 years; Contingent upon funding	Ongoing – contingent on funding Some Portions complete
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	JDCEMA, County	Ongoing	Completed pending upgrades

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, JDCEMA	Within 2 years	Ongoing
ES-11	Enhance identification of evacuation routes through distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	JDCEMA	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities. **Goal 1 Action #2*	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Ongoing – contingent on funding
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	Ongoing – contingent on funding
ES-14	Host a meeting to review Forrest County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County	Ongoing	Completed
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	Ongoing – contingent on funding. Added paid firemen and approximately five fire trucks for Districts 2, 3, and 5.
ES-16	Adoption of building codes in Forrest County. **Goal 1 Action #5*	All Hazards	Medium	Local	TBD	County and City	2025	Deferred
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years	Ongoing as needed

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County, Town	Within 2 years	Ongoing – contingent on funding
PEA-2	Provide education and outreach materials to citizens and visitors. **Goal 2 Action #2*	All	High	Self-funded	No cost	JDCEMA	Within 1 year	Ongoing – contingent on funding
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	JDCEMA	Annual presentations	Ongoing – contingent on funding
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	JDCEMA, County, Town	Upon request	Ongoing – contingent on funding
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program. **Goal 2 Action #1*	FL	High	Self-funded	N/A	Town	Ongoing	The County continues to participate in the NFIP and encourages the jurisdictions within the County to also join.
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years	The County is still considering joining the CRS.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Within 2 years	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-8	Discourage development within the Special Flood Hazard Area and in the floodway. **Goal 1 Action #6*	Flood	Medium	HMGP	TBD	County and City	Ongoing	Ongoing

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

JDCEMA = Forrest County Emergency Management County BOS = Forrest County Board of Supervisors
**Denotes Action item from 2013 Forrest County HMP, no numbering methodology was utilized in the 2013 planning process, numbers were assigned based on Goal and associated action item on pages 5-2 and 5-3.*

[i] USGS. Landslide Hazard, Retrieved August 2019 from, https://www.usgs.gov/natural-hazards/landslide-hazards/science/rainfall-induced-landslides

Annex C
Jefferson Davis County

This annex includes jurisdiction-specific information for Jefferson Davis County and its participating municipalities. It consists of the following five subsections:

- C.1 Jefferson Davis County Community Profile
- C.2 Jefferson Davis County Risk Assessment
- C.3 Jefferson Davis County Vulnerability Assessment
- C.4 Jefferson Davis County Capability Assessment
- C.5 Jefferson Davis County Mitigation Strategy

C.1 JEFFERSON DAVIS COUNTY COMMUNITY PROFILE

C.1.1 Geography and the Environment

Jefferson Davis County is located in south central Mississippi approximately 2 hours from New Orleans and the Mississippi Gulf Coast. It comprises two towns, the Town of Bassfield and the Town of Prentiss, as well two small unincorporated communities. An orientation map is provided as **Figure C.1**.

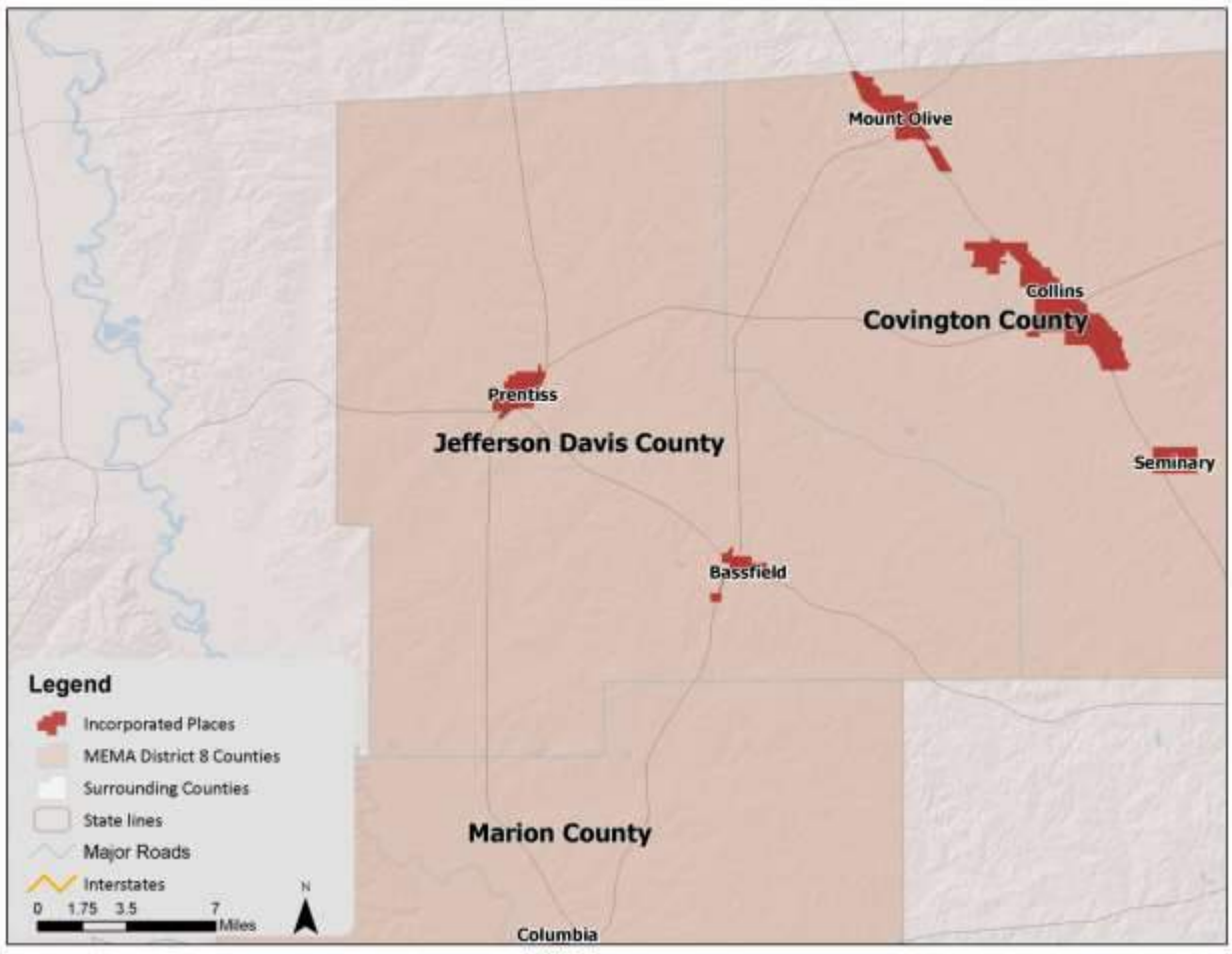
The county is a rural area of which 65 percent is characterized as forest land devoted primarily to timber production and recreation hunting. The total area of the county is 409 square miles, less than 1 square mile of which is water area.

In Prentiss, the summers are long, hot, and oppressive; the winters are short and cold; and it is wet and partly cloudy year-round. Over the course of the year, the temperature typically varies from 39°F to 91°Fand is rarely below 25°F or above 96°F.

The hot season lasts for 4.2 months, from May 20 to September 25, with an average daily high temperature above 84°F. The hottest day of the year is July 23, with an average high of 91°F and low of 72°F. The cool season lasts for 2.8 months, from November 30 to February 22, with an average daily high temperature below 65°F. The coldest day of the year is January 17, with an average low of 39°F and high of 59°F.

A wet day is one with at least 0.04 inches of liquid or liquid-equivalent precipitation. The chance of wet days in Prentiss varies throughout the year. The wetter season lasts 3.0 months, from May 26 to August 28, with a greater than 35% chance of a given day being a wet day. The chance of a wet day peaks at 50% on July 19. The drier season lasts 9.0 months, from August 28 to May 26. The smallest chance of a wet day is 21% on October 8. Among wet days, we distinguish between those that experience rain alone, snow alone, or a mixture of the two. Based on this categorization, the most common form of precipitation throughout the year is rain alone, with a peak probability of 50% on July 19. Rain falls throughout the year in Prentiss. The most rain falls during the 31 days centered around February 14, with an average total accumulation of 5.7 inches. The least rain falls around October 4, with an average total accumulation of 3.1 inches.

FIGURE C.1: JEFFERSON DAVIS COUNTY ORIENTATION MAP



C.1.2 Population and Demographics

According to the 2010 Census, Jefferson Davis County has a population of 12,487 people. The county has seen almost 13% growth between 2000 and 2010, and the population density is 31 people per square mile. The growth continues to decline. Per the Census Reports, in 2017, Jefferson Davis County had a population of 11,314, which is a .90 percent decrease since 2010. The household income is $26,736, which grew 1.16 percent. Population counts from the US Census Bureau for 1990, 2000, and 2010 for the county and both of the participating jurisdictions are presented in **Table C.1**. Estimates for 2017 are also included.

TABLE C.1: POPULATION COUNTS FOR JEFFERSON DAVIS COUNTY

Jurisdiction	1990 Census Population	2000 Census Population	2010 Census Population	% Change 2000-2010	Estimated 2017 Census Population
Jefferson Davis County	**14,051**	**13,962**	**12,487**	**-10.6%**	**11,314**
Bassfield	249	315	254	-19.4%	216

Jurisdiction	1990 Census Population	2000 Census Population	2010 Census Population	% Change 2000-2010	Estimated 2017 Census Population
Prentiss	1,487	1,158	1,081	-6.6%	960

Source: US Census Bureau

Based on the 2010 Census, the median age of residents of Jefferson Davis County is 41.0 years. The racial characteristics of the county are presented in **Table C.2** and will remain the same as the census data has not been officially updated. However, according to the estimates provided by the Census Reports, the median age in 2017 was 43.6. Due to the population decrease, the racial characteristics differ slightly. The population of white persons is 37.9 percent and .335 percent is Hispanic or Latino. Blacks make up the majority of the population in the county, accounting for 61.6 percent of the population.

TABLE C.2: DEMOGRAPHICS OF JEFFERSON DAVIS COUNTY

Jurisdiction	White Persons, Percent (2010)	Black Persons, Percent (2010)	American Indian or Alaska Native, Percent (2010)	Other Race, Percent (2010)	Persons of Hispanic Origin, Percent (2010) *
Jefferson Davis County	**38.7%**	**59.9%**	**0.3%**	**0.3%**	**0.8%**
Bassfield	59.1%	37.8%	0.0%	2.8%	2.8%
Prentiss	60.3%	37.3%	0.6%	0.5%	0.6%

*Hispanics may be of any race, so also are included in applicable race categories

Source: US Census Bureau

C.1.3 Housing

According to the 2010 US Census, there are 5,876 housing units in Jefferson Davis County, the majority of which are single family homes or mobile homes. Per 2018 estimates, the total number of houses increased to 5,990 units. However, the median home value is $80,600, which increased by at least .983 percent. Housing information for the county and two towns is presented in **Table C.3**. As shown in the table, Bassfield has a significantly higher percentage of seasonal housing units compared to Prentiss and the unincorporated county.

TABLE C.3: HOUSING CHARACTERISTICS OF JEFFERSON DAVIS COUNTY

Jurisdiction	Housing Units (2000)	Housing Units (2010)	Seasonal Units, Percent (2010)	Median Home Value (2006-2010)	Housing Units (2018)	Median Home Value (2018)
Jefferson Davis County	**5,891**	**5,876**	**3.6%**	**$69,500**	**5,990**	**$80,600**
Bassfield	144	144	6.9%	$80,200	145	$86,111
Prentiss	537	498	2.6%	$69,500	511	$111,650

Source: US Census Bureau

C.1.4 Infrastructure

TRANSPORTATION

In Jefferson Davis County, State Highway 13 provides access to the north and south. State Highway 42 travels through Bassfield and Prentiss in a northwesterly direction. US Highway 84, which crosses east and west through Prentiss, provides direct access to US Highway 49 and Interstate 59 to the east to the City of Natchez to the west.

Commercial air transportation is available at the Hattiesburg-Laurel Regional Airport, less than an hour's drive from the county. International airports in Jackson, Gulfport, and New Orleans are all also within about a 100-mile radius of Jefferson Davis County.

There is no passenger or freight rail service offered at this time.

UTILITIES

Electrical power in Jefferson Davis County is provided by several electrical power associations, including Mississippi Power Company and Southern Pine Electric.

Water and sewer service is provided to residents of Prentiss from wells and by aerated lagoon. The water system has two elevated storage tanks. The County also has 11 elevated storage tanks and one standpipe water storage tank. There is no centralized sewage treatment in the County and the two most common types of sewer systems in use are septic tanks and aerobic treatment units.

COMMUNITY FACILITIES

There are a number of buildings and community facilities located throughout Jefferson Davis County. According to the data collected for the vulnerability assessment (Section 6.4.1), there are 2 fire stations, 1 police station, and 8 public schools located within the county.

There is one hospital located in Jefferson Davis County. Jefferson Davis Community Hospital is a 35-bed medical-surgical hospital located in the Town of Prentiss.

Jefferson Davis County proudly claims to be the "Gateway to the Longleaf Trace," a 41-mile linear park that offers premier running, biking, hiking, and equestrian trails. The Longleaf Trace is one of the longest "Rails to Trails" conversion in the United States. Another major attraction in the county is Lake Jeff Davis, located three miles east of Prentiss. The 164-acre lake is one of 21 state fishing lakes operated by the MS Department of Wildlife, Fisheries, and Parks. Water skiing is allowed on certain days and times and additional amenities include boat rental, camp sites, restrooms, a covered pavilion, and a picnic area with grills.

C.1.5 Land Use

Many areas of Jefferson Davis County are undeveloped or sparsely developed due to the county's location just off the Gulf Coast and the conservation of land in state and national parks. There are a few incorporated municipalities located throughout the region, and these areas are where the region's

population is generally concentrated. The incorporated areas are also where many businesses, commercial uses, and institutional uses are located. Land uses in the balance of the county generally consist of rural residential development, agricultural uses, and recreational areas.

C.1.6 Employment and Industry

According to the Mississippi Employment Security Commission, in 2019, Jefferson Davis County had an average annual employment of 1,630 workers and an average unemployment rate of 6.8 percent. According to the MESC, in 2018, the Construction industry employed 16 percent of the workforce followed by Retail Trade (14.1 %) and Health Care and Social Assistance (8.6%). The average annual wage in Jefferson Davis County was $26,736

C.2 JEFFERSON DAVIS COUNTY RISK ASSESSMENT

This subsection includes hazard profiles for each of the significant hazards identified in Section 4: *Hazard Identification* as they pertain to Jefferson Davis County. Each hazard profile includes a description of the hazard's location and extent, notable historical occurrences, and the probability of future occurrences. Additional information can be found in Section 5: *Hazard Profiles*.

C.2.1 Flood

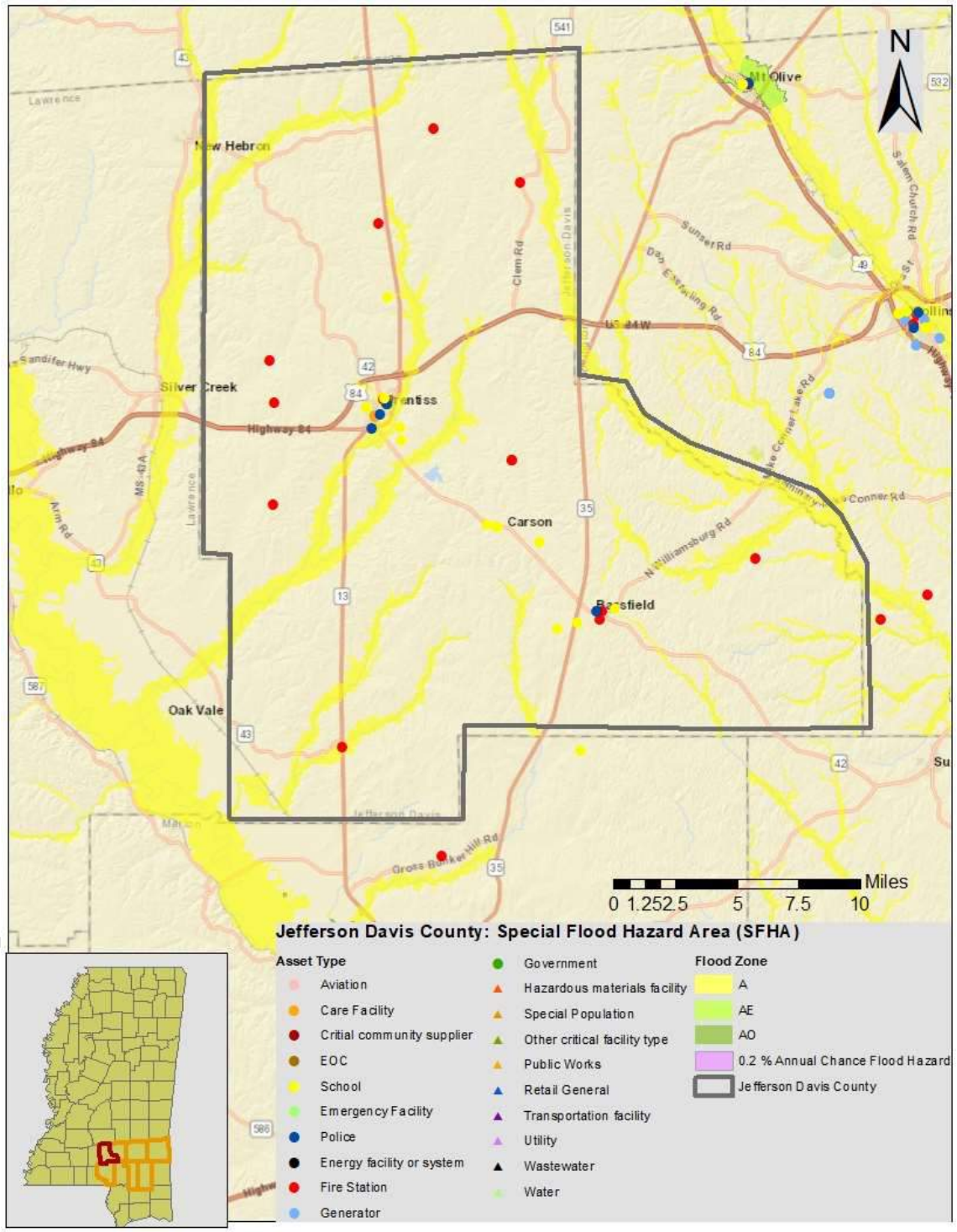
LOCATION AND SPATIAL EXTENT

There are areas in Jefferson Davis County that are susceptible to flood events. Special flood hazard areas in the county were mapped using Geographic Information System (GIS) and FEMA Digital Flood Insurance Rate Maps (DFIRM).[1] This includes Zone A (1-percent annual chance floodplain), Zone AE (1-percent annual chance floodplain with elevation), and the 0.2-percent annual chance floodplain). According to GIS analysis, of the 410 square miles that make up Jefferson Davis County, there are 46 square miles of land in zones A and AE (1-percent annual chance floodplain/100-year floodplain) and 0 square miles of land in the 0.2-percent annual chance floodplain (500-year floodplain).

These flood zone values account for 11.2 percent of the total land area in Jefferson Davis County. It is important to note that while FEMA digital flood data is recognized as best available data for planning purposes, it does not always reflect the most accurate and up-to-date flood risk. Flooding and flood-related losses often do occur outside of delineated special flood hazard areas.

[1] The county-level DFIRM data used for Jefferson Davis County were updated in 2010.

167 **FIGURE C.2: SPECIAL FLOOD HAZARD AREAS IN JEFFERSON DAVIS COUNTY**



168
169 *Source: Federal Emergency Management Agency*
170
171
172 ***HISTORICAL OCCURRENCES***
173

Floods resulted in two disaster declarations in Jefferson Davis County in 1974 and 2009.[2] Information from the National Centers for Environmental Information was used to ascertain historical flood events. The National Centers for Environmental Information reported a total of 30 events in Jefferson Davis County since 1997.[3] A summary of these events is presented in **Table C.4**. These events accounted for over $1.3 million in property damage in the county. Specific information on flood events, including date, type of flooding, and deaths and injuries, can be found in **Table C.5**.

TABLE C.4: SUMMARY OF FLOOD OCCURRENCES IN JEFFERSON DAVIS COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Bassfield	8	0/0	$96,512
Prentiss	7	0/0	$528,156
Unincorporated Area	14	0/0	$699,559
JEFFERSON DAVIS COUNTY TOTAL	**29**	**0/0**	**$1,324,227**

Source: National Centers for Environmental Information

TABLE C.5: HISTORICAL FLOOD EVENTS IN JEFFERSON DAVIS COUNTY

Location	Date	Type	Deaths / Injuries	Property Damage*
Bassfield				
Bassfield	27-MAR-09	FLASH FLOOD	0/0	$45,020
Basefield	20-JAN-10	FLASH FLOOD	0/0	$3,278
Bassfield	09-MAR-11	FLASH FLOOD	0/0	$15,914
Bassfield	30-AUG-12	FLASH FLOOD	0/0	$10,300
Bassfield	03-JAN-15	FLASH FLOOD	0/0	$5,000
Bassfield	03-JAN-15	FLASH FLOOD	0/0	$5,000
Bassfield	10-MAR-16	FLASH FLOOD	0/0	$5,000
Bassfield	16-AUG-18	FLASH FLOOD	0/0	$7,000
Prentiss				
Prentiss	27-APR-97	FLOOD	0/0	$0
PRENTISS	02-MAR-01	FLASH FLOOD	0/0	$0
Prentiss	21-FEB-03	FLASH FLOOD	0/0	$1,344
Prentiss	05-FEB-04	FLASH FLOOD	0/0	$195,716
Prentiss	20-MAR-06	FLASH FLOOD	0/0	$0
Prentiss	12-APR-09	FLASH FLOOD	0/0	$112,551
Prentiss	13-AUG-10	FLASH FLOOD	0/0	$218,545
Unincorporated Area				
Countywide	03-MAR-01	FLASH FLOOD	0/0	$14,258
Countywide	03-MAR-01	FLASH FLOOD	0/0	$0
Countywide	03-MAR-01	FLASH FLOOD	0/0	$0
Countywide	03-SEP-01	FLASH FLOOD	0/0	$0
Countywide	03-SEP-01	FLASH FLOOD	0/0	$114,061
Gwinville	21-FEB-03	FLASH FLOOD	0/0	$1,344
South Portion	31-MAR-05	FLASH FLOOD	0/0	$253,354

[2]A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.
[3] These events are only inclusive of those reported by NCEI. It is likely that additional occurrences have occurred and have gone unreported.

Location	Date	Type	Deaths / Injuries	Property Damage*
South Portion	01-APR-05	FLASH FLOOD	0/0	$101,342
Southeast Portion	29-AUG-05	FLASH FLOOD	0/0	$126,677
Hebron	09-MAR-11	FLASH FLOOD	0/0	$21,218
Carson	05-SEP-11	FLASH FLOOD	0/0	$5,305
Terrell	03-JAN-15	FLASH FLOOD	0/0	$7,000
Hathorn	25-JuN-17	FLASH FLOOD	0/0	$5,000
Hebron	25-JuN-17	FLASH FLOOD	0/0	$50,000

Source: National Centers for Environmental Information

HISTORICAL SUMMARY OF INSURED FLOOD LOSSES

Recently, FEMA issued a directive that prevents states or local governments from sharing NFIP information such as rep loss or severe rep loss data with third parties. Third parties are considered as consultants, contractors, etc. As a result, for continuity of information so that the reader with have an idea of the historical occurrences along with the corresponding damage amounts, the decision was made to leave the existing information in the plan.

According to FEMA flood insurance policy records as of March 2013, there have been 48 flood losses reported in Jefferson Davis County through the National Flood Insurance Program (NFIP) since 1978, totaling over $4,600 in claims payments. A summary of these figures for the county is provided in **Table C.6**. It should be emphasized that these numbers include only those losses to structures that were insured through the NFIP policies, and for losses in which claims were sought and received. It is likely that many additional instances of flood loss in Jefferson Davis County were either uninsured, denied claims payment, or not reported.

TABLE C.6: SUMMARY OF INSURED FLOOD LOSSES IN JEFFERSON DAVIS COUNTY

Location	Flood Losses	Claims Payments
Bassfield*	--	--
Prentiss	2	$4,613
Unincorporated Area	0	$0
JEFFERSON DAVIS COUNTY TOTAL	**2**	**$4,613**

*This community does not participate in the National Flood Insurance Program. Therefore, no values are reported.
Source: FEMA, NFIP

REPETITIVE LOSS PROPERTIES

No updates to this section can be provided at this time. Information normally used to update this section is not currently accessible. As a result, this information will remain the same for historical purposes.

As of May 2013, there are no non-mitigated repetitive loss properties located in Jefferson Davis County. **Table C.7** presents detailed information on repetitive loss properties and NFIP claims and policies for Jefferson Davis County. This remains the best available data.

TABLE C.7: REPETITIVE LOSS PROPERTIES IN JEFFERSON DAVIS COUNTY

Location	Number of Properties	Types of Properties	Number of Losses	Building Payments	Content Payments	Total Payments	Average Payment

Location	Number of Properties	Types of Properties	Number of Losses	Building Payments	Content Payments	Total Payments	Average Payment
Bassfield*	--	--	--	--	--	--	--
Prentiss	0	--	0	$0	$0	$0	$0
Unincorporated Area	0	--	0	$0	$0	$0	$0
JEFFERSON DAVIS COUNTY TOTAL	**0**		**0**	**$0**	**$0**	**$0**	**$0**

*This community does not participate in the National Flood Insurance Program. Therefore, no values are reported.
Source: National Flood Insurance Program

PROBABILITY OF FUTURE OCCURRENCES

Due to the unpredictable nature of this hazard, flood events will remain a threat in Jefferson Davis County, and the probability of future occurrences will remain likely (between 10 and 100 percent annual probability). The participating jurisdictions and unincorporated areas have risk to flooding, though not all areas will experience flood. The probability of future flood events based on magnitude and according to best available data is illustrated in the figures above**,** which indicates those areas susceptible to the 1-percent annual chance flood (100-year floodplain) and the 0.2-percent annual chance flood (500-year floodplain).

It can be inferred from the floodplain location maps, previous occurrences, and repetitive loss properties that risk varies throughout the region. For example, the areas near Prentiss has more floodplain and thus a higher risk of flood than areas near Bassfield. Flood is not the greatest hazard of concern but will continue to occur and cause damage. Therefore, mitigation actions may be warranted, particularly for repetitive loss properties.

C.2.2 Erosion

LOCATION AND SPATIAL EXTENT

Erosion in Jefferson Davis County is typically caused by flash flooding events. Unlike coastal areas, areas of concern for erosion in Jefferson Davis County are primarily rivers and streams. Generally, vegetation helps to prevent erosion in the area, and it is not an extreme threat to any of the participating counties and jurisdictions. No areas of concern were reported by the planning committee.

HISTORICAL OCCURRENCES

Several sources were vetted to identify areas of erosion in Jefferson Davis County. This includes searching local newspapers, interviewing local officials, and reviewing previous hazard mitigation plans. No historical erosion occurrences were found in these sources.

Jefferson Davis County has a flood damage prevention ordinance that includes measures to limit erosion, such as restricting uses that result in damaging increases in erosion. Such actions will continue to be implemented as necessary throughout the region.

PROBABILITY OF FUTURE OCCURRENCES

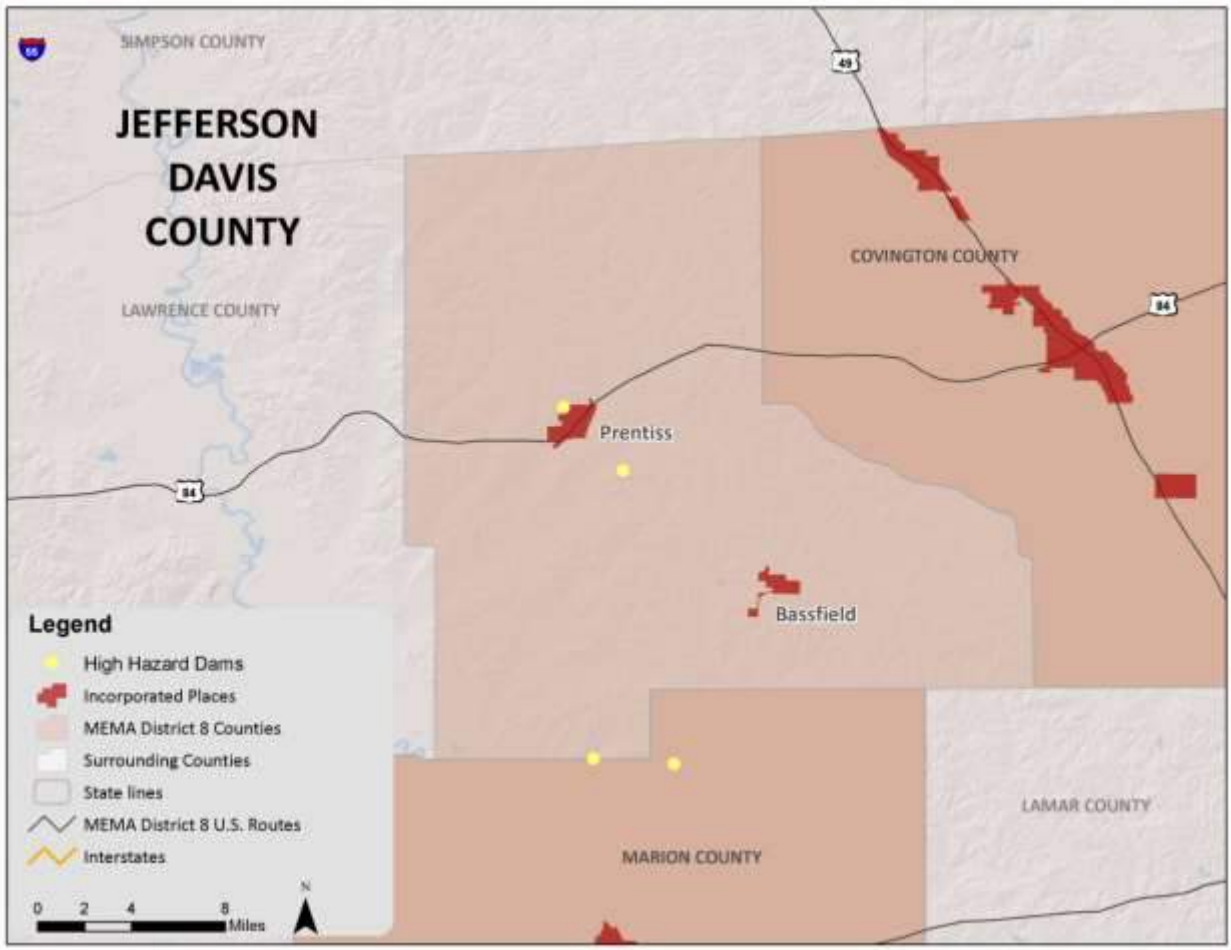
Erosion remains a natural, dynamic, and continuous process for Jefferson Davis County, and it will continue to occur. The annual probability level assigned for erosion is possible (between 1 and 10 percent annually).

C.2.3 Dam Failure

LOCATION AND SPATIAL EXTENT

According to the Mississippi Division of Environmental Quality, there are two high hazard dams in Jefferson Davis County.[4] **Figure C.3** shows the location of each of these high hazard dams and **Table C.8** lists them by name. There are no changes to this section. According to a consensus of local government officials and the Regional Hazard Mitigation Council, a majority of these dams would not pose a major threat in a breach or failure occurrence.

FIGURE C.3: JEFFERSON DAVIS COUNTY HIGH HAZARD DAM LOCATIONS



Source: Mississippi Division of Environmental Quality

[4] The list of high hazard dams obtained from the Mississippi Division of Environmental Quality was reviewed and amended by local officials to the best of their knowledge.

TABLE C.8: JEFFERSON DAVIS COUNTY HIGH HAZARD DAMS

Dam Name	Hazard Potential
Jefferson Davis County	
LAKE JEFFERSON DAVIS DAM	High
WHITE SAND - GREENS CREEK STR 11E DAM	High

Source: Mississippi Division of Environmental Quality

HISTORICAL OCCURRENCES

There is no record of dam breaches in Jefferson Davis County. However, several breach scenarios in the county could be catastrophic.

PROBABILITY OF FUTURE OCCURRENCES

Given the current dam inventory and historic data, a dam breach is unlikely (less than 1 percent annual probability) in the future. However, as has been demonstrated in the past, regular monitoring is necessary to prevent these events.

C.2.4 Winter Storm and Freeze

LOCATION AND SPATIAL EXTENT

Nearly the entire continental United States is susceptible to winter storm and freeze events. Some ice and winter storms may be large enough to affect several states, while others might affect limited, localized areas. The degree of exposure typically depends on the normal expected severity of local winter weather. Jefferson Davis County is not typically affected by major severe winter weather conditions and seldom receives extremely devastating winter weather, even during the winter months. Given the atmospheric nature of the hazard the entire county has uniform exposure to a winter storm.

HISTORICAL OCCURRENCES

According to the National Centers for Environmental Information, there have been a total of six recorded winter storm events in Jefferson Davis County since 2008 (**Table C.9**).[5] These events resulted in almost $8,700 in damages. Detailed information on the recorded winter storm events can be found in **Table C.10**.[6]

TABLE C.9: SUMMARY OF WINTER STORM EVENTS IN JEFFERSON DAVIS COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Jefferson Davis County	6	0/0	$123,695

Source: National Centers for Environmental Information

[5] These ice and winter storm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is certain that additional winter storm conditions have affected Jefferson Davis County.
[6] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

TABLE C.10: HISTORICAL WINTER STORM IMPACTS IN JEFFERSON DAVIS COUNTY

Location	Date	Type	Deaths / Injuries	Property Damage*
Bassfield				
None Reported	--	--	--	--
Prentiss				
None Reported	--	--	--	--
Unincorporated Area				
JEFFERSON DAVIS COUNTY	19-JAN-08	HEAVY SNOW	0/0	$8,695
JEFFERSON DAVIS COUNTY	11-DEC-08	HEAVY SNOW	0/0	$0
JEFFERSON DAVIS COUNTY	28-JAN-14	HEAVY SNOW	0/0	$0
JEFFERSON DAVIS COUNTY	06-JAN-17	SLEET	0/0	$20,000
JEFFERSON DAVIS COUNTY	07-DEC-17	HEAVY SNOW	0/0	$75,000
JEFFERSON DAVIS COUNTY	16-JAN-18	HEAVY SNOW	0/0	$20,000

Source: National Centers for Environmental Information

There have been several severe winter weather events in Jefferson Davis County. The text below describes one of the major events and associated impacts on the county. Similar impacts can be expected with severe winter weather.

January 2008 Winter Storm

This storm produced heavy snow across the region, with an average of three to four inches of snow. Some heavier amounts, between four to five inches, also fell in isolated areas. At the height of the snow, temperatures fell to near freezing, and accumulations occurred on roadways resulting in a number of traffic accidents. Additionally, some power outages occurred in the heaviest snow band due to the weight of wet snow on limbs and lines. The heaviest snow fell in the areas around Covington, Jefferson Davis, and Jones Counties.

Winter storms throughout the county have several negative externalities including hypothermia, cost of snow and debris cleanup, business and government service interruption, traffic accidents, and power outages. Furthermore, citizens may resort to using inappropriate heating devices that could to fire or an accumulation of toxic fumes.

January 2017 Winter Storm

An early season winter storm brought heavy snow to much of Mississippi between the evening of the 7th and into the afternoon of the 8th. The greatest amounts fell mainly south and east of the Natchez Trace corridor. Amounts of up to 7 to 8 inches were measured in the Pine Belt. Heavier snow accumulations resulted in downed limbs and trees, power outages, and traffic accidents across the state.

An average of 4 to 6 inches of heavy snow fell across Jefferson Davis County, with the highest total of 6.5 inches falling in Prentiss. The snow resulted in numerous downed limbs and trees and power outages across the county. One downed tree landed on a home in Prentiss. An 8-year old boy in Bassfield suffered a head injury in his yard when a tree limb broke under the weight of the snow.

PROBABILITY OF FUTURE OCCURRENCES

Winter storm events will continue to occur in Jefferson Davis County. According to historical information, the annual probability is possible (between 1 and 10 percent).

FIRE-RELATED HAZARDS

C.2.5 Drought

LOCATION AND SPATIAL EXTENT

Drought and heat waves typically cover a large area and cannot be confined to any geographic or political boundaries. Furthermore, it is assumed that Jefferson Davis County would be uniformly exposed to drought and heat waves, making the spatial extent potentially widespread. It is also notable that drought and extreme heat conditions typically do not cause significant damage to the built environment but may exacerbate wildfire conditions.

HISTORICAL OCCURRENCES

Drought

According to the U.S. Drought Monitor, Jefferson Davis County had drought levels (including abnormally dry) in all of the last eighteen years (2000-2018). **Table C.11** shows the most severe drought classification for each year, according to U.S. Drought Monitor classifications. It should be noted that the U.S. Drought Monitor also estimates what percentage of the county is in each classification of drought severity. For example, the most severe classification reported may be exceptional, but a majority of the county may actually be in a less severe condition.

TABLE C. 11: HISTORICAL DROUGHT OCCURRENCES IN JEFFERSON DAVIS COUNTY

Abnormally Dry | Moderate Drought | Severe Drought | Extreme Drought | Exceptional Drought

	Jefferson Davis County
2000	**EXCEPTIONAL**
2001	MODERATE
2002	MODERATE
2003	ABNORMAL
2004	ABNORMAL
2005	ABNORMAL
2006	**EXTREME**
2007	**EXTREME**
2008	MODERATE
2009	MODERATE
2010	SEVERE
2011	**EXTREME**
2012	MODERATE

Source: U.S. Drought Monitor

The National Centers for Environmental reported two drought events for Jefferson Davis County, which caused approximately $51,000 in crop damages.

Heat Wave

The National Centers for Environmental Information was used to determine historical heat wave occurrences in the county.

July 2005 – A five-day heat wave covered the area. Temperatures were consistently above 95 degrees. The agricultural industry was hit particularly hard in the cattle and catfish sectors. Water supply issues were encountered by cities and a burn ban was implemented due to the high fire risk.

August 2005 - A heat wave covering the south began in mid-August and lasted about 10 days. High temperatures were consistently over 95 degrees and surpassed 100 degrees on some days. It was the first time since August 2000 that 100-degree temperatures reached the area.

July 2006 – A short heat wave impacted most of the area temperatures in the 90s to around 100 for five straight days.

August 2007 – A heat wave gripped most of the area with the warmest temperatures since 2000. It lasted from August 5th to the 16th.

November 2016 - Dry conditions were prevalent in October and continued into November, which created continued stress on crops. The drought continued to get worse across the state through the month before some relief came in the form of showers and thunderstorms near the end of November.

PROBABILITY OF FUTURE OCCURRENCES

Drought

Based on historical occurrence information, it is assumed that all of Jefferson Davis County has a probability level of highly likely (100 percent annual probability) for future drought events. However, the extent (or magnitude) of drought and the amount of geographic area covered by drought, varies with each year. Historic information indicates that there is a much lower probability for extreme, long-lasting drought conditions.

Heat Wave

Based on historical occurrence information, it is assumed that all of Jefferson Davis County has a probability level of highly likely (100 percent annual probability) for future heat wave events.

C.2.6 Wildfire

LOCATION AND SPATIAL EXTENT

The entire county is at risk to a wildfire occurrence. However, several factors such as drought conditions or high levels of fuel on the forest floor, may make a wildfire more likely. Furthermore, areas in the urban-wildland interface are particularly susceptible to fire hazard as populations abut formerly undeveloped areas. The Fire Occurrence Areas in the figure below give an indication of historic location.

HISTORICAL OCCURRENCES

Based on data from the Mississippi Forestry Commission from 2008 to 2018, Jefferson Davis County experiences an average of 65 wildfires annually which burn an average of 559 acres per year. The data indicates that most of these fires are small, averaging nine acres per fire. **Table C.12** provides a summary of wildfire occurrences in Jefferson Davis County and **Table C.13** lists the number of reported wildfire occurrences in the county between the years 2008 and 2018.

TABLE C.12: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2008 -2018) *

	Jefferson Davis County
Average Number of Fires per year	65.0
Average Number of Acres Burned per year	559.0
Average Number of Acres Burned per fire	8.8

*These values reflect averages over a 10-year period.

Source: Mississippi Forestry Commission

TABLE C.13: HISTORICAL WILDFIRE OCCURRENCES IN JEFFERSON DAVIS COUNTY

Year	2008	2010	2011	2012	2013	2014	2015	2016	2017	2018
Jefferson Davis County										
Number of Fires	69	64	135	58	46	69	65	64	46	34

Number of Acres Burned	836	277	953	385	251	728	783	487	443	447

Source: Mississippi Forestry Commission

PROBABILITY OF FUTURE OCCURRENCES

Wildfire events will be an ongoing occurrence in Jefferson Davis County. The likelihood of wildfires increases during drought cycles and abnormally dry conditions. Fires are likely to stay small in size but could increase due local climate and ground conditions. Dry, windy conditions with an accumulation of forest floor fuel (potentially due to ice storms or lack of fire) could create conditions for a large fire that spreads quickly. It should also be noted that some areas do vary somewhat in risk. For example, highly developed areas are less susceptible unless they are located near the urban-wildland boundary. The risk will also vary due to assets. Areas in the urban-wildland interface will have much more property at risk, resulting in increased vulnerability and need to mitigate compared to rural, mainly forested areas. In this case, the participating jurisdictions appear to have a similar risk to the surrounding areas. The probability assigned to Jefferson Davis County for future wildfire events is likely (a 10 and 100 percent annual probability).

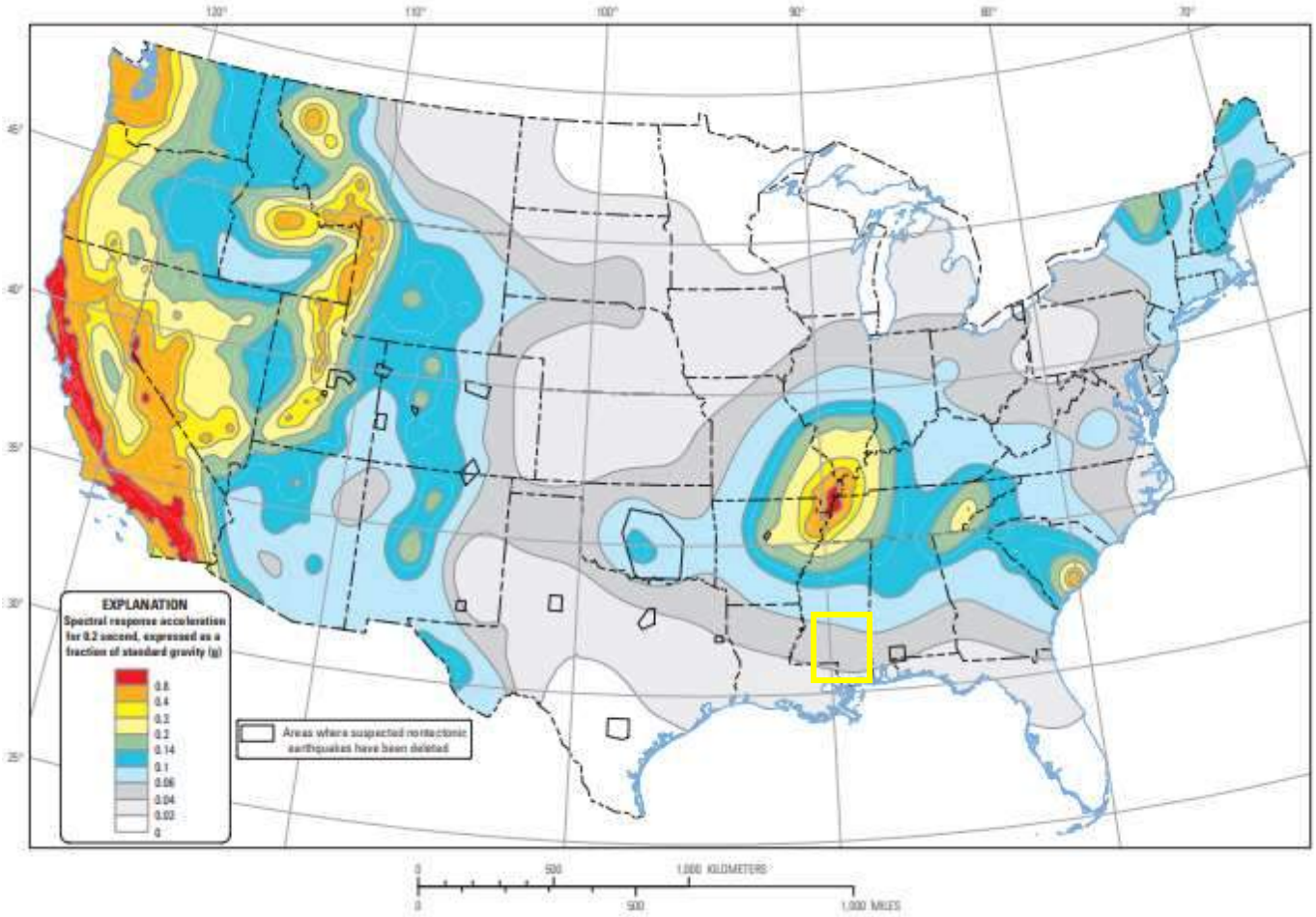
GEOLOGIC HAZARDS

C.2.7 Earthquake

LOCATION AND SPATIAL EXTENT

Figure C.5 shows the intensity level associated with Jefferson Davis County, based on the national USGS map of peak acceleration with 10 percent probability of exceedance in 50 years. It is the probability that ground motion will reach a certain level during an earthquake. The data show peak horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake) with a 10 percent probability of exceedance in 50 years. The map was compiled by the U.S. Geological Survey (USGS) Geologic Hazards Team, which conducts global investigations of earthquake, geomagnetic, and landslide hazards. According to this map, Jefferson Davis County lies within an approximate zone of level “2” to “3” ground acceleration. This indicates that the county exists within an area of moderate seismic risk.

454 **FIGURE C.5: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS**



455

456 *Source: USGS, 2008*

457

458 ***HISTORICAL OCCURRENCES***

459

460 No earthquakes are known to have affected Jefferson Davis County since 1638. **Table C.14** provides a
461 summary of earthquake events reported by the National Geophysical Data Center between 1638 and
462 1985.[7]

463

464 **TABLE C.14: SUMMARY OF SEISMIC ACTIVITY IN JEFFERSON DAVIS COUNTY**

Location	Number of Occurrences	Greatest MMI Reported	Richter Scale Equivalent
Bassfield	0	--	--
Prentiss	0	--	--
Unincorporated Area	0	--	--
JEFFERSON DAVIS COUNTY TOTAL	**0**	**--**	**--**

Source: National Geophysical Data Center

465

[7] Due to reporting mechanisms, not all earthquakes events were recorded during this time.

PROBABILITY OF FUTURE OCCURRENCES

The probability of significant, damaging earthquake events affecting Jefferson Davis County is unlikely. However, it is possible that future earthquakes resulting in light to moderate perceived shaking and damages ranging from none to very light will affect the county. The annual probability level for the region is estimated to be less than 1 percent (unlikely).

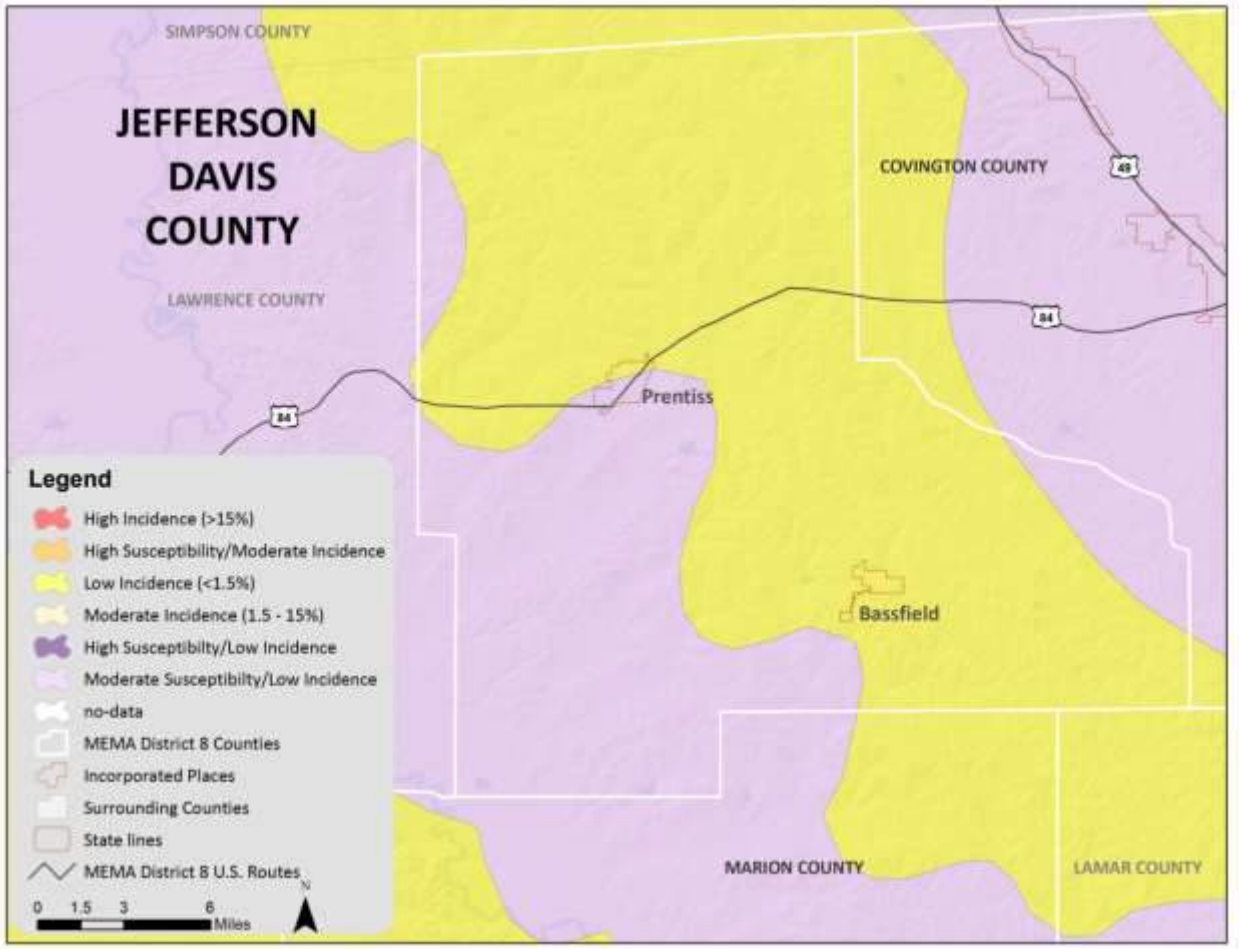
C.2.8 Landslide

LOCATION AND SPATIAL EXTENT

Landslides occur along steep slopes when the pull of gravity can no longer be resisted (often due to heavy rain). Human development can also exacerbate risk by building on previously undevelopable steep slopes. The most frequent and widespread damaging landslides in the U.S. are induced by prolonged or heavy rainfall. The majority of rainfall-induced landslides are shallow, small, and move quickly.[i] Landslides are possible throughout Jefferson Davis County.

According to **Figure C.6** below, the entire county falls under a low incidence area (yellow and light purple). This indicates that less than 1.5 percent of the area is involved in landsliding. The areas in yellow are defined as low incidence and low susceptibility. The areas in light purple, however, indicate that a moderate susceptibility to landsliding activity is present. There are no changes with susceptibility to the landslide hazard since the last plan update.

FIGURE C.6: LANDSLIDE SUSCEPTIBILITY AND INCIDENCE MAP OF JEFFERSON DAVIS COUNTY



Source: USGS

HISTORICAL OCCURRENCES

There is no extensive history of landslides in Jefferson Davis County. Landslide events typically occur in isolated areas.

PROBABILITY OF FUTURE OCCURRENCES

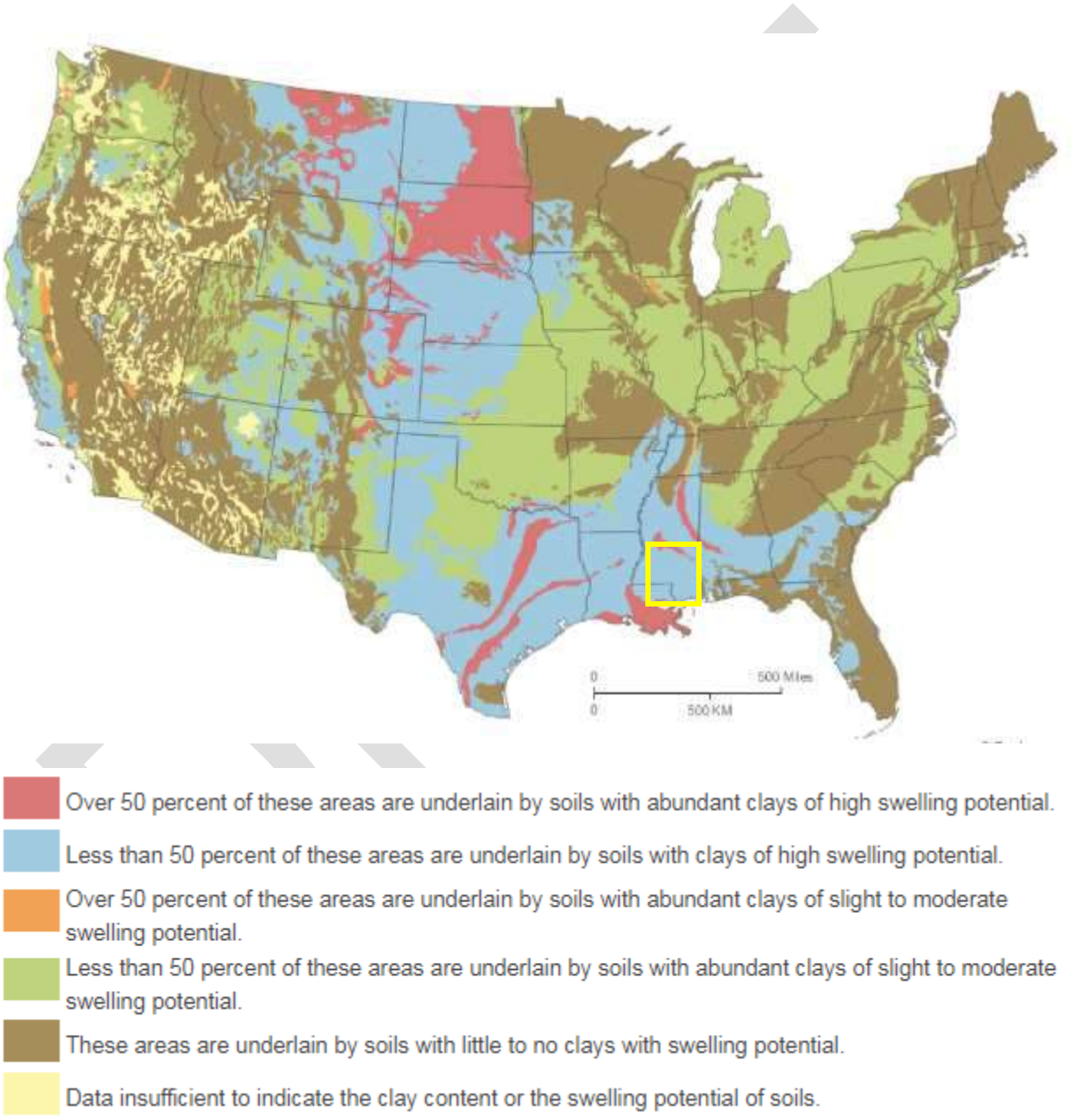
Based on historical information and the USGS susceptibility index, the probability of future landslide events is unlikely (less than 1 percent probability). The USGS data indicates that the all areas in Jefferson Davis County have a low landslide incidence rate. However, some areas are reported as having moderate susceptibility to landsliding activity. Local conditions may become more favorable for landslides due to heavy rain, for example. This would increase the likelihood of occurrence. It should also be noted that some areas in Jefferson Davis County have greater risk than others given factors such as steepness on slope and modification of slopes.

C.2.9 Expansive Soils

LOCATION AND SPATIAL EXTENT

Due to the amount of clay minerals present in Jefferson Davis County, expansive soils present a threat to the county. Areas underlain by soils with swelling potential are shown in **Figure C.7**. The areas in blue are underlain with generally less than 50 percent clay having high swelling potential.

FIGURE C.7: SWELLING CLAYS IN MISSISSIPPI



Source: USGS

HISTORICAL OCCURRENCES

There is no historical record of significant expansive soil events in Jefferson Davis County. However, expansive soils can cause considerable damage to structural foundations in the county, although they do not pose a significant threat to human life.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical information, the probability of future expansive soil events is possible (between 1 and 100 percent annually).

WIND-RELATED HAZARDS

C.2.10 Hurricane and Tropical Storm

LOCATION AND SPATIAL EXTENT

Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact Jefferson Davis County. All areas in Jefferson Davis County are equally susceptible to hurricane and tropical storms.

HISTORICAL OCCURRENCES

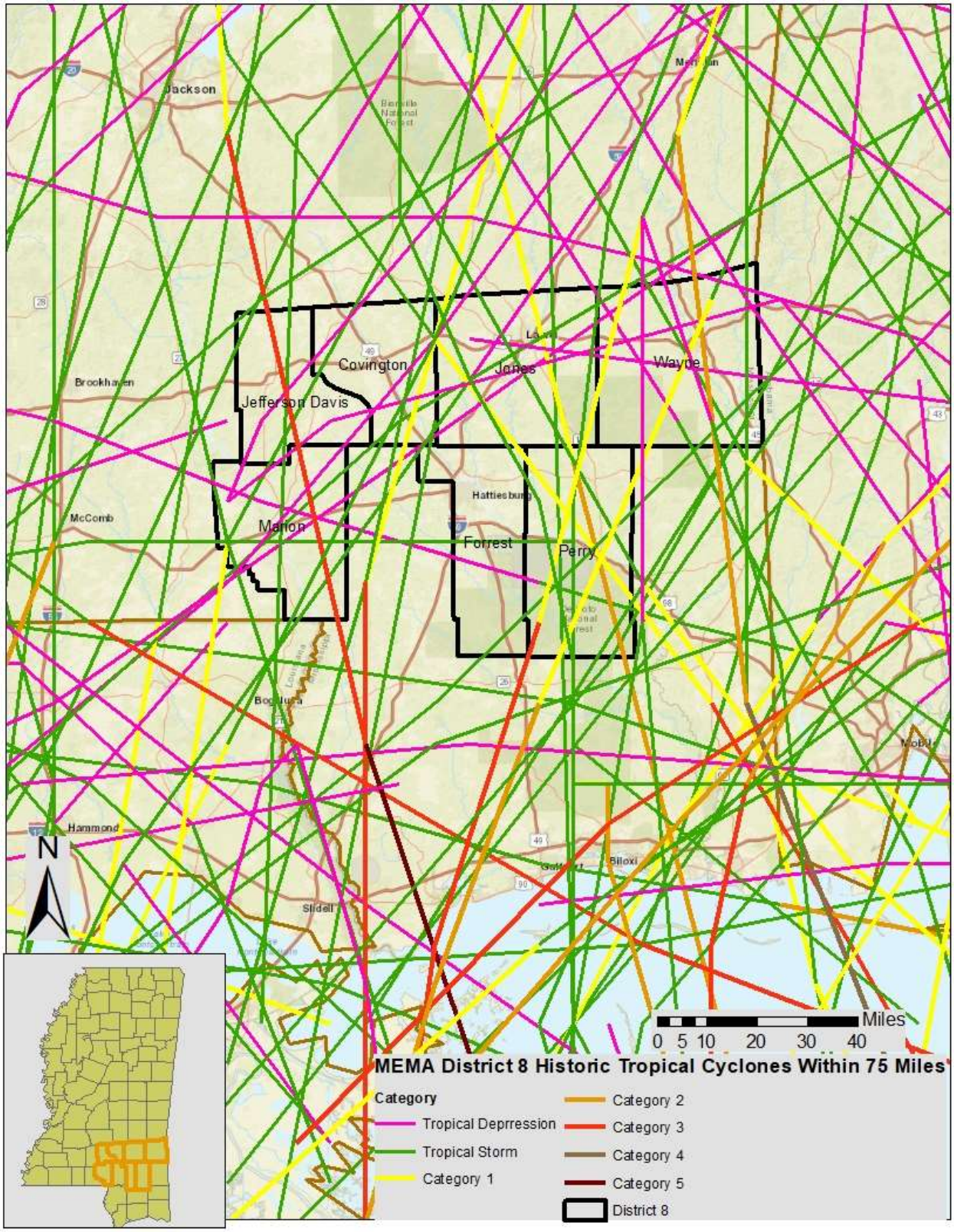
The National Centers for Environmental Information has not reported any hurricane hazards affecting the area during this planning period. As a result, the information will remain the same.

According to the National Hurricane Center's historical storm track records, a total of 54 hurricanes have passed within 75 miles of Jefferson Davis County since 1851. This includes 1 category 5 storm, 0 category 4 storms, 3 category 3 storms, 6 category 2 storms, 7 category 1 storms, and 37 tropical storms as shown in **Figure C.8**.[8]

A total of five tracks passed directly through the county including Hurricanes Camille (1969), Edith (1971), and Isidore (2002). All storms where tropical storms when they traversed the county except Hurricane Camille, which passed through the county as category 3 hurricane. **Table 5.14** provides the detail for each storm that passed through the county including date of occurrence, name (if applicable), maximum wind speed (as recorded when traversing the county) and category of the storm based on the Saffir-Simpson Scale.

[8] These storm track statistics do not include extra-tropical storms. Though these related hazard events are less severe in intensity, they may cause significant local impact in terms of rainfall and high winds.

559 **FIGURE C.8: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF**
560 **JEFFERSON DAVIS COUNTY**



561

Source: National Oceanic and Atmospheric Administration; National Hurricane Center

TABLE C.14: HISTORICAL STORM TRACKS WITHIN 75 MILES OF JEFFERSON DAVIS COUNTY (1850–2008)

Date of Occurrence	Storm Name	Maximum Wind Speed (miles per hour)	Storm Category
10/10/1905	NOT NAMED	40	Tropical Storm
9/30/1915	NOT NAMED	69	Tropical Storm
8/18/1969	CAMILLE	115	Category 3
9/16/1971	EDITH	69	Tropical Storm
9/26/2002	ISIDORE	63	Tropical Storm

Source: National Hurricane Center

Federal records indicate that disaster declarations were made in 1969 (Hurricane Camille), 1998 (Hurricane Georges), 2004 (Hurricane Ivan), 2005 (Hurricane Dennis), 2005 (Hurricane Katrina), 2008 (Hurricane Gustav), and 2012 (Hurricane Isaac).[9] Hurricane and tropical storm events can cause substantial damage in the area due to high winds and flooding.

Flooding and high winds from hurricanes and tropical storms can cause damage throughout the county. Anecdotes are available from NCEI for the major storms that have impacted the county as found below:

Hurricane Rita – September 5, 2005
Hurricane Rita brought heavy rainfall, tropical storm force winds, and tornados to the region. Rainfall amounts ranged from 4-7 inches, which resulted in flooding. Winds between 25-35 mph, with gusts up to 40-50 mph, downed trees and power lines.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical evidence, the probability level of future occurrence is likely (annual probability between 10 and 100 percent). Given the regional nature of the hazard, all areas in the county are equally exposed to this hazard. However, when the county is impacted, the damage could be catastrophic, threatening lives and property throughout the planning area.

C.2.11 Thunderstorm

LOCATION AND SPATIAL EXTENT

Thunderstorm / High Wind
A thunderstorm event is an atmospheric hazard, and thus has no geographic boundaries. It is typically a widespread event that can occur in all regions of the United States. However, thunderstorms are most common in the central and southern states because atmospheric conditions in those regions are favorable for generating these powerful storms. Also, Jefferson Davis County typically experiences several straight-line wind events each year. These wind events can and have caused significant damage. It is assumed that Jefferson Davis County has uniform exposure to an event and the spatial extent of an impact could be large.

[9] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

Hailstorm

Hailstorms frequently accompany thunderstorms, so their locations and spatial extents coincide. It is assumed that Jefferson Davis County is uniformly exposed to severe thunderstorms; therefore, all areas of the county are equally exposed to hail which may be produced by such storms.

Lightning

Lightning occurs randomly, therefore it is impossible to predict where and with what frequency it will strike. It is assumed that all of Jefferson Davis County is uniformly exposed to lightning.

HISTORICAL OCCURRENCES

Thunderstorm / High Wind

Severe storms resulted in two disaster declarations in Jefferson Davis County in 1992 and 2009.[10] According to NCEI, there have been 136 reported thunderstorm and high wind events since 1970 in Jefferson Davis County.[11] These events caused over $1.5 million in damages. **Table C.15** summarizes this information. **Table C.16** presents detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event. [12]

TABLE C.15: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN JEFFERSON DAVIS COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Bassfield	29	0/0	$309,589
Prentiss	52	0/0	$583,390
Unincorporated Area	89	0/0	$1,312,534
JEFFERSON DAVIS COUNTY TOTAL	**170**	**0/0**	**$2,205,513**

Source: National Centers for Environmental Information

TABLE C.16: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN JEFFERSON DAVIS COUNTY

Location	Date	Type	Magnitude	Deaths/ Injuries	Property Damage*
Bassfield					
Bassfield	07-MAR-95	THUNDERSTORM WINDS	0 kts.	0/0	$8,286
Bassfield	01-JUN-95	THUNDERSTORM WINDS	0 kts.	0/0	$16,572
Bassfield	27-OCT-95	THUNDERSTORM WINDS	53 kts.	0/0	$0
Bassfield	13-APR-96	TSTM WIND	0 kts.	0/0	$10,300
Bassfield	30-MAR-97	TSTM WIND	0 kts.	0/0	$1,573

[10] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

[11] These thunderstorm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional thunderstorm events have occurred in Jefferson Davis County. As additional local data becomes available, this hazard profile will be amended.

[12] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

Location	Date	Type	Magnitude	Deaths/ Injuries	Property Damage*
Bassfield	22-APR-97	TSTM WIND	0 kts.	0/0	$1,573
Bassfield	03-APR-00	TSTM WIND	0 kts.	0/0	$4,406
Bassfield	08-APR-02	TSTM WIND	0 kts.	0/0	$6,921
Bassfield	17-MAY-02	TSTM WIND	0 kts.	0/0	$1,384
Bassfield	17-JUL-03	TSTM WIND	50 kts.	0/0	$1,344
Bassfield	06-AUG-03	TSTM WIND	55 kts.	0/0	$13,439
Bassfield	24-NOV-04	TSTM WIND	75 kts.	0/0	$78,286
Bassfield	20-MAR-06	TSTM WIND	55 kts.	0/0	$18,448
Bassfield	10-MAY-06	TSTM WIND	50 kts.	0/0	$0
Bassfield	13-FEB-07	THUNDERSTORM WIND	55 kts.	0/0	$17,911
Bassfield	13-FEB-07	THUNDERSTORM WIND	50 kts.	0/0	$0
Bassfield	20-DEC-07	THUNDERSTORM WIND	60 kts.	0/0	$0
Bassfield	12-FEB-08	THUNDERSTORM WIND	58 kts.	0/0	$17,389
Bassfield	17-FEB-08	THUNDERSTORM WIND	50 kts.	0/0	$11,593
Bassfield	21-FEB-08	THUNDERSTORM WIND	50 kts.	0/0	$0
Bassfield	09-DEC-08	THUNDERSTORM WIND	50 kts.	0/0	$0
Bassfield	27-MAR-09	THUNDERSTORM WIND	55 kts.	0/0	$6,753
Bassfield	24-APR-10	THUNDERSTORM WIND	60 kts.	0/0	$16,391
Bassfield	15-JUN-10	THUNDERSTORM WIND	43 kts.	0/0	$3,278
Bassfield	22-AUG-10	THUNDERSTORM WIND	50 kts.	0/0	$8,742
Bassfield	03-AUG-14	THUNDERSTORM WIND	50 kts.	0/0	$4,000
Bassfield	17-MAR-16	THUNDERSTORM WIND	55 kts.	0/0	$20,000
Bassfield	22-JUL-16	THUNDERSTORM WIND	50 kts.	0/0	$15,000
Bassfield	29-JUN-17	THUNDERSTORM WIND	48 kts.	0/0	$25,000
Prentiss					
Prentiss	09-MAR-94	THUNDERSTORM WINDS	0 kts.	0/0	$852
Prentiss	07-MAR-95	THUNDERSTORM WINDS	0 kts.	0/0	$3,314
Prentiss	11-JUN-95	THUNDERSTORM WINDS	0 kts.	0/0	$4,972
Prentiss	16-SEP-96	TSTM WIND	0 kts.	0/0	$1,609
Prentiss	20-MAY-97	TSTM WIND	52 kts.	0/0	$0
Prentiss	25-OCT-97	TSTM WIND	0 kts.	0/0	$3,146
Prentiss	10-FEB-98	TSTM WIND	0 kts.	0/0	$15,489
Prentiss	03-MAY-98	TSTM WIND	0 kts.	0/0	$1,549
Prentiss	02-OCT-98	TSTM WIND	0 kts.	0/0	$3,098
Prentiss	10-MAR-00	TSTM WIND	0 kts.	0/0	$1,469
Prentiss	12-APR-00	TSTM WIND	0 kts.	0/0	$22,028
Prentiss	24-JUN-00	TSTM WIND	0 kts.	0/0	$22,028
Prentiss	13-DEC-00	TSTM WIND	0 kts.	0/0	$2,937
Prentiss	13-OCT-01	TSTM WIND	0 kts.	0/0	$7,129
Prentiss	17-MAY-02	TSTM WIND	0 kts.	0/0	$1,384
Prentiss	17-MAY-02	TSTM WIND	0 kts.	0/0	$1,384
Prentiss	29-MAY-02	TSTM WIND	0 kts.	0/0	$1,384
Prentiss	08-JUL-02	TSTM WIND	0 kts.	0/0	$3,461
Prentiss	24-DEC-02	TSTM WIND	60 kts.	0/0	$6,921

Location	Date	Type	Magnitude	Deaths/ Injuries	Property Damage*
Prentiss	31-DEC-02	TSTM WIND	60 kts.	0/0	$20,764
Prentiss	06-APR-03	TSTM WIND	50 kts.	0/0	$13,439
Prentiss	02-JUN-03	TSTM WIND	55 kts.	0/0	$33,598
Prentiss	01-MAY-04	TSTM WIND	55 kts.	0/0	$6,524
Prentiss	22-MAR-05	TSTM WIND	70 kts.	0/0	$38,003
Prentiss	06-APR-05	TSTM WIND	58 kts.	0/0	$2,534
Prentiss	30-APR-05	TSTM WIND	50 kts.	0/0	$0
Prentiss	29-MAY-05	TSTM WIND	60 kts.	0/0	$101,342
Prentiss	02-JUL-05	TSTM WIND	52 kts.	0/0	$0
Prentiss	09-MAR-06	TSTM WIND	50 kts.	0/0	$0
Prentiss	20-MAR-06	TSTM WIND	65 kts.	0/0	$122,987
Prentiss	04-JAN-07	THUNDERSTORM WIND	53 kts.	0/0	$0
Prentiss	12-JUL-07	THUNDERSTORM WIND	52 kts.	0/0	$5,970
Prentiss	29-JUL-08	THUNDERSTORM WIND	60 kts.	0/0	$17,389
Prentiss	07-AUG-08	THUNDERSTORM WIND	50 kts.	0/0	$0
Prentiss	26-MAR-09	THUNDERSTORM WIND	58 kts.	0/0	$9,004
Prentiss	12-MAY-09	THUNDERSTORM WIND	50 kts.	0/0	$4,502
Prentiss	15-AUG-10	THUNDERSTORM WIND	50 kts.	0/0	$0
Prentiss	01-FEB-11	THUNDERSTORM WIND	50 kts.	0/0	$0
Prentiss	08-MAR-11	THUNDERSTORM WIND	52 kts.	0/0	$0
Prentiss	03-APR-12	THUNDERSTORM WIND	50 kts.	0/0	$2,060
Prentiss	09-AUG-12	THUNDERSTORM WIND	50 kts.	0/0	$4,120
Prentiss	07-APR-14	THUNDERSTORM WIND	54 kts.	0/0	$10,000
Prentiss	13-OCT-14	THUNDERSTORM WIND	50 kts.	0/0	$0
Prentiss	24-JUN-15	THUNDERSTORM WIND	50 kts.	0/0	$10,000
Prentiss	08-AUG-15	THUNDERSTORM WIND	56 kts.	0/0	$30,000
Prentiss	18-NOV-15	THUNDERSTORM WIND	55 kts.	0/0	$10,000
Prentiss	15-FEB-16	THUNDERSTORM WIND	53 kts.	0/0	$10,000
Prentiss	17-MAR-16	THUNDERSTORM WIND	50 kts.	0/0	$1,000
Prentiss	11-JUL-16	THUNDERSTORM WIND	50 kts.	0/0	$10,000
Prentiss	14-APR-18	THUNDERSTORM WIND	52 kts.	0/0	$12,000
Prentiss	14-APR-18	THUNDERSTORM WIND	56 kts.	0/0	$2,000
Prentiss	01-NOV-18	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Unincorporated Area					
JEFFERSON DAVIS COUNTY	04-JUL-70	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	10-DEC-71	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	26-MAY-73	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	26-DEC-73	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	07-MAY-75	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	07-MAY-75	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	21-MAR-76	TSTM WIND	0 kts.	0/0	$0

Location	Date	Type	Magnitude	Deaths/ Injuries	Property Damage*
JEFFERSON DAVIS COUNTY	23-FEB-77	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	28-MAR-77	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	20-AUG-78	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	26-APR-79	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	04-MAY-79	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	12-JUN-82	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	06-APR-83	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	23-NOV-83	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	21-OCT-84	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	14-DEC-87	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	24-MAY-88	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	04-NOV-88	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	16-FEB-90	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	12-MAY-90	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	12-MAY-90	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	14-APR-91	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	20-APR-92	TSTM WIND	0 kts.	0/0	$0
JEFFERSON DAVIS COUNTY	20-APR-92	TSTM WIND	0 kts.	0/0	$0
Carson	21-FEB-97	TSTM WIND	0 kts.	0/0	$3,146
Countywide	05-JUN-98	TSTM WIND	0 kts.	0/0	$15,489
Melba	05-JUN-98	TSTM WIND	0 kts.	0/0	$38,722
JEFFERSON DAVIS COUNTY	27-SEP-98	HIGH WIND	0 kts.	0/0	$178,811
Countywide	27-FEB-99	TSTM WIND	0 kts.	0/0	$22,689
Hebron	09-AUG-99	TSTM WIND	0 kts.	0/0	$3,025
Countywide	29-JAN-01	TSTM WIND	0 kts.	0/0	$2,852
Countywide	07-JUL-02	TSTM WIND	55 kts.	0/0	$4,153
Countywide	22-JUL-03	TSTM WIND	50 kts.	0/0	$2,688
Countywide	20-AUG-03	TSTM WIND	50 kts.	0/0	$4,032
Countywide	01-JUN-04	TSTM WIND	50 kts.	0/0	$3,914
Mt. Carmel	28-JUN-04	TSTM WIND	55 kts.	0/0	$1,305
Oak Vale	12-AUG-05	TSTM WIND	55 kts.	0/0	$25,335

Location	Date	Type	Magnitude	Deaths/ Injuries	Property Damage*
Oak Vale	21-AUG-05	TSTM WIND	55 kts.	0/0	$38,003
Oak Vale	08-MAY-06	TSTM WIND	50 kts.	0/0	$0
Carson	19-JUL-06	TSTM WIND	50 kts.	0/0	$0
Oak Vale	04-JAN-07	THUNDERSTORM WIND	55 kts.	0/0	$0
Carson	19-JUN-07	THUNDERSTORM WIND	52 kts.	0/0	$0
Carson	10-JUL-07	THUNDERSTORM WIND	50 kts.	0/0	$23,881
Hathorn	13-JUL-07	THUNDERSTORM WIND	53 kts.	0/0	$11,941
Hebron	12-FEB-08	THUNDERSTORM WIND	65 kts.	0/0	$17,389
Hebron	17-FEB-08	THUNDERSTORM WIND	50 kts.	0/0	$11,593
Oak Vale	03-MAR-08	THUNDERSTORM WIND	55 kts.	0/0	$0
Gwinville	03-MAR-08	THUNDERSTORM WIND	55 kts.	0/0	$13,911
Terrell	29-JUL-08	THUNDERSTORM WIND	60 kts.	0/0	$8,115
Lucas	02-AUG-08	THUNDERSTORM WIND	55 kts.	0/0	$0
Hebron	26-MAR-09	THUNDERSTORM WIND	75 kts.	0/0	$84,413
PRENTISS ARPT	12-APR-09	THUNDERSTORM WIND	60 kts.	0/0	$3,377
Lucas	03-MAY-09	THUNDERSTORM WIND	67 kts.	0/0	$90,041
Lucas	03-MAY-09	THUNDERSTORM WIND	70 kts.	0/0	$112,551
Gwinville	10-MAY-09	THUNDERSTORM WIND	50 kts.	0/0	$0
Oak Vale	12-MAY-09	THUNDERSTORM WIND	50 kts.	0/0	$2,251
Hebron	01-JUN-10	THUNDERSTORM WIND	50 kts.	0/0	$1,093
Carson	03-AUG-10	THUNDERSTORM WIND	50 kts.	0/0	$5,464
Mt. Carmel	03-AUG-10	THUNDERSTORM WIND	50 kts.	0/0	$0
Mt. Carmel	04-AUG-10	THUNDERSTORM WIND	50 kts.	0/0	$0
Carson	15-AUG-10	THUNDERSTORM WIND	50 kts.	0/0	$0
Mt. Carmel	09-MAR-11	THUNDERSTORM WIND	57 kts.	0/0	$5,305
Oak Vale	04-APR-11	THUNDERSTORM WIND	60 kts.	0/0	$53,045
Hebron	13-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$1,061
PRENTISS ARPT	13-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$1,061
Hathorn	04-JUL-11	THUNDERSTORM WIND	50 kts.	0/0	$3,183
Carson	18-AUG-11	THUNDERSTORM WIND	52 kts.	0/0	$5,305
Hathorn	18-AUG-12	THUNDERSTORM WIND	50 kts.	0/0	$5,150
Oak Vale	20-DEC-12	THUNDERSTORM WIND	50 kts.	0/0	$8,240
Melba	20-FEB-14	THUNDERSTORM WIND	50 kts.	0/0	$2,000
JEFFERSON DAVIS COUNTY	17-NOV-15	STRONG WIND	42 kts.	0/0	$7,000
Hebron	15-APR-15	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Hebron	30-MAY-15	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Mt. Caramel	24-JUN-15	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Hebron	15-FEB-16	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Carson	15-FEB-16	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Carson	17-MAR-17	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Carson	21-JAN-17	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Lucas	09-MAR-17	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Mt. Caramel	03-APR-17	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Carson	26-APR-17	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Hebron	16-JUN-17	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Hebron	25-JUL-17	THUNDERSTORM WIND	50 kts.	0/0	$2,000

Location	Date	Type	Magnitude	Deaths/ Injuries	Property Damage*
Carson	29-MAR-18	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Terrell	16-AUG-18	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Hebron	01-NOV-18	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Mt. Caramel	01-NOV-18	THUNDERSTORM WIND	50 kts.	0/0	$2,000

*All damage may not have been reported.
Source: National Centers for Environmental Information

Hailstorm

According to the National Centers for Environmental Information, 78 recorded hailstorm events have affected Jefferson Davis County since 1972.[13] **Table C.17** is a summary of the hail events in Jefferson Davis County. **Table C.18** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over $604,000 in property damages. Hail ranged in diameter from 0.75 inches to 1.75 inches. It should be noted that hail is notorious for causing substantial damage to cars, roofs, and other areas of the built environment that may not be reported to the National Centers for Environmental Information. Therefore, it is likely that damages are greater than the reported value. However, NCEI did not note any monetary damages for this planning period.

TABLE C.17: SUMMARY OF HAIL OCCURRENCES IN JEFFERSON DAVIS COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Bassfield	21	0/0	$90,140
Prentiss	17	0/0	$145,178
Unincorporated Area	40	0/0	$368,790
JEFFERSON DAVIS COUNTY TOTAL	**78**	**0/0**	**$604,108**

Source: National Centers for Environmental Information

TABLE C.18: HISTORICAL HAIL OCCURRENCES IN JEFFERSON DAVIS COUNTY

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Bassfield				
Bassfield	30-MAR-93	1.75 in.	0/0	$87,452
Bassfield	27-NOV-94	0.75 in.	0/0	$0
Bassfield	19-FEB-96	1.25 in.	0/0	$0
Bassfield	19-FEB-96	1.25 in.	0/0	$0
Bassfield	18-MAR-96	1.75 in.	0/0	$0
Bassfield	30-MAR-97	1.75 in.	0/0	$0
Bassfield	01-JUL-98	1.00 in.	0/0	$0
Bassfield	09-FEB-99	0.75 in.	0/0	$0
Bassfield	11-OCT-01	0.75 in.	0/0	$0
Bassfield	01-MAR-01	0.88 in.	0/0	$0
Bassfield	15-MAR-02	0.88 in.	0/0	$0
Bassfield	15-NOV-02	0.75 in.	0/0	$0
Bassfield	17-MAY-03	0.88 in.	0/0	$1,344

[13] These hail events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional hail events have affected Jefferson Davis County. As additional local data becomes available, this hazard profile will be amended.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Bassfield	24-APR-03	0.88 in.	0/0	$1,344
Bassfield	26-MAR-05	1.50 in.	0/0	$0
Bassfield	30-MAR-05	0.75 in.	0/0	$0
Bassfield	22-APR-05	0.88 in.	0/0	$0
Bassfield	22-APR-05	0.75 in.	0/0	$0
Bassfield	12-FEB-08	0.75 in.	0/0	$0
Bassfield	12-MAY-09	0.75 in.	0/0	$0
Bassfield	21-JAN-17	1.00 in.	0/0	$0
Prentiss				
Prentiss	07-MAR-95	0.75 in.	0/0	$0
Prentiss	30-MAR-96	1.25 in.	0/0	$0
Prentiss	17-APR-98	0.75 in.	0/0	$0
Prentiss	07-JUL-02	1.75 in.	0/0	$0
Prentiss	20-AUG-03	0.88 in.	0/0	$1,344
Prentiss	01-MAY-04	0.75 in.	0/0	$0
Prentiss	06-APR-05	1.75 in.	0/0	$76,006
Prentiss	04-DEC-05	0.75 in.	0/0	$0
Prentiss	06-APR-05	1.75 in.	0/0	$6,334
Prentiss	08-MAY-06	1.75 in.	0/0	$61,494
Prentiss	06-FEB-06	1.00 in.	0/0	$0
Prentiss	24-MAY-09	0.75 in.	0/0	$0
Prentiss	04-JUL-11	1.00 in.	0/0	$0
Prentiss	02-APR-12	0.88 in.	0/0	$0
Prentiss	21-MAY-12	1.00 in.	0/0	$0
Prentiss	23-DEC-14	1.00 in.	0/0	$0
Prentiss	17-MAR-16	0.75 in.	0/0	$0
Unincorporated Area				
JEFFERSON DAVIS COUNTY	18-MAR-72	1.75 in.	0/0	$0
JEFFERSON DAVIS COUNTY	26-MAY-73	1.75 in.	0/0	$0
JEFFERSON DAVIS COUNTY	07-MAY-75	1.75 in.	0/0	$0
JEFFERSON DAVIS COUNTY	03-MAY-87	1.00 in.	0/0	$0
JEFFERSON DAVIS COUNTY	09-APR-91	1.00 in.	0/0	$0
JEFFERSON DAVIS COUNTY	18-APR-88	1.75 in.	0/0	$0
JEFFERSON DAVIS COUNTY	03-MAY-84	1.75 in.	0/0	$0
JEFFERSON DAVIS COUNTY	23-JUL-84	1.00 in.	0/0	$0
JEFFERSON DAVIS COUNTY	18-MAY-86	1.75 in.	0/0	$0
JEFFERSON DAVIS COUNTY	12-APR-91	1.75 in.	0/0	$0

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
JEFFERSON DAVIS COUNTY	12-APR-86	0.75 in.	0/0	$0
Carson	15-MAR-95	0.75 in.	0/0	$0
Melba	26-JAN-96	1.00 in.	0/0	$0
HATHORN	28-MAY-96	0.75 in.	0/0	$0
Melba	18-MAR-96	1.75 in.	0/0	$321,822
Hebron	22-APR-97	0.75 in.	0/0	$0
Carson	10-MAR-00	0.75 in.	0/0	$0
HATHORN	06-APR-05	1.75 in.	0/0	$0
Hebron	06-APR-05	1.00 in.	0/0	$0
Hebron	06-APR-05	1.00 in.	0/0	$0
Hebron	26-MAR-05	1.00 in.	0/0	$0
MT CARMEL	03-FEB-06	0.75 in.	0/0	$0
Oak Vale	19-JUL-06	0.75 in.	0/0	$0
Hebron	08-MAY-06	1.50 in.	0/0	$0
Oak Vale	08-MAY-06	0.88 in.	0/0	$0
Hebron	09-MAY-06	0.88 in.	0/0	$0
Oak Vale	10-JAN-08	0.75 in.	0/0	$0
Hebron	21-FEB-08	1.75 in.	0/0	$0
Oak Vale	10-JAN-08	0.88 in.	0/0	$0
Terrell	09-DEC-08	0.75 in.	0/0	$0
Gwinville	29-JUL-08	0.75 in.	0/0	$0
Lucas	05-MAY-09	0.88 in.	0/0	$0
Lucas	12-MAY-09	0.88 in.	0/0	$0
Carson	27-MAR-09	0.88 in.	0/0	$0
HATHORN	02-APR-09	0.75 in.	0/0	$0
PRENTISS ARPT	07-JUN-11	1.00 in.	0/0	$21,218
PRENTISS ARPT	02-APR-12	1.75 in.	0/0	$25,750
Gwinville	15-AUG-12	1.00 in.	0/0	$0
Gwinville	03-MAR-16	0.75 in.	0/0	$0
Lucas	09-MAR-17	1.00 in.	0/0	$0

*All damage may not have been reported.
Source: National Centers for Environmental Information

Lightning

According to the National Centers for Environmental Information, there have been five recorded lightning events in Jefferson Davis County since 2005. These events resulted in almost $431,000 in damages as listed in summary **Table C.19**.[14] However, it is likely that more lightning events have in fact impacted the county. Many of the reported events are those that caused damage, and it should be expected that damages are likely much higher for this hazard than what is reported. Detailed information on historical lightning events can be found in **Table C.20**.

[14] These lightning events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is certain that additional lightning events have occurred in Jefferson Davis County. As additional local data becomes available, this hazard profile will be amended.

646 **TABLE C.19: SUMMARY OF LIGHTNING OCCURRENCES IN JEFFERSON DAVIS COUNTY**

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Bassfield	1	0/0	$380,031
Prentiss	2	0/0	$16,365
Unincorporated Area	2	0/0	$35,000
JEFFERSON DAVIS COUNTY TOTAL	**5**	**0/0**	**$431,396**

Source: National Centers for Environmental Information

647

648 **TABLE C.20: HISTORICAL LIGHTNING OCCURRENCES IN JEFFERSON DAVIS COUNTY**

Location	Date	Deaths / Injuries	Property Damage*	Details
Bassfield				
Bassfield	12-AUG-05	0/0	$380,031	Lightning struck a Beauty Shop and caused the building to catch fire. Significant damage occurred to the shop.
Prentiss				
Prentiss	04-JUL-11	0/0	$6,365	The Sheriff's Office radio repeater was damaged by lightning.
Prentiss	03-JAN-15	0/0	$10,000	Lightning caused a house fire along Mississippi Highway 42 West.
Unincorporated Area				
Mt. Carmel	03-JAN-15	0/0	$10,000	Lightning caused a mobile home fire along James Berry Lane.
Terrell	30-APR-17	0/1	$25,000	A person was struck by lightning as they were getting inside their truck. Other cars were struck at the residence as well along Black Polk Road.

*Property damage is reported in 2013 dollars; All damage may not have been reported.
Source: National Centers for Environmental Information

649

650 ***PROBABILITY OF FUTURE OCCURRENCES***

651

652 **Thunderstorm / High Wind**

653 Given the high number of previous events, it is certain that wind events, including straight-line wind and
654 thunderstorm wind, will occur in the future. This results in a probability level of highly likely (100
655 percent annual probability) for future wind events for the entire county.

656

657 **Hailstorm**

658 Based on historical occurrence information, it is assumed that the probability of future hail occurrences
659 is likely (10 – 100 percent annual probability). Since hail is an atmospheric hazard (coinciding with
660 thunderstorms), it is assumed that Jefferson Davis County has equal exposure to this hazard. It can be
661 expected that future hail events will continue to cause minor damage to property and vehicles
662 throughout the county.

663

664 **Lightning**

665 Although there was not a high number of historical lightning events reported in Jefferson Davis County
666 via NCEI data, it is a regular occurrence accompanied by thunderstorms. In fact, lightning events will

assuredly happen on an annual basis, though not all events will cause damage. According to Vaisala's U.S. National Lightning Detection Network (NLDN®), Jefferson Davis County is located in an area of the country that experienced an average of 6 to 8 lightning flashes per square kilometer per year between 1997 and 2010. Therefore, the probability of future events is highly likely (100 percent annual probability). It can be expected that future lightning events will continue to threaten life and cause minor property damages throughout the county.

C.2.12 Tornado

LOCATION AND SPATIAL EXTENT

Tornadoes occur throughout the state of Mississippi, and thus in Jefferson Davis County. Tornadoes typically impact a relatively small area, but damage may be extensive. Event locations are completely random, and it is not possible to predict specific areas that are more susceptible to tornado strikes over time. Therefore, it is assumed that Jefferson Davis County is uniformly exposed to this hazard.

HISTORICAL OCCURRENCES

Tornadoes resulted in two disaster declarations in Jefferson Davis County in 1992 and 2009.[15] According to the National Centers for Environmental Information, there have been a total of 27 recorded tornado events in Jefferson Davis County since 1961 (**Table C.21**), resulting in over $9.3 million in property damages.[16] In addition, 11 injuries were reported, but none in this planning period. The magnitude of these tornadoes ranges from F0 to F4 in intensity, although an F5 event is possible. Detailed information on historic tornado events can be found in **Table C.22**.

TABLE C.21: SUMMARY OF TORNADO OCCURRENCES IN JEFFERSON DAVIS COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Bassfield	6	0/0	$987,816
Prentiss	2	0/0	$39,144
Unincorporated Area	19	0/11	$8,313,578
JEFFERSON DAVIS COUNTY TOTAL	**27**	**0/11**	**$9,340,538**

Source: National Centers for Environmental Information

[15] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.
[16] These tornado events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional tornadoes have occurred in Jefferson Davis County. As additional local data becomes available, this hazard profile will be amended.

694 **TABLE C.22: HISTORICAL TORNADO IMPACTS IN JEFFERSON DAVIS COUNTY**

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Bassfield					
Bassfield	27-JAN-94	F1	0/0	$852,283	Several houses were damaged, several barns were totaled, a couple of campers were damaged, numerous trees were blown down, and one 8600 pound horse trailer was blown over and moved 15 yards. A horse barn that was built to withstand hurricane force winds was heavily damaged.
Bassfield	27-OCT-95	F0	0/0	$3,314	This tornado was sighted by a volunteer spotter. The tornado did some damage to some trees, but did no structural damage.
Bassfield	27-NOV-03	F1	0/0	$20,159	A tornado touched down 3.5 miles southwest of Bassfield and tracked northeast for 2 miles. This tornado crossed over Highway 35 and damaged numerous trees with a few large trees uprooted. A portion of a chicken house was destroyed as well as a carport next to a house.
Bassfield	16-OCT-06	F0	0/0	$0	This weak tornado briefly touched down just outside of Bassfield and snapped a few trees.
Bassfield	13-FEB-07	F0	0/0	$5,970	This weak tornado downed several trees and broke off limbs along its 3 mile path across southern Jefferson Davis County.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Bassfield	16-NOV-11	F1	0/0	$106,090	The tornado started in Marion County on Goss Bunker Hill Road with mostly minor tree damage. As it moved northeast, crossing Stuckey Road, more minor tree damage occurred along with home TV and radio antennas being blown down. As it moved along E. Reservoir Road, more substantial tree damage occurred along with roof damage to a few homes and mobile homes. As it continued northeast, more major tree damage occurred along with snapped power poles on Bufkin and Grice Roads. The most significant damage occurred along Bunker Hill Road where roof damage occurred to a home along with many trees snapped and uprooted. Several metal sheds were either severely damaged or destroyed. A cattle trailer was picked up and thrown approximately 200 yards. As it crossed Hwy 35, major tree damage continued where pines and hardwood trees were either snapped or uprooted. A carport was collapsed at a residence near Bryant Road. The tornado continued northeast crossing Robbins and F. Mcneese Road where mainly tree damage occurred. As the tornado crossed S Williamsburg Road, the roof of a newly built barn was torn off along with major tree damage. As it continued northeast from there, mostly tree damage occurred until it ended near Gates Road, just south of Hwy 42 in Jefferson Davis County. Maximum wind speeds were estimated at 100 mph.
Prentiss					
Prentiss	01-MAY-04	F1	0/0	$19,572	This tornado tracked northeast across central portions of Jefferson Davis county and downed numerous trees along its path.
Prentiss	01-MAY-04	F1	0/0	$19,572	This weak tornado downed dozens of trees as it moved east northeast into Covington county. This tornado crossed into Covington county just to the north of the Terrell community.
Unincorporated Area					
JEFFERSON DAVIS COUNTY	20-FEB-61	F2	0/4	$211,725	
JEFFERSON DAVIS COUNTY	20-FEB-61	F2	0/2	$2,117,250	
JEFFERSON DAVIS COUNTY	10-DEC-71	F3	0/0	$15,592	
JEFFERSON DAVIS COUNTY	15-DEC-71	F3	0/0	$155,922	

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
JEFFERSON DAVIS COUNTY	09-JAN-72	F2	0/0	$151,232	
JEFFERSON DAVIS COUNTY	18-APR-78	F4	0/0	$969	
JEFFERSON DAVIS COUNTY	07-MAY-82	F3	0/0	$654,110	
JEFFERSON DAVIS COUNTY	21-NOV-92	F3	0/5	$4,499,799	
Carson	04-DEC-93	F0	0/0	$875	The tornado moved through a wooded area and blew down several trees.
Melba	16-FEB-01	F0	0/0	$21,386	An F0 tornado first touched down in extreme northeast Marion County. The tornado caused downed trees in this rural area, then moved northeast out of the county into a rural area of extreme northwest Lamar County. Damage was confined to downed trees. The tornado then moved northeast out of the county and into extreme southeast Jefferson Davis County about one mile southeast of Melba. Two barns sustained minor structural damage, and two houses had minor roof damage. A number of trees were also blown down. The tornado only tracked about .5 mile in Jefferson Davis County before dissipating. The total tornado track through all three counties was about three miles.
Hebron	26-MAR-05	F1	0/0	$25,335	This tornado touched down just to the northeast of Hebron and tracked east-northeast for 2 miles. Numerous large trees were uprooted across Atkinson and Sykes Roads.
Carson	17-OCT-07	F1	0/0	$119,405	Several trees were blown down along the short path and a storage building had its roof blown off. An addition to a house had a portion of the roof blown off and another storage building was destroyed. The tornado was rated EF1 with a path length of 1/3 mile and a width of 100 yards.
PRENTISS ARPT	09-DEC-08	F1	0/0	$115,927	Most of the damage was minor to moderate tree damage along the tornado path. However, an outbuilding was destroyed on Burrow Road, with the tin strewn dozens of yards downstream. Additionally, one house on Fate Ward Road suffered some roof damage. Maximum winds were around 95 mph.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Gwinville	03-MAY-09	F1	0/0	$2,251	The tornado began and tracked across rural northeast Jefferson Davis County, far northwest Covington County and then into southeast Simpson County. Snapped and uprooted large hardwood and softwood trees occurred along the path. The most intense damage occurred in the Saratoga Community in southeast Simpson County. A travel trailer was completely destroyed and two chicken houses were heavily damaged. Snapped pine trees fell on a church and damaged a roof and some shingle damage occurred on a few other homes. Skirting was blown off of a mobile home and a chicken house was damaged near the Simpson and Smith county line. Maximum winds were 100 mph. The track began three miles north of Clem and ended four miles north northeast of Mount Olive. Total path length across the 3 counties was around 9 miles.
Terrell	02-MAR-12	F0	0/0	$61,800	The tornado began near the intersection of Mt. Carmel Road and East Granby Road, where a few large limbs were downed. The tornado continued east northeast, where it destroyed a mobile home's porch and also knocked another mobile home off of its piers. The tornado ended just past this location, where it snapped and uprooted a few hardwood and softwood trees. Maximum wind speeds were estimated at 85 miles per hour.
Lucas	10-JUL-16	F1	0/0	$110,000	A brief weak tornado with 90 mph winds touched down in Lucas along Highway 84 and moved north along Lucas-Warner Road for 0.77 miles causing tree and roof damage. Two homes had significant roof damage with half of the roof torn off. A church steeple was removed and the roof peeled. A mobile home was also damaged. The estimated peak wind was 90 mph.
Terrell	30-MAR-17	F0	0/0	$15,000	This brief tornado touched down at Williams Ln, just off Highway 35, and tracked north for about one mile. At Williams Ln, a large tree was blown down onto a truck, the tree was laid to the west. Other large limbs and tree debris was also blown down here and laid to the west. The tornado broke off several limbs a Granby Road where it then dissipated. Maximum winds were around 80 mph.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Hebron	06-APR-18	F1	0/0	$25,000	This tornado touched down just east-northeast of New Hebron, along Old Hebron Gwinville Road. Some trees were snapped and uprooted in this area. It continued east-southeast towards Silver Swamp Road and New Hebron Janesville Road. More trees and limbs were snapped or uprooted in this area, especially along New Hebron Janesville Road. The tornado continued across Highway 13 and Dale Road, where a few large trees were uprooted in the fields and woods nearby. The tornado lifted soon after before crossing Sugar Ridge Road. The maximum estimated winds with this tornado were 95mph.
Mt. Caramel	06-APR-18	F1	0/0	$10,000	This tornado touched down near the Jefferson Davis-Covington County line along Lucas Hollow Road. It continued southeast, crossing the county line. Some large limbs and trees were snapped and uprooted at this location. It then crossed Lucas Hollow Road again before crossing Leonard Road. A tornado debris signature was indicated on radar in these locations. The tornado uprooted and snapped many trees in this region. It also overturned a small tractor trailer on Oakvale Road and caused some minor shingle damage to a home. After crossing Oakvale Road twice, the tornado lifted before crossing Highway 35. The maximum winds in this tornado was 105mph and total path length was 2.91 miles. The maximum path width was 440 yards.

Source: National Centers for Environmental Information

PROBABILITY OF FUTURE OCCURRENCES

According to historical information, tornado events pose a significant threat to Jefferson Davis County. The probability of future tornado occurrences affecting Jefferson Davis County is likely (10 – 100 percent annual probability).

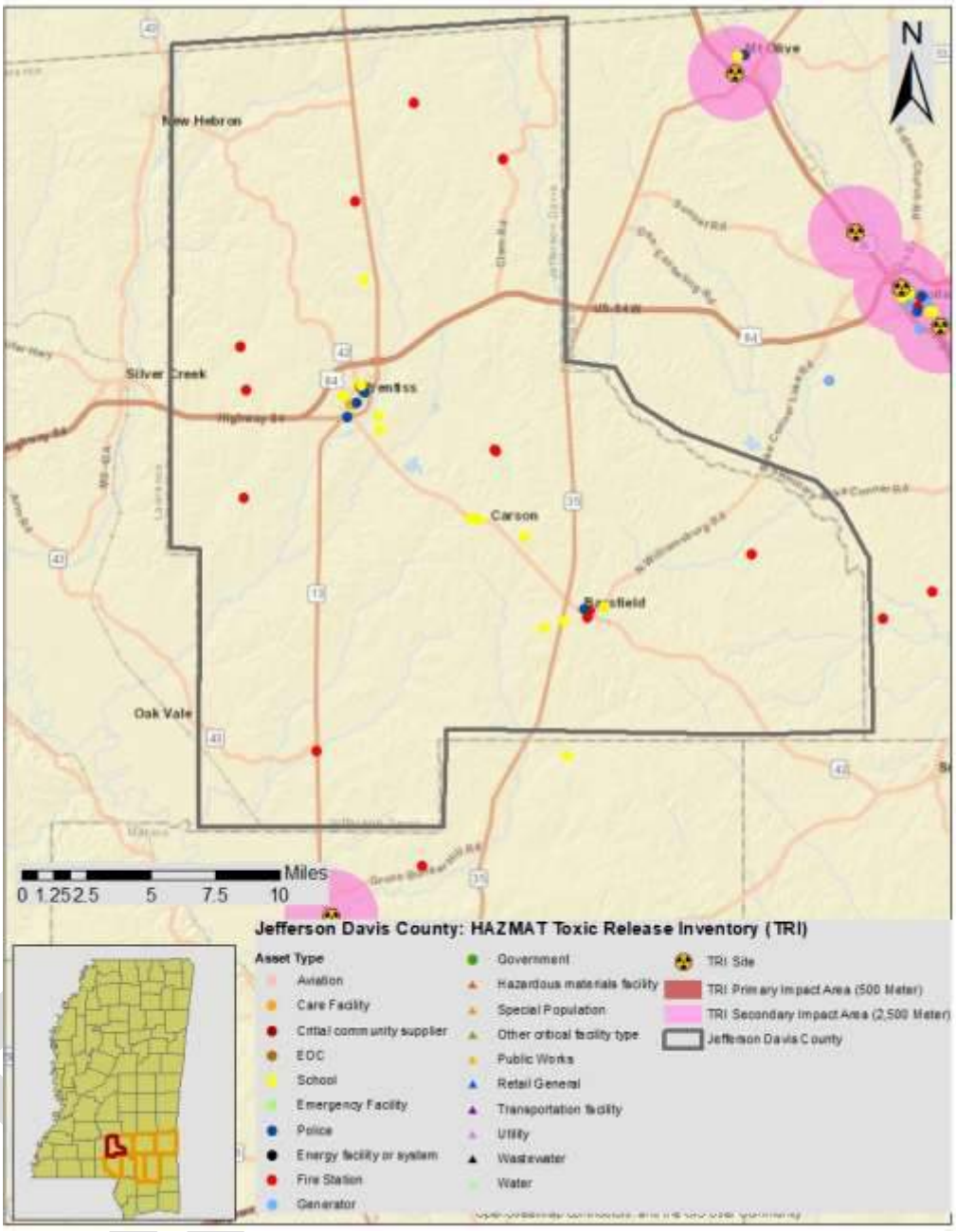
C.2.13 Hazardous Materials Incidents

LOCATION AND SPATIAL EXTENT

Hazardous Materials

Jefferson Davis County has no TRI sites as shown in **Figure C.9**.

FIGURE C.9: TOXIC RELEASE INVENTORY (TRI) SITES IN JEFFERSON DAVIS COUNTY



Source: EPA

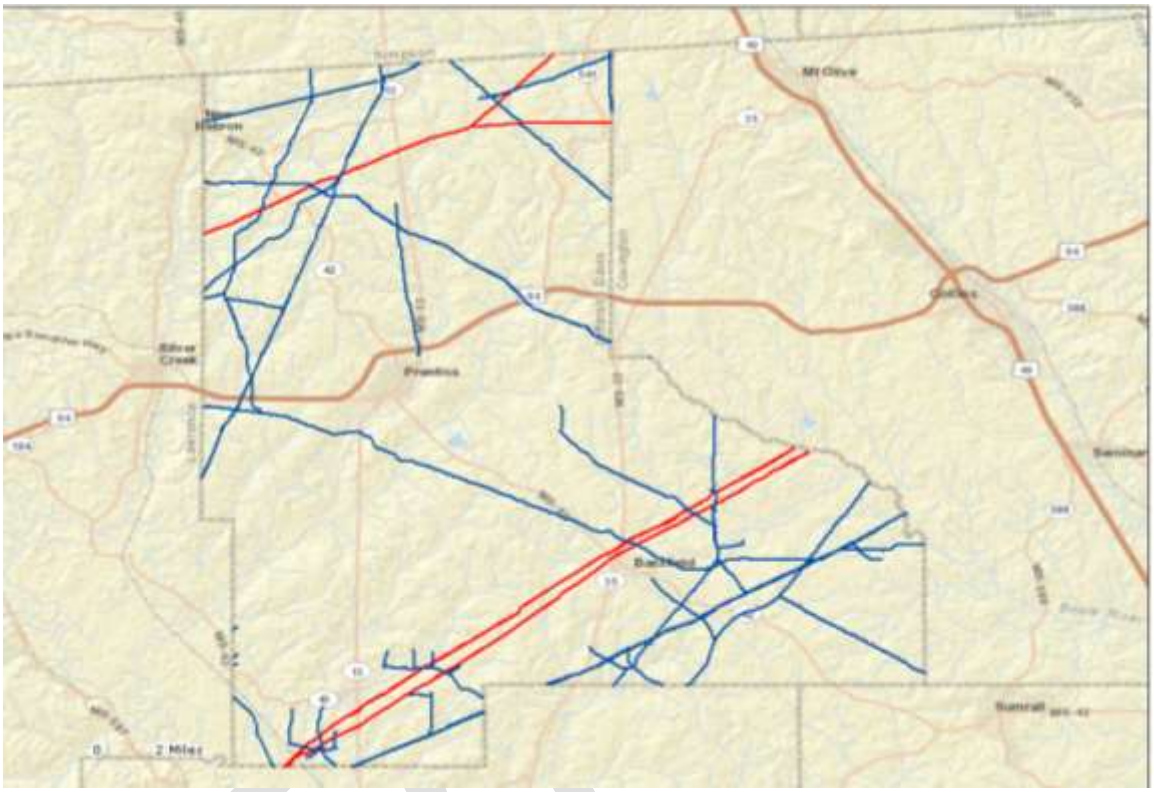
In addition to "fixed" hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially at risk to an incident.

Pipelines

There are two distinct types of pipelines that are used in the transport of potentially hazardous materials, gas lines and hazardous liquid lines. **Figure A.10** shows the trunk lines for each of these

material types but does not show the gathering or distribution pipelines. Gas lines are in blue and hazardous liquid lines are in red. There are no changes to this data since the last plan.

FIGURE C.10: PIPELINES IN JEFFERSON DAVIS COUNTY



Source: Pipeline and Hazardous Materials Safety Administration

Meth Labs

Meth lab incidents have occurred at various times throughout Jefferson Davis County. Although there is not an extensive documented record of these events, they have occurred in the past and are generally confined to single sites, often in residential areas.

HISTORICAL OCCURRENCES

Hazardous Materials

There has been a total of one recorded HAZMAT incident in Jefferson Davis County since 2003 (**Table C.23**), resulting in $55,300 in property damages. **Table C.**24 presents detailed information on historic HAZMAT incidents in Jefferson Davis County as reported by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA).

TABLE C.23: SUMMARY OF HAZMAT INCIDENTS IN JEFFERSON DAVIS COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Bassfield	0	0/0	$0
Prentiss	1	0/0	$55,300
Unincorporated Area	0	0/0	$0

Location	Number of Occurrences	Deaths / Injuries	Property Damage
JEFFERSON DAVIS COUNTY TOTAL	1	0/0	$55,300

Source: USDOT PHMSA

TABLE C.24: HAZMAT INCIDENTS IN JEFFERSON DAVIS COUNTY

Report Number	Date	City	Mode	Serious Incident?	Fatalities/ Injuries	Damages ($)	Quantity Released
Bassfield							
None Reported	--	--	--	--	--	--	--
Prentiss							
I-2003120943	4/22/2003	PRENTISS	Highway	Yes	0/0	$55,300	200 LGA
Unincorporated Area							
None Reported	--	--	--	--	--	--	--

Source: USDOT PHMSA

Pipelines

Between 2002 and 2019, there have been no pipeline incidents in Jefferson Davis County.

Meth Labs

Meth lab incidents have occurred at various times throughout Jefferson Davis County. Although there is not an extensive documented record of these events, they have occurred in the past and are generally confined to single sites, often in residential areas.

PROBABILITY OF FUTURE OCCURRENCES

Hazardous Materials

Since there are no toxic release inventory sites in Jefferson Davis County and there has only been one roadway or rail incident, it is unlikely that a hazardous material incident may occur in the county (less than one percent annual probability). County and town officials are mindful of this possibility and take precautions to prevent such an event from occurring. Furthermore, there are detailed plans in place to respond to an occurrence.

Although there are no TRI sites and a very limited record of previous events in the county, hazardous materials incidents will continue to be a threat. The county may also be impacted by neighboring counties which also face risk due to TRI sites and narrow roadways.

Pipelines

Although there have been no major pipeline incidents, there are 409 miles of gas and hazardous liquid lines in the region. Therefore, it is anticipated that there will be future pipeline incidents in Jefferson Davis County, and they are considered possible.

Meth Labs

Meth lab incidents will likely continue to occur throughout Jefferson Davis County. Although it is difficult to predict where exactly these incidents would occur, the probability that they will is possible.

C.2.14 Cyber Attacks

A cyber-attack is a malicious, intentional attempt to breach the information technology (IT) infrastructure of an individual or organization. The State of Mississippi defines a cyberterrorism incident as any adverse premeditated, politically, financially or maliciously motivated attack against informational systems. A cyberterrorism event can impact one or more of Jefferson Davis County's and its, corresponding departments' and divisions' information assets by the following ways, which includes, but are not limited to, the following:

- Unauthorized use
- Denial of Service
- Malicious code
- Network system failures
- Application system failures
- Unauthorized disclosure or loss of information
- Information security breach
- Structured Query Language (SQL) Injection

LOCATION AND HAZARD EXTENT

The cyberterrorism hazard is not geographically based. Attacks can originate from any computer to affect any other computer in the world. If a system is connected to the Internet or operating on a wireless frequency, it is susceptible to exploitation. Targets of cyberterrorism can be individual computers, networks, organizations, business sectors, or governments. Financial institutions and retailers are often targeted to extract personal and financial data that can be used to steal money from individuals and banks.

HISTORICAL OCCURRENCES

There have been no known historical occurrences to have occurred in in Jefferson Davis County to date.

PROBABILITY OF FUTURE OCCURRENCES

As is the case for any governmental organization, there will always be the potential for impact for Jefferson Davis County. As such, the county will continue to be compelled to respond to cyberterrorisms in the future. The nature of these attacks is projected to evolve in sophistication over time. Jefferson Davis County will take a proactive position in its cyber security efforts and is expected to remain vigilant in its efforts to prevent attacks from occurring and/or disrupting business operations.

The reality remains that many computers and networks in organizations of all sizes and industries around the United States will continue to suffer intrusion attempts on a daily basis from viruses and malware that are passed through web sites and emails. Again, the potential for harm via this hazard is always present.

C.2.15 Conclusions on Hazard Risk

The hazard profiles presented above were developed using best available data and result in what may be considered principally a qualitative assessment as recommended by FEMA in its "How-to" guidance document titled *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA Publication 386-2). It relies heavily on historical and anecdotal data, stakeholder input, and professional and experienced judgment regarding observed and/or anticipated hazard impacts. It also carefully considers the findings in other relevant plans, studies, and technical reports.

HAZARD EXTENT

Table C.25 describes the extent of each natural hazard identified for Jefferson Davis County. The extent of a hazard is defined as its severity or magnitude, as it relates to the planning area.

TABLE C.25: EXTENT OF JEFFERSON DAVIS COUNTY HAZARDS

Flood-related Hazards	
Flood	Flood extent can be measured by the amount of land and property in the floodplain as well as flood height and velocity. The amount of land in the floodplain accounts for 11.2 percent of the total land area in Jefferson Davis County. Flood depth and velocity are recorded via United States Geological Survey stream gages throughout the region. While a gage does not exist for each participating jurisdiction, there is one at or near many areas. The greatest peak discharge recorded for the county was at the Goines Draw near Prentiss in 1974. Water reached a discharge of 610 cubic feet per second and the stream gage height was recorded at 9.10 feet.
Erosion	The extent of erosion can be defined by the measurable rate of erosion that occurs. There are no erosion rate records located in Jefferson Davis County.
Dam Failure	Dam Failure extent is defined using the Mississippi Division of Environmental Quality criteria. Two dams are classified as high-hazard in the county.
Winter Storm and Freeze	The extent of winter storms can be measured by the amount of snowfall received (in inches). Official long-term snow records are not kept for any areas in the MEMA District 8 Region. However, the greatest snowfall reported in Jackson (north of the county) was 11.7 inches in 1904 and in Meridian (northeast of the county) was 14.0 inches in 1963.
Fire-related Hazards	
Drought / Heat Wave	Drought extent is defined by the U.S. Drought Monitor Classifications which include Abnormally Dry, Moderate Drought, Severe Drought, Extreme Drought, and Exceptional Drought. According to the U.S. Drought Monitor Classifications, the most severe drought condition is Exceptional. Jefferson Davis County has received this ranking once over the eighteen-year reporting period. The extent of extreme heat can be measures by the record high temperature recorded. Official long-term temperature records are not kept for any areas in Jefferson Davis County. However, the highest recorded temperature in Hattiesburg (southeast of the county) was 106°F in 1989.

Wildfire	Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2008-2018. The greatest number of fires to occur in Jefferson Davis County in any year was 135 in 2011. The greatest number of acres to burn in the county in a single year occurred in 2011 when 953 acres were burned. Although this data lists the extent that has occurred, larger and more frequent wildfires are possible throughout the county.
Geologic Hazards	
Earthquake	Earthquake extent can be measured by the Richter Scale and the Modified Mercalli Intensity (MMI) scale and the distance of the epicenter from Jefferson Davis County. According to data provided by the National Geophysical Data Center, no recorded earthquakes have been located in the county. However, USGS data shows Jefferson Davis County lies within an approximate zone of level .04 ground acceleration. This indicates that the county exists within an area of moderate seismic risk.
Landslide	As noted above in the landslide profile, there is no extensive history of landslides in Jefferson Davis County and landslide events typically occur in isolated areas. This provides a challenge when trying to determine an accurate extent for the landslide hazard. However, when using USGS landslide susceptibility index, extent can be measured with incidence, which is low throughout the county. There is also susceptibility throughout the county.
Expansive Soils	As noted above in the expansive soils profile, there is no historical record of significant expansive soil events in Jefferson Davis County. Again, this provides a challenge when trying to determine an accurate extent for the expansive soils hazard. However, when using USGS data on soils with clay swelling potential, extent can be measured with swelling potential, which is high in less than 50 percent of the soils Jefferson Davis County.
Wind-related Hazards	
Hurricane and Tropical Storm	Hurricane extent is defined by the Saffir-Simpson Scale which classifies hurricanes into Category 1 through Category 5. The greatest classification of hurricane to traverse directly through Jefferson Davis County was a Category 3 storm (Hurricane Camille in 1969) which carried tropical force winds of 155 miles per hour upon arrival in the county.
Thunderstorm / Hail / Lightning	Thunderstorm extent is defined by the number of thunder events and wind speeds reported. According to a 63-year history from the National Centers for Environmental Information, the strongest recorded wind event in Jefferson Davis County was last reported on March 26, 2009 at 75 knots (approximately 86 mph). It should be noted that future events may exceed these historical occurrences. Hail extent can be defined by the size of the hail stone. The largest hail stone reported in Jefferson Davis County was 1.75 inches (last reported on April 2, 2012). It should be noted that future events may exceed this. According to the Vaisala's flash density map (Figure 5.16), Jefferson Davis County is located in an area that experiences 6 to 8 lightning flashes per square kilometer per year. It should be noted that future lightning occurrences may exceed these figures.
Tornado	Tornado hazard extent is measured by tornado occurrences in the US provided by FEMA as well as the Fujita/Enhanced Fujita Scale. The greatest magnitude reported in Jefferson Davis County was an F4 (reported on April 18, 1978).

Other Hazards	
Hazardous Materials Incident	According to USDOT PHMSA, the largest hazardous materials incident reported in the county is 200 LGA released on the highway in Prentiss. It should be noted that larger events are possible. A pipeline incident could have a potentially large impact in terms of extent. Based on recent history, the largest spill in the last 10 years in Mississippi caused over 10,000 barrels of hazardous liquid to be spilled. Because of the generally small-scale nature of most meth labs, the extent of a fire or explosion that was caused by a meth lab incident would likely not be larger than a few acres.
Cyber Attack	The extent of cyberterrorism is difficult to estimate. Attacks can originate from any computer to affect any other computer in the world. The resulting damages depends on the demands of the cyberterrorist.

PRIORITY RISK INDEX RESULTS

In order to draw some meaningful planning conclusions on hazard risk for Jefferson Davis County, the results of the hazard profiling process were used to generate countywide hazard classifications according to a "Priority Risk Index" (PRI). More information on the PRI and how it was calculated can be found in Section 5.16.2.

Table C.26 summarizes the degree of risk assigned to each category for all initially identified hazards based on the application of the PRI. Assigned risk levels were based on the detailed hazard profiles developed for this section, as well as input from the Regional Hazard Mitigation Council. The results were then used in calculating PRI values and making final determinations for the risk assessment.

TABLE C.26: SUMMARY OF PRI RESULTS FOR JEFFERSON DAVIS COUNTY

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Flood-related Hazards						
Flood	Likely	Limited	Small	6 to 12 hours	Less than 24 hours	**2.4**
Erosion	Possible	Minor	Small	More than 24 hours	More than 1 week	**1.8**
Dam Failure	Unlikely	Critical	Moderate	More than 24 hours	Less than 6 hours	**2.0**
Winter Storm and Freeze	Possible	Limited	Large	More than 24 hours	Less than 24 hours	**2.3**
Fire-related Hazards						
Drought / Heat Wave	Highly Likely	Minor	Large	More than 24 hours	More than 1 week	**2.8**
Wildfire	Likely	Minor	Small	Less than 6 hours	Less than 1 week	**2.1**
Geologic Hazards						
Earthquake	Unlikely	Minor	Moderate	Less than 6 hours	Less than 6 hours	**1.7**
Landslide	Unlikely	Minor	Small	Less than 6 hours	Less than 6 hours	**1.5**
Expansive Soils	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**

Wind-related Hazards						
Hurricane and Tropical Storm	Likely	Catastrophic	Large	More than 24 hours	Less than 24 hours	**3.2**
Thunderstorm Wind / High Wind	Highly Likely	Limited	Moderate	Less than 6 hours	Less than 6 hours	**2.9**
Hailstorm	Likely	Minor	Small	Less than 6 hours	Less than 6 hours	**2.1**
Lighting	Highly Likely	Limited	Negligible	Less than 6 hours	Less than 6 hours	**2.5**
Tornado	Likely	Critical	Small	Less than 6 hours	Less than 6 hours	**2.7**
Other Hazards						
Hazardous Materials Incident	Unlikely	Limited	Small	Less than 6 hours	Less than 24 hours	**1.9**
Pipeline Incident	Possible	Limited	Small	Less than 6 hours	Less than 24 hours	**2.2**
Meth Lab Incident	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Cyber-Attack	Unlikely					

C.2.16 Final Determinations on Hazard Risk

The conclusions drawn from the hazard profiling process for Jefferson Davis County, including the PRI results and input from the Regional Hazard Mitigation Council, resulted in the classification of risk for each identified hazard according to three categories: High Risk, Moderate Risk, and Low Risk (**Table C.27**). For purposes of these classifications, risk is expressed in relative terms according to the estimated impact that a hazard will have on human life and property throughout all of Jefferson Davis County. A more quantitative analysis to estimate potential dollar losses for each hazard has been performed separately and is described in Section 6: *Vulnerability Assessment* and below in Section C.3. It should be noted that although some hazards are classified below as posing low risk, their occurrence of varying or unprecedented magnitudes is still possible in some cases and their assigned classification will continue to be evaluated during future plan updates.

TABLE C.27: CONCLUSIONS ON HAZARD RISK FOR JEFFERSON DAVIS COUNTY

HIGH RISK	Hurricane and Tropical Storm Thunderstorm Wind / High Wind Tornado Flood
MODERATE RISK	Drought / Heat Wave Dam Failure Lightning Hailstorm Pipeline Incident Hazardous Material Incident Wildfire
LOW RISK	Winter Storm and Freeze Dam Failure Expansive Soils Erosion Earthquake Landslide Meth Lab Incident Cyber-Attack

C.3 JEFFERSON DAVIS COUNTY VULNERABILITY ASSESSMENT

This subsection identifies and quantifies the vulnerability of Jefferson Davis County to the significant hazards previously identified. This includes identifying and characterizing an inventory of assets in the county and assessing the potential impact and expected amount of damages caused to these assets by each identified hazard event. More information on the methodology and data sources used to conduct this assessment can be found in Section 6: *Vulnerability Assessment*.

C.3.1 Asset Inventory

Table C.28 lists the estimated number of improved properties and the total value of improvements for Jefferson Davis County and its participating jurisdictions (study area of vulnerability assessment). This data was obtained from HAZUS-MH 4.2 since digital parcel data was not available in this county.

TABLE C.28: IMPROVED PROPERTY IN JEFFERSON DAVIS COUNTY

Location	Number of Improved Properties	Total Assessed Value of Improvements
Jefferson Davis County	5,782	$852,147,000

*Improvement values for these communities were obtained from HAZUS-MH 4.2

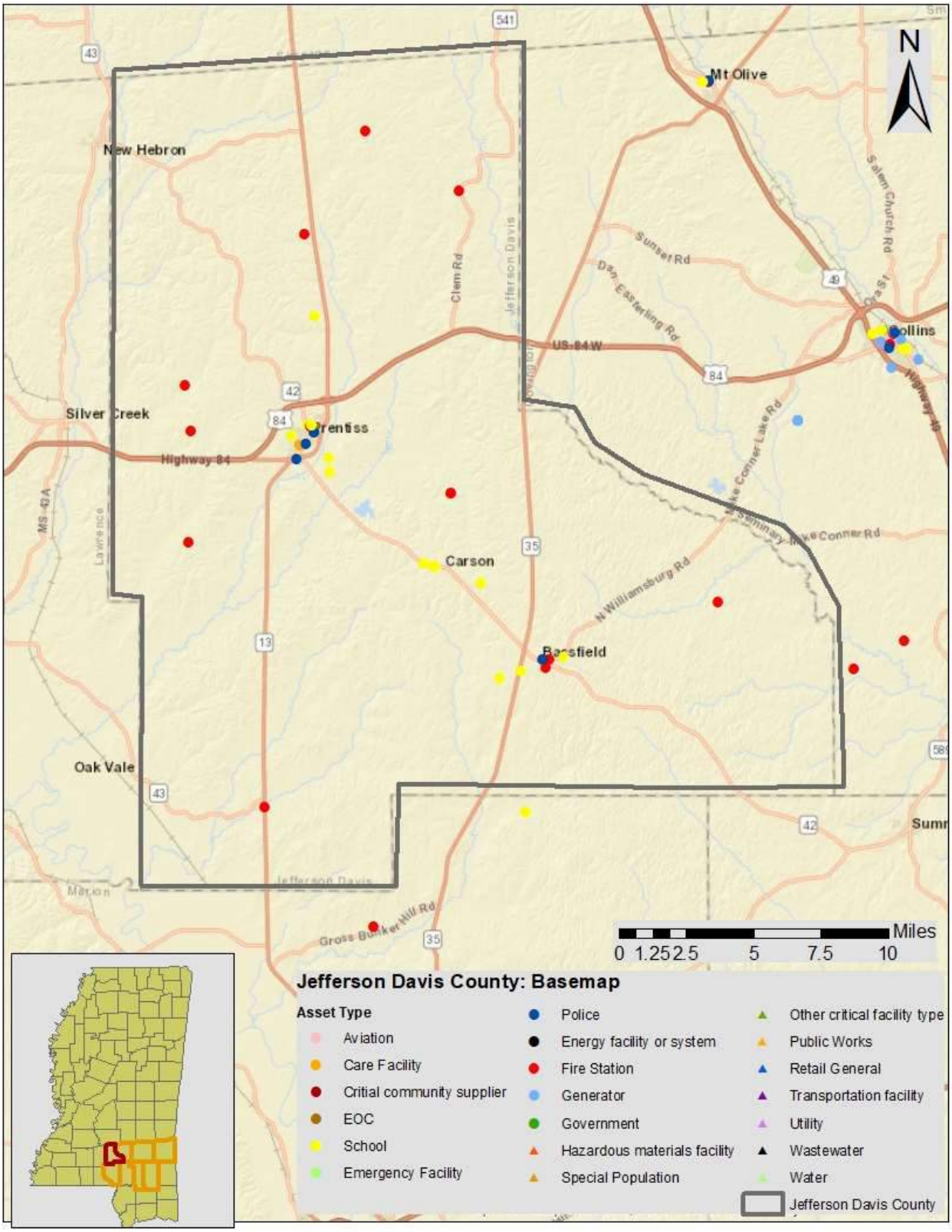
Table C.29 lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools and other critical facilities located in Jefferson Davis County. HAZUS-MH 4.2 was used to obtain the critical facilities for the county and this data was modified to reflect recent changes. In addition, **Figure C.11** shows the locations of essential facilities in Jefferson Davis County. **Table C.32**, near the end of this section, shows a complete list of the critical facilities by name, as well as the hazards that affect each facility. As noted previously, this list is not all-inclusive and only includes information provided by the county.

TABLE C.29: CRITICAL FACILITY INVENTORY IN JEFFERSON DAVIS COUNTY

Location	Fire Stations	Police Stations	Medical Care Facilities	EOC	Schools
Jefferson Davis County	**2**	**1**	**1**	**1**	**8**
Bassfield	1	0	0	0	3
Prentiss	1	1	1	1	4
Unincorporated Area	0	0	0	0	1

Source: HAZUS-MH 4.2
**The Jefferson Davis EOC is located in Prentiss.*

FIGURE C.11: CRITICAL FACILITY LOCATIONS IN JEFFERSON DAVIS COUNTY



Source: HAZUS-MH 4.2

C.3.2 Social Vulnerability

In addition to identifying those assets potentially at risk to identified hazards, it is important to identify and assess those particular segments of the resident population in Jefferson Davis County that are potentially at risk to these hazards.

Table C.30 lists the population by jurisdiction according to U.S. Census 2010 population estimates. Unfortunately, estimates were not available at the census block level, limited the results to county-wide estimates. The total population in Jefferson Davis County according to Census data is 12,487 persons. Additional population estimates are presented above in Section C.1.

TABLE C.30: TOTAL POPULATION IN JEFFERSON DAVIS COUNTY

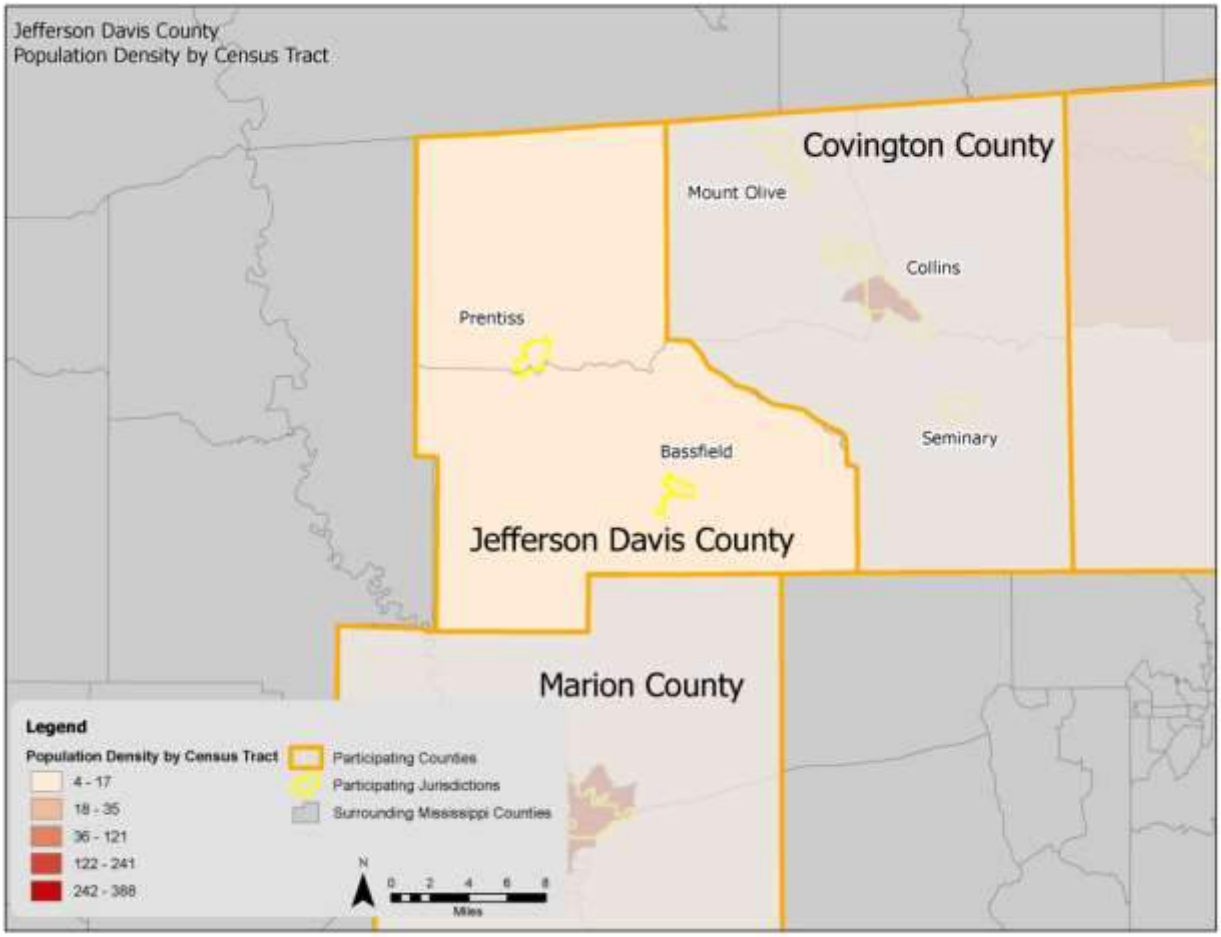
Location	Total 2010 Population
Bassfield	254
Prentiss	1,081
Unincorporated Area	11,152
JEFFERSON DAVIS COUNTY TOTAL	**12,487**

Source: U.S. Census 2010

In addition, **Figure C.12** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2010.[17] This information has not changed since the last plan update.

[17] Population by census block was not available at the time this plan was completed.

FIGURE C.12: POPULATION DENSITY IN JEFFERSON DAVIS COUNTY



Source: U.S. Census Bureau, 2010

C.3.3 Vulnerability Assessment Results

As noted in Section 6: *Vulnerability Assessment*, only hazards with a specific geographic boundary, available modeling tool, or sufficient historical data allow for further analysis. Those results, specific to Jefferson Davis County, are presented here. All other hazards are assumed to impact the entire planning region (drought, hailstorm, lightning, thunderstorm wind, tornado, and winter storm and freeze) or, due to lack of data, analysis would not lead to credible results (dam and levee failure, erosion, expansive soils, and landslide). The total county exposure, and thus risk, was presented in **Table C.28**.

The hazards to be further analyzed in this section include: flood, wildfire, earthquake, hurricane and tropical storm winds, and hazardous materials incident.

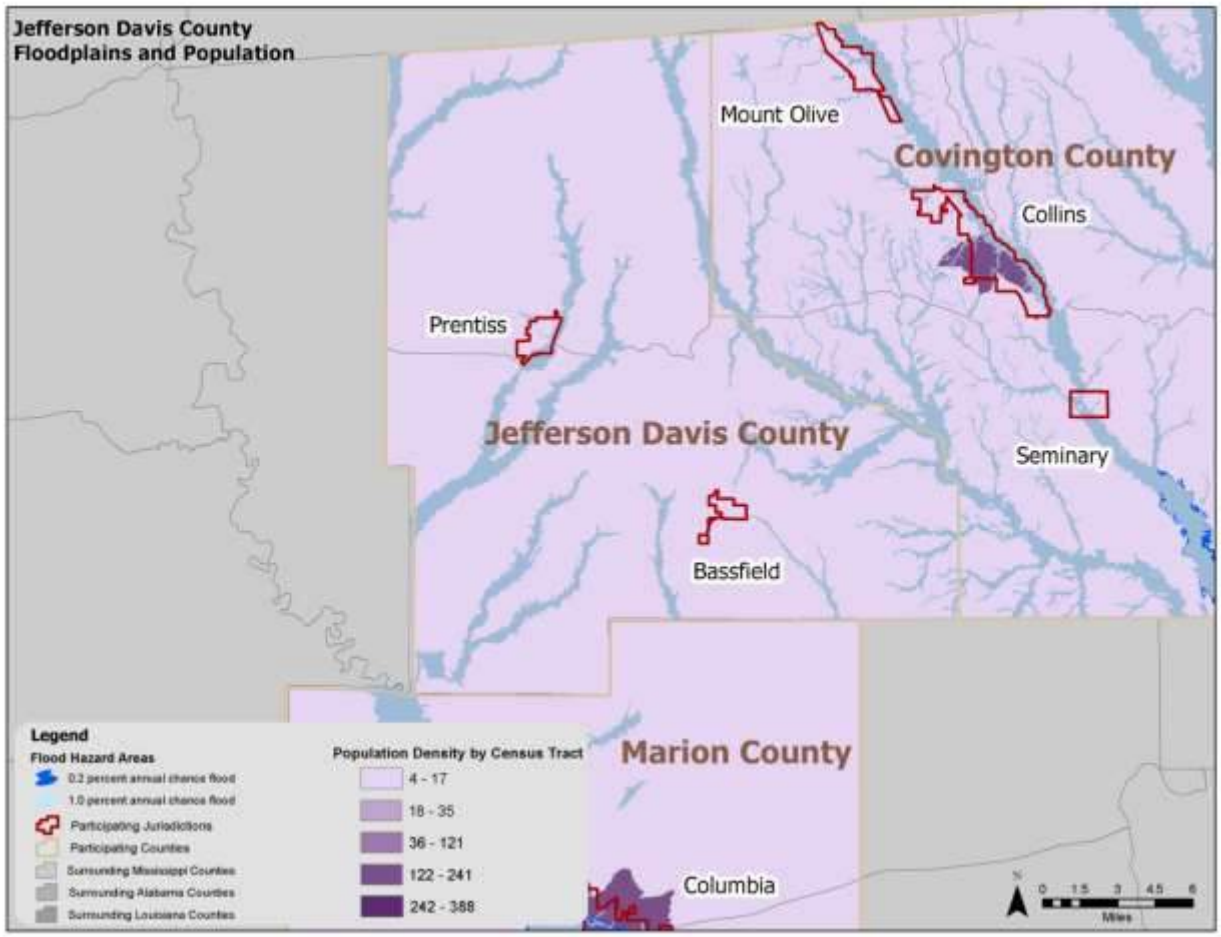
FLOOD

Historical evidence indicates that Jefferson Davis County is susceptible to flood events. A total of 23 flood events have been reported by the National Centers for Environmental Information resulting in $1.1 million in damages.

Social Vulnerability

Since 2010 population was available at the tract level, it was difficult to determine a reliable figure on population at-risk to flood due to tract level population data. **Figure C.13** is presented to gain a better understanding of at-risk population.

FIGURE C.13: POPULATION DENSITY NEAR FLOODPLAINS



Source: FEMA DFIRM, U.S. Census 2010

Critical Facilities

The critical facility analysis revealed that there are a no critical facilities located in the Jefferson Davis County 1.0-percent annual chance floodplain and 0.2-percent annual chance floodplain based on FEMA DFIRM boundaries and GIS analysis. A list of specific critical facilities and their associated risk can be found in **Table C.31** at the end of this section.

In conclusion, a flood has the potential to impact many existing and future buildings and populations in Jefferson Davis County, though some areas are at a higher risk than others. All types of structures in a floodplain are at-risk, though elevated structures will have a reduced risk. As noted, the floodplains used in this analysis include the 100-year and 500-year FEMA regulated floodplain boundaries. It is certainly possible that more severe events could occur beyond these boundaries or urban (flash) flooding could impact additional structures. Such site-specific vulnerability determinations are outside

the scope of this assessment but will be considered during future plan updates. Furthermore, areas subject to repetitive flooding should be analyzed for potential mitigation actions.

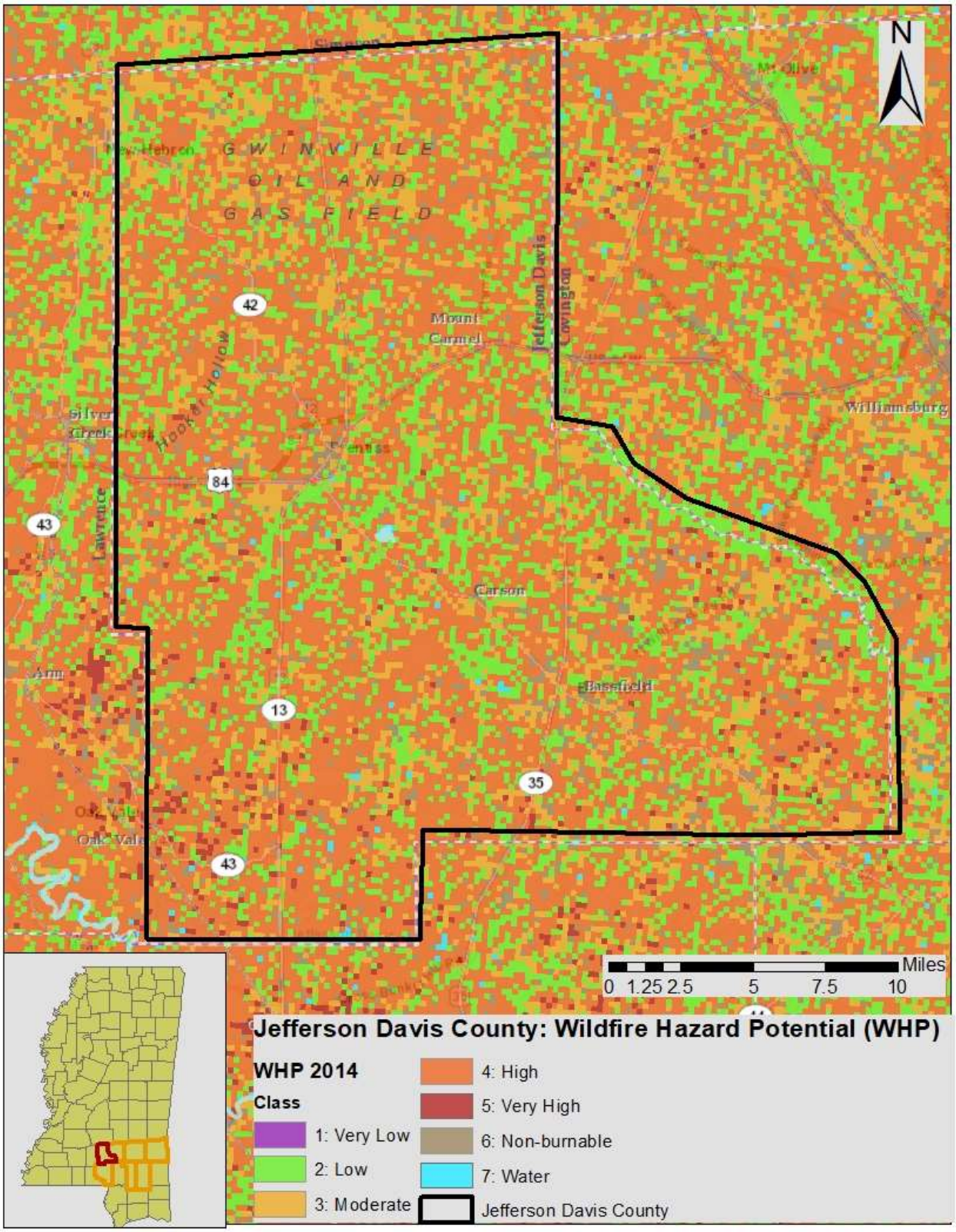
WILDFIRE

Although historical evidence indicates that Jefferson Davis County is susceptible to wildfire events, there are few reports of damage.

To estimate exposure to wildfire, the wildfire hazard potential (WHP 2014) data provided via the US Forest Service was utilized. A GIS analysis was performed with the WHP dataset and identified critical facilities throughout MEMA District 8 in order to show the level of vulnerability.

Figure A.14 shows the wildfire hazard potential for Jefferson Davis County. Most of the planning areas falls within the low to high category.

974 **FIGURE C.14: WILDFIRE RISK AREAS IN JEFFERSON DAVIS COUNTY**



975
976 *Source: U.S. Forrest Service*
977

Social Vulnerability

Although not all areas have equal vulnerability, there is some susceptibility across the entire county. It is assumed that the total population is at risk to the wildfire hazard. Determining the exact number of people in certain wildfire zones is difficult with existing data and could be misleading.

Critical Facilities

The critical facility analysis revealed that there are three critical facilities located in an area considered low risk valued at nearly $26,000. There are six critical facilities located in an area considered moderate risk valued at $8.5 M, and there is an additional nine structures located in an area considered high risk valued at nearly $15M. It should be noted, however, that several factors could impact the spread of a wildfire putting all facilities at risk. A list of specific critical facilities and their associated risk can be found in **Table A.31** at the end of this section.

In conclusion, a wildfire event has the potential to impact many existing and future buildings, critical facilities, and populations in Jefferson Davis County.

EARTHQUAKE

The HAZUS-MH earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS-MH model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS-MH 4.2 estimates a total exposure of approximately $20,561,000 which includes buildings, inventory, and contents throughout the region. While this number is not an exact representation of assessed tax value, it is helpful in assessing the results of the HAZUS-MH scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS-MH estimates that no buildings would be moderately damaged.

Social Vulnerability

It can be assumed that all existing future populations are at risk to the earthquake hazard. No fatalities or injuries were reported in the above HAZUS-MH arbitrary scenario.

Critical Facilities

There are 32 critical facilities identified for Covington County, valued at $54,124,051. All are vulnerable to the earthquake hazard.

An earthquake has the potential to impact all existing and future buildings, facilities, and populations in Covington County. While Covington County may not experience a large earthquake, localized damage is possible with an occurrence. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

HURRICANE AND TROPICAL STORM

Historical evidence indicates that Jefferson Davis County has an elevated risk to the hurricane and tropical storm hazard. Several tracks have come near or traversed through the county, as shown and discussed in Section C.2.10.

Hurricanes and tropical storms can cause damage through numerous additional hazards such as flooding, erosion, tornadoes, and high winds, thus it is difficult to estimate total potential losses from these cumulative effects. The current HAZUS-MH hurricane model only analyzes hurricane winds and is not capable of modeling and estimating cumulative losses from all hazards associated with hurricanes; therefore, only hurricane winds are analyzed in this section. It can be assumed that all existing and future buildings and populations are at risk to the hurricane and tropical storm hazard. HAZUS-MH 4.2 was used to determine vulnerability to the hazard for a 100-Year event. There are an estimated 100,000 buildings in the region with a total building replacement value of $20,562,000. A 100-year probabilistic scenario was created and modeled. HAZUS-MH estimated that approximately 1,892 buildings would be at least moderately damaged by the event; this is over two percent of the buildings in the Region. There are an estimated 69 buildings that would be damaged beyond repair.

Economic Losses

HAZUS-MH estimated economic losses for the scenario event. HAZUS-MH estimated losses at $349.5M, which represents 1.7 percent of the total replacement value of the region's buildings. Nine percent of the losses were related to business interruption in the scenario region. 88 percent of the losses were sustained by residential structures.

Debris Generation

As part of the scenario, HAZUS-MH estimated the amount of debris that would be generated by the event. The types of debris considered were brick/wood, reinforced concrete/steel, eligible tree debris, and other tree debris. HAZUS-MH estimated that a total of 2,165,680 tons of debris would be generated by the event. Of that amount, 93 percent would be other tree debris, approximately 1.5 percent would be brick/wood, and the rest would comprise of would be eligible tree debris and brick/wood. Assuming a load of 25 tons per truck, this would equate to 1,190 truckloads of debris from this scenario.

Social Vulnerability

Given equal susceptibility across the county, it is assumed that the total population is at risk to the hurricane and tropical storm hazard.

Critical Facilities

Given equal vulnerability across Jefferson Davis County, all critical facilities are considered to be at risk. Some buildings may perform better than others in the face of such an event due to construction and age, among other factors. There are 32 critical facilities identified for Covington County, valued at $54,124,051. Some buildings may perform better than others in the face of such an event due to construction and age, among other factors. Determining individual building response is beyond the scope of this plan. However, this plan will consider mitigation action for especially vulnerable and/or critical facilities to mitigation against the effects of the hurricane hazard. A list of specific critical facilities can be found in **Table A.31** at the end of this section.

In conclusion, a hurricane event has the potential to impact many existing and future buildings, critical facilities, and populations in Jefferson Davis County. Hurricane events can cause substantial damage in their wake including fatalities, extensive debris clean-up, and extended power outages.

HAZARDOUS MATERIALS INCIDENT

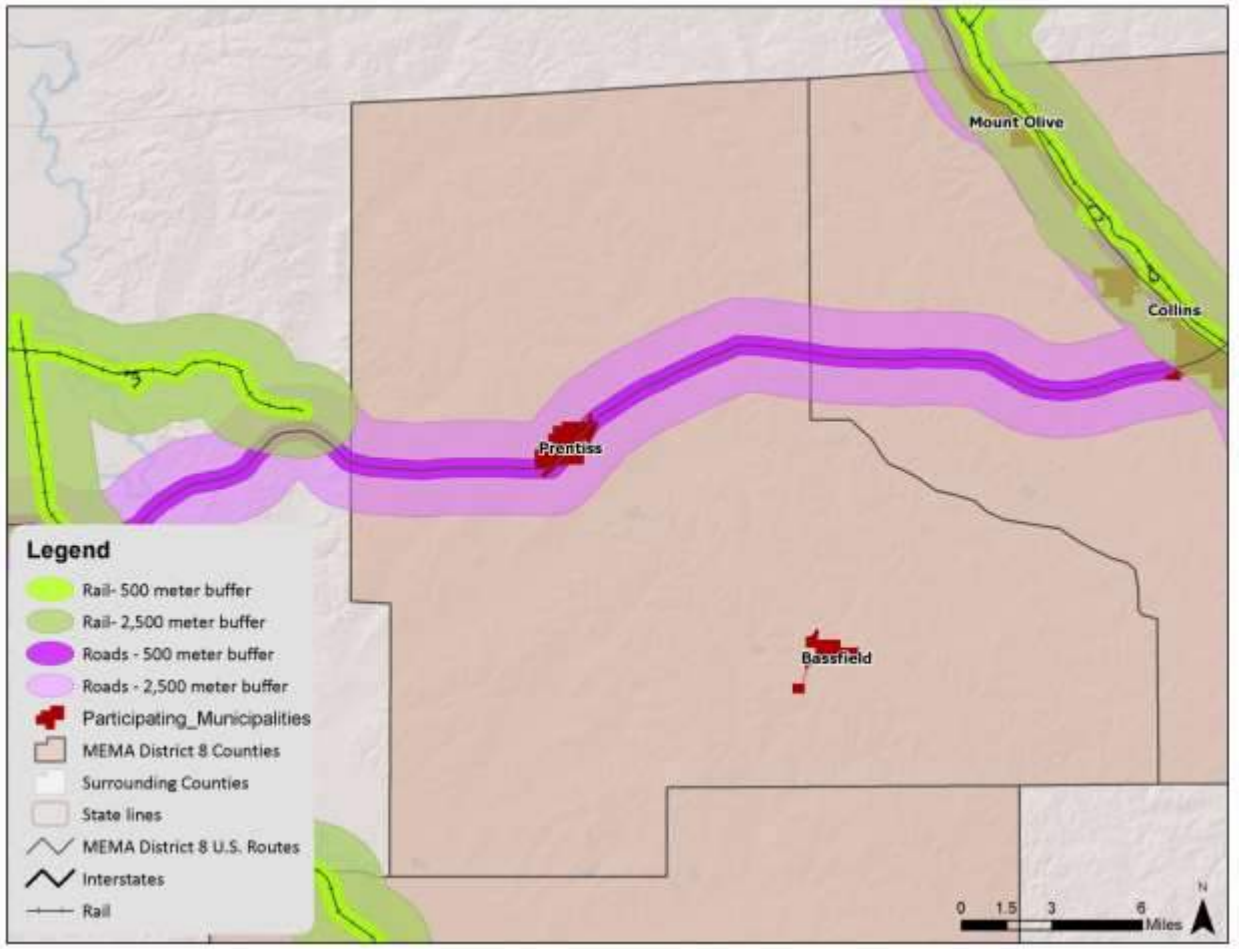
Although historical evidence and existing Toxic Release Inventory sites indicate that Jefferson Davis County is susceptible to hazardous materials events, there are few reports of damage.

Most hazardous materials incidents that occur are contained and suppressed before destroying any property or threatening lives. However, they can have a significant negative impact. Such events can cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. In a hazardous materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions will directly affect how the hazard develops. Certain chemicals may travel through the air or water, affecting a much larger area than the point of the incidence itself. Non-compliance with fire and building codes, as well as failure to maintain existing fire and containment features, can substantially increase the damage from a hazardous materials release. The duration of a hazardous materials incident can range from hours to days. Warning time is minimal to none.

In order to conduct the vulnerability assessment for this hazard, GIS intersection analysis was used for fixed and mobile areas and parcels.[18] In both scenarios, two sizes of buffers—500 and 2,500 meters—were used. These areas are assumed to respect the different levels of effect: immediate (primary) and secondary. Primary and secondary impact sites were selected based on guidance from FEMA 426, Reference Manual to Mitigate Potential Terrorist Attacks against Buildings and engineering judgment. For the fixed site analysis, geo-referenced TRI listed toxic sites in Jefferson Davis County, along with buffers, were used for analysis. However, the data revealed that there are no TRI sites located in Jefferson Davis County**.** For the mobile analysis, the major roads (Interstate highway, U.S. highway, and State highway) and railroads, where hazardous materials are primarily transported that could adversely impact people and buildings, were used for the GIS buffer analysis. **Figure C.15** shows the areas used for mobile toxic release buffer analysis. The mobile toxic release buffer data did not change since the last plan update.

[18] This type of analysis will likely yield conservative results (generally higher than what is actually reported after an event).

FIGURE C.15: MOBILE HAZMAT BUFFERS IN JEFFERSON DAVIS COUNTY



Social Vulnerability

Given high susceptibility across the entire county, it is assumed that the total population is at risk to a hazardous materials incident. It should be noted that areas of population concentration may be at an elevated risk due to a greater burden to evacuate population quickly.

Critical Facilities

Fixed Site Analysis:

The critical facility analysis for fixed TRI sites revealed that there are no Jefferson Davis County facilities located in a HAZMAT risk zone because there are no TRI sites located in the county. A list of specific critical facilities and their associated risk can be found in **Table C.31**at the end of this section.

Mobile Analysis:

The critical facility analysis for transportation corridors in Covington County revealed that there are 13 critical facilities located in the 500M Highway mobile HAZMAT buffer areas valued at over $30M. Expanding to a 2500M HAZMAT risk zone reveals there are 18 critical facilities located in the highway mobile HAZMAT buffer areas are vulnerable valued at over $33.8M. A list of specific critical facilities and their associated risk can be found in **Table C.31**at the end of this section.

In conclusion, a hazardous material incident has the potential to impact many existing and future buildings, critical facilities, and populations in Jefferson Davis County. Those areas in a primary buffer are at the highest risk, though all areas carry some vulnerability due to variations in conditions that could alter the impact area (i.e., direction and speed of wind, volume of release, etc). Further, incidents from neighboring counties could also impact the county and participating jurisdictions.

CONCLUSIONS ON HAZARD VULNERABILITY

Table C.31 shows the critical facilities vulnerable to additional hazards analyzed in this section. The table lists those assets that are determined to be exposed to each of the identified hazards (marked with an "**X**").

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TABLE C.31: AT-RISK CRITICAL FACILITIES IN JEFFERSON DAVIS COUNTY

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[19]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Jefferson Davis County																					
BASSFIELD HIGH SCHOOL	School	X	X	X	X	X		X	X												Moderate
Bassfield Police Dept	Police Station	X	X	X	X	X		X	X												Non-burnable
Bassfield Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												Low
CARVER ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X												High
G W CARVER ELEMENTARY SCHOOL	School Safe Room	X	X	X	X	X		X	X												Moderate
GOOD HOPE FIRE DEPT	Fire Station	X	X	X	X	X	X	X	X												High
JEFFERSON DAVIS HIGH SCHOOL	School Safe Room	X	X	X	X	X		X	X												High
TOWN OF BASSFIELD FIRE DEPT	Fire Station	X	X	X	X	X		X	X												Non-burnable
JDCS LEARNING CENTER/ACADEMIC SUCCESS/ALTERNATIVE	School Safe Room	X	X	X	X	X		X	X												High
JEFF DAVIS CO VOC TECH CENTER	School	X	X	X	X	X		X	X												High
JEFFERSON DAVIS CO VO TECH	School Safe Room	X	X	X	X	X		X	X												High
RED HOUSE FIRE DEPT	Fire Station	X	X	X	X	X		X	X												High

[19] As noted previously, these facilities could be at risk to dam failure if located in an inundation area. Data was not available to conduct such an analysis. There was no local knowledge of these facilities being at risk to dam failure. As additional data becomes available, more in-depth analysis will be conducted.

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER							
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[19]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
OAKVALE VOLUNTEER FIRE DEPT/SOCIETY HILL STATION	Fire Station	**X**	**X**	**X**	**X**	**X**		**X**	**X**												Non-burnable
CLEM VOLUNTEER FIRE DEPT/WILLIAMSON MILL STATION	Fire Station	**X**	**X**	**X**	**X**	**X**		**X**	**X**												High
GRANBY FIRE DEPT	Fire Station	X	X	X	X	X		X	X												Moderate
GRANBY FIRE DEPT	Fire Station	X	X	X	X	X		X	X												Moderate
Highway 84 West Fire Station Inc.	Fire Department	X	X	X	X	X		X	X									X			High
HWY 84 WEST FIRE STATION	Fire Station	X	X	X	X	X		X	X												Low
HWY 84 WEST FIRE STATION	Fire Station	X	X	X	X	X		X	X												Low
J E JOHNSON ELEMENTARY	School	X	X	X	X	X		X	X												High
J E JOHNSON ELEMENTARY SCHOOL	School Safe Room	X	X	X	X	X	X	X	X								X	X			Non-burnable
J E JOHNSON HEAD START/FIVE COUNTY	School Safe Room	X	X	X	X	X		X	X									X			High
JEFFERSON DAVIS COUNTY ADMINISTRATION BUILDING	Government	X	X	X	X	X	X	X	X								X	X			Non-burnable
JEFFERSON DAVIS COUNTY COURTHOUSE	Government	X	X	X	X	X		X	X								X	X			Non-burnable
JEFFERSON DAVIS COUNTY EMA/EOC	EOC	X	X	X	X	X	X	X	X								X	X			Non-burnable
JEFFERSON DAVIS COUNTY SHERIFF'S OFFICE	Police/Government Offices	X	X	X	X	X		X	X								X	X			Non-burnable
Jefferson Davis Sheriff	Police Station	X	X	X	X	X		X	X								X	X			Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[19]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Mississippi Dept Corrections	Police Station	X	X	X	X	X		X	X								X	X			Non-burnable
PRENTISS CHRISTIAN SCHOOL	School Safe Room	X	X	X	X	X		X	X									X			Moderate
PRENTISS CHRISTIAN SCHOOL	School	X	X	X	X	X	X	X	X									X			Moderate
PRENTISS CITY HALL	Government	X	X	X	X	X	X	X	X								X	X			Non-burnable
Prentiss Fire Department	Fire Department	X	X	X	X	X	X	X	X								X	X			Non-burnable
PRENTISS INSTITUTE (MAIN BLDG)(ROSENWALD BLDG)	School Safe Room	X	X	X	X	X		X	X									X			Non-burnable
PRENTISS REG HOSP & CARE FACIL	Care Facility	X	X	X	X	X	X	X	X								X	X			Non-burnable
PRENTISS REGIONAL EXTENDED CARE FACILITY	Care Facility	X	X	X	X	X	X	X	X								X	X			High
PRENTISS REGIONAL HOSPITAL	Care Facility	X	X	X	X	X	X	X	X								X	X			Non-burnable
PRENTISS SENIOR HIGH SCHOOL	School	X	X	X	X	X	X	X	X								X	X			Non-burnable
TOWN OF PRENTISS FIRE DEPT/POLICE DEPT	Police/Government Offices	X	X	X	X	X		X	X								X	X			High
NEW MEDINAH ISLAMIC SCHOOL SYS	School	X	X	X	X	X		X	X												Moderate

C.4 JEFFERSON DAVIS COUNTY CAPABILITY ASSESSMENT

This subsection discusses the capability of Jefferson Davis County to implement hazard mitigation activities. More information on the purpose and methodology used to conduct the assessment can be found in Section 7: *Capability Assessment*.

C.4.1 Planning and Regulatory Capability

Table C.15 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for Jefferson Davis County. A checkmark (✓) indicates that the given item is currently in place and being implemented. An asterisk (*) indicates that the given item is currently being developed for future implementation. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the MEMA District 8 Regional Hazard Mitigation Plan.

TABLE C.15: RELEVANT PLANS, ORDINANCES, AND PROGRAMS

Planning Tool/Regulatory Tool	Hazard Mitigation Plan	Comprehensive Land Use Plan	Floodplain Management Plan	Open Space Management Plan (Parks & Rec/Greenway Plan	Stormwater Management Plan/Ordinance	Natural Resource Protection Plan	Flood Response Plan	Emergency Operations Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	National Flood Insurance Program (NFIP)	NFIP Community Rating System
JEFFERSON DAVIS COUNTY	✓			✓				✓	✓				✓		✓							✓	✓
Bassfield	✓	✓		✓				✓					✓			✓	✓			✓	✓		
Prentiss	✓	✓		✓				✓					✓		✓	✓	✓			✓	✓	✓	✓

A more detailed discussion on the county's planning and regulatory capabilities follows.

EMERGENCY MANAGEMENT

Hazard Mitigation Plan
Jefferson Davis County has previously adopted a hazard mitigation plan. The Town of Bassfield and the Town of Prentiss were also included in this plan.

Emergency Operations Plan
Jefferson Davis County maintains an emergency operations plan through its Emergency Management Agency. The Town of Bassfield and the Town of Prentiss are each covered by this plan.

GENERAL PLANNING

Comprehensive Land Use Plan
Jefferson Davis County has not adopted a county comprehensive land use plan. However, the Town of Bassfield adopted a community development plan in 1972 and Town of Prentiss adopted a comprehensive plan in 1973.

Zoning Ordinance
Jefferson Davis County does not have a zoning ordinance in place. However, the Town of Bassfield and Town of Prentiss have zoning ordinances that were adopted in 1972 and 1973, respectively.

Subdivision Ordinance
Jefferson Davis County does not have a subdivision ordinance in place. However, the Town of Bassfield and Town of Prentiss adopted subdivision regulations in 1972 and 1966, respectively.

Building Codes, Permitting, and Inspections
Jefferson Davis County has not adopted a building code. However, the Town of Bassfield and the Town of Prentiss have both adopted building codes.

FLOODPLAIN MANAGEMENT

Table C.16 provides NFIP policy and claim information for each participating jurisdiction in Jefferson Davis County.

TABLE C.16: NFIP POLICY AND CLAIM INFORMATION

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance in Force	Closed Claims	Total Payments to Date
JEFFERSON DAVIS COUNTY†	12/17/10	12/17/10(M)	7	$762,600	0	$0
Bassfield*	--	--	--	--	--	--
Prentiss	12/17/10	12/17/10(M)	0	$0	2	$4,613

†Includes unincorporated areas of county only
*Community does not participate in the NFIP
(M) – No Elevation Determined, All Zone A, C and X
Source: NFIP Community Status information as of 3/31/13; NFIP claims and policy information as of 5/15/13

Flood Damage Prevention Ordinance
All communities participating in the NFIP are required to adopt a local flood damage prevention ordinance. Jefferson Davis County and the Town of Prentiss both participate in the NFIP and have adopted flood damage prevention ordinances.

Open Space Management Plan
Jefferson Davis County, the Town of Bassfield, and the Town of Prentiss are all included in the Southern Mississippi Planning and Development District (SMPDD) Regional Open Space Plan that was written in 1973.

C.4.2 Administrative and Technical Capability

Table C.17 provides a summary of the capability assessment results for Jefferson Davis County with regard to relevant staff and personnel resources. A checkmark (✓) indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill.

TABLE C.17: RELEVANT STAFF / PERSONNEL RESOURCES

Staff / Personnel Resource	Planners with knowledge of land development/land management practices	Engineers or professionals trained in construction practices related to buildings and/or infrastructure	Planners or engineers with an understanding of natural and/or human-caused hazards	Emergency Manager	Floodplain Manager	Land Surveyors	Scientists familiar with the hazards of the community	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS and/or Hazus	Resource development staff or grant writers
JEFFERSON DAVIS COUNTY		✓		✓	✓		✓	✓	✓	✓
Bassfield		✓		✓	✓		✓	✓	✓	✓
Prentiss		✓		✓	✓		✓	✓	✓	✓

Credit for having a floodplain manager was given to those jurisdictions that have a flood damage prevention ordinance, and therefore an appointed floodplain administrator, regardless of whether the appointee was dedicated solely to floodplain management. Credit was given for having a scientist familiar with the hazards of the community if a jurisdiction has a Cooperative Extension Service or Soil and Water Conservation Department. Credit was also given for having staff with education or expertise to assess the community's vulnerability to hazards if a staff member from the jurisdiction was a participant on the existing hazard mitigation plan's planning committee.

C.4.3 Fiscal Capability

Table C.18 provides a summary of the results for Jefferson Davis County with regard to relevant fiscal resources. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard mitigation purposes (including match funds for state and federal mitigation grant funds) according to the previous county hazard mitigation plan.

TABLE C.18: RELEVANT FISCAL RESOURCES

Fiscal Tool / Resource	Capital Improvement Programming	Community Development Block Grants (CDBG)	Special Purpose Taxes (or taxing districts)	Gas/Electric Utility Fees	Water/Sewer Fees	Stormwater Utility Fees	Development Impact Fees	General Obligation, Revenue, and/or Special Tax Bonds	Partnering Arrangements or Intergovernmental Agreements
JEFFERSON DAVIS COUNTY	✓	✓							✓
Bassfield	✓	✓							✓
Prentiss	✓	✓							✓

C.4.4 Political Capability

During the months immediately following a disaster, local public opinion in Jefferson Davis County is more likely to shift in support of hazard mitigation efforts.

C.5 JEFFERSON DAVIS COUNTY MITIGATION STRATEGY

This subsection provides the blueprint for Jefferson Davis County to follow in order to become less vulnerable to its identified hazards. It is based on general consensus of the Regional Hazard Mitigation Council and the findings and conclusions of the capability assessment and risk assessment. Additional Information can be found in Section 8: *Mitigation Strategy* and Section 9: *Mitigation Action Plan*.

C.5.1 Mitigation Goals

Jefferson Davis County developed five mitigation goals in coordination with the other participating MEMA District 8 Region jurisdictions. The regional mitigation goals are presented in **Table C.19**.

TABLE C.19: MEMA DISTRICT 8 REGIONAL MITIGATION GOALS

	Goal
Goal #1	Develop a sustainable, comprehensive mitigation program to ensure safer communities.
Goal #2	Reduce or avoid loss of life, injury, and damage to property, the economy, and the environment.
Goal #3	Enhance preparedness and effective response to hazards.

	Goal
Goal #4	Strengthen and improve local mitigation capabilities.
Goal #5	Increase public awareness of hazard mitigation, hazard risk, and protective measures that can be taken to minimize potential loss and damage.

C.5.2 Mitigation Action Plan

The mitigation actions proposed by Jefferson Davis County, the Town of Bassfield, and the Town of Prentiss are listed in the following individual Mitigation Action Plans.

Jefferson Davis County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	None needed	No additional cost	County	Annual review	Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	JDCEMA, County	Annual review	Ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	County Floodplain Administrator	Ongoing	Ongoing
P-4	Consider adoption of subdivision regulations in Jefferson Davis County.	TH, FL, HU, TS	High	Self-funded	No cost	County	2024	Ongoing
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	Self-funded	Part of annual County budget	County BOS, County Road Crews	Annual review	Ongoing
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	No additional cost	County	Within 5 years	The County is still considering this action
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	The County is still considering this action

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County	2024	Ongoing
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County	Within 2 years	The County is still considering this action
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	CDBG, MSDA	No additional cost	County	Concurrent with prep. of Comp Plan	Pending status change in action P-9
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County	Within 5 years	Pending funding availability
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County	Within 3 years	Ongoing/New construction is regulated by the flood damage prevention ordinance. Existing structures in the flood zone that need to be elevated will be evaluated on a case by case basis pending funding and desire to be elevated.
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County	Annual Review	Ongoing/Pending Funding availability
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Ongoing as funding becomes available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Next round of HMGP funding	Ongoing pending funding availability
PP-6	Property Acquisitions and elevations of flood prone structures	FL	Medium	FEMA, HMGP, PDM	N/A	County	2024	New
PP-7	Construct new multipurpose EOC facility to serve as EOC and safe room for emergency personnel during disaster situations.	All Hazards	High	FEMA, HMGP, PGM Local Sources	$3,000,000-$10,000.00	County	2024	New
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust of MS Coastal Plain; County	Within 5 years	Ongoing pending funding availability
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	JDCEMA	Annual Review	Ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	JDCEMA, County	Ongoing	Completed/Ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	JDCEMA, County	Annual Review	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	JDCEMA, County	Completed	Completed/Ongoing
ES-5	Improve disaster communication systems within the County.	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	Ongoing	Ongoing Pending Funding
ES-6	Consider generators for local radio station service areas.	All	High	State, Federal funds	Unknown	JDCEMA, County	Contingent upon funding	Deferred. No radio station within the county as of the last year.
ES-7	Install warning sirens in each jurisdiction.	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	Contingent upon funding	Ongoing pending funding availability 2 sites have been completed in 2018
ES-8	Explore upgrade/enhancement of 911 system in Jefferson Davis County.	All	Medium	HMGP	Unknown	JDCEMA, County Sheriff	Contingent upon funding	Ongoing – contingent on funding
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	JDCEMA, County Sheriff	Contingent upon funding	Ongoing – contingent on funding
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, JDCEMA	Annual Review	Ongoing
ES-11	Enhance identification of evacuation routes through distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	JDCEMA	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Ongoing – contingent on funding	Ongoing – contingent on funding
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-14	Host a meeting to review Jefferson Davis County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County	Annual Review	Ongoing as needed
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	Ongoing – contingent on funding
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County	Within 2 years	Ongoing as needed
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County	Ongoing	Ongoing – contingent on funding
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	JDCEMA	Ongoing	Ongoing – contingent on funding
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	JDCEMA	Annual presentations	Ongoing – contingent on funding
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	JDCEMA, County	Upon request	Ongoing – contingent on funding
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	N/A	JDCEMA, County	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County	Ongoing	The County is still considering joining the CRS.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	DHS, SAFER, COPS, FIRE, Others		County	Ongoing	Ongoing – contingent on funding
PEA-8	Develop/encourage water conservation measures during times of shortage	Drought	Medium	HMGP	N/A	County	2024	New

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

JDCEMA = Jefferson Davis County Emergency Management Agency County BOS = Jefferson Davis County Board of Supervisors

Town of Bassfield Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	Self-funded	No additional cost	County, Town	Annual review	Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	No additional cost	JDCEMA, County, Town	Annual review	Ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	Town Floodplain Administrator	Ongoing	Ongoing
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	FL	High	Self-funded	No additional cost	Town	2024	Ongoing
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	Self-funded	Budget restraints	County BOS, County Road Crews, Town	Annual review	Ongoing
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years	The County is still considering this action
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years	The County is still considering this action

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County, Town	2024	Ongoing
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County, Town	Within 2 years	The County is still considering this action
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	Self-funded	No additional cost	County, Town	Concurrent with prep. of Comp Plan	Pending status change in action P-9
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County, Town	Within 5 years	Pending funding availability
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, Town	Within 3 years	Ongoing/New construction is regulated by the flood damage prevention ordinance. Existing structures in the flood zone that need to be elevated will be evaluated on a case by case basis pending funding and desire to be elevated.
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County, Town	Annual Review	Ongoing/Pending Funding availability
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Budget restraints	County, Town	Within 2 years; Next round of HMGP funding	Ongoing as funding becomes available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Within 5 years; Next round of HMGP funding	Ongoing pending funding availability
PP-6	Property Acquisitions and elevations of flood prone structures	FL	Medium	FEMA, HMGP, PDM	N/A	County	2024	New
PP-7	Construct new multipurpose EOC facility to serve as EOC and safe room for emergency personnel during disaster situations.	All Hazards	High	FEMA, HMGP, PGM Local Sources	$3,000,000-$10,000.00	County	2024	New
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust of MS Coastal Plain; County, Town	Within 5 years	Ongoing pending funding availability
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	JDCEMA	Annual Review	Ongoing
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	JDCEMA, Town	Ongoing	Completed/Ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	JDCEMA, County, Town	Annual Review	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	JDCEMA, County, Town	Completed	Completed/Ongoing
ES-5	Improve disaster communication systems within the County.	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	Ongoing	Ongoing Pending Funding
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	State, Federal funds	Unknown	JDCEMA, County	Contingent upon funding	Deferred. No radio station within the county as of the last year.
ES-7	Install warning sirens in each jurisdiction.	TO, HU, TS	High	State, Federal, Local funds	Unknown	JDCEMA, County	Contingent upon funding	Ongoing pending funding availability 2 sites have been completed in 2018
ES-8	Explore upgrade/enhancement of 911 system in Jefferson Davis County.	All	Medium	HMGP	Unknown	JDCEMA, County, Town	Contingent upon funding	Ongoing – contingent on funding
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	JDCEMA, County, Town	Contingent upon funding	Ongoing – contingent on funding
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, JDCEMA, Town	Annual Review	Ongoing
ES-11	Enhance identification of evacuation routes through distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	JDCEMA	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	No additional costs	County, Town	Ongoing – contingent on funding	Ongoing – contingent on funding
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Within 5 years; Annual review	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-14	Host a meeting to review Jefferson Davis County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County, Town	Annual Review	Ongoing as needed
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	Ongoing – contingent on funding
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years	Ongoing
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County, Town	Ongoing	Ongoing – contingent on funding
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	JDCEMA	Ongoing	Ongoing – contingent on funding
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	JDCEMA	Annual presentations	Ongoing – contingent on funding
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	JDCEMA, County, Town	Upon request	Ongoing – contingent on funding
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	N/A	JDCEMA, County	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Ongoing	The County is still considering joining the CRS.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	Ongoing – contingent on funding
PEA-8	Develop/encourage water conservation measures during times of shortage	Drought	Medium	HMGP	N/A	County	2024	New

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

JDCEMA = Jefferson Davis County Emergency Management Agency County BOS = Jefferson Davis County Board of Supervisors

Town of Prentiss Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	None needed	No additional cost	County	Annual review	Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	JDCEMA, County	Annual review	Ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	County Floodplain Administrator	Ongoing	Ongoing
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	TH, FL, HU, TS	High	Self-funded	No cost	County	2024	Ongoing
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	Self-funded	Part of annual County budget	County BOS, County Road Crews	Annual review	Ongoing
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	No additional cost	County	Within 5 years	The County is still considering this action

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	The County is still considering this action
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County	2024	Ongoing
P-9	Update the existing Prentiss Comprehensive Development Plan.	All	High	CDBG, MSDA	Unknown	County	Within 2 years	The County is still considering this action
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	CDBG, MSDA	No additional cost	County	Concurrent with prep. of Comp Plan	Pending status change in action P-9
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	HU, TS, TO, TH	Medium	Self-funded	No additional cost	Within 5 years	Pending funding availability
PP-2	Ensure that structures in floodplain areas are elevated.	FL	FL	High	Self-funded	No additional cost	Within 3 years	Ongoing/New construction is regulated by the flood damage prevention ordinance. Existing structures in the flood zone that need to be elevated will be evaluated on a case by case basis pending funding and desire to be elevated.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	HU, TS, TO, HW	High	Self-funded	No additional cost	Annual Review	Ongoing/Pending Funding availability
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	All	High	HMGP	Unknown	Within 2 years; Next round of HMGP funding	Ongoing as funding becomes available
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Within 5 years; Next round of HMGP funding	Ongoing pending funding availability
PP-6	Property Acquisitions and elevations of flood prone structures	FL	Medium	FEMA, HMGP, PDM	N/A	County	2024	New
PP-7	Construct new multipurpose EOC facility to serve as EOC and safe room for emergency personnel during disaster situations.	All Hazards	High	FEMA, HMGP, PGM Local Sources	$3,000,000-$10,000.00	County	2024	New
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust of MS Coastal Plain; County, Town	Within 5 years	Ongoing pending funding availability
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	JDCEMA	Annual Review	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	JDCEMA, County	Ongoing	Completed/Ongoing
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	JDCEMA, County	Annual Review	Ongoing
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	JDCEMA, County	Completed	Completed/Ongoing
ES-5	Improve disaster communication systems within the County.	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	Ongoing	Ongoing Pending Funding
ES-6	Consider generators for local radio station service areas.	All	High	State, Federal funds	Unknown	JDCEMA, County	Contingent upon funding	Deferred. No radio station within the county as of the last year.
ES-7	Install warning sirens in each jurisdiction.	All	High	State, Federal, Local funds	Unknown	JDCEMA, County	Contingent upon funding	Ongoing pending funding availability 2 sites have been completed in 2018
ES-8	Explore upgrade/enhancement of 911 system in Jefferson Davis County.	All	Medium	HMGP	Unknown	JDCEMA, County	Contingent upon funding	Ongoing – contingent on funding
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	JDCEMA, County	Contingent upon funding	Ongoing – contingent on funding
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, JDCEMA	Annual Review	Ongoing
ES-11	Enhance identification of evacuation routes through distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	JDCEMA	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Ongoing – contingent on funding	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	Ongoing – contingent on funding
ES-14	Host a meeting to review Jefferson Davis County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County	Annual Review	Ongoing as needed
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	Ongoing – contingent on funding
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years	Ongoing as needed
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County, Town	Ongoing	Ongoing – contingent on funding
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	JDCEMA	Ongoing	Ongoing – contingent on funding
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	JDCEMA	Annual presentations	Ongoing – contingent on funding
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	JDCEMA, County, Town	Upon request	Ongoing – contingent on funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	N/A	Town	Ongoing	Ongoing
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Ongoing	The County is still considering joining the CRS.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	Ongoing – contingent on funding
PEA-8	Develop/encourage water conservation measures during times of shortage	Drought	Medium	HMGP	N/A	County	2024	New

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

JDCEMA = Jefferson Davis County Emergency Management County BOS = Jefferson Davis County Board of Supervisors

[i] USGS. Landslide Hazard, Retrieved August 2019 from, https://www.usgs.gov/natural-hazards/landslide-hazards/science/rainfall-induced-landslides

Annex D
Jones County

This annex includes jurisdiction-specific information for Jones County and its participating municipalities. It consists of the following five subsections:

- D.1 Jones County Community Profile
- D.2 Jones County Risk Assessment
- D.3 Jones County Vulnerability Assessment
- D.4 Jones County Capability Assessment
- D.5 Jones County Mitigation Strategy

D.1 JONES COUNTY COMMUNITY PROFILE

D.1.1 Geography and the Environment

Jones County is located in southeastern Mississippi. It comprises four municipalities, the City of Ellisville, the City of Laurel, the Town of Sandersville, and the Town of Soso, as well as many small unincorporated communities. An orientation map is provided as **Figure D.1**.

The county is made up of pine forests and streams. The total area of the county is 700 square miles, 5 square miles of which is water area.

In Jones County, the summers are long, hot, and muggy; the winters are short and cold; and it is wet and partly cloudy year-round. Over the course of the year, the temperature typically varies from 39°F to 91°Fand is rarely below 25°F or above 97°F.

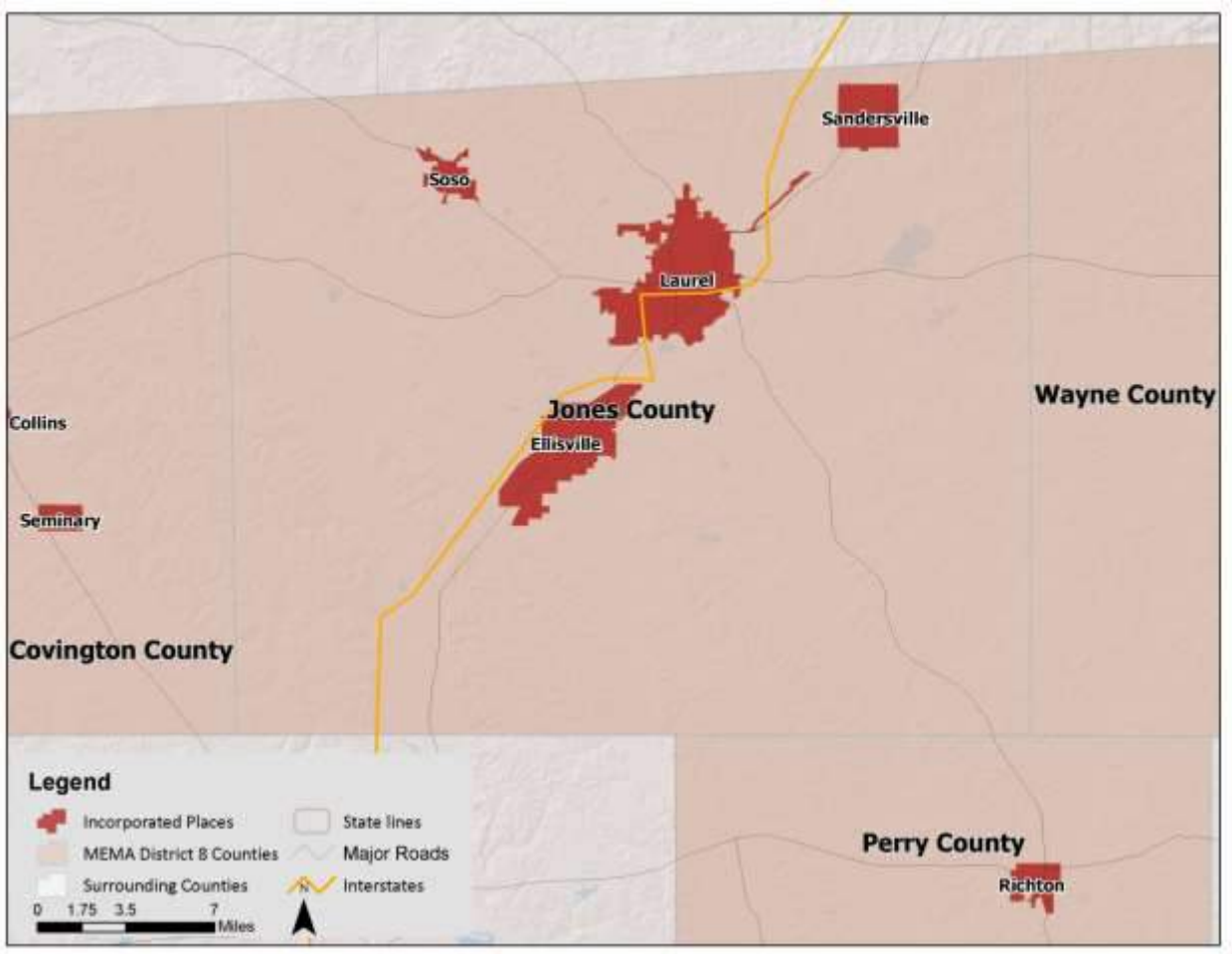
The hot season lasts for 4.1 months, from May 21 to September 25, with an average daily high temperature above 85°F. The hottest day of the year is July 22, with an average high of 91°F and low of 72°F. The cool season lasts for 2.8 months, from November 30 to February 23, with an average daily high temperature below 65°F. The coldest day of the year is January 17, with an average low of 39°F and high of 59°F.

A wet day is one with at least 0.04 inches of liquid or liquid-equivalent precipitation. The chance of wet days in Jones County varies significantly throughout the year. The wetter season lasts 3.0 months, from May 28 to August 27, with a greater than 36% chance of a given day being a wet day. The chance of a wet day peaks at 52% on July 25. The drier season lasts 9.0 months, from August 27 to May 28. The smallest chance of a wet day is 20% on October 8. Among wet days, we distinguish between those that experience rain alone, snow alone, or a mixture of the two. Based on this categorization, the most common form of precipitation throughout the year is rain alone, with a peak probability of 52% on July 25.

Rain falls throughout the year in Ellisville. The most rain falls during the 31 days centered around February 15, with an average total accumulation of 5.5 inches.

The least rain falls around October 5, with an average total accumulation of 3.1 inches.

FIGURE D.1: JONES COUNTY ORIENTATION MAP



D.1.2 Population and Demographics

According to the 2010 Census, Jones County has a population of 67,761 people. The county has seen just over 4% growth between 2000 and 2010, and the population density is 98 people per square mile. The growth continues. Per the Census Reports, in 2017, Jones County had a population of 67,930, which is a .22 percent increase since 2010. The household income is $38,656, which grew 2.14 percent. Population counts from the US Census Bureau for 1990, 2000, and 2010 for the county and both of the participating jurisdictions are presented in **Table D.1**.

TABLE D.1: POPULATION COUNTS FOR JONES COUNTY

Jurisdiction	1990 Census Population	2000 Census Population	2010 Census Population	% Change 2000-2010	Estimated 2017 Census Population
Jones County	**62,031**	**64,958**	**67,761**	**4.3%**	**67,930**
Ellisville	3,634	3,465	4,448	28.4%	4,549

Jurisdiction	1990 Census Population	2000 Census Population	2010 Census Population	% Change 2000-2010	Estimated 2017 Census Population
Laurel	18,827	18,393	18,540	0.8%	18,478
Sandersville	853	789	731	-7.4%	779
Soso	366	379	408	7.7%	542

Source: US Census Bureau

Based on the 2010 Census, the median age of residents of Jones County is 36.8 years. Per 2017 estimates, the median age has increased slightly to 37.1 years. The racial characteristics of the county are presented in **Table D.2** and will remain the same as the census data has not been officially updated. Due to the population increase, the racial characteristics differ slightly. The population is 29 percent for black or African American persons, 4.7 percent Hispanic or Latino. Whites make up the majority of the population in the county, accounting for 64.9 percent of the population.

TABLE D.2: DEMOGRAPHICS OF JONES COUNTY

Jurisdiction	White Persons, Percent (2010)	Black Persons, Percent (2010)	American Indian or Alaska Native, Percent (2010)	Other Race, Percent (2010)	Persons of Hispanic Origin, Percent (2010)*
Jones County	**67.2%**	**28.3%**	**0.5%**	**3.1%**	**4.7%**
Ellisville	62.7%	35.3%	0.1%	1.8%	2.2%
Laurel	32.4%	61.3%	0.1%	6.1%	7.7%
Sandersville	92.6%	6.0%	0.7%	0.7%	0.8%
Soso	79.2%	20.3%	0.0%	0.5%	2.2%

*Hispanics may be of any race, so also are included in applicable race categories

Source: US Census Bureau

D.1.3 Housing

According to the 2010 US Census, there are 28,424 housing units in Jones County, the majority of which are single family homes or mobile homes. Per 2018 estimates, the total number of housing units increased to 9,481 units. The median home value is $80,100, which also increased by at least 8.24 percent. Housing information for the county and four towns is presented in **Table D.3**. As shown in the table, the four incorporated towns have similar percentages of seasonal housing units compared to the unincorporated county.

TABLE D.3: HOUSING CHARACTERISTICS OF JONES COUNTY

Jurisdiction	Housing Units (2000)	Housing Units (2010)	Seasonal Units, Percent (2010)	Median Home Value (2006-2010)	Housing Units (2018)	Median Home Value (2018)
Jones County	**26,921**	**28,424**	**1.1%**	**$85,000**	**28,868**	**$85,600**
Ellisville	1,380	1,490	0.8%	$79,300	1,499	$86,356
Laurel	7,804	6,726	0.8%	$81,600	7,721	$90,909
Sandersville	350	302	0.7%	$49,600	358	$127,027

Jurisdiction	Housing Units (2000)	Housing Units (2010)	Seasonal Units, Percent (2010)	Median Home Value (2006-2010)	Housing Units (2018)	Median Home Value (2018)
Soso	174	178	0.0%	$85,300	181	$125,000

Source: US Census Bureau

D.1.4 Infrastructure

TRANSPORTATION

Jones County is served by US Interstate 59, US Highways 11 and 84, the Canadian National Railroad, and the Norfolk Southern Railway. Freight and passenger rail services are available in the county.

Jones County also enjoys the close proximity of the Jackson International Airport as well as the Hattiesburg-Laurel Regional Airport.

Rail service to the area is provided by Norfolk Southern Railroad, but there is no passenger service offered at this time.

UTILITIES

Electrical power in Jones County is provided by several sources, including Dixie Electric Power Association (EPA), Mississippi Power Company, South Mississippi EPA, and Southern Pine EPA.

Water and sewer services are provided to residents by a variety of rural water associations and sewer treatment providers.

COMMUNITY FACILITIES

There are a number of buildings and community facilities located throughout Jones County. According to the data collected for the vulnerability assessment (Section 6.4.1), there are 2 fire stations, 3 police stations, and 22 public schools located within the county.

There is one hospital located in Jones County. South Central Regional Medical Center is a 285-bed medical-surgical hospital located in the City of Laurel.

A portion of the De Soto National Forest is located in the southeast corner of Jones County, as well as the Bogue Homa Indian Reservation, which is east of Sandersville.

D.1.5 Land Use

Many areas of Jones County are undeveloped or sparsely developed due to the county's location just off the Gulf Coast and the conservation of land in state and national parks. There are a few incorporated municipalities located throughout the region, and these areas are where the region's population is generally concentrated. The incorporated areas are also where many businesses, commercial uses, and

institutional uses are located. Land uses in the balance of the county generally consist of rural residential development, agricultural uses, and recreational areas.

D.1.6 Employment and Industry

According to the Mississippi Employment Security Commission, in 2019, Jones County had an average annual employment of 27,860 workers in 2018 and an average unemployment rate of 4.8 percent. According to the MESC, in 2018, the Government Agencies employed the most people, with 25.1 percent of the workforce, followed by Manufacturing (23.7%) and Retail Trade (10.4%). The average annual wage in Jones County was $ 39,310.

D.2 JONES COUNTY RISK ASSESSMENT

This subsection includes hazard profiles for each of the significant hazards identified in Section 4: *Hazard Identification* as they pertain to Jones County. Each hazard profile includes a description of the hazard's location and extent, notable historical occurrences, and the probability of future occurrences. Additional information can be found in Section 5: *Hazard Profiles*.

D.2.1 Flood

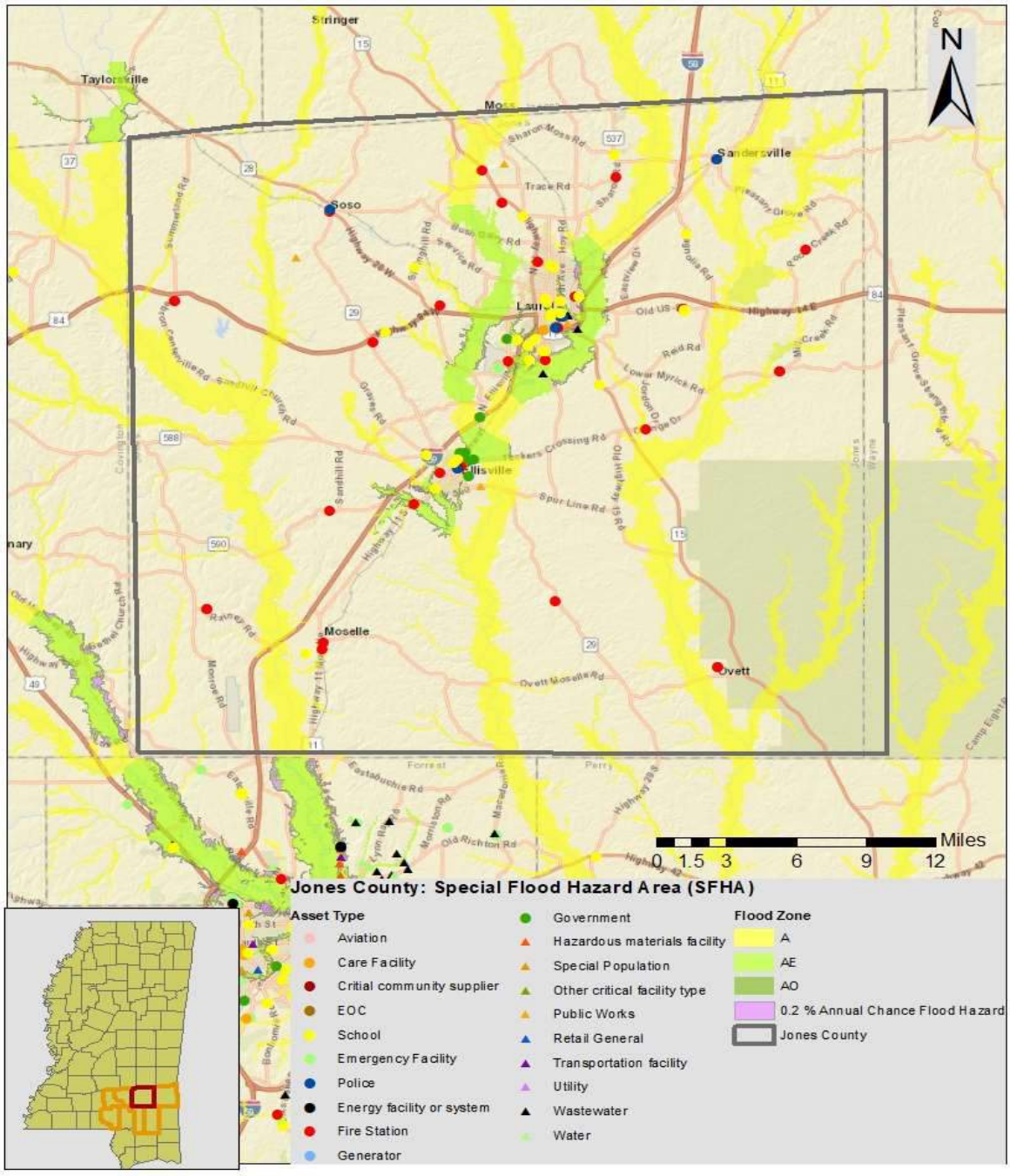
LOCATION AND SPATIAL EXTENT

There are areas in Jones County that are susceptible to flood events. Special flood hazard areas in the county were mapped using Geographic Information System (GIS) and FEMA Digital Flood Insurance Rate Maps (DFIRM).[1] This includes Zone A (1-percent annual chance floodplain), Zone AE (1-percent annual chance floodplain with elevation), and the 0.2-percent annual chance floodplain). According to GIS analysis, of the 695 square miles that make up Jones County, there are 137 square miles of land in zones A and AE (1-percent annual chance floodplain/100-year floodplain) and 1 square mile of land in the 0.2-percent annual chance floodplain (500-year floodplain).

These flood zone values account for 19.9 percent of the total land area in Jones County. It is important to note that while FEMA digital flood data is recognized as best available data for planning purposes, it does not always reflect the most accurate and up-to-date flood risk. Flooding and flood-related losses often do occur outside of delineated special flood hazard areas.

[1] The county-level DFIRM data used for Jones County were updated in 2010.

155 **FIGURE D.2: SPECIAL FLOOD HAZARD AREAS IN JONES COUNTY**



156
157 *Source: Federal Emergency Management Agency*

158

159 ***HISTORICAL OCCURRENCES***

160

161 Floods resulted in four disaster declarations in Jones County in 1973, 1974, 1987, and 1990.[2] Information
162 from the National Centers for Environmental Information was used to ascertain historical flood events.
163 The National Centers for Environmental Information reported a total of 156 events in Jones County since

[2]A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

1994.[3] A summary of these events is presented in **Table D.4**. These events accounted for over $6.0 million in property damage in the county. Specific information on flood events, including date, type of flooding, and deaths and injuries, can be found in **Table D.5**.

TABLE D.4: SUMMARY OF FLOOD OCCURRENCES IN JONES COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Ellisville	9	0/0	$62,387
Laurel	35	0/0	$1,265,051
Sandersville	4	0/0	$35,855
Soso	2	0/0	$8,000
Unincorporated Area	106	0/0	$4,633,189
JONES COUNTY TOTAL	**156**	**0/0**	**$6,004,482**

Source: National Centers for Environmental Information

TABLE D.5: HISTORICAL FLOOD EVENTS IN JONES COUNTY

Location	Date	Type	Deaths / Injuries	Property Damage*
Ellisville				
Ellisville	13-JAN-05	FLASH FLOOD	0/0	$6,334
Ellisville	21-AUG-09	FLASH FLOOD	0/0	$1,126
Ellisville	04-FEB-10	FLASH FLOOD	0/0	$10,927
Ellisville	05-JUL-15	FLASH FLOOD	0/0	$3,000
Ellisville	23-DEC-15	FLASH FLOOD	0/0	$5,000
Ellisville	03-MAR-16	FLASH FLOOD	0/0	$10,000
Ellisville	06-JUN-17	FLASH FLOOD	0/0	$10,000
Ellisville	16-JUN-17	FLASH FLOOD	0/0	$1,000
Ellisville	09-AUG-17	FLASH FLOOD	0/0	$15,000
Laurel				
Laurel	07-SEP-94	FLASH FLOODING	0/0	$0
Laurel	07-MAR-98	FLASH FLOOD	0/0	$0
Laurel	07-JAN-98	FLASH FLOOD	0/0	$92,934
Laurel	13-OCT-01	FLASH FLOOD	0/0	$0
Laurel	26-SEP-02	FLASH FLOOD	0/0	$2,768
Laurel	27-NOV-03	FLASH FLOOD	0/0	$20,159
Laurel	28-JUN-04	FLASH FLOOD	0/0	$52,191
Laurel	01-JUN-04	FLASH FLOOD	0/0	$0
Laurel	02-JUL-04	FLASH FLOOD	0/0	$0
Laurel	24-APR-10	FLASH FLOOD	0/0	$5,464
Laurel	27-MAR-09	FLASH FLOOD	0/0	$28,138
Laurel	24-DEC-09	FLASH FLOOD	0/0	$13,506
Laurel	22-AUG-10	FLASH FLOOD	0/0	$16,391
Laurel	13-JUL-12	FLASH FLOOD	0/0	$0
Laurel	09-AUG-12	FLASH FLOOD	0/0	$0
Laurel	29-AUG-12	FLASH FLOOD	0/0	$51,500

[3] These events are only inclusive of those reported by NCEI. It is likely that additional occurrences have occurred and have gone unreported.

Location	Date	Type	Deaths / Injuries	Property Damage*
Laurel	28-APR-14	FLASH FLOOD	0/0	$500,000
Laurel	04-JUL-15	FLASH FLOOD	0/0	$2,000
Laurel	31-OCT-15	FLASH FLOOD	0/0	$5,000
Laurel	31-OCT-15	FLASH FLOOD	0/0	$0
Laurel	23-DEC-15	FLASH FLOOD	0/0	$5,000
Laurel	24-DEC-15	FLASH FLOOD	0/0	$5,000
Laurel	10-MAR-16	FLASH FLOOD	0/0	$22,000
Laurel	14-APR-16	FLASH FLOOD	0/0	$5,000
Laurel	31-MAY-16	FLASH FLOOD	0/0	$7,000
Laurel	03-APR-17	FLASH FLOOD	0/0	$250,000
Laurel	30-APR-17	FLASH FLOOD	0/0	$8,000
Laurel	16-JUN-17	FLASH FLOOD	0/0	$1,000
Laurel	23-JUN-17	FLASH FLOOD	0/0	$7,000
Laurel	09-AUG-17	FLASH FLOOD	0/0	$5,000
Laurel	30-MAY-18	FLASH FLOOD	0/0	$35,000
Laurel	31-JUL-18	FLASH FLOOD	0/0	$50,000
Laurel	17-AUG-18	FLASH FLOOD	0/0	$10,000
Laurel	01-NOV-18	FLASH FLOOD	0/0	$25,000
Laurel	27-DEC-18	FLASH FLOOD	0/0	$40,000
Sandersville				
Sandersville	30-JUN-10	FLASH FLOOD	0/0	$21,855
Sandersville	23-JUN-17	FLASH FLOOD	0/0	$5,000
Sandersville	26-SEP-18	FLASH FLOOD	0/0	$4,000
Sandersville	28-DEC-18	FLOOD	0/0	$5,000
Soso				
SOSO	31-OCT-15	HEAVY RAIN	0/0	$0
SOSO	31-OCT-15	FLASH FLOOD	0/0	$8,000
Unincorporated Area				
Countywide	29-JAN-99	FLASH FLOOD	0/0	$75,629
South Portion	13-MAR-99	FLASH FLOOD	0/0	$113,444
Countywide	02-MAR-01	FLASH FLOOD	0/0	$0
Countywide	10-JUN-01	FLASH FLOOD	0/0	$28,515
Countywide	02-MAR-01	FLASH FLOOD	0/0	$17,109
Countywide	03-MAR-01	FLASH FLOOD	0/0	$0
Countywide	03-MAR-01	FLASH FLOOD	0/0	$0
Countywide	13-DEC-01	FLASH FLOOD	0/0	$0
Countywide	11-AUG-01	FLASH FLOOD	0/0	$0
Countywide	26-SEP-02	FLASH FLOOD	0/0	$1,384
Ovett	30-JUN-03	FLASH FLOOD	0/0	$6,720
Countywide	21-FEB-03	FLASH FLOOD	0/0	$6,720
Countywide	01-APR-05	FLASH FLOOD	0/0	$126,677
Countywide	31-MAR-05	FLASH FLOOD	0/0	$506,708
West Portion	29-AUG-05	FLASH FLOOD	0/0	$253,354
GITANO	12-APR-09	FLASH FLOOD	0/0	$562,754
(LUL)HESLER FLD LAUR	09-MAR-11	FLASH FLOOD	0/0	$31,827
Tuckers	04-FEB-10	FLOOD	0/0	$1,093

Location	Date	Type	Deaths / Injuries	Property Damage*
Hoy	09-AUG-11	HEAVY RAIN	0/0	$5,305
BLODGETT	18-FEB-12	FLASH FLOOD	0/0	$0
Ovett	18-FEB-12	FLOOD	0/0	$0
(LUL)HESLER FLD LAUR	26-JAN-12	FLASH FLOOD	0/0	$5,150
Tuckers Crossing	22-MAR-12	FLASH FLOOD	0/0	$257,500
Ovett	21-MAR-12	FLASH FLOOD	0/0	$10,300
ERRATA		FLASH FLOOD	0/0	$200,000
ERRATA		FLASH FLOOD	0/0	$1,000
HEBRON		FLASH FLOOD	0/0	$8,000
SERVICE		FLASH FLOOD	0/0	$5,000
HOY		FLASH FLOOD	0/0	$8,000
ERRATA		FLASH FLOOD	0/0	$5,000
SERVICE		FLASH FLOOD	0/0	$5,000
MOSELLE		FLASH FLOOD	0/0	$8,000
HOY		FLASH FLOOD	0/0	$5,000
HOY		FLASH FLOOD	0/0	$200,000
REDDOCH		FLASH FLOOD	0/0	$7,000
MOSELLE		FLASH FLOOD	0/0	$3,000
WALTERS		FLASH FLOOD	0/0	$3,000
EASTABUCHIE		FLASH FLOOD	0/0	$40,000
MOSELLE		FLASH FLOOD	0/0	$75,000
(PIB)PINE BELT RGNL		FLASH FLOOD	0/0	$75,000
TUCKERS		FLASH FLOOD	0/0	$2,000
REDDOCH		FLASH FLOOD	0/0	$1,000
HEBRON		FLASH FLOOD	0/0	$1,000
HEBRON		FLASH FLOOD	0/0	$1,000
TUCKERS		FLASH FLOOD	0/0	$10,000
ERRATA		FLASH FLOOD	0/0	$3,000
MOSELLE		FLASH FLOOD	0/0	$5,000
LANHAM		FLASH FLOOD	0/0	$5,000
GITANO		FLASH FLOOD	0/0	$5,000
TUCKERS CROSSING		FLASH FLOOD	0/0	$3,000
(PIB)PINE BELT RGNL		FLASH FLOOD	0/0	$2,000
EASTABUCHIE		FLASH FLOOD	0/0	$5,000
(PIB)PINE BELT RGNL		FLASH FLOOD	0/0	$4,000
HOY		FLASH FLOOD	0/0	$2,000,000
OVETT		FLASH FLOOD	0/0	$2,000
MACEDONIA		FLASH FLOOD	0/0	$1,000

Source: National Centers for Environmental Information

HISTORICAL SUMMARY OF INSURED FLOOD LOSSES

Recently, FEMA issued a directive that prevents states or local governments from sharing NFIP information such as rep loss or severe rep loss data with third parties. Third parties are considered as consultants, contractors, etc. As a result, for continuity of information so that the reader with have an idea of the historical occurrences along with the corresponding damage amounts, the decision was made to leave the existing information in the plan.

According to FEMA flood insurance policy records as of March 2013, there have been 108 flood losses reported in Jones County through the National Flood Insurance Program (NFIP) since 1978, totaling nearly $682,000 in claims payments. Currently, this remains the best available data. A summary of these figures for the county is provided in **Table D.6**. It should be emphasized that these numbers include only those losses to structures that were insured through the NFIP policies, and for losses in which claims were sought and received. It is likely that many additional instances of flood loss in Jones County were either uninsured, denied claims payment, or not reported.

TABLE D.6: SUMMARY OF INSURED FLOOD LOSSES IN JONES COUNTY

Location	Flood Losses	Claims Payments
Ellisville	5	$46,027
Laurel	75	$398,815
Sandersville*	--	--
Soso*	--	--
Unincorporated Area	28	$237,123
JONES COUNTY TOTAL	**108**	**$681,965**

*These communities do not participate in the National Flood Insurance Program. Therefore, no values are reported.
Source: FEMA, NFIP

REPETITIVE LOSS PROPERTIES

No updates to this section can be provided at this time. Information normally used to update this section is not currently accessible. As a result, this information will remain the same for historical purposes.

As of May 2013, there are 12 non-mitigated repetitive loss properties located in Jones County, which accounted for 34 losses and more than $235,000 in claims payments under the NFIP. The average claim amount for these properties is $6,914. Of the 12 properties, 9 are single family residential, 1 is other residential, and 2 are non-residential. Without mitigation these properties will likely continue to experience flood losses. **Table D.7** presents detailed information on repetitive loss properties and NFIP claims and policies for Jones County. Currently, this remains the best available data.

TABLE D.7: REPETITIVE LOSS PROPERTIES IN JONES COUNTY

Location	Number of Properties	Types of Properties	Number of Losses	Building Payments	Content Payments	Total Payments	Average Payment
Ellisville	1	1 single family	2	$13,078	$4,918	$17,996	$8,998
Laurel	9	7 single family, 2 non-residential	25	$166,683	$19,853	$186,536	$7,461
Sandersville*	--	--	--	--	--	--	--
Soso*	--	--	--	--	--	--	--
Unincorporated Area	2	1 single family, 1 other residential	7	$28,950	$1,604	$30,554	$4,365
JONES COUNTY TOTAL	**12**		**34**	**$208,712**	**$26,374**	**$235,086**	**$6,914**

* These communities do not participate in the National Flood Insurance Program. Therefore, no values are reported.

Location	Number of Properties	Types of Properties	Number of Losses	Building Payments	Content Payments	Total Payments	Average Payment

Source: National Flood Insurance Program

PROBABILITY OF FUTURE OCCURRENCES

Due to the unpredictable nature of this hazard, flood events will remain a threat in Jones County, and the probability of future occurrences will remain highly likely (100 percent annual probability). The participating jurisdictions and unincorporated areas have risk to flooding, though not all areas will experience flood. The probability of future flood events based on magnitude and according to best available data is illustrated in the figures above**,** which indicates those areas susceptible to the 1-percent annual chance flood (100-year floodplain) and the 0.2-percent annual chance flood (500-year floodplain).

It can be inferred from the floodplain location maps, previous occurrences, and repetitive loss properties that risk varies throughout the county. For example, the areas surrounding Ellisville, Laurel, and Sandersville have more floodplain and thus a higher risk of flood than the area surrounding Soso. Flood is not the greatest hazard of concern but will continue to occur and cause damage. Therefore, mitigation actions may be warranted, particularly for repetitive loss properties.

D.2.2 Erosion

LOCATION AND SPATIAL EXTENT

Erosion in Jones County is typically caused by flash flooding events. Unlike coastal areas, areas of concern for erosion in Jones County are primarily rivers and streams. Generally, vegetation helps to prevent erosion in the area, and it is not an extreme threat to any of the participating counties and jurisdictions. No areas of concern were reported by the planning committee.

HISTORICAL OCCURRENCES

Several sources were vetted to identify areas of erosion in Jones County. This includes searching local newspapers, interviewing local officials, and reviewing previous hazard mitigation plans. No historical erosion occurrences were found in these sources.

PROBABILITY OF FUTURE OCCURRENCES

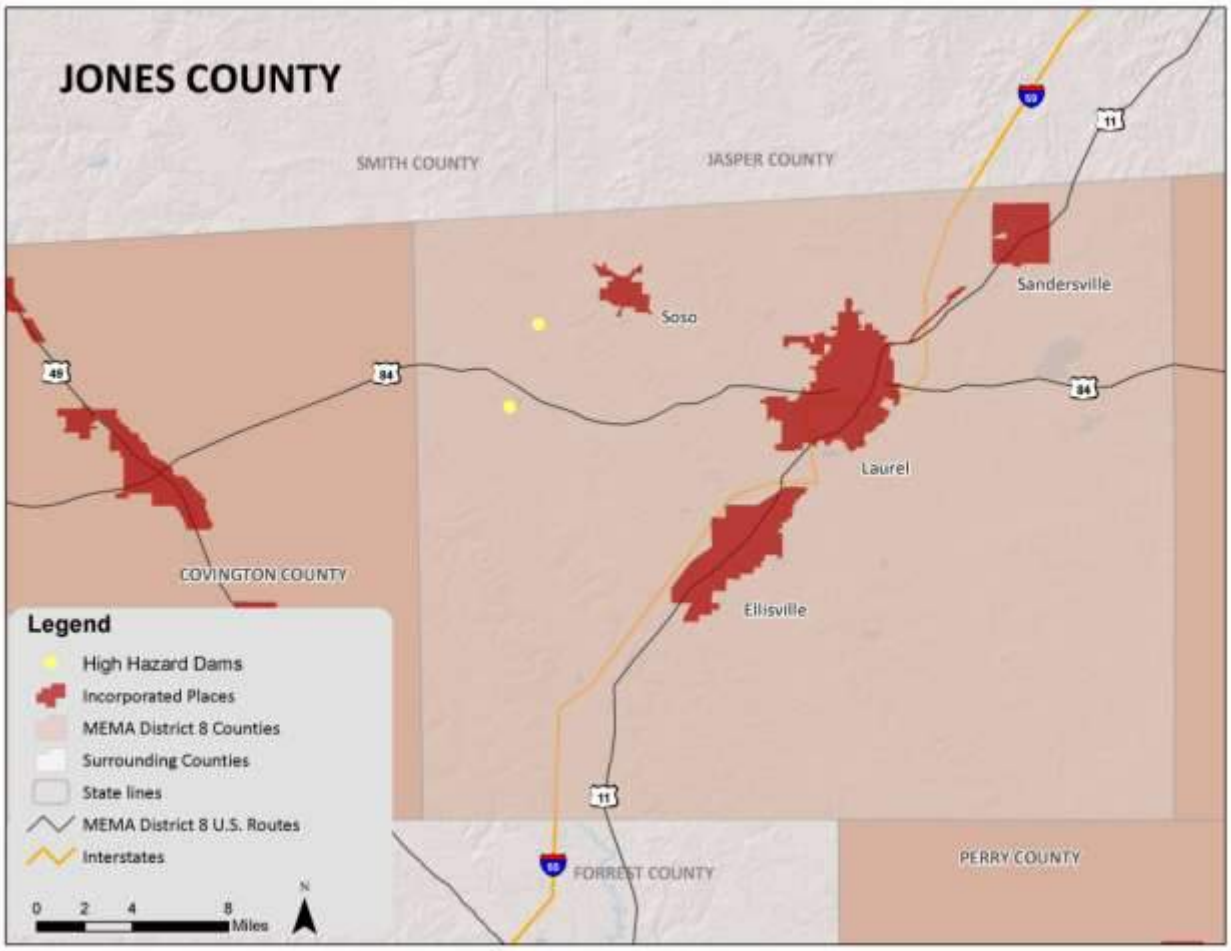
Erosion remains a natural, dynamic, and continuous process for Jones County, and it will continue to occur. The annual probability level assigned for erosion is possible (between 1 and 10 percent annually).

D.2.3 Dam Failure

LOCATION AND SPATIAL EXTENT

According to the Mississippi Division of Environmental Quality, there are two high hazard dams in Jones County.[4] **Figure D.3** shows the location of each of these high hazard dams and **Table 5.8** lists them by name. This data has not changed since the last plan update. According to a consensus of local government officials and the Regional Hazard Mitigation Council, a majority of these dams would not pose a major threat in a breach or failure occurrence.

FIGURE D.3: JONES COUNTY REGION HIGH HAZARD DAM LOCATIONS



Source: Mississippi Division of Environmental Quality

[4] The list of high hazard dams obtained from the Mississippi Division of Environmental Quality was reviewed and amended by local officials to the best of their knowledge.

TABLE D.8: JONES COUNTY HIGH HAZARD DAMS

Dam Name	Hazard Potential
Jones County	
BIG CREEK WATERSHED STRUCTURE 9 DAM	High
BIG CREEK WATER PARK DAM	High

Source: Mississippi Division of Environmental Quality

HISTORICAL OCCURRENCES

Two dam breaches were reported in Jones County at Indian Springs Lake in 1993 and Lake Getaway in 2010. There were no reports of deaths or injuries, and the damage caused by these events was minimal. However, several breach scenarios in the county could be catastrophic.

PROBABILITY OF FUTURE OCCURRENCES

Given the current dam inventory and historic data, a dam breach is unlikely (less than 1 percent annual probability) in the future. However, as has been demonstrated in the past, regular monitoring is necessary to prevent these events.

D.2.4 Winter Storm and Freeze

LOCATION AND SPATIAL EXTENT

Nearly the entire continental United States is susceptible to winter storm and freeze events. Some ice and winter storms may be large enough to affect several states, while others might affect limited, localized areas. The degree of exposure typically depends on the normal expected severity of local winter weather. Jones County is not typically affected by major severe winter weather conditions and seldom receives extremely devastating winter weather, even during the winter months. Given the atmospheric nature of the hazard the entire county has uniform exposure to a winter storm.

HISTORICAL OCCURRENCES

According to the National Centers for Environmental Information, there have been a total of two recorded winter storm events in Jones County since 2002 (**Table D.9**).[5] These events resulted in almost $227,000 in damages. Detailed information on the recorded winter storm events can be found in **Table D.10**.[6]

TABLE D.9: SUMMARY OF WINTER STORM EVENTS IN JONES COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Jones County	6	0/0	$226,921

Source: National Centers for Environmental Information

[5] These ice and winter storm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is certain that additional winter storm conditions have affected Jones County.
[6] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

TABLE D.10: HISTORICAL WINTER STORM IMPACTS IN JONES COUNTY

Location	Date	Type	Deaths / Injuries	Property Damage*
Ellisville				
None Reported	--	--	--	--
Laurel				
None Reported	--	--	--	--
Sandersville				
None Reported	--	--	--	--
Soso				
None Reported	--	--	--	--
Unincorporated Area				
JONES COUNTY	01-JAN-02	HEAVY SNOW	0/0	$6,921
JONES COUNTY	11-DEC-08	WINTER WEATHER	0/0	$0
JONES COUNTY	11-DEC-08	HEAVY SNOW	0/0	$0
JONES COUNTY	11-DEC-08	SLEET	0/0	$20,000
JONES COUNTY	11-DEC-08	HEAVY SNOW	0/0	$200,000
JONES COUNTY	11-DEC-08	WINTER WEATHER	0/0	$0

Source: National Centers for Environmental Information

There have been several severe winter weather events in Jones County. The text below describes two of the major events and associated impacts on the county. Similar impacts can be expected with severe winter weather.

January 2002 Winter Storm

A winter storm produced heavy snow across portions of southeast Mississippi. The heaviest snow recorded during the storm was four to four- and one-half inches. Icy bridges made traveling across the region very treacherous. As a result, several accidents occurred with two fatalities in Jones County.

January 2008 Winter Storm

This storm produced heavy snow across the region, with an average of three to four inches of snow. Some heavier amounts, between four to five inches, also fell in isolated areas. At the height of the snow, temperatures fell to near freezing, and accumulations occurred on roadways resulting in a number of traffic accidents. Additionally, some power outages occurred in the heaviest snow band due to the weight of wet snow on limbs and lines. The heaviest snow fell in the areas around Covington, Jefferson Davis, and Jones Counties.

Winter storms throughout the county have several negative externalities including hypothermia, cost of snow and debris cleanup, business and government service interruption, traffic accidents, and power outages. Furthermore, citizens may resort to using inappropriate heating devices that could to fire or an accumulation of toxic fumes.

December 2017 Winter Storm

An average of 5 to 7 inches of heavy snow fell across Jones County, with up to 8 inches falling west of Ellisville. The accumulating snow downed trees and limbs across the county, resulting in power outages and blocking roadways. Numerous traffic accidents also occurred across the county.

PROBABILITY OF FUTURE OCCURRENCES

Winter storm events will continue to occur in Jones County. According to historical information, the annual probability is possible (between 1 and 10 percent).

FIRE-RELATED HAZARDS

D.2.5 Drought

LOCATION AND SPATIAL EXTENT

Drought and heat waves typically cover a large area and cannot be confined to any geographic or political boundaries. Furthermore, it is assumed that Jones County would be uniformly exposed to drought and heat waves, making the spatial extent potentially widespread. It is also notable that drought and extreme heat conditions typically do not cause significant damage to the built environment but may exacerbate wildfire conditions.

HISTORICAL OCCURRENCES

Drought

According to the U.S. Drought Monitor, Jones County had drought levels (including abnormally dry) in all of the last eighteen years (2000-2018). **Table D.11** shows the most severe drought classification for each year, according to U.S. Drought Monitor classifications. It should be noted that the U.S. Drought Monitor also estimates what percentage of the county is in each classification of drought severity. For example, the most severe classification reported may be exceptional, but a majority of the county may actually be in a less severe condition.

TABLE D. 11: HISTORICAL DROUGHT OCCURRENCES IN JONES COUNTY

Abnormally Dry | Moderate Drought | Severe Drought | Extreme Drought | Exceptional Drought

	Jones County
2000	**EXCEPTIONAL**
2001	MODERATE
2002	MODERATE
2003	ABNORMAL
2004	ABNORMAL
2005	ABNORMAL
2006	**EXTREME**
2007	**EXTREME**
2008	MODERATE
2009	MODERATE
2010	SEVERE
2011	**EXTREME**
2012	MODERATE
2014	ABNORMAL

2015	MODERATE
2016	**EXTREME**

Source: U.S. Drought Monitor

There were four reported drought events for Jones County according to the National Centers for Environmental Information. These events created $50,000 in property damages and at least $81,000 in crop damages.

Heat Wave

The National Centers for Environmental Information was used to determine historical heat wave occurrences in the county.

July 2005 – A five-day heat wave covered the area. Temperatures were consistently above 95 degrees. The agricultural industry was hit particularly hard in the cattle and catfish sectors. Water supply issues were encountered by cities and a burn ban was implemented due to the high fire risk.

August 2005 - A heat wave covering the south began in mid-August and lasted about 10 days. High temperatures were consistently over 95 degrees and surpassed 100 degrees on some days. It was the first time since August 2000 that 100-degree temperatures reached the area.

July 2006 – A short heat wave impacted most of the area temperatures in the 90s to around 100 for five straight days.

August 2007 – A heat wave gripped most of the area with the warmest temperatures since 2000. It lasted from August 5th to the 16th.

December 2016 – Very dry conditions continued into December. Crops were put under more stress from the dry conditions. The drought eased by the middle of the month.

PROBABILITY OF FUTURE OCCURRENCES

Drought

Based on historical occurrence information, it is assumed that all of Jones County has a probability level of highly likely (100 percent annual probability) for future drought events. However, the extent (or magnitude) of drought and the amount of geographic area covered by drought, varies with each year. Historic information indicates that there is a much lower probability for extreme, long-lasting drought conditions.

Heat Wave

Based on historical occurrence information, it is assumed that all of Jones County has a probability level of highly likely (100 percent annual probability) for future heat wave events.

D.2.6 Wildfire

LOCATION AND SPATIAL EXTENT

The entire county is at risk to a wildfire occurrence. However, several factors such as drought conditions or high levels of fuel on the forest floor, may make a wildfire more likely. Furthermore, areas in the urban-wildland interface are particularly susceptible to fire hazard as populations abut formerly undeveloped areas. The Fire Occurrence Areas in the figure below give an indication of historic location.

HISTORICAL OCCURRENCES

Based on data from the Mississippi Forestry Commission from 2008 to 2018, Jones County experiences an average of 51.4 wildfires annually which burn an average of 390.2 acres per year. The data indicates that most of these fires are small, averaging ten acres per fire. **Table D.12** provides a summary of wildfire occurrences in Jones County and **Table D.13** lists the number of reported wildfire occurrences in the county between the years 2008 and 2018.

TABLE D.12: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2008 -2018) *

	Jones County
Average Number of Fires per year	51.4
Average Number of Acres Burned per year	390.2
Average Number of Acres Burned per fire	13.2

*These values reflect averages over a 10-year period.
Source: Mississippi Forestry Commission

TABLE D.13: HISTORICAL WILDFIRE OCCURRENCES IN JONES COUNTY

Year	2008	2010	2011	2012	2013	2014	2015	2016	2017	2018
Jones County										
Number of Fires	27	48	53	22	11	30	33	21	5	7
Number of Acres Burned	259	372	400	84	157	358	164	111	30	16

Source: Mississippi Forestry Commission

PROBABILITY OF FUTURE OCCURRENCES

Wildfire events will be an ongoing occurrence in Jones County. The likelihood of wildfires increases during drought cycles and abnormally dry conditions. Fires are likely to stay small in size but could increase due local climate and ground conditions. Dry, windy conditions with an accumulation of forest floor fuel (potentially due to ice storms or lack of fire) could create conditions for a large fire that spreads quickly. It should also be noted that some areas do vary somewhat in risk. For example, highly developed areas are less susceptible unless they are located near the urban-wildland boundary. The risk will also vary due to assets. Areas in the urban-wildland interface will have much more property at risk, resulting in increased vulnerability and need to mitigate compared to rural, mainly forested areas. In this case, the

participating jurisdictions appear to have a similar risk to the surrounding areas. The probability assigned to Jones County for future wildfire events is likely (a 10 and 100 percent annual probability).

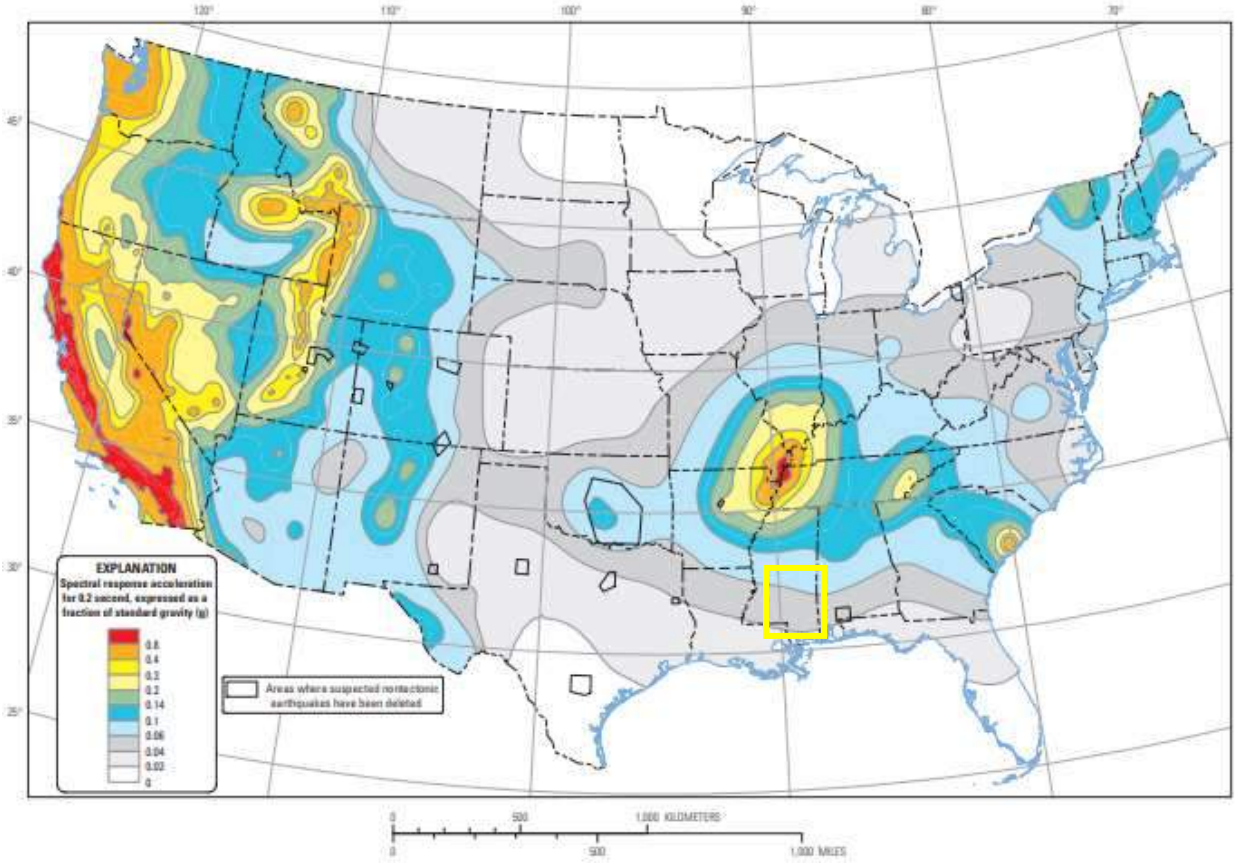
GEOLOGIC HAZARDS

D.2.7 Earthquake

LOCATION AND SPATIAL EXTENT

Figure D.5 shows the intensity level associated with Jones County, based on the national USGS map of peak acceleration with 10 percent probability of exceedance in 50 years. It is the probability that ground motion will reach a certain level during an earthquake. The data show peak horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake) with a 10 percent probability of exceedance in 50 years. The map was compiled by the U.S. Geological Survey (USGS) Geologic Hazards Team, which conducts global investigations of earthquake, geomagnetic, and landslide hazards. According to this map, Jones County lies within an approximate zone of level "2" to "3" ground acceleration. This indicates that the county exists within an area of moderate seismic risk.

FIGURE D.5: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS



Source: USGS, 2019

HISTORICAL OCCURRENCES

No earthquakes are known to have affected Jones County since 1638. **Table D.14** provides a summary of earthquake events reported by the National Geophysical Data Center between 1638 and 1985.[7]

TABLE D.14: SUMMARY OF SEISMIC ACTIVITY IN JONES COUNTY

Location	Number of Occurrences	Greatest MMI Reported	Richter Scale Equivalent
Ellisville	0	--	--
Laurel	0	--	--
Sandersville	0	--	--
Soso	0	--	--
Unincorporated Area	0	--	--
JONES COUNTY TOTAL	**0**	**--**	**--**

Source: National Geophysical Data Center

PROBABILITY OF FUTURE OCCURRENCES

The probability of significant, damaging earthquake events affecting Jones County is unlikely. However, it is possible that future earthquakes resulting in light to moderate perceived shaking and damages ranging from none to very light will affect the county. The annual probability level for the region is estimated to be less than 1 percent (unlikely).

D.2.8 Landslide

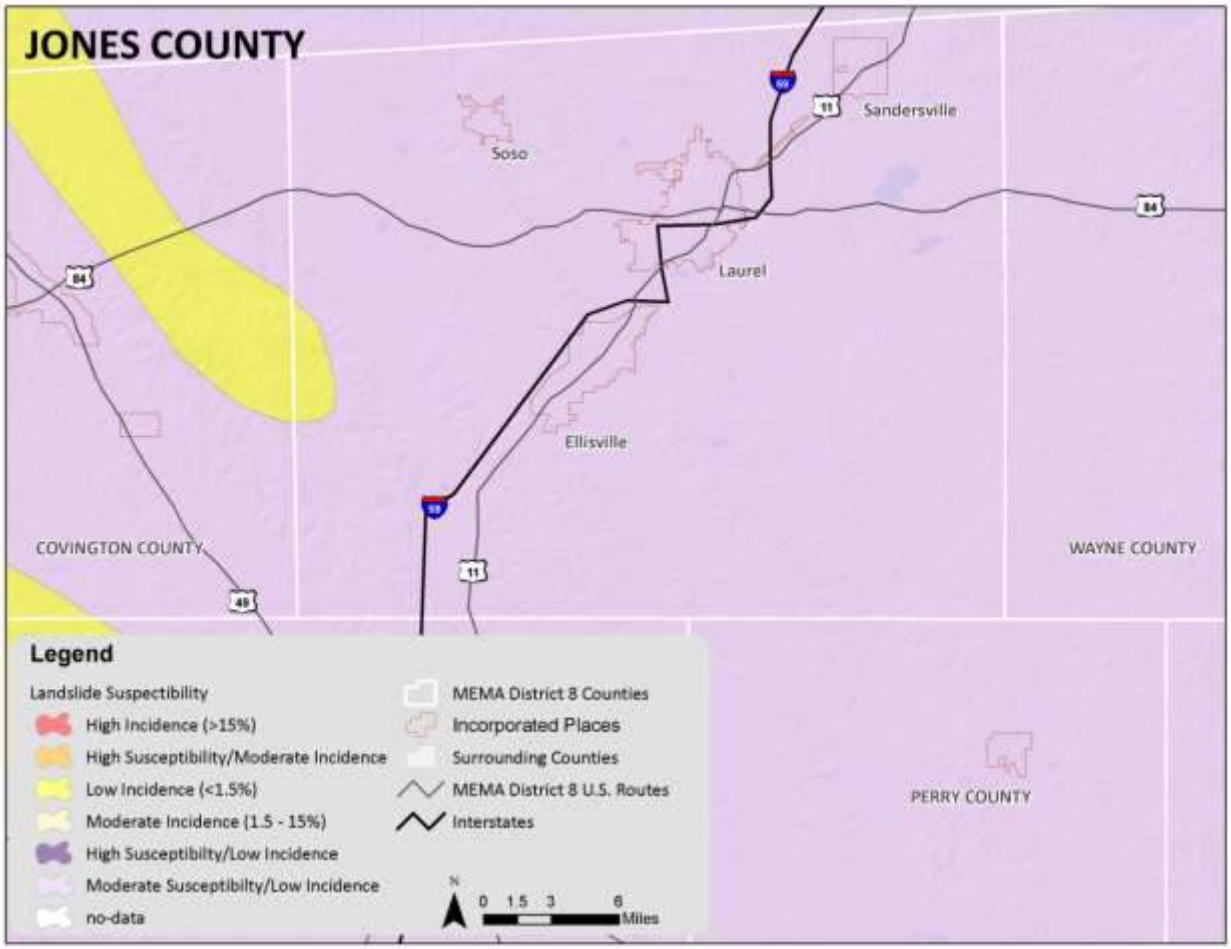
LOCATION AND SPATIAL EXTENT

Landslides occur along steep slopes when the pull of gravity can no longer be resisted (often due to heavy rain). Human development can also exacerbate risk by building on previously undevelopable steep slopes. The most frequent and widespread damaging landslides in the U.S. are induced by prolonged or heavy rainfall. The majority of rainfall-induced landslides are shallow, small, and move quickly.[i] Landslides are possible throughout Jones County.

According to **Figure D.6** below, the entire county falls under a low incidence area (yellow and light purple). This indicates that less than 1.5 percent of the area is involved in landsliding. The areas in yellow are defined as low incidence and low susceptibility. The areas in light purple, however, indicate that a moderate susceptibility to landsliding activity is present. There are no changes with susceptibility to the landslide hazard since the last plan update.

[7] Due to reporting mechanisms, not all earthquakes events were recorded during this time.

FIGURE D.6: LANDSLIDE SUSCEPTIBILITY AND INCIDENCE MAP OF JONES COUNTY



Source: USGS

HISTORICAL OCCURRENCES

There is no extensive history of landslides in Jones County. Landslide events typically occur in isolated areas.

PROBABILITY OF FUTURE OCCURRENCES

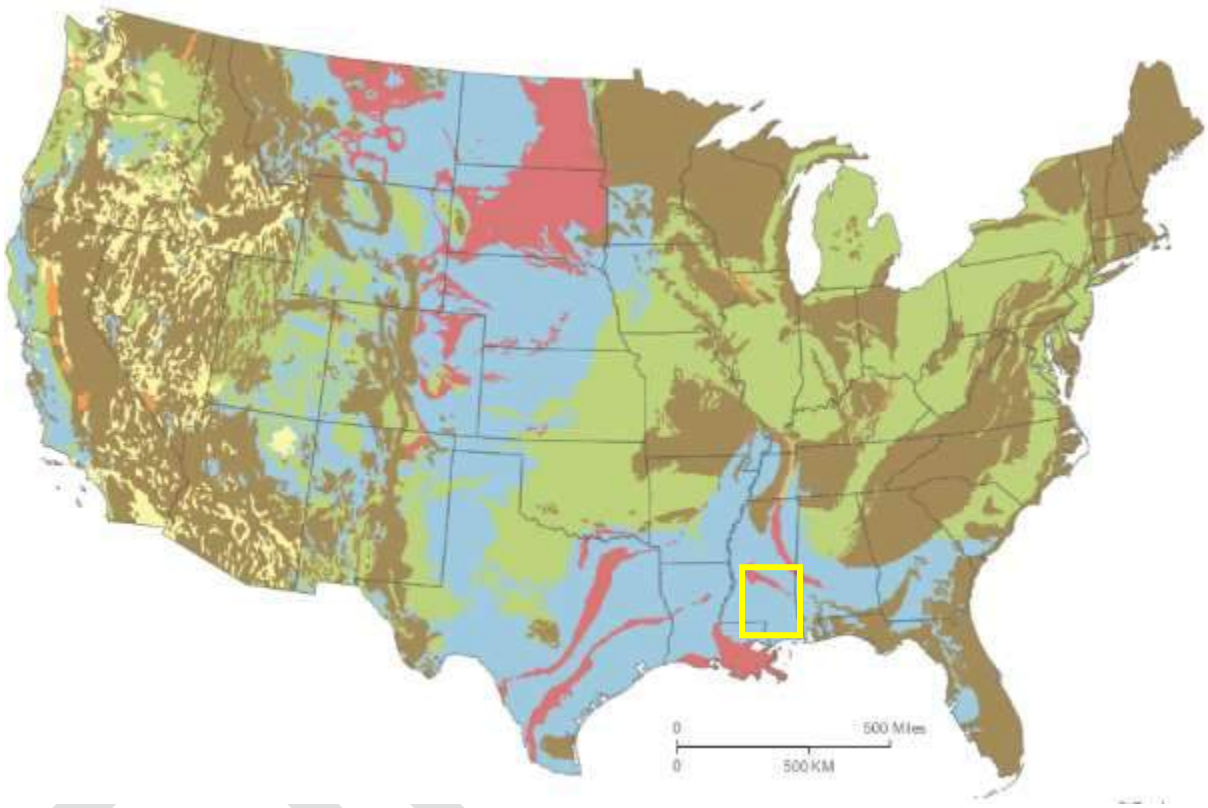
Based on historical information and the USGS susceptibility index, the probability of future landslide events is unlikely (less than 1 percent probability). The USGS data indicates that the all areas in Jones County have a low landslide incidence rate. However, nearly all areas are reported as having moderate susceptibility to landsliding activity. Local conditions may become more favorable for landslides due to heavy rain, for example. This would increase the likelihood of occurrence. It should also be noted that some areas in Jones County have greater risk than others given factors such as steepness on slope and modification of slopes.

D.2.9 Expansive Soils

LOCATION AND SPATIAL EXTENT

Due to the amount of clay minerals present in Jones County, expansive soils present a threat to the county. Areas underlain by soils with swelling potential are shown in **Figure D.7**. The areas in blue are underlain with generally less than 50 percent clay having high swelling potential.

FIGURE D.7: SWELLING CLAYS IN MISSISSIPPI



Over 50 percent of these areas are underlain by soils with abundant clays of high swelling potential.

Less than 50 percent of these areas are underlain by soils with clays of high swelling potential.

Over 50 percent of these areas are underlain by soils with abundant clays of slight to moderate swelling potential.

Less than 50 percent of these areas are underlain by soils with abundant clays of slight to moderate swelling potential.

These areas are underlain by soils with little to no clays with swelling potential.

Data insufficient to indicate the clay content or the swelling potential of soils.

Source: USGS

HISTORICAL OCCURRENCES

There is no historical record of significant expansive soil events in Jones County. However, expansive soils can cause considerable damage to structural foundations in the county, although they do not pose a significant threat to human life.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical information, the probability of future expansive soil events is possible (between 1 and 100 percent annually).

WIND-RELATED HAZARDS

D.2.10 Hurricane and Tropical Storm

LOCATION AND SPATIAL EXTENT

Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact Jones County. All areas in Jones County are equally susceptible to hurricane and tropical storms.

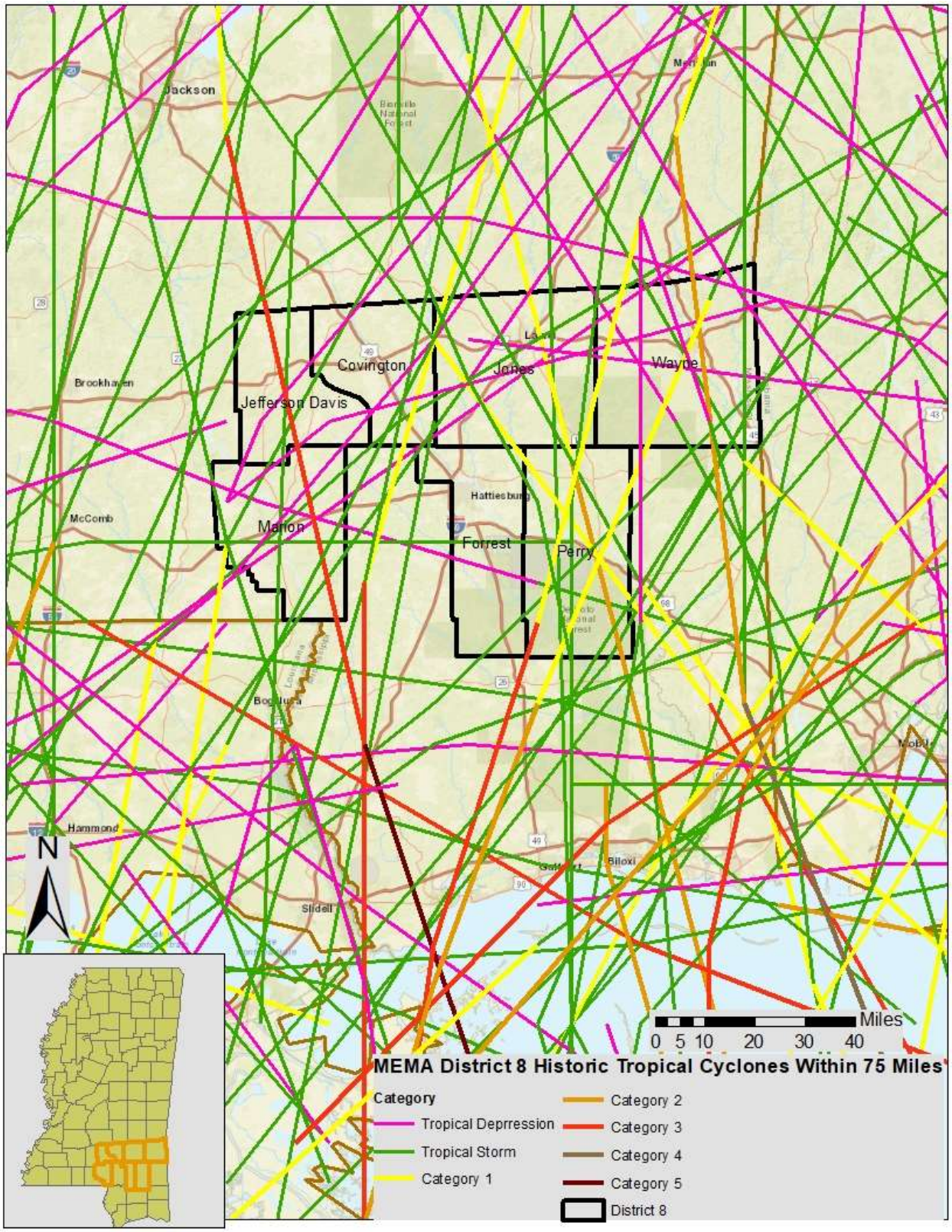
HISTORICAL OCCURRENCES

According to the National Hurricane Center's historical storm track records, a total of 65 hurricanes have passed within 75 miles of Jones County since 1851. This includes 1 category 5 storm, 1 category 4 storm, 6 category 3 storms, 5 category 2 storms, 10 category 1 storms, and 41tropical storms as shown in **Figure D.8**.[8]

Of the recorded storm events, a total of 11 tracks passed directly through the county including Hurricanes Edith (1971), Bill (2003), and Katrina (2005). Most storms where tropical storms when they traversed the county with the exception of four Category 1 storms: Unnamed (1855), Unnamed (1609), Unnamed (1916) and Hurricane Katrina (2005). **Table D.15** provides the detail for each storm that passed through the county including date of occurrence, name (if applicable), maximum wind speed (as recorded when traversing the county) and category of the storm based on the Saffir-Simpson Scale.

[8] These storm track statistics do not include extra-tropical storms. Though these related hazard events are less severe in intensity, they may cause significant local impact in terms of rainfall and high winds.

541 **FIGURE D.8: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF JONES COUNTY**



542
543 *Source: National Oceanic and Atmospheric Administration; National Hurricane Center*
544

TABLE D.15: HISTORICAL STORM TRACKS WITHIN 75 MILES OF JONES COUNTY (1850–2018)

Date of Occurrence	Storm Name	Maximum Wind Speed (miles per hour)	Storm Category
9/16/1855	UNNAMED	80	Category 1
7/12/1872	UNNAMED	46	Tropical Storm
9/8/1883	UNNAMED	63	Tropical Storm
9/27/1906	UNNAMED	75	Category 1
6/13/1912	UNNAMED	52	Tropical Storm
7/6/1916	UNNAMED	92	Category 1
10/18/1923	UNNAMED	57	Tropical Storm
9/1/1932	UNNAMED	69	Tropical Storm
9/16/1960	ETHEL	40	Tropical Storm
7/1/2003	BILL	52	Tropical Storm
8/29/2005	KATRINA	92	Category 1
10/07/2017	NATE	40	Tropical Storm
10/08/2017	NATE	40	Tropical Storm
9/05/208	GORDAN		Tropical Depression

Source: National Hurricane Center

Federal records indicate that disaster declarations were made in 1969 (Hurricane Camille), 1979 (Hurricane Frederic), 1998 (Hurricane Georges), 2004 (Hurricane Ivan), 2005 (Hurricane Dennis), 2005 (Hurricane Katrina), and 2012 (Hurricane Isaac).[9] Hurricane and tropical storm events can cause substantial damage in the area due to high winds and flooding.

Flooding and high winds from hurricanes and tropical storms can cause damage throughout the county. Anecdotes are available from NCEI for the major storms that have impacted the county as found below:

Tropical Storm Isidore – September 26, 2002
Tropical Storm Isidore moved onshore along the Louisiana coast early in the morning of September 26. The weakening storm then moved northeast across eastern Mississippi during the day. The heavy rainfall associated with the storm resulted in significant river and flash flooding across much of Mississippi. Twenty-four hour rainfall totals between 5 and 10 inches were common over much of Mississippi, especially in the southern part of the state, where twenty-four hour amounts exceeded 9 inches near Hattiesburg. Gradient wind gusts between 35 and 45 miles per hour combined with the saturated ground to lead to numerous downed trees and powerlines over the state. Most of the damage was seen along and east of the Natchez Trace, near the path of the storm's diffuse center. One indirect fatality was reported just east of the Kalem community in Scott County. Here, a falling tree struck a truck driven by a 31 year-old male. Damage from Isidore was an estimated $500,000.

Tropical Storm Bill – June 30, 2003
Tropical Storm Bill tracked along Interstate 59. Heavy rainfall caused flash flooding. Forty-eight-hour rainfall totals ranged between 3-7 inches, mainly across SE Mississippi. Gradient wind gusts between 30

[9] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

and 40 mph combined with saturated soils downed numerous trees very close to center's track. Damage from Bill was an estimated $100,000.

Hurricane Ivan – September 16, 2004

Thousands of trees were blown down across Eastern Mississippi during the event as well as hundreds of power lines. The strong wind itself did not cause much structural damage, however the fallen trees did. These downed trees accounted for several hundred homes, mobile homes and businesses to be damaged or destroyed. Most locations across Eastern Mississippi reported sustained winds between 30 and 40 mph with Tropical Storm force gusts between 48 and 54 mph. The strongest reported winds occurred in Newton, Lauderdale and Oktibbeha Counties.

Overall, rainfall totals were held in check as Ivan steadily moved north. The heaviest rains were confined to far Eastern Mississippi where 3 to 4 inches fell over a 15-hour period. Due to the duration of the rain no flooding was reported. Across Eastern Mississippi, Hurricane Ivan was responsible for one fatality. This fatality occurred in Brooksville (Noxubee County) when a tree fell on a man. Damage from Ivan was estimated at $200 million.

Hurricane Dennis – July 10, 2005

Hurricane Dennis made landfall during the afternoon of July 10th near Navarre Beach Florida as a category 3 Hurricane. The storm moved north-northwest across Southwest Alabama and then into East-Central Mississippi and finally across Northeast Mississippi during the overnight hours. Wind gusts over tropical storm force were common across areas east of a line from Starkville to Newton to Hattiesburg. These winds caused several hundred trees to uproot or snap and took down numerous power lines. Additionally, a total of 21 homes or businesses sustained minor to major damage from fallen trees or gusty winds.

Heavy rainfall was not a major issue as Dennis steadily moved across the region. Rainfall totals between 2 and 5 inches fell across Eastern Mississippi over a 12-hour period. One indirect fatality occurred in Jasper County from an automobile accident due to wet roads.

Hurricane Katrina – August 25, 2005

Hurricane Katrina will likely go down as the worst and costliest natural disaster in United States history. The amount of destruction, the cost of damaged property/agriculture and the large loss of life across the affected region has been overwhelming. Catastrophic damage was widespread across a large portion of the Gulf Coast region. The devastation was not only confined to the coastal region, widespread and significant damage occurred well inland up to the Hattiesburg area and northward past Interstate 20.

Devastation from Hurricane Katrina was widespread across the region. Hurricane force winds were common across the area. The region received sustained winds of 60-80 mph with gusts ranging from 80-120 mph. There was widespread damage to trees and power lines. Wind damage to structures was also widespread, with roofs blown off or partially peeled. Hundreds of signs were shredded or blown down. Businesses sustained structural damage. Power outages lasted from a few days to as long as four weeks. Agriculture and timber industries were severely impacted. Row crops, including cotton, rice, corn, and soybeans, took a hard hit. Other impacted industries were the catfish industry, dairy and cattle industry, and nursery businesses.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical evidence, the probability level of future occurrence is likely (annual probability between 10 and 100 percent). Given the regional nature of the hazard, all areas in the county are equally exposed to this hazard. However, when the county is impacted, the damage could be catastrophic, threatening lives and property throughout the planning area.

D.2.11 Thunderstorm

LOCATION AND SPATIAL EXTENT

Thunderstorm / High Wind

A thunderstorm event is an atmospheric hazard, and thus has no geographic boundaries. It is typically a widespread event that can occur in all regions of the United States. However, thunderstorms are most common in the central and southern states because atmospheric conditions in those regions are favorable for generating these powerful storms. Also, Jones County typically experiences several straight-line wind events each year. These wind events can and have caused significant damage. It is assumed that Jones County has uniform exposure to an event and the spatial extent of an impact could be large.

Hailstorm

Hailstorms frequently accompany thunderstorms, so their locations and spatial extents coincide. It is assumed that Jones County is uniformly exposed to severe thunderstorms; therefore, all areas of the county are equally exposed to hail which may be produced by such storms.

Lightning

Lightning occurs randomly, therefore it is impossible to predict where and with what frequency it will strike. It is assumed that all of Jones County is uniformly exposed to lightning.

HISTORICAL OCCURRENCES

Thunderstorm / High Wind

Severe storms resulted in four disaster declarations in Jones County in 1971, 1987, 1990, and 2001.[10] According to NCDC, there have been 301 reported thunderstorm and high wind events since 1957 in Jones County.[11] These events caused over $6.1 million in damages. There were also reports of four fatalities and one injury. **Table D.16** summarizes this information. **Table D.17** presents detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event. [12]

TABLE D.16: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN JONES COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Ellisville	31	0/0	$766,008

[10] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

[11] These thunderstorm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional thunderstorm events have occurred in Jones County. As additional local data becomes available, this hazard profile will be amended.

[12] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Laurel	79	2/1	$2,054,391
Sandersville	26	0/0	$1,332,184
Soso	16	0/0	$148,985
Unincorporated Area	245	2/2	$3,252,624
JONES COUNTY TOTAL	**397**	**4/3**	**$7,554.192**

Source: National Centers for Environmental Information

654

655 **TABLE D.17: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN JONES COUNTY**

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Ellisville					
Ellisville	20-AUG-95	THUNDERSTORM WINDS	0 kts.	0/0	$8,286
Ellisville	18-MAR-96	TSTM WIND	0 kts.	0/0	$16,091
Ellisville	29-JAN-01	TSTM WIND	0 kts.	0/0	$5,703
Ellisville	22-JUL-03	TSTM WIND	0 kts.	0/0	$40,317
Ellisville	22-JUL-03	TSTM WIND	0 kts.	0/0	$33,598
Ellisville	06-AUG-03	TSTM WIND	0 kts.	0/0	$1,344
Ellisville	21-JUN-04	TSTM WIND	0 kts.	0/0	$2,610
Ellisville	02-JUL-04	TSTM WIND	0 kts.	0/0	$0
Ellisville	16-JUL-04	TSTM WIND	0 kts.	0/0	$6,524
Ellisville	30-APR-05	TSTM WIND	0 kts.	0/0	$31,669
Ellisville	29-MAY-05	TSTM WIND	0 kts.	0/0	$38,003
Ellisville	23-JUN-06	TSTM WIND	0 kts.	0/0	$61,494
Ellisville	05-AUG-06	TSTM WIND	0 kts.	0/0	$0
Ellisville	05-AUG-06	TSTM WIND	0 kts.	0/0	$0
Ellisville	15-AUG-06	TSTM WIND	0 kts.	0/0	$122,987
Ellisville	13-FEB-07	THUNDERSTORM WIND	50 kts.	0/0	$0
Ellisville	18-JUN-07	THUNDERSTORM WIND	50 kts.	0/0	$2,388
Ellisville	17-OCT-07	THUNDERSTORM WIND	50 kts.	0/0	$0
Ellisville	29-JAN-08	THUNDERSTORM WIND	55 kts.	0/0	$0
Ellisville	12-FEB-08	THUNDERSTORM WIND	55 kts.	0/0	$9,274
Ellisville	04-APR-11	THUNDERSTORM WIND	74 kts.	0/0	$318,270
Ellisville	13-JUL-11	THUNDERSTORM WIND	50 kts.	0/0	$5,305
Ellisville	03-APR-12	THUNDERSTORM WIND	50 kts.	0/0	$6,180
Ellisville	04-JUL-12	THUNDERSTORM WIND	55 kts.	0/0	$15,450
Ellisville	12-JUL-12	THUNDERSTORM WIND	40 kts.	0/0	$515
Ellisville	20-FEB-14	THUNDERSTORM WIND	55 kts.	0/0	$5,000
Ellisville	05-JUL-15	THUNDERSTORM WIND	50 kts.	0/0	$4,000
Ellisville	14-APR-16	THUNDERSTORM WIND	50 kts.	0/0	$12,000
Ellisville	12-MAY-17	THUNDERSTORM WIND	50 kts.	0/0	$15,000
Ellisville	21-MAY-17	THUNDERSTORM WIND	50 kts.	0/0	$2,000
Ellisville	10-JUN-18	THUNDERSTORM WIND	39 kts.	0/0	$2,000
Laurel					
Laurel	01-JUL-94	THUNDERSTORM WINDS	0 kts.	0/0	$852
Laurel	11-APR-95	THUNDERSTORM WINDS	0 kts.	0/0	$3,314
Laurel	13-JUL-96	TSTM WIND	0 kts.	0/0	$3,218

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Laurel	15-JAN-97	TSTM WIND	0 kts.	0/0	$15,730
Laurel	05-APR-97	TSTM WIND/HAIL	0 kts.	0/0	$3,146
Laurel	27-APR-97	TSTM WIND	0 kts.	0/0	$6,292
Laurel	28-MAY-97	TSTM WIND	0 kts.	0/0	$15,730
Laurel	25-OCT-97	TSTM WIND	0 kts.	0/0	$4,719
Laurel	05-JUN-98	TSTM WIND	0 kts.	0/0	$30,978
Laurel	03-JAN-00	TSTM WIND	0 kts.	0/0	$2,937
Laurel	02-APR-00	TSTM WIND	0 kts.	0/0	$139,511
Laurel	02-APR-00	TSTM WIND	0 kts.	0/0	$22,028
Laurel	17-JUL-00	TSTM WIND	0 kts.	1/0	$22,028
Laurel	20-JUL-00	TSTM WIND	0 kts.	0/0	$4,406
Laurel	22-JUL-00	TSTM WIND	0 kts.	0/0	$5,874
Laurel	10-AUG-00	TSTM WIND	0 kts.	0/0	$2,937
Laurel	10-AUG-00	TSTM WIND	0 kts.	0/0	$36,713
Laurel	31-AUG-00	TSTM WIND	0 kts.	0/0	$22,028
Laurel	06-OCT-00	TSTM WIND	0 kts.	0/0	$22,028
Laurel	13-DEC-00	TSTM WIND	0 kts.	0/0	$2,937
Laurel	19-JAN-01	TSTM WIND	0 kts.	0/0	$2,852
Laurel	12-MAR-01	TSTM WIND	0 kts.	1/0	$142,576
Laurel	31-MAY-01	TSTM WIND	0 kts.	0/0	$57,030
Laurel	27-JUN-01	TSTM WIND	0 kts.	0/0	$1,426
Laurel	12-JUL-01	TSTM WIND	0 kts.	0/0	$35,644
Laurel	13-DEC-01	TSTM WIND	0 kts.	0/0	$1,426
Laurel	20-MAR-02	TSTM WIND	0 kts.	0/0	$1,384
Laurel	08-APR-02	TSTM WIND	0 kts.	0/0	$1,384
Laurel	17-MAY-02	TSTM WIND	0 kts.	0/0	$1,384
Laurel	17-MAY-02	TSTM WIND	0 kts.	0/0	$1,384
Laurel	08-JUL-02	TSTM WIND	0 kts.	0/0	$692
Laurel	25-JUL-02	TSTM WIND	0 kts.	0/0	$1,384
Laurel	25-JUL-02	TSTM WIND	0 kts.	0/0	$1,384
Laurel	02-AUG-02	TSTM WIND	0 kts.	0/0	$13,842
Laurel	24-DEC-02	TSTM WIND	0 kts.	0/0	$3,461
Laurel	24-DEC-02	TSTM WIND	0 kts.	0/0	$1,384
Laurel	06-APR-03	TSTM WIND	0 kts.	0/0	$40,317
Laurel	17-MAY-03	TSTM WIND	0 kts.	0/0	$13,439
Laurel	11-JUL-03	TSTM WIND	0 kts.	0/0	$13,439
Laurel	22-JUL-03	TSTM WIND	0 kts.	0/0	$4,032
Laurel	01-MAY-04	TSTM WIND	0 kts.	0/0	$1,305
Laurel	02-JUL-04	TSTM WIND	0 kts.	0/0	$3,914
Laurel	15-JUL-04	TSTM WIND	0 kts.	0/0	$3,914
Laurel	13-JAN-05	TSTM WIND	0 kts.	0/0	$19,002
Laurel	31-MAR-05	TSTM WIND	0 kts.	0/0	$0
Laurel	31-MAR-05	TSTM WIND	0 kts.	0/0	$25,335
Laurel	15-NOV-05	TSTM WIND	0 kts.	0/0	$19,002
Laurel	09-MAY-06	TSTM WIND	0 kts.	0/0	$73,792
Laurel	23-JUN-06	TSTM WIND	0 kts.	0/0	$61,494
Laurel	23-JUN-06	TSTM WIND	0 kts.	0/0	$12,299

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Laurel	23-JUN-06	TSTM WIND	0 kts.	0/0	$12,299
Laurel	09-AUG-06	TSTM WIND	0 kts.	0/0	$491,950
Laurel	25-FEB-07	THUNDERSTORM WIND	53 kts.	0/0	$14,329
Laurel	19-JUN-07	THUNDERSTORM WIND	53 kts.	0/0	$83,584
Laurel	01-AUG-07	THUNDERSTORM WIND	50 kts.	0/0	$0
Laurel	10-MAY-09	THUNDERSTORM WIND	60 kts.	0/0	$225,102
Laurel	04-APR-11	THUNDERSTORM WIND	56 kts.	0/0	$31,827
Laurel	26-APR-11	THUNDERSTORM WIND	50 kts.	0/0	$0
Laurel	07-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$5,305
Laurel	28-JUN-11	THUNDERSTORM WIND	43 kts.	0/0	$5,305
Laurel	12-MAY-12	THUNDERSTORM WIND	50 kts.	0/0	$51,500
Laurel	30-MAY-12	THUNDERSTORM WIND	50 kts.	0/0	$41,200
Laurel	18-JUL-12	THUNDERSTORM WIND	35 kts.	0/0	$103
Laurel	04-SEP-12	THUNDERSTORM WIND	50 kts.	0/0	$2,060
Laurel	13-OCT-14	THUNDERSTORM WIND	52 kts.	0/0	$3,000
Laurel	20-MAY-15	THUNDERSTORM WIND	55 kts.	0/0	$10,000
Laurel	24-MAY-15	THUNDERSTORM WIND	52 kts.	0/0	$30,000
Laurel	24-JUN-15	THUNDERSTORM WIND	50 kts.	0/0	$3,000
Laurel	15-FEB-16	THUNDERSTORM WIND	50 kts.	0/0	$14,000
Laurel	31-MAY-16	THUNDERSTORM WIND	50 kts.	0/0	$7,000
Laurel	05-AUG-16	THUNDERSTORM WIND	39 kts.	0/0	$15,000
Laurel	05-AUG-16	THUNDERSTORM WIND	35 kts.	0/1	$500
Laurel	03-APR-17	THUNDERSTORM WIND	50 kts.	0/0	$5,000
Laurel	30-APR-17	THUNDERSTORM WIND	50 kts.	0/0	$5,000
Laurel	03-APR-18	THUNDERSTORM WIND	50 kts.	0/0	$20,000
Laurel	06-APR-18	THUNDERSTORM WIND	50 kts.	0/0	$5,000
Laurel	16-MAY-18	THUNDERSTORM WIND	50 kts.	0/0	$20,000
Laurel	30-MAY-18	THUNDERSTORM WIND	52 kts.	0/0	$30,000
Laurel	31-JUL-18	THUNDERSTORM WIND	50 kts.	0/0	$5,000
Sandersville					
Sandersville	20-JUL-00	TSTM WIND	0 kts.	0/0	$7,243
Sandersville	10-AUG-00	TSTM WIND	0 kts.	0/0	$44,056
Sandersville	02-MAR-01	TSTM WIND	0 kts.	0/0	$35,644
Sandersville	22-JUL-03	TSTM WIND	0 kts.	0/0	$2,688
Sandersville	22-JUN-04	TSTM WIND	0 kts.	0/0	$1,305
Sandersville	15-JUL-04	TSTM WIND	0 kts.	0/0	$6,524
Sandersville	20-MAY-05	TSTM WIND	0 kts.	0/0	$12,668
Sandersville	09-JUN-05	TSTM WIND	0 kts.	0/0	$10,134
Sandersville	10-MAY-06	TSTM WIND	0 kts.	0/0	$24,597
Sandersville	28-JUL-06	TSTM WIND	0 kts.	0/0	$86,091
Sandersville	30-JUL-06	TSTM WIND	0 kts.	0/0	$368,962
Sandersville	30-JUL-06	TSTM WIND	0 kts.	0/0	$61,494
Sandersville	10-JAN-08	THUNDERSTORM WIND	78 kts.	0/0	$405,746
Sandersville	10-DEC-08	THUNDERSTORM WIND	50 kts.	0/0	$0
Sandersville	06-MAY-09	THUNDERSTORM WIND	50 kts.	0/0	$0
Sandersville	15-MAY-09	THUNDERSTORM WIND	50 kts.	0/0	$1,801
Sandersville	03-AUG-10	THUNDERSTORM WIND	52 kts.	0/0	$27,318

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Sandersville	12-OCT-10	THUNDERSTORM WIND	50 kts.	0/0	$0
Sandersville	13-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$106,090
Sandersville	22-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$26,523
Sandersville	11-JUN-12	THUNDERSTORM WIND	53 kts.	0/0	$10,300
Sandersville	16-NOV-14	THUNDERSTORM WIND	53 kts.	0/0	$2,000
Sandersville	23-FEB-16	THUNDERSTORM WIND	53 kts.	0/0	$2,000
Sandersville	17-JUN-16	THUNDERSTORM WIND	53 kts.	0/1	$75,000
Sandersville	26-SEP-16	THUNDERSTORM WIND	53 kts.	0/0	$9,000
Sandersville	23-JUN-17	THUNDERSTORM WIND	53 kts.	0/0	$5,000
Soso					
Soso	25-AUG-00	TSTM WIND	0 kts.	0/0	$2,937
Soso	19-JAN-01	TSTM WIND	0 kts.	0/0	$1,426
Soso	12-MAR-01	TSTM WIND	0 kts.	0/0	$11,406
Soso	17-MAY-02	TSTM WIND	0 kts.	0/0	$1,384
Soso	07-JUL-02	TSTM WIND	0 kts.	0/0	$1,384
Soso	07-JUL-02	TSTM WIND	0 kts.	0/0	$1,384
Soso	12-JUL-02	TSTM WIND	0 kts.	0/0	$1,384
Soso	12-JUL-02	TSTM WIND	0 kts.	0/0	$692
Soso	10-JUL-07	THUNDERSTORM WIND	50 kts.	0/0	$0
Soso	03-MAR-08	THUNDERSTORM WIND	60 kts.	0/0	$34,778
Soso	02-APR-12	THUNDERSTORM WIND	50 kts.	0/0	$7,210
Soso	28-APR-14	THUNDERSTORM WIND	60 kts.	0/0	$50,000
Soso	22-JUL-14	THUNDERSTORM WIND	54 kts.	0/0	$5,000
Soso	18-MAR-15	THUNDERSTORM WIND	50 kts.	0/0	$1,000
Soso	15-FEB-16	THUNDERSTORM WIND	50 kts.	0/0	$54,000
Soso	03-APR-17	THUNDERSTORM WIND	52 kts.	0/0	$25,000
Unincorporated Area					
JONES COUNTY	02-JUL-57	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	15-JAN-59	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	08-MAY-61	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	22-JAN-65	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	22-JAN-65	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	27-DEC-68	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	05-APR-69	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	04-JUL-70	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	22-APR-72	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	25-JUN-72	TSTM WIND	0 kts.	0/0	$0

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
JONES COUNTY	06-MAR-73	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	08-MAY-73	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	08-MAY-73	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	30-JUL-74	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	13-AUG-74	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	01-SEP-74	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	10-JAN-75	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	02-APR-75	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	07-MAY-75	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	09-JUL-75	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	21-MAR-76	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	07-MAY-76	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	08-MAY-77	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	08-MAY-77	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	08-MAY-77	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	15-JUL-77	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	26-APR-79	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	04-MAY-79	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	25-MAY-80	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	03-JAN-82	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	09-JUL-82	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	01-APR-83	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	06-APR-83	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	19-MAY-83	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	03-DEC-83	TSTM WIND	0 kts.	0/0	$0

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
JONES COUNTY	12-FEB-84	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	03-MAY-84	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	28-APR-85	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	28-APR-85	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	01-JUL-85	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	11-JUL-85	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	23-AUG-85	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	23-AUG-85	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	04-FEB-86	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	10-AUG-86	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	10-AUG-86	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	15-FEB-87	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	17-MAR-87	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	25-JUL-87	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	18-APR-88	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	18-APR-88	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	04-NOV-88	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	20-FEB-89	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	22-MAY-89	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	14-JUN-89	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	22-NOV-89	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	22-NOV-89	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	27-NOV-89	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	10-FEB-90	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	10-APR-90	TSTM WIND	0 kts.	1/0	$0

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
JONES COUNTY	10-JUN-90	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	10-JUN-90	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	18-JUN-90	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	22-AUG-90	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	02-SEP-90	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	09-APR-91	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	09-APR-91	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	05-MAY-91	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	22-JUN-91	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	14-JUL-91	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	12-MAY-92	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	09-JUN-94	THUNDERSTORM WINDS	0 kts.	0/0	$8,523
JONES COUNTY	29-JUN-94	THUNDERSTORM WINDS	0 kts.	0/0	$85,228
Moselle	06-JAN-95	THUNDERSTORM WINDS	0 kts.	0/0	$6,629
JONES COUNTY	11-APR-95	THUNDERSTORM WINDS	0 kts.	0/0	$3,314
JONES COUNTY	28-MAY-95	TSTM WIND	0 kts.	0/0	$3,314
Eastabuchie	26-JUL-95	THUNDERSTORM WINDS	52 kts.	0/0	$0
Eastabuchie	26-JUL-95	THUNDERSTORM WINDS	0 kts.	0/0	$4,972
Moselle	27-OCT-95	THUNDERSTORM WINDS	56 kts.	0/0	$3,314
Shady Grove	11-NOV-95	THUNDERSTORM WINDS	0 kts.	0/0	$33,143
Lanham	06-MAR-96	TSTM WIND	0 kts.	0/0	$0
Ovett	06-MAR-96	TSTM WIND	0 kts.	0/0	$0
Ovett	26-OCT-96	TSTM WIND	0 kts.	0/0	$4,827
EASTABUCHIE	26-FEB-98	TSTM WIND	0 kts.	0/0	$30,978
JONES COUNTY	27-SEP-98	HIGH WIND	0 kts.	0/0	$178,811
Countywide	22-JAN-99	TSTM WIND	0 kts.	0/0	$37,815
Countywide	27-FEB-99	TSTM WIND	0 kts.	0/0	$22,689
Countywide	08-MAR-99	TSTM WIND	0 kts.	0/0	$75,629
Countywide	01-APR-00	TSTM WIND	0 kts.	0/0	$2,937
Countywide	16-JUL-00	TSTM WIND	0 kts.	0/0	$5,874
Countywide	20-JUL-00	TSTM WIND	0 kts.	0/0	$14,685
Countywide	16-FEB-01	TSTM WIND	0 kts.	0/0	$7,129
Ovett	02-MAR-01	TSTM WIND	0 kts.	0/0	$7,129
EASTABUCHIE	12-MAR-01	TSTM WIND	0 kts.	0/0	$7,129

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Countywide	20-AUG-01	TSTM WIND	0 kts.	0/0	$28,515
Ovett	19-JAN-02	TSTM WIND	0 kts.	0/0	$1,384
Countywide	01-JUL-02	TSTM WIND	0 kts.	0/0	$1,384
Hebron	02-JUL-02	TSTM WIND	0 kts.	0/0	$2,768
Countywide	25-AUG-02	TSTM WIND	0 kts.	0/0	$2,768
Moselle	24-DEC-02	TSTM WIND	0 kts.	0/0	$2,768
Countywide	17-MAY-03	TSTM WIND	0 kts.	0/0	$13,439
Countywide	22-JUL-03	TSTM WIND	0 kts.	0/0	$20,159
Countywide	30-JUL-03	TSTM WIND	0 kts.	0/0	$2,688
Moselle	03-AUG-03	TSTM WIND	0 kts.	0/0	$4,032
Ovett	20-AUG-03	TSTM WIND	0 kts.	0/0	$13,439
Countywide	18-NOV-03	TSTM WIND	0 kts.	0/0	$13,439
Countywide	27-JUN-04	TSTM WIND	0 kts.	0/0	$6,524
Tuckers Crossing	15-JUL-04	TSTM WIND	0 kts.	0/0	$2,610
Countywide	16-JUL-04	TSTM WIND	0 kts.	0/0	$1,305
(PIB)PINE BELT RGNL	30-APR-05	TSTM WIND	0 kts.	0/0	$0
JONES COUNTY	09-MAR-06	STRONG WIND	45 kts.	0/0	$73,792
Moselle	08-MAY-06	TSTM WIND	0 kts.	0/0	$6,149
Ovett	09-AUG-06	TSTM WIND	0 kts.	0/0	$0
Hebron	14-APR-07	THUNDERSTORM WIND	50 kts.	0/0	$4,776
JONES COUNTY	09-JUN-07	STRONG WIND	39 kts.	0/0	$12
Moselle	19-JUN-07	THUNDERSTORM WIND	50 kts.	0/0	$0
Moselle	07-JUL-07	THUNDERSTORM WIND	50 kts.	0/0	$0
MYRICK	10-JUL-07	THUNDERSTORM WIND	60 kts.	0/0	$71,643
JONES COUNTY	14-JUL-07	STRONG WIND	39 kts.	0/0	$3,582
Reddoch	10-JAN-08	THUNDERSTORM WIND	65 kts.	0/0	$231,855
(LUL)HESLER FLD LAUR	29-JAN-08	THUNDERSTORM WIND	55 kts.	0/1	$57,964
Moselle	31-JAN-08	THUNDERSTORM WIND	54 kts.	0/0	$23,185
Ovett	12-FEB-08	THUNDERSTORM WIND	65 kts.	0/0	$0
(PIB)PINE BELT RGNL	12-FEB-08	THUNDERSTORM WIND	55 kts.	0/0	$11,593
Moselle	12-FEB-08	THUNDERSTORM WIND	70 kts.	0/0	$13,911
Moselle	12-FEB-08	THUNDERSTORM WIND	55 kts.	0/0	$9,274
Service	03-MAR-08	THUNDERSTORM WIND	50 kts.	0/0	$0
Moselle	03-MAY-08	THUNDERSTORM WIND	60 kts.	0/0	$11,593
BLODGETT	03-MAY-08	THUNDERSTORM WIND	65 kts.	0/0	$28,892
JONES COUNTY	22-MAY-08	STRONG WIND	41 kts.	0/0	$116
(LUL)HESLER FLD LAUR	07-AUG-08	THUNDERSTORM WIND	60 kts.	0/0	$0
TAWANTA	07-AUG-08	THUNDERSTORM WIND	55 kts.	0/0	$0
(PIB)PINE BELT RGNL	12-AUG-08	THUNDERSTORM WIND	53 kts.	0/0	$2,319

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Hebron	24-NOV-08	THUNDERSTORM WIND	50 kts.	0/0	$0
Tuckers	24-NOV-08	THUNDERSTORM WIND	50 kts.	0/0	$0
Tuckers Crossing	26-MAR-09	THUNDERSTORM WIND	65 kts.	0/0	$90,041
Tuckers	02-APR-09	THUNDERSTORM WIND	50 kts.	0/0	$1,688
Moselle	12-APR-09	THUNDERSTORM WIND	61 kts.	0/0	$0
Reddoch	03-MAY-09	THUNDERSTORM WIND	70 kts.	0/0	$146,316
Hebron	03-MAY-09	THUNDERSTORM WIND	68 kts.	1/0	$191,336
JONES COUNTY	03-MAY-09	STRONG WIND	43 kts.	0/0	$39,393
JONES COUNTY	28-JUL-09	STRONG WIND	43 kts.	0/0	$2,814
Hebron	21-AUG-09	THUNDERSTORM WIND	50 kts.	0/0	$0
Oak Bowery	21-AUG-09	THUNDERSTORM WIND	56 kts.	0/0	$0
Tuckers Crossing	09-DEC-09	THUNDERSTORM WIND	50 kts.	0/0	$0
Oak Bowery	09-DEC-09	THUNDERSTORM WIND	50 kts.	0/0	$0
Lanham	01-JUN-10	THUNDERSTORM WIND	58 kts.	0/0	$43,709
Hoy	05-JUN-10	THUNDERSTORM WIND	60 kts.	0/0	$43,709
ERRATA	03-AUG-10	THUNDERSTORM WIND	50 kts.	0/0	$0
ERRATA	03-AUG-10	THUNDERSTORM WIND	50 kts.	0/0	$5,464
Tuckers	03-AUG-10	THUNDERSTORM WIND	52 kts.	0/0	$0
TAWANTA	22-AUG-10	THUNDERSTORM WIND	60 kts.	0/0	$10,927
(LUL)HESLER FLD LAUR	30-NOV-10	THUNDERSTORM WIND	50 kts.	0/0	$5,464
Tuckers	30-NOV-10	THUNDERSTORM WIND	65 kts.	0/0	$54,636
JONES COUNTY	12-DEC-10	STRONG WIND	40 kts.	0/0	$27,318
TAWANTA	04-APR-11	THUNDERSTORM WIND	70 kts.	0/0	$159,135
Hoy	11-APR-11	THUNDERSTORM WIND	52 kts.	0/0	$0
Moselle	15-APR-11	THUNDERSTORM WIND	52 kts.	0/0	$0
Lanham	15-APR-11	THUNDERSTORM WIND	50 kts.	0/0	$4,244
(PIB)PINE BELT RGNL	07-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$2,122
Reddoch	04-JUL-11	THUNDERSTORM WIND	60 kts.	0/0	$21,218
Moselle	12-JUL-11	THUNDERSTORM WIND	50 kts.	0/0	$3,183
Ellisville Jct.	10-AUG-11	THUNDERSTORM WIND	55 kts.	0/0	$7,426
JONES COUNTY	03-SEP-11	STRONG WIND	35 kts.	0/0	$15,914
Service	04-SEP-11	THUNDERSTORM WIND	45 kts.	0/0	$530
JONES COUNTY	20-MAR-12	STRONG WIND	40 kts.	0/0	$10,300
JONES COUNTY	20-MAR-12	STRONG WIND	40 kts.	0/0	$10,300
JONES COUNTY	21-MAR-12	STRONG WIND	43 kts.	0/0	$1,030
JONES COUNTY	21-MAR-12	STRONG WIND	43 kts.	0/0	$1,030

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
JONES COUNTY	21-MAR-12	STRONG WIND	43 kts.	0/0	$1,030
Reddoch	03-APR-12	THUNDERSTORM WIND	50 kts.	0/0	$4,120
Oak Bowery	31-MAY-12	THUNDERSTORM WIND	55 kts.	0/0	$41,200
Oak Bowery	07-JUL-12	THUNDERSTORM WIND	40 kts.	0/0	$5,150
Moselle	06-AUG-12	THUNDERSTORM WIND	50 kts.	0/0	$0
TAWANTA	06-AUG-12	THUNDERSTORM WIND	50 kts.	0/0	$15,450
(PIB)PINE BELT RGNL	09-AUG-12	THUNDERSTORM WIND	50 kts.	0/0	$4,120
JONES COUNTY	18-AUG-12	STRONG WIND	43 kts.	0/0	$2,060
JONES COUNTY	28-AUG-12	STRONG WIND	40 kts.	0/0	$5,150
Lanham	04-SEP-12	THUNDERSTORM WIND	50 kts.	0/0	$2,060
(LUL)HESLER FLD LAUR	20-DEC-12	THUNDERSTORM WIND	50 kts.	0/0	$3,090
HOY	28-APR-14	THUNDERSTORM WIND	60 kts.	0/0	$35,000
LANHAM	28-APR-14	THUNDERSTORM WIND	50 kts.	0/0	$1,000
GITANO	28-APR-14	THUNDERSTORM WIND	50 kts.	0/0	$1,000
OVETT	28-APR-14	THUNDERSTORM WIND	50 kts.	0/0	$1,000
ERRATA	22-JUN-14	THUNDERSTORM WIND	50 kts.	0/0	$1,000
BLODGETT	28-JUN-14	THUNDERSTORM WIND	54 kts.	0/0	$5,000
HEBRON	22-JUL-14	THUNDERSTORM WIND	53 kts.	0/0	$5,000
SERVICE	02-OCT-14	THUNDERSTORM WIND	50 kts.	0/0	$3,000
TUCKERS	16-NOV-14	THUNDERSTORM WIND	50 kts.	0/0	$0
TAWANTA	23-DEC-14	THUNDERSTORM WIND	52 kts.	0/0	$2,000
LANHAM	23-DEC-14	THUNDERSTORM WIND	50 kts.	0/0	$200
ERRATA	18-MAR-15	THUNDERSTORM WIND	50 kts.	0/0	$2,000
MYRICK	31-MAY-15	THUNDERSTORM WIND	50 kts.	0/0	$15,000
MYRICK	24-JUN-15	THUNDERSTORM WIND	45 kts.	0/0	$2,000
TAWANTA	04-JUL-15	THUNDERSTORM WIND	50 kts.	0/0	$5,000
HOY	18-JUL-15	THUNDERSTORM WIND	39 kts.	0/0	$1,000
(PIB)PINE BELT RGNL	30-JUL-15	THUNDERSTORM WIND	40 kts.	0/0	$2,000
OVETT	30-JUL-15	THUNDERSTORM WIND	45 kts.	0/0	$12,000
JONES COUNTY	22-FEB-16	STRONG WIND	35 kts.	0/0	$20,000
BLODGETT	15-FEB-16	THUNDERSTORM WIND	50 kts.	0/0	$4,000
ERRATA	23-FEB-16	THUNDERSTORM WIND	50 kts.	0/0	$2,000
MOSELLE	17-MAR-16	THUNDERSTORM WIND	58 kts.	0/0	$100,000
JONES COUNTY	27-APR-16	STRONG WIND	35 kts.	0/0	$5,000
LANHAM	06-JUL-16	THUNDERSTORM WIND	50 kts.	0/0	$15,000
SERVICE	13-JUL-16	THUNDERSTORM WIND	43 kts.	0/0	$2,000
OAK BOWERY	13-JUL-16	THUNDERSTORM WIND	50 kts.	0/0	$7,000
SERVICE	25-SEP-16	THUNDERSTORM WIND	46 kts.	0/0	$10,000
JONES COUNTY	28-NOV-16	STRONG WIND	34 kts.	0/0	$3,000
TUCKERS	30-NOV-16	THUNDERSTORM WIND	45 kts.	0/0	$5,000

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
HOY	02-JAN-17	THUNDERSTORM WIND	50 kts.	0/0	$10,000
BLODGETT	02-JAN-17	THUNDERSTORM WIND	50 kts.	0/0	$8,000
TUCKERS	02-JAN-17	THUNDERSTORM WIND	50 kts.	0/0	$7,000
(PIB)PINE BELT RGNL	02-JAN-17	THUNDERSTORM WIND	55 kts.	0/0	$20,000
TUCKERS CROSSING	27-MAR-17	THUNDERSTORM WIND	50 kts.	0/0	$75,000
LANHAM	22-APR-17	THUNDERSTORM WIND	50 kts.	0/0	$10,000
OAK BOWERY	21-MAY-17	THUNDERSTORM WIND	50 kts.	0/0	$2,000
MYRICK	13-JUN-17	THUNDERSTORM WIND	50 kts.	0/0	$8,000
MILL CREEK	16-JUN-17	THUNDERSTORM WIND	39 kts.	0/0	$3,000
GITANO	16-JUN-17	THUNDERSTORM WIND	65 kts.	0/0	$200,000
(PIB)PINE BELT RGNL	16-JUN-17	THUNDERSTORM WIND	60 kts.	0/0	$3,000
SERVICE	16-JUN-17	THUNDERSTORM WIND	55 kts.	0/0	$500
HOY	16-JUN-17	THUNDERSTORM WIND	43 kts.	0/0	$500
JONES COUNTY	22-JUN-17	STRONG WIND	35 kts.	0/0	$13,000
OAK BOWERY	30-JUN-17	THUNDERSTORM WIND	43 kts.	0/0	$4,000
WALTERS	30-JUN-17	THUNDERSTORM WIND	43 kts.	0/0	$20,000
TUCKERS CROSSING	30-JUN-17	THUNDERSTORM WIND	43 kts.	0/0	$5,000
WALTERS	09-AUG-17	THUNDERSTORM WIND	50 kts.	0/0	$8,000
JONES COUNTY	07-OCT-17	STRONG WIND	35 kts.	0/0	$5,000
MOSELLE	14-APR-18	THUNDERSTORM WIND	50 kts.	0/0	$3,000
SERVICE	17-MAY-18	THUNDERSTORM WIND	50 kts.	0/0	$5,000
LANHAM	20-MAY-18	THUNDERSTORM WIND	50 kts.	0/0	$10,000
MOSELLE	09-JUN-18	THUNDERSTORM WIND	50 kts.	0/0	$8,000
LANHAM	27-DEC-18	THUNDERSTORM WIND	50 kts.	0/0	$3,000
EASTABUCHIE	19-JUL-18	THUNDERSTORM WIND	50 kts.	0/0	$10,000
BLODGETT	31-JUL-18	THUNDERSTORM WIND	50 kts.	0/0	$7,000
MYRICK	31-JUL-18	THUNDERSTORM WIND	50 kts.	0/0	$9,000
MILL CREEK	31-JUL-18	THUNDERSTORM WIND	50 kts.	0/0	$5,000
HOY	07-AUG-18	THUNDERSTORM WIND	39 kts.	0/0	$2,000
TAWANTA	01-NOV-18	THUNDERSTORM WIND	56 kts.	0/0	$20,000
HOY	27-DEC-18	THUNDERSTORM WIND	48 kts.	0/0	$200,000
SERVICE	19-JAN-19	THUNDERSTORM WIND	50 kts.	0/0	$3,000
HOY	19-JAN-19	THUNDERSTORM WIND	50 kts.	0/0	$3,000
LANHAM	19-JAN-19	THUNDERSTORM WIND	60 kts.	0/0	$30,000
(PIB)PINE BELT RGNL	23-JAN-19	THUNDERSTORM WIND	55 kts.	0/0	$20,000

*All damage may not have been reported.
Source: National Centers for Environmental Information

656

Hailstorm

According to the National Centers for Environmental Information, 188 recorded hailstorm events have affected Jones County since 1962.[13] **Table D.18** is a summary of the hail events in Jones County. **Table D.19** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over $3.8 million in property damages. Hail ranged in diameter from 0.75 inches to 4.5 inches. It should be noted that hail is notorious for causing substantial damage to cars, roofs, and other areas of the built environment that may not be reported to the National Centers for Environmental Information. Therefore, it is likely that damages are greater than the reported value.

TABLE D.18: SUMMARY OF HAIL OCCURRENCES IN JONES COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Ellisville	16	0/0	$20,855
Laurel	48	0/0	$47,409
Sandersville	11	0/0	$1,537
Soso	8	0/0	$1,051,231
Unincorporated Area	105	0/0	$33,522
JONES COUNTY TOTAL	**188**	**0/0**	**$1,154,554**

Source: National Centers for Environmental Information

TABLE D.19: HISTORICAL HAIL OCCURRENCES IN JONES COUNTY

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Ellisville				
Ellisville	09-JUN-94	0.75 in.	0/0	$0
Ellisville	26-JAN-96	1.00 in.	0/0	$0
Ellisville	06-MAR-96	2.75 in.	0/0	$160,911
Ellisville	06-MAR-96	1.75 in.	0/0	$0
Ellisville	18-MAR-96	0.88 in.	0/0	$0
Ellisville	05-JUL-97	0.88 in.	0/0	$0
Ellisville	26-FEB-98	0.75 in.	0/0	$0
Ellisville	17-APR-98	1.00 in.	0/0	$0
Ellisville	20-JUN-98	1.75 in.	0/0	$77,445
Ellisville	29-NOV-01	1.75 in.	0/0	$28,515
Ellisville	12-MAR-03	1.00 in.	0/0	$1,344
Ellisville	13-MAR-03	0.75 in.	0/0	$1,344
Ellisville	22-APR-05	1.75 in.	0/0	$126,677
Ellisville	03-FEB-06	1.00 in.	0/0	$0
Ellisville	28-JUL-06	0.75 in.	0/0	$0
Ellisville	03-MAR-16	0.75 in.	0/0	$0
Laurel				
Laurel	11-JAN-93	1.75 in.	0/0	$0
Laurel	25-MAR-93	0.88 in.	0/0	$0
Laurel	30-MAR-93	1..75 in.	0/0	$87,452

[13] These hail events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional hail events have affected Jones County. As additional local data becomes available, this hazard profile will be amended.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Laurel	03-SEP-93	0.75 in.	0/0	$0
Laurel	05-NOV-93	1.75 in.	0/0	$0
Laurel	28-JAN-95	0.75 in.	0/0	$0
Laurel	06-MAR-95	0.88 in.	0/0	$6,629
Laurel	15-MAR-95	0.88 in.	0/0	$0
Laurel	15-MAR-95	1.00 in.	0/0	$0
Laurel	15-MAR-95	0.88 in.	0/0	$0
Laurel	15-MAR-95	0.88 in.	0/0	$0
Laurel	11-APR-95	0.75 in.	0/0	$0
Laurel	26-JAN-96	0.75 in.	0/0	$0
Laurel	06-MAR-96	4.50 in.	0/0	$321,822
Laurel	06-MAR-96	1.75 in.	0/0	$402,278
Laurel	07-MAR-96	0.75 in.	0/0	$0
Laurel	22-APR-97	0.75 in.	0/0	$0
Laurel	22-APR-97	1.75 in.	0/0	$0
Laurel	24-MAY-97	0.88 in.	0/0	$0
Laurel	10-FEB-98	0.75 in.	0/0	$0
Laurel	31-MAR-98	1.00 in.	0/0	$0
Laurel	03-MAY-98	0.88 in.	0/0	$0
Laurel	30-JAN-99	0.75 in.	0/0	$0
Laurel	30-JAN-99	1.75 in.	0/0	$37,815
Laurel	09-FEB-99	1.00 in.	0/0	$0
Laurel	08-MAR-99	1.75 in.	0/0	$45,378
Laurel	09-MAR-99	1.00 in.	0/0	$0
Laurel	24-APR-99	0.88 in.	0/0	$0
Laurel	01-APR-00	1.75 in.	0/0	$36,713
Laurel	17-JUL-00	0.75 in.	0/0	$0
Laurel	10-AUG-00	0.75 in.	0/0	$0
Laurel	31-AUG-00	0.88 in.	0/0	$0
Laurel	07-JUL-02	0.75 in.	0/0	$0
Laurel	15-JUL-02	1.00 in.	0/0	$692
Laurel	15-NOV-02	0.75 in.	0/0	$0
Laurel	06-APR-03	1.75 in.	0/0	$6,720
Laurel	06-APR-03	1.00 in.	0/0	$1,344
Laurel	14-MAY-03	0.75 in.	0/0	$1,344
Laurel	22-MAR-05	0.75 in.	0/0	$0
Laurel	22-APR-05	1.00 in.	0/0	$0
Laurel	26-APR-05	0.75 in.	0/0	$0
Laurel	09-MAY-06	0.88 in.	0/0	$0
Laurel	23-JUN-06	0.75 in.	0/0	$0
Laurel	14-APR-07	0.88 in.	0/0	$0
Laurel	12-MAR-10	1.00 in.	0/0	$0
Laurel	12-MAR-10	1.00 in.	0/0	$0
Laurel	30-JUN-15	0.88 in.	0/0	$0
Laurel	16-MAY-18	1.00 in.	0/0	$0
Sandersville				
Sanderville	01-MAR-94	0.75 in.	0/0	$0

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Sandersville	14-MAR-03	0.75 in.	0/0	$1,344
Sandersville	25-APR-03	0.75 in.	0/0	$1,344
Sandersville	15-JUL-04	1.00 in.	0/0	$0
Sandersville	30-MAR-05	0.88 in.	0/0	$0
Sandersville	26-APR-05	1.00 in.	0/0	$0
Sandersville	01-JUN-08	1.00 in.	0/0	$0
Sandersville	03-AUG-10	1.00 in.	0/0	$0
Sandersville	13-JUN-11	1.00 in.	0/0	$26,523
Sandersville	31-MAR-16	1.00 in.	0/0	$0
Sandersville	14-APR-16	1.00 in.	0/0	$0
Soso				
Soso	01-NOV-97	0.75 in.	0/0	$0
Soso	08-MAR-99	1.75 in.	0/0	$37,815
Soso	06-APR-05	1.00 in.	0/0	$0
Soso	22-APR-05	0.75 in.	0/0	$0
Soso	22-APR-05	2.75 in.	0/0	$1,013,416
Soso	03-FEB-06	1.00 in.	0/0	$0
Soso	14-APR-07	1.00 in.	0/0	$0
Soso	28-APR-14	0.75 in.	0/0	$0
Unincorporated Area				
JONES COUNTY	10-APR-62	2.00	0/0	$0
JONES COUNTY	19-APR-65	1.00	0/0	$0
JONES COUNTY	19-APR-65	1.50	0/0	$0
JONES COUNTY	04-JUL-70	1.00	0/0	$0
JONES COUNTY	08-MAY-73	0.75	0/0	$0
JONES COUNTY	09-APR-75	1.75	0/0	$0
JONES COUNTY	07-MAY-75	0.75	0/0	$0
JONES COUNTY	14-MAY-76	1.75	0/0	$0
JONES COUNTY	20-APR-82	2.75	0/0	$0
JONES COUNTY	25-APR-82	1.75	0/0	$0
JONES COUNTY	03-MAY-84	1.75	0/0	$0
JONES COUNTY	05-APR-85	0.75	0/0	$0
JONES COUNTY	28-APR-85	0.75	0/0	$0
JONES COUNTY	01-JUL-85	1.75	0/0	$0
JONES COUNTY	18-MAY-86	1.75	0/0	$0
JONES COUNTY	18-MAY-86	0.75	0/0	$0
JONES COUNTY	12-MAR-88	0.75	0/0	$0
JONES COUNTY	22-MAY-88	0.75	0/0	$0
JONES COUNTY	24-MAY-88	1.00	0/0	$0
JONES COUNTY	24-MAY-88	1.00	0/0	$0
JONES COUNTY	24-MAY-88	0.75	0/0	$0
JONES COUNTY	04-NOV-88	1.75	0/0	$0
JONES COUNTY	04-APR-89	0.75	0/0	$0
JONES COUNTY	04-APR-89	0.75	0/0	$0
JONES COUNTY	04-APR-89	0.75	0/0	$0
JONES COUNTY	04-APR-89	0.75	0/0	$0
JONES COUNTY	28-APR-89	1.00	0/0	$0

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
JONES COUNTY	20-MAY-89	1.00	0/0	$0
JONES COUNTY	11-JUN-89	1.00	0/0	$0
JONES COUNTY	30-JUN-89	0.75	0/0	$0
JONES COUNTY	08-NOV-89	0.80	0/0	$0
JONES COUNTY	15-NOV-89	0.75	0/0	$0
JONES COUNTY	15-NOV-89	0.75	0/0	$0
JONES COUNTY	16-FEB-90	0.75	0/0	$0
JONES COUNTY	20-MAY-90	0.85	0/0	$0
JONES COUNTY	09-APR-91	0.75	0/0	$0
JONES COUNTY	09-APR-91	0.88	0/0	$0
JONES COUNTY	14-APR-91	1.75	0/0	$0
JONES COUNTY	25-APR-91	0.88	0/0	$0
JONES COUNTY	16-MAY-91	0.80	0/0	$0
JONES COUNTY	05-JUN-91	0.80	0/0	$0
JONES COUNTY	05-JUN-91	0.80	0/0	$0
JONES COUNTY	22-JUN-91	0.80	0/0	$0
JONES COUNTY	14-JUL-91	0.88	0/0	$0
JONES COUNTY	23-OCT-91	0.88	0/0	$0
JONES COUNTY	18-MAR-92	0.88	0/0	$0
JONES COUNTY	12-MAY-92	1.75	0/0	$0
Ovett	20-APR-95	0.75	0/0	$0
Moselle	27-OCT-95	1.75	0/0	$0
Ovett	18-MAR-96	1.75	0/0	$402,278
Ovett	18-MAR-96	1.75	0/0	$804,555
Ovett	18-MAR-96	0.75	0/0	$0
Moselle	29-MAR-97	0.88	0/0	$0
Ovett	29-MAR-97	0.75	0/0	$0
Moselle	12-JAN-98	0.75	0/0	$0
Moselle	08-MAR-99	1.00	0/0	$0
Countywide	08-MAR-99	0.75	0/0	$0
Hebron	09-JAN-00	0.88	0/0	$0
Ovett	03-MAR-00	1.00	0/0	$0
Ovett	01-MAR-01	0.88	0/0	$0
Moselle	12-MAR-02	0.75	0/0	$0
EASTABUCHIE	06-MAR-03	0.88	0/0	$1,344
Moselle	25-APR-03	1.00	0/0	$1,344
OAK BOWERY	26-MAR-05	1.75	0/0	$25,335
Ovett	30-MAR-05	1.75	0/0	$12,668
Moselle	31-MAR-05	1.00	0/0	$0
Ovett	31-MAR-05	1.75	0/0	$19,002
Ovett	31-MAR-05	1.00	0/0	$0
Moselle	22-APR-05	0.75	0/0	$0
Hebron	20-MAR-06	1.00	0/0	$0
Moselle	08-MAY-06	1.50	0/0	$61,494
Ovett	09-MAY-06	1.00	0/0	$0
Moselle	10-JAN-08	1.75	0/0	$81,149
Ovett	10-JAN-08	0.75	0/0	$0

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Tuckers Crossing	12-FEB-08	0.75	0/0	$0
Moselle	03-MAR-08	1.00	0/0	$0
(LUL)HESLER FLD LAUR	07-AUG-08	0.88	0/0	$0
(LUL)HESLER FLD LAUR	10-DEC-08	1.00	0/0	$0
Reddoch	10-DEC-08	1.75	0/0	$0
Service	27-MAR-09	1.00	0/0	$0
Ovett	27-MAR-09	0.88	0/0	$0
EASTABUCHIE	05-MAY-09	0.88	0/0	$0
(LUL)HESLER FLD LAUR	10-MAY-09	0.88	0/0	$0
Tuckers	09-DEC-09	1.25	0/0	$0
OAK BOWERY	12-MAR-10	0.88	0/0	$0
Hoy	12-MAR-10	1.75	0/0	$4,371
OAK BOWERY	12-MAR-10	1.00	0/0	$0
Lanham	01-JUN-10	1.25	0/0	$0
Ovett	15-APR-11	1.00	0/0	$0
(LUL)HESLER FLD LAUR	04-JUL-11	1.00	0/0	$5,305
Service	21-MAR-12	1.00	0/0	$0
Service	21-MAR-12	1.00	0/0	$0
Hoy	05-APR-12	1.00	0/0	$0
Hoy	31-JUL-12	1.00	0/0	$0
Hoy	31-JUL-12	1.75	0/0	$10,300
Lanham	04-SEP-12	1.00	0/0	$0
Gitano	23-DEC-14	1.00	0/0	$0
Myrick	26-MAR-15	.75	0/0	$0
(PIB) Pine Belt RGNL	14-APR-16	1.00	0/0	$0
Tuckers	04-AUG-16	.75	0/0	$0
Ovett	25-SEP-16	.75	0/0	$0
Tawanta	17-MAR-16	1.00	0/0	$0
Tawanta	17-MAR-16	1.75	0/0	$6,000
Moselle	09-JUN-18	.75	0/0	$1,000
Service	30-JUN-18	.88	0/0	$500

All damage may not have been reported.
Source: National Centers for Environmental Information

Lightning

According to the National Centers for Environmental Information, there have been 15 recorded lightning events in Jones Davis County since 2008. These events resulted in almost $652,000 in damages as listed in summary **Table D.20**.[14] However, it is likely that more lightning events have in fact impacted the county. Many of the reported events are those that caused damage, and it should be expected that damages are likely much higher for this hazard than what is reported. Detailed information on historical lightning events can be found in **Table D.21**.

[14] These lightning events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is certain that additional lightning events have occurred in Jones County. As additional local data becomes available, this hazard profile will be amended.

677

678 **TABLE D.20: SUMMARY OF LIGHTNING OCCURRENCES IN JONES DAVIS COUNTY**

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Ellisville	1	0/0	$25,750
Laurel	4	0/0	$117,850
Sandersville	0	0/0	$0
Soso	0	0/0	$0
Unincorporated Area	10	0/2	$508,393
JONES COUNTY TOTAL	**15**	**0/2**	**$651,993**

Source: National Centers for Environmental Information

679

680 **TABLE D.21: HISTORICAL LIGHTNING OCCURRENCES IN JONES COUNTY**

Location	Date	Deaths / Injuries	Property Damage*	Details
Ellisville				
ELLISVILLE	09-AUG-12	0/0	$25,750	Lightning caused a transformer fire at Jones County Junior College. The fire caused damage to an adjacent building.
Laurel				
Laurel	03-APR-12	0/0	$77,250	Lightning struck a house resulting in a fire.
Laurel	13-JUL-12	0/0	$5,150	Lightning caused power outages and a transformer on fire.
Laurel	09-AUG-12	0/0	$15,450	Lightning caused transformer fires at several locations in Laurel.
Laurel	20-FEB-14	0/0	$20,000	Lightning struck a gas line along Daisy Drive, causing a fire.
Sandersville				
None Reported	--	--	--	--
Soso				
None Reported	--	--	--	--
Unincorporated Area				
Ovett	03-MAR-08	0/0	$11,593	House was struck by lightning which caused a minor fire.
ELLISVILLE JCT	21-MAR-12	0/0	$51,500	Lightning struck a house along Tuckers Crossing Road resulting in a fire.
ELLISVILLE JCT	31-JUL-12	0/1	$0	A man was struck by lightning at the Best Western Hotel.
(LUL)HESLER FLD LAUR	06-AUG-12	0/0	$10,300	Lightning hit a transformer at Highway 11 and Industrial Boulevard causing power outages in Ellisville and Laurel.
ERRATA	21-AUG-15	0/0	$50,000	Lightning struck a tree next to a house, which traveled through the root system and the ground wiring. This resulted in the house catching on fire.
LANHAM	14-APR-18	0/0	$5,000	A house on Acorn Road was struck by lightning.
MOSELLE	09-JUN-18	0/0	$50,000	Lightning caused a structure fire at a home along Beeson Road near Moselle.

Location	Date	Deaths / Injuries	Property Damage*	Details
OAK BOWERY	31-JUL-18	0/0	$300,000	County Line Missionary Baptist Church was struck by lightning, which resulted in a fire. The church was a complete loss.
HOY	10-AUG-18	0/1	$0	A woman was injured by lightning while she was touching a metal building that was near a light pole. Her left arm and leg were affected.
TAWANTA	27-DEC-18	0/0	$30,000	Lightning struck a home on Jordan Road in the Pittman Community.

*All damage may not have been reported.
Source: National Centers for Environmental Information

PROBABILITY OF FUTURE OCCURRENCES

Thunderstorm / High Wind

Given the high number of previous events, it is certain that wind events, including straight-line wind and thunderstorm wind, will occur in the future. This results in a probability level of highly likely (100 percent annual probability) for future wind events for the entire county.

Hailstorm

Based on historical occurrence information, it is assumed that the probability of future hail occurrences is likely (10 – 100 percent annual probability). Since hail is an atmospheric hazard (coinciding with thunderstorms), it is assumed that Jones County has equal exposure to this hazard. It can be expected that future hail events will continue to cause minor damage to property and vehicles throughout the county.

Lightning

Although there was not a high number of historical lightning events reported in Jones County via NCEI data, it is a regular occurrence accompanied by thunderstorms. In fact, lightning events will assuredly happen on an annual basis, though not all events will cause damage. According to Vaisala's U.S. National Lightning Detection Network (NLDN®), Jones County is located in an area of the country that experienced an average of 6 to 8 lightning flashes per square kilometer per year between 1997 and 2010. Therefore, the probability of future events is highly likely (100 percent annual probability). It can be expected that future lightning events will continue to threaten life and cause minor property damages throughout the county.

D.2.12 Tornado

LOCATION AND SPATIAL EXTENT

Tornadoes occur throughout the state of Mississippi, and thus in Jones County. Tornadoes typically impact a relatively small area, but damage may be extensive. Event locations are completely random, and it is not possible to predict specific areas that are more susceptible to tornado strikes over time. Therefore, it is assumed that Jones County is uniformly exposed to this hazard.

HISTORICAL OCCURRENCES

Tornadoes resulted in five disaster declarations in Jones County in 1971, 1973, 1987, 1990, 2001, and 2014.[15] According to the National Centers for Environmental Information, there have been a total of 56 recorded tornado events in Jones County since 1951 (**Table D.22**), resulting in over $190 million in property damages.[16] In addition, 11 fatalities and 478 injuries were reported. The magnitude of these tornadoes ranges from F0 to F4 in intensity, although an F5 event is possible. Detailed information on historic tornado events can be found in **Table D.23**.

TABLE D.22: SUMMARY OF TORNADO OCCURRENCES IN JONES COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Ellisville	5	0/0	$56,868
Laurel	5	0/0	$12,745,780
Sandersville	0	0/0	$0
Soso	2	0/0	$212,541
Unincorporated Area	52	11/478	$167,026,160
JONES COUNTY TOTAL	**62**	**11/478**	**$194,236,349**

Source: National Centers for Environmental Information

TABLE D.23: HISTORICAL TORNADO IMPACTS IN JONES COUNTY

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Ellisville					
Ellisville	26-FEB-98	F1	0/0	$38,722	This tornado moved through a sparsely populated area but did extensive damage to trees.
Ellisville	16-FEB-01	F0	0/0	$1,426	An F0 tornado briefly touched down in a rural area in southwest Jones County. Damage was restricted to a number of downed trees.
Ellisville	13-OCT-01	F0	0/0	$0	A brief tornado touchdown occurred in an open field.
Ellisville	27-NOV-03	F1	0/0	$6,720	This weak tornado touched down 10 miles west of Ellisville and destroyed a couple of chicken houses. This tornado stayed on the ground for 3 miles and downed numerous trees as it traveled northeast.
Ellisville	02- FEB -14	F0	0/0	$10,000	This brief and weak tornado downed or snapped several trees in a pattern indicative of a tornado near the intersection of Buffalo Hill Road and Highway 588, a little west of the Ellisville city limits. Maximum wind speeds were estimated at 80 mph.
Laurel					

[15] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.
[16] These tornado events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional tornadoes have occurred in Jones County. As additional local data becomes available, this hazard profile will be amended.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Laurel	27-JAN-94	F1	0/0	$8,522,829	Thirty-three houses were damaged in northwest Laurel. Two houses were destroyed, 12 houses had major damage, and 19 houses had minor damage. Eleven businesses were damaged. Much of the damage occurred when large trees fell on buildings.
Laurel	13-JUN-01	F0	0/0	$0	The pilot of a small plane reported seeing a tornado for a brief period of time about 10 miles south of Laurel. There were no reports of damage from this short lived tornado.
Laurel	13-OCT-01	F0	0/0	$35,644	A weak tornado briefly touched down. The roof was blown off a house. Several trees and powerlines were also blown down.
Laurel	15-MAR-02	F1	0/0	$4,187,307	A tornado formed about three miles northwest of Laurel or between the cities of Laurel and Soso in northwest Jones County. The tornado moved northeast 1 mile, before dissipating two miles northwest of the Laurel. West Jones County High School and Middle S
Laurel	15-NOV-06	F1	0/0	$0	This tornado was a satellite tornado associated with the primary F3 tornado which moved across Jones County. A convergent path of trees were blown down and uprooted for nearly 3/4 of a mile and about 150 yards wide.
Sandersville					
None Reported	--	--	--	--	--
Soso	20-MAR-06	F1	0/0	$122,987	This tornado touched down just south of Soso and tracked northeast to the Shady Grove Community. Many trees were damaged along the path with damage becoming more extensive near and around the Shady Grove Community. Here, numerous trees and power lines were taken down some snapped in half. One large tree was blown down on a new shed totally destroying the structure.
Soso	05-JAN-07	F1	0/0	$89,554	This brief tornado snapped and uprooted numerous trees with one tree down on a car. A storage building was destroyed and a single wide mobile home was pushed off its blocks. Additionally, roof damage occurred to a double wide mobile home and several power lines were blown down along the path.
Unincorporated Area					
JONES COUNTY	21-APR-51	F3	2/10	$242,336	
JONES COUNTY	28-DEC-54	F3	0/25	$23,525,002	
JONES COUNTY	18-NOV-57	F2	0/2	$224,736	

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
JONES COUNTY	23-NOV-60		0/0	$212,845	
JONES COUNTY	22-NOV-61	F2	0/1	$2,117,250	
JONES COUNTY	17-DEC-61	F1	0/0	$21,172,501	
JONES COUNTY	14-MAR-66		0/0	$234	
JONES COUNTY	26-JUN-66		0/0	$195,280	
JONES COUNTY	29-JUN-66		0/0	$195,280	
JONES COUNTY	02-DEC-67	F1	0/0	$188,863	
JONES COUNTY	02-MAR-71	F2	0/0	$1,559,215	
JONES COUNTY	15-DEC-71	F2	0/2	$155,922	
JONES COUNTY	09-JAN-72	F3	0/12	$15,123,215	
JONES COUNTY	02-MAR-72	F1	0/0	$151,232	
JONES COUNTY	24-APR-73	F2	0/0	$1,421,475	
JONES COUNTY	24-APR-73	F2	0/0	$1,421,475	
JONES COUNTY	27-MAY-73	F3	1/35	$14,214,754	
JONES COUNTY	03-APR-74	F3	0/1	$1,281,139	
JONES COUNTY	22-APR-74	F2	0/0	$128,114	
JONES COUNTY	13-DEC-77	F2	0/0	$1,042,170	
JONES COUNTY	17-OCT-80	F2	0/0	$766,243	
JONES COUNTY	27-OCT-80	F2	0/1	$766,243	
JONES COUNTY	03-DEC-83	F2	0/0	$6,345,071	
JONES COUNTY	11-DEC-83	F1	0/1	$634,507	
JONES COUNTY	29-OCT-85	F0	0/0	$5,873	
JONES COUNTY	08-APR-86	F2	0/1	$5,763,288	
JONES COUNTY	28-FEB-87	F4	6/350	$55,563,194	
JONES COUNTY	17-MAR-87	F1	0/0	$555,632	

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
JONES COUNTY	08-JUN-89	F1	0/0	$50,921	
Hebron	14-APR-99	F3	0/0	$6,050,359	This strong tornado entered from Covington County and crossed northwest Jones County before entering Southwest Jasper county. One man was killed just north of Hebron (Lawrence Co) when his mobile home was thrown more than fifty yards and destroyed. There were thirty in
MOSELLE	17-MAY-03	F1	0/0	$40,317	This tornado downed numerous trees, blew tin siding off a few buildings and threw tree debris across Interstate 59.
MOSELLE	22-MAR-05	F1	0/0	$1,013,416	This tornado destroyed three chicken houses, snapped a row of power lines and uprooted or snapped several trees.
Hebron	20-MAR-06	F0	0/0	$245,975	This weak tornado first touched down on Carter Dee Road where a few trees were downed. The tornado was then observed by Southern Pine Electric personnel downing a few trees as it cross Highway 28.
TUCKERS CROSSING	15-NOV-06	F3	0/1	$2,090,786	This strong tornado touched down near the Glade and Tuckers Crossing Communities and tracked east northeast to near the Mill Creek Community before entering Wayne County near Highway 84. Around 25 homes suffered significant damage. The most intense damage was along a path from near the intersection of Highway 15 and Orange Drive northeast to the area along Township Road. Two metal high tension electric power truss towers were destroyed, hundreds of trees were snapped and uprooted, at least two mobile homes were destroyed, a travel trailer being used for post-Katrina housing was annihilated, and several houses suffered significant structural damage. Northeast of this area, the path continued all the way to the county line with Wayne County, but damage was generally less, F0 to occasionally F1, and limited to tree damage. The one exception was near the Mill Creek community, where a storage building was destroyed and a couple of homes suffered roof damage. Total path length across Jones and Wayne Counties was 17 miles.
OAK BOWERY	14-APR-07	F0	0/0	$0	A brief tornado touchdown was witnessed in rural western Jones County.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Service	20-DEC-07	F2	0/2	$537,324	This tornado began as a small, narrow path of minor damage, including a porch being blown off a house. It reached its maximum intensity as it crossed highway 29. Here, a brick home had all of its roof structure blown off along with a few walls blown down. Three mobile homes were rolled or tossed and destroyed, with debris strewn downstream along the path. Numerous trees were snapped off or uprooted. The last damage occurred along Leroy Hill Road. A home suffered significant roof damage, an outbuilding was destroyed, a car suffered major damage, and numerous large trees were snapped or uprooted. The tornado dissipated shortly after crossing Leroy Hill Road with only a few trees snapped at the end of the path.
Walters	10-DEC-08	F1	0/2	$289,819	Numerous hardwood and softwood trees were snapped and uprooted along the brief 1 mile path. Damage occurred to 1 home and an unoccupied building. The unoccupied building was the most heavily damaged with two broken windows and damage to the roof, eves, and siding. Two outbuildings were also damaged. One power pole was snapped high off the ground. A highway sign was blown over and a business sign was also turned over. Some of the trees were blown onto Interstate 59. Two motorists were injured when their vehicles were hit by the trees. Maximum winds were around 95 mph.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
REDDOCH	26-MAR-09	F2	0/1	$900,407	This tornado touched down along Mason Creek Rd about 6 miles west of Soso. Several trees were snapped and uprooted and some minor roof damage occurred to a few homes. The tornado intensified as it crossed Summerland Road. Here the tornado widened to 500 yds and reached peak intensity, especially within a narrow corridor which lasted about 3/4 of a mile. One well constructed home suffered major damage with half of the roof torn off and other wall sections of that side the house ripped out and thrown into the back yard. Two well built storage buildings were destroyed with the contents thrown into a field. Additionally, a weekly built barn was destroyed with tin thrown along the path. Numerous trees were snapped and uprooted in this area with splintered trees within the most intense core. One large tree in this location was uprooted and actually thrown and rolled a small distance. The tornado continued to track just east of north across several more roads, including Highway 28 and 503, uprooting and snapping numerous trees. On the east side of Highway 28, a mobile home was pushed off its foundation and the person inside was injured. The tornado continued to weaken as it crossed Highway 503 and damaged more trees and caused minor damage to several mobile homes and heavily damaged a couple sheds. Maximum winds were around 125 mph.
TUCKERS CROSSING	30-NOV-10	F0	0/0	$76,491	A tornado was confirmed near Tuckers Crossing by a National Weather Service survey team. The roof was torn off a workshop, a flag pole was bent over, a power pole was snapped near the top, a barn roof was damaged, and a large pine tree was snapped. Maximum winds were around 80 mph.
Service	26-APR-11	F1	0/0	$190,962	This tornado touched down west of Laurel and caused roof damage to a well built home and minor damage to several other well built homes. The roof of an outbuilding was blown off and a trampoline was thrown a considerable distance. A fence around a nearby pool was blown down and a car port was thrown some distance along with several trees and limbs down. Maximum winds were around 95 mph.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Service	16-NOV-11	F2	0/15	$424,360	The tornado developed along Pat Holifield and Leroy Hill Roads, downing a few trees. The tornado moved northeast, widened and reached its maximum width in the area of Springhill Road, where high end EF-1 damage to trees occurred. The tornado then narrowed to about 150 to 250 yard wide path of mid to high end EF-2 damage on either side of State Highway 15 in the Shady Grove community northwest of Laurel. Several mobile homes were completely destroyed, numerous power poles were snapped, several frame and brick homes suffered major damage and other moderate damage, and extensive tree damage occurred. A few commercial buildings along State Highway 15 suffered major damage. As the tornado continued northeast across northeast Jones County, it caused EF-1 type damage as it crossed Sharon-Moss and Lake Como Roads, snapping and uprooting trees and causing some roof and minor structural damage to several homes. The tornado then intensified somewhat again as it crossed into Jasper County, destroying three large chicken houses and causing extensive tree damage along County Road 812 just inside the Jasper County line. The tornado dissipated shortly after causing this damage. Fifteen people were injured by this tornado, with nearly all of the injuries being relatively minor. Maximum winds were estimated at 130 mph.
Hebron	16-NOV-11	F1	0/0	$63,654	This tornado developed and downed several trees along Fred Ellzey Road, and caused moderate damage to the roof of a large home north of the road. The tornado moved northeast, snapping several trees and heavily damaging an outbuilding as it crossed West Creek Road. The tornado then snapped a few trees and damaged the roof of an outbuilding just before crossing Highway 84 where it dissipated. Maximum wind speed was estimated at 95 mph.
REDDOCH	21-MAR-12	F0	0/0	$25,750	There was a brief tornado touchdown at a chicken farm on Huey P Road which caused heavy roof damage to one chicken house and uprooted a tree. Maximum estimated wind speed was 75 mph.
MYRICK	09-DEC-12	F0	0/0	$1,030	A brief tornado touchdown took the medal roof off a building along Weber Jordan Road. Maximum winds were 85 mph.
Ovett	25-DEC-12	F1	0/0	$51,500	Numerous soft and hardwood trees were snapped and uprooted. A single-wide mobile home had partial roof damage. A small barn had the walls collapse. A small out building was blown over. The roof collapsed on a small barn. A family residence had significant roof and siding damage. Maximum winds were estimated at 105 mph.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
(PIB)PINE BELT RGNL	20-FEB-14	F1	0/0	$400,000	Significant damage occurred to the roofs of 5 chicken houses, heavy damage to a large metal shed occurred, minor damage to a single family dwelling, and destruction to a porch on a mobile home. Many trees were snapped and uprooted along the entire path of the tornado. A shop was damaged on Jenkins Road. Power poles were snapped along Sandford Road east of Interstate 59. A metal carport was damaged. Maximum wind speeds were estimated at 90 mph.
GITANO	07-APR-14	F0	0/0	$10,000,000	This tornado touched down just to the west of Sunset-Williamsburg Rd. Several trees were snapped at this location. The tornado moved northeast where it crossed Sunset Rd and Rock Hill Rd. Snapped & uprooted trees were the main damage. As the tornado neared and crossed Highway 49, the intensity increased to a high end EF-1. Multiple power lines were downed along with numerous trees, two homes had minor damage along Rock Hill Rd. A home had a portion of the roof removed along Highway 49. As the tornado crossed Byrd Town Rd, more high end tree damage occurred with some minor damage to a home and a couple mobile homes. Several sheds and carports were destroyed here as well. The tornado increased in intensity to a low end EF-2 as it crossed George Speed Rd. Here significant tree damage was noted with hundreds of snapped or uprooted pines and hardwoods. A few homes had minor damage as they were on the edges of the tornadic circulation. The tornado weakened some as it moved just north of Jones Chapel Rd and across Highway 532. The tornado increased and reached peak intensity, EF-2 (125 mph), as it crossed Vester Pickering Rd. Three mobile homes were destroyed with one well-built brick home having the roof entirely removed. Heavy tree damaged was noted here with power poles and power lines down. Just to the north of Hot Coffee, a large church was heavily damaged with part of the roof removed and some outer brick fallen off the outer wall. Five other brick buildings had minor/major roof damage along with the windows blown out. Dozens of trees were snapped and uprooted here and along Highway 35. The tornado continued to the northeast toward the Leaf River where more trees were snapped and downed. The tornado dissipated just inside Jones County where some trees were damaged. Total path length was 16.5 miles. Maximum winds were around 125 mph.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
ERRATA	28-APR-14	F3	0/15	$1,500,000	This tornado developed just to the west of Interstate 59 southwest of Sandersville. The tornado crossed the interstate and moved northeast into areas along Dogwood Trail and Magnolia Roads, snapping hundreds of trees and heavily damaging a number of houses and mobile homes. The tornado then turned more to the east, continuing to cause heavy tree damage and destroying a mobile home. As the tornado moved near the intersection of Pleasant Grove and Davenport Road, it reached its maximum intensity in Jones County. It destroyed a wood frame home, leaving only some interior walls standing, and destroyed hundreds of trees, including leaving some denuded and partially debarked. After this point, the tornado weakened somewhat, crossed Dallas-Brownlee Road, and then moved into Wayne County. Total path length was almost 11 miles. Maximum winds were around 145 mph.
MILL CREEK	16-NOV-14	F1	0/0	$45,000	An EF1 tornado touched down along Pavillion Road, tracked northeast across Holifield Road, US Highway 84 and lifted along Charlie Green Road. Two power poles were snapped, a barn was heavily damaged, the roof of a chicken house was heavily damaged and a mobile home was blown off of its blocks. Numerous trees were also blown down. The tornado tracked for 2.7 miles with estimated wind speeds of 95 mph. The maximum path width was 100 yards.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
SERVICE	23-DEC-14	F2	2/0	$2,200,000	This tornado started along Maxey Rd and tracked northeast for a little over 5 miles. Initially the damage was light with only a tree or two snapped and large limbs broken. As the tornado crossed State Highway 28, the width of the tornado increased as well as the intensity. Here, several large pine trees were uprooted and snapped along with a few portions of wooden fence torn down. Along Gardner Rd, more trees were damaged along with some minor roof damage to some homes. A large barn had most of the roof removed with the tin scattered along the path. Similar tree damage occurred as the tornado crossed Hines Rd, Tim Holifield Rd and Service Rd. The tornado reached peak intensity as it crossed Mullican Rd. Here three homes sustained moderate roof damage with dozens of trees snapped/uprooted. A mobile home at this location was totally destroyed and unrecognizable with the undercarriage thrown a considerable distance. Two fatalities occurred in the mobile home. Next to the mobile home was a small wood frame home on a slab. This structure was removed off the foundation. A large wooden storage shed was totally destroyed as well at this location. Peak winds here were at 125 mph. From this point, the tornado narrowed and weakened as it moved northeast and tracked across Bush Dairy Rd and then State Highway 15 where it eventually lifted.
LANHAM	22-JUL-16	F0	0/0	$45,000	A brief weak EF-0 tornado with maximum estimated winds of 80mph, touched down along Lyon Ranch Road and moved southwest. It crossed Lyon Ranch Road near Boleware Road before dissipating over a field. Some trees were uprooted and several large tree branches were snapped off. A makeshift carport collapsed onto a car and two porches had sheet metal roofing peeled partially back. An awning was also removed from an outbuilding and one other home had a large branch fall on the roof.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
GITANO	22-JAN-18	F0	0/0	$15,000	An EF-1 tornado touched down in northeast Covington County along Highway 532 causing minor tree damage as it tracked northeast towards Gilmore Road. As the tornado continued its northeast track, it became its strongest as it approached Hwy 37 near J. Nelson Drive and Jewel Owens Lane. At this location the tornado uprooted and snapped several large trees and damaged a few structures, including homes. The tornado continued into northwest Jones County where a double wide mobile home was pushed off of its foundation and 3 sheds and a barn was destroyed on Carter Dees Road. An occupant of the mobile home suffered a minor injury. The tornado lifted just after this damage occurred. Total path length was 7.51 miles and estimated max wind speed was 100 mph.

Source: National Centers for Environmental Information

On February 28, 1987, a 1.25 mile-wide F4 tornado in Glade (unincorporated Jones County) was recorded as the second widest tornado on record in Mississippi. This tornado resulted in 6 deaths, 250 injuries, and $55,563,194 in damages.

PROBABILITY OF FUTURE OCCURRENCES

According to historical information, tornado events pose a significant threat to Jones County. The probability of future tornado occurrences affecting Jones County is likely (10 – 100 percent annual probability).

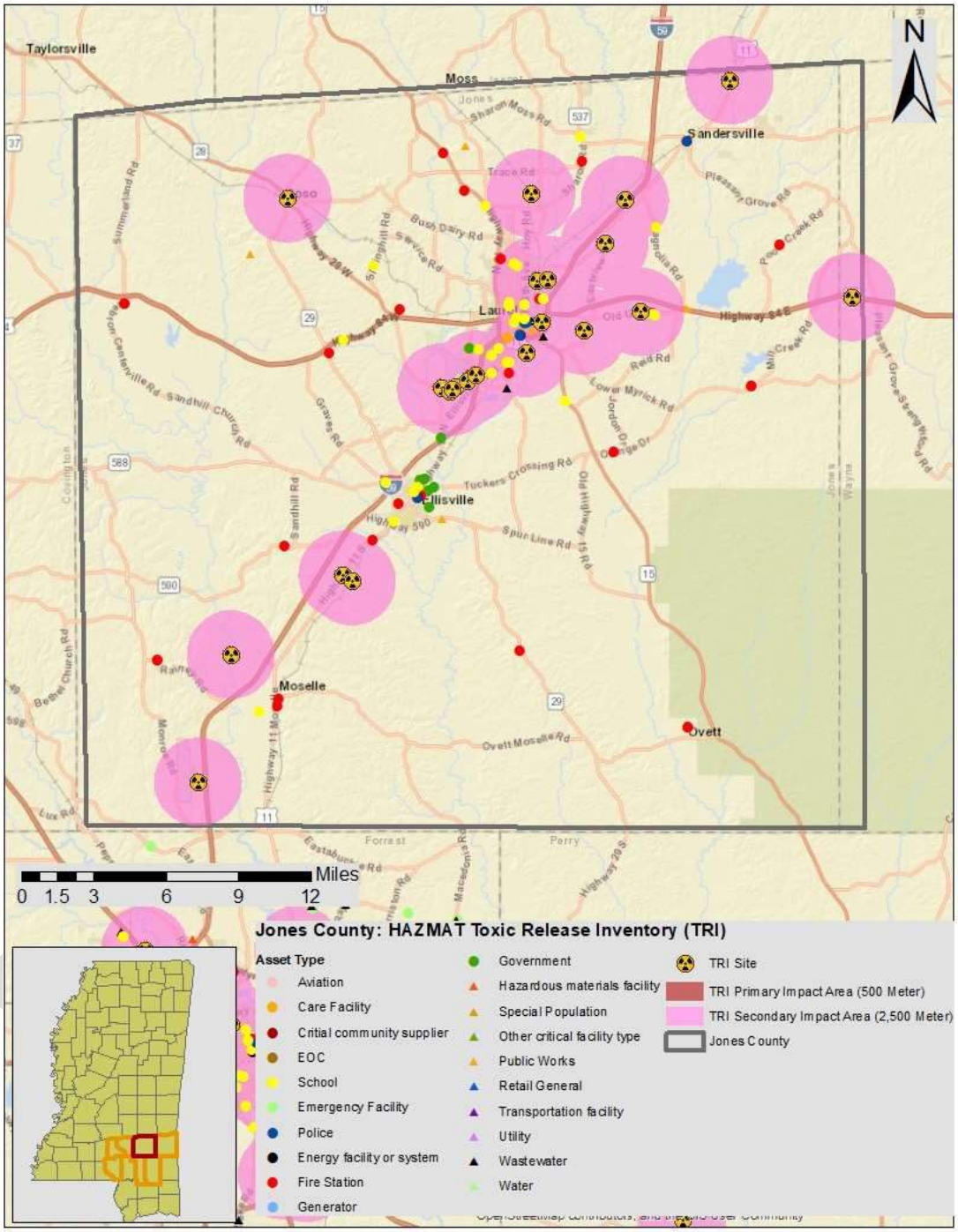
D.2.13 Hazardous Materials Incidents

LOCATION AND SPATIAL EXTENT

Hazardous Materials

Jones County has twelve TRI sites. These sites are shown in **Figure D.9.**

FIGURE D.3: TOXIC RELEASE INVENTORY (TRI) SITES IN JONES COUNTY



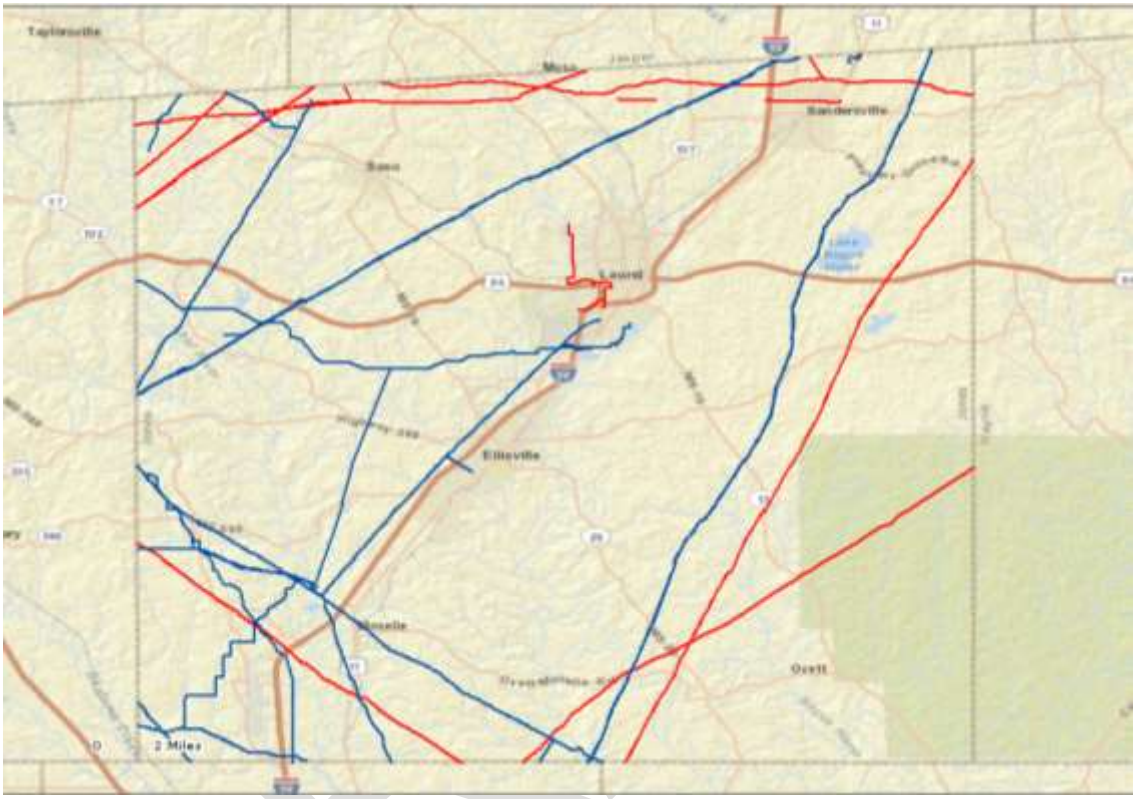
Source: EPA

In addition to "fixed" hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially at risk to an incident.

Pipelines

There are two distinct types of pipelines that are used in the transport of potentially hazardous materials, gas lines and hazardous liquid lines. **Figure A.12** shows the trunk lines for each of these material types but does not show the gathering or distribution pipelines. Gas lines are in blue and hazardous liquid lines are in red. This data has not changed since the last plan update.

FIGURE D.4: PIPELINES IN JONES COUNTY



Source: Pipeline and Hazardous Materials Safety Administration

Meth Labs

One of the greatest concerns about meth labs is that they are clandestine in nature. Additionally, once a meth lab has been identified, police authorities generally attempt to eliminate the site as quickly as possible. Therefore, it is nearly impossible to identify specific locations for meth labs and instead, the entire planning area is considered to be at risk to this hazard.

HISTORICAL OCCURRENCES

Hazardous Materials

There has been a total of 54 recorded HAZMAT incidents in Jones County since 1971 (**Table D.24**), resulting in over $102,000 in property damages. In addition, one death was reported. **Table D.25** presents detailed information on historic HAZMAT incidents in Jones County as reported by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA).

778 **TABLE D.24: SUMMARY OF HAZMAT INCIDENTS IN JONES COUNTY**

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Ellisville	2	0/0	$0
Laurel	37	0/0	$96,021
Sandersville	4	0/0	$400
Soso	0	0/0	$0
Unincorporated Area	11	1/0	$5,915
JONES COUNTY TOTAL	**54**	**1/0**	**$102,315**

Source: USDOT PHMSA

779

780 **TABLE D.25: HAZMAT INCIDENTS IN JONES COUNTY**

Report Number	Date	City	Mode	Serious Incident?	Fatalities/ Injuries	Damages ($)	Quantity Released
Ellisville							
I-1981020390	1/20/1981	ELLISVILLE	Highway	No	0/0	$0	55 LGA
I-1974060418	6/6/1974	ELLISVILLE	Highway	No	0/0	$0	0
Laurel							
I-1994060271	5/13/1994	LAUREL	Highway	No	0/0	$0	0.03125 LGA
I-1980010323	12/21/1979	LAUREL	Highway	No	0/0	$0	0
I-1992120046	11/19/1992	LAUREL	Highway	No	0/0	$0	1 LGA
I-2008080089	6/28/2008	LAUREL	Highway	No	0/0	$1,040	10 LGA
I-1999040931	1/26/1999	LAUREL	Highway	No	0/0	$0	1 LGA
I-1999121599	11/30/1999	LAUREL	Highway	No	0/0	$25	1 LGA
I-1984060045	6/5/1984	LAUREL	Highway	Yes	0/0	$0	1,305 SLB
I-1994120079	11/12/1994	LAUREL	Highway	No	0/0	$90	1 LGA
I-1992080645	8/3/1992	LAUREL	Highway	Yes	0/0	$88,300	630 LGA
I-1990050072	4/23/1990	LAUREL	Highway	No	0/0	$100	2.5 LGA
I-2004050459	11/21/2003	LAUREL	Highway	Yes	0/0	$884	700 LGA
I-1976050157	4/24/1976	LAUREL	Rail	No	0/0	$0	1 LGA
I-1971120155	11/20/1971	LAUREL	OTHER	No	0/0	$0	0
I-1971090106	8/29/1971	LAUREL	Highway	No	0/0	$0	0
I-1981060090	4/29/1981	LAUREL	Highway	No	0/0	$0	112 LGA
I-1981110551	11/3/1981	LAUREL	Highway	No	0/0	$0	10 LGA
I-1971100060	9/27/1971	LAUREL	Highway	No	0/0	$0	0
I-2007100845	9/18/2007	LAUREL	Highway	No	0/0	$0	0.015625 LGA
I-1978060527	5/21/1978	LAUREL	Highway	Yes	0/0	$0	150 LGA
I-1971090227	9/15/1971	LAUREL	Highway	No	0/0	$0	0
I-1975090380	8/27/1975	LAUREL	Highway	No	0/0	$0	0
I-1975050292	4/14/1975	LAUREL	Highway	No	0/0	$0	0
I-1980071410	6/16/1980	LAUREL	Highway	No	0/0	$0	0
I-1971110207	11/10/1971	LAUREL	Highway	No	0/0	$0	0
I-1988120082	11/10/1988	LAUREL	Highway	No	0/0	$0	0.007 LGA
I-1995050030	4/18/1995	LAUREL	Highway	No	0/0	$750	0.03125 LGA
I-1979070592	6/12/1979	LAUREL	Highway	No	0/0	$0	0
I-1992080915	8/13/1992	LAUREL	Highway	No	0/0	$7	1 LGA

Report Number	Date	City	Mode	Serious Incident?	Fatalities/ Injuries	Damages ($)	Quantity Released
I-1980050562	4/30/1980	LAUREL	Highway	Yes	0/0	$0	650 LGA
I-1993070937	6/23/1993	LAUREL	Highway	No	0/0	$0	25 LGA
I-2010090316	9/8/2010	LAUREL	Highway	No	0/0	$0	0.25 LGA
I-1971070159	7/15/1971	LAUREL	Highway	No	0/0	$0	0
X-2013040015	8/16/2012	Laurel	Highway	No	0/0	$0	0.25 LGA
I-1994071528	7/25/1994	LAUREL	Highway	No	0/0	$615	55 LGA
I-1988020089	1/15/1988	LAUREL	Highway	No	0/0	$0	0.016 LGA
I-1974070384	6/5/1974	LAUREL	Highway	No	0/0	$0	0
I-1993010032	11/29/1992	LAUREL	Highway	No	0/0	$4,210	0.25 LGA
Sandersville							
I-1999100303	8/31/1999	SANDERSVILLE	Highway	No	0/0	$400	40 LGA
I-1989040045	3/24/1989	SANDERSVILLE	Highway	Yes	0/0	$0	6,960 LGA
I-2002120544	11/17/2002	SANDERSVILLE	Highway	No	0/0	$0	3 LGA
I-1977060053	5/10/1977	SANDERSVILLE	Highway	No	0/0	$0	1 LGA
Soso							
None Reported	--	--	--	--	--	--	--
Unincorporated Area							
I-1978061581	6/14/1978	MOSELLE	Highway	Yes	0/0	$0	1,000 LGA
I-1999020002	1/20/1999	MOSELLE	Highway	No	0/0	$2,810	0.5 LGA
I-2002090623	8/26/2002	MOSELLE	Highway	No	0/0	$475	8 LGA
I-1995060890	5/19/1995	MOSELLE	Highway	No	0/0	$525	0.03125 LGA
I-1998100613	10/2/1998	MOSELLE	Highway	No	0/0	$800	15 LGA
I-1998100283	9/21/1998	MOSELLE	Highway	No	0/0	$420	1 LGA
I-2000090177	8/21/2000	MOSELLE	Highway	No	0/0	$380	1 LGA
I-1995010081	11/30/1994	MOSELLE	Highway	No	0/0	$505	0.125 LGA
I-1989090426	8/26/1989	OVETT	Highway	Yes	0/0	$0	392 LGA
I-1988020220	1/22/1988	OVETT	Highway	Yes	1/0	$0	200 LGA
I-1978051074	5/1/1978	SAND HILL	Highway	Yes	0/0	$0	550 LGA

Source: USDOT PHMSA

Pipelines

Between 2002 and 2019, there have been no pipeline incidents in Jones County.

Meth Labs

Meth lab incidents have occurred at various times throughout the Jones County. Although there is not an extensive documented record of these events, they have occurred in the past and are generally confined to single sites, often in residential areas.

PROBABILITY OF FUTURE OCCURRENCES

Hazardous Materials

Given the location of twelve toxic release inventory sites in Jones County and several roadway and rail incidents, it is possible that a hazardous material incident may occur in the county (between one percent and ten percent annual probability). County and town officials are mindful of this possibility and take

precautions to prevent such an event from occurring. Furthermore, there are detailed plans in place to respond to an occurrence.

Since there are twelve TRI sites and a significant record of previous events in the county, hazardous materials incidents will continue to be a threat. The county may also be impacted by neighboring counties which also face risk due to TRI sites and curvy, mountain roadways.

Pipelines

Although there have been no pipeline incidents, there are 577 miles of gas and hazardous liquid lines in the county and it is anticipated that there will be future pipeline incidents in Jones County. These incidents are considered possible.

Meth Labs

Meth lab incidents will likely continue to occur throughout Jones County. Although it is difficult to predict where exactly these incidents would occur, the probability that they will is possible.

D.2.14 Cyber Attacks

A cyber-attack is a malicious, intentional attempt to breach the information technology (IT) infrastructure of an individual or organization. The State of Mississippi defines a cyberterrorism incident as any adverse premeditated, politically, financially or maliciously motivated attack against informational systems. A cyberterrorism event can impact one or more of Jones County's and its, corresponding departments' and divisions' information assets by the following ways, which includes, but are not limited to, the following:

- Unauthorized use
- Denial of Service
- Malicious code
- Network system failures
- Application system failures
- Unauthorized disclosure or loss of information
- Information security breach
- Structured Query Language (SQL) Injection

LOCATION AND HAZARD EXTENT

The cyberterrorism hazard is not geographically based. Attacks can originate from any computer to affect any other computer in the world. If a system is connected to the Internet or operating on a wireless frequency, it is susceptible to exploitation. Targets of cyberterrorism can be individual computers, networks, organizations, business sectors, or governments. Financial institutions and retailers are often targeted to extract personal and financial data that can be used to steal money from individuals and banks.

HISTORICAL OCCURRENCES

There have been no known historical occurrences to have occurred in in Jones County to date.

PROBABILITY OF FUTURE OCCURRENCES

As is the case for any governmental organization, there will always be the potential for impact for Jones County. As such, the county will continue to be compelled to respond to cyberterrorisms in the future. The nature of these attacks is projected to evolve in sophistication over time. Jones County will take a proactive position in its cyber security efforts and is expected to remain vigilant in its efforts to prevent attacks from occurring and/or disrupting business operations.

The reality remains that many computers and networks in organizations of all sizes and industries around the United States will continue to suffer intrusion attempts on a daily basis from viruses and malware that are passed through web sites and emails. Again, the potential for harm via this hazard is always present.

D.2.15 Conclusions on Hazard Risk

The hazard profiles presented above were developed using best available data and result in what may be considered principally a qualitative assessment as recommended by FEMA in its "How-to" guidance document titled *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA Publication 386-2). It relies heavily on historical and anecdotal data, stakeholder input, and professional and experienced judgment regarding observed and/or anticipated hazard impacts. It also carefully considers the findings in other relevant plans, studies, and technical reports.

HAZARD EXTENT

Table D.26 describes the extent of each natural hazard identified for Jones County. The extent of a hazard is defined as its severity or magnitude, as it relates to the planning area.

TABLE D.26: EXTENT OF JONES COUNTY HAZARDS

Flood-related Hazards	
Flood	Flood extent can be measured by the amount of land and property in the floodplain as well as flood height and velocity. The amount of land in the floodplain accounts for 19.9 percent of the total land area in Jones County. Flood depth and velocity are recorded via United States Geological Survey stream gages throughout the region. While a gage does not exist for each participating jurisdiction, there is one at or near many areas. The greatest peak discharge recorded for the county was at Tallahala Creek Laurel in 1919. Water reached a discharge of 38,300 cubic feet per second and the stream gage height was recorded at 26.00 feet.
Erosion	The extent of erosion can be defined by the measurable rate of erosion that occurs. There are no erosion rate records located in Jones County.
Dam Failure	Dam Failure extent is defined using the Mississippi Division of Environmental Quality criteria. Two dams are classified as high-hazard in the county.
Winter Storm and Freeze	The extent of winter storms can be measured by the amount of snowfall received (in inches). Official long-term snow records are not kept for Jones County. However, the greatest snowfall reported in Jackson (northwest of the county) was 11.7 inches in 1904 and in Meridian (northeast of the county) was 14.0 inches in 1963.
Fire-related Hazards	

Drought / Heat Wave	Drought extent is defined by the U.S. Drought Monitor Classifications which include Abnormally Dry, Moderate Drought, Severe Drought, Extreme Drought, and Exceptional Drought. According to the U.S. Drought Monitor Classifications, the most severe drought condition is Exceptional. Jones County has received this ranking once over the eighteen-year reporting period. The extent of extreme heat can be measures by the record high temperature recorded. Official long-term temperature records are not kept for any areas in Jones County. However, the highest recorded temperature in Hattiesburg (south of the county) was 106°F in 1989.
Wildfire	Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2008-2018. The greatest number of fires to occur in Jones County in any year was 53 in 2011. The greatest number of acres to burn in the county in a single year occurred in 2011 when 400 acres were burned. Although this data lists the extent that has occurred, larger and more frequent wildfires are possible throughout the county.
Geologic Hazards	
Earthquake	Earthquake extent can be measured by the Richter Scale and the Modified Mercalli Intensity (MMI) scale and the distance of the epicenter from Jones County. According to data provided by the National Geophysical Data Center, no recorded earthquakes have been located in the county. However, the greatest MMI to impact Jones County was reported with an MMI of IV (moderate) with a correlating Richter Scale measurement of less than 4.8. Additionally, USGS data shows Jones County lies within an approximate zone of level .04 ground acceleration. This indicates that the county exists within an area of moderate seismic risk.
Landslide	As noted above in the landslide profile, there is no extensive history of landslides in Jones County and landslide events typically occur in isolated areas. This provides a challenge when trying to determine an accurate extent for the landslide hazard. However, when using USGS landslide susceptibility index, extent can be measured with incidence, which is low throughout the county. There is also susceptibility throughout the county.
Expansive Soils	As noted above in the expansive soils profile, there is no historical record of significant expansive soil events in Jones County. Again, this provides a challenge when trying to determine an accurate extent for the expansive soils hazard. However, when using USGS data on soils with clay swelling potential, extent can be measured with swelling potential, which is high in less than 50 percent of the soils Jones County.
Wind-related Hazards	
Hurricane and Tropical Storm	Hurricane extent is defined by the Saffir-Simpson Scale which classifies hurricanes into Category 1 through Category 5. The greatest classification of hurricane to traverse directly through Jones County was a Category 1 storm (Hurricane Katrina in 2005) which carried tropical force winds of 92 miles per hour upon arrival in the county. Two additional Category 1 storms have also passed through the county (unnamed hurricanes in 1855, 1906, and 1916).

Thunderstorm / Hail / Lightning	Thunderstorm extent is defined by the number of thunder events and wind speeds reported. According to a 63-year history from the National Centers for Environmental Information, the strongest recorded wind event in Jones County was reported on January 10, 2008 at 78 knots (approximately 90 mph). It should be noted that future events may exceed these historical occurrences. Hail extent can be defined by the size of the hail stone. The largest hail stone reported in Jones County was 4.5 inches. It should be noted that future events may exceed this. According to the Vaisala's flash density map, Jones County is located in an area that experiences 6 to 8 lightning flashes per square kilometer per year. It should be noted that future lightning occurrences may exceed these figures.
Tornado	Tornado hazard extent is measured by tornado occurrences in the US provided by FEMA (Figure 5.17) as well as the Fujita/Enhanced Fujita Scale. The greatest magnitude reported was an F4 (reported on February 28, 1987).
Other Hazards	
Hazardous Materials Incident	According to USDOT PHMSA, the largest hazardous materials incident reported in the county is 6,960 LGA released on the highway in Sandersville, an unincorporated community. It should be noted that larger events are possible. A pipeline incident could have a potentially large impact in terms of extent. Based on recent history, the largest spill in the last 10 years in Mississippi caused over 10,000 barrels of hazardous liquid to be spilled. Because of the generally small-scale nature of most meth labs, the extent of a fire or explosion that was caused by a meth lab incident would likely not be larger than a few acres.
Cyber Attack	The extent of cyberterrorism is difficult to estimate. Attacks can originate from any computer to affect any other computer in the world. The resulting damages depends on the demands of the cyberterrorist.

PRIORITY RISK INDEX RESULTS

In order to draw some meaningful planning conclusions on hazard risk for Jones County, the results of the hazard profiling process were used to generate countywide hazard classifications according to a "Priority Risk Index" (PRI). More information on the PRI and how it was calculated can be found in Section 5.16.2.

Table D.27 summarizes the degree of risk assigned to each category for all initially identified hazards based on the application of the PRI. Assigned risk levels were based on the detailed hazard profiles developed for this section, as well as input from the Regional Hazard Mitigation Council. The results were then used in calculating PRI values and making final determinations for the risk assessment.

881 **TABLE D.27: SUMMARY OF PRI RESULTS FOR JONES COUNTY**

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Flood-related Hazards						
Flood	Highly Likely	Limited	Moderate	6 to 12 hours	Less than 24 hours	**2.9**
Erosion	Possible	Minor	Small	More than 24 hours	More than 1 week	**1.8**
Dam Failure	Unlikely	Critical	Moderate	More than 24 hours	Less than 6 hours	**2.0**
Winter Storm and Freeze	Possible	Limited	Large	More than 24 hours	Less than 24 hours	**2.3**
Fire-related Hazards						
Drought / Heat Wave	Highly Likely	Minor	Large	More than 24 hours	More than 1 week	**2.8**
Wildfire	Likely	Minor	Small	Less than 6 hours	Less than 1 week	**2.1**
Geologic Hazards						
Earthquake	Unlikely	Minor	Moderate	Less than 6 hours	Less than 6 hours	**1.7**
Landslide	Unlikely	Minor	Small	Less than 6 hours	Less than 6 hours	**1.5**
Expansive	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Wind-related Hazards						
Hurricane and Tropical Storm	Likely	Catastrophic	Large	More than 24 hours	Less than 24 hours	**3.2**
Thunderstorm Wind / High Wind	Highly Likely	Limited	Moderate	Less than 6 hours	Less than 6 hours	**2.9**
Hailstorm	Likely	Minor	Small	Less than 6 hours	Less than 6 hours	**2.1**
Lighting	Highly Likely	Limited	Negligible	Less than 6 hours	Less than 6 hours	**2.5**
Tornado	Likely	Critical	Small	Less than 6 hours	Less than 6 hours	**2.7**
Other Hazards						
Hazardous Materials Incident	Unlikely	Limited	Small	Less than 6 hours	Less than 24 hours	**1.9**
Pipeline Incident	Possible	Limited	Small	Less than 6 hours	Less than 24 hours	**2.2**
Meth Lab Incident	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Cyber Attack	Unlikely					

882

883 ## D.2.16 Final Determinations on Hazard Risk

884

885 The conclusions drawn from the hazard profiling process for Jones County, including the PRI results and
886 input from the Regional Hazard Mitigation Council, resulted in the classification of risk for each identified
887 hazard according to three categories: High Risk, Moderate Risk, and Low Risk (**Table D.28**). For purposes
888 of these classifications, risk is expressed in relative terms according to the estimated impact that a hazard
889 will have on human life and property throughout all of Jones County. A more quantitative analysis to
890 estimate potential dollar losses for each hazard has been performed separately and is described in Section
891 6: *Vulnerability Assessment* and below in Section D.3. It should be noted that although some hazards are
892 classified below as posing low risk, their occurrence of varying or unprecedented magnitudes is still
893 possible in some cases and their assigned classification will continue to be evaluated during future plan
894 updates.

TABLE D.28: CONCLUSIONS ON HAZARD RISK FOR JONES COUNTY

HIGH RISK	Hurricane and Tropical Storm Thunderstorm Wind / High Wind Flood Tornado
MODERATE RISK	Drought / Heat Wave Dam Failure Lightning Hailstorm Pipeline Incident Hazardous Material Incident Wildfire
LOW RISK	Winter Storm and Freeze Expansive Soils Erosion Earthquake Landslide Meth Lab Incident Cyber-Attack

D.3 JONES COUNTY VULNERABILITY ASSESSMENT

This subsection identifies and quantifies the vulnerability of Jones County to the significant hazards previously identified. This includes identifying and characterizing an inventory of assets in the county and assessing the potential impact and expected amount of damages caused to these assets by each identified hazard event. More information on the methodology and data sources used to conduct this assessment can be found in Section 6: *Vulnerability Assessment*.

D.3.1 Asset Inventory

Table D.29 lists the number of parcels and the total assessed value of improvements for Jones County and its participating jurisdictions (study area of vulnerability assessment).[17]

[17] Total assessed values for improvements is based on tax assessor records as joined to digital parcel data. This data does not include dollar figures for tax-exempt improvements such as publicly-owned buildings and facilities. It should also be noted that, due to record keeping, some duplication is possible thus potentially resulting in an inflated value exposure for an area.

TABLE D.29: IMPROVED PROPERTY IN JONES COUNTY

Location	Number of Parcels	Total Assessed Value of Improvements
Jones County	29,059	$5,912,251,000

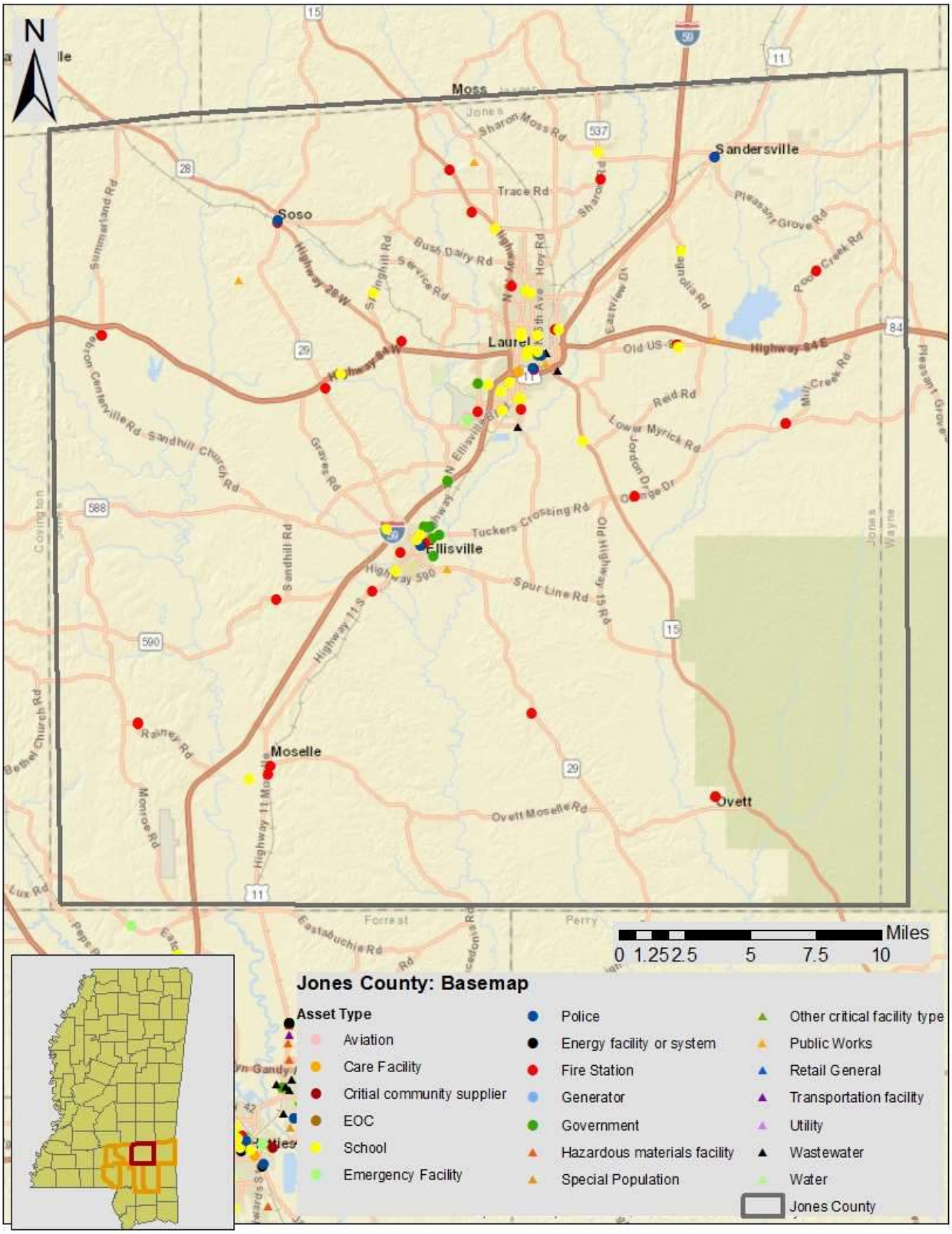
Table D.30 lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools and other critical facilities located in Jones County. HAZUS-MH 4.2 was used to obtain the critical facilities for the county and this data was modified to reflect recent changes. In addition, **Figure D.15** shows the locations of essential facilities in Jones County. **Table D.32**, near the end of this section, shows a complete list of the critical facilities by name, as well as the hazards that affect each facility. As noted previously, this list is not all-inclusive and only includes information provided by the county.

TABLE D.30: CRITICAL FACILITY INVENTORY IN JONES COUNTY

Location	Fire Stations	Police Stations	Medical Care Facilities	EOC	Schools
Jones County	**2**	**3**	**1**	**1**	**22**
Ellisville	0	0	0	0	3
Laurel	1	2	1	1	18
Sandersville	0	1	0	0	0
Soso	1	0	0	0	0
Unincorporated Area	0	0	0	0	1

Source: HAZUS-MH 4.2

925 **FIGURE D.5: CRITICAL FACILITY LOCATIONS IN JONES COUNTY**



926
927 *Source: HAZUS-MH 4.2*
928

D.3.2 Social Vulnerability

In addition to identifying those assets potentially at risk to identified hazards, it is important to identify and assess those particular segments of the resident population in Jones County that are potentially at risk to these hazards.

Table D.31 lists the population by jurisdiction according to U.S. Census 2010 population estimates. This information is provided at the county and municipal level. The total population in Jones County according to Census data is 67,761 persons. Additional population estimates are presented above in Section D.1.

TABLE D.31: TOTAL POPULATION IN JONES COUNTY

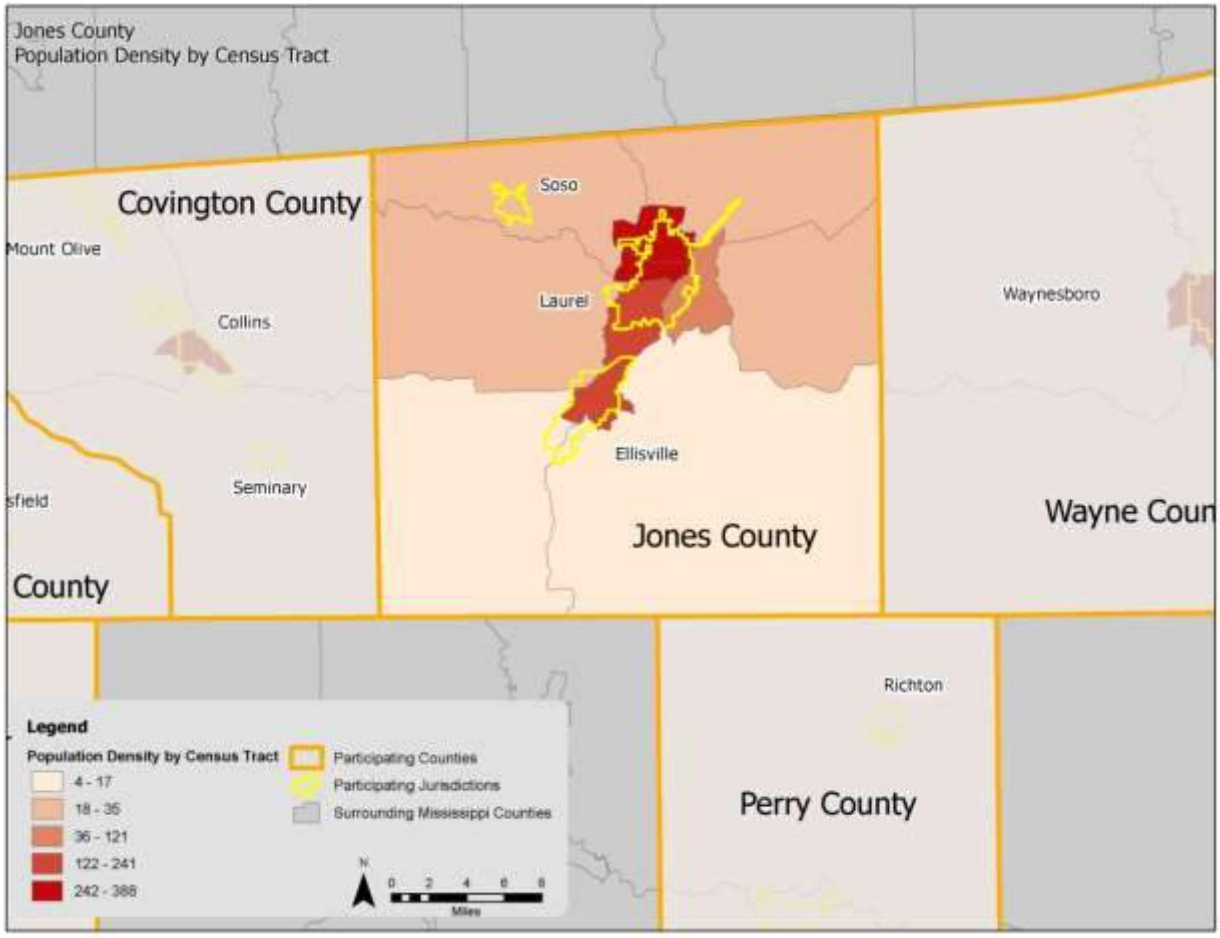
Location	Total 2010 Population
Ellisville	4,448
Laurel	18,540
Sandersville	731
Soso	408
Unincorporated Area	43,634
JONES COUNTY TOTAL	**67,761**

Source: U.S. Census 2010

In addition, **Figure D.16** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2010.[18] This information has not changed since the last plan update.

[18] Population by census block was not available at the time this plan was completed.

FIGURE D.6: POPULATION DENSITY IN JONES COUNTY



Source: U.S. Census Bureau, 2010

D.3.3 Vulnerability Assessment Results

As noted in Section 6: *Vulnerability Assessment*, only hazards with a specific geographic boundary, available modeling tool, or sufficient historical data allow for further analysis. Those results, specific to Jones County, are presented here. All other hazards are assumed to impact the entire planning region (drought, hailstorm, lightning, thunderstorm wind, tornado, and winter storm and freeze) or, due to lack of data, analysis would not lead to credible results (dam and levee failure, erosion, expansive soils, and landslide). The total county exposure, and thus risk, was presented in **Table D.29**.

The hazards to be further analyzed in this section include: flood, wildfire, earthquake, hurricane and tropical storm winds, and hazardous materials incident.

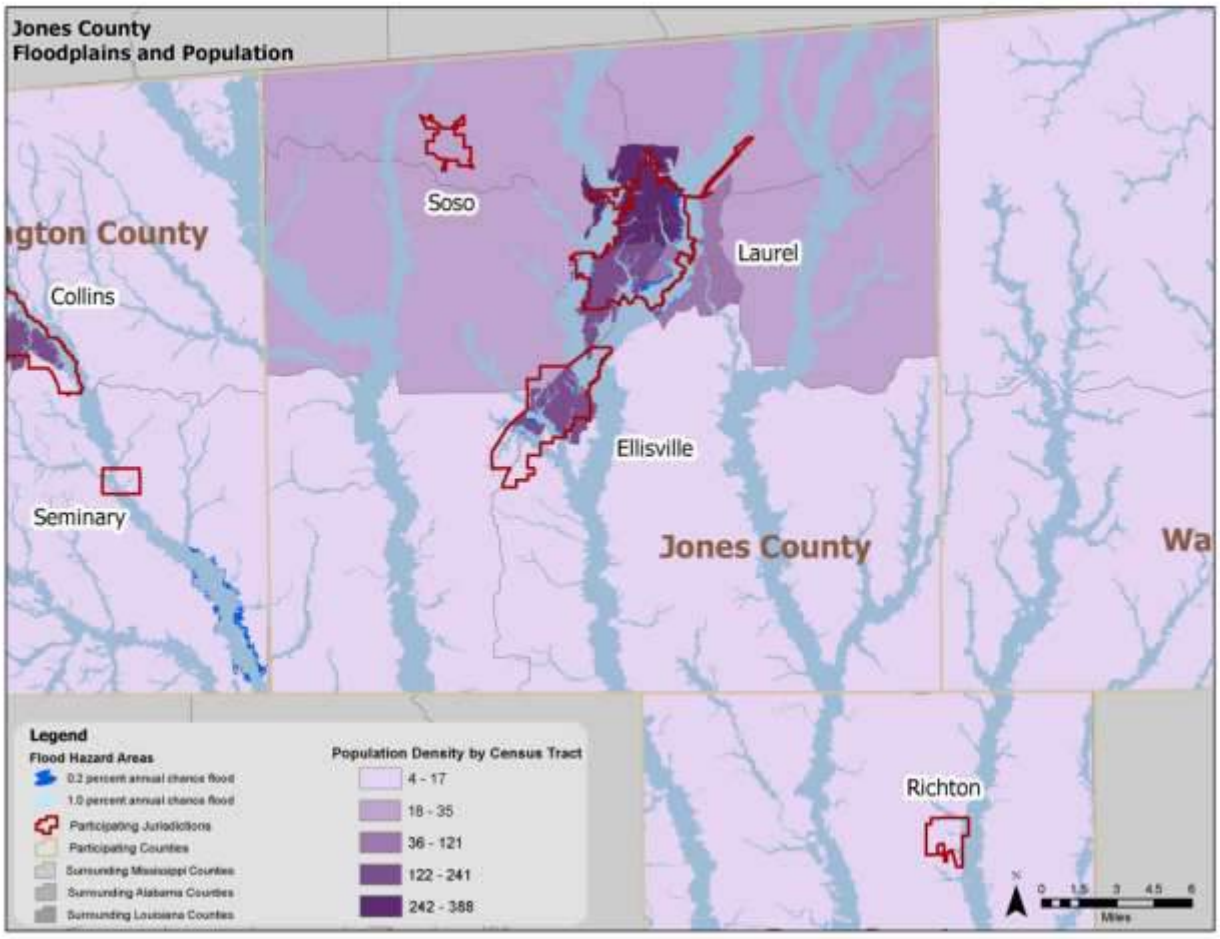
FLOOD

Historical evidence indicates that Jones County is susceptible to flood events. A total of 74 flood events have been reported by the National Centers for Environmental Information resulting in $11 million in damages.

Social Vulnerability

Since 2010 population was available at the tract level, it was difficult to determine a reliable figure on population at-risk to flood due to tract level population data. **Figure D.17** is presented to gain a better understanding of at-risk population.

FIGURE D.7 : POPULATION DENSITY NEAR FLOODPLAINS



Source: FEMA DFIRM, U.S. Census 2010

Critical Facilities

The critical facility analysis revealed that there are a eight critical facilities located in the Jones County 1.0-percent annual chance floodplain valued at slightly over $6M. There are eight critical facilities in the 0.2-percent annual chance floodplain, based on FEMA DFIRM boundaries and GIS analysis, valued at approximately $1.1M. A list of specific critical facilities and their associated risk can be found in **Table D.32** at the end of this section.

In conclusion, a flood has the potential to impact many existing and future buildings and populations in Jones County, though some areas are at a higher risk than others. All types of structures in a floodplain are at-risk, though elevated structures will have a reduced risk. As noted, the floodplains used in this analysis include the 100-year and 500-year FEMA regulated floodplain boundaries. It is certainly possible that more severe events could occur beyond these boundaries or urban (flash) flooding could impact additional structures. Such site-specific vulnerability determinations are outside the scope of this

assessment but will be considered during future plan updates. Furthermore, areas subject to repetitive flooding should be analyzed for potential mitigation actions.

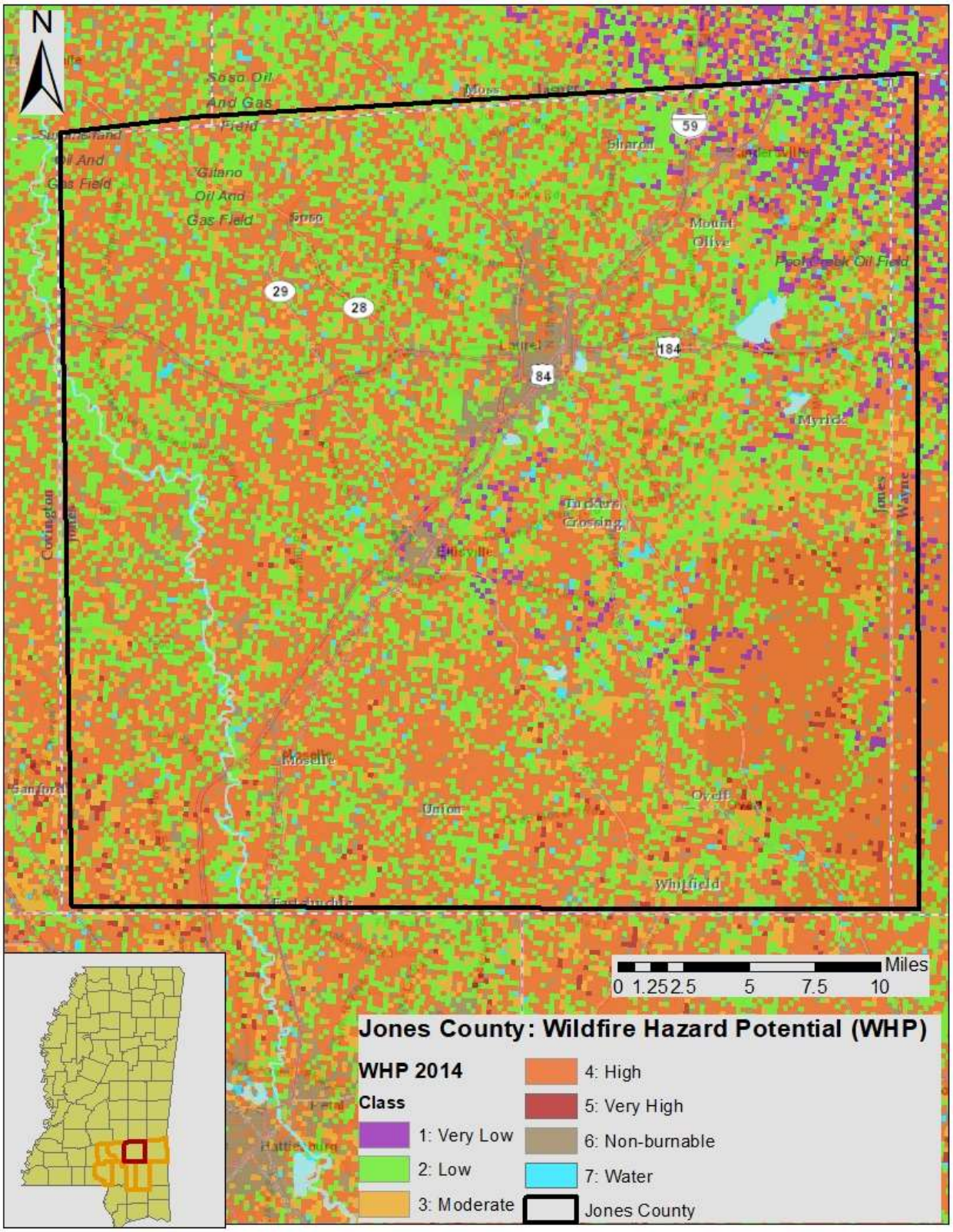
WILDFIRE

Although historical evidence indicates that Jones County is susceptible to wildfire events, there are few reports of damage.

To estimate exposure to wildfire, the wildfire hazard potential (WHP 2014) data provided via the US Forest Service was utilized. A GIS analysis was performed with the WHP dataset and identified critical facilities throughout MEMA District 8 in order to show the level of vulnerability.

Figure A.18 shows the wildfire hazard potential for Jones County. Most of the planning areas falls within the low to moderate category.

1003 **FIGURE D.8: WILDFIRE RISK AREAS IN JONES COUNTY**



1004
1005 *Source: U.S. Forrest Service*
1006

Social Vulnerability

Although not all areas have equal vulnerability, there is some susceptibility across the entire county. It is assumed that the total population is at risk to the wildfire hazard. Determining the exact number of people in certain wildfire zones is difficult with existing data and could be misleading.

Critical Facilities

The critical facility analysis revealed that there are 16 critical facilities located in an area considered low or very low risk valued at over $25M. There are seven critical facilities located in an area considered moderate risk valued at approximately$29M, and there is an additional 14 structures located in an area considered high risk valued at nearly $40M. It should be noted, however, that several factors could impact the spread of a wildfire putting all facilities at risk. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

In conclusion, a wildfire event has the potential to impact many existing and future buildings, critical facilities, and populations in Jones County.

EARTHQUAKE

The HAZUS-MH earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS-MH model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS-MH 4.2 estimates a total exposure of approximately $20,561,000 which includes buildings, inventory, and contents throughout the region. While this number is not an exact representation of assessed tax value, it is helpful in assessing the results of the HAZUS-MH scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS-MH estimates that no buildings would be moderately damaged.

Social Vulnerability

It can be assumed that all existing future populations are at risk to the earthquake hazard. No fatalities or injuries were reported in the above HAZUS-MH arbitrary scenario.

Critical Facilities

There are 88 critical facilities identified for Jones County, valued at $227,178,957. All are vulnerable to the earthquake hazard.

In conclusion, an earthquake has the potential to impact all existing and future buildings, facilities, and populations in Jones County. The HAZUS-MH scenario indicates that minimal damage is expected from an earthquake occurrence. While Jones County may not experience a large earthquake (there are none on record), localized damage is possible with an occurrence. A list of specific critical facilities and their associated risk can be found in **Table D.32** at the end of this section.

HURRICANE AND TROPICAL STORM

Historical evidence indicates that Jones County has an elevated risk to the hurricane and tropical storm hazard. Several tracks have come near or traversed through the county, as shown and discussed in Section D.2.10.

Hurricanes and tropical storms can cause damage through numerous additional hazards such as flooding, erosion, tornadoes, and high winds, thus it is difficult to estimate total potential losses from these cumulative effects. The current HAZUS-MH hurricane model only analyzes hurricane winds and is not capable of modeling and estimating cumulative losses from all hazards associated with hurricanes; therefore only hurricane winds are analyzed in this section. It can be assumed that all existing and future buildings and populations are at risk to the hurricane and tropical storm hazard. HAZUS-MH 4.2 was used to determine vulnerability to the hazard for a 100-Year event. There are an estimated 100,000 buildings in the region with a total building replacement value of $20,562,000. A 100-year probabilistic scenario was created and modeled. HAZUS-MH estimated that approximately 1,892 buildings would be at least moderately damaged by the event; this is over two percent of the buildings in the Region. There is an estimated 69 buildings that would be damaged beyond repair.

Economic Losses

HAZUS-MH estimated economic losses for the scenario event. HAZUS-MH estimated losses at $349.5M, which represents 1.7 percent of the total replacement value of the region's buildings. Nine percent of the losses were related to business interruption in the scenario region. 88 percent of the losses were sustained by residential structures.

Debris Generation

As part of the scenario, HAZUS-MH estimated the amount of debris that would be generated by the event. The types of debris considered were brick/wood, reinforced concrete/steel, eligible tree debris, and other tree debris. HAZUS-MH estimated that a total of 2,165,680 tons of debris would be generated by the event. Of that amount, 93 percent would be other tree debris, approximately 1.5 percent would be brick/wood, and the rest would comprise of would be eligible tree debris and brick/wood. Assuming a load of 25 tons per truck, this would equate to 1,190 truckloads of debris from this scenario.

Social Vulnerability

Given equal susceptibility across the county, it is assumed that the total population is at risk to the hurricane and tropical storm hazard.

Critical Facilities

Given equal vulnerability across Jones County, all critical facilities are considered to be at risk. Some buildings may perform better than others in the face of such an event due to construction and age, among other factors. There are 88 critical facilities identified for Jones County, valued at $227,178,957. Some buildings may perform better than others in the face of such an event due to construction and age, among other factors. Determining individual building response is beyond the scope of this plan. However, this plan will consider mitigation action for especially vulnerable and/or critical facilities to mitigation against the effects of the hurricane hazard. A list of specific critical facilities can be found in **Table A.32** at the end of this section.

In conclusion, a hurricane event has the potential to impact many existing and future buildings, critical facilities, and populations in Jones County. Hurricane events can cause substantial damage in their wake including fatalities, extensive debris clean-up, and extended power outages.

HAZARDOUS MATERIALS INCIDENT

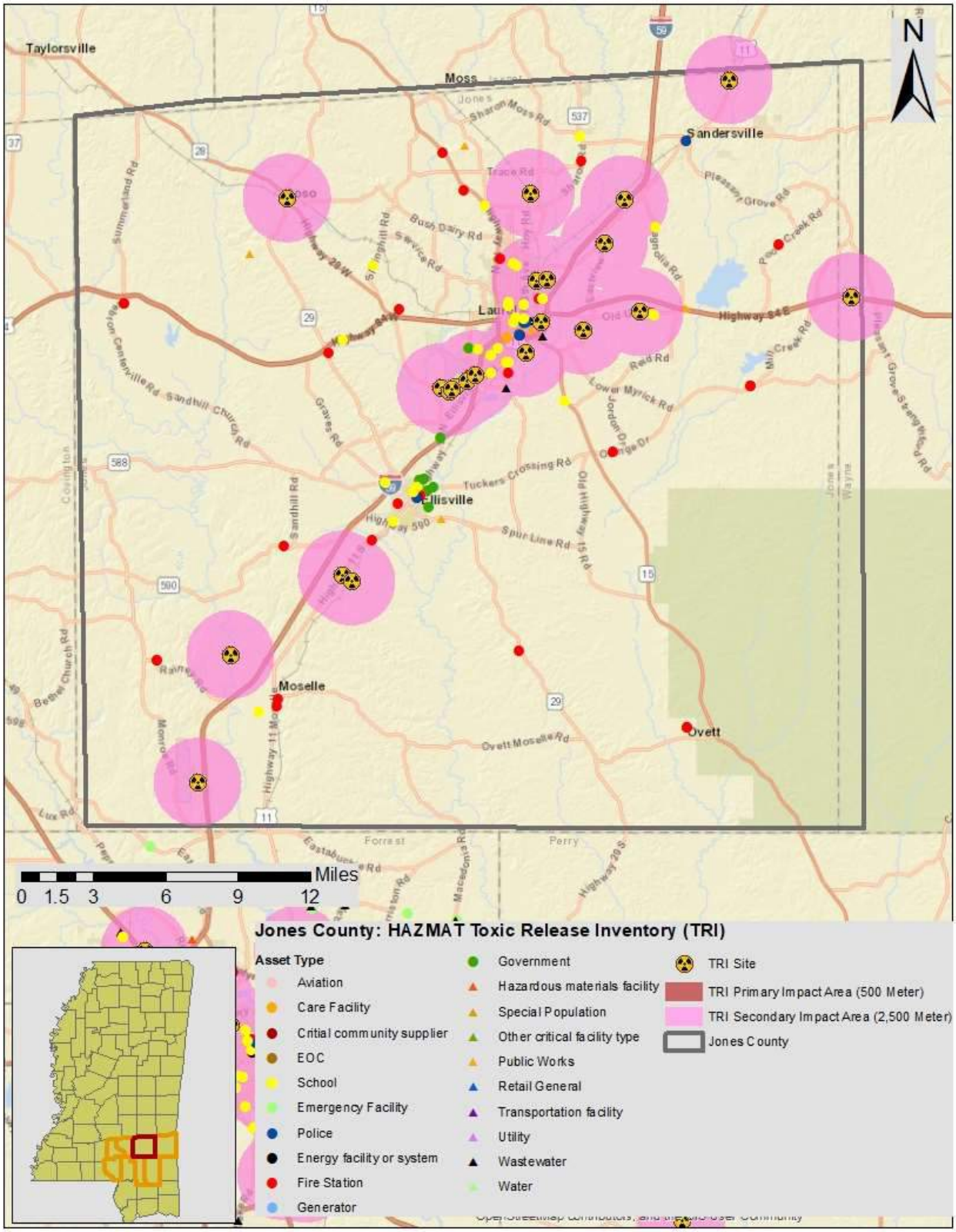
Although historical evidence and existing Toxic Release Inventory sites indicate that Jones County is susceptible to hazardous materials events, there are few reports of damage.

Most hazardous materials incidents that occur are contained and suppressed before destroying any property or threatening lives. However, they can have a significant negative impact. Such events can cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. In a hazardous materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions will directly affect how the hazard develops. Certain chemicals may travel through the air or water, affecting a much larger area than the point of the incidence itself. Non-compliance with fire and building codes, as well as failure to maintain existing fire and containment features, can substantially increase the damage from a hazardous materials release. The duration of a hazardous materials incident can range from hours to days. Warning time is minimal to none.

In order to conduct the vulnerability assessment for this hazard, GIS intersection analysis was used for fixed and mobile areas and parcels.[19] In both scenarios, two sizes of buffers—500 and 2,500 meters—were used. These areas are assumed to respect the different levels of effect: immediate (primary) and secondary. Primary and secondary impact sites were selected based on guidance from FEMA 426, Reference Manual to Mitigate Potential Terrorist Attacks against Buildings and engineering judgment. For the fixed site analysis, geo-referenced TRI listed toxic sites in Jones County, along with buffers, were used for analysis as shown in **Figure D.19.** For the mobile analysis, the major roads (Interstate highway, U.S. highway, and State highway) and railroads, where hazardous materials are primarily transported that could adversely impact people and buildings, were used for the GIS buffer analysis. **Figure D.20** shows the areas used for mobile toxic release buffer analysis. The mobile toxic release buffer data did not change since the last plan update.

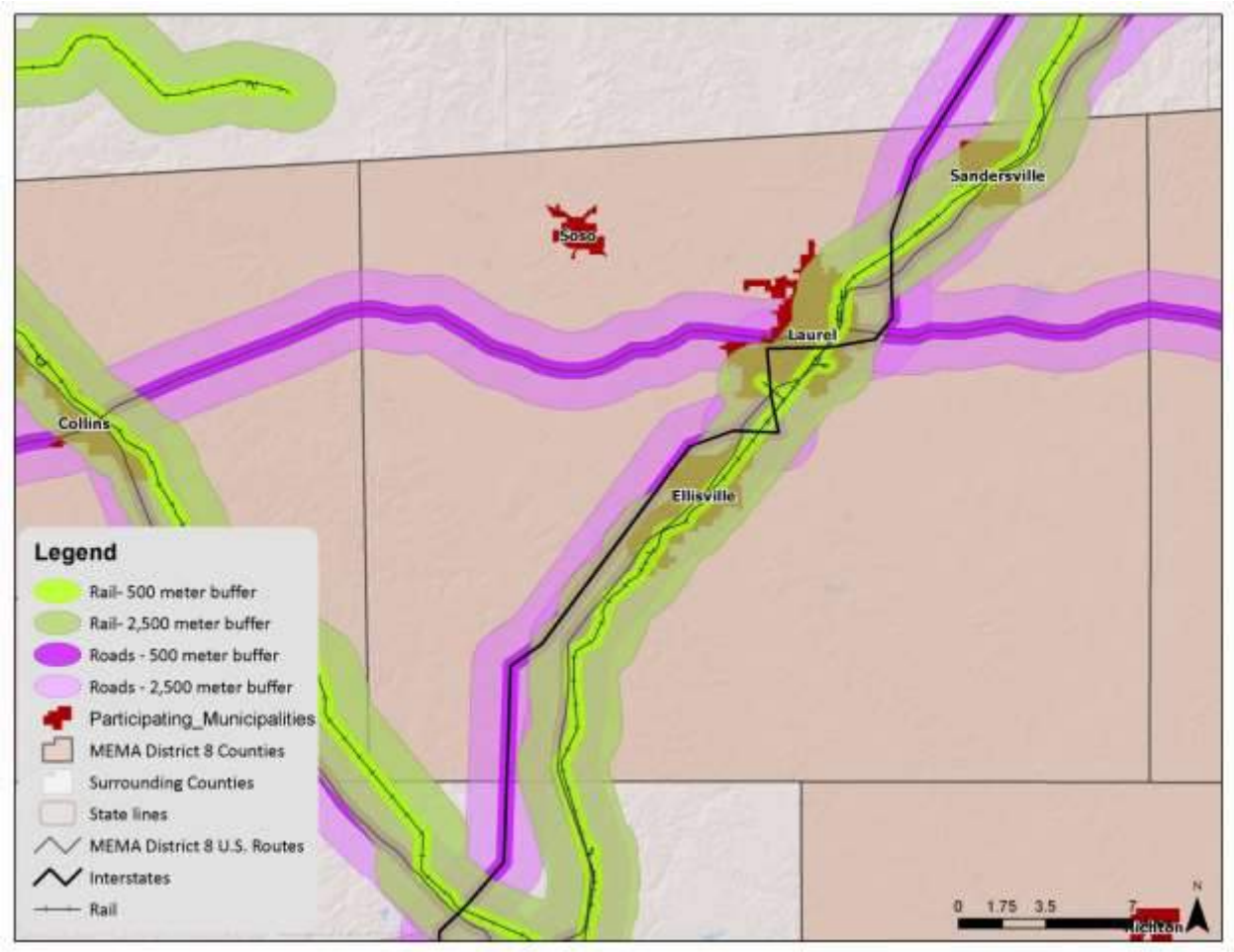
[19] This type of analysis will likely yield conservative results (generally higher than what is actually reported after an event).

FIGURE D.9 : TRI SITES WITH BUFFERS IN JONES COUNTY



Source: EPA

FIGURE D.10 : MOBILE HAZMAT BUFFERS IN JONES COUNTY



Social Vulnerability

Given high susceptibility across the entire county, it is assumed that the total population is at risk to a hazardous materials incident. It should be noted that areas of population concentration may be at an elevated risk due to a greater burden to evacuate population quickly.

Critical Facilities

Fixed Site Analysis:

The critical facility analysis for fixed TRI sites revealed that there are five critical facility that would be impacted by only the 500M HAZMAT risk zone, which are valued at over $2M. There are 45 critical facilities that would be impacted by the 2500M HAZMAT risk zone, valued at over $141M. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

Mobile Analysis:

The critical facility analysis for transportation corridors in Jones County revealed that there are 55 critical facilities located in the 500M Highway mobile HAZMAT buffer areas valued at over $157M, and there are 44 critical facilities located in the 500M Railway mobile HAZMAT buffer areas valued at approximately $60.3M.

Expanding to a 2500M HAZMAT risk zone reveals that 71 critical facilities located in the highway mobile HAZMAT buffer areas are vulnerable, valued at over $186M. There are 67 critical facilities located in the railway mobile HAZMAT buffer area that are vulnerable, valued at over $172M. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

In conclusion, a hazardous material incident has the potential to impact many existing and future buildings, critical facilities, and populations in Jones County. Those areas in a primary buffer are at the highest risk, though all areas carry some vulnerability due to variations in conditions that could alter the impact area (i.e., direction and speed of wind, volume of release, etc). Further, incidents from neighboring counties could also impact the county and participating jurisdictions.

CONCLUSIONS ON HAZARD VULNERABILITY

Table D.32 shows the critical facilities vulnerable to additional hazards analyzed in this section. The table lists those assets that are determined to be exposed to each of the identified hazards (marked with an "**X**").

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TABLE D.32: AT-RISK CRITICAL FACILITIES IN JONES COUNTY

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and	Lightning	Thunderstorm	Tornado	Winter Storm and	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[20]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Jones County																					
Adult Detention Facility	Special Population	X	X	X	X	X	X	X	X								X	X		X	Non-burnable
Beat 4 Barn	Public Works	X	X	X	X	X		X	X									X		X	Low
City Hall	Government offices	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
Court House District 1	Government offices	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
Ellisville Fire Department	Fire Department	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
ELLISVILLE LOWER ELEMENTARY SCHOOL	School	X	X	X	X	X	X	X	X								X	X	X	X	Non-burnable
Ellisville Police Dept	Police Station	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
ELLISVILLE STATE SCHOOL	School	X	X	X	X	X	X	X	X				X				X	X	X	X	Non-burnable
Fire Station #1	Fire Station	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
Fire Station #2	Fire Station	X	X	X	X	X	X	X	X				X				X	X		X	Non-burnable
Fire Station #3	Fire Station	X	X	X	X	X	X	X	X								X	X	X	X	High
Johnson VFD	Fire Station	X	X	X	X	X		X	X												Low

[20] As noted previously, these facilities could be at risk to dam failure if located in an inundation area. Data was not available to conduct such an analysis. There was no local knowledge of these facilities being at risk to dam failure. As additional data becomes available, more in-depth analysis will be conducted.

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and	Lightning	Thunderstorm	Tornado	Winter Storm and	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[20]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Juvenille Detention Facility	Special Population	X	X	X	X	X	X	X	X								X	X		X	Non-burnable
Maintenance Building (county wide)	Government offices	X	X	X	X	X	X	X	X								X	X		X	Non-burnable
Police Department	Police/Government Offices	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
Public Works	Government offices	X	X	X	X	X		X	X				X				X	X	X	X	High
Public Works	Government offices	X	X	X	X	X	X	X	X								X	X	X	X	Low
Public Works	Government offices	X	X	X	X	X	X	X	X								X	X	X	X	Moderate
Public Works	Government offices	X	X	X	X	X		X	X									X		X	Non-burnable
Public Works	Government offices	X	X	X	X	X		X	X									X		X	Very Low
SOUTH JONES ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X				X				X	X		X	Low
SOUTH JONES HIGH SCHOOL	School	X	X	X	X	X	X	X	X								X	X	X	X	Non-burnable
South Jones VFD	Fire Station	X	X	X	X	X		X	X												Low
Southwest Jones VFD	Fire Station	X	X	X	X	X		X	X												Low
A P FATHEREE VOC TECH SCHOOL	School	X	X	X	X	X		X	X							X	X	X		X	Moderate
Beat 1 Barn	Public Works	X	X	X	X	X		X	X												High
Beat 3 Barn	Public Works	X	X	X	X	X		X	X								X	X			Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and	Lightning	Thunderstorm	Tornado	Winter Storm and	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[20]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Beat 5 Barn	Public Works	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
Calhoun VFD	Fire Station	X	X	X	X	X		X	X								X	X		X	Non-burnable
Court House District 2	Government offices	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
EAST JONES ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X							X	X	X			High
Emergency Operations Center	EOC	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
Fire Dept Central Station #1	Fire Station	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
Fire Dept Station #2	Fire Station	X	X	X	X	X		X	X							X	X	X	X	X	High
Fire Dept Station #4	Fire Station	X	X	X	X	X		X	X				X			X		X	X	X	Non-burnable
Fire Dept Station #5	Fire Station	X	X	X	X	X		X	X							X		X		X	Non-burnable
Fire Dept Station #6	Fire Station	X	X	X	X	X		X	X						X	X		X	X	X	Low
General Aviation (Hesler-Noble Field)	Aviation	X	X	X	X	X		X	X						X	X		X	X	X	Low
GLADE ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X												Low
Glade VFD	Fire Station	X	X	X	X	X		X	X												Moderate
IMMACULATE CONCEPTION SCHOOL	School	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
Jones Cnty Sheriff-Processing	Police Station	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and	Lightning	Thunderstorm	Tornado	Winter Storm and	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[20]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Jones County Civil Defense	Emergency Facility	X	X	X	X	X		X	X						X	X		X	X	X	Non-burnable
Jones County Sheriff-Records	Police Station	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
LAUREL CHRISTIAN SCHOOL	School	X	X	X	X	X		X	X							X	X	X		X	High
Laurel City Hall	Government offices	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
Laurel City Police Dept	Police Station	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
LAUREL EDUCATION CENTER	School	X	X	X	X	X		X	X							X	X	X		X	Low
Laurel Fire Department	Fire Department	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
LAUREL HIGH SCHOOL	School	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
LAUREL HIGH SCHOOL VOC COMPLEX	School	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
M & M Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												Non-burnable
MASON ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X							X		X		X	Low
NORA DAVIS MAGNET SCHOOL	School	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
NORTHEAST JONES HIGH SCHOOL	School	X	X	X	X	X		X	X							X	X	X			High
OAK PARK ELEMENTARY SCHOOL	School	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
PINE BELT EDUCATIONAL CENTER	School	X	X	X	X	X		X	X							X	X	X		X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and	Lightning	Thunderstorm	Tornado	Winter Storm and	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[20]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Pleasant Ridge VFD	Fire Station	X	X	X	X	X		X	X								X	X			High
Police Dept	Police/Government Offices	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
Powers Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X							X	X	X			Non-burnable
Public Works Facility	Government offices	X	X	X	X	X		X	X							X		X		X	Low
R H Watkins High School	School Safe Room	X	X	X	X	X		X	X							X		X	X	X	Non-burnable
Rushton VFD	Fire Station	X	X	X	X	X		X	X												High
Safe Room / Shelter	School Safe Room	X	X	X	X	X	X	X	X							X	X	X	X	X	Moderate
Sewer Department	Wastewater	X	X	X	X	X		X	X				X			X	X	X		X	Moderate
Sewer Department	Wastewater	X	X	X	X	X		X	X				X			X		X		X	Moderate
SHADY GROVE ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X											X	High
Shady Grove VFD	Fire Station	X	X	X	X	X		X	X												High
Shady Grove VFD	Fire Department	X	X	X	X	X		X	X												High
SHARON ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X												Non-burnable
Sharon VFD	Fire Station	X	X	X	X	X		X	X												High
Sheriff's Department	Police/Government Offices	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and	Lightning	Thunderstorm	Tornado	Winter Storm and	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[20]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
SOUTH CENTRAL REGIONAL MED CTR	Care Facility	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
ST JOHNS DAY SCHOOL	School	X	X	X	X	X		X	X							X	X	X	X	X	Non-burnable
STAINTON ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X							X		X		X	Non-burnable
Stewart Jones Middle School	School Safe Room	X	X	X	X	X		X	X				X			X	X	X	X	X	Non-burnable
THE STAR REACH CENTER	School	X	X	X	X	X		X	X							X		X			Low
Water Department	Wastewater	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
Water Department	Wastewater	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
Water Department	Wastewater	X	X	X	X	X	X	X	X					X		X	X	X	X	X	Non-burnable
WEST JONES ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X								X	X			Low
WEST JONES HIGH SCHOOL	School	X	X	X	X	X		X	X											X	Moderate
MOSELLE ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X									X		X	High
Moselle VFD	Fire Station	X	X	X	X	X		X	X								X	X	X	X	High
Southwest Jones Volunteer Fire Departmen	Fire Department	X	X	X	X	X		X	X												High
Union VFD	Fire Station	X	X	X	X	X		X	X								X	X	X	X	High
Ovett Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												Moderate

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and	Lightning	Thunderstorm	Tornado	Winter Storm and	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[20]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Police Dept	Police Station	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
Sandersville VFD	Fire Station	X	X	X	X	X		X	X								X	X	X	X	Non-burnable
Beat 2 Barn	Public Works	X	X	X	X	X		X	X												High
Hebron Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X								X	X			Low
Soso Police Dept	Police Station	X	X	X	X	X		X	X						X	X			X	X	Non-burnable
Soso VFD	Fire Station	X	X	X	X	X	X	X	X						X	X			X	X	Non-burnable

D.4 JONES COUNTY CAPABILITY ASSESSMENT

This subsection discusses the capability of Jones County to implement hazard mitigation activities. More information on the purpose and methodology used to conduct the assessment can be found in Section 7: *Capability Assessment*.

D.4.1 Planning and Regulatory Capability

Table D.32 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for Jones County. A checkmark (✓) indicates that the given item is currently in place and being implemented. An asterisk (*) indicates that the given item is currently being developed for future implementation. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the MEMA District 8 Regional Hazard Mitigation Plan.

TABLE D.32: RELEVANT PLANS, ORDINANCES, AND PROGRAMS

Planning Tool/Regulatory Tool	Hazard Mitigation Plan	Comprehensive Land Use Plan	Floodplain Management Plan	Open Space Management Plan (Parks & Rec/Greenway Plan	Stormwater Management Plan/Ordinance	Natural Resource Protection Plan	Flood Response Plan	Emergency Operations Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	National Flood Insurance Program (NFIP)	NFIP Community Rating System
JONES COUNTY	✓			✓				✓	✓				✓		✓		✓					✓	
Ellisville	✓	✓		✓				✓	✓				✓		✓	✓	✓			✓		✓	
Laurel	✓	✓		✓	✓			✓	✓			✓	✓		✓	✓	✓			✓	✓	✓	
Sandersville	✓			✓				✓	✓				✓										
Soso	✓			✓				✓	✓				✓										

A more detailed discussion on the county's planning and regulatory capabilities follows.

EMERGENCY MANAGEMENT

Hazard Mitigation Plan
Jones County has previously adopted a hazard mitigation plan. The City of Ellisville, the City of Laurel, the Town of Sandersville, and the Town of Soso were also included in this plan.

Emergency Operations Plan
Jones County maintains an emergency operations plan through its Emergency Management Agency. The City of Ellisville, the City of Laurel, the Town of Sandersville, and the Town of Soso are each covered by this plan.

GENERAL PLANNING

Comprehensive Land Use Plan
Jones County has not adopted a county comprehensive land use plan. However, the City of Ellisville and the City of Laurel each adopted a city comprehensive plan in 1971 and 1970, respectively.

Capital Improvements Plan
Jones County has not adopted a capital improvements plan. However, the City of Laurel has a capital improvement plan in place.

Zoning Ordinance
Jones County does not have a zoning ordinance in place. However, the City of Ellisville and the City of Laurel have zoning ordinances that were adopted in 1971 and 1985, respectively.

Subdivision Ordinance
Jones County has previously adopted subdivision regulations. The City of Ellisville and the City of Laurel also adopted subdivision regulations in 1971 and 1985, respectively.

Building Codes, Permitting, and Inspections
Jones County, the City of Ellisville, and the City of Laurel have each adopted a building code.

FLOODPLAIN MANAGEMENT

Table D.33 provides NFIP policy and claim information for each participating jurisdiction in Jones County.

TABLE D.33: NFIP POLICY AND CLAIM INFORMATION

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance in Force	Closed Claims	Total Payments to Date
JONES COUNTY†	2/16/90	9/29/10	133	$17,174,300	28	$237,123
Ellisville	12/16/88	9/29/10	24	$2,281,200	5	$46,027
Laurel	9/15/77	9/29/10	254	$30,415,800	75	$398,815
Sandersville*	--	--	--	--	--	--
Soso*	--	--	--	--	--	--

†Includes unincorporated areas of county only
*Community does not participate in the NFIP
Source: NFIP Community Status information as of 3/31/13; NFIP claims and policy information as of 5/15/13

Flood Damage Prevention Ordinance
All communities participating in the NFIP are required to adopt a local flood damage prevention ordinance. Jones County, the City of Ellisville, and the City of Laurel all participate in the NFIP and have adopted flood damage prevention ordinances.

Open Space Management Plan
Jones County, the City of Ellisville, the City of Laurel, the Town of Sandersville, and the Town of Soso are all included in the Southern Mississippi Planning and Development District (SMPDD) Regional Open Space Plan that was written in 1973.

Stormwater Management Plan
Jones County has not adopted a stormwater management plan or ordinance. However, the City of Laurel adopted a stormwater detention requirements ordinance in 2000.

D.4.2 Administrative and Technical Capability

Table D.34 provides a summary of the capability assessment results for Jones County with regard to relevant staff and personnel resources. A checkmark (✓) indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill.

TABLE D.34: RELEVANT STAFF / PERSONNEL RESOURCES

Staff / Personnel Resource	Planners with knowledge of land development/land management practices	Engineers or professionals trained in construction practices related to buildings and/or infrastructure	Planners or engineers with an understanding of natural and/or human-caused hazards	Emergency Manager	Floodplain Manager	Land Surveyors	Scientists familiar with the hazards of the community	Staff with education or expertise to assess the communitys vulnerability to hazards	Personnel skilled in GIS and/or Hazus	Resource development staff or grant writers
JONES COUNTY	✓	✓	✓	✓	✓		✓	✓	✓	✓
Ellisville		✓	✓	✓	✓		✓	✓	✓	
Laurel	✓	✓	✓	✓	✓		✓	✓	✓	
Sandersville		✓	✓	✓			✓	✓	✓	
Soso		✓	✓	✓			✓	✓	✓	

Credit for having a floodplain manager was given to those jurisdictions that have a flood damage prevention ordinance, and therefore an appointed floodplain administrator, regardless of whether the appointee was dedicated solely to floodplain management. Credit was given for having a scientist familiar with the hazards of the community if a jurisdiction has a Cooperative Extension Service or Soil and Water Conservation Department. Credit was also given for having staff with education or expertise to assess the community's vulnerability to hazards if a staff member from the jurisdiction was a participant on the existing hazard mitigation plan's planning committee.

D.4.3 Fiscal Capability

Table D.35 provides a summary of the results for Jones County with regard to relevant fiscal resources. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard mitigation purposes (including match funds for state and federal mitigation grant funds) according to the previous county hazard mitigation plan.

TABLE D.35: RELEVANT FISCAL RESOURCES

Fiscal Tool / Resource	Capital Improvement Programming	Community Development Block Grants (CDBG)	Special Purpose Taxes (or taxing districts)	Gas/Electric Utility Fees	Water/Sewer Fees	Stormwater Utility Fees	Development Impact Fees	General Obligation, Revenue, and/or Special Tax Bonds	Partnering Arrangements or Intergovernmental Agreements
JONES COUNTY	✓	✓							✓
Ellisville	✓	✓							✓
Laurel	✓	✓							✓
Sandersville		✓							✓
Soso									✓

D.4.4 Political Capability

During the months immediately following a disaster, local public opinion in Jones County is more likely to shift in support of hazard mitigation efforts.

D.5 JONES COUNTY MITIGATION STRATEGY

This subsection provides the blueprint for Jones County to follow in order to become less vulnerable to its identified hazards. It is based on general consensus of the Regional Hazard Mitigation Council and the findings and conclusions of the capability assessment and risk assessment. Additional Information can be found in Section 8: *Mitigation Strategy* and Section 9: *Mitigation Action Plan*.

D.5.1 Mitigation Goals

Jones County developed five mitigation goals in coordination with the other participating MEMA District 8 Region jurisdictions. The regional mitigation goals are presented in **Table D.36**.

TABLE D.36: MEMA DISTRICT 8 REGIONAL MITIGATION GOALS

	Goal
Goal #1	Develop a sustainable, comprehensive mitigation program to ensure safer communities.
Goal #2	Reduce or avoid loss of life, injury, and damage to property, the economy, and the environment.
Goal #3	Enhance preparedness and effective response to hazards.
Goal #4	Strengthen and improve local mitigation capabilities.
Goal #5	Increase public awareness of hazard mitigation, hazard risk, and protective measures that can be taken to minimize potential loss and damage.

D.5.2 Mitigation Action Plan

The mitigation actions proposed by Jones County, the City of Ellisville, the City of Laurel, the Town of Sandersville, and the Town of Soso are listed in the following individual Mitigation Action Plans.

Jones County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Explore solutions to reduce or eliminate sources of stagnant water and address methods to eradicate insects, birds, etc that may carry diseases.	FL	Low	To be determined	To be determined	To be determined	2014	Completed
P-2	Coordinate a floodplain management council with representatives from each of the participating jurisdictions. Conduct meetings to educate and develop a floodplain management program that will address future development and administration of a floodplain program.	FL	High	Local Budget and FMA	To be determined	Jones County	To be determined	Completed
P-3	Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.	FL	Moderate	To be determined	To be determined	Jones County	2024	Ongoing
P-4	Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.	Multi	High	To be determined	To be determined	Jones County Emergency Management Agency	Annual	Completed/Ongoing
P-5	Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.	Multi	Moderate	CDBD, Federal, State and Local	$150,000	Jones County Board of Supervisors	3-5 years	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-6	Continue to enforce building codes and exceed the standards when proven cost-effective to withstand higher wind forces that could be delivered by a natural disaster. Develop and training program for city employees	Multi	Moderate	Local Funds	$20,000	Municipalities	Ongoing	Ongoing
Property Protection								
PP-1	Upon receipt of the new floodplain maps, review repetitive loss structures and implement a plan to complete the acquisition process.	FL	Moderate	FMA	To be determined	Jones County	2024	Ongoing
Natural Resource Protection								
NRP-1	Evaluate streams and identify potential projects to mitigate stream bank restoration.	FL	Moderate	To be determined	To be determined	Jones County	Ongoing as projects are identified	Completed/Ongoing
Emergency Services								
ES-1	Develop a drought council to implement an emergency response plan for the County	DR	Moderate	To be determined	To be determined	Jones County Emergency Management Agency	N/A	Deferred—No drought council
ES-2	Jones County proposes to build a FEMA 361 Shelter to be located at the South Mississippi State Fairgrounds in Laurel, MS. This site will give easy access to I-59, highway 84 and highway 11.	HU	High	HMGP and State Global Match	$3,250,000	Jones County	2011	Delete

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-3	Install generators at the following critical facilities: Jones County Courthouse – Laurel – 150 KW- $49,000 Jones County Courthouse – Ellisville – 150 KW - $49,000 Jones County Annex Building – 150 KW - $49,000 Jones County Maintenance Facility - $25 KW - $35,000	Multi	High	HMGP	$182,000	Jones County Board of Supervisors	2009	Delete
ES-4	Install emergency notification warning systems at the following facilities: Pleasant Ridge VFD West Jones High/Middle School City of Soso City of Sandersville Moselle VFD North Jones Elementary Glade Elementary School Northeast Jones School	Multi	High	HMGP	$155,556	Jones County Board of Supervisors	2010	Delete
ES-5	Identify and implement automated mass notification/warning system County wide	All Hazards	High	TBD	$15,000-$20,000 Annually	Jones County and Municipalities	2024	New
Structural Projects								
SP-1	Develop a floodplain council with representatives from each jurisdiction to develop and monitor development within the floodplain.	FL	Moderate	To be determined	To be determined	Jones County	2014	Completed. Delete
SP-2	Flood Elevations	FL	Medium	FEMA	N/A	Jones County	2024	New

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Public Education and Awareness								
PEA-1	Partner with various stakeholder groups to develop an all hazard public outreach and education program.	Multi	High	To be determined	To be determined	Jones County	Ongoing	Completed/Ongoing
PEA-2	Become a Firewise Community	WUF	High	To be determined	To be determined	Jones County		Delete

DR = Drought FL = Flood HU = Hurricane WUF = Wild/Urban Fire

City of Ellisville Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Explore solutions to reduce or eliminate sources of stagnant water and address methods to eradicate insects, birds, etc that may carry diseases.	FL	Low	To be determined	To be determined	To be determined	2014	Completed
P-2	Coordinate a floodplain management council with representatives from each of the participating jurisdictions. Conduct meetings to educate and develop a floodplain management program that will address future development and administration of a floodplain program.	FL	High	Local Budget and FMA	To be determined	Jones County	To be determined	Completed
P-3	Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.	FL	Moderate	To be determined	To be determined	Jones County	2024	Ongoing
P-4	Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.	Multi	High	To be determined	To be determined	Jones County Emergency Management Agency	Annual	Completed/Ongoing
P-5	Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.	Multi	Moderate	CDBD, Federal, State and Local	$150,000	Jones County Board of Supervisors	3-5 years	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-6	Continue to enforce building codes and exceed the standards when proven cost-effective to withstand higher wind forces that could be delivered by a natural disaster. Develop and training program for city employees	Multi	Moderate	Local Funds	$20,000	Jones County Board of Supervisors	Ongoing	Ongoing
Property Protection								
PP-1	Upon receipt of the new floodplain maps, review repetitive loss structures and implement a plan to complete the acquisition process.	FL	Moderate	FMA	To be determined	Jones County	2024	Ongoing
Natural Resource Protection								
NRP-1	Evaluate streams and identify potential projects to mitigate stream bank restoration.	FL	Moderate	To be determined	To be determined	Jones County	Ongoing as projects are identified	Completed/Ongoing
Emergency Services								
ES-1	Develop a drought council to implement an emergency response plan for the County	DR	Moderate	To be determined	To be determined	Jones County Emergency Management Agency	N/A	Deferred—No drought council
ES-2	Jones County proposes to build a FEMA 361 Shelter to be located at the South Mississippi State Fairgrounds in Laurel, MS. This site will give easy access to I-59, highway 84 and highway 11.	HU	High	HMGP and State Global Match	$3,250,000	Jones County	2011	Delete
ES-3	Install a 35-KW generator to support the Ellisville City Hall during a hazard event.	Multi	High	HMGP	$31,000	Emergency Services	2009	Delete
ES-4	Identify and implement automated mass notification/warning system County wide	All Hazards	High	TBD	$15,000-$20,000 Annually	Jones County and Municipalities	2024	New

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Structural Projects								
SP-1	Develop a floodplain council with representatives from each jurisdiction to develop and monitor development within the floodplain.	FL	Moderate	To be determined	To be determined	Jones County	2014	Completed. Delete
SP-2	Flood Elevations	FL	Medium	FEMA	N/A	Jones County	2024	New
Public Education and Awareness								
PEA-1	Partner with various stakeholder groups to develop an all hazard public outreach and education program.	Multi	High	To be determined	To be determined	Jones County	Ongoing	Completed/Ongoing
PEA-2	Become a Firewise Community	WUF	High	To be determined	To be determined	Jones County		Delete

DR = Drought FL = Flood HU = Hurricane WUF = Wild/Urban Fire

City of Laurel Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Explore solutions to reduce or eliminate sources of stagnant water and address methods to eradicate insects, birds, etc that may carry diseases.	FL	Low	To be determined	To be determined	To be determined	2014	Completed
P-2	Coordinate a floodplain management council with representatives from each of the participating jurisdictions. Conduct meetings to educate and develop a floodplain management program that will address future development and administration of a floodplain program.	FL	High	Local Budget and FMA	To be determined	Jones County	To be determined	Completed
P-3	Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.	FL	Moderate	To be determined	To be determined	Jones County	2024	Ongoing
P-4	Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.	Multi	High	To be determined	To be determined	Jones County Emergency Management Agency	Annual	Completed/Ongoing
P-5	Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.	Multi	Moderate	CDBD, Federal, State and Local	$150,000	Jones County Board of Supervisors	3-5 years	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-6	Continue to enforce building codes and exceed the standards when proven cost-effective to withstand higher wind forces that could be delivered by a natural disaster. Develop and training program for city employees	Multi	Moderate	Local Funds	$20,000	Jones County Board of Supervisors	Ongoing	Ongoing
Property Protection								
PP-1	Upon receipt of the new floodplain maps, review repetitive loss structures and implement a plan to complete the acquisition process.	FL	Moderate	FMA	To be determined	Jones County	2024	Ongoing
Natural Resource Protection								
NRP-1	Evaluate streams and identify potential projects to mitigate stream bank restoration.	FL	Moderate	To be determined	To be determined	Jones County	Ongoing as projects are identified	Completed/Ongoing
Emergency Services								
ES-1	Develop a drought council to implement an emergency response plan for the County	DR	Moderate	To be determined	To be determined	Jones County Emergency Management Agency	N/A	Deferred—No drought council
ES-2	Jones County proposes to build a FEMA 361 Shelter to be located at the South Mississippi State Fairgrounds in Laurel, MS. This site will give easy access to I-59, highway 84 and highway 11.	HU	High	HMGP and State Global Match	$3,250,000	Jones County	2011	Delete

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-3	Install generators at the following critical facilities: Laurel City Hall -150KW - $49,000 LT Ellis Center – Special needs shelter – 45 KW - $49,000 Laurel Fire Department Station 2 – 16KW- $12,000 Laurel Fire Department Station 6 – 16KW- $12,000	Multi	High	HMGP	$122,000	City of Laurel	2009	Delete
ES-4	Identify and implement automated mass notification/warning system County wide	All Hazards	High	TBD	$15,000-$20,000 Annually	Jones County and Municipalities	2024	New
Structural Projects								
SP-1	Develop a floodplain council with representatives from each jurisdiction to develop and monitor development within the floodplain.	FL	Moderate	To be determined	To be determined	Jones County	2014	Completed. Delete
SP-2	Flood Elevations	FL	Medium	FEMA	N/A	Jones County	2024	New
Public Education and Awareness								
PEA-1	Partner with various stakeholder groups to develop an all hazard public outreach and education program.	Multi	High	To be determined	To be determined	Jones County	Ongoing	Completed/Ongoing
PEA-2	Become a Firewise Community	WUF	High	To be determined	To be determined	Jones County		Delete

DR = Drought FL = Flood HU = Hurricane WUF = Wild/Urban Fire

Town of Sandersville Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Explore solutions to reduce or eliminate sources of stagnant water and address methods to eradicate insects, birds, etc that may carry diseases.	FL	Low	To be determined	To be determined	To be determined	2014	Completed
P-2	Coordinate a floodplain management council with representatives from each of the participating jurisdictions. Conduct meetings to educate and develop a floodplain management program that will address future development and administration of a floodplain program.	FL	High	Local Budget and FMA	To be determined	Jones County	To be determined	Completed
P-3	Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.	FL	Moderate	To be determined	To be determined	Jones County	2024	Ongoing
P-4	Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.	Multi	High	To be determined	To be determined	Jones County Emergency Management Agency	Annual	Completed/Ongoing
P-5	Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.	Multi	Moderate	CDBD, Federal, State and Local	$150,000	Jones County Board of Supervisors	3-5 years	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-6	Continue to enforce building codes and exceed the standards when proven cost-effective to withstand higher wind forces that could be delivered by a natural disaster. Develop and training program for city employees	Multi	Moderate	Local Funds	$20,000	Jones County Board of Supervisors	Ongoing	Ongoing
Property Protection								
PP-1	Upon receipt of the new floodplain maps, review repetitive loss structures and implement a plan to complete the acquisition process.	FL	Moderate	FMA	To be determined	Jones County	2024	Ongoing
Natural Resource Protection								
NRP-1	Evaluate streams and identify potential projects to mitigate stream bank restoration.	FL	Moderate	To be determined	To be determined	Jones County	Ongoing as projects are identified	Completed/Ongoing
Emergency Services								
ES-1	Develop a drought council to implement an emergency response plan for the County	DR	Moderate	To be determined	To be determined	Jones County Emergency Management Agency	N/A	Deferred—No drought council
ES-2	Jones County proposes to build a FEMA 361 Shelter to be located at the South Mississippi State Fairgrounds in Laurel, MS. This site will give easy access to I-59, highway 84 and highway 11.	HU	High	HMGP and State Global Match	$3,250,000	Jones County	2011	Delete
ES-3	Install emergency notification warning systems at the Town of Sandersville	Multi	High	HMGP	$155,556	Jones County Board of Supervisors	2009	Delete
ES-4	Identify and implement automated mass notification/warning system County wide	All Hazards	High	TBD	$15,000-$20,000 Annually	Jones County and Municipalities	2024	New

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Structural Projects								
SP-1	Develop a floodplain council with representatives from each jurisdiction to develop and monitor development within the floodplain.	FL	Moderate	To be determined	To be determined	Jones County	2014	Completed. Delete
SP-2	Flood Elevations	FL	Medium	FEMA	N/A	Jones County	2024	New
Public Education and Awareness								
PEA-1	Partner with various stakeholder groups to develop an all hazard public outreach and education program.	Multi	High	To be determined	To be determined	Jones County	Ongoing	Completed/Ongoing
PEA-2	Become a Firewise Community	WUF	High	To be determined	To be determined	Jones County		Delete

DR = Drought FL = Flood HU = Hurricane WUF = Wild/Urban Fire

Town of Soso Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Explore solutions to reduce or eliminate sources of stagnant water and address methods to eradicate insects, birds, etc that may carry diseases.	FL	Low	To be determined	To be determined	To be determined	2014	Completed
P-2	Coordinate a floodplain management council with representatives from each of the participating jurisdictions. Conduct meetings to educate and develop a floodplain management program that will address future development and administration of a floodplain program.	FL	High	Local Budget and FMA	To be determined	Jones County	To be determined	Completed
P-3	Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.	FL	Moderate	To be determined	To be determined	Jones County	2024	Ongoing
P-4	Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.	Multi	High	To be determined	To be determined	Jones County Emergency Management Agency	Annual	Completed/Ongoing
P-5	Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.	Multi	Moderate	CDBD, Federal, State and Local	$150,000	Jones County Board of Supervisors	3-5 years	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-6	Continue to enforce building codes and exceed the standards when proven cost-effective to withstand higher wind forces that could be delivered by a natural disaster. Develop and training program for city employees	Multi	Moderate	Local Funds	$20,000	Jones County Board of Supervisors	Ongoing	Ongoing
Property Protection								
PP-1	Upon receipt of the new floodplain maps, review repetitive loss structures and implement a plan to complete the acquisition process.	FL	Moderate	FMA	To be determined	Jones County	2024	Ongoing
Natural Resource Protection								
NRP-1	Evaluate streams and identify potential projects to mitigate stream bank restoration.	FL	Moderate	To be determined	To be determined	Jones County	Ongoing as projects are identified	Completed/Ongoing
Emergency Services								
ES-1	Develop a drought council to implement an emergency response plan for the County	DR	Moderate	To be determined	To be determined	Jones County Emergency Management Agency	N/A	Deferred—No drought council
ES-2	Jones County proposes to build a FEMA 361 Shelter to be located at the South Mississippi State Fairgrounds in Laurel, MS. This site will give easy access to I-59, highway 84 and highway 11.	HU	High	HMGP and State Global Match	$3,250,000	Jones County	2011	Delete
ES-3	Install emergency notification warning systems at the Town of Soso	Multi	High	HMGP	$155,556	Jones County Board of Supervisors	2009	Delete
ES-4	Identify and implement automated mass notification/warning system County wide	All Hazards	High	TBD	$15,000-$20,000 Annually	Jones County and Municipalities	2024	New

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Structural Projects								
SP-1	Develop a floodplain council with representatives from each jurisdiction to develop and monitor development within the floodplain.	FL	Moderate	To be determined	To be determined	Jones County	2014	Completed. Delete
SP-2	Flood Elevations	FL	Medium	FEMA	N/A	Jones County	2024	New
Public Education and Awareness								
PEA-1	Partner with various stakeholder groups to develop an all hazard public outreach and education program.	Multi	High	To be determined	To be determined	Jones County	Ongoing	Completed/Ongoing
PEA-2	Become a Firewise Community	WUF	High	To be determined	To be determined	Jones County		Delete
DR = Drought FL = Flood HU = Hurricane WUF = Wild/Urban Fire								

[i] USGS. Landslide Hazard, Retrieved August 2019 from, https://www.usgs.gov/natural-hazards/landslide-hazards/science/rainfall-induced-landslides

Annex E
Marion County

This annex includes jurisdiction-specific information for Marion County and its participating municipalities. It consists of the following five subsections:

- E.1 Marion County Community Profile
- E.2 Marion County Risk Assessment
- E.3 Marion County Vulnerability Assessment
- E.4 Marion County Capability Assessment
- E.5 Marion County Mitigation Strategy

E.1 MARION COUNTY COMMUNITY PROFILE

E.1.1 Geography and the Environment

Marion County is located in south central Mississippi. It comprises one city, the City of Columbia, as well as many small unincorporated communities. An orientation map is provided as **Figure E.1**.

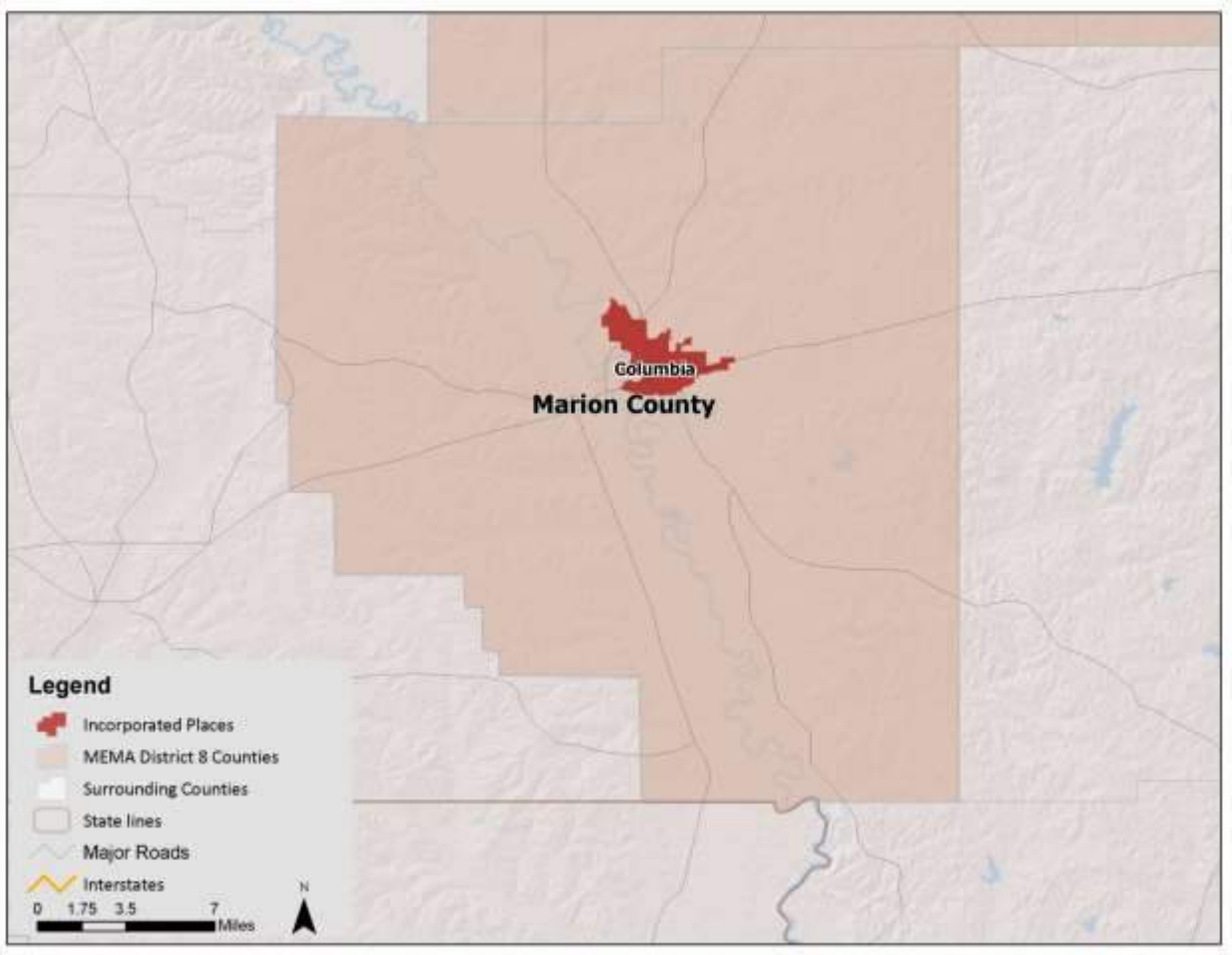
The county is rural in nature and consists of dense pine, clay canyons, and cypress swamps. The total area of the county is 549 square miles, 6 square miles of which is water area.

In Marion County, the summers are long, hot, and oppressive; the winters are short and cold; and it is wet and partly cloudy year-round. Over the course of the year, the temperature typically varies from 41°F to 92°Fand is rarely below 27°F or above 97°F.

The hot season lasts for 4.2 months, from May 20 to September 25, with an average daily high temperature above 85°F. The hottest day of the year is August 9, with an average high of 92°F and low of 73°F. The cool season lasts for 2.8 months, from November 30 to February 22, with an average daily high temperature below 67°F. The coldest day of the year is January 17, with an average low of 41°F and high of 61°F.

Rain falls throughout the year in Marion County. The most rain falls during the 31 days centered around February 14, with an average total accumulation of 5.7 inches. The least rain falls around October 4, with an average total accumulation of 3.1 inches.

FIGURE E.1: MARION COUNTY ORIENTATION MAP



E.1.2 Population and Demographics

According to the 2010 Census, Marion County has a population of 27,088 people. The county has seen almost 6% growth between 2000 and 2010, and the population density is 60 people per square mile. The decline continues. Per the Census Reports, in 2017, Marion County had a population of 25,069, which is a 7.4 percent decline. The household income is $30,998, which grew .272 percent. Population counts from the US Census Bureau for 1990, 2000, and 2010 for the county and both of the participating jurisdictions are presented in **Table E.1**. Estimates for 2017 are also included.

TABLE E.1: POPULATION COUNTS FOR MARION COUNTY

Jurisdiction	1990 Census Population	2000 Census Population	2010 Census Population	% Change 2000-2010	Estimated 2017 Census Population
Marion County	**25,544**	**25,595**	**27,088**	**5.8%**	**25,069**
Columbia	6,815	6,603	6,582	-0.3%	6,037

Source: US Census Bureau

Based on the 2010 Census, the median age of residents of Marion County is 37.7 years, which by Census estimates rose to 39.9 years. The racial characteristics of the county are presented in **Table E.2** and will remain the same as the census data has not been officially updated. Due to the population decrease, the racial characteristics differ slightly. The population is 32.1 percent for black or African American persons and 1.49 percent Hispanic and Latino. Whites make up the majority of the population in the county, accounting for 65 percent of the population.

TABLE E.2: DEMOGRAPHICS OF MARION COUNTY

Jurisdiction	White Persons, Percent (2010)	Black Persons, Percent (2010)	American Indian or Alaska Native, Percent (2010)	Other Race, Percent (2010)	Persons of Hispanic Origin, Percent (2010) *
Marion County	**65.8%**	**32.3%**	**0.2%**	**1.7%**	**1.2%**
Columbia	56.1%	40.5%	0.2%	3.2%	2.1%

*Hispanics may be of any race, so also are included in applicable race categories

Source: US Census Bureau

E.1.3 Housing

According to the 2010 US Census, there are 11,838 housing units in Marion County, the majority of which are single family homes or mobile homes. Per 2018 estimates, the total number of housing units has not changed. The median home value is $78,500, which also increased by at least 2.75 percent. Housing information for the county and town is presented in **Table E.3**. As shown in the table, the incorporated town has a significantly lower percentage of seasonal housing units compared to the unincorporated county.

TABLE E.3: HOUSING CHARACTERISTICS OF MARION COUNTY

Jurisdiction	Housing Units (2000)	Housing Units (2010)	Seasonal Units, Percent (2010)	Median Home Value (2006-2010)	Housing Units (2018)	Median Home Value (2018)
Marion County	**10,395**	**11,838**	**3.8%**	**$82,800**	**11,838**	**$78,500**
Columbia	2,821	2,815	0.8%	$88,300	2,743	$80,500

Source: US Census Bureau

E.1.4 Infrastructure

TRANSPORTATION

Traveling through the City of Columbia in Marion County, the primary transportation route is US Highway 98. The highway provides direct access to the city of Hattiesburg to the east and the City of McComb to the west. State Highways 13, 35, and 43 provide the county with adequate access to the north and south.

Commercial air transportation is available at the Hattiesburg-Laurel Regional Airport, less than 40 miles from Columbia. International airports in Jackson, Gulfport, and New Orleans are all with a 100-mile radius of Columbia.

Marion County is also served by the Canadian National Railroad, but there is no passenger service offered at this time.

UTILITIES

Electrical power in Marion County is provided by several sources, including Mississippi Power Company.

Water and sewer service is provided to residents of Columbia with 3 water storage tanks, 16 lift stations, and treatment lagoons. There is an additional water storage tank and four lift stations serving the unincorporated community of Foxworth and funding from Rural Development was used to install a sewer system in Lampton, another unincorporated community south of Columbia. The water system in Marion County consists of 17 storage tanks. However, there is no centralized sewage treatment in the county and septic tanks are the most common type of sewer system.

COMMUNITY FACILITIES

There are a number of buildings and community facilities located throughout Marion County. According to the data collected for the vulnerability assessment (Section 6.4.1), there are 3 fire stations, 2 police stations, and 11 public schools located within the county.

There is one hospital located in Marion County. Marion General Hospital is a 49-bed medical-surgical hospital located in the City of Collins.

Marion County offers a variety of recreational activities, most of which can be enjoyed nearly year-round. In addition to area lakes, campgrounds, hunting sites, playgrounds, sports fields, and picnic areas, the county features several family friendly recreation sites including Columbia Water Park, Columbia City Park, and the Columbia Exposition Center.

E.1.5 Land Use

Many areas of Marion County are undeveloped or sparsely developed due to the county's location just off the Gulf Coast and the conservation of land in state and national parks. There are a few incorporated municipalities located throughout the region, and these areas are where the region's population is generally concentrated. The incorporated areas are also where many businesses, commercial uses, and institutional uses are located. Land uses in the balance of the county generally consist of rural residential development, agricultural uses, and recreational areas.

E.1.6 Employment and Industry

According to the Mississippi Employment Security Commission, in 2018, Marion County had an average annual employment of 8,220 workers and an average unemployment rate of 5.1 percent. In 2018, according to the MESC, Government Agencies employed 15.7 percent of the workforce. Retail Trade was the second largest industry, employing (14%) of workers, and Health Care and Social Assistance followed closely behind (13.4%). The average annual wage in Marion County was $30,998.

E.2 MARION COUNTY RISK ASSESSMENT

This subsection includes hazard profiles for each of the significant hazards identified in Section 4: *Hazard Identification* as they pertain to Marion County. Each hazard profile includes a description of the hazard's location and extent, notable historical occurrences, and the probability of future occurrences. Additional information can be found in Section 5: *Hazard Profiles*.

E.2.1 Flood

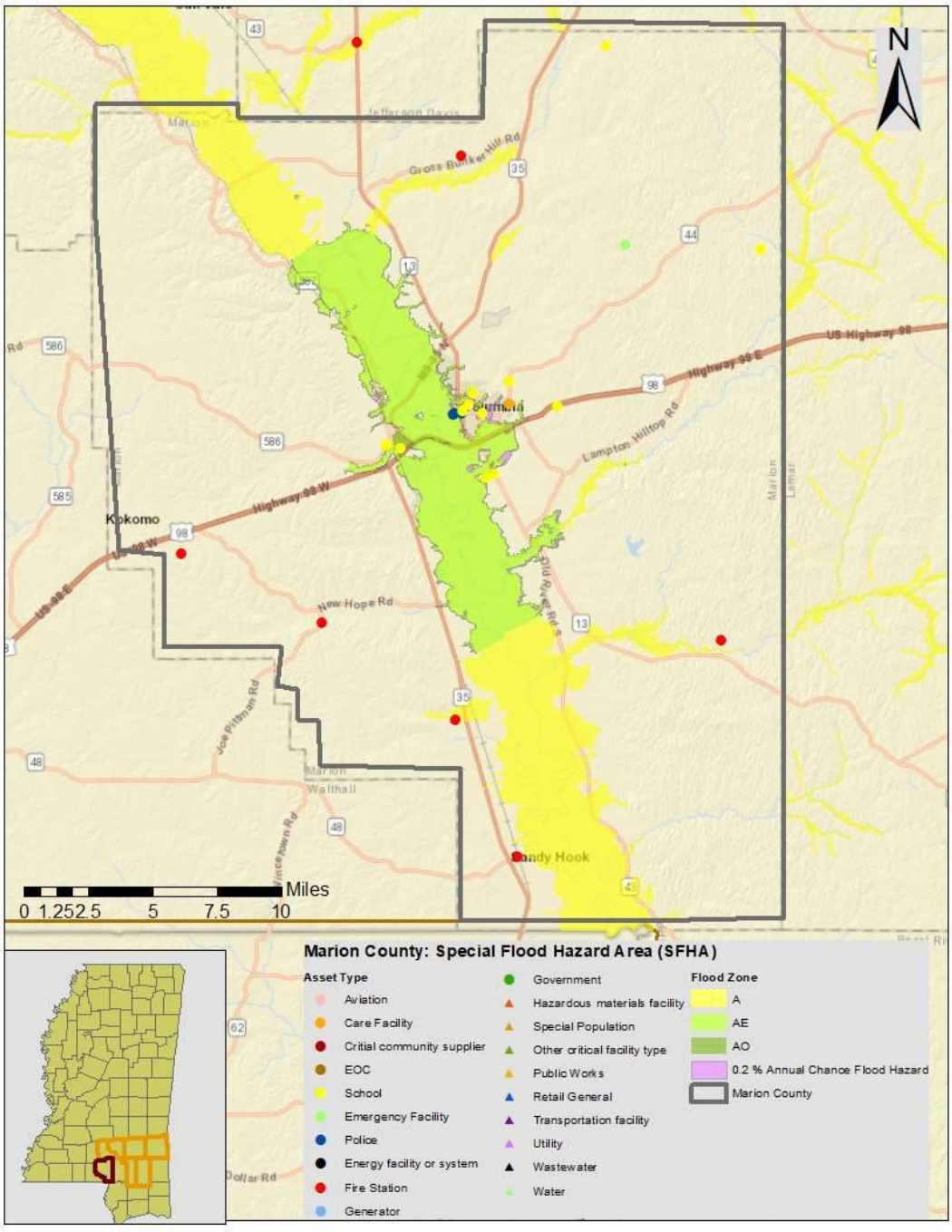
LOCATION AND SPATIAL EXTENT

There are areas in Marion County that are susceptible to flood events. Special flood hazard areas in the county were mapped using Geographic Information System (GIS) and FEMA Digital Flood Insurance Rate Maps (DFIRM).[1] This includes Zone A (1-percent annual chance floodplain), Zone AE (1-percent annual chance floodplain with elevation), and the 0.2-percent annual chance floodplain). According to GIS analysis, of the 551 square miles that make up Marion County, there are 83 square miles of land in zones A and AE (1-percent annual chance floodplain/100-year floodplain) and 2 square miles of land in the 0.2-percent annual chance floodplain (500-year floodplain).

These flood zone values account for 15.4 percent of the total land area in Marion County. It is important to note that while FEMA digital flood data is recognized as best available data for planning purposes, it does not always reflect the most accurate and up-to-date flood risk. Flooding and flood-related losses often do occur outside of delineated special flood hazard areas.

[1] The county-level DFIRM data used for Marion County were updated in 2011.

157 **FIGURE E.2: SPECIAL FLOOD HAZARD AREAS IN MARION COUNTY**



158
159 *Source: Federal Emergency Management Agency*
160
161
162 ***HISTORICAL OCCURRENCES***
163
164 Floods resulted in nine disaster declarations in Marion County in 1972, 1973, 1974, 1979, 1980, 1983,
165 1990, 2003, and 2013.[2] Information from the National Centers for Environmental Information was used

[2]A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

to ascertain historical flood events. The National Centers for Environmental Information reported a total of 68 events in Marion County since 1994.[3] A summary of these events is presented in **Table E.4**. These events accounted for almost $36 million in property damage in the county. Specific information on flood events, including date, type of flooding, and deaths and injuries, can be found in **Table E.5**.

TABLE E.4: SUMMARY OF FLOOD OCCURRENCES IN MARION COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Columbia	25	0/0	$24,924,081
Unincorporated Area	43	0/0	$11,744,615
MARION COUNTY TOTAL	**68**	**0/0**	**$36,668,695**

Source: National Centers for Environmental Information

TABLE E.5: HISTORICAL FLOOD EVENTS IN MARION COUNTY

Location	Date	Type	Deaths / Injuries	Property Damage*
Columbia				
Columbia	27-APR-97	FLOOD	0/0	$0
Columbia	18-JUN-97	FLASH FLOOD	0/0	$23,595,269
Columbia	25-JUN-97	FLASH FLOOD	0/0	$0
Columbia	12-AUG-01	FLASH FLOOD	0/0	$28,515
Columbia	26-SEP-02	FLASH FLOOD	0/0	$2,768
Columbia	23-FEB-04	FLASH FLOOD	0/0	$13,048
Columbia	17-OCT-06	FLASH FLOOD	0/0	$368,962
Columbia	25-AUG-07	FLASH FLOOD	0/0	$59,703
Columbia	14-DEC-09	FLASH FLOOD	0/0	$67,531
Columbia	25-JUL-10	FLASH FLOOD	0/0	$2,185
Columbia	08-MAR-11	FLASH FLOOD	0/0	$26,523
Columbia	16-JUL-11	FLASH FLOOD	0/0	$106,090
Columbia	04-SEP-11	FLASH FLOOD	0/0	$3,183
Columbia	05-SEP-11	FLASH FLOOD	0/0	$5,305
Columbia	29-AUG-12	FLASH FLOOD	0/0	$0
Columbia	03-JAN-15	FLASH FLOOD	0/0	$5,000
Columbia	01-JUL-15	FLASH FLOOD	0/0	$1,000
Columbia	10-MAR-16	FLASH FLOOD	0/0	$5,000
Columbia	10-MAR-16	FLASH FLOOD	0/0	$50,000
Columbia	11-MAR-16	FLASH FLOOD	0/0	$15,000
Columbia	03-APR-17	FLASH FLOOD	0/0	$10,000
Columbia	23-AUG-17	FLASH FLOOD	0/0	$7,000
Columbia	07-JUL-18	FLASH FLOOD	0/0	$45,000
Columbia	27-DEC-18	FLASH FLOOD	0/0	$7,000
Columbia	27-DEC-18	FLASH FLOOD	0/0	$500,000
Unincorporated Area				
Foxworth	27-JAN-94	FLASH FLOOD	0/0	$0
MARION COUNTY	27-JAN-94	FLASH FLOOD	0/0	$852,283

[3] These events are only inclusive of those reported by NCEI. It is likely that additional occurrences have occurred and have gone unreported.

Location	Date	Type	Deaths / Injuries	Property Damage*
Countywide	29-JAN-99	FLOOD	0/0	$75,629
Countywide	13-MAR-99	FLASH FLOOD	0/0	$0
Countywide	09-NOV-00	FLASH FLOOD	0/0	$7,343
Countywide	02-MAR-01	FLASH FLOOD	0/0	$0
Countywide	03-MAR-01	FLASH FLOOD	0/0	$0
Countywide	03-MAR-01	FLASH FLOOD	0/0	$0
Countywide	03-MAR-01	FLASH FLOOD	0/0	$0
Countywide	03-MAR-01	FLASH FLOOD	0/0	$0
Countywide	06-JUN-01	FLASH FLOOD	0/0	$7,129
North Portion	08-JUN-01	FLASH FLOOD	0/0	$0
Countywide	05-AUG-02	FLASH FLOOD	0/0	$9,690
Countywide	21-FEB-03	FLASH FLOOD	0/0	$2,688
Countywide	30-JUN-03	FLASH FLOOD	0/0	$2,688
KOKOMO	02-JUL-03	FLASH FLOOD	0/0	$67,196
East Portion	25-FEB-04	FLASH FLOOD	0/0	$13,048
PINEBUR	12-MAR-04	FLASH FLOOD	0/0	$3,261,933
North Portion	31-MAR-05	FLASH FLOOD	0/0	$190,016
Countywide	01-APR-05	FLASH FLOOD	0/0	$126,677
East Portion	29-AUG-05	FLASH FLOOD	0/0	$126,677
FORTENBERRY	26-MAY-08	FLASH FLOOD	0/0	$5,796,370
COLUMBIA MARION ARPT	27-MAR-09	FLASH FLOOD	0/0	$337,653
KOKOMO	12-APR-09	FLASH FLOOD	0/0	$28,138
Goss	15-OCT-09	FLASH FLOOD	0/0	$5,628
FORTENBERRY	15-AUG-10	FLASH FLOOD	0/0	$5,464
MORGANTOWN	26-DEC-11	FLASH FLOOD	0/0	$3,183
Morgantown	18-FEB-12	FLOOD	0/0	$0
KOKOMO	18-FEB-12	FLASH FLOOD	0/0	$515,000
Hub	21-MAR-12	FLASH FLOOD	0/0	$0
Hub	21-MAR-12	FLASH FLOOD	0/0	$0
Hub	21-MAR-12	FLASH FLOOD	0/0	$0
FORTENBERRY	29-AUG-12	FLASH FLOOD	0/0	$36,050
Hub	29-AUG-12	FLASH FLOOD	0/0	$159,135
Cheraw	20-FEB-14	FLASH FLOOD	0/0	$15,000
Fortenberry	10-MAR-16	FLASH FLOOD	0/0	$10,000
Pinebur	11-MAR-16	FLASH FLOOD	0/0	$20,000
Lovelace	11-MAR-16	FLASH FLOOD	0/0	$50,000
Hub	21-JAN-17	FLASH FLOOD	0/0	$3,000
Foxworth	27-DEC-18	FLASH FLOOD	0/0	$8,000
Sandy Hook	27-DEC-18	FLASH FLOOD	0/0	$2,000
Saxon	27-DEC-18	FLASH FLOOD	0/0	$2,000
Pinebur	28-DEC-18	FLOOD	0/0	$5,000

Source: National Centers for Environmental Information

HISTORICAL SUMMARY OF INSURED FLOOD LOSSES

Recently, FEMA issued a directive that prevents states or local governments from sharing NFIP information such as rep loss or severe rep loss data with third parties. Third parties are considered as consultants, contractors, etc. As a result, for continuity of information so that the reader with have an

idea of the historical occurrences along with the corresponding damage amounts, the decision was made to leave the existing information in the plan.

According to FEMA flood insurance policy records as of March 2013, there have been 551 flood losses reported in Marion County through the National Flood Insurance Program (NFIP) since 1978, totaling nearly $6 million in claims payments. A summary of these figures for the county is provided in **Table E.6**. It should be emphasized that these numbers include only those losses to structures that were insured through the NFIP policies, and for losses in which claims were sought and received. It is likely that many additional instances of flood loss in Marion County were either uninsured, denied claims payment, or not reported.

TABLE E.6: SUMMARY OF INSURED FLOOD LOSSES IN MARION COUNTY

Location	Flood Losses	Claims Payments
Columbia	303	$3,612,752
Unincorporated Area	248	$2,337,509
MARION COUNTY TOTAL	**551**	**$5,950,261**

Source: FEMA, NFIP

REPETITIVE LOSS PROPERTIES

No updates to this section can be provided at this time. Information normally used to update this section is not currently accessible. As a result, this information will remain the same for historical purposes.

As of May 2013, there are 91 non-mitigated repetitive loss properties located in Marion County, which accounted for 282 losses and more than $3.5 million in claims payments under the NFIP. The average claim amount for these properties is $12,638. Of the 91 properties, 25 are single family residential, 6 are assumed condominium, and 16 are non-residential. Without mitigation these properties will likely continue to experience flood losses. **Table E.7** presents detailed information on repetitive loss properties and NFIP claims and policies for Marion County.

TABLE E.7: REPETITIVE LOSS PROPERTIES IN MARION COUNTY

Location	Number of Properties	Types of Properties	Number of Losses	Building Payments	Content Payments	Total Payments	Average Payment
Columbia	47	25 single family, 6 assume condo, 16 non-residential	139	$937,119	$1,090,739	$2,027,858	$14,589
Unincorporated Area	44	35 single family, 1 assumed condo, 8 non-residential	143	$1,223,603	$312,489	$1,536,092	$10,742
MARION COUNTY TOTAL	**91**		**282**	**$2,160,721**	**$1,403,228**	**$3,563,949**	**$12,638**

Source: National Flood Insurance Program

PROBABILITY OF FUTURE OCCURRENCES

Due to the unpredictable nature of this hazard, flood events will remain a threat in Marion County, and the probability of future occurrences will remain highly likely (100 percent annual probability). The participating jurisdictions and unincorporated areas have risk to flooding, though not all areas will experience flood. The probability of future flood events based on magnitude and according to best available data is illustrated in the figures above**,** which indicates those areas susceptible to the 1-percent annual chance flood (100-year floodplain) and the 0.2-percent annual chance flood (500-year floodplain).

It can be inferred from the floodplain location maps, previous occurrences, and repetitive loss properties that risk varies throughout the county. For example, the central portion of the county has more floodplain and thus a higher risk of flood than the eastern and western portions of the county. Flood is not the greatest hazard of concern but will continue to occur and cause damage. Therefore, mitigation actions may be warranted, particularly for repetitive loss properties.

E.2.2 Erosion

LOCATION AND SPATIAL EXTENT

Erosion in Marion County is typically caused by flash flooding events. Unlike coastal areas, areas of concern for erosion in Marion County are primarily rivers and streams. Generally, vegetation helps to prevent erosion in the area, and it is not an extreme threat to any of the participating counties and jurisdictions. No areas of concern were reported by the planning committee.

HISTORICAL OCCURRENCES

Several sources were vetted to identify areas of erosion in Marion County. This includes searching local newspapers, interviewing local officials, and reviewing previous hazard mitigation plans. No historical erosion occurrences were found in these sources.

Marion County has a flood damage prevention ordinance that includes measures to limit erosion, such as restring uses that result in damaging erosion. Such actions will continue to be implemented as necessary throughout the county.

PROBABILITY OF FUTURE OCCURRENCES

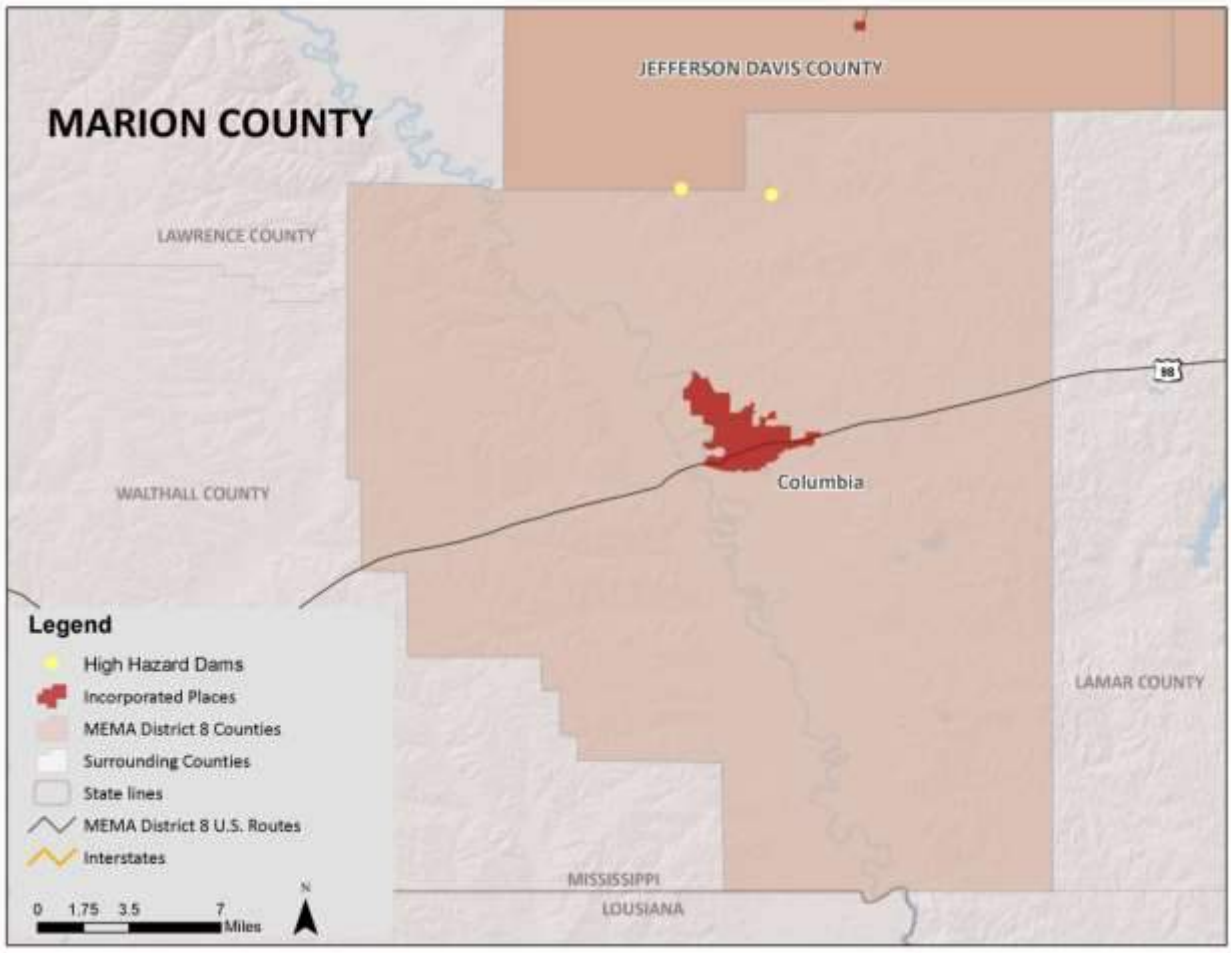
Erosion remains a natural, dynamic, and continuous process for Marion County, and it will continue to occur. The annual probability level assigned for erosion is possible (between 1 and 10 percent annually).

E.2.3 Dam Failure

LOCATION AND SPATIAL EXTENT

According to the Mississippi Division of Environmental Quality, there are two high hazard dams in Marion County.[4] **Figure E.2** shows the location of each of these high hazard dams and **Table E.8** lists them by name. The status of dams for this section remains the same. According to a consensus of local government officials and the Regional Hazard Mitigation Council, a majority of these dams would not pose a major threat in a breach or failure occurrence.

FIGURE E.3: MARION COUNTY HIGH HAZARD DAM LOCATIONS



Source: Mississippi Division of Environmental Quality

[4] The list of high hazard dams obtained from the Mississippi Division of Environmental Quality was reviewed and amended by local officials to the best of their knowledge.

TABLE E.8: MARION COUNTY HIGH HAZARD DAMS

Dam Name	Hazard Potential
Marion County	
HOLIDAY CREEK WS STR 4 DAM	High
HOLIDAY CREEK WS STR 3 DAM	High

Source: Mississippi Division of Environmental Quality

HISTORICAL OCCURRENCES

There is no record of dam breaches in Marion County. However, Big Bay Dam in Lamar County breached in 2004 and resulted in damages in Marion County. Damages in Marion County included destruction of 1 mobile home; major damage to 14 homes, 2 mobile homes, Pine Burr Church, and Pine Burr Volunteer Fire Department; and minor damage to 10 homes, 3 mobile homes, and Hub Chapel Church. Further, several breach scenarios in the county could be catastrophic.

PROBABILITY OF FUTURE OCCURRENCES

Given the current dam inventory and historic data, a dam breach is unlikely (less than 1 percent annual probability) in the future. However, as has been demonstrated in the past, regular monitoring is necessary to prevent these events.

E.2.4 Winter Storm and Freeze

LOCATION AND SPATIAL EXTENT

Nearly the entire continental United States is susceptible to winter storm and freeze events. Some ice and winter storms may be large enough to affect several states, while others might affect limited, localized areas. The degree of exposure typically depends on the normal expected severity of local winter weather. Marion County is not typically affected by major severe winter weather conditions and seldom receives extremely devastating winter weather, even during the winter months. Given the atmospheric nature of the hazard the entire county has uniform exposure to a winter storm.

HISTORICAL OCCURRENCES

According to the National Centers for Environmental Information, there have been a total of six recorded winter storm events in Marion County since 2002 (**Table E.9**).[5] These events resulted in over $674,000 in damages. Detailed information on the recorded winter storm events can be found in **Table E.10**.[6]

[5] These ice and winter storm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is certain that additional winter storm conditions have affected Marion County.
[6] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

TABLE E.9: SUMMARY OF WINTER STORM EVENTS IN MARION COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Marion County	6	0/0	$674,558

Source: National Centers for Environmental Information

TABLE E.10: HISTORICAL WINTER STORM IMPACTS IN MARION COUNTY

Location	Date	Type	Deaths / Injuries	Property Damage*
Collins				
None Reported	--	--	--	--
Mount Olive				
None Reported	--	--	--	--
Seminary				
None Reported	--	--	--	--
Unincorporated Area				
MARION COUNTY	01-JAN-02	HEAVY SNOW	0/0	$6,921
MARION COUNTY	19-JAN-08	HEAVY SNOW	0/0	$289,819
MARION COUNTY	11-DEC-08	HEAVY SNOW	0/0	$0
MARION COUNTY	11-FEB-10	HEAVY SNOW	0/0	$327,818
MARION COUNTY	08-DEC-17	HEAVY SNOW	0/0	$50,000
MARION COUNTY	16-JAN-18	WINTER WEATHER	0/0	$0

Source: National Centers for Environmental Information

There have been several severe winter weather events in Marion County. The text below describes two of the major events and associated impacts on the county. Similar impacts can be expected with severe winter weather.

January 2002 Winter Storm

A winter storm produced heavy snow across portions of southeast Mississippi. The heaviest snow recorded during the storm was four to four- and one-half inches. Icy bridges made traveling across the region very treacherous. As a result, several accidents occurred with two fatalities in Jones County.

January 2008 Winter Storm

This storm produced heavy snow across the region, with an average of three to four inches of snow. Some heavier amounts, between four to five inches, also fell in isolated areas. At the height of the snow, temperatures fell to near freezing, and accumulations occurred on roadways resulting in a number of traffic accidents. Additionally, some power outages occurred in the heaviest snow band due to the weight of wet snow on limbs and lines. The heaviest snow fell in the areas around Covington, Jefferson Davis, and Jones Counties.

Winter storms throughout the county have several negative externalities including hypothermia, cost of snow and debris cleanup, business and government service interruption, traffic accidents, and power outages. Furthermore, citizens may resort to using inappropriate heating devices that could to fire or an accumulation of toxic fumes.

December 2017 Winter Storm

An early season winter storm brought heavy snow to much of Mississippi between the evening of the 7th and into the afternoon of the 8th. The greatest amounts fell mainly south and east of the Natchez Trace corridor. Amounts of up to 7 to 8 inches were measured in the Pine Belt. Heavier snow accumulations resulted in downed limbs and trees, power outages, and traffic accidents across the state.

An average of 5 to 6 inches of heavy snow fell across Marion County. The snow resulted in power outages and a few traffic accidents across the county.

PROBABILITY OF FUTURE OCCURRENCES

Winter storm events will continue to occur in Marion County. According to historical information, the annual probability is possible (between 1 and 10 percent).

FIRE-RELATED HAZARDS

E.2.5 Drought

LOCATION AND SPATIAL EXTENT

Drought and heat waves typically cover a large area and cannot be confined to any geographic or political boundaries. Furthermore, it is assumed that Marion County would be uniformly exposed to drought and heat waves, making the spatial extent potentially widespread. It is also notable that drought and extreme heat conditions typically do not cause significant damage to the built environment but may exacerbate wildfire conditions.

HISTORICAL OCCURRENCES

Drought

According to the U.S. Drought Monitor, Marion County had drought levels (including abnormally dry) in all of the last eighteen years (2000-2018). **Table E.11** shows the most severe drought classification for each year, according to U.S. Drought Monitor classifications. It should be noted that the U.S. Drought Monitor also estimates what percentage of the county is in each classification of drought severity. For example, the most severe classification reported may be exceptional, but a majority of the county may actually be in a less severe condition.

TABLE E. 11: HISTORICAL DROUGHT OCCURRENCES IN MARION COUNTY

Abnormally Dry | Moderate Drought | Severe Drought | Extreme Drought | Exceptional Drought

	Marion County
2000	**EXCEPTIONAL**
2001	MODERATE
2002	MODERATE
2003	ABNORMAL
2004	ABNORMAL

2005	ABNORMAL
2006	**EXTREME**
2007	SEVERE
2008	MODERATE
2009	MODERATE
2010	SEVERE
2011	**EXCEPTIONAL**
2012	MODERATE

Source: U.S. Drought Monitor

There were two reported drought events for Marion County according to the National Centers for Environmental Information. Those two events generated approximately $51,000 in crop damages.

Heat Wave

The National Centers for Environmental Information was used to determine historical heat wave occurrences in the county.

July 2005 – A five-day heat wave covered the area. Temperatures were consistently above 95 degrees. The agricultural industry was hit particularly hard in the cattle and catfish sectors. Water supply issues were encountered by cities and a burn ban was implemented due to the high fire risk.

August 2005 - A heat wave covering the south began in mid-August and lasted about 10 days. High temperatures were consistently over 95 degrees and surpassed 100 degrees on some days. It was the first time since August 2000 that 100-degree temperatures reached the area.

July 2006 – A short heat wave impacted most of the area temperatures in the 90s to around 100 for five straight days.

August 2007 – A heat wave gripped most of the area with the warmest temperatures since 2000. It lasted from August 5th to the 16th.

PROBABILITY OF FUTURE OCCURRENCES

Drought

Based on historical occurrence information, it is assumed that all of Marion County has a probability level of highly likely (100 percent annual probability) for future drought events. However, the extent (or magnitude) of drought and the amount of geographic area covered by drought, varies with each year. Historic information indicates that there is a much lower probability for extreme, long-lasting drought conditions.

Heat Wave

Based on historical occurrence information, it is assumed that all of Marion County has a probability level of highly likely (100 percent annual probability) for future heat wave events.

E.2.6 Wildfire

LOCATION AND SPATIAL EXTENT

The entire county is at risk to a wildfire occurrence. However, several factors such as drought conditions or high levels of fuel on the forest floor, may make a wildfire more likely. Furthermore, areas in the urban-wildland interface are particularly susceptible to fire hazard as populations abut formerly undeveloped areas. The Fire Occurrence Areas in the figure below give an indication of historic location.

HISTORICAL OCCURRENCES

Based on data from the Mississippi Forestry Commission from 2008 to 2018, Marion County experiences an average of 53.4 wildfires annually which burn an average of 507.7 acres per year. The data indicates that most of these fires are small, averaging 10 acres per fire. **Table E.12** provides a summary of wildfire occurrences in Marion County and **Table E.13** lists the number of reported wildfire occurrences in the county between the years 2008 and 2018.

TABLE E.12: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2008 -2018) *

	Marion County
Average Number of Fires per year	53.4
Average Number of Acres Burned per year	507.7
Average Number of Acres Burned per fire	9.5

*These values reflect averages over a 10 year period.
Source: Mississippi Forestry Commission

TABLE E.13: HISTORICAL WILDFIRE OCCURRENCES IN MARION COUNTY

Year	2008	2010	2011	2012	2013	2014	2015	2016	2017	2018
Marion County										
Number of Fires	79	46	128	39	38	83	28	32	30	31
Number of Acres Burned	469	265	895	198	402	638	171	1,200	475	364

**No data reported for 2009*
Source: Mississippi Forestry Commission

PROBABILITY OF FUTURE OCCURRENCES

Wildfire events will be an ongoing occurrence in Marion County. The likelihood of wildfires increases during drought cycles and abnormally dry conditions. Fires are likely to stay small in size but could increase due local climate and ground conditions. Dry, windy conditions with an accumulation of forest floor fuel (potentially due to ice storms or lack of fire) could create conditions for a large fire that spreads quickly. It should also be noted that some areas do vary somewhat in risk. For example, highly developed areas are less susceptible unless they are located near the urban-wildland boundary. The risk will also vary due to assets. Areas in the urban-wildland interface will have much more property at risk, resulting in increased vulnerability and need to mitigate compared to rural, mainly forested areas. In this case, the participating jurisdictions appear to have a similar risk to the surrounding areas. The

probability assigned to Marion County for future wildfire events is likely (a 10 and 100 percent annual probability).

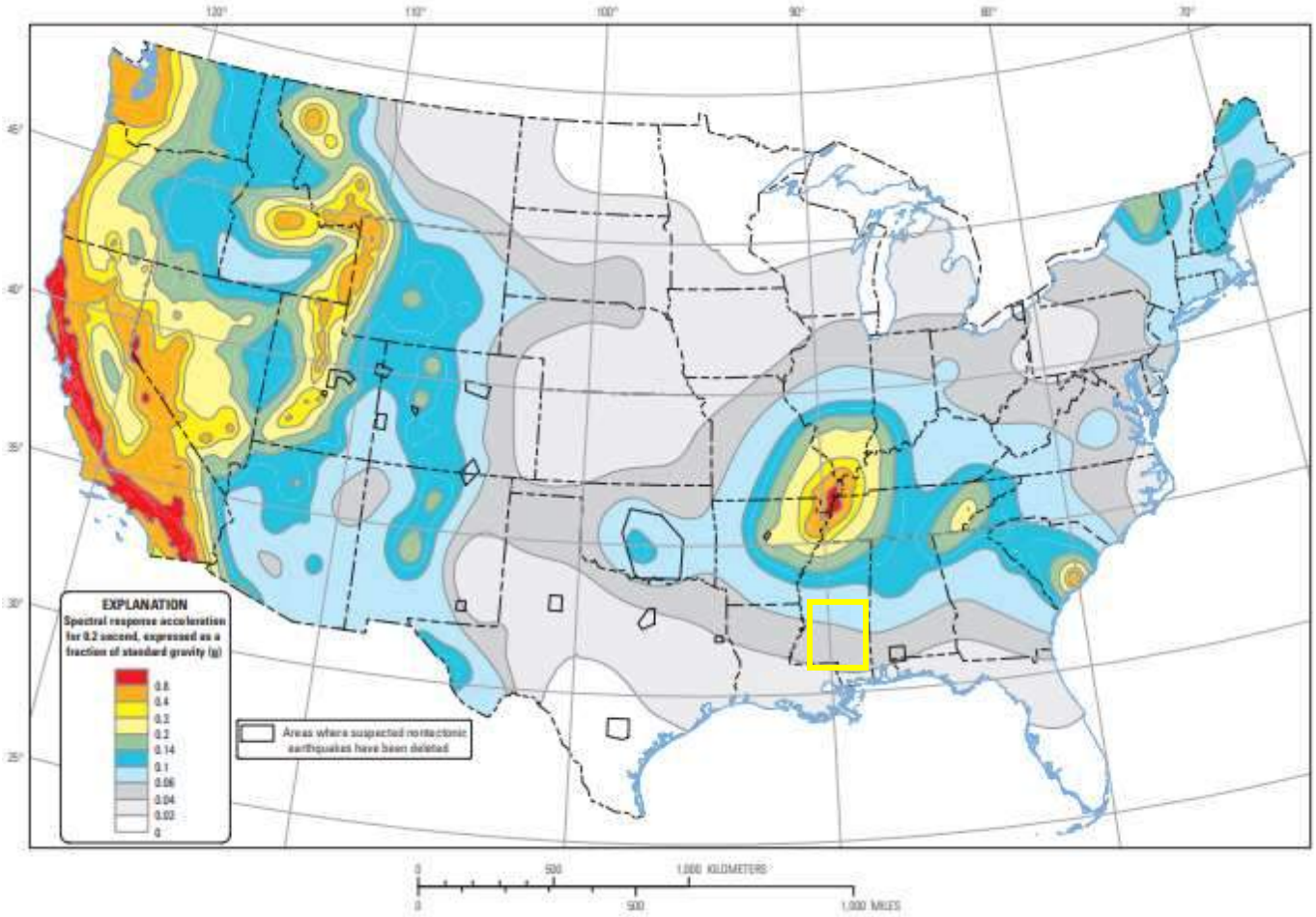
GEOLOGIC HAZARDS

E.2.7 Earthquake

LOCATION AND SPATIAL EXTENT

Figure E.3 shows the intensity level associated with Marion County, based on the national USGS map of peak acceleration with 10 percent probability of exceedance in 50 years. It is the probability that ground motion will reach a certain level during an earthquake. The data show peak horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake) with a 10 percent probability of exceedance in 50 years. The map was compiled by the U.S. Geological Survey (USGS) Geologic Hazards Team, which conducts global investigations of earthquake, geomagnetic, and landslide hazards. According to this map, Marion County lies within an approximate zone of level "2" to "3" ground acceleration. This indicates that the county exists within an area of moderate seismic risk.

447 **FIGURE E.4: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS**



448

449 *Source: USGS, 2018*

450

451 ***HISTORICAL OCCURRENCES***

452

453 No earthquakes are known to have affected Marion County since 1638. **Table E.14** provides a summary
454 of earthquake events reported by the National Geophysical Data Center between 1638 and 1985.[7]

455

456 **TABLE E.14: SUMMARY OF SEISMIC ACTIVITY IN MARION COUNTY**

Location	Number of Occurrences	Greatest MMI Reported	Richter Scale Equivalent
Columbia	0	--	--
Unincorporated Area	0	--	--
MARION COUNTY TOTAL	**0**	**--**	**--**

Source: National Geophysical Data Center

457

[7] Due to reporting mechanisms, not all earthquakes events were recorded during this time.

PROBABILITY OF FUTURE OCCURRENCES

The probability of significant, damaging earthquake events affecting Marion County is unlikely. However, it is possible that future earthquakes resulting in light to moderate perceived shaking and damages ranging from none to very light will affect the county. The annual probability level for the region is estimated to be less than 1 percent (unlikely).

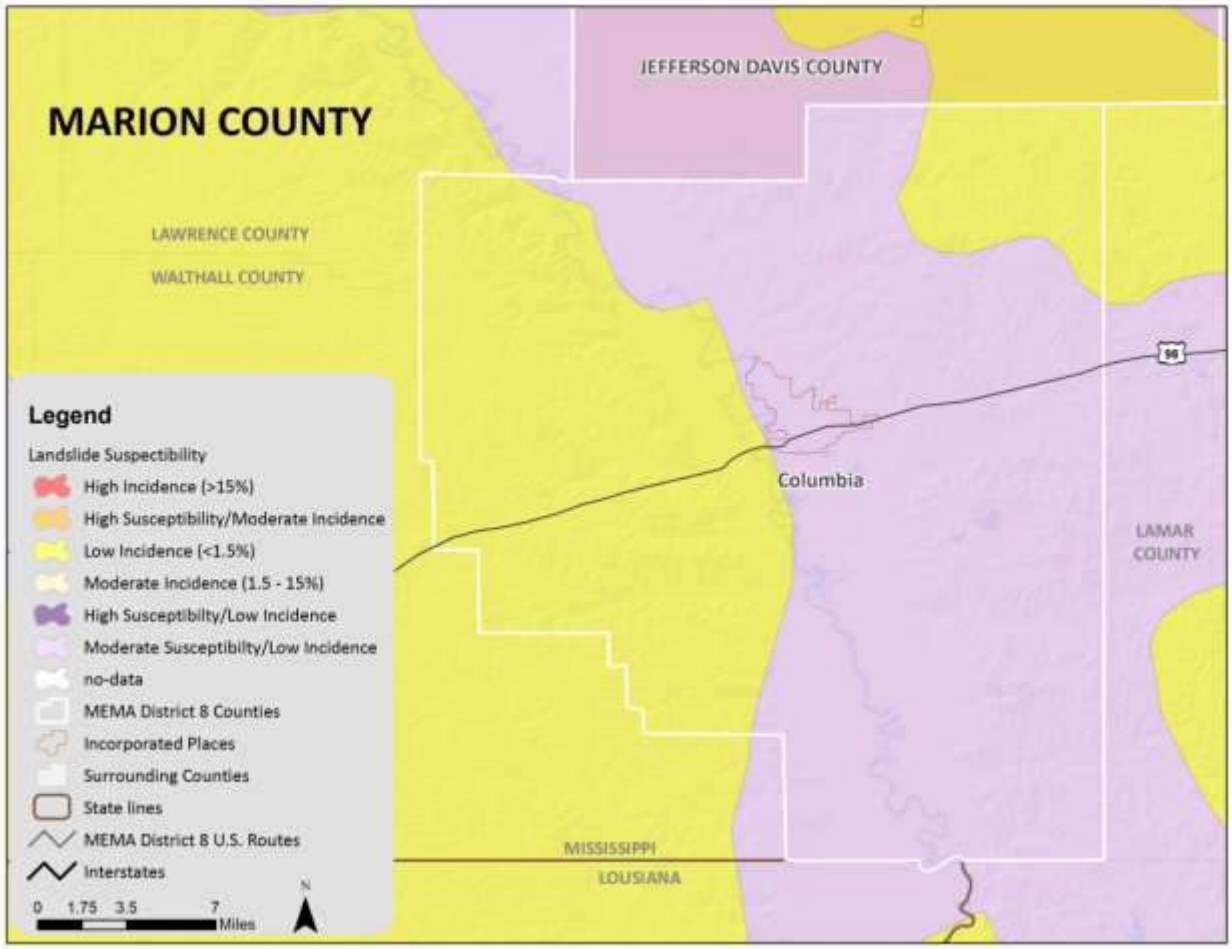
E.2.8 Landslide

LOCATION AND SPATIAL EXTENT

Landslides occur along steep slopes when the pull of gravity can no longer be resisted (often due to heavy rain). Human development can also exacerbate risk by building on previously undevelopable steep slopes. The most frequent and widespread damaging landslides in the U.S. are induced by prolonged or heavy rainfall. The majority of rainfall-induced landslides are shallow, small, and move quickly.[i] Landslides are possible throughout Marion County.

According to **Figure E.4** below, the entire county falls under a low incidence area (yellow and light purple). This indicates that less than 1.5 percent of the area is involved in landsliding. The areas in yellow are defined as low incidence and low susceptibility. The areas in light purple, however, indicate that a moderate susceptibility to landsliding activity is present. There are no changes with susceptibility to the landslide hazard since the last plan update.

FIGURE E.5: LANDSLIDE SUSCEPTIBILITY AND INCIDENCE MAP OF MARION COUNTY



Source: USGS

HISTORICAL OCCURRENCES

There is no extensive history of landslides in Marion County. Landslide events typically occur in isolated areas.

PROBABILITY OF FUTURE OCCURRENCES

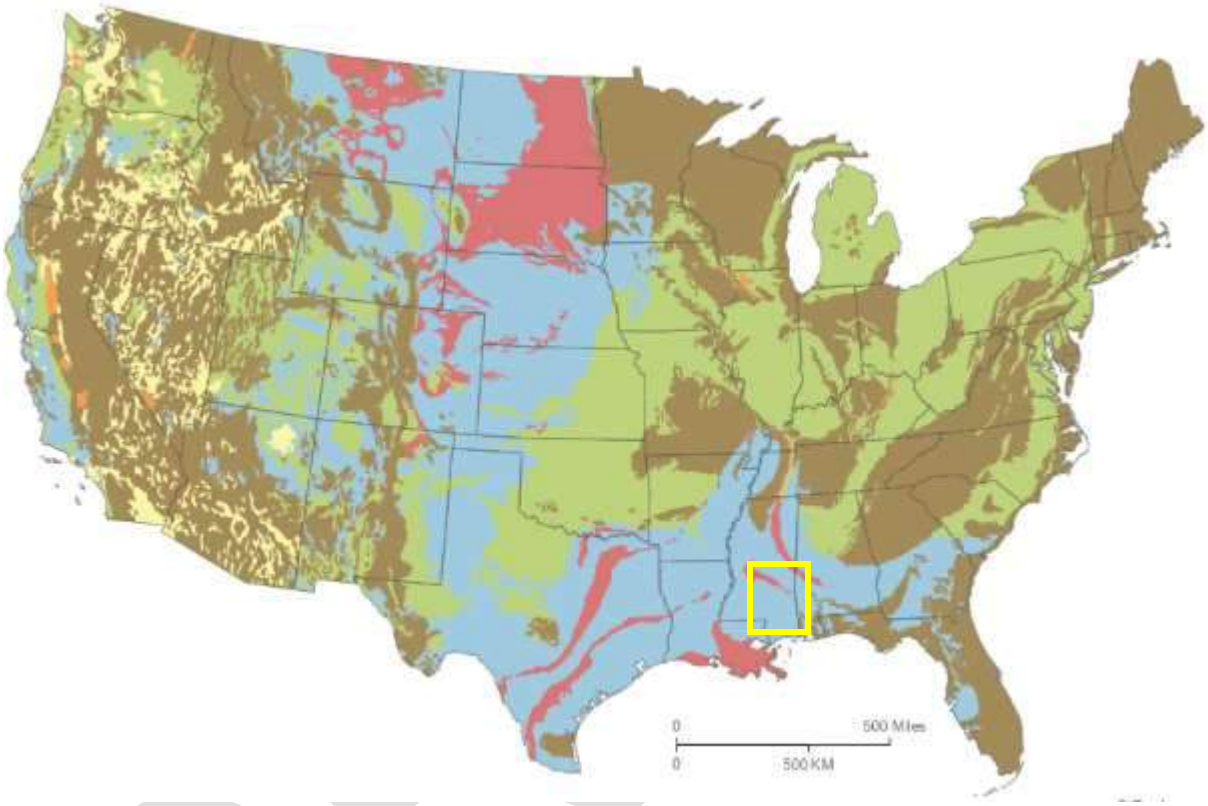
Based on historical information and the USGS susceptibility index, the probability of future landslide events is unlikely (less than 1 percent probability). The USGS data indicates that the all areas in Marion County have a low landslide incidence rate. However, some areas are reported as having moderate susceptibility to landsliding activity. Local conditions may become more favorable for landslides due to heavy rain, for example. This would increase the likelihood of occurrence. It should also be noted that some areas in Marion County have greater risk than others given factors such as steepness on slope and modification of slopes.

E.2.9 Expansive Soils

LOCATION AND SPATIAL EXTENT

Due to the amount of clay minerals present in Marion County, expansive soils present a threat to the county. Areas underlain by soils with swelling potential are shown in **Figure E.5**. The areas in blue are underlain with generally less than 50 percent clay having high swelling potential.

FIGURE E.6: SWELLING CLAYS IN MISSISSIPPI



Source: USGS

HISTORICAL OCCURRENCES

There is no historical record of significant expansive soil events in Marion County. However, expansive soils can cause considerable damage to structural foundations in the county, although they do not pose a significant threat to human life.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical information, the probability of future expansive soil events is possible (between 1 and 100 percent annually).

WIND-RELATED HAZARDS

E.2.10 Hurricane and Tropical Storm

LOCATION AND SPATIAL EXTENT

Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact Marion County. All areas in Marion County are equally susceptible to hurricane and tropical storms.

Fortunately, no hurricanes or tropical storms have impacted the area since 2008.

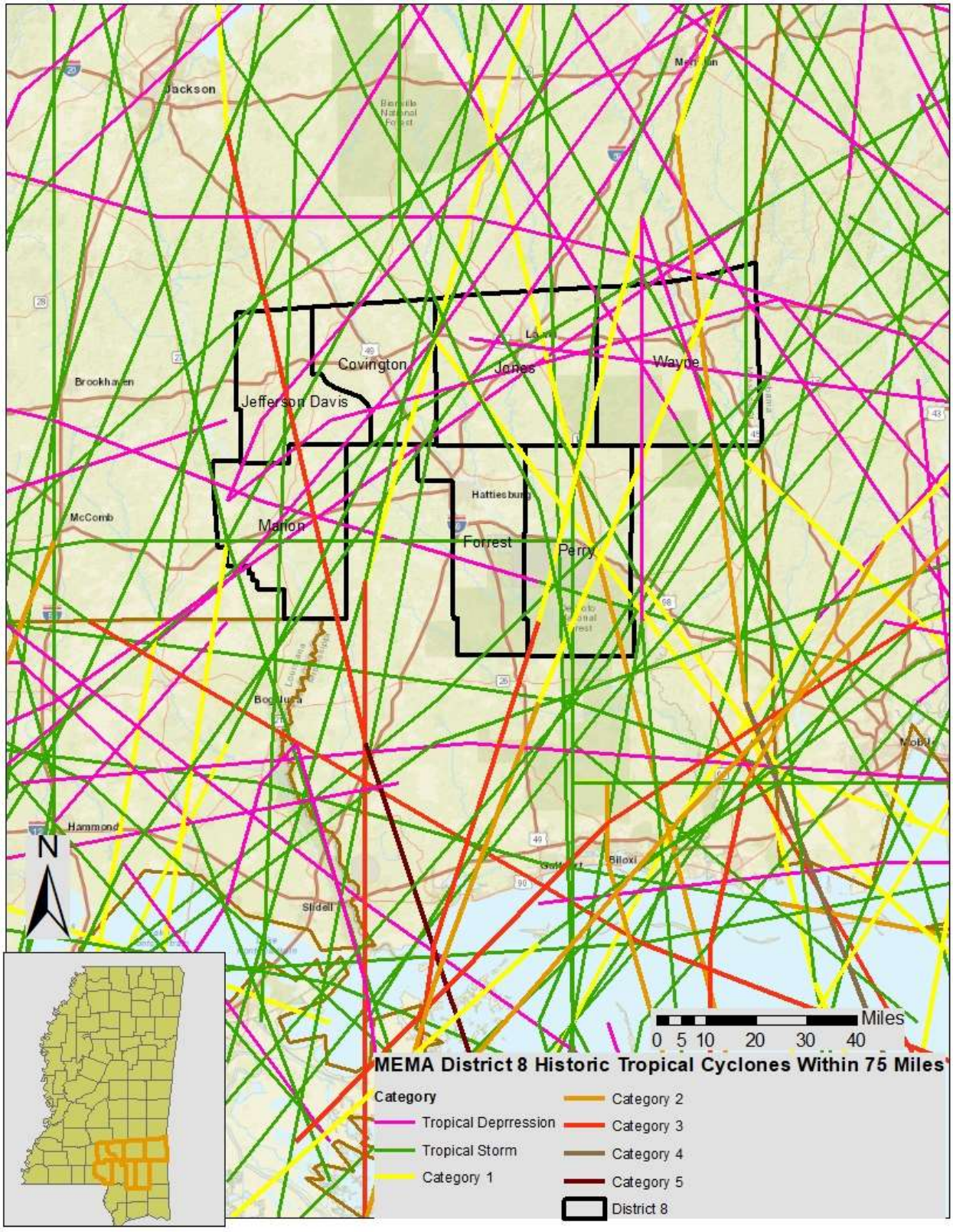
HISTORICAL OCCURRENCES

According to the National Hurricane Center's historical storm track records, a total of 65 hurricanes have passed within 75 miles of the county since 1851. This includes 1 category 5 storm, 0 category 4 storms, 6 category 3 storms, 7 category 2 storms, 8 category 1 storms, and 43 tropical storms as shown in **Figure E.6**.[8]

Of the recorded storm events, a total of eight tracks passed directly through the county including Hurricanes Camille (1969), Isidore (2002), and Bill (2003). All storms where tropical storms when they traversed the county except for two: 1915 Category 1 Unnamed Storm and 1969 Category 3 Hurricane Camille. **Table E.15** provides the detail for each storm that passed through the county including date of occurrence, name (if applicable), maximum wind speed (as recorded when traversing the county) and category of the storm based on the Saffir-Simpson Scale.

FIGURE E.7: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF MARION COUNTY

[8] These storm track statistics do not include extra-tropical storms. Though these related hazard events are less severe in intensity, they may cause significant local impact in terms of rainfall and high winds.



Source: National Oceanic and Atmospheric Administration; National Hurricane Center

TABLE E.15: HISTORICAL STORM TRACKS WITHIN 75 MILES OF MARION COUNTY (1850–2019)

Date of Occurrence	Storm Name	Maximum Wind Speed (miles per hour)	Storm Category
10/7/1879	UNNAMED	57	Tropical Storm
6/15/1886	UNNAMED	40	Tropical Storm
9/8/1893	UNNAMED	63	Tropical Storm
6/13/1912	UNNAMED	57	Tropical Storm
9/30/1915	UNNAMED	81	Category 1
8/18/1969	CAMILLE	69	Category 3
9/26/2002	ISIDORE	63	Tropical Storm
7/1/2003	BILL	52	Tropical Storm

Source: National Hurricane Center

Federal records indicate that disaster declarations were made in 1969 (Hurricane Camille), 1998 (Hurricane Georges), 2004 (Hurricane Ivan), 2005 (Hurricane Katrina), 2008 (Hurricane Gustav), and 2012 (Hurricane Isaac).[9] Hurricane and tropical storm events can cause substantial damage in the area due to high winds and flooding.

Flooding and high winds from hurricanes and tropical storms can cause damage throughout the county. Anecdotes are available from NCEI for the major storms that have impacted the county as found below:

Tropical Storm Isidore – September 26, 2002
Tropical Storm Isidore moved onshore along the Louisiana coast early in the morning of September 26. The weakening storm then moved northeast across eastern Mississippi during the day. The heavy rainfall associated with the storm resulted in significant river and flash flooding across much of Mississippi. Twenty-four hour rainfall totals between 5 and 10 inches were common over much of Mississippi, especially in the southern part of the state, where twenty-four hour amounts exceeded 9 inches near Hattiesburg. Gradient wind gusts between 35 and 45 miles per hour combined with the saturated ground to lead to numerous downed trees and powerlines over the state. Most of the damage was seen along and east of the Natchez Trace, near the path of the storm's diffuse center. One indirect fatality was reported just east of the Kalem community in Scott County. Here, a falling tree struck a truck driven by a 31 year-old male. Damage from Isidore was an estimated $500,000.

Tropical Storm Bill – June 30, 2003
Tropical Storm Bill tracked along Interstate 59. Heavy rainfall caused flash flooding. Forty-eight hour rainfall totals ranged between 3-7 inches, mainly across SE Mississippi. Gradient wind gusts between 30 and 40 mph combined with saturated soils downed numerous trees very close to center's track. Damage from Bill was an estimated $100,000.

Hurricane Ivan – September 16, 2004
Thousands of trees were blown down across Eastern Mississippi during the event as well as hundreds of power lines. The strong wind itself did not cause much structural damage, however the fallen trees diE. These downed trees accounted for several hundred homes, mobile homes and businesses to be damaged or destroyeE. Most locations across Eastern Mississippi reported sustained winds between 30

[9] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

and 40 mph with Tropical Storm force gusts between 48 and 54 mph. The strongest reported winds occurred in Newton, Lauderdale and Oktibbeha Counties.

Overall, rainfall totals were held in check as Ivan steadily moved north. The heaviest rains were confined to far Eastern Mississippi where 3 to 4 inches fell over a 15 hour perioE. Due to the duration of the rain no flooding was reporteE. Across Eastern Mississippi, Hurricane Ivan was responsible for one fatality. This fatality occurred in Brooksville (Noxubee County) when a tree fell on a man. Damage from Ivan was estimated at $200 million.

Hurricane Katrina – August 25, 2005
Hurricane Katrina will likely go down as the worst and costliest natural disaster in United States history. The amount of destruction, the cost of damaged property/agriculture and the large loss of life across the affected region has been overwhelming. Catastrophic damage was widespread across a large portion of the Gulf Coast region. The devastation was not only confined to the coastal region, widespread and significant damage occurred well inland up to the Hattiesburg area and northward past Interstate 20.

Devastation from Hurricane Katrina was widespread across the region. Hurricane force winds were common across the area. The region received sustained winds of 60-80 mph with gusts ranging from 80-120 mph. There was widespread damage to trees and power lines. Wind damage to structures was also widespread, with roofs blown off or partially peeleE. Hundreds of signs were shredded or blown down. Businesses sustained structural damage. Power outages lasted from a few days to as long as four weeks. Agriculture and timber industries were severely impacteE. Row crops, including cotton, rice, corn, and soybeans, took a hard hit. Other impacted industries were the catfish industry, dairy and cattle industry, and nursery businesses.

Hurricane Rita – September 5, 2005
Hurricane Rita brought heavy rainfall, tropical storm force winds, and tornados to the region. Rainfall amounts ranged from 4-7 inches, which resulted in flooding. Winds between 25-35 mph, with gusts up to 40-50 mph, downed trees and power lines.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical evidence, the probability level of future occurrence is likely (annual probability between 10 and 100 percent). Given the regional nature of the hazard, all areas in the county are equally exposed to this hazard. However, when the county is impacted, the damage could be catastrophic, threatening lives and property throughout the planning area.

E.2.11 Thunderstorm

LOCATION AND SPATIAL EXTENT

Thunderstorm / High Wind
A thunderstorm event is an atmospheric hazard, and thus has no geographic boundaries. It is typically a widespread event that can occur in all regions of the United States. However, thunderstorms are most common in the central and southern states because atmospheric conditions in those regions are favorable for generating these powerful storms. Also, Marion County typically experiences several straight-line wind events each year. These wind events can and have caused significant damage. It is

assumed that Marion County has uniform exposure to an event and the spatial extent of an impact could be large.

Hailstorm

Hailstorms frequently accompany thunderstorms, so their locations and spatial extents coincide. It is assumed that Marion County is uniformly exposed to severe thunderstorms; therefore, all areas of the county are equally exposed to hail which may be produced by such storms.

Lightning

Lightning occurs randomly, therefore it is impossible to predict where and with what frequency it will strike. It is assumed that all of Marion County is uniformly exposed to lightning.

HISTORICAL OCCURRENCES

Thunderstorm / High Wind

Severe storms resulted in seven disaster declarations in Marion County in 1979, 1980, 1983, 1990, 2001, 2003, and 2013.[10] According to NCEI, there have been 176 reported thunderstorm and high wind events since 1970 in Marion County.[11] These events caused over $2.5 million in damages and one reported injury. **Table E.16** summarizes this information. **Table E.17** presents detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event.[12]

TABLE E.16: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN MARION COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Columbia	68	0/0	$1,360,465
Unincorporated Area	108	0/1	$1,677,594
MARION COUNTY TOTAL	**176**	**0/1**	**$3,005,059**

Source: National Centers for Environmental Information

TABLE E.17: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN MARION COUNTY

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Columbia					
Columbia	15-APR-93	HIGH WIND	0 kts.	0/0	$87,452
Columbia	09-JUN-94	THUNDERSTORM WINDS	0 kts.	0/0	$85,228
Columbia	09-JUN-94	THUNDERSTORM WINDS	0 kts.	0/0	$852
Columbia	18-JAN-96	TSTM WIND/HAIL	40 kts.	0/0	$16,091
Columbia	18-MAR-96	TSTM WIND	0 kts.	0/0	$32,182
Columbia	15-JAN-97	TSTM WIND	0 kts.	0/0	$1,573
Columbia	21-FEB-97	TSTM WIND	0 kts.	0/0	$15,730

[10] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

[11] These thunderstorm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional thunderstorm events have occurred in Marion County. As additional local data becomes available, this hazard profile will be amendeE.

[12] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Columbia	21-FEB-97	TSTM WIND	0 kts.	0/0	$7,865
Columbia	05-APR-97	TSTM WIND/HAIL	0 kts.	0/0	$4,719
Columbia	17-APR-98	TSTM WIND	0 kts.	0/0	$77,445
Columbia	17-APR-98	TSTM WIND	0 kts.	0/0	$7,744
Columbia	05-JUN-98	TSTM WIND	61 kts.	0/0	$0
Columbia	22-JAN-99	TSTM WIND	62 kts.	0/0	$7,563
Columbia	09-MAR-99	TSTM WIND	0 kts.	0/0	$3,025
Columbia	13-MAR-99	TSTM WIND	0 kts.	0/0	$7,563
Columbia	26-JUL-99	TSTM WIND	0 kts.	0/0	$3,025
Columbia	16-JUL-00	TSTM WIND	0 kts.	0/0	$4,406
Columbia	17-JUL-00	TSTM WIND	0 kts.	0/0	$2,937
Columbia	19-JUL-00	TSTM WIND	0 kts.	0/0	$2,937
Columbia	02-MAR-01	TSTM WIND	0 kts.	0/0	$1,426
Columbia	04-JUN-01	TSTM WIND	0 kts.	0/0	$11,406
Columbia	19-JUN-01	TSTM WIND	0 kts.	0/0	$1,426
Columbia	15-MAR-02	TSTM WIND	0 kts.	0/0	$34,606
Columbia	26-MAR-02	TSTM WIND	0 kts.	0/0	$1,384
Columbia	08-APR-02	TSTM WIND	0 kts.	0/0	$1,384
Columbia	19-JUN-02	TSTM WIND	0 kts.	0/0	$1,384
Columbia	07-JUL-02	TSTM WIND	60 kts.	0/0	$8,305
Columbia	12-JUL-02	TSTM WIND	0 kts.	0/0	$1,384
Columbia	24-DEC-02	TSTM WIND	60 kts.	0/0	$6,921
Columbia	31-DEC-02	TSTM WIND	60 kts.	0/0	$2,768
Columbia	14-MAY-03	TSTM WIND	50 kts.	0/0	$13,439
Columbia	03-JUN-03	TSTM WIND	50 kts.	0/0	$13,439
Columbia	27-NOV-03	TSTM WIND	55 kts.	0/0	$2,688
Columbia	27-JUN-04	TSTM WIND	50 kts.	0/0	$0
Columbia	12-AUG-05	TSTM WIND	60 kts.	0/0	$316,693
Columbia	20-MAR-06	TSTM WIND	50 kts.	0/0	$12,668
Columbia	23-JUN-06	TSTM WIND	50 kts.	0/0	$0
Columbia	19-JUL-06	TSTM WIND	58 kts.	0/0	$31,669
COLUMBIA	17-OCT-06	THUNDERSTORM WIND	54 kts.	0/0	$2,460
COLUMBIA	15-NOV-06	THUNDERSTORM WIND	53 kts.	0/0	$0
COLUMBIA	18-JUN-07	THUNDERSTORM WIND	53 kts.	0/0	$29,851
COLUMBIA	03-MAR-08	THUNDERSTORM WIND	55 kts.	0/0	$0
COLUMBIA	05-MAY-09	THUNDERSTORM WIND	50 kts.	0/0	$0
COLUMBIA	04-JUL-09	THUNDERSTORM WIND	50 kts.	0/0	$5,628
COLUMBIA	30-JUL-09	THUNDERSTORM WIND	50 kts.	0/0	$3,377
COLUMBIA	24-APR-10	THUNDERSTORM WIND	50 kts.	0/0	$54,636
COLUMBIA	15-AUG-10	THUNDERSTORM WIND	55 kts.	0/0	$13,113
COLUMBIA	30-NOV-10	THUNDERSTORM WIND	53 kts.	0/0	$16,391
COLUMBIA	28-SEP-11	THUNDERSTORM WIND	49 kts.	0/0	$530
COLUMBIA	28-SEP-11	THUNDERSTORM WIND	50 kts.	0/0	$5,305
COLUMBIA	03-APR-12	THUNDERSTORM WIND	50 kts.	0/0	$5,305
COLUMBIA	31-MAY-12	THUNDERSTORM WIND	40 kts.	0/0	$15,450
COLUMBIA	28-AUG-12	THUNDERSTORM WIND	50 kts.	0/0	$2,060
COLUMBIA	20-DEC-12	THUNDERSTORM WIND	50 kts.	0/0	$1,030

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
COLUMBIA	08-APR-14	THUNDERSTORM WIND	65 kts.	0/0	$50,000
COLUMBIA	13-OCT-14	THUNDERSTORM WIND	52 kts.	0/0	$0
COLUMBIA	27-JUN-15	THUNDERSTORM WIND	39 kts.	0/0	$3,000
COLUMBIA	01-JUL-15	THUNDERSTORM WIND	50 kts.	0/0	$3,000
COLUMBIA	17-MAR-16	THUNDERSTORM WIND	50 kts.	0/0	$6,000
COLUMBIA	17-MAR-16	THUNDERSTORM WIND	50 kts.	0/0	$1,000
COLUMBIA	05-AUG-16	THUNDERSTORM WIND	52 kts.	0/0	$8,000
COLUMBIA	05-AUG-16	THUNDERSTORM WIND	57 kts.	0/0	$250,000
COLUMBIA	03-APR-17	THUNDERSTORM WIND	50 kts.	0/0	$2,000
COLUMBIA	16-JUN-17	THUNDERSTORM WIND	55 kts.	0/0	$30,000
COLUMBIA	07-JUL-18	THUNDERSTORM WIND	50 kts.	0/0	$4,000
COLUMBIA	07-JUL-18	THUNDERSTORM WIND	43 kts.	0/0	$5,000
COLUMBIA	07-AUG-18	THUNDERSTORM WIND	43 kts.	0/0	$2,000
COLUMBIA	01-NOV-18	THUNDERSTORM WIND	50 kts.	0/0	$10,000
Unincorporated Area					
MARION COUNTY	01-FEB-70	TSTM WIND	62 kts.	0/0	$0
MARION COUNTY	04-JUL-70	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	02-MAR-72	TSTM WIND	60 kts.	0/0	$0
MARION COUNTY	26-APR-73	TSTM WIND	51 kts.	0/0	$0
MARION COUNTY	10-JAN-75	TSTM WIND	56 kts.	0/0	$0
MARION COUNTY	30-JUN-76	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	08-JUL-77	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	13-AUG-78	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	04-MAY-79	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	30-MAR-81	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	05-JUL-81	TSTM WIND	55 kts.	0/0	$0
MARION COUNTY	07-MAY-82	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	07-DEC-82	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	14-APR-84	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	21-MAY-85	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	25-JUL-87	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	18-JUN-88	TSTM WIND	0 kts.	0/1	$0

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
MARION COUNTY	04-MAY-89	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	20-MAY-89	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	03-FEB-90	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	16-FEB-90	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	12-MAY-90	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	22-AUG-90	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	14-APR-91	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	14-APR-91	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	14-APR-91	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	19-APR-91	TSTM WIND	52 kts.	0/0	$0
MARION COUNTY	20-APR-92	TSTM WIND	0 kts.	0/0	$0
MARION COUNTY	29-JUN-92	TSTM WIND	0 kts.	0/0	$0
Goss	27-JAN-94	THUNDERSTORM WINDS	0 kts.	0/0	$852,283
Sandy Hook	09-MAR-94	THUNDERSTORM WINDS	0 kts.	0/0	$852
Foxworth	15-APR-94	THUNDERSTORM WINDS	0 kts.	0/0	$852
Spring Cottage	05-NOV-94	THUNDERSTORM WIND	0 kts.	0/0	$1,705
COLUMBIA MARION ARPT	26-JAN-96	TSTM WIND	50 kts.	0/0	$1,609
Morgantown	05-MAR-96	TSTM WIND	0 kts.	0/0	$40,228
Goss	07-JUN-96	TSTM WIND	0 kts.	0/0	$3,218
Goss	30-MAR-97	TSTM WIND	0 kts.	0/0	$1,573
KOKOMO	11-APR-97	TSTM WIND	0 kts.	0/0	$1,573
Sandy Hook	17-APR-98	TSTM WIND	0 kts.	0/0	$30,978
Countywide	05-JUN-98	TSTM WIND	0 kts.	0/0	$46,467
Countywide	14-APR-99	TSTM WIND	0 kts.	0/0	$7,744
Sandy Hook	07-JUL-99	TSTM WIND	0 kts.	0/0	$3,025
Foxworth	09-JAN-00	TSTM WIND	0 kts.	0/0	$7,343
Sandy Hook	25-JUN-00	TSTM WIND	0 kts.	0/0	$2,937
Sandy Hook	30-AUG-00	TSTM WIND	0 kts.	0/0	$1,469
Goss	13-DEC-00	TSTM WIND	56 kts.	0/0	$2,937
Countywide	29-JAN-01	TSTM WIND	0 kts.	0/0	$11,406
KOKOMO	12-MAR-01	TSTM WIND	0 kts.	0/0	$7,129
KOKOMO	13-OCT-01	TSTM WIND	0 kts.	0/0	$1,426
Countywide	17-MAY-02	TSTM WIND	0 kts.	0/0	$1,384
Foxworth	17-MAY-02	TSTM WIND	0 kts.	0/0	$1,384
Morgantown	07-JUL-02	TSTM WIND	55 kts.	0/0	$1,384
Morgantown	12-JUL-02	TSTM WIND	0 kts.	0/0	$1,384

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Morgantown	29-OCT-02	TSTM WIND	0 kts.	0/0	$13,842
White Bluff	24-APR-03	TSTM WIND	50 kts.	0/0	$13,439
Countywide	14-MAY-03	TSTM WIND	55 kts.	0/0	$26,878
Sandy Hook	12-JUN-03	TSTM WIND	50 kts.	0/0	$20,159
Countywide	22-JUL-03	TSTM WIND	50 kts.	0/0	$6,720
Goss	24-NOV-04	TSTM WIND	50 kts.	0/0	$0
Sandy Hook	27-NOV-04	TSTM WIND	60 kts.	0/0	$6,524
Foxworth	06-APR-05	TSTM WIND	70 kts.	0/0	$101,342
Hub	30-APR-05	TSTM WIND	55 kts.	0/0	$12,668
KOKOMO	21-AUG-05	TSTM WIND	55 kts.	0/0	$38,003
Sandy Hook	04-DEC-05	TSTM WIND	55 kts.	0/0	$25,335
KOKOMO	04-JAN-07	THUNDERSTORM WIND	55 kts.	0/0	$5,970
NEB	14-APR-07	THUNDERSTORM WIND	54 kts.	0/0	$11,941
MILDRED	14-APR-07	THUNDERSTORM WIND	50 kts.	0/0	$5,970
MORGANTOWN	03-MAY-07	THUNDERSTORM WIND	53 kts.	0/0	$0
COLUMBIA MARION ARPT	09-JUN-07	THUNDERSTORM WIND	50 kts.	0/0	$4,776
COLUMBIA MARION ARPT	19-JUN-07	THUNDERSTORM WIND	50 kts.	0/0	$0
SANDY HOOK	19-JUN-07	THUNDERSTORM WIND	50 kts.	0/0	$0
NEB	12-JUL-07	THUNDERSTORM WIND	50 kts.	0/0	$23,881
COLUMBIA MARION ARPT	01-AUG-07	THUNDERSTORM WIND	50 kts.	0/0	$0
TWIN	12-FEB-08	THUNDERSTORM WIND	70 kts.	0/0	$57,964
SUMBAX	17-FEB-08	THUNDERSTORM WIND	50 kts.	0/0	$9,274
COLUMBIA MARION ARPT	17-FEB-08	THUNDERSTORM WIND	50 kts.	0/0	$9,274
SANDY HOOK	17-FEB-08	THUNDERSTORM WIND	53 kts.	0/0	$0
KOKOMO	03-MAR-08	THUNDERSTORM WIND	55 kts.	0/0	$0
CHERAW	15-MAY-08	THUNDERSTORM WIND	50 kts.	0/0	$0
KOKOMO	26-MAY-08	THUNDERSTORM WIND	50 kts.	0/0	$0
MORGANTOWN	25-JUN-08	THUNDERSTORM WIND	53 kts.	0/0	$0
TWIN	25-JUN-08	THUNDERSTORM WIND	60 kts.	0/0	$12,752
COLUMBIA MARION ARPT	27-JUN-08	THUNDERSTORM WIND	55 kts.	0/0	$11,593
PINEBUR	02-AUG-08	THUNDERSTORM WIND	54 kts.	0/0	$17,389
COLUMBIA MARION ARPT	12-AUG-08	THUNDERSTORM WIND	50 kts.	0/0	$0
SUMBAX	02-APR-09	THUNDERSTORM WIND	50 kts.	0/0	$4,502
KOKOMO	15-OCT-09	THUNDERSTORM WIND	50 kts.	0/0	$1,126
CHERAW	15-AUG-10	THUNDERSTORM WIND	50 kts.	0/0	$0
LOVELACE	04-APR-11	THUNDERSTORM WIND	60 kts.	0/0	$42,436
SANDY HOOK	04-APR-11	THUNDERSTORM WIND	56 kts.	0/0	$3,183
COLUMBIA MARION ARPT	15-APR-11	THUNDERSTORM WIND	50 kts.	0/0	$4,244
CHERAW	10-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$31,827
NEB	21-JUN-11	THUNDERSTORM WIND	50 kts.	0/0	$21,218

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
COLUMBIA MARION ARPT	12-JUL-11	THUNDERSTORM WIND	50 kts.	0/0	$3,183
COLUMBIA MARION ARPT	18-AUG-11	THUNDERSTORM WIND	50 kts.	0/0	$5,305
KOKOMO	18-AUG-11	THUNDERSTORM WIND	50 kts.	0/0	$3,183
LOVELACE	11-JUN-12	THUNDERSTORM WIND	53 kts.	0/0	$10,300
COLUMBIA MARION ARPT	20-JUL-12	THUNDERSTORM WIND	43 kts.	0/0	$103
KOKOMO	28-DEC-15	THUNDERSTORM WIND	50 kts.	0/0	$3,000
SUBMAX	28-DEC-15	THUNDERSTORM WIND	50 kts	0/0	$3,000
JAMESTOWN	02-JAN-17	THUNDERSTORM WIND	50 kts	0/0	$12,000
HUB	02-JAN-17	THUNDERSTORM WIND	55 kts	0/0	$15,000
TWIN	21-JAN-17	THUNDERSTORM WIND	50 kts	0/0	$5,000
KOKOMO	30-APR-17	THUNDERSTORM WIND	55 kts	0/0	$7,000
GOSS	16-JUN-17	THUNDERSTORM WIND	55 kts	0/0	$20,000
SANDY HOOK	14-APR-18	THUNDERSTORM WIND	52 kts	0/0	$10,000
TWIN	14-APR-18	THUNDERSTORM WIND	52 kts	0/0	$1,000
PINEBUR	14-APR-18	THUNDERSTORM WIND	50 kts	0/0	$3,000

* All damage may not have been reported.
Source: National Centers for Environmental Information

Hailstorm

According to the National Centers for Environmental Information, 124 recorded hailstorm events have affected Marion County since 1968.[13] **Table E.18** is a summary of the hail events in Marion County. **Table E.19** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over $1.4 million in property damages. Hail ranged in diameter from 0.75 inches to 4.0 inches. It should be noted that hail is notorious for causing substantial damage to cars, roofs, and other areas of the built environment that may not be reported to the National Centers for Environmental Information. Therefore, it is likely that damages are greater than the reported value.

TABLE E.18: SUMMARY OF HAIL OCCURRENCES IN MARION COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Columbia	39	0/0	$506,316
Unincorporated Area	85	0/0	$961,227
MARION COUNTY TOTAL	**124**	**0/0**	**$1,467,543**

Source: National Centers for Environmental Information

TABLE E.19: HISTORICAL HAIL OCCURRENCES IN MARION COUNTY

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Columbia				
Columbia	11-JAN-93	1.75 in.	0/0	$0
Columbia	30-MAR-93	0.88 in.	0/0	$0

[13] These hail events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional hail events have affected Marion County. As additional local data becomes available, this hazard profile will be amended.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Columbia	15-APR-94	0.75 in.	0/0	$0
Columbia	09-JUL-95	1.75 in.	0/0	$0
COLUMBIA	18-MAR-96	1.75 in.	0/0	$402,278
COLUMBIA	18-MAR-96	1.75 in.	0/0	$1,609
COLUMBIA	29-MAR-97	1.00 in.	0/0	$0
COLUMBIA	29-MAR-97	1.75 in.	0/0	$0
COLUMBIA	30-MAR-97	1.75 in.	0/0	$0
COLUMBIA	22-APR-97	0.75 in.	0/0	$0
COLUMBIA	07-JUL-97	0.88 in.	0/0	$0
COLUMBIA	10-FEB-98	0.75 in.	0/0	$0
COLUMBIA	26-FEB-98	0.88 in.	0/0	$0
COLUMBIA	17-APR-98	1.75 in.	0/0	$0
COLUMBIA	17-APR-98	1.75 in.	0/0	$0
COLUMBIA	04-MAY-99	0.88 in.	0/0	$0
COLUMBIA	05-MAY-00	0.75 in.	0/0	$0
COLUMBIA	10-AUG-00	0.75 in.	0/0	$22,028
COLUMBIA	01-MAR-01	1.75 in.	0/0	$17,109
COLUMBIA	01-MAR-01	0.88 in.	0/0	$0
COLUMBIA	12-MAR-02	0.75 in.	0/0	$0
COLUMBIA	07-JUL-02	1.75 in.	0/0	$0
COLUMBIA	07-JUL-02	1.75 in.	0/0	$1,384
COLUMBIA	21-JUL-02	1.75 in.	0/0	$0
COLUMBIA	07-APR-03	0.75 in.	0/0	$1,344
COLUMBIA	07-APR-03	1.75 in.	0/0	$26,878
COLUMBIA	03-MAY-03	0.75 in.	0/0	$1,344
COLUMBIA	03-MAY-03	1.75 in.	0/0	$26,878
COLUMBIA	03-MAY-03	1.00 in.	0/0	$1,344
COLUMBIA	31-MAR-05	0.88 in.	0/0	$0
COLUMBIA	12-AUG-05	0.75 in.	0/0	$0
COLUMBIA	28-DEC-07	1.00 in.	0/0	$0
COLUMBIA	12-APR-09	0.75 in.	0/0	$0
COLUMBIA	21-AUG-09	0.75 in.	0/0	$0
COLUMBIA	21-FEB-10	1.00 in.	0/0	$0
COLUMBIA	28-SEP-11	1.00 in.	0/0	$0
COLUMBIA	04-SEP-12	1.00 in.	0/0	$4,120
COLUMBIA	21-JAN-16	1.25 in.	0/0	$0
COLUMBIA	26-MAY-18	1.00 in.	0/0	$0
Unincorporated Area				
MARION COUNTY	27-MAY-68	1.75 in.	0/0	$0
MARION COUNTY	24-MAR-75	1.75 in.	0/0	$0
MARION COUNTY	07-MAY-75	1.75 in.	0/0	$0
MARION COUNTY	07-MAY-75	1.75 in.	0/0	$0
MARION COUNTY	30-MAR-76	1.75 in.	0/0	$0
MARION COUNTY	12-MAY-76	0.75 in.	0/0	$0
MARION COUNTY	14-MAY-76	0.75 in.	0/0	$0
MARION COUNTY	30-JUN-76	1.75 in.	0/0	$0
MARION COUNTY	22-MAR-81	1.75 in.	0/0	$0

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
MARION COUNTY	23-JUN-81	1.75 in.	0/0	$0
MARION COUNTY	20-APR-82	2.75 in.	0/0	$0
MARION COUNTY	20-APR-82	4.00 in.	0/0	$0
MARION COUNTY	25-APR-82	1.50 in.	0/0	$0
MARION COUNTY	21-MAY-83	1.75 in.	0/0	$0
MARION COUNTY	21-MAY-83	1.75 in.	0/0	$0
MARION COUNTY	14-APR-84	1.75 in.	0/0	$0
MARION COUNTY	03-MAY-84	0.75 in.	0/0	$0
MARION COUNTY	30-APR-85	1.75 in.	0/0	$0
MARION COUNTY	08-MAY-85	1.75 in.	0/0	$0
MARION COUNTY	12-APR-86	1.75 in.	0/0	$0
MARION COUNTY	12-APR-86	1.75 in.	0/0	$0
MARION COUNTY	03-MAY-87	0.75 in.	0/0	$0
MARION COUNTY	10-MAY-88	1.00 in.	0/0	$0
MARION COUNTY	24-MAY-88	0.75 in.	0/0	$0
MARION COUNTY	05-MAR-89	1.75 in.	0/0	$0
MARION COUNTY	15-NOV-89	1.50 in.	0/0	$0
MARION COUNTY	15-APR-94	0.88 in.	0/0	$0
Improve	15-MAR-95	1.00 in.	0/0	$0
Foxworth	20-APR-95	0.75 in.	0/0	$0
SANDY HOOK	26-JAN-96	1.75 in.	0/0	$0
GOSS	27-JAN-97	0.88 in.	0/0	$0
SANDY HOOK	29-MAR-97	0.75 in.	0/0	$0
GOSS	30-MAR-97	1.75 in.	0/0	$0
SANDY HOOK	19-JUN-97	0.75 in.	0/0	$0
GOSS	06-MAY-98	0.75 in.	0/0	$0
FOXWORTH	23-APR-00	0.75 in.	0/0	$0
COUNTYWIDE	24-APR-00	0.75 in.	0/0	$0
FOXWORTH	12-MAR-01	1.00 in.	0/0	$11,406
SANDY HOOK	06-MAR-03	0.88 in.	0/0	$1,344
KOKOMO	07-APR-03	1.50 in.	0/0	$13,439
KOKOMO	07-APR-03	4.00 in.	0/0	$671,598
GOSS	24-APR-03	0.88 in.	0/0	$1,344
GOSS	25-APR-03	0.88 in.	0/0	$1,344
GOSS	25-APR-03	1.00 in.	0/0	$1,344
MORGANTOWN	14-MAY-03	1.75 in.	0/0	$13,439
KOKOMO	29-APR-04	0.88 in.	0/0	$0
FOXWORTH	22-MAR-05	1.00 in.	0/0	$0
KOKOMO	30-MAR-05	1.00 in.	0/0	$0
KOKOMO	31-MAR-05	1.75 in.	0/0	$19,002
KOKOMO	06-APR-05	1.75 in.	0/0	$0
WHITE BLUFF	06-APR-05	1.75 in.	0/0	$0
GOSS	22-APR-05	0.75 in.	0/0	$0
GOSS	09-AUG-06	0.88 in.	0/0	$0
SANDY HOOK	13-FEB-07	1.00 in.	0/0	$0
KOKOMO	03-APR-07	1.75 in.	0/0	$47,762
WHITE BLUFF	28-DEC-07	1.25 in.	0/0	$0

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
KOKOMO	10-JAN-08	2.75 in.	0/0	$115,927
SUMBAX	12-FEB-08	0.75 in.	0/0	$0
LOVELACE	03-MAR-08	0.75 in.	0/0	$0
COLUMBIA MARION ARPT	10-JUN-08	0.75 in.	0/0	$0
SANDY HOOK	20-JUN-08	0.75 in.	0/0	$0
PINEBUR	25-JUN-08	1.00 in.	0/0	$0
SAXON	25-JUN-08	0.75 in.	0/0	$0
TWIN	25-JUN-08	0.75 in.	0/0	$0
COLUMBIA MARION ARPT	29-JUL-08	0.75 in.	0/0	$0
SANDY HOOK	20-SEP-08	0.88 in.	0/0	$0
HUB	27-MAR-09	1.00 in.	0/0	$0
ST PAUL	27-MAR-09	1.75 in.	0/0	$0
WHITE BLUFF	27-MAR-09	1.00 in.	0/0	$0
COLUMBIA MARION ARPT	27-MAR-09	0.75 in.	0/0	$0
SANDY HOOK	13-APR-09	1.00 in.	0/0	$0
COLUMBIA MARION ARPT	13-APR-09	0.75 in.	0/0	$0
PICKWICK	05-MAY-09	0.88 in.	0/0	$0
WHITE BLUFF	12-MAY-09	0.75 in.	0/0	$0
COLUMBIA MARION ARPT	01-JUN-09	0.75 in.	0/0	$0
MORGANTOWN	21-FEB-10	1.75 in.	0/0	$3,278
COLUMBIA MARION ARPT	24-APR-10	1.00 in.	0/0	$0
COLUMBIA MARION ARPT	15-APR-11	1.50 in.	0/0	$0
WEST COLUMBIA	28-SEP-11	0.75 in.	0/0	$0
KOKOMO	12-DEC-15	0.75 in.	0/0	$0
FOXWORTH	12-DEC-15	0.75 in.	0/0	$0
MORGANTOWN	02-JAN-17	2.50 in.	0/0	$50,000
PINEBUR	02-JAN-17	1.75 in.	0/0	$10,000
GOSS	21-JAN-17	0.75 in.	0/0	$0
PINEBUR	17-MAR-18	1.00 in.	0/0	$0

All damage may not have been reported.
Source: National Centers for Environmental Information

Lightning

According to the National Centers for Environmental Information, there has been one recorded lightning event in Marion County since 1950, as listed in summary **Table E.20**.[14] It caused approximately $200,000 in damages. It is likely that other lightning events have impacted the county. Many of the reported events are those that caused damage, and it should be expected that damages are likely much higher for this hazard than what is reported.

[14] These lightning events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional lightning events have occurred in Marion County. As additional local data becomes available, this hazard profile will be amended.

TABLE E.20: SUMMARY OF LIGHTNING OCCURRENCES IN MARION COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Columbia	1	0/0	$200,000
Unincorporated Area	0	0/0	$0
MARION COUNTY TOTAL	**0**	**0/0**	**$0**

Source: National Centers for Environmental Information

PROBABILITY OF FUTURE OCCURRENCES

Thunderstorm / High Wind

Given the high number of previous events, it is certain that wind events, including straight-line wind and thunderstorm wind, will occur in the future. This results in a probability level of highly likely (100 percent annual probability) for future wind events for the entire county.

Hailstorm

Based on historical occurrence information, it is assumed that the probability of future hail occurrences is likely (10 – 100 percent annual probability). Since hail is an atmospheric hazard (coinciding with thunderstorms), it is assumed that Marion County has equal exposure to this hazarE. It can be expected that future hail events will continue to cause minor damage to property and vehicles throughout the county.

Lightning

Although there were no historical lightning events reported in Marion County via NCEI data, it is a regular occurrence accompanied by thunderstorms. In fact, lightning events will assuredly happen on an annual basis, though not all events will cause damage. According to Vaisala's U.S. National Lightning Detection Network (NLDN®), Marion County is located in an area of the country that experienced an average of 6 to 8 lightning flashes per square kilometer per year between 1997 and 2010. Therefore, the probability of future events is highly likely (100 percent annual probability). It can be expected that future lightning events will continue to threaten life and cause minor property damages throughout the county.

E.2.12 Tornado

LOCATION AND SPATIAL EXTENT

Tornadoes occur throughout the state of Mississippi, and thus in Marion County. Tornadoes typically impact a relatively small area, but damage may be extensive. Event locations are completely random, and it is not possible to predict specific areas that are more susceptible to tornado strikes over time. Therefore, it is assumed that Marion County is uniformly exposed to this hazard.

HISTORICAL OCCURRENCES

Tornadoes resulted in eight disaster declarations in Marion County in 1973, 1979, 1980, 1983, 1990, 2001, 2003, 2013 and 2014.[15] According to the National Centers for Environmental Information, there have been a total of 30 recorded tornado events in Marion County since 1950 (**Table E.21**), resulting in over $9.5 million in property damages.[16] In addition, 13 injuries were reported. The magnitude of these tornadoes ranges from F0 to F3 in intensity, although an F5 event is possible. Detailed information on historic tornado events can be found in **Table E.22**.

TABLE E.21: SUMMARY OF TORNADO OCCURRENCES IN MARION COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Columbia	9	3/50	$26,179,455
Unincorporated Area	26	0/13	$8,485,151
MARION COUNTY TOTAL	**35**	**3/63**	**$34,664,606**

Source: National Centers for Environmental Information

TABLE E.22: HISTORICAL TORNADO IMPACTS IN MARION COUNTY

Location	Date	Magnitude	Deaths/ Injuries	Property Damage*	Details
Columbia					
Columbia	11-APR-95	F2	0/0	$33,143	The discontinuous tornado path extended from 10 miles south-southeast of Tyler town to nine miles east of Columbia. The tornado moved south of Walthall County into Marion County at 0455 CST, seven miles southeast of Kokomo. Numerous trees were blown down. Several houses sustained roof damage. Some had their roofs removed and others were damaged by fallen trees. Downed trees blocked roadways.
Columbia	16-FEB-01	F0	0/0	$1,426	
Columbia	12-MAR-01	F1	0/0	$142,576	Numerous trees were blown down, and several buildings sustained damage as this F1 tornado moved northeast from the northern edge of Columbia to about nine miles northeast of Columbia.
Columbia	12-MAR-01	F1	0/0	$998,033	
Columbia	12-MAR-01	F1	0/0	$2,852	
Columbia	13-OCT-01	F0	0/0	$1,426	Several trees were blown down as a weak tornado briefly touched down.
Columbia	20-FEB-14	F0	0/0	$15,000	Multiple trees were downed or snapped along Highway 98 at Friendship Church Road in a manner consistent with tornadic damage. Maximum wind speeds were estimated at 75 mph.

[15] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.
[16] These tornado events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional tornadoes have occurred in Marion County. As additional local data becomes available, this hazard profile will be amended.

Location	Date	Magnitude	Deaths/ Injuries	Property Damage*	Details
Columbia	23-DEC-14	F3	3/50	$25,000,000	During the afternoon of Dec 23, just enough ingredients came together to support numerous severe storms ahead of a cold front. Across the Lower Mississippi River Valley, peak heating contributed to decent instability in the developing warm sector in advance of the front. This helped to support organized thunderstorm activity along with quite a few supercell storms. A long lived, persistent, storm tracked across the southeastern counties (near Columbia, Mississippi to Sumrall and Laurel to Heidelberg, Mississippi line) and produced multiple tornadoes. Widespread damage occurred in southern Columbia and near Laurel. Additional damage occurred across Marion, Jones and Clarke counties. Sadly, five confirmed fatalities occurred, with three near Columbia in Marion County. This tornado first touched down just east of the Pearl River just south of Columbia. It quickly became strong and moved northeast impacting the southeast side of Columbia. The tornado remained on the ground through Marion County before lifting as it approached the Lamar County line. Numerous businesses, homes, mobile homes, a National Guard building and power poles and lines were heavily damaged or destroyed by the tornado. Extensive tree damage also occurred along the path of the storm. Maximum wind speed of this tornado was 165mph.
Columbia	31-OCT-15	F0	0/0	$5,000	This weak tornado touched down along Lampton Hill Top Road and moved east-northeast to Enon Road. A few trees were blown down and limbs snapped along a narrow path. Maximum winds were 75 mph.
Unincorporated Area					
MARION COUNTY	29-APR-50	F2	0/0	$2,612,192	
MARION COUNTY	18-NOV-57	F2	0/2	$224,736	
MARION COUNTY	21-JAN-59		0/0	$217,447	
MARION COUNTY	11-JUN-59	F1	0/0	$21,745	
MARION COUNTY	20-FEB-61	F2	0/4	$211,725	
MARION COUNTY	06-JUL-65	F2	0/0	$0	
MARION COUNTY	05-MAY-71	F1	0/0	$15,592	
MARION COUNTY	04-JUN-71	F2	0/0	$1,559,215	

Location	Date	Magnitude	Deaths/ Injuries	Property Damage*	Details
MARION COUNTY	10-DEC-71	F3	0/5	$155,922	
MARION COUNTY	30-NOV-82	F2	0/0	$654,110	
MARION COUNTY	10-AUG-86	F0	0/0	$576,329	
MARION COUNTY	15-FEB-87	F1	0/0	$55,563	
MARION COUNTY	04-NOV-88	F1	0/0	$53,352	
KOKOMO	12-MAR-01	F1	0/0	$14,258	
Sandy Hook	11-NOV-02	F1	0/0	$103,818	This tornado initially developed 3 miles north of Sandy Hook and moved northeast before dissipating around 1:00 AM. One unoccupied mobile home was destroyed, with another mobile home receiving major damage from a fallen tree. One house had chimney damage from a fallen tree, with many other trees blown down.
Hub	30-APR-05	F0	0/0	$12,668	This weak tornado touched down in the Hub Community and tracked east for 4 miles before dissipating near the Lamar county line. Several trees and many large limbs were blown down or twisted off along the path.
KOKOMO	01-JAN-06	F1	0/0	$122,987	This weak tornado briefly touched down just northeast of Sandy Hook on Will Alexander Road and damaged one home taking a small portion of the roof off and downing several trees. An eye witness saw the funnel just above the tree tops, then shortly after it crossed Highway 43 debris began flying in the air. That was the time the funnel became a tornado and when damage occurred on Will Alexander Road.
Sandy Hook	27-OCT-06	F1	0/0	$860,912	This F1 tornado touched down just to the southeast of Kokomo and tracked east northeast for about five miles. The most intense damage was near and just south of where the tornado crossed Highway 98. A service station was damaged, a cluster of several dozen trees were snapped near the base and two homes suffered moderate damage. An 18-wheel semi truck was also flipped over on Highway 98. Numerous trees were snapped and damaged over the first half of the track, then the damaged tapered to F0 damage where a few trees and limbs were blown down.

Location	Date	Magnitude	Deaths/ Injuries	Property Damage*	Details
Sandy Hook	15-NOV-06	F1	0/0	$110,689	This tornado moved into Marion County from Walthall County. The tornado continued to track east northeast for 6 miles before dissipating. The tornado cross Highway 35 just north of Sandy Hook and downed many trees and several power lines. The tornado continued across the Pearl River and crossed Highway 43 where more trees were downed. Just before the tornado dissipated, a mobile home was damaged and tree limbs were broken off in the Spring Cottage Community. This tornado began about 2 miles north of the Thomas Community in northern Washington Parish and tracked east northeast across southeast Walthall County and then dissipated in southern Marion County. The total path length was 18 miles with the highest rating occurring in Walthall County which was F2.
Pinebur	14-APR-07	F0	0/0	$1,194	This weak tornado briefly touched down in the Pinebur Community off County Line Road just on the Marion County side. Damaged consisted of some trees snapped and many large limbs blown down.
Jamestown	03-MAR-08	F1	0/0	$289,819	This tornado touched down about 5 miles southwest of the Foxworth Community. A livestock barn was seriously damaged and numerous hardwood trees were snapped or uprooted. A roof was blown off an outbuilding and a trampoline was thrown into a pond. One cow was killed. Maximum winds were 100 mph.

Location	Date	Magnitude	Deaths/ Injuries	Property Damage*	Details
Goss	16-NOV-11	F1	0/0	$212,180	The tornado started in Marion County on Goss Bunker Hill Road with mostly minor tree damage. As it moved northeast, crossing Stuckey Road, more minor tree damage occurred along with home TV and radio antennas being blown down. As it moved along E. Reservoir Road, more substantial tree damage occurred along with roof damage to a few homes and mobile homes. As it continued northeast, more major tree damage occurred along with snapped power poles on Bufkin and Grice Roads. The most significant damage occurred along Bunker Hill Road where roof damage occurred to a home along with many trees snapped and uprooted. Several metal sheds were either severely damaged or destroyed. A cattle trailer was picked up and thrown approximately 200 yards. As it crossed Hwy 35, major tree damage continued where pines and hardwood trees were either snapped or uprooted. A carport was collapsed at a residence near Bryant Road. The tornado continued northeast crossing Robbins and F. Mcneese Road where mainly tree damage occurred. As the tornado crossed S Williamsburg Road, the roof of a newly built barn was torn off along with major tree damage. As it continued northeast from there, mostly tree damage occurred until it ended near Gates Road, just south of Hwy 42 in Jefferson Davis County. Maximum wind speeds were estimated at 100 mph.
Pinebur	17-JAN-12	F2	0/2	$257,500	The tornado first touched down along Mail Route Road and tracked across a farm, uprooting and snapping trees and causing minor damage to sheds and fences. The tornado then crossed Clear Creek Church Road where it reached its maximum intensity. A well anchored single wide trailer was destroyed with the contents tossed into the nearby woods. A well built shed was also destroyed with the contents deposited into the woods. A wood frame home received damage to one wall and had numerous shingles torn off. Two power poles were snapped off, and an impressive number of hard wood trees were snapped in this location as well. The tornado continued moving northeast producing low end EF-1 tree damage, while crossing several dirt roads before dissipating. Maximum wind speeds were estimated at 115mph.

Location	Date	Magnitude	Deaths/ Injuries	Property Damage*	Details
Pickwick	10-DEC-12	F1	0/0	$41,200	Numerous trees were snapped and uprooted along the path. A couple of sheds and a gazebo were destroyed. Shingle damage occurred to a couple of homes. A metal carport was blown onto a house. In addition, an antenna atop a house was snapped. This was a continuation of a tornado that came out of Walthall County. Maximum wind speeds were estimated at 100 mph.
Pickwick	31-OCT-15	F1	0/0	$75,000	This brief tornado developed along Lowery Loop, crossing New Hope Road, and ending along Pounds Road. It caused damage to the roofs of several homes and destroyed several sheds. Numerous trees were snapped and uprooted. Estimated maximum winds were 95 MPH.
Twin	23-FEB-16	F1	0/0	$25,000	This tornado started in Pearl River County and crossed into southwest Marion County where it snapped numerous softwood and hardwood trees. The tornado also caused roof damage to a hunting lodge just across the county line. The tornado continued north-northeast and ended just south of Pearl Bluff Circle, snapping a few more trees along the way. Maximum estimated winds were 105 mph, which occurred in Marion County. Total path length was 5.2 miles.

Source: National Centers for Environmental Information

Marion County- On December 23, 2014, a tornado first touched down just east of Pearl River just south of Columbia. It quickly became strong and moved northeast impacting the southeast side of Columbia. The tornado remained on the ground through Marion County before lifting as is approached the Lamar County line. Numerous business, homes, mobile homes, a Nation Guard building, and power poles / lines were heavily damaged or destroyed. There were three deaths as a direct result of the tornado.

PROBABILITY OF FUTURE OCCURRENCES

According to historical information, tornado events pose a significant threat to Marion County. The probability of future tornado occurrences affecting Marion County is likely (10 – 100 percent annual probability).

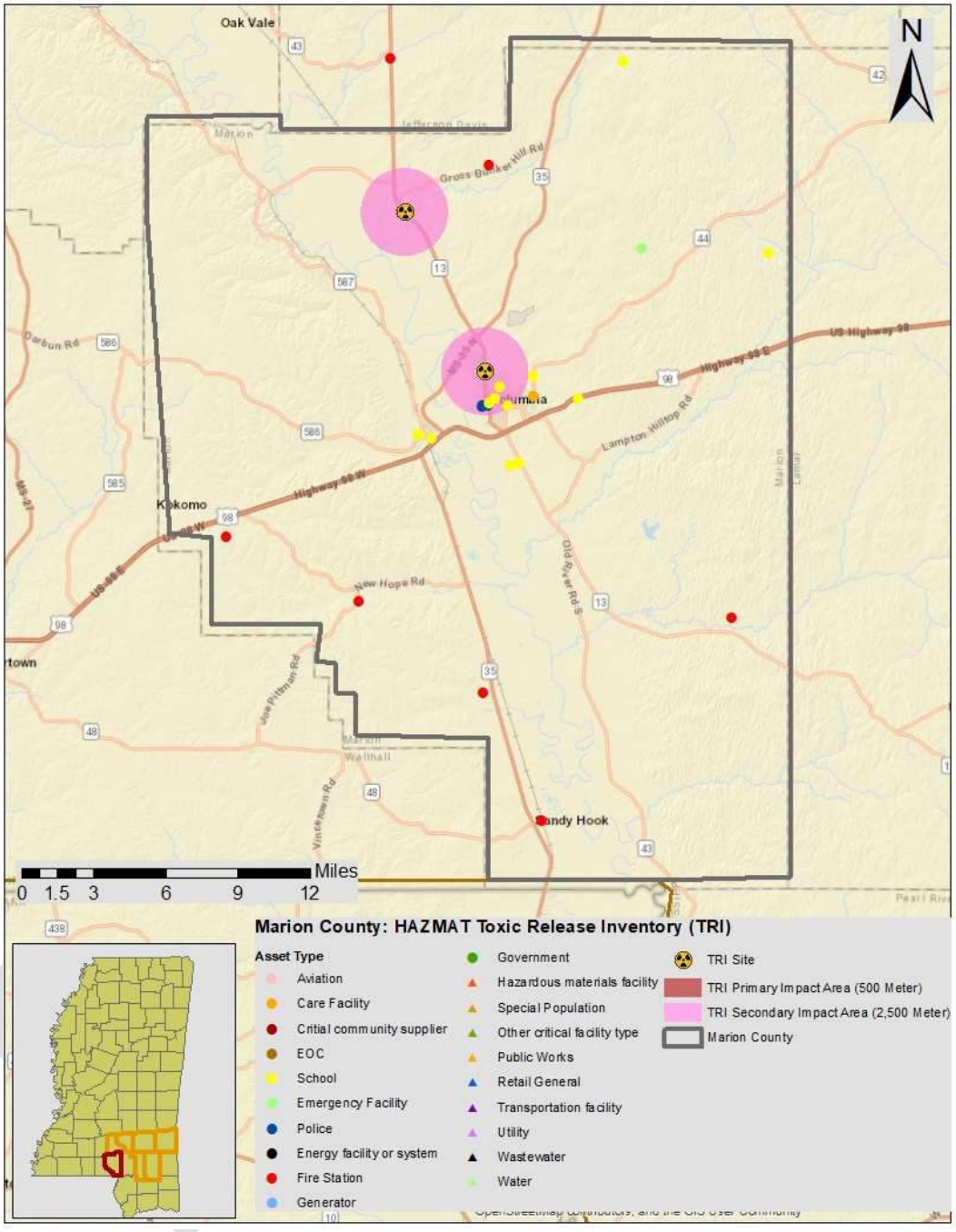
E.2.13 Hazardous Materials Incidents

LOCATION AND SPATIAL EXTENT

Hazardous Materials

Marion County has no TRI sites as shown in **Figure E.7**.

FIGURE E.8: TOXIC RELEASE INVENTORY (TRI) SITES IN MARION COUNTY



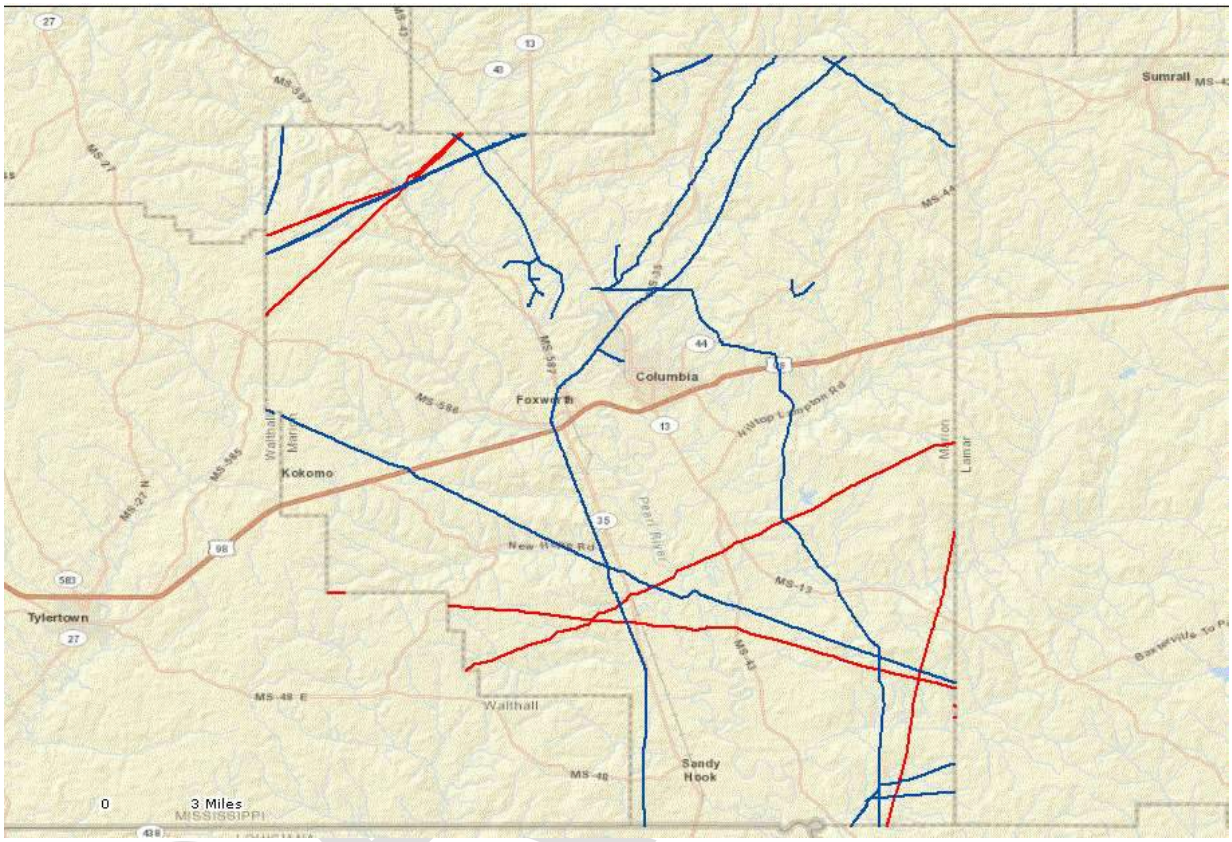
Source: EPA

In addition to "fixed" hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially at risk to an incident.

Pipelines

There are two distinct types of pipelines that are used in the transport of potentially hazardous materials, gas lines and hazardous liquid lines. **Figure A.12** shows the trunk lines for each of these material types but does not show the gathering or distribution pipelines. Gas lines are in blue and hazardous liquid lines are in red. This data has not changed since the last plan update.

FIGURE E.9: PIPELINES IN MARION COUNTY



Source: Pipeline and Hazardous Materials Safety Administration

Meth Labs

One of the greatest concerns about meth labs is that they are clandestine in nature. Additionally, once a meth lab has been identified, police authorities generally attempt to eliminate the site as quickly as possible. Therefore, it is nearly impossible to identify specific locations for meth labs and instead, the entire planning area is considered to be at risk to this hazard.

HISTORICAL OCCURRENCES

Hazardous Materials

There has been a total of five recorded HAZMAT incidents in Marion County since 1978 (**Table E.23**), resulting in nearly $318,000 in property damages. In addition, one injury was reported. **Table E.24** presents detailed information on historic HAZMAT incidents in Marion County as reported by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA).

TABLE E.23: SUMMARY OF HAZMAT INCIDENTS IN MARION COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Columbia	4	0/0	$340
Unincorporated Area	1	0/1	$317,659
MARION COUNTY TOTAL	**5**	**0/1**	**$317,999**

Source: USDOT PHMSA

TABLE E.24: HAZMAT INCIDENTS IN MARION COUNTY

Report Number	Date	City	Mode	Serious Incident?	Fatalities/ Injuries	Damages ($)	Quantity Released
Columbia							
I-2003091346	9/18/2003	COLUMBIA	Highway	Yes	0/1	$280	700 LGA
I-1980091215	9/3/1980	COLUMBIA	Highway	Yes	0/0	$0	7,808 LGA
I-1979010516	12/31/1978	COLUMBIA	Highway	No	0/0	$0	0
I-2000100690	9/11/2000	COLUMBIA	Highway	No	0/0	$60	0.5 LGA
Unincorporated Area							
I-1996100679	9/4/1996	FOXWORTH	Highway	Yes	0/1	$317,659	3,977 LGA

Source: USDOT PHMSA

Pipelines

Between 2002 and 2013, there have been 2 pipeline incidents in Marion County. They occurred in 2004 and 2009 and there were no deaths or injuries. The property damage was estimated at a total of $210,502.

Meth Labs

Meth lab incidents have occurred at various times throughout Marion County. Although there is not an extensive documented record of these events, they have occurred in the past and are generally confined to single sites, often in residential areas.

PROBABILITY OF FUTURE OCCURRENCES

Hazardous Materials

Given that there are no toxic release inventory sites in Marion County and only a few roadway and rail incidents, it is possible that a hazardous material incident may occur in the county (between one percent and ten percent annual probability). County and town officials are mindful of this possibility and take precautions to prevent such an event from occurring. Furthermore, there are detailed plans in place to respond to an occurrence.

Although there are no TRI sites and a limited record of previous events in the county, hazardous materials incidents will continue to be a threat. The county may also be impacted by neighboring counties which also face risk due to TRI sites and curvy, mountain roadways.

Pipelines

Since there have been 2 major pipeline incidents and there are 285 miles of gas and hazardous liquid lines in the region, it is anticipated that there will be future pipeline incidents in Marion County. These events are considered possible

Meth Labs

Meth lab incidents will likely continue to occur throughout Marion County. Although it is difficult to predict where exactly these incidents would occur, the probability that they will is possible.

E.2.14 Cyber Terrorism

A cyber-attack is a malicious, intentional attempt to breach the information technology (IT) infrastructure of an individual or organization. The State of Mississippi defines a cyberterrorism incident as any adverse premeditated, politically, financially or maliciously motivated attack against informational systems. A cyberterrorism event can impact one or more of Marion County's and its, corresponding departments' and divisions' information assets by the following ways, which includes, but are not limited to, the following:

- Unauthorized use
- Denial of Service
- Malicious code
- Network system failures
- Application system failures
- Unauthorized disclosure or loss of information
- Information security breach
- Structured Query Language (SQL) Injection

LOCATION AND HAZARD EXTENT

The cyberterrorism hazard is not geographically based. Attacks can originate from any computer to affect any other computer in the world. If a system is connected to the Internet or operating on a wireless frequency, it is susceptible to exploitation. Targets of cyberterrorism can be individual computers, networks, organizations, business sectors, or governments. Financial institutions and retailers are often targeted to extract personal and financial data that can be used to steal money from individuals and banks.

HISTORICAL OCCURRENCES

There have been no known historical occurrences to have occurred in in Marion County to date.

PROBABILITY OF FUTURE OCCURRENCES

As is the case for any governmental organization, there will always be the potential for impact for Marion County. As such, the county will continue to be compelled to respond to cyberterrorisms in the future. The nature of these attacks is projected to evolve in sophistication over time. Marion County will take a proactive position in its cyber security efforts and is expected to remain vigilant in its efforts to prevent attacks from occurring and/or disrupting business operations.

The reality remains that many computers and networks in organizations of all sizes and industries around the United States will continue to suffer intrusion attempts on a daily basis from viruses and malware that are passed through web sites and emails. Again, the potential for harm via this hazard is always present.

E.2.15 Conclusions on Hazard Risk

The hazard profiles presented above were developed using best available data and result in what may be considered principally a qualitative assessment as recommended by FEMA in its "How-to" guidance document titled *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA Publication 386-2). It relies heavily on historical and anecdotal data, stakeholder input, and professional and experienced judgment regarding observed and/or anticipated hazard impacts. It also carefully considers the findings in other relevant plans, studies, and technical reports.

HAZARD EXTENT

Table E.25 describes the extent of each natural hazard identified for Marion County. The extent of a hazard is defined as its severity or magnitude, as it relates to the planning area.

TABLE E.25: EXTENT OF MARION COUNTY HAZARDS

Flood-related Hazards	
Flood	Flood extent can be measured by the amount of land and property in the floodplain as well as flood height and velocity. The amount of land in the floodplain accounts for 15.4 percent of the total land area in Marion County. Flood depth and velocity are recorded via United States Geological Survey stream gages throughout the region. While a gage does not exist for each participating jurisdiction, there is one at or near many areas. The greatest peak discharge recorded for the county was at the Pearl River near Columbia in 1874. Water reached a discharge of 165,000 cubic feet per second and the stream gage height was recorded at 31.00 feet.
Erosion	The extent of erosion can be defined by the measurable rate of erosion that occurs. There are no erosion rate records located in Marion County.
Dam Failure	Dam Failure extent is defined using the Mississippi Division of Environmental Quality criteria. Two dams are classified as high-hazard in the region.
Winter Storm and Freeze	The extent of winter storms can be measured by the amount of snowfall received (in inches). Official long-term snow records are not kept for any areas in Marion County. However, the greatest snowfall reported in Jackson (north of the county) was 11.7 inches in 1904 and in Meridian (northeast of the county) was 14.0 inches in 1963.
Fire-related Hazards	

Drought / Heat Wave	Drought extent is defined by the U.S. Drought Monitor Classifications which include Abnormally Dry, Moderate Drought, Severe Drought, Extreme Drought, and Exceptional Drought. According to the U.S. Drought Monitor Classifications, the most severe drought condition is Exceptional. Marion County has received this ranking twice over the eighteen-year reporting period. The extent of extreme heat can be measures by the record high temperature recorded. Official long-term temperature records are not kept for any areas in Marion County. However, the highest recorded temperature in Hattiesburg (east of the county) was 106°F in 1989.
Wildfire	Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2008-2018. The greatest number of fires to occur in Marion County in any year was 128 in 2011. The greatest number of acres to burn in the county in a single year occurred in 2016 when 1,200 acres were burned. Although this data lists the extent that has occurred, larger and more frequent wildfires are possible throughout the county.
Geologic Hazards	
Earthquake	Earthquake extent can be measured by the Richter Scale and the Modified Mercalli Intensity (MMI) scale and the distance of the epicenter from Marion County. According to data provided by the National Geophysical Data Center, no recorded earthquakes have been located in the county. However, the greatest MMI to impact Marion County was reported with an MMI of IV (moderate) with a correlating Richter Scale measurement of less than 4.8. Additionally, USGS data shows Marion County lies within an approximate zone of level .04 ground acceleration. This indicates that the county exists within an area of moderate seismic risk.
Landslide	As noted above in the landslide profile, there is no extensive history of landslides in Marion County and landslide events typically occur in isolated areas. This provides a challenge when trying to determine an accurate extent for the landslide hazard. However, when using USGS landslide susceptibility index, extent can be measured with incidence, which is low throughout the county. There is also susceptibility throughout the county.
Expansive Soils	As noted above in the expansive soils profile, there is no historical record of significant expansive soil events in Marion County. Again, this provides a challenge when trying to determine an accurate extent for the expansive soils hazard. However, when using USGS data on soils with clay swelling potential, extent can be measured with swelling potential, which is high in less than 50 percent of the soils Marion County.
Wind-related Hazards	
Hurricane and Tropical Storm	Hurricane extent is defined by the Saffir-Simpson Scale which classifies hurricanes into Category 1 through Category 5. The greatest classification of hurricane to traverse directly through Marion County was a Category 3 storm (Hurricane Camille in 1969) which carried tropical force winds of 69 miles per hour upon arrival in the county.

Thunderstorm / Hail / Lightning	Thunderstorm extent is defined by the number of thunder events and wind speeds reported. According to a 63-year history from the National Centers for Environmental Information, the strongest recorded wind event in Marion County was last reported on February 12, 2008 at 70 knots (approximately 81 mph). It should be noted that future events may exceed these historical occurrences. Hail extent can be defined by the size of the hail stone. The largest hail stone reported in Marion County was 4.0 inches (last reported on April 7, 2003). It should be noted that future events may exceed this. According to the Vaisala's flash density map (Figure 5.16), Marion County is located in an area that experiences 6 to 8 lightning flashes per square kilometer per year. It should be noted that future lightning occurrences may exceed these figures.
Tornado	Tornado hazard extent is measured by tornado occurrences in the US provided by FEMA as well as the Fujita/Enhanced Fujita Scale. The greatest magnitude reported in Marion County was an F3 (reported on December 10, 1971).
Other Hazards	
Hazardous Materials Incident	According to USDOT PHMSA, the largest hazardous materials incident reported in the county is 7,808 LGA released on the highway in Columbia. It should be noted that larger events are possible. A pipeline incident could have a potentially large impact in terms of extent. Based on recent history, the largest spill in the last 10 years in Mississippi caused over 10,000 barrels of hazardous liquid to be spilled. Because of the generally small-scale nature of most meth labs, the extent of a fire or explosion that was caused by a meth lab incident would likely not be larger than a few acres.
Cyber Attack	The extent of cyberterrorism is difficult to estimate. Attacks can originate from any computer to affect any other computer in the world. The resulting damages depends on the demands of the cyberterrorist.

PRIORITY RISK INDEX RESULTS

In order to draw some meaningful planning conclusions on hazard risk for Marion County, the results of the hazard profiling process were used to generate countywide hazard classifications according to a "Priority Risk Index" (PRI). More information on the PRI and how it was calculated can be found in Section 5.16.2.

Table E.26 summarizes the degree of risk assigned to each category for all initially identified hazards based on the application of the PRI. Assigned risk levels were based on the detailed hazard profiles developed for this section, as well as input from the Regional Hazard Mitigation Council. The results were then used in calculating PRI values and making final determinations for the risk assessment.

TABLE E.26: SUMMARY OF PRI RESULTS FOR MARION COUNTY

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score

Flood-related Hazards						
Flood	Highly Likely	Critical	Small	6 to 12 hours	Less than 24 hours	**3.0**
Erosion	Possible	Minor	Small	More than 24 hours	More than 1 week	**1.8**
Dam Failure	Unlikely	Critical	Moderate	More than 24 hours	Less than 6 hours	**2.0**
Winter Storm and Freeze	Possible	Limited	Large	More than 24 hours	Less than 24 hours	**2.3**
Fire-related Hazards						
Drought / Heat Wave	Highly Likely	Minor	Large	More than 24 hours	More than 1 week	**2.8**
Wildfire	Likely	Minor	Small	Less than 6 hours	Less than 1 week	**2.1**
Geologic Hazards						
Earthquake	Unlikely	Minor	Moderate	Less than 6 hours	Less than 6 hours	**1.7**
Landslide	Unlikely	Minor	Small	Less than 6 hours	Less than 6 hours	**1.5**
Expansive Soils	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Wind-related Hazards						
Hurricane and Tropical Storm	Likely	Catastrophic	Large	More than 24 hours	Less than 24 hours	**3.2**
Thunderstorm Wind / High Wind	Highly Likely	Limited	Moderate	Less than 6 hours	Less than 6 hours	**2.9**
Hailstorm	Likely	Minor	Small	Less than 6 hours	Less than 6 hours	**2.1**
Lighting	Highly Likely	Limited	Negligible	Less than 6 hours	Less than 6 hours	**2.5**
Tornado	Likely	Critical	Small	Less than 6 hours	Less than 6 hours	**2.7**
Other Hazards						
Hazardous Materials Incident	Unlikely	Limited	Small	Less than 6 hours	Less than 24 hours	**1.9**
Pipeline Incident	Possible	Limited	Small	Less than 6 hours	Less than 24 hours	**2.2**
Meth Lab Incident	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Cyber Attack	Unlikely					

E.2.16 Final Determinations on Hazard Risk

The conclusions drawn from the hazard profiling process for Marion County, including the PRI results and input from the Regional Hazard Mitigation Council, resulted in the classification of risk for each identified hazard according to three categories: High Risk, Moderate Risk, and Low Risk (**Table E.27**). For purposes of these classifications, risk is expressed in relative terms according to the estimated impact that a hazard will have on human life and property throughout all of Marion County. A more quantitative analysis to estimate potential dollar losses for each hazard has been performed separately and is described in Section 6: *Vulnerability Assessment* and below in Section E.3. It should be noted that although some hazards are classified below as posing low risk, their occurrence of varying or unprecedented magnitudes is still possible in some cases and their assigned classification will continue to be evaluated during future plan updates.

TABLE E.27: CONCLUSIONS ON HAZARD RISK FOR MARION COUNTY

HIGH RISK	Hurricane and Tropical Storm Flood Thunderstorm Wind / High Wind Drought / Heat Wave Tornado
MODERATE RISK	Drought / Heat Wave Dam Failure Lightning Hailstorm Pipeline Incident Hazardous Material Incident Wildfire
LOW RISK	Winter Storm and Freeze Expansive Soils Erosion Earthquake Landslide Meth Lab Incident Cyber Attack

E.3 MARION COUNTY VULNERABILITY ASSESSMENT

This subsection identifies and quantifies the vulnerability of Marion County to the significant hazards previously identified. This includes identifying and characterizing an inventory of assets in the county and assessing the potential impact and expected amount of damages caused to these assets by each identified hazard event. More information on the methodology and data sources used to conduct this assessment can be found in Section 6: *Vulnerability Assessment*.

E.3.1 Asset Inventory

Table E.28 lists the estimated number of improved properties and the total value of improvements for Marion County and its participating jurisdictions (study area of vulnerability assessment). This data was obtained from HAZUS-MH 4.2.

TABLE E.28: IMPROVED PROPERTY IN MARION COUNTY

Location	Number of Parcels	Total Assessed Value of Improvements
Marion County	12,536	$2,186,833,000

*Improvement values for these communities were obtained from HAZUS-MH

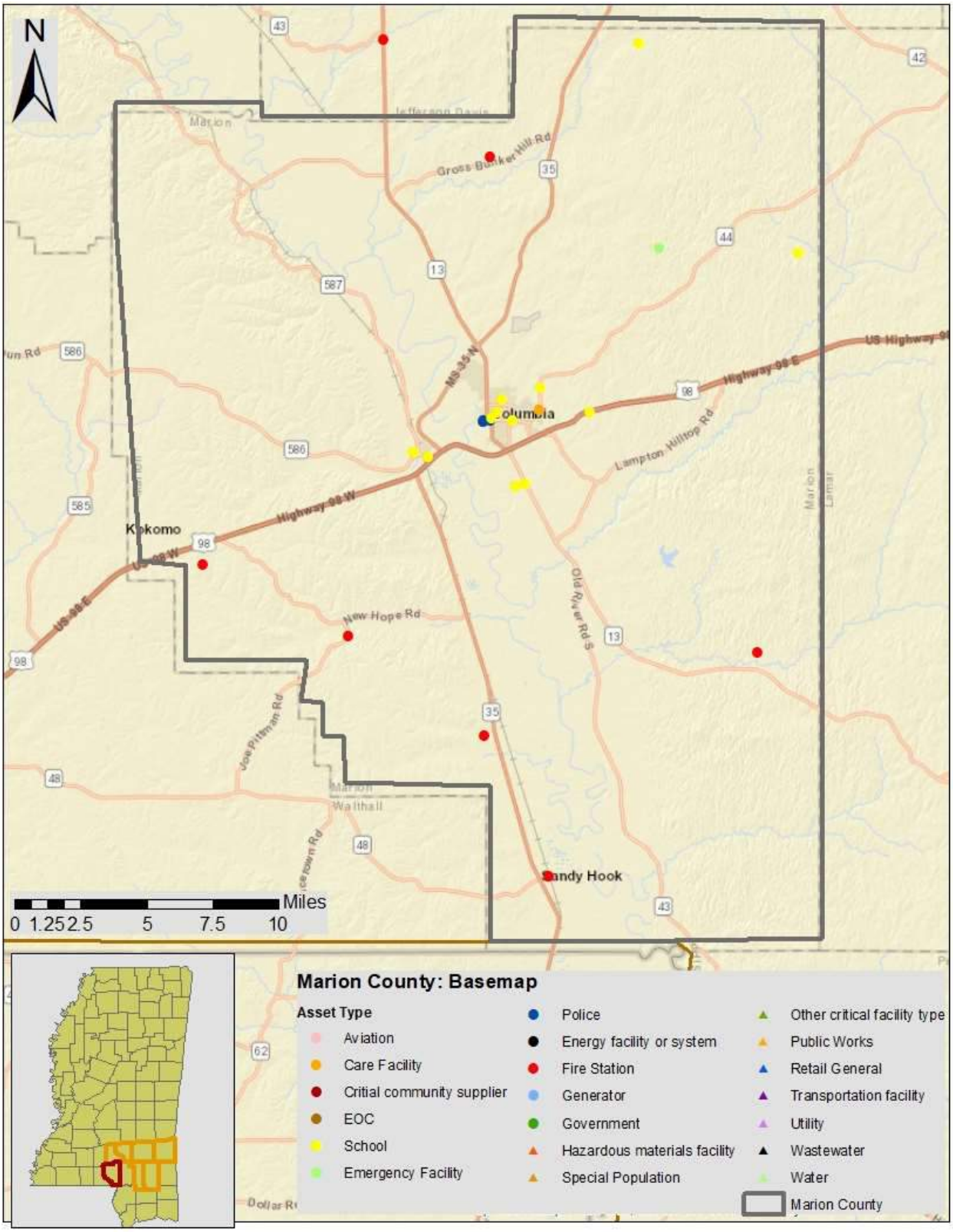
Table E.29 lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools and other critical facilities located in Marion County. HAZUS-MH 4.2 was used to obtain the critical facilities for the county and this data was updated to reflect recent changes. In addition, **Figure E.8** shows the locations of essential facilities in Marion County. **Table E.32**, near the end of this section, shows a complete list of the critical facilities by name, as well as the hazards that affect each facility. As noted previously, this list is not all-inclusive and only includes information provided by the county.

TABLE E.29: CRITICAL FACILITY INVENTORY IN MARION COUNTY

Location	Fire Stations	Police Stations	Medical Care Facilities	EOC	Schools
Marion County	**3**	**2**	**1**	**1**	**11**
Columbia	2	2	1	1	8
Unincorporated Area	1	0	0	0	3

Source: HAZUS-MH 4.2

941 **FIGURE E.11: CRITICAL FACILITY LOCATIONS IN MARION COUNTY**



942
943 *Source: HAZUS-MH 4.2*
944

E.3.2 Social Vulnerability

In addition to identifying those assets potentially at risk to identified hazards, it is important to identify and assess those particular segments of the resident population in Marion County that are potentially at risk to these hazards.

Table E.30 lists the population by jurisdiction according to U.S. Census 2010 population estimates. Unfortunately, estimates were not available at the census block level, limited the results to county-wide estimates. The total population in Marion County according to Census data is 27,088 persons. Additional population estimates are presented above in Section E.1.

TABLE E.30: TOTAL POPULATION IN MARION COUNTY

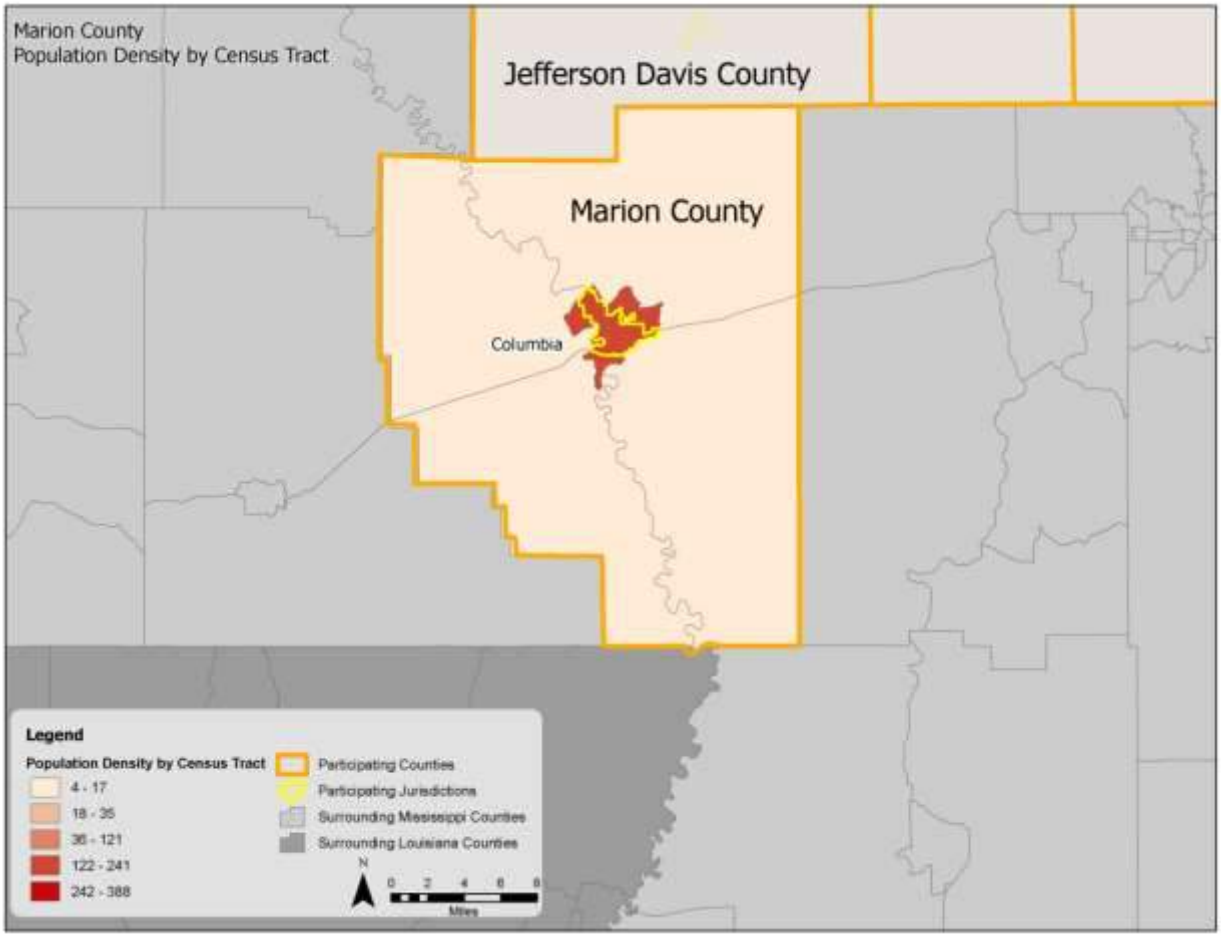
Location	Total 2010 Population
Columbia	6,582
Unincorporated Area	20,506
MARION COUNTY TOTAL	**27,088**

Source: U.S. Census 2010

In addition, **Figure E.12** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2010.[17] This information has not changed since the last plan update.

[17] Population by census block was not available at the time this plan was complete.

FIGURE E.12: POPULATION DENSITY IN MARION COUNTY



Source: U.S. Census Bureau, 2010

E.3.3 Vulnerability Assessment Results

As noted in Section 6: *Vulnerability Assessment*, only hazards with a specific geographic boundary, available modeling tool, or sufficient historical data allow for further analysis. Those results, specific to Marion County, are presented here. All other hazards are assumed to impact the entire planning region (drought, hailstorm, lightning, thunderstorm wind, tornado, and winter storm and freeze) or, due to lack of data, analysis would not lead to credible results (dam and levee failure, erosion, expansive soils, and landslide). The total county exposure, and thus risk, was presented in **Table E.28**.

The hazards to be further analyzed in this section include: flood, wildfire, earthquake, hurricane and tropical storm winds, and hazardous materials incident.

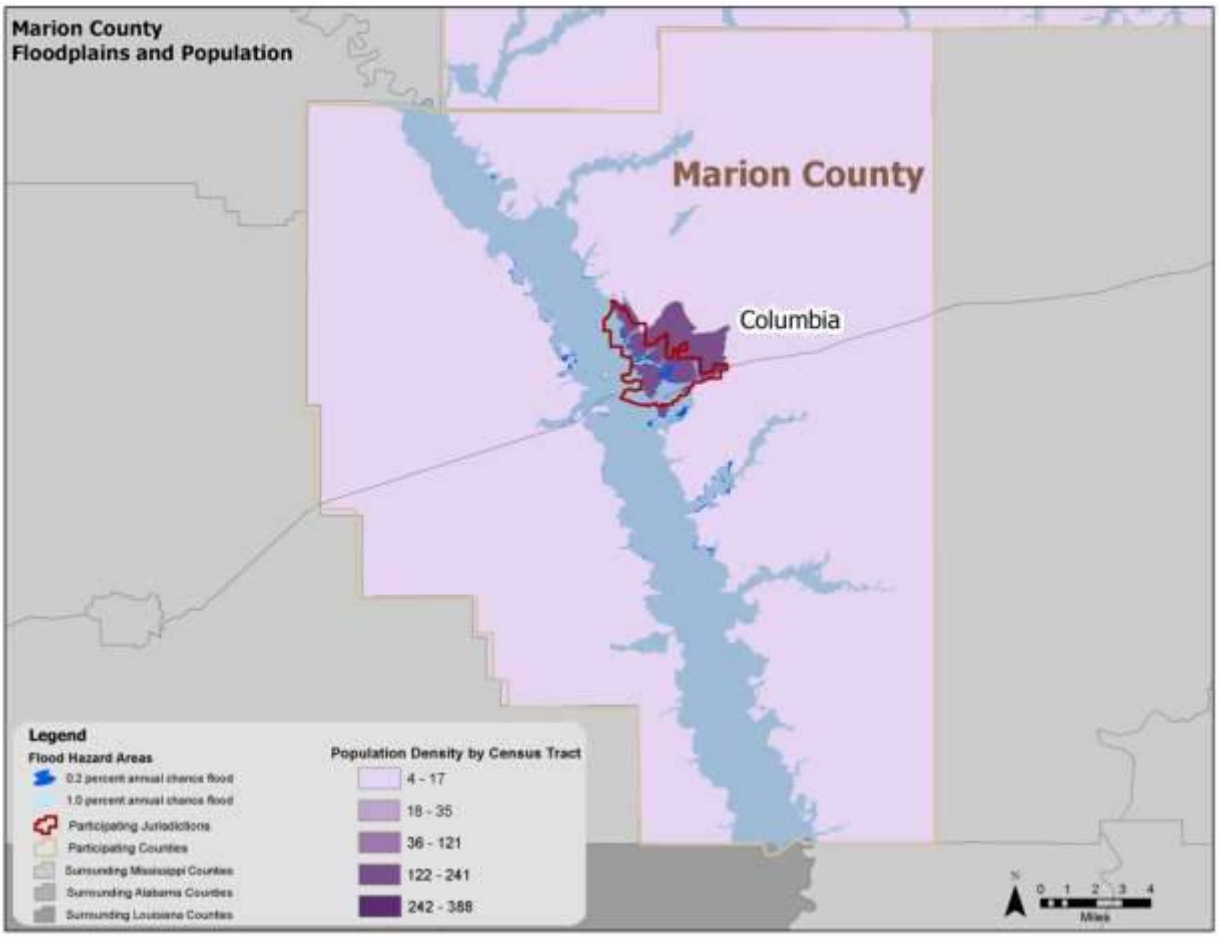
FLOOD

Historical evidence indicates that Marion County is susceptible to flood events. A total of 53 flood events have been reported by the National Centers for Environmental Information resulting in $25.3 million in damages.

Social Vulnerability

Since 2010 population was available at the tract level, it was difficult to determine a reliable figure on population at-risk to flood due to tract level population data. **Figure E.9** is presented to gain a better understanding of at-risk population.

FIGURE E.13: POPULATION DENSITY NEAR FLOODPLAINS



Source: FEMA DFIRM, U.S. Census 2010

Critical Facilities

The critical facility analysis revealed that there are two critical facilities located in the Marion County 1.0-percent annual chance floodplain, valued at over 2.3M. There is one facility located in the 0.2-percent annual chance floodplain, based on FEMA DFIRM boundaries and GIS analysis, valued at over $6.3M. A list of specific critical facilities and their associated risk can be found in **Table E.31** at the end of this section.

In conclusion, a flood has the potential to impact many existing and future buildings and populations in Marion County, though some areas are at a higher risk than others. All types of structures in a floodplain are at-risk, though elevated structures will have a reduced risk. As noted, the floodplains used in this analysis include the 100-year and 500-year FEMA regulated floodplain boundaries. It is certainly possible that more severe events could occur beyond these boundaries or urban (flash)

flooding could impact additional structures. Such site-specific vulnerability determinations are outside the scope of this assessment but will be considered during future plan updates. Furthermore, areas subject to repetitive flooding should be analyzed for potential mitigation actions.

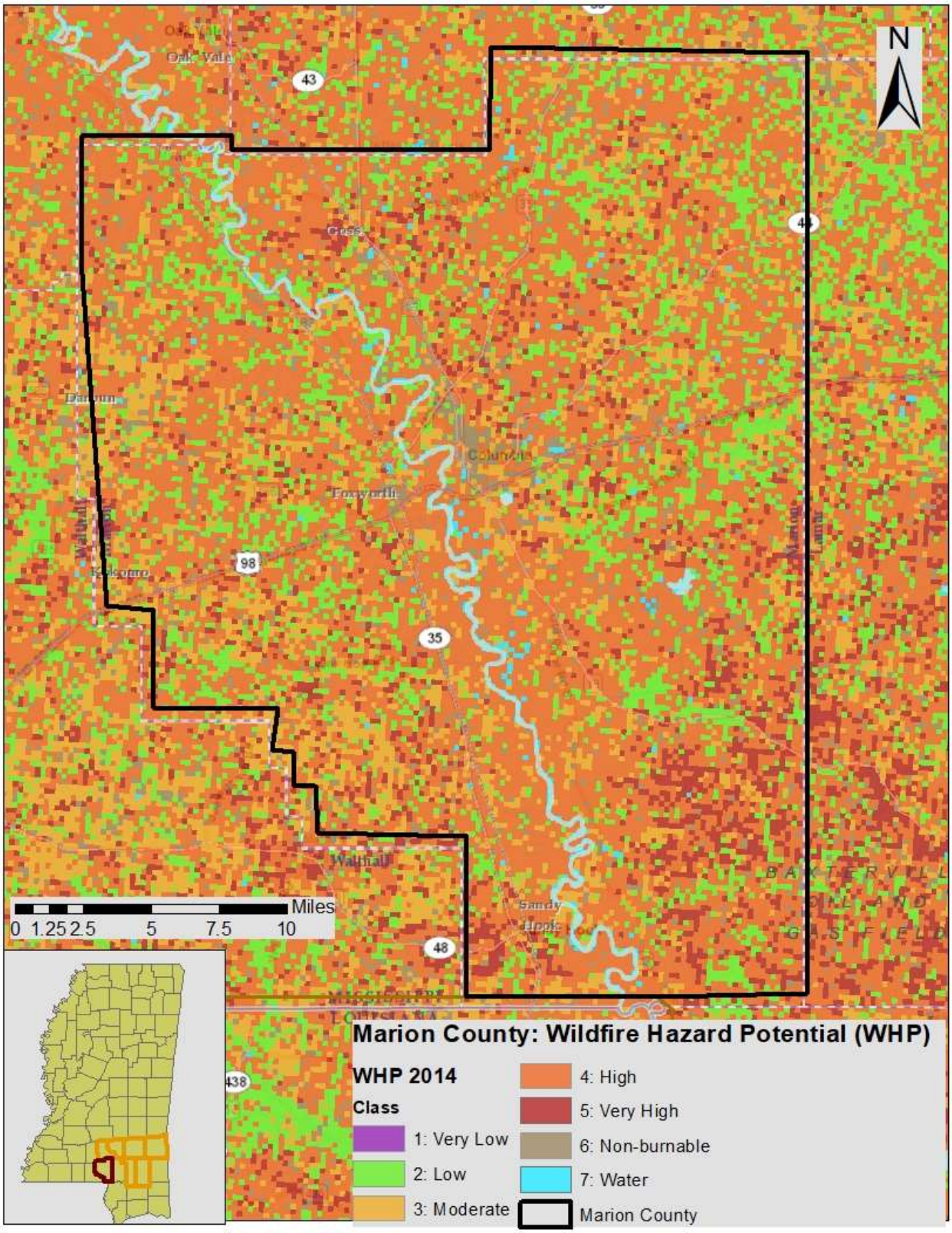
WILDFIRE

Although historical evidence indicates that Marion County is susceptible to wildfire events, there are few reports of damage.

To estimate exposure to wildfire, the wildfire hazard potential (WHP 2014) data provided via the US Forest Service was utilized. A GIS analysis was performed with the WHP dataset and identified critical facilities throughout MEMA District 8 in order to show the level of vulnerability.

Figure A.14 shows the wildfire hazard potential for Marion County. Most of the planning areas falls within the low to high category.

1021 **FIGURE E.14: WILDFIRE RISK AREAS IN MARION COUNTY**



1022
1023 *Source: Southern Wildfire Risk Assessment Data*
1024

Social Vulnerability

Although not all areas have equal vulnerability, there is some susceptibility across the entire county. It is assumed that the total population is at risk to the wildfire hazard. Determining the exact number of people in certain wildfire zones is difficult with existing data and could be misleading.

Critical Facilities

The critical facility analysis revealed that there are five critical facilities located in an area considered moderate risk valued at nearly $13.4M. There are two critical facilities located in an area considered high risk valued at $850,000, and there is an additional structure located in an area considered very high risk. It should be noted, however, that several factors could impact the spread of a wildfire putting all facilities at risk. A list of specific critical facilities and their associated risk can be found in **Table A.31** at the end of this section.

In conclusion, a wildfire event has the potential to impact many existing and future buildings, critical facilities, and populations in Marion County.

EARTHQUAKE

The HAZUS-MH earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS-MH model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS-MH 4.2 estimates a total exposure of approximately $20,561,000 which includes buildings, inventory, and contents throughout the region. While this number is not an exact representation of assessed tax value, it is helpful in assessing the results of the HAZUS-MH scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS-MH estimates that no buildings would be moderately damaged.

Social Vulnerability

It can be assumed that all existing future populations are at risk to the earthquake hazard. No fatalities or injuries were reported in the above HAZUS-MH arbitrary scenario.

Critical Facilities

There are 18 critical facilities identified for Covington County, valued at $65,177,400. All are vulnerable to the earthquake hazard.

An earthquake has the potential to impact all existing and future buildings, facilities, and populations in Marion County. While Marion County may not experience a large earthquake, localized damage is possible with an occurrence. A list of specific critical facilities and their associated risk can be found in **Table A.31** at the end of this section

HURRICANE AND TROPICAL STORM

Historical evidence indicates that Marion County has an elevated risk to the hurricane and tropical storm hazard. Several tracks have come near or traversed through the county, as shown and discussed in Section E.2.10.

Hurricanes and tropical storms can cause damage through numerous additional hazards such as flooding, erosion, tornadoes, and high winds, thus it is difficult to estimate total potential losses from these cumulative effects. The current HAZUS-MH hurricane model only analyzes hurricane winds and is not capable of modeling and estimating cumulative losses from all hazards associated with hurricanes; therefore, only hurricane winds are analyzed in this section. It can be assumed that all existing and future buildings and populations are at risk to the hurricane and tropical storm hazard. HAZUS-MH 4.2 was used to determine vulnerability to the hazard for a 100-Year event. There are an estimated 100,000 buildings in the region with a total building replacement value of $20,562,000. A 100-year probabilistic scenario was created and modeled. HAZUS-MH estimated that approximately 1,892 buildings would be at least moderately damaged by the event; this is over two percent of the buildings in the Region. There is an estimated 69 buildings that would be damaged beyond repair.

Economic Losses

HAZUS-MH estimated economic losses for the scenario event. HAZUS-MH estimated losses at $349.5M, which represents 1.7 percent of the total replacement value of the region's buildings. Nine percent of the losses were related to business interruption in the scenario region. 88 percent of the losses were sustained by residential structures.

Debris Generation

As part of the scenario, HAZUS-MH estimated the amount of debris that would be generated by the event. The types of debris considered were brick/wood, reinforced concrete/steel, eligible tree debris, and other tree debris. HAZUS-MH estimated that a total of 2,165,680 tons of debris would be generated by the event. Of that amount, 93 percent would be other tree debris, approximately 1.5 percent would be brick/wood, and the rest would comprise of would be eligible tree debris and brick/wood. Assuming a load of 25 tons per truck, this would equate to 1,190 truckloads of debris from this scenario.

Social Vulnerability

Given equal susceptibility across the county, it is assumed that the total population is at risk to the hurricane and tropical storm hazard.

Critical Facilities

Given equal vulnerability across Marion County, all critical facilities are considered to be at risk. Some buildings may perform better than others in the face of such an event due to construction and age, among other factors. There are 18 critical facilities identified for Covington County, valued at $65,177,400. Some buildings may perform better than others in the face of such an event due to construction and age, among other factors. Determining individual building response is beyond the scope of this plan. However, this plan will consider mitigation action for especially vulnerable and/or critical facilities to mitigation against the effects of the hurricane hazard. A list of specific critical facilities can be found in **Table A.31** at the end of this section.

HAZARDOUS MATERIALS INCIDENT

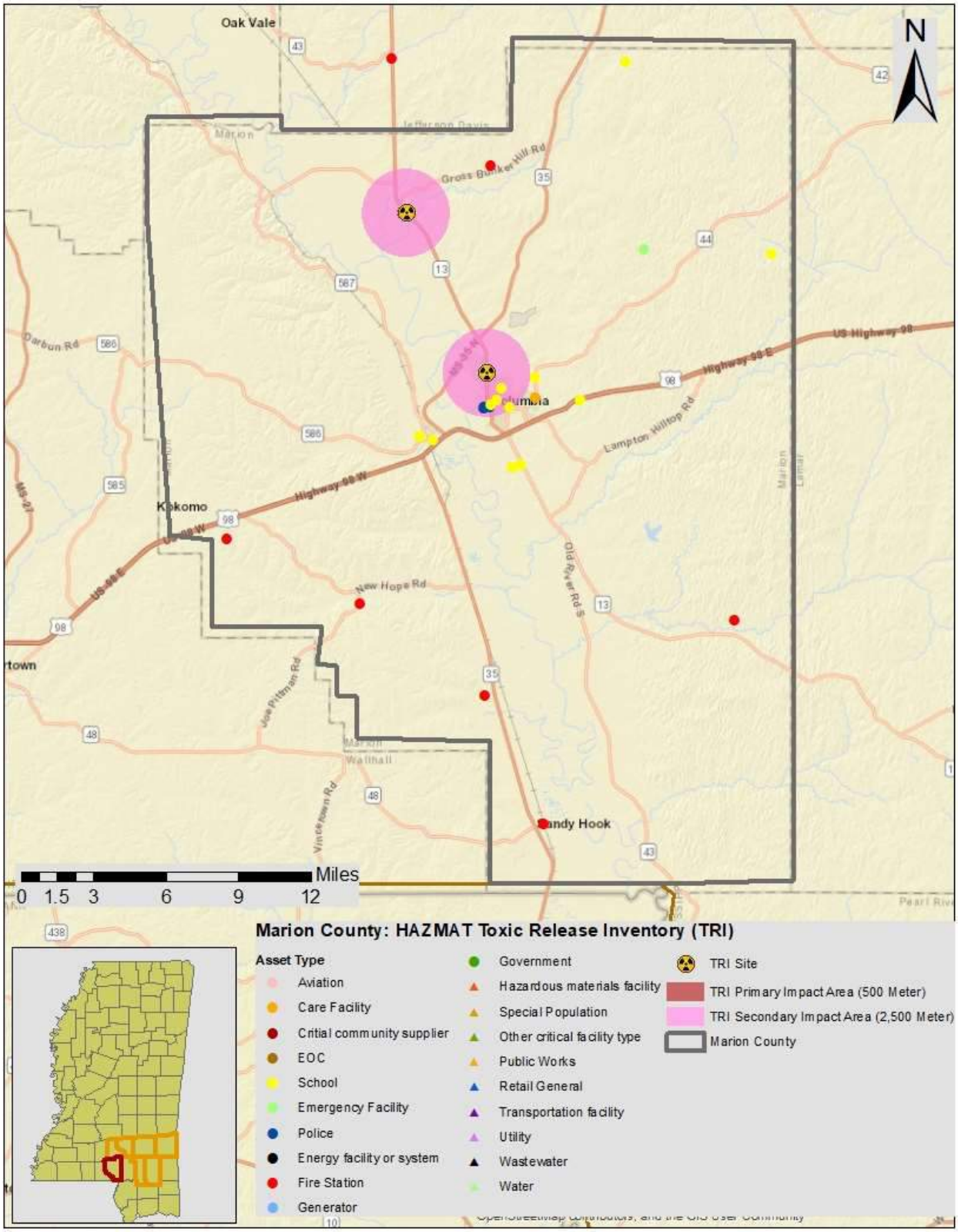
Although historical evidence and existing Toxic Release Inventory sites indicate that Marion County is susceptible to hazardous materials events, there are few reports of damage.

Most hazardous materials incidents that occur are contained and suppressed before destroying any property or threatening lives. However, they can have a significant negative impact. Such events can

cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. In a hazardous materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions will directly affect how the hazard develops. Certain chemicals may travel through the air or water, affecting a much larger area than the point of the incidence itself. Non-compliance with fire and building codes, as well as failure to maintain existing fire and containment features, can substantially increase the damage from a hazardous materials release. The duration of a hazardous materials incident can range from hours to days. Warning time is minimal to none.

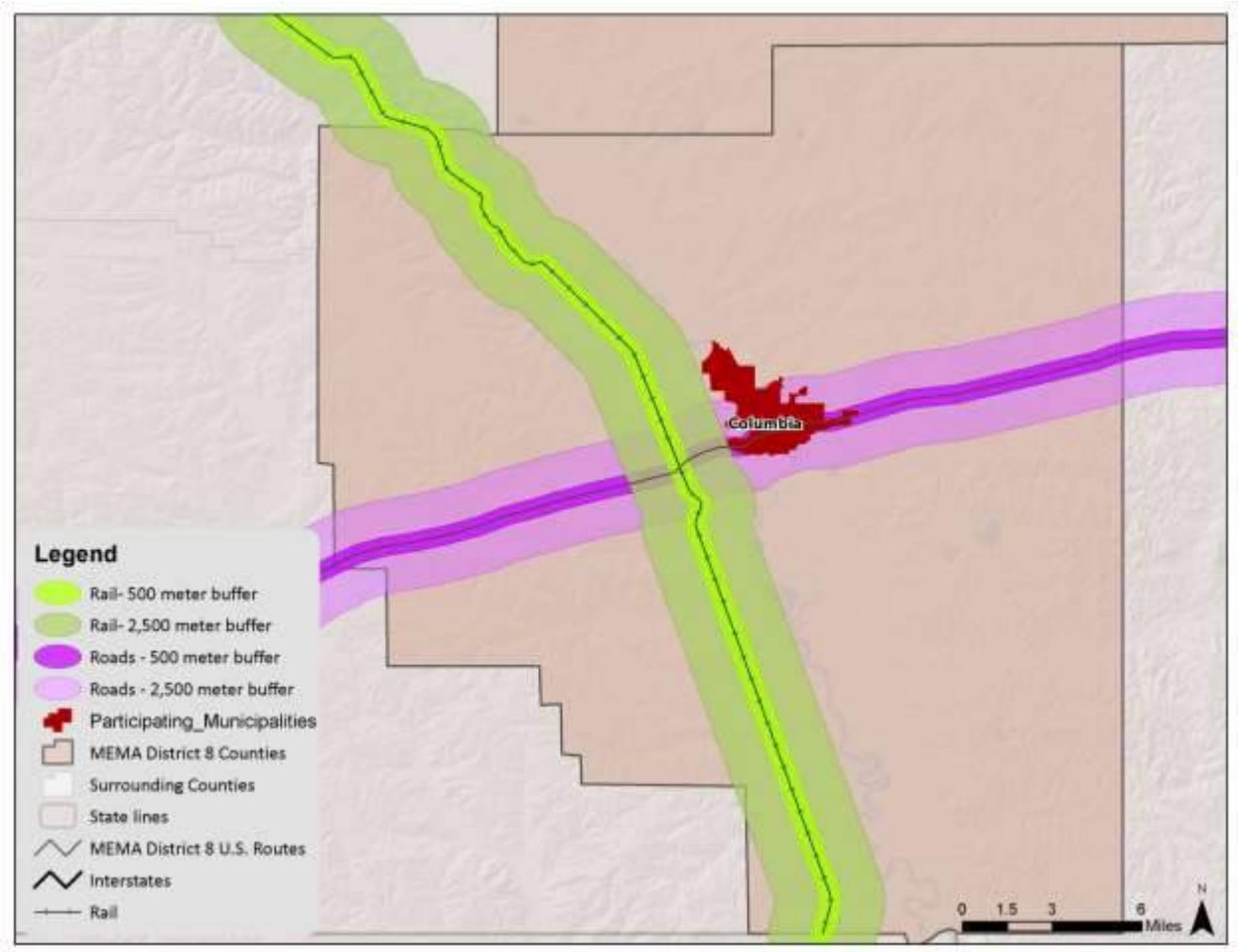
In order to conduct the vulnerability assessment for this hazard, GIS analysis was used for fixed and mobile areas. In both scenarios, two sizes of buffers—500 and 2,500 meters—were used. These areas are assumed to respect the different levels of effect: immediate (primary) and secondary. Primary and secondary impact sites were selected based on guidance from FEMA 426, Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings and engineering judgment. For the fixed site analysis, geo-referenced TRI listed toxic sites in Marion County, along with buffers. The analysis revealed that there are two TRI sites located in Marion County. For the mobile analysis, the major roads (Interstate highway, U.S. highway, and State highway) and railroads, where hazardous materials are primarily transported that could adversely impact people and buildings, were used for the GIS buffer analysis. The mobile toxic release buffer data did not change since the last plan update.

1141 **FIGURE A.15: TRI SITES WITH BUFFERS IN MARION COUNTY**



1142
1143 **Source: EPA*
1144

FIGURE E.10: MOBILE HAZMAT BUFFERS IN MARION COUNTY



Social Vulnerability

Given high susceptibility across the entire county, it is assumed that the total population is at risk to a hazardous materials incident. It should be noted that areas of population concentration may be at an elevated risk due to a greater burden to evacuate population quickly.

Critical Facilities

Fixed Site Analysis:

The critical facility analysis for fixed TRI sites revealed that there were no critical facilities that would be impacted by only the 500M HAZMAT risk zone. There are 8 critical facilities that would be impacted by the 2500M HAZMAT risk zone, valued at over $26.8M. A list of specific critical facilities and their associated risk can be found in **Table A.31** at the end of this section.

Mobile Analysis:

The critical facility analysis for transportation corridors in Marion County revealed that there is one critical facility located in the 500M Highway mobile HAZMAT buffer areas valued at over $5.2M, and there are 5 critical facilities located in the 500M Railway mobile HAZMAT buffer areas valued at approximately $6.5M.

Expanding to a 2500M HAZMAT risk zone reveals that there are 14 critical facilities located in the highway mobile HAZMAT buffer areas are vulnerable, valued at nearly $60M. There are 9 critical facilities located in the railway mobile HAZMAT buffer area that are vulnerable, valued at approximately $40M. A list of specific critical facilities and their associated risk can be found in **Table A.31** at the end of this section.

In conclusion, a hazardous material incident has the potential to impact many existing and future buildings, critical facilities, and populations in Marion County. Those areas in a primary buffer are at the highest risk, though all areas carry some vulnerability due to variations in conditions that could alter the impact area (i.e., direction and speed of wind, volume of release, etc). Further, incidents from neighboring counties could also impact the county and participating jurisdictions.

CONCLUSIONS ON HAZARD VULNERABILITY

Table E.31 shows the critical facilities vulnerable to additional hazards analyzed in this section. The table lists those assets that are determined to be exposed to each of the identified hazards (marked with an "**X**").

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TABLE E.31: AT-RISK CRITICAL FACILITIES IN MARION COUNTY

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[18]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Marion County																					
COLUMBIA ACADEMY	School	X	X	X	X	X		X	X								X	X			Non-burnable
COLUMBIA ELEMENTARY SCHOOL	School	X	X	X	X	X	X	X	X							X		X	X	X	Non-burnable
Columbia Fire Department	Fire Department	X	X	X	X	X		X	X				X			X		X	X	X	Moderate
COLUMBIA HIGH SCHOOL	School	X	X	X	X	X		X	X					X		X		X		X	Non-burnable
Columbia Police Dept	Police Station	X	X	X	X	X		X	X				X			X		X	X	X	Non-burnable
Columbia Police Investigator	Police Station	X	X	X	X	X		X	X				X			X		X	X	X	Moderate
COLUMBIA PRIMARY SCHOOL	School	X	X	X	X	X	X	X	X							X		X		X	Non-burnable
EAST COLUMBIA HIGH SCHOOL	School	X	X	X	X	X		X	X									X			Non-burnable
EAST MARION ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X									X			Moderate
EAST MARION HIGH SCHOOL	School	X	X	X	X	X		X	X									X			Moderate
EAST MARION PRIMARY SCHOOL	School	X	X	X	X	X		X	X									X			Moderate
JEFFERSON MIDDLE SCHOOL	School	X	X	X	X	X	X	X	X							X				X	Non-burnable
MARION CO VOC COMPLEX	School	X	X	X	X	X		X	X									X			Non-

[18] As noted previously, these facilities could be at risk to dam failure if located in an inundation area. Data was not available to conduct such an analysis. There was no local knowledge of these facilities being at risk to dam failure. As additional data becomes available, more in-depth analysis will be conducted.

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[18]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
																					burnable
Marion County Civil Defense	Emergency Facility	X	X	X	X	X		X	X												High
Marion County Sheriff Dept	Police Station	X	X	X	X	X	X	X	X							X		X	X	X	Non-burnable
MARION GENERAL HOSPITAL	Care Facility	X	X	X	X	X		X	X									X		X	Non-burnable
Pine Burr Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												Very High
Tri-Community Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												High
Southwest Marion Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												Low
Southwest Marion Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X									X			Non-burnable
WEST MARION ELEMENTARY	School	X	X	X	X	X		X	X									X	X	X	Non-burnable
WEST MARION HIGH SCHOOL	School	X	X	X	X	X		X	X									X	X	X	Non-burnable
WEST MARION JUNIOR HIGH SCHOOL	School	X	X	X	X	X		X	X									X	X	X	Non-burnable
WEST MARION PRIMARY SCHOOL	School	X	X	X	X	X		X	X				X				X	X	X	X	Non-burnable
Southwest Marion Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X										X	X	Non-burnable
Southwest Marion Volunteer Fire Department	Fire Department	X	X	X	X	X		X	X												Very High

E.4 MARION COUNTY CAPABILITY ASSESSMENT

This subsection discusses the capability of Marion County to implement hazard mitigation activities. More information on the purpose and methodology used to conduct the assessment can be found in Section 7: *Capability Assessment*.

E.4.1 Planning and Regulatory Capability

Table E.31 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for Marion County. A checkmark (✓) indicates that the given item is currently in place and being implemented. An asterisk (*) indicates that the given item is currently being developed for future implementation. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the MEMA District 8 Regional Hazard Mitigation Plan.

TABLE E.31: RELEVANT PLANS, ORDINANCES, AND PROGRAMS

Planning Tool/Regulatory Tool	Hazard Mitigation Plan	Comprehensive Land Use Plan	Floodplain Management Plan	Open Space Management Plan (Parks & Rec/Greenway Plan	Stormwater Management Plan/Ordinance	Natural Resource Protection Plan	Flood Response Plan	Emergency Operations Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	National Flood Insurance Program (NFIP)	NFIP Community Rating System
MARION COUNTY	✓			✓				✓	✓				✓		✓		✓					✓	
Columbia	✓	✓		✓				✓					✓		✓	✓	✓			✓		✓	

A more detailed discussion on the county's planning and regulatory capabilities follows.

EMERGENCY MANAGEMENT

Hazard Mitigation Plan
Marion County has previously adopted a hazard mitigation plan. The City of Columbia was also included in this plan.

Emergency Operations Plan
Marion County maintains an emergency operations plan through its Emergency Management Agency. The City of Columbia is also covered by this plan.

GENERAL PLANNING

Comprehensive Land Use Plan
Marion County has not adopted a county comprehensive land use plan. However, the City of Columbia adopted a city comprehensive plan in 1970.

Zoning Ordinance
Marion County does not have a zoning ordinance in place. However, the City Columbia has a zoning ordinance that was adopted in 1970.

Subdivision Ordinance
Marion County adopted rather extensive subdivision regulations in 2005. The City of Columbia also adopted subdivision regulations in 1969 and amended the ordinance in 1980.

Building Codes, Permitting, and Inspections
Marion County has not adopted a building code. However, the City of Columbia has adopted a building code.

FLOODPLAIN MANAGEMENT

Table E.32 provides NFIP policy and claim information for each participating jurisdiction in Marion County.

TABLE E.32: NFIP POLICY AND CLAIM INFORMATION

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance in Force	Closed Claims	Total Payments to Date
MARION COUNTY†	9/28/79	7/18/11	189	$29,435,100	248	$2,337,509
Columbia	9/28/79	7/18/11	197	$27,315,800	303	$3,612,752

†Includes unincorporated areas of county only
Source: NFIP Community Status information as of 3/31/13; NFIP claims and policy information as of 5/15/13

Flood Damage Prevention Ordinance
All communities participating in the NFIP are required to adopt a local flood damage prevention ordinance. Marion County and the City of Columbia both participate in the NFIP and have adopted flood damage prevention ordinances.

Open Space Management Plan
Marion County and the City of Columbia are both included in the Southern Mississippi Planning and Development District (SMPDD) Regional Open Space Plan that was written in 1973.

E.4.2 Administrative and Technical Capability

Table E.33 provides a summary of the capability assessment results for Marion County with regard to relevant staff and personnel resources. A checkmark (✓) indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill.

TABLE E.33: RELEVANT STAFF / PERSONNEL RESOURCES

Staff / Personnel Resource	Planners with knowledge of land development/land management practices	Engineers or professionals trained in construction practices related to buildings and/or infrastructure	Planners or engineers with an understanding of natural and/or human-caused hazards	Emergency Manager	Floodplain Manager	Land Surveyors	Scientists familiar with the hazards of the community	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS and/or Hazus	Resource development staff or grant writers
MARION COUNTY		✓		✓	✓		✓	✓	✓	
Columbia		✓		✓	✓		✓	✓	✓	

Credit for having a floodplain manager was given to those jurisdictions that have a flood damage prevention ordinance, and therefore an appointed floodplain administrator, regardless of whether the appointee was dedicated solely to floodplain management. Credit was given for having a scientist familiar with the hazards of the community if a jurisdiction has a Cooperative Extension Service or Soil and Water Conservation Department. Credit was also given for having staff with education or expertise to assess the community's vulnerability to hazards if a staff member from the jurisdiction was a participant on the existing hazard mitigation plan's planning committee.

E.4.3 Fiscal Capability

Table E.34 provides a summary of the results for Marion County with regard to relevant fiscal resources. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard mitigation purposes (including match funds for state and federal mitigation grant funds) according to the previous county hazard mitigation plan.

TABLE E.34: RELEVANT FISCAL RESOURCES

Fiscal Tool / Resource	Capital Improvement Programming	Community Development Block Grants (CDBG)	Special Purpose Taxes (or taxing districts)	Gas/Electric Utility Fees	Water/Sewer Fees	Stormwater Utility Fees	Development Impact Fees	General Obligation, Revenue, and/or Special Tax Bonds	Partnering Arrangements or Intergovernmental Agreements
MARION COUNTY	✓	✓							✓
Columbia	✓	✓							✓

E.4.4 Political Capability

During the months immediately following a disaster, local public opinion in Marion County is more likely to shift in support of hazard mitigation efforts.

E.5 MARION COUNTY MITIGATION STRATEGY

This subsection provides the blueprint for Marion County to follow in order to become less vulnerable to its identified hazards. It is based on general consensus of the Regional Hazard Mitigation Council and the findings and conclusions of the capability assessment and risk assessment. Additional Information can be found in Section 8: *Mitigation Strategy* and Section 9: *Mitigation Action Plan*.

E.5.1 Mitigation Goals

Marion County developed five mitigation goals in coordination with the other participating MEMA District 8 Region jurisdictions. The regional mitigation goals are presented in **Table E.35**.

TABLE E.35: MEMA DISTRICT 8 REGIONAL MITIGATION GOALS

	Goal
Goal #1	Develop a sustainable, comprehensive mitigation program to ensure safer communities.
Goal #2	Reduce or avoid loss of life, injury, and damage to property, the economy, and the environment.
Goal #3	Enhance preparedness and effective response to hazards.
Goal #4	Strengthen and improve local mitigation capabilities.

	Goal
Goal #5	Increase public awareness of hazard mitigation, hazard risk, and protective measures that can be taken to minimize potential loss and damage.

E.5.2 Mitigation Action Plan

The mitigation actions proposed by Marion County and the City of Columbia are listed in the following individual Mitigation Action Plans.

Marion County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	County	Annual review	Complete. High risk areas are identified in the hazard mitigation plan. Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	TBD	MCEMA, County	Within 1 year; Upon request	Ongoing – the County is currently working to develop a GIS shapefile that identifies the vulnerable populations in the County.
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	CDBG, HMGP, PDM, USDA Rural Dev , Self-funding	TBD	County Floodplain Administrator	Ongoing	Ongoing
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	FL	High	CDBG, HMGP, PDM, USDA Rural Dev , Self-funding	TBD	County BOS	Ongoing	Ongoing
P-5	Continue to maintain and upgrade drainage facilities.	HI, TS, FL, BH	High	CDBG, HMGP, PDM, USDA Rural Dev , Self-funding	Unknown	County BOS, County Road Crews	Annual review	Ongoing as funding becomes available

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Ongoing/Pending staff availability and funding
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Ongoing /Pending staff availability and funding
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	CDBG, HMGP, PDM, USDA Rural Dev , Self-funding	No additional cost	County	2024	Ongoing/Pending staff availability and funding
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County	Within 2 years	Ongoing/Pending staff availability and funding
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County	Concurrent with prep. of Comp Plan	Ongoing/Pending staff availability and funding
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County	Within 5 years	Pending staff availability and funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	TBD	County	Within 3 years	The flood damage prevention ordinance ensures that new construction in the floodplain is elevate. Existing floodprone structures are evaluated on a case by case basis pending funding and willingness of property owner.
PP-3	Ensure that new public buildings are designed and built to hurricane resistant buildings codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	County	Within 2 years	Ongoing
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	CDBG, HMGP, PDM, USDA Rural Dev ,	Unknown	County	Within 2 years; Next round of HMGP funding	Ongoing pending funding availability
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Next round of HMGP funding	Ongoing
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	TBD	MS Land Trust, Land Trust for MS Coastal Plain, County	Within 5 years	Ongoing pending funding availability

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	MCEMA	Within 2 years	Ongoing pending staff availability and funding
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	TBD	MCEMA, County	Ongoing/Within 2 years	Ongoing/Pending staff availability and funding
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	TBD	MCEMA, County	Within 2 years	Ongoing/Pending staff availability and funding
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	TBD	MCEMA, County	2024	Ongoing/Pending staff availability and funding
ES-5	Improve disaster communication systems within the county.	All	High	CDBG, HMGP, PDM, USDA Rural Dev , Self-funding	TBD	MCEMA	Ongoing	Ongoing/Pending staff availability and funding
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	HMGP	TBD	MCEMA	Contingent upon funding	Pending funding
ES-7	Install warning sirens.	TO, HU, TS	High	HMGP	$350,000-$400,000	MCEMA	Contingent upon funding	Pending funding
ES-8	Enhance Central Dispatch.	All	Medium	HMGP	Unknown	MCEMA, County	Ongoing	Initial upgrades completed in 2018/Ongoing
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	MCEMA, County	Within 2 years; Contingent upon funding	Ongoing/Pending funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	TBD	County BOS, MCEMA	Annual Review	Ongoing
ES-11	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	MCEMA	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Ongoing pending funding availability
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Annual review	Completed/Ongoing
ES-14	Host a meeting to review Marion County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	County	Annual Review	Ongoing
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	Ongoing/Pending staff availability and funding
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County	Ongoing	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
SP-2	Generators for all existing and future fire stations and 911 critical facilities including comm tower sites	All	High	CDBG, HMGP, PDM, USDA Rural Dev , Self-funding	TBD	MCEMA, County	2024	New
SP-3	Elevation/Acquisition Rep Loss properties	FL	Medium/ High	HMGP, PDM	TBD	MCEMA, County	2024	New
SP-4	Harden existing structures to serve as safe rooms (schools, emergency shelters).	All	High	CDBG, HMGP, PDM, USDA Rural Dev , Self-funding	TBD	MCEMA, County	2024	New
SP-5	Construct community multipurpose facilities/saferooms in vulnerable communities throughout the county.	All	High	CDBG, HMGP, PDM, USDA Rural Dev , Self-funding	TBD	MCEMA, County	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County	Ongoing	Ongoing pending funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	TBD	MCEMA	Annual Review	Ongoing
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	MCEMA	Annual presentations	Ongoing
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	TBD	MCEMA, County	Upon request	Ongoing
PEA-5	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	DHS, SAFER, COPS, FIRE, Others	TBD	County	Annual Review	Ongoing

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

MCEMA = Marion County Emergency Management Agency County BOS = Marion County Board of Supervisors

City of Columbia Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	City	Annual review	Complete. High risk areas are identified in the hazard mitigation plan. Ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	MCEMA, City	Within 1 year; Upon request	Ongoing – the County is currently working to develop a GIS shapefile that identifies the vulnerable populations in the County.
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	City Floodplain Administrator	Ongoing	Ongoing
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	FL	High	Self-funded	No additional cost	County BOS, City	Ongoing	Ongoing
P-5	Continue to maintain and upgrade drainage facilities.	HI, TS, FL, BH	High	Self-funded	Unknown	County BOS, County Road Crews, City	Annual review	Ongoing as funding becomes available
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, City	Within 5 years	Ongoing/Pending staff availability and funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	City	Within 5 years	Ongoing /Pending staff availability and funding
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County, City	2024	Ongoing/Pending staff availability and funding
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County, City	Within 2 years	Ongoing/Pending staff availability and funding
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County, City	Concurrent with prep. of Comp Plan	Ongoing/Pending staff availability and funding
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	City	Within 5 years	Pending staff availability and funding
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, City	Within 3 years	The flood damage prevention ordinance ensures that new construction in the floodplain is elevate. Existing floodprone structures are evaluated on a case by case basis pending funding and willingness of property owner.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-3	Ensure that new public buildings are designed and built to hurricane resistant buildings codes.	HU, TS, TO, HW	High	Self-funded	No additional cost	City	Within 2 years	Ongoing
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	City	Within 2 years; Next round of HMGP funding	Ongoing pending funding availability
PP-5	Ensure secure operation of water wells and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	City	Within 5 years; Next round of HMGP funding	Ongoing
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for MS Coastal Plain, County	Within 5 years	Ongoing pending funding availability
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	MCEMA	Within 2 years	Ongoing pending staff availability and funding
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	MCEMA, City	Ongoing/Within 2 years	Ongoing/Pending staff availability and funding
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	MCEMA, City	Within 2 years	Ongoing/Pending staff availability and funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-4	Explore potential sites for a new special needs shelter.	TO, HU, TS, FL	High	HMGP	Unknown	MCEMA, City	2024	Ongoing/Pending staff availability and funding
ES-5	Improve disaster communication systems within the county.	All	High	Unknown	Unknown	MCEMA	Ongoing	Ongoing/Pending staff availability and funding
ES-6	Consider generators for local radio station service areas.	TO, HU, TS	High	HMGP	Unknown	MCEMA	Contingent upon funding	Pending funding
ES-7	Install warning sirens.	TO, HU	High	HMGP	Unknown	MCEMA	Contingent upon funding	Pending funding
ES-8	Enhance Central Dispatch.	All	Medium	HMGP	Unknown	MCEMA, City	Ongoing	Initial upgrades completed in 2018/Ongoing
ES-9	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	MCEMA, City	Within 2 years; Contingent upon funding	Ongoing/Pending funding
ES-10	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, MCEMA, City	Annual Review	Ongoing
ES-11	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	MCEMA	Ongoing	Ongoing
ES-12	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	City	Within 2 years; Next round of HMGP funding	Ongoing pending funding availability
ES-13	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	City	Annual review	Completed/Ongoing
ES-14	Host a meeting to review Marion County Comprehensive Emergency Management Plan.	TT	Medium	Self-funded	No additional cost	City	Annual Review	Ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, City	Ongoing	Ongoing/Pending staff availability and funding
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	City	Ongoing	Ongoing
SP-2	Generators for all existing and future fire stations and 911 critical facilities including comm tower sites	All	High	CDBG, HMGP, PDM, USDA Rural Dev , Self-funding	TBD	MCEMA, County	2024	New
SP-3	Elevation/Acquisition Rep Loss properties	FL	Medium/ High	HMGP, PDM	TBD	MCEMA, County	2024	New
SP-4	Harden existing structures to serve as safe rooms (schools, emergency shelters).	All	High	CDBG, HMGP, PDM, USDA Rural Dev , Self-funding	TBD	MCEMA, County	2024	New
SP-5	Construct community multipurpose facilities/saferooms in vulnerable communities throughout the county.	All	High	CDBG, HMGP, PDM, USDA Rural Dev , Self-funding	TBD	MCEMA, County	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	City	Ongoing	Ongoing pending funding

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	MCEMA	Annual Review	Ongoing
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	MCEMA	Annual presentations	Ongoing
PEA-4	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	High	Self-funded	No additional cost	MCEMA, City	Upon request	Ongoing
PEA-5	Provide education and outreach materials to citizens and visitors.	All	High	DHS, SAFER, COPS, FIRE, Others	Unknown	City	Annual Review	Ongoing

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds
TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

MCEMA = Marion County Emergency Management Agency County BOS = Marion County Board of Supervisors

[i] USGS. Landslide Hazard, Retrieved August 2019 from, https://www.usgs.gov/natural-hazards/landslide-hazards/science/rainfall-induced-landslides

Annex F
Perry County

This annex includes jurisdiction-specific information for Perry County and its participating municipalities. It consists of the following five subsections:

- F.1 Perry County Community Profile
- F.2 Perry County Risk Assessment
- F.3 Perry County Vulnerability Assessment
- F.4 Perry County Capability Assessment
- F.5 Perry County Mitigation Strategy

F.1 PERRY COUNTY COMMUNITY PROFILE

F.1.1 Geography and the Environment

Perry County is located in southeastern Mississippi. It comprises three towns, the Town of Beaumont, the Town of New Augusta, and the Town of Richton, as well as several small unincorporated communities. An orientation map is provided as **Figure F.1**.

The county is located in the long-leaf pine belt and is rural in nature with commercial forests covering 84 percent of the land area. The principal streams are the Leaf River, Black Creek, and both their numerous tributaries. The prevailing timber found in Perry County is the long leaf pine, but on the rivers and creeks, oaks, hickory, poplar, magnolia, gums, and cypress are found. The total area of the county is 650 square miles, 3 square miles of which is water area.

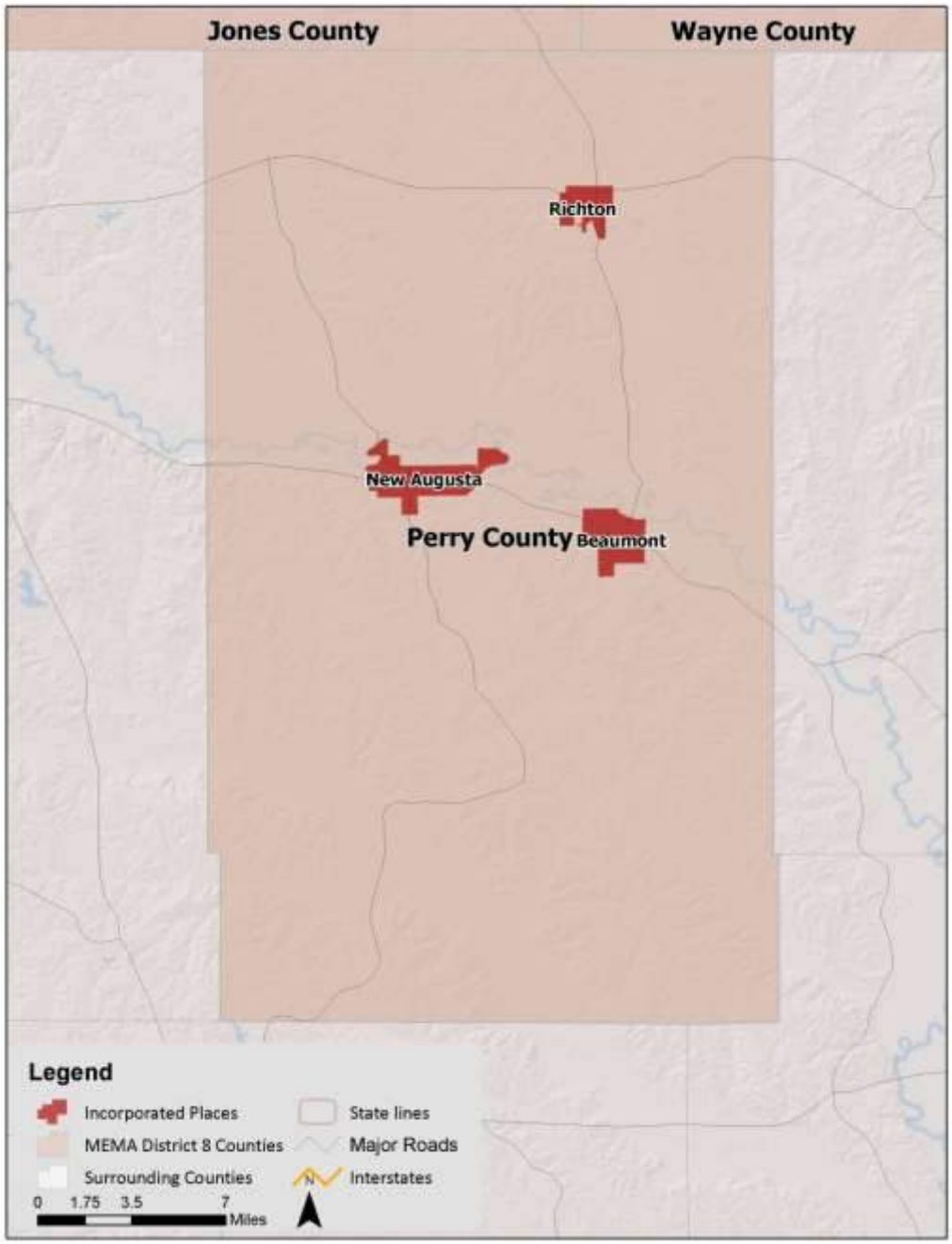
In Perry County, the summers are long, hot, and oppressive; the winters are short and cold; and it is wet and partly cloudy year-round. Over the course of the year, the temperature typically varies from 40°F to 92°Fand is rarely below 25°F or above 97°F.

The hot season lasts for 4.2 months, from May 20 to September 26, with an average daily high temperature above 85°F. The hottest day of the year is August 10, with an average high of 92°F and low of 72°F. The cool season lasts for 2.8 months, from December 1 to February 23, with an average daily high temperature below 66°F. The coldest day of the year is January 17, with an average low of 40°F and high of 60°F.

A wet day is one with at least 0.04 inches of liquid or liquid-equivalent precipitation. The chance of wet days in New Augusta varies significantly throughout the year. The wetter season lasts 3.0 months, from May 30 to August 29, with a greater than 38% chance of a given day being a wet day. The chance of a wet day peaks at 56% on July 26. The drier season lasts 9.0 months, from August 29 to May 30. The smallest chance of a wet day is 20% on October 9. Among wet days, we distinguish between those that experience rain alone, snow alone, or a mixture of the two. Based on this categorization, the most common form of precipitation throughout the year is rain alone, with a peak probability of 56% on July 26.

Rain falls throughout the year in New Augusta. The most rain falls during the 31 days centered around February 15, with an average total accumulation of 5.4 inches. The least rain falls around October 6, with an average total accumulation of 3.1 inches.

FIGURE F.1: PERRY COUNTY ORIENTATION MAP



F.1.2 Population and Demographics

According to the 2010 Census, Perry County has a population of 12,250 people. The county has seen a slight growth in population between 2000 and 2010, and the population density is 19 people per square mile. However, between the last official Census and the proposed estimates, there has been a decline. Per the Census Reports, in 2017, Perry County had a population of 12,032 which is a 1.04 percent decline. However, it is interesting that two of the municipalities have gained population since the last Census. Beaumont and New Augusta have both seen increases in population. The household income is $35,374, which grew 1.73 percent. Population counts from the US Census Bureau for 1990, 2000, and 2010 for the county and both of the participating jurisdictions are presented in **Table F.1**. Estimates for 2017 are also included.

TABLE F.1: POPULATION COUNTS FOR PERRY COUNTY

Jurisdiction	1990 Census Population	2000 Census Population	2010 Census Population	% Change 2000-2010	Estimated 2017 Census Population
Perry County	**10,865**	**12,138**	**12,250**	**0.9%**	**12,032**
Beaumont	1,054	977	951	-2.7%	1.034
New Augusta	668	715	644	-9.9%	695
Richton	1,034	1,038	1,068	2.9%	952

Source: US Census Bureau

Based on the 2010 Census, the median age of residents of Perry County rose from 38.7 years to 40.7 years. The racial characteristics of the county are presented in **Table F.2** and will remain the same as the census data has not been officially updated. Due to the population decrease, the racial characteristics differ slightly. The population is 19.8 percent for black or African American persons, 1.43 percent Hispanic or Latino. Whites make up the majority of the population in the county, accounting for 77.4 percent of the population.

TABLE F.2: DEMOGRAPHICS OF PERRY COUNTY

Jurisdiction	White Persons, Percent (2010)	Black Persons, Percent (2010)	American Indian or Alaska Native, Percent (2010)	Other Race, Percent (2010)	Persons of Hispanic Origin, Percent (2010) *
Perry County	**78.2%**	**20.0%**	**0.3%**	**1.5%**	**1.0%**
Beaumont	51.5%	47.0%	0.5%	0.9%	0.1%
New Augusta	55.7%	42.7%	0.3%	1.2%	0.9%
Richton	67.0%	31.0%	0.2%	1.8%	1.0%

*Hispanics may be of any race, so also are included in applicable race categories

Source: US Census Bureau

F.1.3 Housing

According to the 2010 US Census, there are 5,519 housing units in Perry County, the majority of which are single family homes or mobile homes. Per 2018 estimates, the total number of housing units increased

to 5,653 units. The median home value is $81,100, which also increased by at least 4.74 percent. Housing information for the county and three towns is presented in **Table F.3**. As shown in the table, Richton has a significantly lower percentage of seasonal housing units compared to the other two towns and unincorporated county.

TABLE F.3: HOUSING CHARACTERISTICS OF PERRY COUNTY

Jurisdiction	Housing Units (2000)	Housing Units (2010)	Seasonal Units, Percent (2010)	Median Home Value (2006-2010)	Housing Units (2018)	Median Home Value (2018)
Perry County	**5,107**	**5,519**	**5.0%**	**$82,200**	**5.653**	**$81,100**
Beaumont	448	461	4.3%	$53,100	461	$56,122
New Augusta	292	319	7.5%	$69,200	337	$82,197
Richton	497	463	0.9%	$67,800	463	$80,357

Source: US Census Bureau

F.1.4 Infrastructure

TRANSPORTATION

Major highways in the county are US Highway 98, running east and west, and State Highways 15, 29, and 42. These major arteries provide adequate access to regional urban centers, including Hattiesburg to the West and Mobile, Alabama to the southeast.

The Richton/Perry County Airport provides limited local service and regional air travel connections are available through Pine Belt Regional Airport in the Laurel/Hattiesburg area.

Rail service to the area is provided by Canadian, National/Illinois, and Central Railroads, but there is no passenger service offered at this time.

UTILITIES

Electrical power in Perry County is provided by several sources, primarily Dixie Electric Power Association (EPA), Singing River EPA, Mississippi Power Company, Pearly River Valley EPA, and South Mississippi EPA.

The unincorporated areas of the county are not served by centralized water or wastewater systems. Each site and/or structure must provide its own septic system. Large portions of the county are served by various rural water associates, but some areas not served by any water systems. In these areas, residences, businesses, and school area served by private wells. Water and sewer services are provided to residents of the Towns of Beaumont and Richton by a system of water wells and wastewater lagoons.

COMMUNITY FACILITIES

There are a number of buildings and community facilities located throughout Perry County. According to the data collected for the vulnerability assessment (Section 6.4.1), there are 1 fire station, 2 police stations, and 6 public schools located within the county.

There is one hospital located in Perry County. Perry County General Hospital is a 22-bed medical-surgical hospital located in the Town of Richton.

Recreational opportunities in Perry County are enhanced by the proximity of the De Soto National Forest, Lake Perry, Leaf River Game Management Area, Moody's Landing, Janice Landing, Fairley Bridge Landing, Cypress Creek Landing, and Sportsman's Lake. The county also has ball fields, camping, fishing, hunting, swimming, tennis, water sports, and a State Park. Golf, tennis, and ball fields are available in the Town of Richton, and Beaumont and New Augusta both have ball fields and tennis courts as well.

F.1.5 Land Use

Many areas of Perry County are undeveloped or sparsely developed due to the county's location just off the Gulf Coast and the conservation of land in state and national parks. There are a few incorporated municipalities located throughout the region, and these areas are where the region's population is generally concentrated. The incorporated areas are also where many businesses, commercial uses, and

institutional uses are located. Land uses in the balance of the county generally consist of rural residential development, agricultural uses, and recreational areas.

F.1.6 Employment and Industry

According to the Mississippi Employment Security Commission, in 2018, Perry County had an average annual employment of 2,220 workers and an average unemployment rate of 6.0 percent. According to the MESC, in 2018, Government Agencies employed 26.6 percent of the workforce followed by Manufacturing (25.7 %) and Health Care and Social Assistance (14.9%). The average annual wage in Perry County was $35,374.

F.2 PERRY COUNTY RISK ASSESSMENT

This subsection includes hazard profiles for each of the significant hazards identified in Section 4: *Hazard Identification* as they pertain to Perry County. Each hazard profile includes a description of the hazard's location and extent, notable historical occurrences, and the probability of future occurrences. Additional information can be found in Section 5: *Hazard Profiles*.

F.2.1 Flood

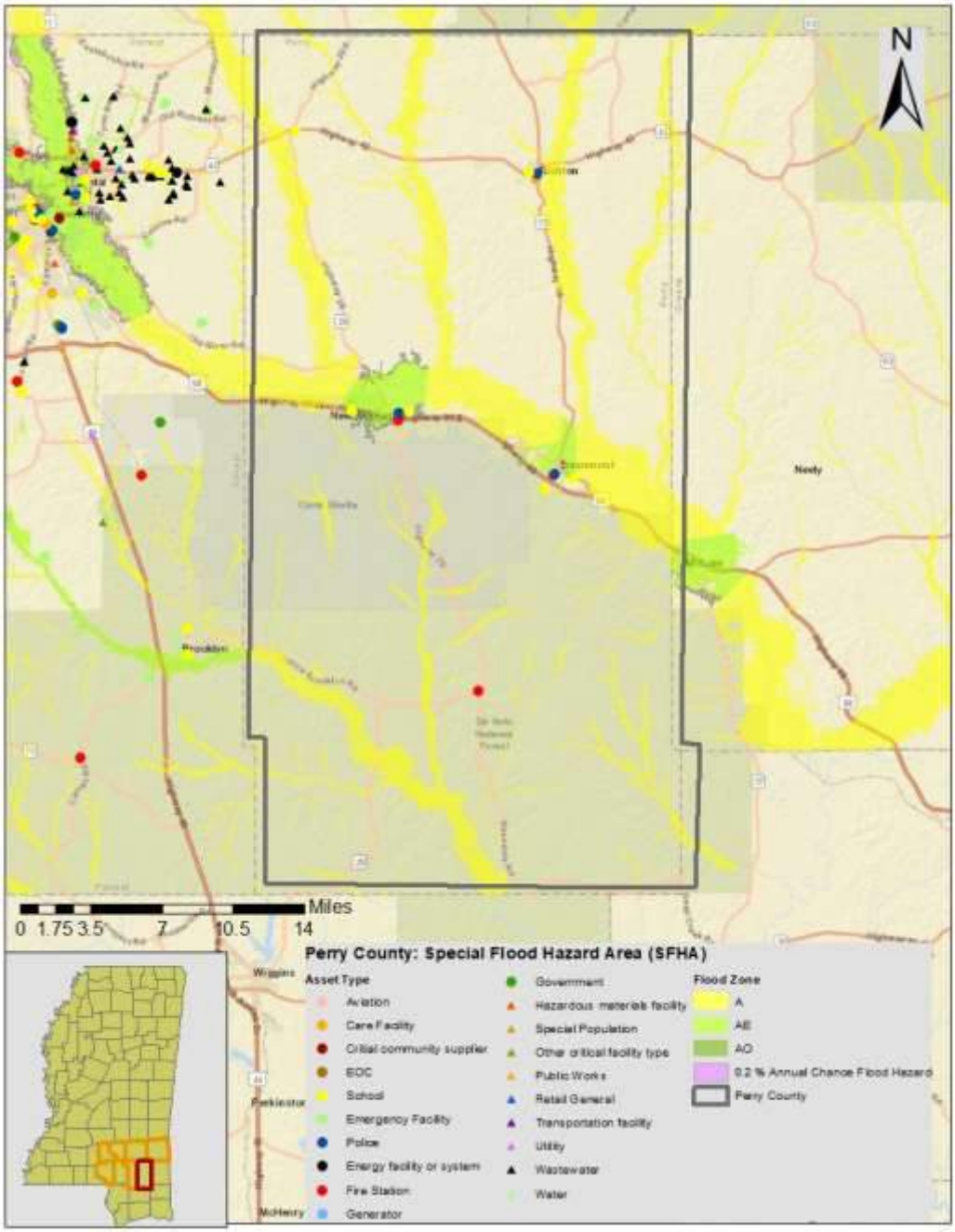
LOCATION AND SPATIAL EXTENT

There are areas in Perry County that are susceptible to flood events. Special flood hazard areas in the county were mapped using Geographic Information System (GIS) and FEMA Digital Flood Insurance Rate Maps (DFIRM).[1] This includes Zone A (1-percent annual chance floodplain), Zone AE (1-percent annual chance floodplain with elevation), and the 0.2-percent annual chance floodplain). According to GIS analysis, of the 652 square miles that make up Perry County, there are 115 square miles of land in zones A and AE (1-percent annual chance floodplain/100-year floodplain) and 1 square mile of land in the 0.2-percent annual chance floodplain (500-year floodplain).

These flood zone values account for 17.8 percent of the total land area in Perry County. It is important to note that while FEMA digital flood data is recognized as best available data for planning purposes, it does not always reflect the most accurate and up-to-date flood risk. Flooding and flood-related losses often do occur outside of delineated special flood hazard areas.

[1] The county-level DFIRM data used for Perry County were updated in 2011.

FIGURE F.2: SPECIAL FLOOD HAZARD AREAS IN PERRY COUNTY



Source: Federal Emergency Management Agency

HISTORICAL OCCURRENCES

Floods resulted in three disaster declarations in Perry County in 1974, 1983, and 1990.[2] Information from the National Centers for Environmental Information was used to ascertain historical flood events. The

[2]A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

National Centers for Environmental Information reported a total of 39 events in Perry County since 1995.[3] A summary of these events is presented in **Table F.4**. These events accounted for almost $118,000 in property damage in the county. Specific information on flood events, including date, type of flooding, and deaths and injuries, can be found in **Table F.5**.

TABLE F.4: SUMMARY OF FLOOD OCCURRENCES IN PERRY COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Beaumont	1	0/0	$0
New Augusta	2	0/0	$50,000
Richton	5	0/0	$16,883
Unincorporated Area	21	0/0	$1,950,914
PERRY COUNTY TOTAL	**31**	**0/0**	**$2,017,797**

Source: National Centers for Environmental Information

TABLE F.5: HISTORICAL FLOOD EVENTS IN PERRY COUNTY

Location	Date	Type	Deaths / Injuries	Property Damage*
Beaumont				
Beaumont	22-OCT-07	FLASH FLOOD	0/0	$0
New Augusta				
New Augusta	11-MAR-16	FLASH FLOOD	0/0	$50,000
New Augusta	09-AUG-17	FLASH FLOOD	0/0	$0
Richton				
Richton	28-JUN-00	FLASH FLOOD	0/0	$0
Richton	13-APR-09	FLASH FLOOD	0/0	$16,883
Richton	04-FEB-10	FLASH FLOOD	0/0	$0
Richton	09-MAR-11	FLASH FLOOD	0/0	$0
Richton	09-MAR-11	FLASH FLOOD	0/0	$0
Unincorporated Area				
Southeast Section	18-DEC-95	FLASH FLOOD	0/0	$1,657
Southwest portion	26-JAN-98	FLASH FLOOD	0/0	$1,549
Countywide	28-APR-98	FLASH FLOOD	0/0	$46,467
Countywide	03-MAR-01	FLASH FLOOD	0/0	$42,773
South Portion	28-OCT-02	FLASH FLOOD	0/0	$0
Countywide	30-JUN-03	FLASH FLOOD	0/0	$0
Janice	12-MAY-04	FLASH FLOOD	0/0	$0
Countywide	29-AUG-05	FLASH FLOOD	0/0	$0
Janice	21-DEC-06	FLASH FLOOD	0/0	$6,149
RUNNELSTOWN	05-APR-08	FLASH FLOOD	0/0	$0
Janice	01-SEP-08	FLASH FLOOD	0/0	$2,319
MAHNED	14-DEC-09	FLASH FLOOD	0/0	$0
RUNNELSTOWN	09-MAR-11	FLASH FLOOD	0/0	$0
Janice	22-MAR-12	FLASH FLOOD	0/0	$0
Janice	22-MAR-12	FLASH FLOOD	0/0	$0

[3] These events are only inclusive of those reported by NCEI. It is likely that additional occurrences have occurred and have gone unreported.

Location	Date	Type	Deaths / Injuries	Property Damage*
Janice	22-MAR-12	FLASH FLOOD	0/0	$0
Tallahala	11-MAR-16	FLASH FLOOD	0/0	$50,000
Tallahala	14-APR-16	FLASH FLOOD	0/0	$0
RUNNELSTOWN	14-APR-16	FLASH FLOOD	0/0	$0
Hintonville	27-DEC-18	FLASH FLOOD	0/0	$1,800,000

Source: National Centers for Environmental Information

HISTORICAL SUMMARY OF INSURED FLOOD LOSSES

Recently, FEMA issued a directive that prevents states or local governments from sharing NFIP information such as rep loss or severe rep loss data with third parties. Third parties are considered as consultants, contractors, etc. As a result, for continuity of information so that the reader with have an idea of the historical occurrences along with the corresponding damage amounts, the decision was made to leave the existing information in the plan.

According to FEMA flood insurance policy records as of March 2013, there have been 67 flood losses reported in Perry County through the National Flood Insurance Program (NFIP) since 1978, totaling nearly $259,000 in claims payments. Currently, this remains the best available data. A summary of these figures for the county is provided in **Table F.6**. It should be emphasized that these numbers include only those losses to structures that were insured through the NFIP policies, and for losses in which claims were sought and received. It is likely that many additional instances of flood loss in Perry County were either uninsured, denied claims payment, or not reported.

TABLE F.6: SUMMARY OF INSURED FLOOD LOSSES IN PERRY COUNTY

Location	Flood Losses	Claims Payments
Beaumont	16	$32,703
New Augusta	12	$51,683
Richton	1	$42,415
Unincorporated Area	38	$131,996
PERRY COUNTY TOTAL	**67**	**$258,797**

Source: FEMA, NFIP

REPETITIVE LOSS PROPERTIES

No updates to this section can be provided at this time. Information normally used to update this section is not currently accessible. As a result, this information will remain the same for historical purposes.

As of May 2013, there are 11 non-mitigated repetitive loss properties located in Perry County, which accounted for 26 losses and just over $116,000 in claims payments under the NFIP. The average claim amount for these properties is $4,462. All 11 of the properties are single family residential. Without mitigation these properties will likely continue to experience flood losses. **Table F.7** presents detailed information on repetitive loss properties and NFIP claims and policies for Perry County. Currently, this remains the best available data.

TABLE F.7: REPETITIVE LOSS PROPERTIES IN PERRY COUNTY

Location	Number of Properties	Types of Properties	Number of Losses	Building Payments	Content Payments	Total Payments	Average Payment
Beaumont	2	2 single family	4	$10,038	$650	$10,688	$2,672
New Augusta	3	3 single family	6	$33,073	$186	$33,259	$5,543
Richton	0	--	0	$0	$0	$0	$0
Unincorporated Area	6	6 single family	16	$65,023	$7,031	$72,053	$4,503
PERRY COUNTY TOTAL	**11**		**26**	**$108,134**	**$7,867**	**$116,001**	**$4,462**

Source: National Flood Insurance Program

PROBABILITY OF FUTURE OCCURRENCES

Due to the unpredictable nature of this hazard, flood events will remain a threat in Perry County, and the probability of future occurrences will remain likely (between 10 and 100 percent annual probability). The participating jurisdictions and unincorporated areas have risk to flooding, though not all areas will experience flood. The probability of future flood events based on magnitude and according to best available data is illustrated in the figures above, which indicates those areas susceptible to the 1-percent annual chance flood (100-year floodplain) and the 0.2-percent annual chance flood (500-year floodplain).

It can be inferred from the floodplain location maps, previous occurrences, and repetitive loss properties that risk varies throughout the county. For example, the northern half of the county has more floodplain and thus a higher risk of flood than the southern half of the county. Flood is not the greatest hazard of concern but will continue to occur and cause damage. Therefore, mitigation actions may be warranted, particularly for repetitive loss properties.

F.2.2 Erosion

LOCATION AND SPATIAL EXTENT

Erosion in Perry County is typically caused by flash flooding events. Unlike coastal areas, areas of concern for erosion in Perry County are primarily rivers and streams. Generally, vegetation helps to prevent erosion in the area, and it is not an extreme threat to any of the participating counties and jurisdictions. No areas of concern were reported by the planning committee.

HISTORICAL OCCURRENCES

Several sources were vetted to identify areas of erosion in Perry County. This includes searching local newspapers, interviewing local officials, and reviewing previous hazard mitigation plans. No historical erosion occurrences were found in these sources.

PROBABILITY OF FUTURE OCCURRENCES

Erosion remains a natural, dynamic, and continuous process for Perry County, and it will continue to occur. The annual probability level assigned for erosion is possible (between 1 and 10 percent annually).

F.2.3 Dam Failure

LOCATION AND SPATIAL EXTENT

According to the Mississippi Division of Environmental Quality, one dam's status was elevated to a high hazard dam. The high hazard dam is listed by name in **Table F.8**. According to a consensus of local government officials and the Regional Hazard Mitigation Council, a majority of these dams would not pose a major threat in a breach or failure occurrence[4].

TABLE F.8: PERRY COUNTY HIGH HAZARD DAMS

Dam Name	Hazard Potential
Perry County	
DRY CREEK WATERSHED STRUCTURE 3 DAM	High

Source: Mississippi Division of Environmental Quality

HISTORICAL OCCURRENCES

There is no record of dam breaches in Perry County. However, several breach scenarios in the county could be catastrophic.

PROBABILITY OF FUTURE OCCURRENCES

Given the current dam inventory and historic data, a dam breach is unlikely (less than 1 percent annual probability) in the future. However, as has been demonstrated in the past, regular monitoring is necessary to prevent these events.

F.2.4 Winter Storm and Freeze

LOCATION AND SPATIAL EXTENT

Nearly the entire continental United States is susceptible to winter storm and freeze events. Some ice and winter storms may be large enough to affect several states, while others might affect limited, localized areas. The degree of exposure typically depends on the normal expected severity of local winter weather. Perry County is not typically affected by major severe winter weather conditions and seldom receives extremely devastating winter weather, even during the winter months. Given the atmospheric nature of the hazard the entire county has uniform exposure to a winter storm.

[4] The list of high hazard dams obtained from the Mississippi Division of Environmental Quality was reviewed and amended by local officials to the best of their knowledge.

HISTORICAL OCCURRENCES

According to the National Centers for Environmental Information, there have been a total of seven recorded winter storm events in Perry County since 2000 (**Table F.9**).[5] These events were reported to cause no damages. Detailed information on the recorded winter storm events can be found in **Table F.10**.[6]

TABLE F.9: SUMMARY OF WINTER STORM EVENTS IN PERRY COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Perry County	7	0/0	$0

Source: National Centers for Environmental Information

TABLE F.10: HISTORICAL WINTER STORM IMPACTS IN PERRY COUNTY

Location	Date	Type	Deaths / Injuries	Property Damage*
Beaumont				
None Reported	--	--	--	--
New Augusta				
None Reported	--	--	--	--
Richton				
None Reported	--	--	--	--
Unincorporated Area				
PERRY COUNTY	27-JAN-00	SLEET	0/0	$0
PERRY COUNTY	01-JAN-01	WINTER STORM	0/0	$0
PERRY COUNTY	01-JAN-02	WINTER STORM	0/0	$0
PERRY COUNTY	11-DEC-08	WINTER WEATHER	0/0	$0
PERRY COUNTY	12-FEB-10	WINTER STORM	0/0	$0
PERRY COUNTY	08-DEC-17	HEAVY SNOW	0/0	$0
PERRY COUNTY	16-JAN-18	WINTER STORM	0/0	$0

Source: National Centers for Environmental Information

There have been several severe winter weather events in Perry County. The text below describes one of the major events and associated impacts on the county. Similar impacts can be expected with severe winter weather.

January 2002 Winter Storm

A winter storm produced heavy snow across portions of southeast Mississippi. The heaviest snow recorded during the storm was four to four- and one-half inches. Icy bridges made traveling across the region very treacherous. As a result, several accidents occurred with two fatalities in Jones County.

Winter storms throughout the county have several negative externalities including hypothermia, cost of snow and debris cleanup, business and government service interruption, traffic accidents, and power

[5] These ice and winter storm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is certain that additional winter storm conditions have affected Perry County.
[6] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

outages. Furthermore, citizens may resort to using inappropriate heating devices that could to fire or an accumulation of toxic fumes.

December 2017 Winter Storm

An extremely rare early season snow event occurred across the central Gulf coast late in the day on the 8th into the morning of the 9th. An area of low pressure moved northeast off the Gulf and as the low moved east and pulled a cold air mass into the area, rain changed to a mix and eventually all snow. It was the earliest snow event ever recorded in the area. Storm total snow amounts of 3 to 4 inches in Richton, 2 inches in Beaumont and 2 inches in New Augusta.

PROBABILITY OF FUTURE OCCURRENCES

Winter storm events will continue to occur in Perry County. According to historical information, the annual probability is possible (between 1 and 10 percent).

FIRE-RELATED HAZARDS

F.2.5 Drought

LOCATION AND SPATIAL EXTENT

Drought and heat waves typically cover a large area and cannot be confined to any geographic or political boundaries. Furthermore, it is assumed that Perry County would be uniformly exposed to drought and heat waves, making the spatial extent potentially widespread. It is also notable that drought and extreme heat conditions typically do not cause significant damage to the built environment but may exacerbate wildfire conditions.

HISTORICAL OCCURRENCES

Drought

According to the U.S. Drought Monitor, Perry County had drought levels (including abnormally dry) in all of the last eighteen years (2000-2018). **Table F.11** shows the most severe drought classification for each year, according to U.S. Drought Monitor classifications. It should be noted that the U.S. Drought Monitor also estimates what percentage of the county is in each classification of drought severity. For example, the most severe classification reported may be exceptional, but a majority of the county may actually be in a less severe condition.

TABLE F. 11: HISTORICAL DROUGHT OCCURRENCES IN PERRY COUNTY

Abnormally Dry | Moderate Drought | Severe Drought | Extreme Drought | Exceptional Drought

	Perry County
2000	**EXCEPTIONAL**
2001	MODERATE
2002	SEVERE
2003	ABNORMAL
2004	ABNORMAL
2005	ABNORMAL
2006	**EXTREME**
2007	SEVERE
2008	MODERATE
2009	MODERATE
2010	SEVERE
2011	**EXCEPTIONAL**
2012	MODERATE

Source: U.S. Drought Monitor

There were at least two reported drought events for Perry County according to the National Centers for Environmental Information. However, neither event was significant enough to cause any crop damages.

Heat Wave

The National Centers for Environmental Information was used to determine historical heat wave occurrences in the county.

Summer of 2000 – Hot temperatures persisted from July to September across the South and Plains. Known as the Summer of 2000 Heat Wave, high temperatures commonly peaked over 100 degrees. As shown in **Figure 5.2** below, there were several days over 90 degree than the typical average. This was the fourth warmest July-August on record. In Beaumont, the temperature was 100 degrees or higher eleven days during the month with the hottest being 105 degrees. In Richton the temperature was 100 degrees or higher three days during the month with the hottest being 102 degrees.

August 2007 – A heat wave gripped most of the area with the warmest temperatures since 2000. It lasted from August 5th to the 16th.

PROBABILITY OF FUTURE OCCURRENCES

Drought

Based on historical occurrence information, it is assumed that all of Perry County has a probability level of highly likely (100 percent annual probability) for future drought events. However, the extent (or magnitude) of drought and the amount of geographic area covered by drought, varies with each year. Historic information indicates that there is a much lower probability for extreme, long-lasting drought conditions.

Heat Wave

Based on historical occurrence information, it is assumed that all of Perry County has a probability level of highly likely (100 percent annual probability) for future heat wave events.

F.2.6 Wildfire

LOCATION AND SPATIAL EXTENT

The entire county is at risk to a wildfire occurrence. However, several factors such as drought conditions or high levels of fuel on the forest floor, may make a wildfire more likely. Furthermore, areas in the urban-wildland interface are particularly susceptible to fire hazard as populations abut formerly undeveloped areas. The Fire Occurrence Areas in the figure below give an indication of historic location.

HISTORICAL OCCURRENCES

Based on data from the Mississippi Forestry Commission from 2008 to 2018, Perry County experiences an average of 25.4 wildfires annually which burn an average of 348.7 acres per year. The data indicates that most of these fires are small, averaging twelve acres per fire. **Table F.12** provides a summary of wildfire occurrences in Perry County and **Table F.13** lists the number of reported wildfire occurrences in the county between the years 2008 and 2018.

TABLE F.12: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2008 -2018) *

	Perry County
Average Number of Fires per year	25.4
Average Number of Acres Burned per year	348.7
Average Number of Acres Burned per fire	13.7

*These values reflect averages over a 10 year period.
Source: Mississippi Forestry Commission

TABLE F.13: HISTORICAL WILDFIRE OCCURRENCES IN PERRY COUNTY

Year	2008	2010	2011	2012	2013	2014	2015	2016	2017	2018
Perry County										
Number of Fires	28	39	48	8	22	42	11	26	21	9
Number of Acres Burned	451	379	483	13	181	634	47	544	540	215

Source: Mississippi Forestry Commission

PROBABILITY OF FUTURE OCCURRENCES

Wildfire events will be an ongoing occurrence in Perry County. The likelihood of wildfires increases during drought cycles and abnormally dry conditions. Fires are likely to stay small in size but could increase due local climate and ground conditions. Dry, windy conditions with an accumulation of forest floor fuel (potentially due to ice storms or lack of fire) could create conditions for a large fire that spreads quickly.

It should also be noted that some areas do vary somewhat in risk. For example, highly developed areas are less susceptible unless they are located near the urban-wildland boundary. The risk will also vary due to assets. Areas in the urban-wildland interface will have much more property at risk, resulting in increased vulnerability and need to mitigate compared to rural, mainly forested areas. In this case, the participating jurisdictions appear to have a similar risk to the surrounding areas. The probability assigned to Perry County for future wildfire events is likely (a 10 and 100 percent annual probability).

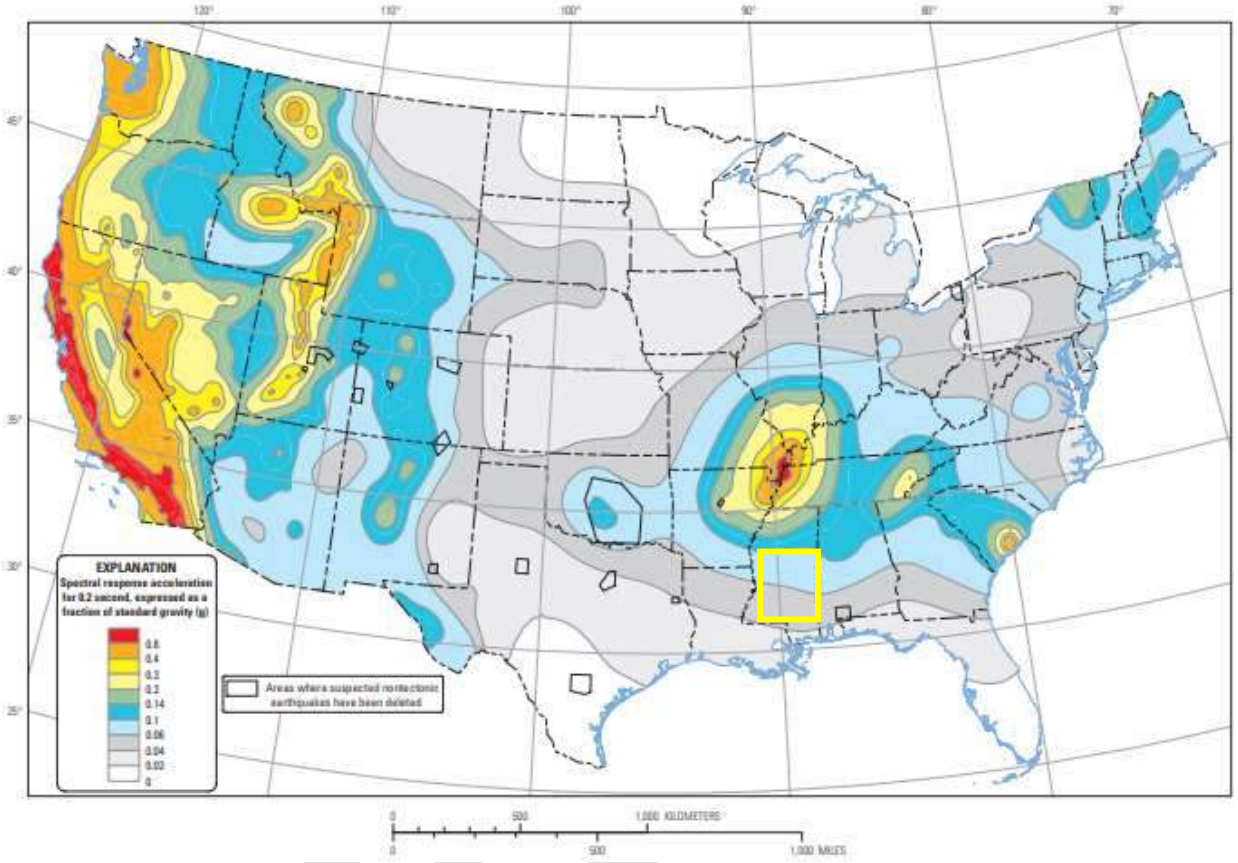
GEOLOGIC HAZARDS

F.2.7 Earthquake

LOCATION AND SPATIAL EXTENT

Figure F.4 shows the intensity level associated with Perry County, based on the national USGS map of peak acceleration with 10 percent probability of exceedance in 50 years. It is the probability that ground motion will reach a certain level during an earthquake. The data show peak horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake) with a 10 percent probability of exceedance in 50 years. The map was compiled by the U.S. Geological Survey (USGS) Geologic Hazards Team, which conducts global investigations of earthquake, geomagnetic, and landslide hazards. According to this map, Perry County lies within an approximate zone of level .04 ground acceleration. This indicates that the county exists within an area of moderate seismic risk.

435 **FIGURE F.4: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS**



436

437 *Source: USGS, 2018*

438

439 ***HISTORICAL OCCURRENCES***

440

441 No earthquakes are known to have affected Perry County since 1638. **Table F.14** provides a summary of
442 earthquake events reported by the National Geophysical Data Center between 1638 and 1985.[7]

443

444 **TABLE F.14: SUMMARY OF SEISMIC ACTIVITY IN PERRY COUNTY**

Location	Number of Occurrences	Greatest MMI Reported	Richter Scale Equivalent
Beaumont	0	--	--
New Augusta	0	--	--
Richton	0	--	--
Unincorporated Area	0	--	--
PERRY COUNTY TOTAL	**0**	**--**	**--**

Source: National Geophysical Data Center

445

[7] Due to reporting mechanisms, not all earthquakes events were recorded during this time.

PROBABILITY OF FUTURE OCCURRENCES

The probability of significant, damaging earthquake events affecting Perry County is unlikely. However, it is possible that future earthquakes resulting in light to moderate perceived shaking and damages ranging from none to very light will affect the county. The annual probability level for the region is estimated to be less than 1 percent (unlikely).

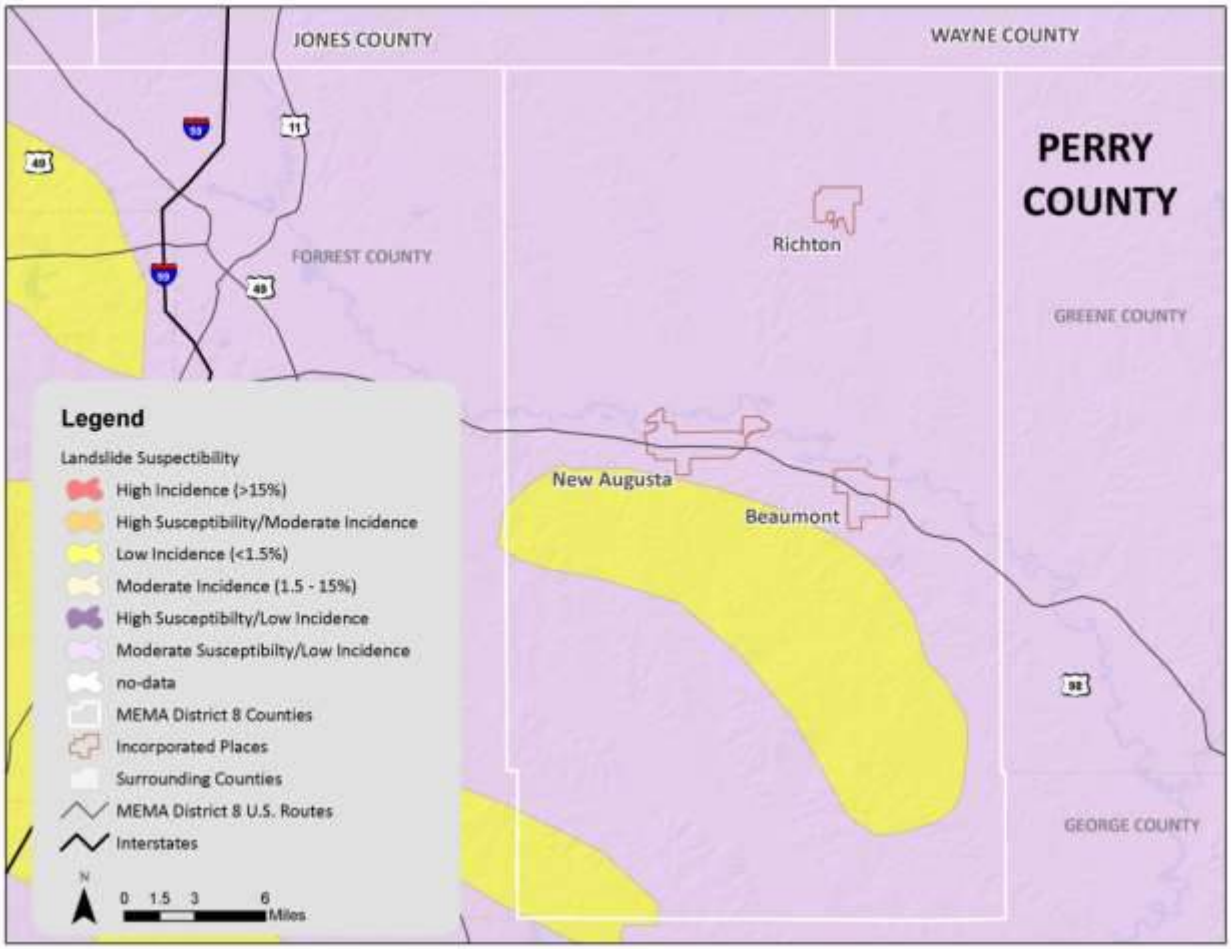
F.2.8 Landslide

LOCATION AND SPATIAL EXTENT

Landslides occur along steep slopes when the pull of gravity can no longer be resisted (often due to heavy rain). Human development can also exacerbate risk by building on previously undevelopable steep slopes. Landslides are possible throughout Perry County.

According to **Figure F.5** below, the entire county falls under a low incidence area (yellow and light purple). This indicates that less than 1.5 percent of the area is involved in landsliding. The areas in yellow are defined as low incidence and low susceptibility. The areas in light purple, however, indicate that a moderate susceptibility to landsliding activity is present. There are no changes with susceptibility to the landslide hazard since the last plan update.

FIGURE F.5: LANDSLIDE SUSCEPTIBILITY AND INCIDENCE MAP OF PERRY COUNTY



Source: USGS

HISTORICAL OCCURRENCES

There is no extensive history of landslides in Perry County. Landslide events typically occur in isolated areas.

PROBABILITY OF FUTURE OCCURRENCES

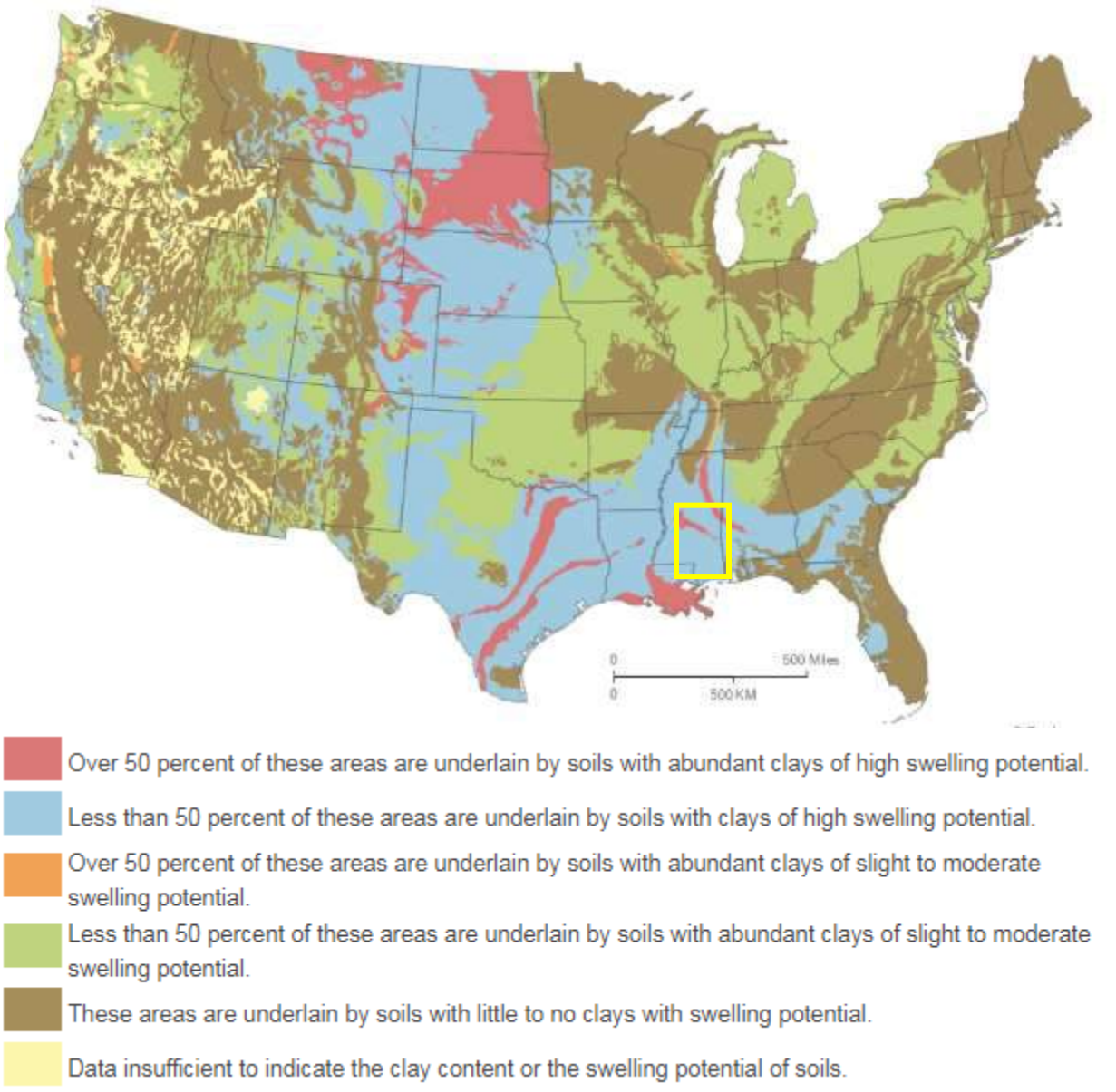
Based on historical information and the USGS susceptibility index, the probability of future landslide events is unlikely (less than 1 percent probability). The USGS data indicates that the all areas in Perry County have a low landslide incidence rate. However, some areas are reported as having moderate susceptibility to landsliding activity. Local conditions may become more favorable for landslides due to heavy rain, for example. This would increase the likelihood of occurrence. It should also be noted that some areas in Perry County have greater risk than others given factors such as steepness on slope and modification of slopes.

F.2.9 Expansive Soils

LOCATION AND SPATIAL EXTENT

Due to the amount of clay minerals present in Perry County, expansive soils present a threat to the county. Areas underlain by soils with swelling potential are shown in **Figure F.6.** The areas in blue are underlain with generally less than 50 percent clay having high swelling potential.

FIGURE F.6: SWELLING CLAYS IN MISSISSIPPI



Source: USGS

HISTORICAL OCCURRENCES

There is no historical record of significant expansive soil events in Perry County. However, expansive soils can cause considerable damage to structural foundations in the county, although they do not pose a significant threat to human life.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical information, the probability of future expansive soil events is possible (between 1 and 100 percent annually).

WIND-RELATED HAZARDS

F.2.10 Hurricane and Tropical Storm

LOCATION AND SPATIAL EXTENT

Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact Perry County. All areas in Perry County are equally susceptible to hurricane and tropical storms. However, no hurricanes or tropical depressions have impacted the area during this planning period.

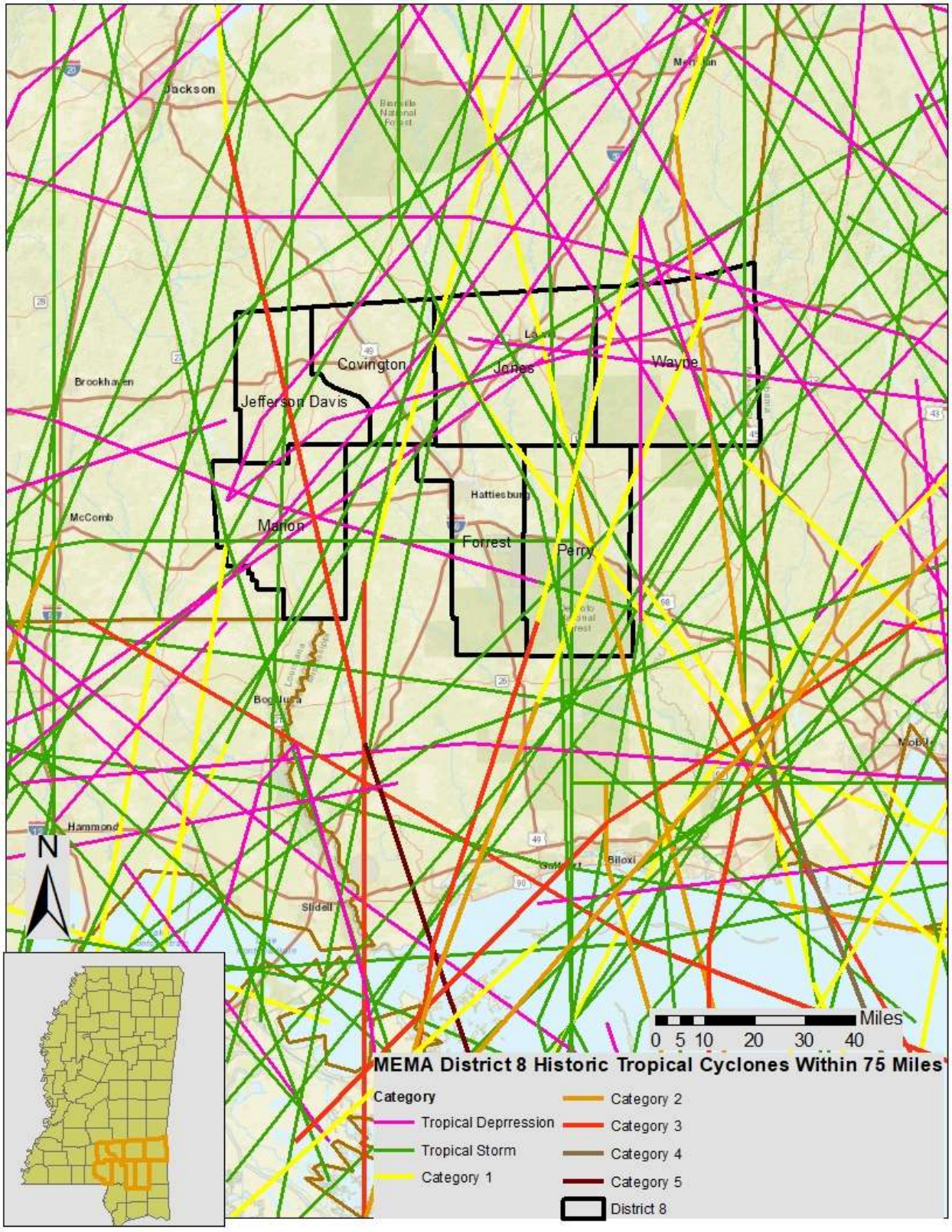
HISTORICAL OCCURRENCES

According to the National Hurricane Center's historical storm track records, a total of 63 hurricanes have passed within 75 miles of the county since 1851. This includes 1 category 5 storm, 2 category 4 storms, 7 category 3 storms, 3 category 2 storms, 15 category 1 storms, and 35 tropical storms as shown in **Figure F.7**.[8]

Of the recorded storm events, a total of thirteen tracks passed directly through the county including Hurricanes Ethel (1960), Unnamed (1855), Unnamed (1906), and Unnamed (1916). These hurricanes were category 1 strength when they traversed the county with two exceptions: Unnamed Storm of 1855, which passed through the county as category 3 hurricane, and Unnamed Storm of 1906, which passed through the county as a category 2 hurricane. **Table F.15** provides the detail for each storm that passed through the county including date of occurrence, name (if applicable), maximum wind speed (as recorded when traversing the county) and category of the storm based on the Saffir-Simpson Scale.

FIGURE F.7: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF PERRY COUNTY

[8] These storm track statistics do not include extra-tropical storms. Though these related hazard events are less severe in intensity, they may cause significant local impact in terms of rainfall and high winds.



Source: National Oceanic and Atmospheric Administration; National Hurricane Center

TABLE F.15: HISTORICAL STORM TRACKS WITHIN 75 MILES OF PERRY COUNTY (1850–2018)

Date of Occurrence	Storm Name	Maximum Wind Speed (miles per hour)	Storm Category
9/16/1855	Unnamed	115	Category 3
9/15/1860	Unnamed	81	Category 1
7/12/1872	Unnamed	46	Tropical Storm
6/15/1886	Unnamed	40	Tropical Storm
9/12/1892	Unnamed	46	Tropical Storm
8/8/1894	Unnamed	40	Tropical Storm
9/27/1906	Unnamed	109	Category 2
7/6/1916	Unnamed	92	Category 1
10/18/1923	Unnamed	57	Tropical Storm
9/1/1932	Unnamed	69	Tropical Storm
10/16/1932	Unnamed	46	Tropical Storm
9/10/1944	Unnamed	40	Tropical Storm
9/16/1960	Ethel	52	Tropical Storm

Source: National Hurricane Center

Federal records indicate that disaster declarations were made in 1969 (Hurricane Camille), 1979 (Hurricane Frederic), 1998 (Hurricane Georges), 2004 (Hurricane Ivan), 2005 (Hurricane Dennis), 2005 (Hurricane Katrina), and 2012 (Hurricane Isaac).[9] Hurricane and tropical storm events can cause substantial damage in the area due to high winds and flooding.

Flooding and high winds from hurricanes and tropical storms can cause damage throughout the county. Anecdotes are available from NCEI for the major storms that have impacted the county as found below:

Hurricane Erin – August 20, 1995
Hurricane Erin moved out of Washington County, Alabama into Greene and Wayne Counties in Mississippi. The storm moved generally along Highway 45 passing just south of Waynesboro. Trees and power lines were blown down across Northern Greene, Northern Perry and most of Wayne Counties as Erin moved northwest. Some homes were damaged along Highway 45 and in the cities of Buckatunna and Waynesboro. Most of the damage was from trees falling on homes or shingles being blown from roofs. Wind speeds of 50 to 60 mph were estimated in Waynesboro. Preliminary damage estimates in these three counties was around $100 thousand.

Hurricane Georges – September 25, 1998
Hurricane Georges, a strong Category 2 hurricane moved slowly northwest across the Gulf of Mexico toward southeast Louisiana and coastal Mississippi on the September 25 and September 26. As the hurricane approached the mouth of the Mississippi River on September 27, it slowly turned toward the north making landfall along the Mississippi Coast just to the east of Biloxi, MS on September 28. Hurricane Georges resulted in damage from heavy rains and persistent winds. Trees and power lines were blown down. Cotton, soybean, and pecan crops were almost totally destroyed.

[9] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

Hurricane Ivan – September 16, 2004
Thousands of trees were blown down across Eastern Mississippi during the event as well as hundreds of power lines. The strong wind itself did not cause much structural damage, however the fallen trees did. These downed trees accounted for several hundred homes, mobile homes and businesses to be damaged or destroyed. Most locations across Eastern Mississippi reported sustained winds between 30 and 40 mph with Tropical Storm force gusts between 48 and 54 mph. The strongest reported winds occurred in Newton, Lauderdale and Oktibbeha Counties.

Overall, rainfall totals were held in check as Ivan steadily moved north. The heaviest rains were confined to far Eastern Mississippi where 3 to 4 inches fell over a 15-hour period. Due to the duration of the rain no flooding was reported. Across Eastern Mississippi, Hurricane Ivan was responsible for one fatality. This fatality occurred in Brooksville (Noxubee County) when a tree fell on a man. Damage from Ivan was estimated at $200 million.

Hurricane Katrina – August 25, 2005
Hurricane Katrina will likely go down as the worst and costliest natural disaster in United States history. The amount of destruction, the cost of damaged property/agriculture and the large loss of life across the affected region has been overwhelming. Catastrophic damage was widespread across a large portion of the Gulf Coast region. The devastation was not only confined to the coastal region, widespread and significant damage occurred well inland up to the Hattiesburg area and northward past Interstate 20.

Devastation from Hurricane Katrina was widespread across the region. Hurricane force winds were common across the area. The region received sustained winds of 60-80 mph with gusts ranging from 80-120 mph. There was widespread damage to trees and power lines. Wind damage to structures was also widespread, with roofs blown off or partially peeled. Hundreds of signs were shredded or blown down. Businesses sustained structural damage. Power outages lasted from a few days to as long as four weeks. Agriculture and timber industries were severely impacted. Row crops, including cotton, rice, corn, and soybeans, took a hard hit. Other impacted industries were the catfish industry, dairy and cattle industry, and nursery businesses.

Hurricane Gustav – September 1, 2008
As hurricane Gustav moved south of the area, tropical depression conditions spread into southeast Mississippi. The winds increased during the early morning of September 1 and ended during the early afternoon as Gustav moved farther away. No damage was reported from the winds. Several mesonet sites had sustained winds of 20-30 mph with higher gusts. Rainfall estimates across the area were 3-5 inches which resulted in some minor street flooding. Parts of southeast Mississippi were put under a tropical storm wind warning in the early morning hours of August 31 and the warning continued in effect until the late evening of September 1.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical evidence, the probability level of future occurrence is likely (annual probability between 10 and 100 percent). Given the regional nature of the hazard, all areas in the county are equally exposed to this hazard. However, when the county is impacted, the damage could be catastrophic, threatening lives and property throughout the planning area.

F.2.11 Thunderstorm

LOCATION AND SPATIAL EXTENT

Thunderstorm / High Wind

A thunderstorm event is an atmospheric hazard, and thus has no geographic boundaries. It is typically a widespread event that can occur in all regions of the United States. However, thunderstorms are most common in the central and southern states because atmospheric conditions in those regions are favorable for generating these powerful storms. Also, Perry County typically experiences several straight-line wind events each year. These wind events can and have caused significant damage. It is assumed that Perry County has uniform exposure to an event and the spatial extent of an impact could be large.

Hailstorm

Hailstorms frequently accompany thunderstorms, so their locations and spatial extents coincide. It is assumed that Perry County is uniformly exposed to severe thunderstorms; therefore, all areas of the county are equally exposed to hail which may be produced by such storms.

Lightning

Lightning occurs randomly, therefore it is impossible to predict where and with what frequency it will strike. It is assumed that all of Perry County is uniformly exposed to lightning.

HISTORICAL OCCURRENCES

Thunderstorm / High Wind

Severe storms resulted in four disaster declarations in Perry County in 1971, 1983, 1990, and 2001.[10] According to NCEI, there have been 87 reported thunderstorm and high wind events since 1971 in Perry County.[11] These events caused over $2.1 million in damages. **Table F.16** summarizes this information. **Table F.17** presents detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event.[12]

TABLE F.16: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN PERRY COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Beaumont	10	0/0	$69,388
New Augusta	18	0/0	$197,899
Richton	18	0/0	$203,767
Unincorporated Area	41	0/0	$1,653,991
PERRY COUNTY TOTAL	**87**	**0/0**	**$2,125,045**

Source: National Centers for Environmental Information

[10] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

[11] These thunderstorm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional thunderstorm events have occurred in Perry County. As additional local data becomes available, this hazard profile will be amended.

[12] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

649 **TABLE F.17: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN PERRY COUNTY**

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Beaumont					
Beaumont	09-JUN-94	THUNDERSTORM WINDS	0 kts.	0/0	$8,523
Beaumont	18-DEC-95	THUNDERSTORM WINDS	0 kts.	0/0	$3,314
Beaumont	21-FEB-97	TSTM WIND	50 kts.	0/0	$3,146
Beaumont	01-NOV-97	TSTM WIND	50 kts.	0/0	$3,933
Beaumont	19-JAN-01	TSTM WIND	55 kts.	0/0	$2,852
Beaumont	21-JUL-02	TSTM WIND	50 kts.	0/0	$13,842
Beaumont	27-OCT-06	THUNDERSTORM WIND	50 kts.	0/0	$12,299
Beaumont	19-JUN-07	THUNDERSTORM WIND	50 kts.	0/0	$14,329
Beaumont	04-SEP-12	THUNDERSTORM WIND	52 kts.	0/0	$5,150
Beaumont	30-JUN-18	THUNDERSTORM WIND	52 kts.	0/0	$2,000
New Augusta					
New Augusta	21-APR-95	THUNDERSTORM WINDS	0 kts.	0/0	$1,657
New Augusta	26-JAN-96	TSTM WIND	50 kts.	0/0	$3,218
New Augusta	18-JUN-97	TSTM WIND	50 kts.	0/0	$3,146
New Augusta	10-FEB-98	TSTM WIND	50 kts.	0/0	$5,421
New Augusta	26-FEB-98	TSTM WIND	50 kts.	0/0	$4,647
New Augusta	20-AUG-99	TSTM WIND	50 kts.	0/0	$4,538
New Augusta	22-JUL-00	TSTM WIND	70 kts.	0/0	$36,713
New Augusta	13-OCT-01	TSTM WIND	50 kts.	0/0	$14,258
New Augusta	08-APR-02	TSTM WIND	55 kts.	0/0	$13,842
New Augusta	30-JUL-05	TSTM WIND	50 kts.	0/0	$15,201
New Augusta	19-JUN-07	THUNDERSTORM WIND	50 kts.	0/0	$29,851
New Augusta	10-JAN-08	THUNDERSTORM WIND	50 kts.	0/0	$9,274
New Augusta	12-FEB-08	THUNDERSTORM WIND	50 kts.	0/0	$13,911
New Augusta	03-MAY-08	THUNDERSTORM WIND	50 kts.	0/0	$11,593
New Augusta	15-MAY-08	THUNDERSTORM WIND	50 kts.	0/0	$17,389
New Augusta	03-APR-12	THUNDERSTORM WIND	52 kts.	0/0	$5,150
New Augusta	20-DEC-12	THUNDERSTORM WIND	52 kts.	0/0	$3,090
New Augusta	31-MAR-16	THUNDERSTORM WIND	61 kts.	0/0	$5,000
Richton					
Richton	21-APR-95	THUNDERSTORM WINDS	0 kts.	0/0	$1,657
Richton	22-APR-97	TSTM WIND	50 kts.	0/0	$2,360
Richton	26-APR-97	TSTM WIND	50 kts.	0/0	$3,146
Richton	28-MAY-97	TSTM WIND	50 kts.	0/0	$2,360
Richton	03-APR-00	TSTM WIND	60 kts.	0/0	$7,343
Richton	02-MAR-01	TSTM WIND	65 kts.	0/0	$14,258
Richton	12-MAR-01	TSTM WIND	70 kts.	0/0	$71,288
Richton	13-DEC-01	TSTM WIND	55 kts.	0/0	$14,258
Richton	06-JUL-04	TSTM WIND	50 kts.	0/0	$10,438
Richton	13-FEB-07	THUNDERSTORM WIND	50 kts.	0/0	$35,822
Richton	07-AUG-08	THUNDERSTORM WIND	50 kts.	0/0	$11,593
Richton	09-MAR-11	THUNDERSTORM WIND	52 kts.	0/0	$2,122
Richton	04-APR-11	THUNDERSTORM WIND	50 kts.	0/0	$0
Richton	04-APR-11	THUNDERSTORM WIND	50 kts.	0/0	$0

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Richton	07-JUN-11	THUNDERSTORM WIND	52 kts.	0/0	$2,122
Richton	20-MAY-18	THUNDERSTORM WIND	52 kts.	0/0	$10,000
Richton	20-MAY-18	THUNDERSTORM WIND	52 kts.	0/0	$10,000
Richton	31-JUL-18	THUNDERSTORM WIND	50 kts.	0/0	$5,000
Unincorporated Area					
PERRY COUNTY	26-FEB-71	TSTM WIND	0 kts.	0/0	$0
PERRY COUNTY	23-FEB-75	TSTM WIND	0 kts.	0/0	$0
PERRY COUNTY	07-MAY-75	TSTM WIND	0 kts.	0/0	$0
PERRY COUNTY	18-APR-78	TSTM WIND	0 kts.	0/0	$0
PERRY COUNTY	29-JUL-81	TSTM WIND	0 kts.	0/0	$0
PERRY COUNTY	24-MAR-84	TSTM WIND	0 kts.	0/0	$0
PERRY COUNTY	10-FEB-90	TSTM WIND	0 kts.	0/0	$0
PERRY COUNTY	03-DEC-90	TSTM WIND	0 kts.	0/0	$0
PERRY COUNTY	09-APR-91	TSTM WIND	0 kts.	0/0	$0
PERRY COUNTY	05-JUN-91	TSTM WIND	0 kts.	0/0	$0
Janice	25-MAR-94	THUNDERSTORM WINDS	0 kts.	0/0	$852
Runnelstown	07-MAR-95	THUNDERSTORM WINDS	0 kts.	0/0	$6,629
Thompson Hill	07-MAR-95	THUNDERSTORM WINDS	0 kts.	0/0	$3,314
Perryville	07-JUN-95	THUNDERSTORM WINDS	0 kts.	0/0	$331
Oak Grove	24-JAN-97	TSTM WIND	50 kts.	0/0	$2,360
KITTRELL	05-APR-97	TSTM WIND	50 kts.	0/0	$2,360
Janice	24-OCT-97	TSTM WIND	50 kts.	0/0	$3,933
Janice	25-OCT-97	TSTM WIND	50 kts.	0/0	$3,146
Janice	26-OCT-97	TSTM WIND	50 kts.	0/0	$3,146
Janice	12-JAN-98	TSTM WIND	50 kts.	0/0	$4,647
Janice	17-APR-98	TSTM WIND	60 kts.	0/0	$23,233
Countywide	05-JUN-98	TSTM WIND	80 kts.	0/0	$774,446
Belleville	19-JUL-02	TSTM WIND	50 kts.	0/0	$13,842
Janice	27-JUN-04	TSTM WIND	50 kts.	0/0	$6,524
Runnelstown	15-AUG-06	TSTM WIND	50 kts.	0/0	$9,839
KITTRELL	14-APR-07	THUNDERSTORM WIND	55 kts.	0/0	$238,810
Runnelstown	31-JAN-08	THUNDERSTORM WIND	50 kts.	0/0	$9,274
Runnelstown	31-JAN-08	THUNDERSTORM WIND	50 kts.	0/0	$23,185
Belleville	24-DEC-09	THUNDERSTORM WIND	50 kts.	0/0	$0
MAHNED	04-APR-11	THUNDERSTORM WIND	50 kts.	0/0	$0
Janice	22-MAR-12	THUNDERSTORM WIND	52 kts.	0/0	$4,120
Richton	15-FEB-16	THUNDERSTORM WIND	52 kts.	0/0	$5,000
Belleville	02-JAN-17	THUNDERSTORM WIND	52 kts.	0/0	$5,000
Janice	03-APR-17	THUNDERSTORM WIND	61 kts.	0/0	$8,000

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
KITTRELL	30-JUN-18	THUNDERSTORM WIND	52 kts.	0/0	$2,000
Hintonville	03-JUL-18	THUNDERSTORM WIND	50 kts.	0/0	$5,000
Belleville	03-JUL-18	THUNDERSTORM WIND	50 kts.	0/0	$5,000
Good Hope	03-JUL-18	THUNDERSTORM WIND	50 kts.	0/0	$5,000
Runnelstown	01-NOV-18	THUNDERSTORM WIND	52 kts.	0/0	$10,000
Janice	01-NOV-18	THUNDERSTORM WIND	52 kts.	0/0	$2,000
MAHNED	23-NOV-18	THUNDERSTORM WIND	52 kts.	0/0	$5,000

All damage may not have been reported.
Source: National Centers for Environmental Information

650
651 **Hailstorm**
652 According to the National Centers for Environmental Information, 41 recorded hailstorm events have
653 affected Perry County since 1975.[13] **Table F.18** is a summary of the hail events in Perry County. **Table**
654 **F.19** provides detailed information about each event that occurred in the county. In all, hail occurrences
655 resulted in over $24,000 in property damages. Hail ranged in diameter from 0.5 inches to 2.75 inches. It
656 should be noted that hail is notorious for causing substantial damage to cars, roofs, and other areas of
657 the built environment that may not be reported to the National Centers for Environmental Information.
658 Therefore, it is likely that damages are greater than the reported value.
659
660 **TABLE F.18: SUMMARY OF HAIL OCCURRENCES IN PERRY COUNTY**

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Beaumont	7	0/0	$3,800
New Augusta	6	0/0	$15,489
Richton	11	0/0	$5,067
Unincorporated Area	17	0/0	$0
PERRY COUNTY TOTAL	**41**	**0/0**	**$24,356**

Source: National Centers for Environmental Information

661
662 **TABLE F.19: HISTORICAL HAIL OCCURRENCES IN PERRY COUNTY**

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Beaumont				
Beaumont	22-APR-97	0.75 in.	0/0	$0
Beaumont	09-MAR-03	0.75 in.	0/0	$0
Beaumont	25-APR-03	0.75 in.	0/0	$0
Beaumont	18-MAY-03	0.75 in.	0/0	$0
Beaumont	30-MAR-05	1.75 in.	0/0	$3,800
Beaumont	09-MAR-11	1.00 in.	0/0	$0
Beaumont	27-JUN-15	1.00 in.	0/0	$0
New Augusta				
New Augusta	15-MAR-95	0.75 in.	0/0	$0
New Augusta	15-MAR-95	0.50 in.	0/0	$0

[13] These hail events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional hail events have affected Perry County. As additional local data becomes available, this hazard profile will be amended.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
New Augusta	17-APR-98	2.75 in.	0/0	$15,489
New Augusta	17-JUL-06	0.88 in.	0/0	$0
New Augusta	08-MAR-11	1.00 in.	0/0	$0
New Augusta	24-FEB-12	1.75 in.	0/0	$0
Richton				
Richton	09-MAR-99	1.75 in.	0/0	$0
Richton	25-AUG-99	1.50 in.	0/0	$0
Richton	12-MAR-02	0.75 in.	0/0	$0
Richton	13-MAR-03	0.75 in.	0/0	$0
Richton	25-APR-03	0.75 in.	0/0	$0
Richton	03-MAY-03	0.88 in.	0/0	$0
Richton	23-FEB-04	1.00 in.	0/0	$0
Richton	22-MAR-05	0.75 in.	0/0	$0
Richton	11-APR-05	0.75 in.	0/0	$0
Richton	22-APR-05	1.75 in.	0/0	$5,067
Richton	04-APR-08	1.00 in.	0/0	$0
Unincorporated Area				
PERRY COUNTY	07-MAY-75	1.75 in.	0/0	$0
PERRY COUNTY	26-APR-84	0.75 in.	0/0	$0
PERRY COUNTY	10-FEB-86	0.75 in.	0/0	$0
PERRY COUNTY	20-MAR-89	1.00 in.	0/0	$0
PERRY COUNTY	04-JUN-91	1.00 in.	0/0	$0
Lizana	15-MAR-95	1.00 in.	0/0	$0
Perryville	28-JUN-95	0.75 in.	0/0	$0
Perryville	28-JUN-95	0.75 in.	0/0	$0
Ethel	20-AUG-95	0.75 in.	0/0	$0
Janice	23-MAY-97	0.75 in.	0/0	$0
KITTRELL	05-MAR-98	0.75 in.	0/0	$0
MAHNED	25-APR-03	0.75 in.	0/0	$0
Ferguson	25-APR-03	0.75 in.	0/0	$0
Runnelstown	11-APR-05	0.75 in.	0/0	$0
Janice	23-JUN-06	1.75 in.	0/0	$0
MAHNED	24-APR-10	1.00 in.	0/0	$0
Ferguson	21-JAN-17	1.00 in.	0/0	$0

All damage may not have been reported.
Source: National Centers for Environmental Information

Lightning

According to the National Centers for Environmental Information, there has been one recorded lightning events in Perry County since 1950, as listed in summary **Table F.20**.[14] This event caused $60,000 in damages. However, it is likely that lightning events have in fact impacted the county. Many of the reported events are those that caused damage, and it should be expected that damages are likely much higher for this hazard than what is reported.

[14] These lightning events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional lightning events have occurred in Perry County. As additional local data becomes available, this hazard profile will be amended.

TABLE F.20: SUMMARY OF LIGHTNING OCCURRENCES IN PERRY COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Beaumont	0	0/0	$0
New Augusta	0	0/0	$0
Richton	1	0/0	$60,000
Unincorporated Area	0	0/0	$0
PERRY COUNTY TOTAL	**0**	**0/0**	**$60,000**

Source: National Centers for Environmental Information

PROBABILITY OF FUTURE OCCURRENCES

Thunderstorm / High Wind

Given the high number of previous events, it is certain that wind events, including straight-line wind and thunderstorm wind, will occur in the future. This results in a probability level of highly likely (100 percent annual probability) for future wind events for the entire county.

Hailstorm

Based on historical occurrence information, it is assumed that the probability of future hail occurrences is likely (10 – 100 percent annual probability). Since hail is an atmospheric hazard (coinciding with thunderstorms), it is assumed that Perry County has equal exposure to this hazard. It can be expected that future hail events will continue to cause minor damage to property and vehicles throughout the county.

Lightning

Although there were no historical lightning events reported in Perry County via NCEI data, it is a regular occurrence accompanied by thunderstorms. In fact, lightning events will assuredly happen on an annual basis, though not all events will cause damage. According to Vaisala's U.S. National Lightning Detection Network (NLDN®), Perry County is located in an area of the country that experienced an average of 6 to 8 lightning flashes per square kilometer per year between 1997 and 2010. Therefore, the probability of future events is highly likely (100 percent annual probability). It can be expected that future lightning events will continue to threaten life and cause minor property damages throughout the county.

F.2.12 Tornado

LOCATION AND SPATIAL EXTENT

Tornadoes occur throughout the state of Mississippi, and thus in Perry County. Tornadoes typically impact a relatively small area, but damage may be extensive. Event locations are completely random, and it is not possible to predict specific areas that are more susceptible to tornado strikes over time. Therefore, it is assumed that Perry County is uniformly exposed to this hazard.

HISTORICAL OCCURRENCES

Tornadoes resulted in four disaster declarations in Perry County in 1971, 1983, 1990, and 2001.[15] According to the National Centers for Environmental Information, there have been a total of 17 recorded tornado events in Perry County since 1958 (**Table F.21**), resulting in over $4.3 million in property damages.[16] In addition, 2 fatalities and 24 injuries were reported. The magnitude of these tornadoes ranges from F0 to F3 in intensity, although an F5 event is possible. Detailed information on historic tornado events can be found in **Table F.22**.

TABLE F.21: SUMMARY OF TORNADO OCCURRENCES IN PERRY COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Beaumont	1	0/0	$11,074
New Augusta	2	0/0	$80,456
Richton	0	0/0	$0
Unincorporated Area	14	2/23	$4,400,838
PERRY COUNTY TOTAL	**17**	**2/24**	**$4,492,368**

Source: National Centers for Environmental Information

TABLE F.22: HISTORICAL TORNADO IMPACTS IN PERRY COUNTY

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Beaumont					
Beaumont	23-DEC-02	F0	0/0	$11,074	A weak tornado briefly touched down near Red Hill. Several trees were blown down and residents heard a loud roar.
New Augusta					

[15] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.
[16] These tornado events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional tornadoes have occurred in Perry County. As additional local data becomes available, this hazard profile will be amended.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
New Augusta	19-FEB-96	F1	0/0	$80,456	A TORNADO FIRST TOUCHED DOWN IN PERRY COUNTY NEAR REDHILL WHICH IS ABOUT 6 MILES SOUTH OF NEW AUGUSTA AT ABOUT 235 PM CDT. THE TORNADO THEN MOVED NORTHEAST ACROSS MS HWY 29 KNOCKING DOWN SEVERAL TREES IN ITS PATH. THE TORNADO CONTINUED SKIPPING ALONG THE GROUND CROSSING US HWY 98 JUST WEST OF BEAUMONT. THE TORNADO DAMAGED ROOFS ON THREE HOMES JUST SOUTH OF KITTRELL AND WEST OF MS HWY 15. THE TORNADO CROSSED MS HWY 15 NEAR KITTRELL AND DAMAGED SIDING AND SHINGLES FROM SEVERAL HOMES HERF. THE TORNADO THEN CONTINUED NORTHEAST ACROSS OPEN PASTURE KNOCKING DOWN TREES. THE TORNADO SKIPPED ALONG THE GROUND FOR ABOUT 13 MILES IN PERRY COUNTY BEFORE MOVING INTO GREENE COUNTY, 3 MILES WEST OF PLEASANT HILL. NO INJURIES WERE REPORTED.
New Augusta	23-FEB-16	Funnel Cloud	0/0	$0	A strong storm system brought produced numerous thunderstorms across southeast Mississippi. Damaging winds and tornadoes were observed along with very heavy rain. A spotter reported a Funnel Cloud crossing Hwy 98 east of New Augusta. Could not confirm if it was on the ground or not.
Richton					
None Reported	--	--	--	--	--
Unincorporated Area					
PERRY COUNTY	26-FEB-58	F3	2/20	$2,186,291	
PERRY COUNTY	07-MAY-75	F1	0/1	$1,172,821	
PERRY COUNTY	01-JUN-76	F1	0/2	$111,126	
PERRY COUNTY	06-FEB-74	F1	0/0	$12,811	
PERRY COUNTY	05-JUN-89	F1	0/0	$5,092	
PERRY COUNTY	07-MAY-82	F3	0/0	$654,110	

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
RUNNELSTOWN	18-MAR-96	F1	0/0	$40,228	A TORNADO TOUCHED DOWN JUST NORTHWEST OF RUNNELSTOWN THEN MOVED ACROSS STATE HWY 29 NORTHEAST OF RUNNELSTOWN. THE TORNADO CONTINUED SKIPPING ALONG THE GROUND AND MOVED EAST NORTHEAST AND CROSSED STATE HWY 15 JUST NORTH OF GOOD HOPF. THE TORNADO THEN MOVED OUT OF PERRY COUNTY INTO WAYNE COUNTY. THE TORNADO SKIPPED ALONG THE GROUND FOR ABOUT TWELVE MILES IN PERRY COUNTY. MOST OF THE DAMAGE WAS TO TREES AND POWER LINES AS VERY FEW RESIDENCES ARE LOCATED WHERE THE TORNADO MOVED.
Good Hope	18-MAR-96	F1	0/0	$24,137	ANOTHER STORM SYSTEM DEVELOPED IN PERRY COUNTY AND MOVED ALMOST ALONG THE SAME TRACK AS THE EARLIER STORM THAT SPAWNED SEVERAL TORNADOES. THIS STORM DROPPED A TORNADO FOUR MILES SOUTHWEST OF GOOD HOPF. THE STORM MOVED EAST NORTHEAST AND CROSSED STATE HWY 15 NEAR GOOD HOPE AND THEN MOVED INTO WAYNE COUNTY ABOUT FOUR MILES NORTHEAST OF GOOD HOPF. THE TORNADO WAS ON THE GROUND FOR ABOUT EIGHT MILES AND DAMAGE WAS CONFINED TO TREES AND POWER LINES BEING BLOWN DOWN.
Hintonville	13-DEC-01	F0	0/0	$14,258	A weak tornado briefly touched down along State Road 15 near HintonvillF. The tornado did damage primarily to trees in a wooded area. No structures in the area were damaged.
Janice	24-APR-03	F0	0/0	$6,720	A weak tornado briefly touched down just west of JanicF. A few trees were blown down and an outbuilding was damaged.
Hintonville	24-APR-03	F0	0/0	$6,720	A weak tornado briefly touched down just south of HintonvillF. Several trees were blown down.
Janice	24-NOV-04	F0	0/0	$6,524	A weak tornado downed trees to the north of JanicF.
Janice	25-DEC-12	F2	0/0	$0	The tornado entered Perry County crossing the Desoto National Forest as an EF-1 tornado approximately 100 yards widF. The tornado increased in strength briefly to EF-2 as it moved across Highway 29 knocking down electrical transmission lines. The tornado crossed Lula Cooley road where it destroyed a manufactured home and hunting camp off Snider Road. The tornado continued northeast as an|EF-1 producing damage to a few homes and widespread damage to trees. The tornado left Perry County near Mclain. This tornado segment in Perry County is part of a 61 mile long track tornado that went from central Pearl River County to western Greene County Mississippi.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
Tallahal	21-JAN-16				The tornado entered extreme NW Perry County, MS from NE Forrest County 2 miles WNW of Runnelstown, MS and continued to move NE at 45 to 50 MPH before lifting 5.5 miles NE of Runnelstown. Two main areas along the path had significant damage, with EF-2 category winds between 111 to 125 mph. One was located on Pumping Station Road 1.3 miles NW of Runnelstown, and the other 2.7 miles NE of Runnelstown along Cole Drive. Significant tree damage and sporadic power lines were downed along the track of the tornado. Damage estimates from property were around $105,000 with tree damage estimated at $55,000.

Source: National Centers for Environmental Information

PROBABILITY OF FUTURE OCCURRENCES

According to historical information, tornado events pose a significant threat to Perry County. The probability of future tornado occurrences affecting Perry County is likely (10 – 100 percent annual probability).

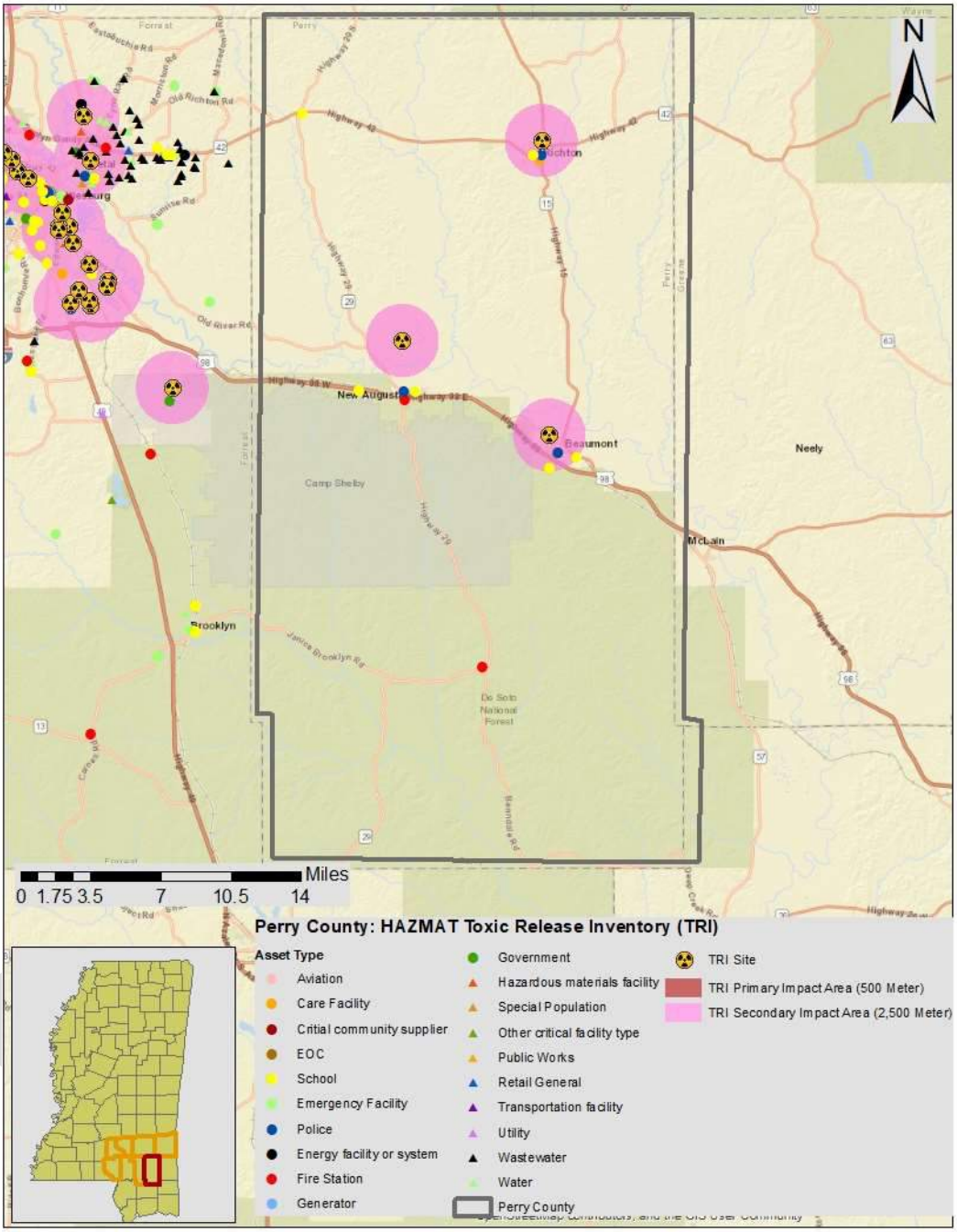
F.2.13 Hazardous Materials Incidents

LOCATION AND SPATIAL EXTENT

Hazardous Materials

Perry County has three TRI sites. These sites are shown in **Figure F.8.**

FIGURE F.3: TOXIC RELEASE INVENTORY (TRI) SITES IN PERRY COUNTY



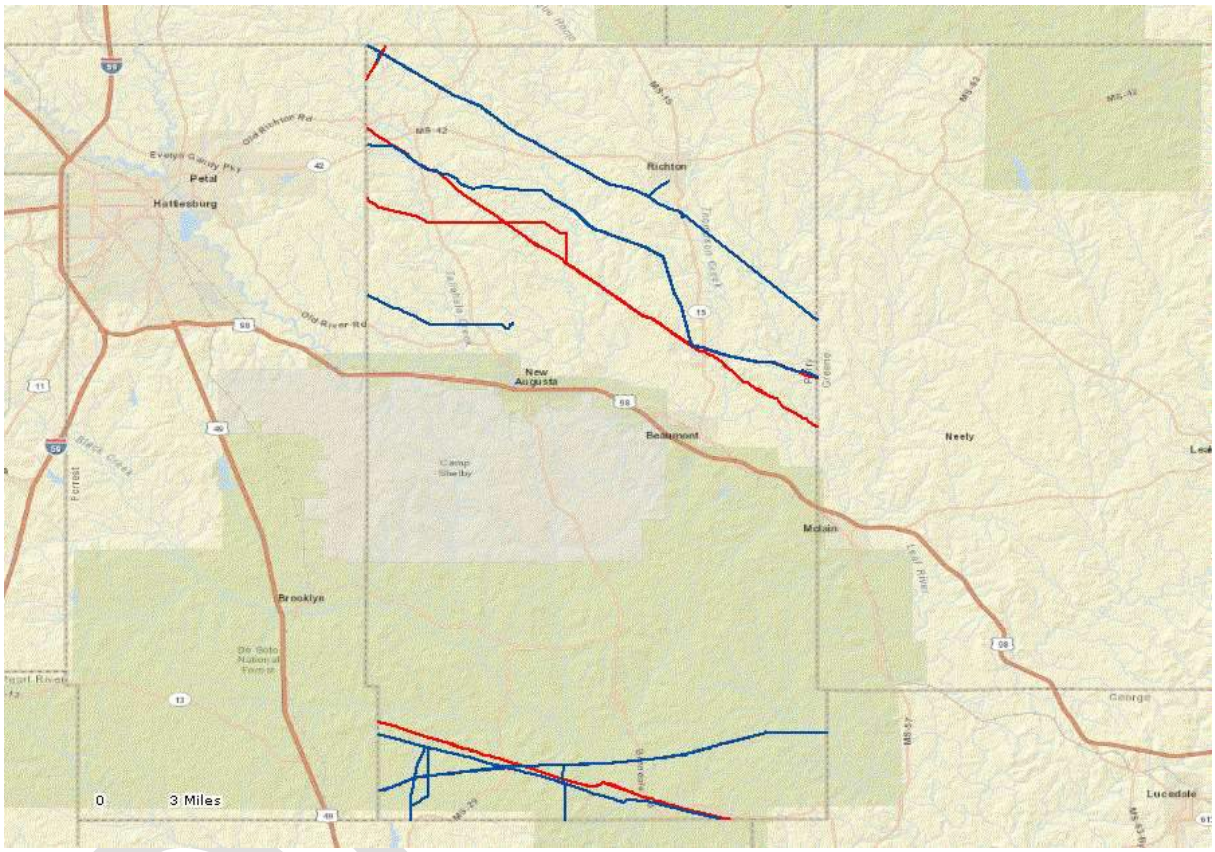
Source: EPA

In addition to "fixed" hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially at risk to an incident.

Pipelines

There are two distinct types of pipelines that are used in the transport of potentially hazardous materials, gas lines and hazardous liquid lines. **Figure F.12** shows the trunk lines for each of these material types but does not show the gathering or distribution pipelines. Gas lines are in blue and hazardous liquid lines are in red. This data has not changed since the last plan update.

FIGURE F.4: PIPELINES IN PERRY COUNTY



Source: Pipeline and Hazardous Materials Safety Administration

Meth Labs

One of the greatest concerns about meth labs is that they are clandestine in nature. Additionally, once a meth lab has been identified, police authorities generally attempt to eliminate the site as quickly as possible. Therefore, it is nearly impossible to identify specific locations for meth labs and instead, the entire planning area is considered to be at risk to this hazard.

HISTORICAL OCCURRENCES

Hazardous Materials

There has been a total of seven recorded HAZMAT incidents in Perry County since 1973 (**Table F.23**). **Table F.9** presents detailed information on historic HAZMAT incidents in Perry County as reported by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA).

TABLE F.9: SUMMARY OF HAZMAT INCIDENTS IN PERRY COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
Beaumont	0	0/0	$0
New Augusta	5	0/0	$0
Richton	2	0/0	$0
Unincorporated Area	0	0/0	$0
PERRY COUNTY TOTAL	**7**	**0/0**	**$0**

Source: USDOT PHMSA

TABLE F.10: HAZMAT INCIDENTS IN PERRY COUNTY

Report Number	Date	City	Mode	Serious Incident?	Fatalities/ Injuries	Damages ($)	Quantity Released
Beaumont							
None Reported	--	--	--	--	--	--	--
New Augusta							
I-1973040166	4/3/1973	NEW AUGUSTA	Highway	No	0/0	$0	0
I-1984120013	11/12/1984	NEW AUGUSTA	Highway	No	0/0	$0	25 LGA
I-1979031112	3/6/1979	NEW AUGUSTA	Highway	Yes	0/0	$0	4,000 LGA
I-2012020040	1/18/2012	NEW AUGUSTA	Highway	No	0/0	$0	3.5 LGA
I-1987010388	1/18/1987	NEW AUGUSTA	Highway	Yes	0/0	$0	629 LGA
Richton							
I-1976070629	7/9/1976	RICHTON	Highway	No	0/0	$0	5 LGA
I-1992030246	2/13/1992	RICHTON	Highway	No	0/0	$0	10 LGA
Unincorporated Area							
None Reported	--	--	--	--	--	--	--

Source: USDOT PHMSA

Pipelines

Between 2002 and 2018, there have been no pipeline incidents in Perry County.

Meth Labs

Meth lab incidents have occurred at various times throughout Perry County. Although there is not an extensive documented record of these events, they have occurred in the past and are generally confined to single sites, often in residential areas.

PROBABILITY OF FUTURE OCCURRENCES

Hazardous Materials

Given the location of three toxic release inventory sites in Perry County and several roadway and rail incidents, it is possible that a hazardous material incident may occur in the county (between one percent and ten percent annual probability). County and town officials are mindful of this possibility and take precautions to prevent such an event from occurring. Furthermore, there are detailed plans in place to respond to an occurrence.

Although there are just three TRI sites and a limited record of previous events in the county, hazardous materials incidents will continue to be a threat. The county may also be impacted by neighboring counties which also face risk due to TRI sites and narrow roadways.

Pipelines

Although there have been no major pipeline incidents, there are 242 miles of gas and hazardous liquid lines in the region. Therefore, it is anticipated that there will be future pipeline incidents in Perry County. These are considered possible.

Meth Labs

Meth lab incidents will likely continue to occur throughout Perry County. Although it is difficult to predict where exactly these incidents would occur, the probability that they will is possible.

F.2.14 Cyber Attack

A cyber-attack is a malicious, intentional attempt to breach the information technology (IT) infrastructure of an individual or organization. The State of Mississippi defines a cyberterrorism incident as any adverse premeditated, politically, financially or maliciously motivated attack against informational systems. A cyberterrorism event can impact one or more of Perry County's and its, corresponding departments' and divisions' information assets by the following ways, which includes, but are not limited to, the following:

- Unauthorized use
- Denial of Service
- Malicious code
- Network system failures
- Application system failures
- Unauthorized disclosure or loss of information
- Information security breach
- Structured Query Language (SQL) Injection

LOCATION AND HAZARD EXTENT

The cyberterrorism hazard is not geographically based. Attacks can originate from any computer to affect any other computer in the world. If a system is connected to the Internet or operating on a wireless frequency, it is susceptible to exploitation. Targets of cyberterrorism can be individual

computers, networks, organizations, business sectors, or governments. Financial institutions and retailers are often targeted to extract personal and financial data that can be used to steal money from individuals and banks.

HISTORICAL OCCURRENCES

There have been no known historical occurrences to have occurred in in Perry County to date.

PROBABILITY OF FUTURE OCCURRENCES

As is the case for any governmental organization, there will always be the potential for impact for Perry County. As such, the county will continue to be compelled to respond to cyberterrorisms in the future. The nature of these attacks is projected to evolve in sophistication over time. Perry County will take a proactive position in its cyber security efforts and is expected to remain vigilant in its efforts to prevent attacks from occurring and/or disrupting business operations.

The reality remains that many computers and networks in organizations of all sizes and industries around the United States will continue to suffer intrusion attempts on a daily basis from viruses and malware that are passed through web sites and emails. Again, the potential for harm via this hazard is always present.

F.2.15 Conclusions on Hazard Risk

The hazard profiles presented above were developed using best available data and result in what may be considered principally a qualitative assessment as recommended by FEMA in its "How-to" guidance document titled *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA Publication 386-2). It relies heavily on historical and anecdotal data, stakeholder input, and professional and experienced judgment regarding observed and/or anticipated hazard impacts. It also carefully considers the findings in other relevant plans, studies, and technical reports.

HAZARD EXTENT

Table F.10 describes the extent of each natural hazard identified for Perry County. The extent of a hazard is defined as its severity or magnitude, as it relates to the planning area.

859

TABLE F.11: EXTENT OF PERRY COUNTY HAZARDS

Flood-related Hazards	
Flood	Flood extent can be measured by the amount of land and property in the floodplain as well as flood height and velocity. The amount of land in the floodplain accounts for 17.8 percent of the total land area in Perry County. Flood depth and velocity are recorded via United States Geological Survey stream gages throughout the region. While a gage does not exist for each participating jurisdiction, there is one at or near many areas. The greatest peak discharge recorded for the county was at the Leaf River at Beaumont in 1900. Water reached a discharge of 150,000 cubic feet per second and the stream gage height was recorded at 34.00 feet.
Erosion	The extent of erosion can be defined by the measurable rate of erosion that occurs. There are no erosion rate records located in Perry County.
Dam Failure	Dam failure extent is defined using Mississippi Division of Environmental Quality criteria. There is one dam classified as high-hazard in the county.
Winter Storm and Freeze	The extent of winter storms can be measured by the amount of snowfall received (in inches). Official long-term snow records are not kept for Perry County. However, the greatest snowfall reported in Jackson (northwest of the county) was 11.7 inches in 1904 and in Meridian (north of the county) was 14.0 inches in 1963.
Fire-related Hazards	
Drought / Heat Wave	Drought extent is defined by the U.S. Drought Monitor Classifications which include Abnormally Dry, Moderate Drought, Severe Drought, Extreme Drought, and Exceptional Drought. According to the U.S. Drought Monitor Classifications, the most severe drought condition is Exceptional. Perry County has received this ranking twice over the eighteen-year reporting period. The extent of extreme heat can be measures by the record high temperature recorded. Official long-term temperature records are not kept for any areas in Perry County. However, the highest recorded temperature in Hattiesburg (west of the county) was 106°F in 1989.
Wildfire	Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2008-2018. The greatest number of fires to occur in Perry County in any year was 48 in 2011. The greatest number of acres to burn in the county in a single year occurred in 2014 when 634 acres were burned. Although this data lists the extent that has occurred, larger and more frequent wildfires are possible throughout the county.
Geologic Hazards	
Earthquake	Earthquake extent can be measured by the Richter Scale and the Modified Mercalli Intensity (MMI) scale and the distance of the epicenter from Perry County. According to data provided by the National Geophysical Data Center, no recorded earthquakes have been located in the county. However, USGS data shows Perry County lies within an approximate zone of level .04 ground acceleration. This indicates that the county exists within an area of moderate seismic risk.

Landslide	As noted above in the landslide profile, there is no extensive history of landslides in Perry County and landslide events typically occur in isolated areas. This provides a challenge when trying to determine an accurate extent for the landslide hazard. However, when using USGS landslide susceptibility index, extent can be measured with incidence, which is low throughout the county. There is also susceptibility throughout the county.
Expansive Soils	As noted above in the expansive soils profile, there is no historical record of significant expansive soil events in Perry County. Again, this provides a challenge when trying to determine an accurate extent for the expansive soils hazard. However, when using USGS data on soils with clay swelling potential, extent can be measured with swelling potential, which is high in less than 50 percent of the soils Perry County.
Wind-related Hazards	
Hurricane and Tropical Storm	Hurricane extent is defined by the Saffir-Simpson Scale which classifies hurricanes into Category 1 through Category 5. The greatest classification of hurricane to traverse directly through Perry County was a Category 3 storm (an unnamed storm in 1855) which carried tropical force winds of 115 miles per hour upon arrival in the county.
Thunderstorm / Hail / Lightning	Thunderstorm extent is defined by the number of thunder events and wind speeds reported. According to a 63-year history from the National Centers for Environmental Information, the strongest recorded wind event in Perry County was reported on June 5, 1998 at 80 knots (approximately 92 mph). It should be noted that future events may exceed these historical occurrences. Hail extent can be defined by the size of the hail stone. The largest hail stone reported in Perry County was 2.75 inches (on April 17, 1998). It should be noted that future events may exceed this. According to the Vaisala's flash density map (Figure 5.16), Perry County is located in an area that experiences 6 to 8 lightning flashes per square kilometer per year. It should be noted that future lightning occurrences may exceed these figures.
Tornado	Tornado hazard extent is measured by tornado occurrences in the US provided by FEMA (Figure 5.17) as well as the Fujita/Enhanced Fujita Scale (Tables 5.26 and 5.27). The greatest magnitude reported in Perry County was an F3 (last reported on May 7, 1982).
Other Hazards	
Hazardous Materials Incident	According to USDOT PHMSA, the largest hazardous materials incident reported in the county is 4,000 LGA released on the highway in New Augusta. It should be noted that larger events are possible. A pipeline incident could have a potentially large impact in terms of extent. Based on recent history, the largest spill in the last 10 years in Mississippi caused over 10,000 barrels of hazardous liquid to be spilled. Because of the generally small-scale nature of most meth labs, the extent of a fire or explosion that was caused by a meth lab incident would likely not be larger than a few acres.
Cyber Attack	The extent of cyberterrorism is difficult to estimate. Attacks can originate from any computer to affect any other computer in the world. The resulting damages depends on the demands of the cyberterrorist.

PRIORITY RISK INDEX RESULTS

In order to draw some meaningful planning conclusions on hazard risk for Perry County, the results of the hazard profiling process were used to generate countywide hazard classifications according to a "Priority Risk Index" (PRI). More information on the PRI and how it was calculated can be found in Section 5.16.2.

Table F.11 summarizes the degree of risk assigned to each category for all initially identified hazards based on the application of the PRI. Assigned risk levels were based on the detailed hazard profiles developed for this section, as well as input from the Regional Hazard Mitigation Council. The results were then used in calculating PRI values and making final determinations for the risk assessment.

TABLE F.12: SUMMARY OF PRI RESULTS FOR PERRY COUNTY

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Flood-related Hazards						
Flood	Likely	Limited	Small	6 to 12 hours	Less than 24 hours	**2.4**
Erosion	Possible	Minor	Small	More than 24 hours	More than 1 week	**1.8**
Dam Failure	Unlikely	Critical	Moderate	More than 24 hours	Less than 6 hours	**2.0**
Winter Storm and Freeze	Possible	Limited	Large	More than 24 hours	Less than 24 hours	**2.3**
Fire-related Hazards						
Drought / Heat Wave	Highly Likely	Minor	Large	More than 24 hours	More than 1 week	**2.8**
Wildfire	Likely	Minor	Small	Less than 6 hours	Less than 1 week	**2.1**
Geologic Hazards						
Earthquake	Unlikely	Minor	Moderate	Less than 6 hours	Less than 6 hours	**1.7**
Landslide	Unlikely	Minor	Small	Less than 6 hours	Less than 6 hours	**1.5**
Expansive Soils	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Wind-related Hazards						
Hurricane and Tropical Storm	Likely	Catastrophic	Large	More than 24 hours	Less than 24 hours	**3.2**
Thunderstorm Wind / High Wind	Highly Likely	Limited	Moderate	Less than 6 hours	Less than 6 hours	**2.9**
Hailstorm	Likely	Minor	Small	Less than 6 hours	Less than 6 hours	**2.1**
Lighting	Highly Likely	Limited	Negligible	Less than 6 hours	Less than 6 hours	**2.5**
Tornado	Likely	Critical	Small	Less than 6 hours	Less than 6 hours	**2.7**
Other Hazards						
Hazardous Materials Incident	Unlikely	Limited	Small	Less than 6 hours	Less than 24 hours	**1.9**
Pipeline Incident	Possible	Limited	Small	Less than 6 hours	Less than 24 hours	**2.2**
Meth Lab Incident	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Cyber Attack	Unlikely					

F.2.16 Final Determinations on Hazard Risk

The conclusions drawn from the hazard profiling process for Perry County, including the PRI results and input from the Regional Hazard Mitigation Council, resulted in the classification of risk for each identified hazard according to three categories: High Risk, Moderate Risk, and Low Risk (**Table F.12**). For purposes of these classifications, risk is expressed in relative terms according to the estimated impact that a hazard will have on human life and property throughout all of Perry County. A more quantitative analysis to estimate potential dollar losses for each hazard has been performed separately and is described in Section 6: *Vulnerability Assessment* and below in Section F.3. It should be noted that although some hazards are classified below as posing low risk, their occurrence of varying or unprecedented magnitudes is still possible in some cases and their assigned classification will continue to be evaluated during future plan updates.

TABLE F.13: CONCLUSIONS ON HAZARD RISK FOR PERRY COUNTY

HIGH RISK	Hurricane and Tropical Storm Thunderstorm Wind / High Wind Tornado Flood
MODERATE RISK	Drought / Heat Wave Dam Failure Lightning Hailstorm Pipeline Incident Hazardous Material Incident Wildfire
LOW RISK	Winter Storm and Freeze Expansive Soils Erosion Earthquake Landslide Meth Lab Incident Cyber Attack

F.3 PERRY COUNTY VULNERABILITY ASSESSMENT

This subsection identifies and quantifies the vulnerability of Perry County to the significant hazards previously identified. This includes identifying and characterizing an inventory of assets in the county and assessing the potential impact and expected amount of damages caused to these assets by each identified hazard event. More information on the methodology and data sources used to conduct this assessment can be found in Section 6: *Vulnerability Assessment*.

F.3.1 Asset Inventory

Table F.13 lists the number of parcels and the total assessed value of improvements for Perry County and its participating jurisdictions (study area of vulnerability assessment).[17]

TABLE F.14: IMPROVED PROPERTY IN PERRY COUNTY

Location	Number of Parcels	Total Assessed Value of Improvements
Perry County	5,608	$874,179,000

Table F.14 lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools and other critical facilities located in Perry County. HAZUS-MH 4.2 was used to obtain the critical facilities for the county and this data was updated to reflect recent changes. In addition, **Figure F.12** shows the locations of essential facilities in Perry County. **Table F.31** near the end of this section, shows a complete list of the critical facilities by name, as well as the hazards that affect each facility. As noted previously, this list is not all-inclusive and only includes information provided by the county.

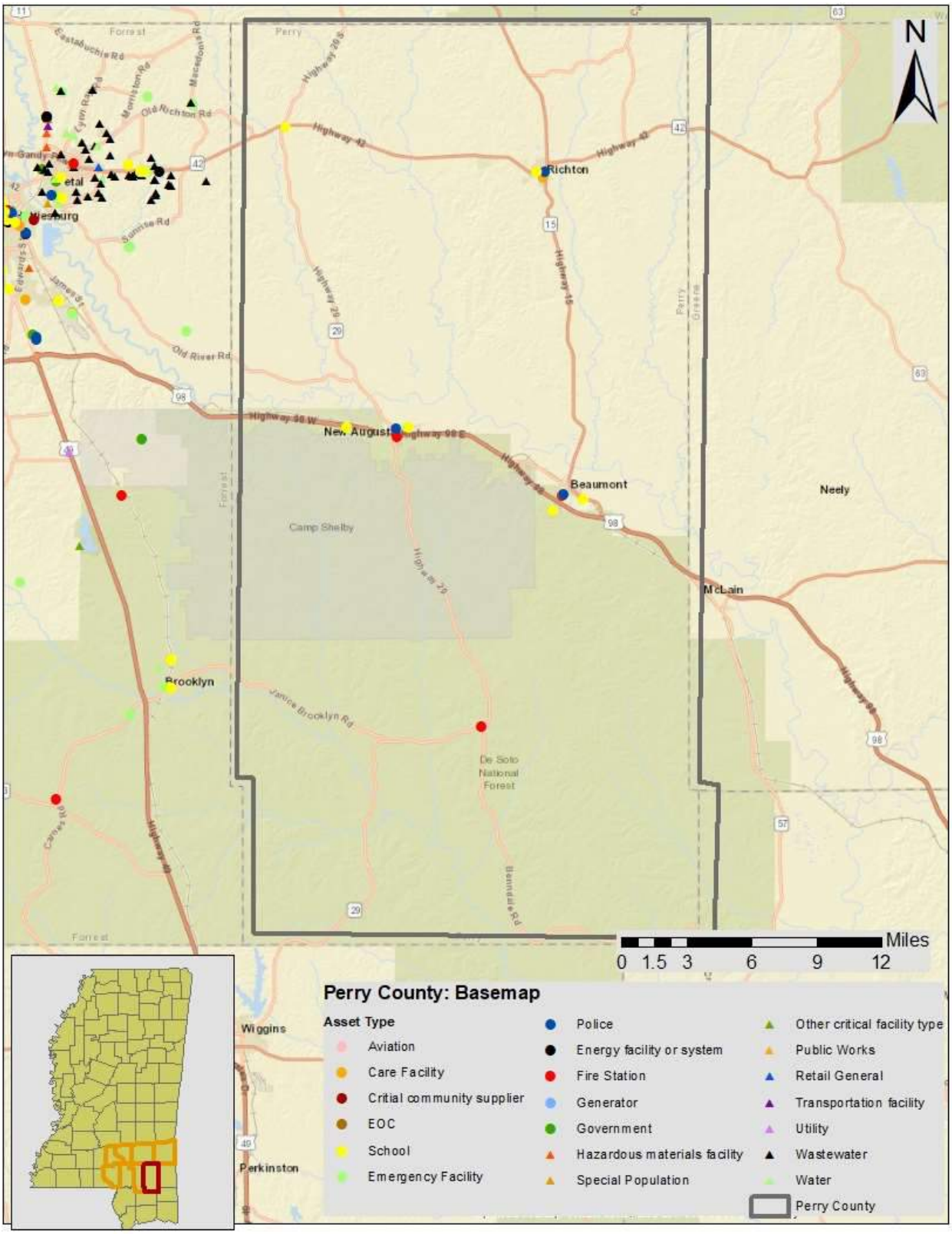
TABLE F.15: CRITICAL FACILITY INVENTORY IN PERRY COUNTY

Location	Fire Stations	Police Stations	Medical Care Facilities	EOC	Schools
Perry County	**1**	**2**	**1**	**0**	**6**
Beaumont	1	0	0	0	1
New Augusta	0	1	0	0	2
Richton	0	1	1	0	2
Unincorporated Area	0	0	0	0	1

Source: HAZUS-MH 4.2

[17] Total assessed values for improvements is based on tax assessor records as joined to digital parcel data. This data does not include dollar figures for tax-exempt improvements such as publicly-owned buildings and facilities. It should also be noted that, due to record keeping, some duplication is possible thus potentially resulting in an inflated value exposure for an area.

915 **FIGURE F.12: CRITICAL FACILITY LOCATIONS IN PERRY COUNTY**



916
917 *Source: HAZUS-MH 4.2*
918

F.3.2 Social Vulnerability

In addition to identifying those assets potentially at risk to identified hazards, it is important to identify and assess those particular segments of the resident population in Perry County that are potentially at risk to these hazards.

Table F.30 lists the population by jurisdiction according to U.S. Census 2010 population estimates. Population counts are presented at the county and municipal level. The total population in Perry County according to Census data is 12,250 persons. Additional population estimates are presented above in Section F.1.

TABLE F.30: TOTAL POPULATION IN PERRY COUNTY

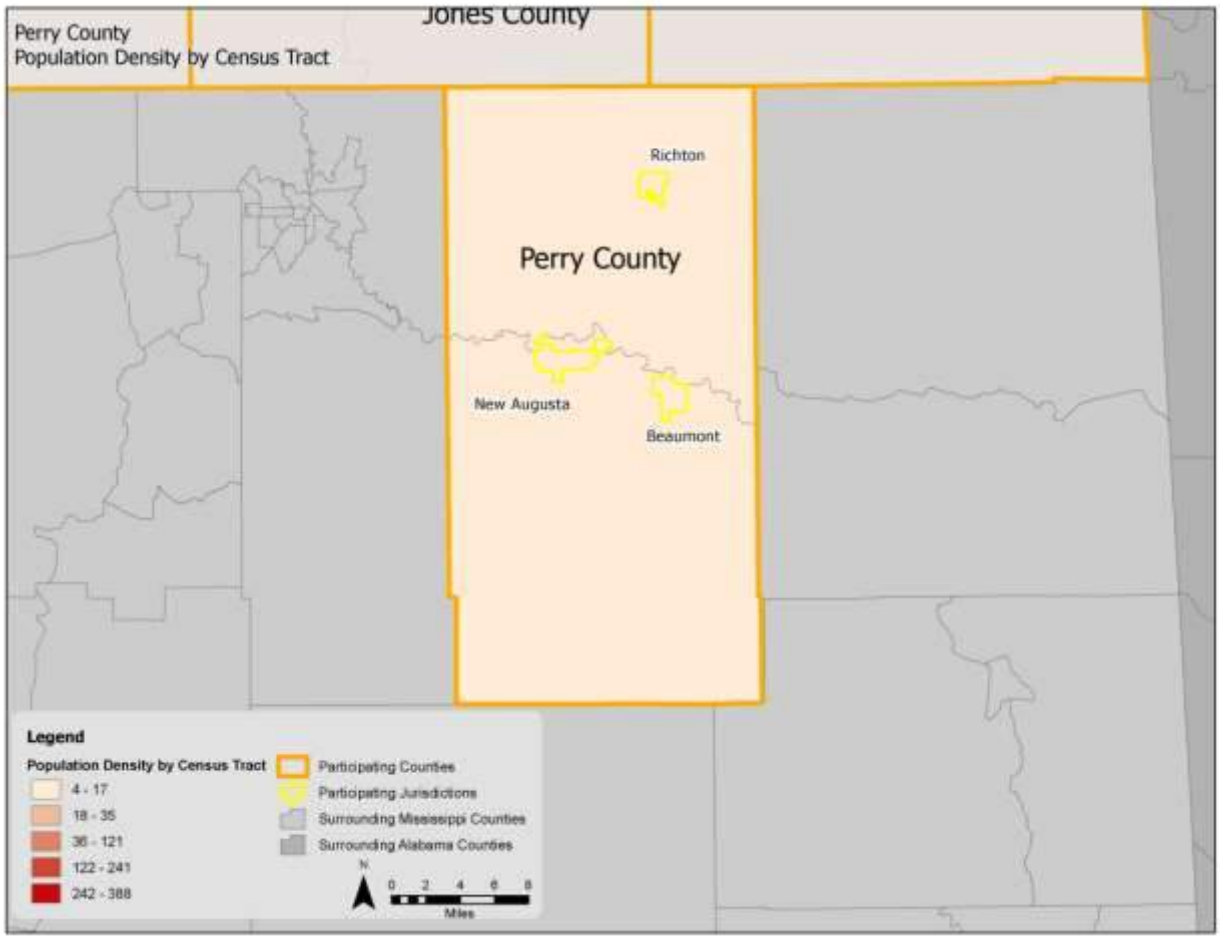
Location	Total 2010 Population
Beaumont	951
New Augusta	644
Richton	1,068
Unincorporated Area	9,587
PERRY COUNTY TOTAL	**12,250**

Source: U.S. Census 2010

In addition, **Figure F.13** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2010.[18] This information has not changed since the last plan update.

[18] Population by census block was not available at the time this plan was completed.

FIGURE F.13: POPULATION DENSITY IN PERRY COUNTY



Source: U.S. Census Bureau, 2010

F.3.3 Vulnerability Assessment Results

As noted in Section 6: *Vulnerability Assessment*, only hazards with a specific geographic boundary, available modeling tool, or sufficient historical data allow for further analysis. Those results, specific to Perry County, are presented here. All other hazards are assumed to impact the entire planning region (drought, hailstorm, lightning, thunderstorm wind, tornado, and winter storm and freeze) or, due to lack of data, analysis would not lead to credible results (dam and levee failure, erosion, expansive soils, and landslide). The total county exposure, and thus risk, was presented in **Table F.28**.

The hazards to be further analyzed in this section include: flood, wildfire, earthquake, hurricane and tropical storm winds, and hazardous materials incident.

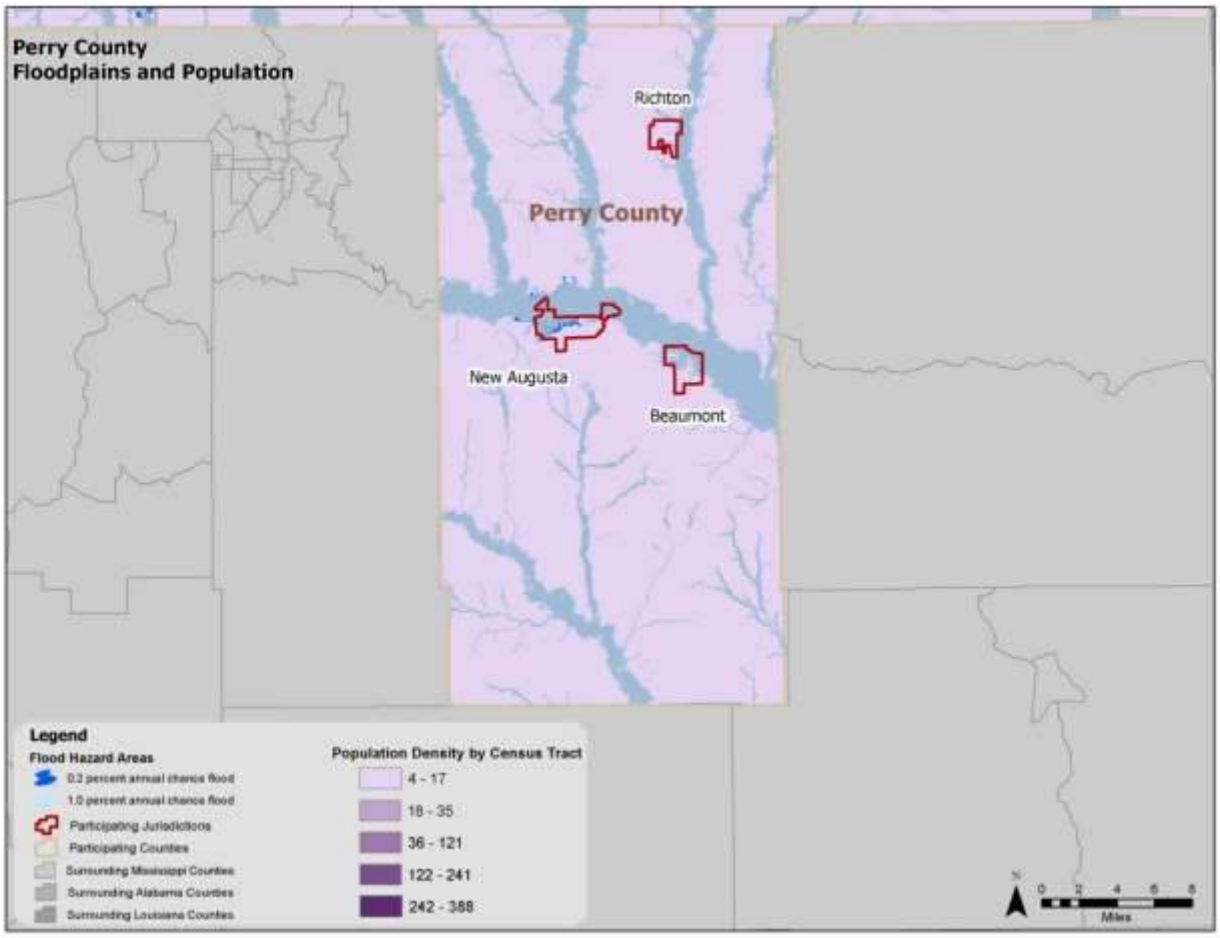
FLOOD

Historical evidence indicates that Perry County is susceptible to flood events. A total of 22 flood events have been reported by the National Centers for Environmental Information resulting in over $1.9M in damages.

Social Vulnerability

Since 2010 population was available at the tract level, it was difficult to determine a reliable figure on population at-risk to flood due to tract level population data. **Figure F.3** is presented to gain a better understanding of at-risk population.

FIGURE F.14: POPULATION DENSITY NEAR FLOODPLAINS



Source: FEMA DFIRM, U.S. Census 2010

Critical Facilities

The critical facility analysis revealed that there are a no critical facilities located in the Perry County 1.0-percent annual chance floodplain and two critical facility located in the 0.2-percent annual chance floodplain based on FEMA DFIRM boundaries and GIS analysis. These two critical facilities are valued at over $3.9M. A list of specific critical facilities and their associated risk can be found in **Table F.31** at the end of this section.

In conclusion, a flood has the potential to impact many existing and future buildings and populations in Perry County, though some areas are at a higher risk than others. All types of structures in a floodplain are at-risk, though elevated structures will have a reduced risk. As noted, the floodplains used in this analysis include the 100-year and 500-year FEMA regulated floodplain boundaries. It is certainly possible that more severe events could occur beyond these boundaries or urban (flash) flooding could impact additional structures. Such site-specific vulnerability determinations are outside the scope of this assessment but will be considered during future plan updates. Furthermore, areas subject to repetitive flooding should be analyzed for potential mitigation actions.

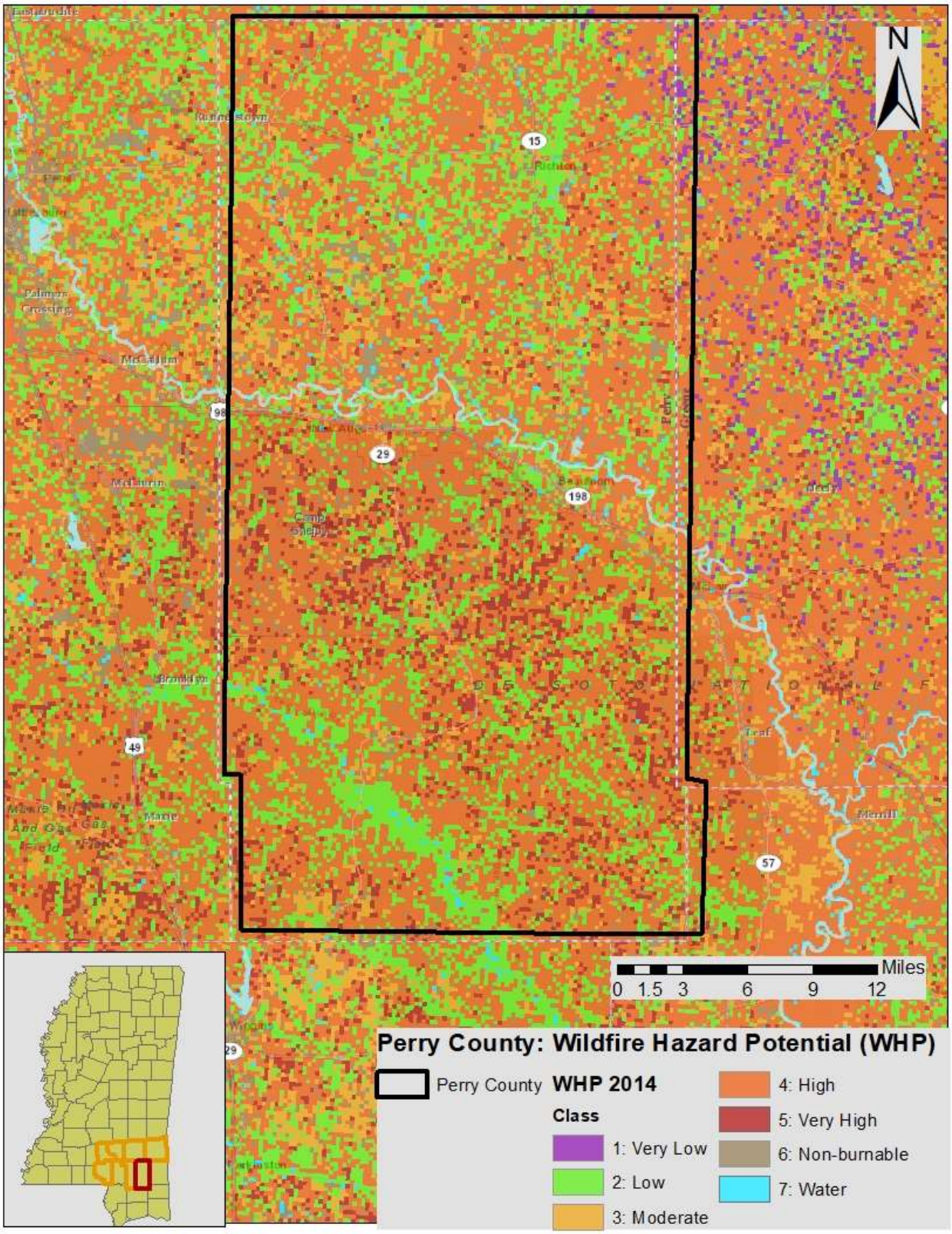
WILDFIRE

Although historical evidence indicates that Perry County is susceptible to wildfire events, there are few reports of damage.

To estimate exposure to wildfire, the wildfire hazard potential (WHP 2014) data provided via the US Forest Service was utilized. A GIS analysis was performed with the WHP dataset and identified critical facilities throughout MEMA District 8 in order to show the level of vulnerability.

Figure A.15 shows the wildfire hazard potential for Perry County. Most of the planning areas falls within the low to high category.

998 **FIGURE F.15: WILDFIRE RISK AREAS IN PERRY COUNTY**



999
1000 *Source: Southern Wildfire Risk Assessment Data*
1001

Social Vulnerability

Although not all areas have equal vulnerability, there is some susceptibility across the entire county. It is assumed that the total population is at risk to the wildfire hazard. Determining the exact number of people in certain wildfire zones is difficult with existing data and could be misleading.

Critical Facilities

The critical facility analysis revealed that there are two critical facilities located in an area considered low risk valued at nearly $4M. There are five critical facilities located in an area considered high risk valued at $17.3M. It should be noted, however, that several factors could impact the spread of a wildfire putting all facilities at risk. A list of specific critical facilities and their associated risk can be found in **Table A.31** at the end of this section.

In conclusion, a wildfire event has the potential to impact many existing and future buildings, critical facilities, and populations in Perry County.

EARTHQUAKE

The HAZUS-MH earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS-MH model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS-MH 4.2 estimates a total exposure of approximately $20,561,000 which includes buildings, inventory, and contents throughout the region. While this number is not an exact representation of assessed tax value, it is helpful in assessing the results of the HAZUS-MH scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS-MH estimates that no buildings would be moderately damaged.

Social Vulnerability

It can be assumed that all existing future populations are at risk to the earthquake hazard. No fatalities or injuries were reported in the above HAZUS-MH arbitrary scenario.

Critical Facilities

There are 13 critical facilities identified for Covington County, valued at $49,825,789. All are vulnerable to the earthquake hazard.

In conclusion, an earthquake has the potential to impact all existing and future buildings, facilities, and populations in Perry County. While Perry County may not experience a large earthquake (there are none on record), localized damage is possible with an occurrence. A list of specific critical facilities and their associated risk can be found in **Table F.31** at the end of this section.

HURRICANE AND TROPICAL STORM

Historical evidence indicates that Perry County has an elevated risk to the hurricane and tropical storm hazard. Several tracks have come near or traversed through the county, as shown and discussed in Section F.2.10.

Hurricanes and tropical storms can cause damage through numerous additional hazards such as flooding, erosion, tornadoes, and high winds, thus it is difficult to estimate total potential losses from

these cumulative effects. The current HAZUS-MH hurricane model only analyzes hurricane winds and is not capable of modeling and estimating cumulative losses from all hazards associated with hurricanes; therefore, only hurricane winds are analyzed in this section. It can be assumed that all existing and future buildings and populations are at risk to the hurricane and tropical storm hazard. HAZUS-MH 4.2 was used to determine vulnerability to the hazard for a 100-Year event. There are an estimated 100,000 buildings in the region with a total building replacement value of $20,562,000. A 100-year probabilistic scenario was created and modeled. HAZUS-MH estimated that approximately 1,892 buildings would be at least moderately damaged by the event; this is over two percent of the buildings in the Region. There is an estimated 69 buildings that would be damaged beyond repair.

Economic Losses

HAZUS-MH estimated economic losses for the scenario event. HAZUS-MH estimated losses at $349.5M, which represents 1.7 percent of the total replacement value of the region's buildings. Nine percent of the losses were related to business interruption in the scenario region. 88 percent of the losses were sustained by residential structures.

Debris Generation

As part of the scenario, HAZUS-MH estimated the amount of debris that would be generated by the event. The types of debris considered were brick/wood, reinforced concrete/steel, eligible tree debris, and other tree debris. HAZUS-MH estimated that a total of 2,165,680 tons of debris would be generated by the event. Of that amount, 93 percent would be other tree debris, approximately 1.5 percent would be brick/wood, and the rest would comprise of would be eligible tree debris and brick/wood. Assuming a load of 25 tons per truck, this would equate to 1,190 truckloads of debris from this scenario.

Social Vulnerability

Given equal susceptibility across the county, it is assumed that the total population is at risk to the hurricane and tropical storm hazard.

Critical Facilities

Given equal vulnerability across Perry County, all critical facilities are considered to be at risk. Some buildings may perform better than others in the face of such an event due to construction and age, among other factors. There are 13 critical facilities identified for Perry County, valued at $49,825,789. Some buildings may perform better than others in the face of such an event due to construction and age, among other factors. Determining individual building response is beyond the scope of this plan. However, this plan will consider mitigation action for especially vulnerable and/or critical facilities to mitigation against the effects of the hurricane hazard. A list of specific critical facilities can be found in **Table A.31** at the end of this section.

In conclusion, a hurricane event has the potential to impact many existing and future buildings, critical facilities, and populations in Perry County. Hurricane events can cause substantial damage in their wake including fatalities, extensive debris clean-up, and extended power outages.

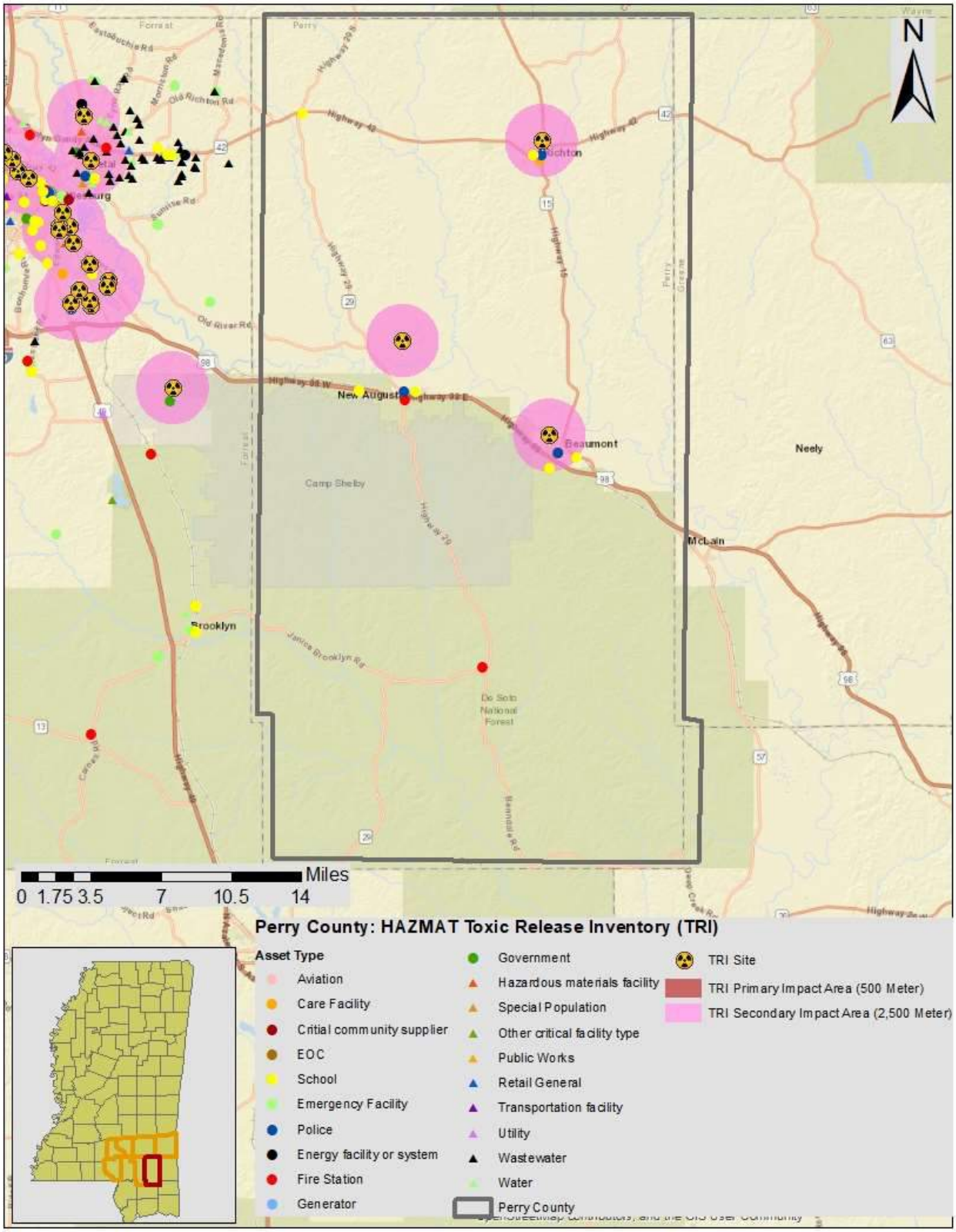
HAZARDOUS MATERIALS INCIDENT

Although historical evidence and existing Toxic Release Inventory sites indicate that Perry County is susceptible to hazardous materials events, there are few reports of damage.

Most hazardous materials incidents that occur are contained and suppressed before destroying any property or threatening lives. However, they can have a significant negative impact. Such events can cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. In a hazardous materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions will directly affect how the hazard develops. Certain chemicals may travel through the air or water, affecting a much larger area than the point of the incidence itself. Non-compliance with fire and building codes, as well as failure to maintain existing fire and containment features, can substantially increase the damage from a hazardous materials release. The duration of a hazardous materials incident can range from hours to days. Warning time is minimal to none.

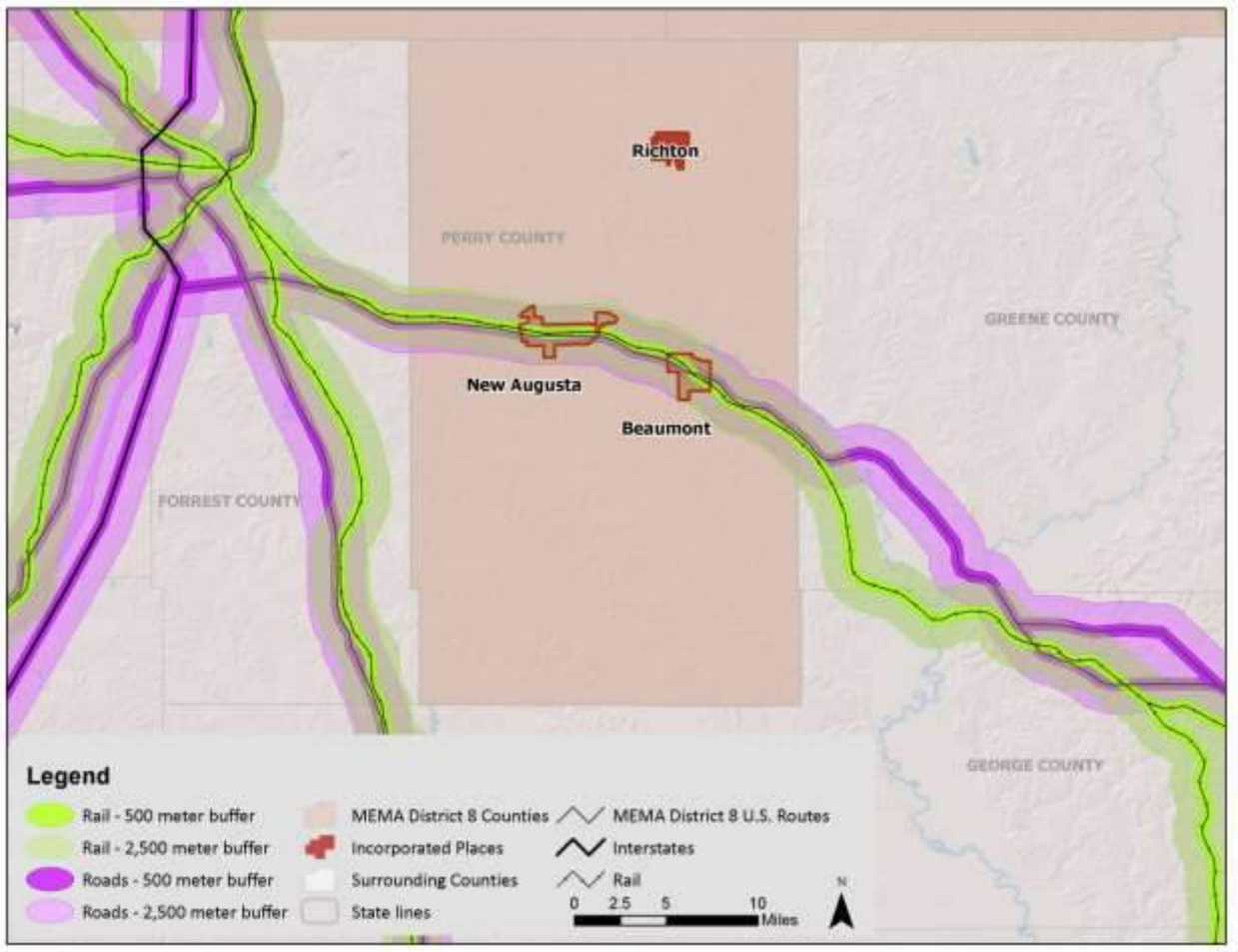
In order to conduct the vulnerability assessment for this hazard, GIS analysis was used for fixed and mobile areas. In both scenarios, two sizes of buffers—500 and 2,500 meters—were used. These areas are assumed to respect the different levels of effect: immediate (primary) and secondary. Primary and secondary impact sites were selected based on guidance from FEMA 426, Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings and engineering judgment. For the fixed site analysis, geo-referenced TRI listed toxic sites in Perry County, along with buffers, were used for analysis as shown in **Figure F.16.** For the mobile analysis, the major roads (Interstate highway, U.S. highway, and State highway) and railroads, where hazardous materials are primarily transported that could adversely impact people and buildings, were used for the GIS buffer analysis. **Figure F.17** shows the areas used for mobile toxic release buffer analysis. The mobile toxic release buffer data did not change since the last plan update.

1123 **FIGURE F.16: TRI SITES WITH BUFFERS IN PERRY COUNTY**



1124
1125 *Source: EPA*
1126

FIGURE F.17: MOBILE HAZMAT BUFFERS IN PERRY COUNTY



Social Vulnerability

Given high susceptibility across the entire county, it is assumed that the total population is at risk to a hazardous materials incident. It should be noted that areas of population concentration may be at an elevated risk due to a greater burden to evacuate population quickly.

Critical Facilities

Fixed Site Analysis:

The critical facility analysis for fixed TRI sites revealed that there are no critical facilities that would be impacted by only the 500M HAZMAT risk zone. There are 8 critical facilities that would be impacted by the 2500M HAZMAT risk zone, valued at nearly $36M. A list of specific critical facilities and their associated risk can be found in **Table A.31** at the end of this section.

Mobile Analysis:

The critical facility analysis for transportation corridors in Covington County revealed that there are 18 critical facilities located in the 500M Highway mobile HAZMAT buffer areas valued at over $18.7M, and there are 7 critical facilities located in the 500M Railway mobile HAZMAT buffer areas valued at approximately $18.7M.

Expanding to a 2500M HAZMAT risk zone reveals there are nine critical facilities located in the highway mobile HAZMAT buffer areas are vulnerable, valued at approximately $22.5M. There are 9 critical facilities located in the railway mobile HAZMAT buffer area that are vulnerable, also valued at $22.5M. A list of specific critical facilities and their associated risk can be found in **Table A.31** at the end of this section.

In conclusion, a hazardous material incident has the potential to impact many existing and future buildings, critical facilities, and populations in Perry County. Those areas in a primary buffer are at the highest risk, though all areas carry some vulnerability due to variations in conditions that could alter the impact area (i.e., direction and speed of wind, volume of release, etc). Further, incidents from neighboring counties could also impact the county and participating jurisdictions.

CONCLUSIONS ON HAZARD VULNERABILITY

Table F.31 shows the critical facilities vulnerable to additional hazards analyzed in this section. The table lists those assets that are determined to be exposed to each of the identified hazards (marked with an "**X**").

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TABLE F.31: AT-RISK CRITICAL FACILITIES IN PERRY COUNTY

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and	Lightning	Thunderstorm	Tornado	Winter Storm and	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[19]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Perry County																					
BEAUMONT ELEMENTARY SCHOOL	School	X	X	X	X	X	X	X	X							X		X		X	High
Beaumont Police Dept	Police Station	X	X	X	X	X	X	X	X							X	X	X	X	X	Low
Beaumont Volunteer Fire Company	Fire Department	X	X	X	X	X	X	X	X							X	X	X		X	Non-burnable
PERRY COUNTY ALTERNATIVE CENTER	School	X	X	X	X	X		X	X							X	X	X	X	X	High
NEW AUGUSTA ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X					X			X	X	X	X	Low
PERRY CENTRAL HIGH SCHOOL	School	X	X	X	X	X		X	X								X	X	X	X	High
PERRY CO VOC COMPLEX	School	X	X	X	X	X		X	X								X	X	X	X	High
Perry County Sheriff's Dept	Police Station	X	X	X	X	X		X	X					X			X	X	X	X	Non-burnable
Town of New Augusta Volunteer Fire Depar	Fire Department	X	X	X	X	X		X	X								X	X	X	X	High
PERRY COUNTY GENERAL HOSPITAL	Care Facility	X	X	X	X	X		X	X							X					Non-burnable
RICHTON ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X							X					Non-burnable

[19] As noted previously, these facilities could be at risk to dam failure if located in an inundation area. Data was not available to conduct such an analysis. There was no local knowledge of these facilities being at risk to dam failure. As additional data becomes available, more in-depth analysis will be conducted.

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and	Lightning	Thunderstorm	Tornado	Winter Storm and	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[19]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
RICHTON HIGH SCHOOL	School	X	X	X	X	X		X	X							X					Non-burnable
Richton Police Dept	Police Station	X	X	X	X	X	X	X	X							X					Non-burnable

F.4 PERRY COUNTY CAPABILITY ASSESSMENT

This subsection discusses the capability of Perry County to implement hazard mitigation activities. More information on the purpose and methodology used to conduct the assessment can be found in Section 7: *Capability Assessment*.

F.4.1 Planning and Regulatory Capability

Table F.15 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for Perry County. A checkmark (✓) indicates that the given item is currently in place and being implemented. An asterisk (*) indicates that the given item is currently being developed for future implementation. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the MEMA District 8 Regional Hazard Mitigation Plan.

TABLE F.16: RELEVANT PLANS, ORDINANCES, AND PROGRAMS

Planning Tool/Regulatory Tool	Hazard Mitigation Plan	Comprehensive Land Use Plan	Floodplain Management Plan	Open Space Management Plan (Parks & Rec/Greenway Plan	Stormwater Management Plan/Ordinance	Natural Resource Protection Plan	Flood Response Plan	Emergency Operations Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	National Flood Insurance Program (NFIP)	NFIP Community Rating System
PERRY COUNTY	✓			✓				✓	✓				✓		✓					✓		✓	
Beaumont	✓			✓				✓					✓		✓					✓		✓	
New Augusta	✓	✓		✓				✓					✓		✓	✓	✓			✓		✓	
Richton	✓	✓		✓				✓					✓		✓	✓	✓			✓		✓	

A more detailed discussion on the county's planning and regulatory capabilities follows.

EMERGENCY MANAGEMENT

Hazard Mitigation Plan
Perry County has previously adopted a hazard mitigation plan. The Town of Beaumont, the Town of New Augusta, and the Town of Richton were also included in this plan.

Emergency Operations Plan
Perry County maintains an emergency operations plan through its Emergency Management Agency. The Town of Beaumont, the Town of New Augusta, and the Town of Richton are each covered by this plan.

GENERAL PLANNING

Comprehensive Land Use Plan
Perry County has not adopted a county comprehensive land use plan. However, the Town of New Augusta adopted a community development plan in 1976 and the Town of Richton adopted a city comprehensive plan in 1974.

Zoning Ordinance
Perry County does not have a zoning ordinance in place. However, the Town of New Augusta and the Town of Richton have zoning ordinances that were adopted in 1976 and 1974, respectively.

Subdivision Ordinance
Perry County does not have a subdivision ordinance in place. However, the Town of New Augusta and Town of Richton adopted subdivision regulations in 1976 and 1974, respectively.

Building Codes, Permitting, and Inspections
Perry County, the Town of Beaumont, the Town of New Augusta, and the Town of Richton have each adopted building codes.

FLOODPLAIN MANAGEMENT

Table F.16 provides NFIP policy and claim information for each participating jurisdiction in Perry County.

TABLE F.17: NFIP POLICY AND CLAIM INFORMATION

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance in Force	Closed Claims	Total Payments to Date
PERRY COUNTY†	9/1/87	12/16/11	86	$10,072,300	38	$131,996
Beaumont	8/16/88	12/16/11	11	$3,209,400	16	$32,703
New Augusta	4/2/86	12/16/11	10	$804,800	12	$51,683
Richton	11/17/78	12/16/11(M)	4	$553,000	1	$42,415

†Includes unincorporated areas of county only
(M) – No Elevation Determined, All Zone A, C and X
Source: NFIP Community Status information as of 3/31/13; NFIP claims and policy information as of 5/15/13

Flood Damage Prevention Ordinance
All communities participating in the NFIP are required to adopt a local flood damage prevention ordinance. Perry County, the Town of Beaumont, the Town of New Augusta, and the Town of Richton all participate in the NFIP and have adopted flood damage prevention ordinances.

Open Space Management Plan
Perry County, the Town of Beaumont, the Town of New Augusta, and the Town of Richton are all included in the Southern Mississippi Planning and Development District (SMPDD) Regional Open Space Plan that was written in 1973.

F.4.2 Administrative and Technical Capability

Table F.17 provides a summary of the capability assessment results for Perry County with regard to relevant staff and personnel resources. A checkmark (✓) indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill.

TABLE F.18: RELEVANT STAFF / PERSONNEL RESOURCES

Staff / Personnel Resource	Planners with knowledge of land development/land management practices	Engineers or professionals trained in construction practices related to buildings and/or infrastructure	Planners or engineers with an understanding of natural and/or human-caused hazards	Emergency Manager	Floodplain Manager	Land Surveyors	Scientists familiar with the hazards of the community	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS and/or Hazus	Resource development staff or grant writers
PERRY COUNTY	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Beaumont		✓	✓	✓	✓		✓	✓	✓	
New Augusta		✓		✓	✓		✓	✓	✓	
Richton		✓		✓	✓		✓	✓	✓	

Credit for having a floodplain manager was given to those jurisdictions that have a flood damage prevention ordinance, and therefore an appointed floodplain administrator, regardless of whether the appointee was dedicated solely to floodplain management. Credit was given for having a scientist familiar with the hazards of the community if a jurisdiction has a Cooperative Extension Service or Soil and Water Conservation Department. Credit was also given for having staff with education or expertise to assess the community's vulnerability to hazards if a staff member from the jurisdiction was a participant on the existing hazard mitigation plan's planning committee.

F.4.3 Fiscal Capability

Table F.18 provides a summary of the results for Perry County with regard to relevant fiscal resources. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard mitigation purposes

(including match funds for state and federal mitigation grant funds) according to the previous county hazard mitigation plan.

TABLE F.19: RELEVANT FISCAL RESOURCES

Fiscal Tool / Resource	Capital Improvement Programming	Community Development Block Grants (CDBG)	Special Purpose Taxes (or taxing districts)	Gas/Electric Utility Fees	Water/Sewer Fees	Stormwater Utility Fees	Development Impact Fees	General Obligation, Revenue, and/or Special Tax Bonds	Partnering Arrangements or Intergovernmental Agreements
PERRY COUNTY	✓	✓							✓
Beaumont	✓	✓							✓
New Augusta	✓	✓							✓
Richton	✓	✓							✓

F.4.4 Political Capability

During the months immediately following a disaster, local public opinion in Perry County is more likely to shift in support of hazard mitigation efforts.

F.5 PERRY COUNTY MITIGATION STRATEGY

This subsection provides the blueprint for Perry County to follow in order to become less vulnerable to its identified hazards. It is based on general consensus of the Regional Hazard Mitigation Council and the findings and conclusions of the capability assessment and risk assessment. Additional Information can be found in Section 8: *Mitigation Strategy* and Section 9: *Mitigation Action Plan*.

F.5.1 Mitigation Goals

Perry County developed five mitigation goals in coordination with the other participating MEMA District 8 Region jurisdictions. The regional mitigation goals are presented in **Table F.19**.

TABLE F.20: MEMA DISTRICT 8 REGIONAL MITIGATION GOALS

	Goal
Goal #1	Develop a sustainable, comprehensive mitigation program to ensure safer communities.

	Goal
Goal #2	Reduce or avoid loss of life, injury, and damage to property, the economy, and the environment.
Goal #3	Enhance preparedness and effective response to hazards.
Goal #4	Strengthen and improve local mitigation capabilities.
Goal #5	Increase public awareness of hazard mitigation, hazard risk, and protective measures that can be taken to minimize potential loss and damage.

F.5.2 Mitigation Action Plan

The mitigation actions proposed by Perry County, the Town of Beaumont, the Town of New Augusta, and the Town of Richton are listed in the following individual Mitigation Action Plans.

Perry County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	TBD	County	Annual review	This action has been implemented/Ongoing. High risk areas are identified in this hazard mitigation plan.
P-2	Site-locate vulnerable populations on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	TBD	County EMA, County BOS	Within 1 year; Upon request	This action has been deferred until funding is available to implement the action.
P-3	Consider adoption of flood damage prevention ordinance in Perry County.	FL	High	Self-funded	No cost	County, County Floodplain Administrator	Ongoing	This action has been implemented. Completed
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County	Ongoing	This action has been deferred.
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev. Self-funded	TBD	County BOS, County Road Crews	Annual review	This action has been implemented/Ongoing.
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years funding availability	Deferred based on funding availability.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years of funding availability	This action has been deferred due to lack of funding.
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev. Self-funded	TBD	County	Within 2 years of funding availability	Deferred based on funding availability.
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	TBD	County	Within 2 years of funding availability	Deferred based on funding availability.
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	TBD	County	Concurrent with prep. of Comp Plan	This action has been deferred.
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev. Self-funded	TBD	County	Within 5 years of funding availability	This action has been implemented/Ongoing.
PP-2	Ensure that structures in floodplain areas are elevated. Including Repetitive Loss Properties	FL	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev. Self-funded	TBD	County	Within 3 years of funding availability	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev. Self-funded	TBD	County	Annual Review	This action has been implemented and ongoing.
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	TBD	County	Within 2 years; Next round of HMGP funding	This action has been deferred awaiting funding.
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HGMP, USDA Rural Dev., CDBG, Small Muni. Grant	TBD	County	Annual Review	This action has been completed and ongoing.
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for the MS Coastal Plain, County	Within 5 years	No action taken.
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Annual Review	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	HGMP, USDA Rural Dev., CDBG, Small Muni. Grant Self-funded	Unknown	County EMA, County BOS	Within 2 years with funding availability	This action has been deferred awaiting funding.
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA	Within 2 years	This action has been completed and ongoing.
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA, County	Within 2 years	This action has been completed. No Change
ES-5	Improve disaster communication systems within the County.	All	High	HGMP, USDA Rural Dev., CDBG, Small Muni. Grant Self-funded	Unknown	County EMA	Ongoing	This action has been implemented and ongoing.
ES-6	Consider generators for local radio station service areas.	HU, TO, TS	Medium	HMGP	Unknown	County EMA	Contingent upon funding	This action has been completed.
ES-7	Install warning sirens in the County.	TO, HU	Medium	HMGP	Unknown	County EMA	Contingent upon funding	This action has been deferred. Due to lack of funding
ES-8	Enhance Central Dispatch and other communications equipment.	All	Medium	HMGP	Unknown	County EMA	Within 2 years; Contingent upon funding	This action has been completed and ongoing.
ES-9	Explore upgrade/enhancement of 911 system in Perry County.	All	Low to Medium	HMGP, Self Funded	Unknown	County EMA	Within 5 years; Contingent upon funding	This action has been completed and ongoing.
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, County	Within 5 years; Contingent upon funding	In process included in new 911 system.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA	Annual Review	This action has been implemented and ongoing.
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been implemented and ongoing.
ES-13	Ensure continuity of utility services for public buildings and other critical facilities. This includes purchasing backup generators and/or transfer switches to existing and future critical assets.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	This action has been implemented and ongoing.
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Annual review	This action has been implemented.
ES-15	Explore funding sources to renovate existing County Multi-Purpose Center into Emergency Operations Center.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	This action has been deleted.
ES-16	Host a meeting to review Perry County Comprehensive Emergency Management Plan.	All	Medium	Self-funded	No additional cost	County	Annual Meeting	This action has been implemented and ongoing.
ES-17	Actively search for identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	This action has been implemented.
ES-18	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	County	Ongoing	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County	Within 2 years of funding availability.	Deferred due to lack of funding.
SP-2	Acquisitions of RL/SRL Properties	FL	High	FEMA, HMGP and PDM	TBD	County	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	MEMA, FEMA, EMI		County	Ongoing	This action has been implemented and ongoing.
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	This action has been implemented and ongoing.
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA	Annual presentations	This action has been implemented and ongoing.
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, County	Upon request	This action has been implemented and ongoing.
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been completed and ongoing .

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County	Within 3 years`	No action taken.

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds RH = Roadway Hazards TT = Transportation and Technological Hazards CH = Civil Hazards

County EMA = Perry County Emergency Management Agency County BOS = Perry County Board of Supervisors

Town of Beaumont Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	Town	Annual review	This action has been implemented/Ongoing. High risk areas are identified in this hazard mitigation plan.
P-2	Site-locate vulnerable populations on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA, County BOS, Town	Within 1 year; Upon request	This action has been deferred until funding is available to implement the action.
P-3	Strictly enforce the Flood Damage Prevention Ordinance	FL	High	Self-funded	No cost	Town Floodplain Administrator	Ongoing	This action has been implemented. Completed
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County, Town	Ongoing	This action has been deferred.
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	Unknown	County BOS, County Road Crews, Town	Annual review	This action has been implemented/Ongoing.
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years funding availability	Deferred based on funding availability.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years of funding availability	This action has been deferred due to lack of funding.
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Within 2 years of funding availability	Deferred based on funding availability.
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA		County, Town	Within 2 years of funding availability	Deferred based on funding availability.
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County, Town	Concurrent with prep. of Comp Plan	This action has been deferred.
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	Town	Within 5 years of funding availability	This action has been implemented/Ongoing.
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Within 3 years of funding availability	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Annual Review	This action has been implemented and ongoing.
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County, Town	Within 2 years; Next round of HMGP funding	This action has been deferred awaiting funding.
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HGMP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Annual Review	This action has been completed and ongoing.
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for the MS Coastal Plain, County	Within 5 years	No action taken.
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Annual Review	This action has been implemented and ongoing.
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS, Town	Within 2 years with funding availability	This action has been deferred awaiting funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA, Town	Within 2 years	This action has been completed and ongoing.
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA, County, Town	Within 2 years	This action has been completed. No Change
ES-5	Improve disaster communication systems within the County.	All	High	HMGP	Unknown	County EMA	Ongoing	This action has been implemented and ongoing.
ES-6	Consider generators for local radio station service areas.	HU, TS, FL	High	HMGP	Unknown	County EMA, County	Contingent upon funding	This action has been completed.
ES-7	Install warning sirens in the County.	All	Medium	Unknown	Unknown	County EMA	Contingent upon funding	This action has been deferred. Due to lack of funding
ES-8	Enhance Central Dispatch and other communications equipment.	All	Medium	HMGP	Unknown	County EMA	Within 2 years; Contingent upon funding	This action has been completed and ongoing. Cities do not have their own dispatch- they use county resource.
ES-9	Explore upgrade/enhancement of 911 system in Perry County.	All	Low to Medium	HMGP	Unknown	County EMA	Within 5 years; Contingent upon funding	This action has been completed and ongoing.
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, County	Within 5 years; Contingent upon funding	In process included in new 911 system.
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA	Annual Review	This action has been implemented and ongoing.
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	This action has been implemented and ongoing.
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	2024	Deferred
ES-15	Explore funding sources to renovate existing County Multi-Purpose Center into Emergency Operations Center.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	This action has been deleted.
ES-16	Host a meeting to review Perry County Comprehensive Emergency Management Plan.	All	Medium	Self-funded	No additional cost	County	Annual Meeting	This action has been implemented and ongoing.
ES-17	Actively search for identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	This action has been implemented.
ES-18	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	County, Town	Ongoing	This action has been implemented and ongoing.
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years of funding availability.	Deferred due to lack of funding.
SP-2	Acquisitions of RL/SRL Properties	FL	High	FEMA, HMGP and PDM	TBD	County	2024	New

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2013 Action Implementation Status
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	MEMA, FEMA, EMI	Unknown	County	Ongoing	This action has been implemented and ongoing.
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	This action has been implemented and ongoing.
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA	Annual presentations	This action has been implemented and ongoing.
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, County	Upon request	This action has been implemented and ongoing.
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been completed and ongoing .
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years`	No action taken.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	Civil Hazards	High	Self-funded, SBA, SCORE	Low or no cost	County, Town	Within 2 years	This action has been deferred.

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds RH = Roadway Hazards TT = Transportation and Technological Hazards CH = Civil Hazards

County EMA = Perry County Emergency Management Agency County BOS = Perry County Board of Supervisors

Town of New Augusta Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	Town	Annual review	This action has been implemented/Ongoing. High risk areas are identified in this hazard mitigation plan.
P-2	Site-locate vulnerable populations on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA, County BOS, Town	Within 1 year; Upon request	This action has been deferred until funding is available to implement the action.
P-3	Strictly enforce the Flood Damage Prevention Ordinance	FL	High	Self-funded	No cost	Town Floodplain Administrator	Ongoing	This action has been implemented. Completed
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County, Town	Ongoing	This action has been deferred.
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	Unknown	County BOS, County Road Crews, Town	Annual review	This action has been implemented/Ongoing.
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years funding availability	Deferred based on funding availability.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years of funding availability	This action has been deferred due to lack of funding.
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County	Within 2 years of funding availability	Deferred based on funding availability.
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County	Within 2 years of funding availability	Deferred based on funding availability.
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County	Concurrent with prep. of Comp Plan	This action has been deferred.
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	Town	Within 5 years of funding availability	This action has been implemented/Ongoing.
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Within 3 years of funding availability	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Annual Review	This action has been implemented and ongoing.
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County, Town	Within 2 years; Next round of HMGP funding	This action has been deferred awaiting funding.
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HGMP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Annual Review	This action has been completed and ongoing.
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for the MS Coastal Plain, County	Within 5 years	No action taken.
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Annual Review	This action has been implemented and ongoing.
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS	Within 2 years with funding availability	This action has been deferred awaiting funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA	Within 2 years	This action has been completed and ongoing.
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA, County	Within 2 years	This action has been completed. No Change
ES-5	Improve disaster communication systems within the County.	All	Medium	Unknown	Unknown	County EMA	Ongoing	This action has been implemented and ongoing.
ES-6	Consider generators for local radio station service areas.	HU, TO, TS	Medium	HMGP	Unknown	County EMA	Contingent upon funding	This action has been completed.
ES-7	Install warning sirens in the County.	TO, HU	Medium	HMGP	Unknown	County EMA	Contingent upon funding	This action has been deferred. Due to lack of funding. Two sirens installed in New Augusta since previous plan.
ES-8	Enhance Central Dispatch and other communications equipment.	All	Medium	HMGP	Unknown	County EMA	Within 2 years; Contingent upon funding	This action has been completed and ongoing. Cities do not have their own dispatch- use County resource.
ES-9	Explore upgrade/enhancement of 911 system in Perry County.	All	Low to Medium	HMGP	Unknown	County EMA	Within 5 years; Contingent upon funding	This action has been completed and ongoing.
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, County	Within 5 years; Contingent upon funding	In process included in new 911 system.
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA	Annual Review	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been implemented and ongoing.
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	This action has been implemented and ongoing.
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	2024	Deferred
ES-15	Explore funding sources to renovate existing County Multi-Purpose Center into Emergency Operations Center.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	This action has been deleted.
ES-16	Host a meeting to review Perry County Comprehensive Emergency Management Plan.	All	Medium	Self-funded	No additional cost	County	Annual Meeting	This action has been implemented and ongoing.
ES-17	Actively search for identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	This action has been implemented.
ES-18	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	County, Town	Ongoing	This action has been implemented and ongoing.
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years of funding availability.	Deferred due to lack of funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
SP-2	Acquisitions of RL/SRL Properties	FL	High	FEMA, HMGP and PDM	TBD	County	2024	New
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	MEMA, FEMA, EMI	Unknown	Town	Ongoing	This action has been implemented and ongoing.
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	This action has been implemented and ongoing.
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA	Annual presentations	This action has been implemented and ongoing.
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, Town	Upon request	This action has been implemented and ongoing.
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been completed and ongoing .

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years`	No action taken.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	Civil Hazards	High	Self-funded, SBA, SCORE	Low or no cost	County, Town	Within 2 years	This action has been deferred.

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds RH = Roadway Hazards TT = Transportation and Technological Hazards CH = Civil Hazards

County EMA = Perry County Emergency Management Agency County BOS = Perry County Board of Supervisors

Town of Richton Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	Town	Annual review	This action has been implemented/Ongoing. High risk areas are identified in this hazard mitigation plan.
P-2	Site-locate vulnerable populations on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA, County BOS, Town	Within 1 year; Upon request	This action has been deferred until funding is available to implement the action.
P-3	Strictly enforce the Flood Damage Prevention Ordinance	FL	High	Self-funded	No cost	Town Floodplain Administrator	Ongoing	This action has been implemented. Completed
P-4	Consider adoption of subdivision regulations.	TH, FL, HU, TS	Medium	Self-funded	No cost	County, Town	Ongoing	This action has been deferred.
P-5	Continue to maintain and upgrade drainage facilities.	HU, TS, FL, BH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	Unknown	County BOS, County Road Crews, Town	Annual review	This action has been implemented/Ongoing.
P-6	Consider adoption of a comprehensive drainage plan.	FL, TS, HU	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years funding availability	Deferred based on funding availability.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-7	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County, Town	Within 5 years of funding availability	This action has been deferred due to lack of funding.
P-8	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Within 2 years of funding availability	Deferred based on funding availability.
P-9	Develop a comprehensive development plan.	All	High	CDBG, MSDA	Unknown	County, Town	Within 2 years of funding availability	Deferred based on funding availability.
P-10	Incorporate the hazard mitigation plan into the comprehensive plan.	All	Medium	N/A	No additional cost	County, Town	Concurrent with prep. of Comp Plan	This action has been deferred.
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	Town	Within 5 years of funding availability	This action has been implemented/Ongoing.
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Within 3 years of funding availability	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-3	Ensure that new public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO, HW	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded	No additional cost	County, Town	Annual Review	This action has been implemented and ongoing.
PP-4	Continue to retrofit public buildings and other critical facilities to withstand natural hazards.	All	High	HMGP	Unknown	County, Town	Within 2 years; Next round of HMGP funding	This action has been deferred awaiting funding.
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HGMP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Annual Review	This action has been completed and ongoing.
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Low to Medium	Donation	Low or no cost	MS Land Trust, Land Trust for the MS Coastal Plain, County	Within 5 years	No action taken.
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Annual Review	This action has been implemented and ongoing.
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County BOS, Town	Within 2 years with funding availability	This action has been deferred awaiting funding.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.	All	High	HMGP	Unknown	County EMA	Within 2 years	This action has been completed and ongoing.
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA, County	Within 2 years	This action has been completed. No Change
ES-5	Improve disaster communication systems within the County.	All	Medium	Unknown	Unknown	County EMA	Ongoing	This action has been implemented and ongoing.
ES-6	Consider generators for local radio station service areas.	HU, TO, TS	Medium	HMGP	Unknown	County EMA	Contingent upon funding	This action has been completed.
ES-7	Install warning sirens in the County.	TO, HU	Medium	HMGP	Unknown	County EMA	Contingent upon funding	This action has been deferred. Due to lack of funding
ES-8	Enhance Central Dispatch and other communications equipment.	All	Medium	HMGP	Unknown	County EMA	Within 2 years; Contingent upon funding	This action has been completed and ongoing. Cities do not have their own dispatch- they use county resource.
ES-9	Explore upgrade/enhancement of 911 system in Perry County.	All	Low to Medium	HMGP	Unknown	County EMA	Within 5 years; Contingent upon funding	This action has been completed and ongoing.
ES-10	Explore potential to install Reverse 911 system.	All	Low to Medium	HMGP	Unknown	County EMA, County	Within 5 years; Contingent upon funding	In process included in new 911 system.
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	FL, HU, TS, Others	Medium	Self-funded	No additional cost	County BOS, County EMA	Annual Review	This action has been implemented and ongoing.
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	FL, HU, TS, Others	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been implemented and ongoing.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	This action has been implemented and ongoing.
ES-14	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	2024	Deferred
ES-15	Explore funding sources to renovate existing County Multi-Purpose Center into Emergency Operations Center.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 5 years; Annual review	This action has been deleted.
ES-16	Host a meeting to review Perry County Comprehensive Emergency Management Plan.	All	Medium	Self-funded	No additional cost	County	Annual Meeting	This action has been implemented and ongoing.
ES-17	Actively search for identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	This action has been implemented.
ES-18	Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.	Range	Medium	Self-funded, MEMA	Low cost	County, Town	Ongoing	This action has been implemented and ongoing.
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years of funding availability.	Deferred due to lack of funding.
SP-2	Acquisitions of RL/SRL Properties	FL	High	FEMA, HMGP and PDM	TBD	County	2024	New

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	MEMA, FEMA, EMI	Unknown	Town	Ongoing	This action has been implemented and ongoing.
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Ongoing	This action has been implemented and ongoing.
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA	Annual presentations	This action has been implemented and ongoing.
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL, Multiple	High	Self-funded	No additional cost	County EMA, Town	Upon request	This action has been implemented and ongoing.
PEA-5	Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.	FL	High	Self-funded	No additional cost	County EMA	Ongoing	This action has been completed and ongoing .
PEA-6	Encourage participation in the Community Rating System of the NFIP.	FL, HU, TS, TH, HW	Medium	USDA Rural Dev., CDBG, Small Muni. Grant, FEMA, Others	Unknown	County, Town	Within 3 years`	No action taken.
PEA-7	Encourage businesses to develop business continuity or contingency operating plans.	Civil Hazards	High	Self-funded, SBA, SCORE	Low or no cost	County, Town	Within 2 years	This action has been deferred.

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards HW = High Winds RH = Roadway Hazards TT = Transportation and Technological Hazards CH = Civil Hazards

County EMA = Perry County Emergency Management Agency County BOS = Perry County Board of Supervisors

Annex G
Wayne County

This annex includes jurisdiction-specific information for Wayne County and its participating municipalities. It consists of the following five subsections:

- G.1 Wayne County Community Profile
- G.2 Wayne County Risk Assessment
- G.3 Wayne County Vulnerability Assessment
- G.4 Wayne County Capability Assessment
- G.5 Wayne County Mitigation Strategy

G.1 WAYNE COUNTY COMMUNITY PROFILE

G.1.1 Geography and the Environment

Wayne County is located in southeast Mississippi on the Mississippi/Alabama state line. It comprises two municipalities, the Town of State Line and the City of Waynesboro, as well as many several unincorporated communities. An orientation map is provided as **Figure G.1**.

The county is rural in nature and 82 percent of the land is in commercial forests. Lakes and reservoirs include Silver Lake, Gum Pond, and Waynesboro Lake. Streams, rivers, and creeks include Bull Branch, Maxey Branch, Red Creek, Bee Branch, Maynor Creek, Byrd Branch, Rasher Branch, Yellow Creek, and Stevens Branch. The total area of the county is 814 square miles, 3 square miles of which is water area.

Summer temperatures in the county range from highs of about 92 degrees Fahrenheit (˚F) to lows in the upper 60s. Winter temperatures range from highs in the upper 50s to 61˚F to lows around 35˚F. Average annual rainfall is approximately 56 inches, with the wettest months being December through March.

In Wayne County, the summers are long, hot, and oppressive; the winters are short and cold; and it is wet and partly cloudy year-round. Over the course of the year, the temperature typically varies from 39°F to 91°Fand is rarely below 25°F or above 97°F.

The hot season lasts for 4.1 months, from May 20 to September 25, with an average daily high temperature above 85°F. The hottest day of the year is August 11, with an average high of 91°F and low of 72°F. The cool season lasts for 2.8 months, from November 30 to February 23, with an average daily high temperature below 65°F. The coldest day of the year is January 17, with an average low of 39°F and high of 59°F.

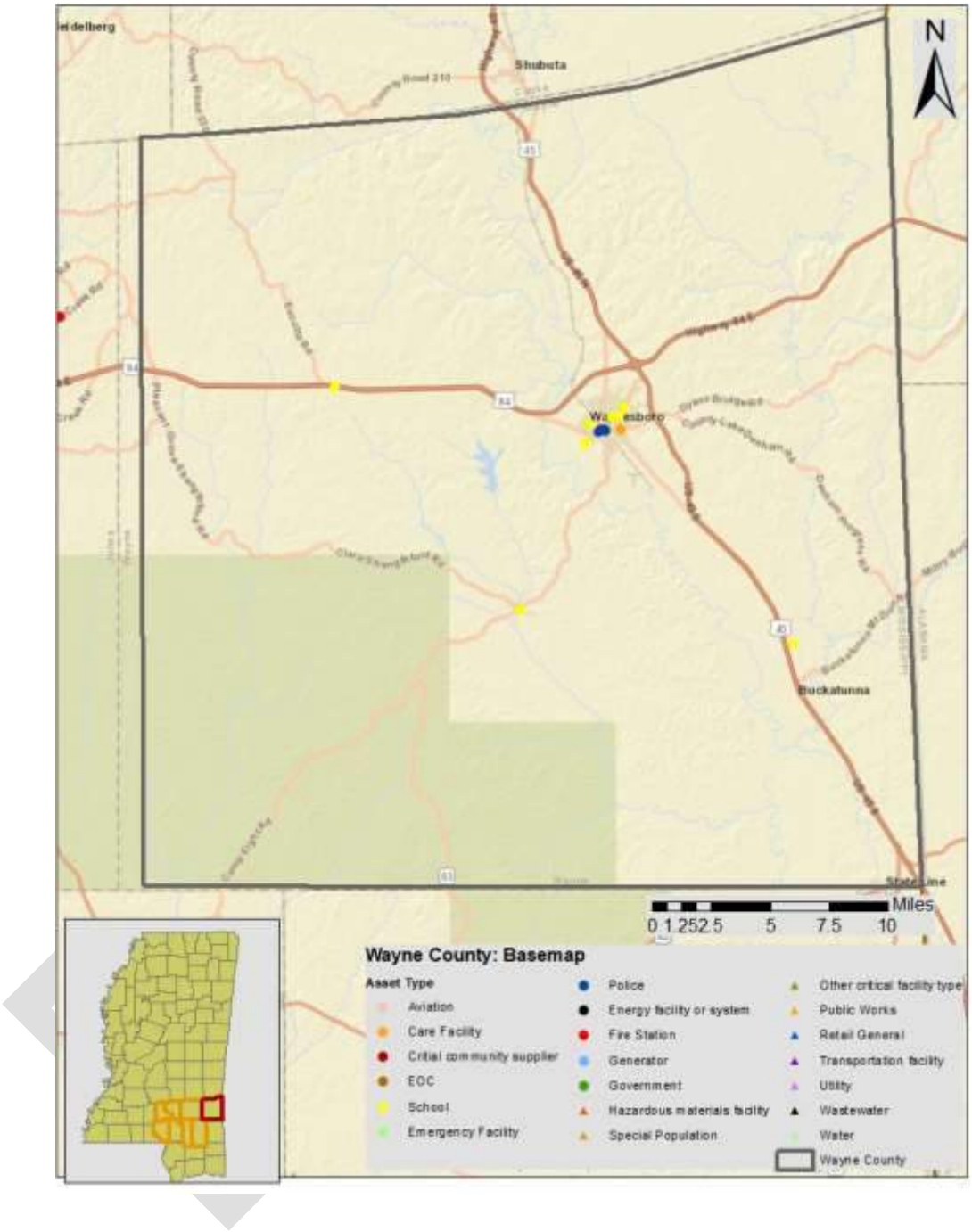
A wet day is one with at least 0.04 inches of liquid or liquid-equivalent precipitation. The chance of wet days in Wayne County varies significantly throughout the year. The wetter season lasts 2.9 months, from May 28 to August 26, with a greater than 36% chance of a given day being a wet day. The chance of a wet day peaks at 52% on July 25.

The drier season lasts 9.1 months, from August 26 to May 28. The smallest chance of a wet day is 21% on October 8.

Among wet days, we distinguish between those that experience rain alone, snow alone, or a mixture of the two. Based on this categorization, the most common form of precipitation throughout the year is rain alone, with a peak probability of 52% on July 25. Wayne County experiences significant seasonal variation in monthly rainfall. Rain falls throughout the year. The most rain falls during the 31 days centered around February 15, with an average total accumulation of 5.5 inches. The least rain falls around October 5, with an average total accumulation of 3.0 inches.

Wayne County experiences extreme seasonal variation in the perceived humidity. The muggier period of the year lasts for 5.3 months, from May 3 to October 12, during which time the comfort level is muggy, oppressive, or miserable at least 25% of the time. The muggiest day of the year is July 23, with muggy conditions 96% of the time. The least muggy day of the year is January 29, with muggy conditions 1% of the time.

FIGURE G.1: WAYNE COUNTY ORIENTATION MAP



G.1.2 Population and Demographics

According to the 2010 Census, Wayne County has a population of 20,747 people. The county has seen a roughly 2 percent decline in population between 2000 and 2010, and the population density is 26 people per square mile. The decline continues. Per the Census Reports, in 2017, Wayne County had a population of 20,446, which is a .29 percent decline. The household income is $35,215, which grew 2.2 percent. Population counts from the US Census Bureau for 1990, 2000, and 2010 for the county and both of the participating jurisdictions are presented in **Table G.1**. Estimates for 2017 are also included.

TABLE G.1: POPULATION COUNTS FOR WAYNE COUNTY

Jurisdiction	1990 Census Population	2000 Census Population	2010 Census Population	% Change 2000-2010	Estimated 2017 Census Population
Wayne County	**19,517**	**21,216**	**20,747**	**-2.2%**	**20,446**
State Line	N/A	555	565	1.8%	553
Waynesboro	5,143	5,197	5,043	-3.0%	4,903

Source: US Census Bureau

Based on the 2010 Census, the median age of residents of Wayne County is 37.2 years. Per 2017 estimates, the median age has not changed. The racial characteristics of the county are presented in **Table G.2** and will remain the same as the census data has not been officially updated. Due to the population decrease, the racial characteristics differ slightly. The population of white persons is 57.8 percent, 40.5 percent black or African American persons, .645 percent two or more races. Whites continue to make up the majority of the population in the county, accounting for 57.8 percent of the population.

TABLE G.2: DEMOGRAPHICS OF WAYNE COUNTY

Jurisdiction	White Persons, Percent (2010)	Black Persons, Percent (2010)	American Indian or Alaska Native, Percent (2010)	Other Race, Percent (2010)	Persons of Hispanic Origin, Percent (2010)*
Wayne County	**59.3%**	**38.9%**	**0.2%**	**1.5%**	**1.2%**
State Line	41.6%	57.2%	0.2%	1.1%	0.7%
Waynesboro	35.2%	61.9%	0.2%	2.6%	1.9%

*Hispanics may be of any race, so also are included in applicable race categories
Source: US Census Bureau

G.1.3 Housing

According to the 2010 US Census, there are 9,213 housing units in Wayne County, the majority of which are single family homes or mobile homes. Per 2018 estimates, the total number of housing units increased to 9,481 units. The median home value is $80,100, which also increased by at least 8.24 percent. Housing information for the county and two towns is presented in **Table G.3**. As shown in the table, the two incorporated towns have similar percentages of seasonal housing units compared to the unincorporated county.

TABLE G.3: HOUSING CHARACTERISTICS OF WAYNE COUNTY

Jurisdiction	Housing Units (2000)	Housing Units (2010)	Seasonal Units, Percent (2010)	Median Home Value (2006-2010)	Housing Units (2018)	Median Home Value (2018)
Wayne County	**9,049**	**9,213**	**2.2%**	**$64,400**	**9,481**	**$80,100**
State Line	230	255	2.0%	$77,100	273	$66,393
Waynesboro	2,276	2,306	1.0%	$85,300	2,354	$86,917

Source: US Census Bureau

G.1.4 Infrastructure

TRANSPORTATION

Wayne County has a robust infrastructure network including Highways 84 and 45, both four-lane divided highways, which provide easy access to the ports of Mobile, New Orleans, and the Mississippi Gulf Coast. State Highway 63 also crosses Wayne County.

The City of Waynesboro has a general aviation airport; however, the nearest commercial airport is the Pine Belt Regional Airport, located about 60 miles away between Laurel and Hattiesburg.

Wayne County is also served by the Meridian Southern Railway, but no passenger service is offered at this time. There are also proposed upgrades to the rail service between Waynesboro and Meridian and rail extensions from Waynesboro to the Port of Pascagoula, and possibly to the Port of Mobile.

UTILITIES

Electrical power in Wayne County is provided by several sources, primarily Dixie Electric Power Association. Some areas are served by East Mississippi Electric Power Association and some by Singing River Electric Power Association.

Water and sewer service is provided to residents by a number of private utility companies. The City of Waynesboro is served by water wells and an activated sludge sewer treatment facility. The Town of State Line is served by the Town of State Line Utilities.

COMMUNITY FACILITIES

There are a number of buildings and community facilities located throughout Wayne County. According to the data collected for the vulnerability assessment (Section 6.4.1), there are 2 fire stations, 2 police stations, and 9 public schools located within the county.

There is one hospital located in Wayne County. Wayne General Hospital is an 80-bed medical-surgical hospital located in the City of Waynesboro.

Parks in Wayne County include the Chickasawhay State Wildlife Management Area, Thompson Creek Park, and Busby Game Refuge. Waynesboro is served by two major recreational facilities. The Maynor Creek Water Park is a very popular area for camping, fishing, picnicking, playgrounds, scenic nature trails, swimming, boating, and canoeing. Hogan Park is a 22-acre site operated by the City primarily as a sports complex with four ball fields, but also offering picnicking and playgrounds. Other recreation facilities include Dixie Park, a sports complex with six ball fields adapted for and used as soccer fields. The Eastside and Westside City Parks are playgrounds and City also contains fairgrounds and a public library.

G.1.5 Land Use

Many areas of Wayne County are undeveloped or sparsely developed due to the county's location just off the Gulf Coast and the conservation of land in state and national parks. There are a few incorporated municipalities located throughout the region, and these areas are where the region's population is generally concentrated. The incorporated areas are also where many businesses, commercial uses, and institutional uses are located. Land uses in the balance of the county generally consist of rural residential development, agricultural uses, and recreational areas.

G.1.6 Employment and Industry

According to the Mississippi Employment Security Commission, in 2019, Wayne County had an average annual employment of 4,937 workers and an average unemployment rate of 6.6 percent (compared to 6.0 percent for the state). In 2019, the Retail Trade industry continues to lead by employing the most people, with 16.1 percent of the workforce, followed by Manufacturing (12.6%) and Transportation and Warehousing (5.8%). The average annual wage in 2019for Wayne County was $36,816 compared to $41,236 for the State of Mississippi.

G.2 WAYNE COUNTY RISK ASSESSMENT

This subsection includes hazard profiles for each of the significant hazards identified in Section 4: *Hazard Identification* as they pertain to Wayne County. Each hazard profile includes a description of the hazard's location and extent, notable historical occurrences, and the probability of future occurrences. Additional information can be found in Section 5: *Hazard Profiles*.

G.2.1 Flood

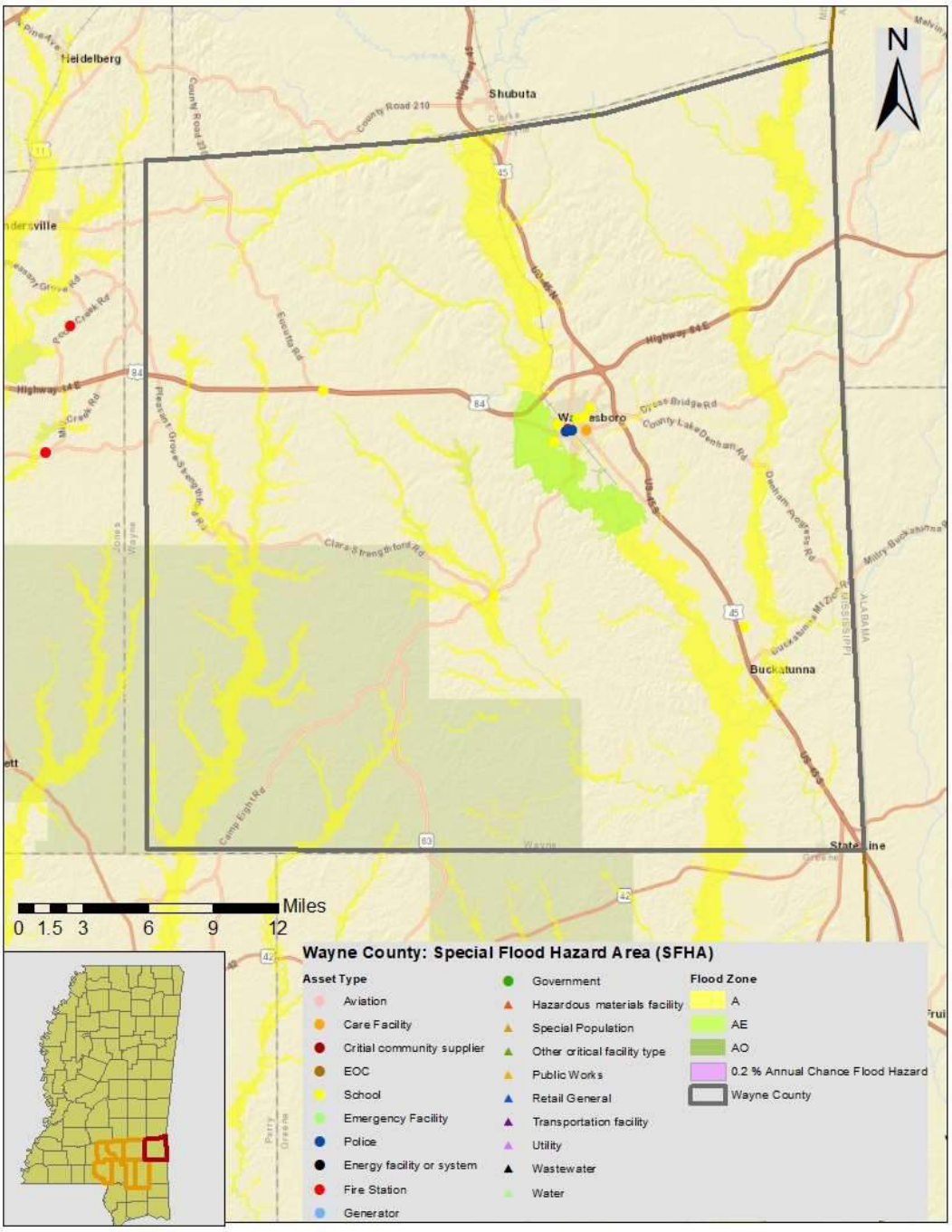
LOCATION AND SPATIAL EXTENT

There are areas in Wayne County that are susceptible to flood events. Special flood hazard areas in the county were mapped using Geographic Information System (GIS) and FEMA Digital Flood Insurance Rate Maps (DFIRM).[1] This includes Zone A (1-percent annual chance floodplain), Zone AE (1-percent annual chance floodplain with elevation), and the 0.2-percent annual chance floodplain). According to GIS analysis, of the 813 square miles that make up Wayne County, there are 122 square miles of land in zones A and AE (1-percent annual chance floodplain/100-year floodplain) and 0 square miles of land in the 0.2-percent annual chance floodplain (500-year floodplain).

These flood zone values account for 15.0 percent of the total land area in Wayne County. It is important to note that while FEMA digital flood data is recognized as best available data for planning purposes, it does not always reflect the most accurate and up-to-date flood risk. Flooding and flood-related losses often do occur outside of delineated special flood hazard areas.

[1] The county-level DFIRM data used for Wayne County were updated in 2011.

184 **FIGURE G.2: SPECIAL FLOOD HAZARD AREAS IN WAYNE COUNTY**



185
186 *Source: Federal Emergency Management Agency*
187
188
189 ***HISTORICAL OCCURRENCES***
190
191 Floods resulted in seven disaster declarations in Wayne County in 1973, 1974, 2003, 2009, 2013, 2016,
192 2019.[2] Information from the National Centers for Environmental Information was used to ascertain

[2]A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

historical flood events. The National Centers for Environmental Information reported a total of 26 events in Wayne County since 2019.[3] A summary of these events is presented in **Table G.4**. These events accounted for over $352,000 in property damage to the county. Specific information on flood events, including date, type of flooding, and deaths and injuries, can be found in **Table G.5**.

TABLE G.4: SUMMARY OF FLOOD OCCURRENCES IN WAYNE COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
State Line	3	0/0	$5,465
Waynesboro	10	0/0	$74,280
Unincorporated Area	13	0/0	$1,271,650
WAYNE COUNTY TOTAL	**26**	**0/0**	**$181,395**

Source: National Centers for Environmental Information

TABLE G.5: HISTORICAL FLOOD EVENTS IN WAYNE COUNTY

Location	Date	Type	Deaths / Injuries	Property Damage*
State Line				
State Line	28-MAY-97	FLASH FLOOD	0/0	$3,146
State Line	01-SEP-08	FLASH FLOOD	0/0	$2,319
State Line	23-FEB-16	FLASH FLOOD	0/0	$0
Waynesboro				
Waynesboro	29-JAN-99	FLASH FLOOD	0/0	$3,025
Waynesboro	13-APR-09	FLASH FLOOD	0/0	$11,255
Waynesboro	09-MAR-11	FLASH FLOOD	0/0	$0
Waynesboro	09-MAR-11	FLASH FLOOD	0/0	$0
Waynesboro	04-FEB-10	FLASH FLOOD	0/0	$0
Waynesboro	22-MAR-12	FLASH FLOOD	0/0	$0
Waynesboro	22-MAR-12	FLASH FLOOD	0/0	$0
Waynesboro	22-MAR-12	FLASH FLOOD	0/0	$0
Waynesboro	11-MAR-16	FLASH FLOOD	0/0	$10,000
Waynesboro	11-MAR-16	FLASH FLOOD	0/0	$50,000
Unincorporated Area				
WAYNE COUNTY	25-MAY-93	FLASH FLOOD	0/0	$87,452
Central Portion	28-APR-98	FLASH FLOOD	0/0	$38,722
Countywide	03-MAR-01	FLASH FLOOD	0/0	$14,258
Countywide	01-JUL-03	FLASH FLOOD	0/0	$0
East Portion	31-MAR-05	FLASH FLOOD	0/0	$0
Countywide	29-AUG-05	FLASH FLOOD	0/0	$0
Denham	09-MAR-11	FLOOD	0/0	$10,609
EUCUTTA	09-MAR-11	FLASH FLOOD	0/0	$10,609
Denham	04-FEB-10	FLASH FLOOD	0/0	$0
Whistler	11-MAR-16	FLASH FLOOD	0/0	$100,000
Eucutta	11-MAR-16	FLASH FLOOD	0/0	$10,000
Boice	22-JUN-17	FLASH FLOOD	0/0	$0

[3] These events are only inclusive of those reported by NCEI. It is likely that additional occurrences have occurred and have gone unreported.

Location	Date	Type	Deaths / Injuries	Property Damage*
Mulberry	27-DEC-18	FLASH FLOOD	0/0	$1,000,000

Source: National Centers for Environmental Information

HISTORICAL SUMMARY OF INSURED FLOOD LOSSES

Recently, FEMA issued a directive that prevents states or local governments from sharing NFIP information such as rep loss or severe rep loss data with third parties. Third parties are considered as consultants, contractors, etc. As a result, for continuity of information so that the reader with have an idea of the historical occurrences along with the corresponding damage amounts, the decision was made to leave the existing information in the plan.

According to FEMA flood insurance policy records as of March 2013, there have been 24 flood losses reported in Wayne County through the National Flood Insurance Program (NFIP) since 1978, totaling over $258,000 in claims payments. A summary of these figures for the county is provided in **Table G.6**. It should be emphasized that these numbers include only those losses to structures that were insured through the NFIP policies, and for losses in which claims were sought and received. It is likely that many additional instances of flood loss in Wayne County were either uninsured, denied claims payment, or not reported.

TABLE G.6: SUMMARY OF INSURED FLOOD LOSSES IN WAYNE COUNTY

Location	Flood Losses	Claims Payments
State Line	1	$6,924
Waynesboro	17	$134,036
Unincorporated Area	6	$117,636
WAYNE COUNTY TOTAL	**24**	**$258,596**

Source: FEMA, NFIP

REPETITIVE LOSS PROPERTIES

No updates to this section can be provided at this time. Information normally used to update this section is not currently accessible. As a result, this information will remain the same for historical purposes.

As of May 2013, there are three non-mitigated repetitive loss properties located in Wayne County, which accounted for 11 losses and more than $118,000 in claims payments under the NFIP. The average claim amount for these properties is $10,803. Of the three properties, one is single family residential and two are non-residential. Without mitigation these properties will likely continue to experience flood losses. **Table G.7** presents detailed information on repetitive loss properties and NFIP claims and policies for Wayne County.

TABLE G.7: REPETITIVE LOSS PROPERTIES IN WAYNE COUNTY

Location	Number of Properties	Types of Properties	Number of Losses	Building Payments	Content Payments	Total Payments	Average Payment
State Line	0	--	0	$0	$0	$0	$0
Waynesboro	3	1 single family, 2 non-residential	11	$35,268	$83,559	$118,828	$10,803
Unincorporated Area	0	--	0	$0	$0	$0	$0

Location	Number of Properties	Types of Properties	Number of Losses	Building Payments	Content Payments	Total Payments	Average Payment
WAYNE COUNTY TOTAL	3		11	$35,268	$83,559	$118,828	$10,803

Source: National Flood Insurance Program

PROBABILITY OF FUTURE OCCURRENCES

Flood events will remain a threat in Wayne County, and the probability of future occurrences will remain likely (between 10 and 100 percent annual probability). The participating jurisdictions and unincorporated areas have risk to flooding, though not all areas will experience flood. The probability of future flood events based on magnitude and according to best available data is illustrated in the figures above**,** which indicates those areas susceptible to the 1-percent annual chance flood (100-year floodplain) and the 0.2-percent annual chance flood (500-year floodplain).

It can be inferred from the floodplain location maps, previous occurrences, and repetitive loss properties that risk varies throughout the county. For example, the eastern half of the county has more floodplain and thus a higher risk of flood than the western half of the county. Flood is not the greatest hazard of concern but will continue to occur and cause damage. Therefore, mitigation actions may be warranted, particularly for repetitive loss properties.

G.2.2 Erosion

LOCATION AND SPATIAL EXTENT

Erosion in Wayne County is typically caused by flash flooding events. Unlike coastal areas, areas of concern for erosion in Wayne County are primarily rivers and streams. Generally, vegetation helps to prevent erosion in the area, and it is not an extreme threat to any of the participating counties and jurisdictions. No areas of concern were reported by the planning committee.

HISTORICAL OCCURRENCES

Several sources were vetted to identify areas of erosion in Wayne County. This includes searching local newspapers, interviewing local officials, and reviewing previous hazard mitigation plans. No historical erosion occurrences were found in these sources.

PROBABILITY OF FUTURE OCCURRENCES

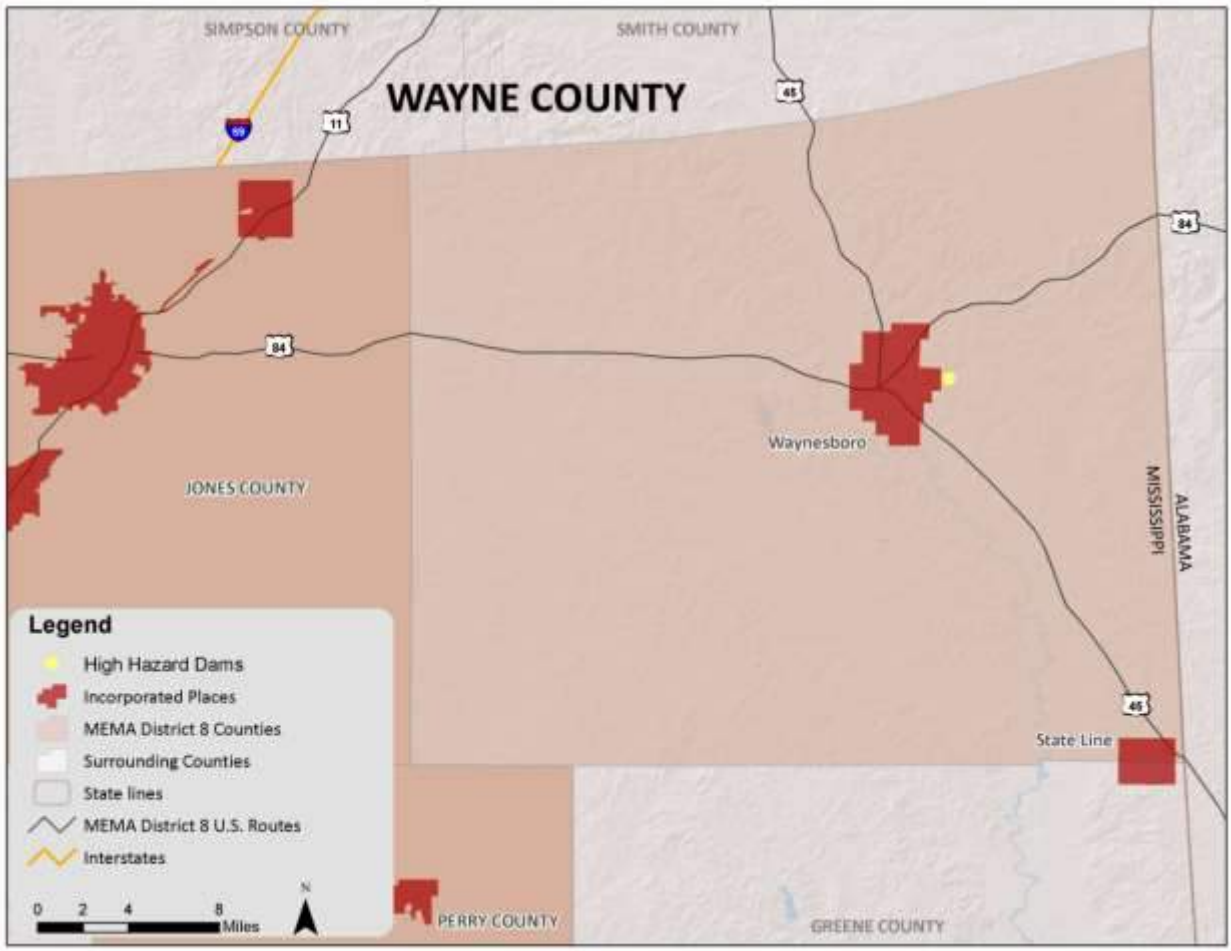
Erosion remains a natural, dynamic, and continuous process for Wayne County, and it will continue to occur. The annual probability level assigned for erosion is possible (between 1 and 10 percent annually).

G.2.3 Dam Failure

LOCATION AND SPATIAL EXTENT

During the last plan update, the Mississippi Division of Environmental Quality, recognized one high hazard dam in Wayne County.[4] **Figure G.**3 shows the location of the high hazard dam and **Table G.8** lists it by name.

FIGURE G.3: WAYNE COUNTY HIGH HAZARD DAM LOCATIONS



Source: Mississippi Division of Environmental Quality

[4] The list of high hazard dams obtained from the Mississippi Division of Environmental Quality was reviewed and amended by local officials to the best of their knowledge.

TABLE G.8: WAYNE COUNTY HIGH HAZARD DAMS

Dam Name	Hazard Potential
Wayne County	
*LAKELAND PARK LAKE DAM – **No longer included***	N/A

Source: Mississippi Division of Environmental Quality

Per the updated information provided by the Mississippi Division of Environmental Quality, there are no high hazard dams within Wayne County. All records indicate that there are now 28 low hazard dams within the county and Lakeland Park Lake Dam is not included on that list. As a result of this updated information, Table G.8 will be amended.

According to a consensus of local government officials and the Regional Hazard Mitigation Council, a majority of these dams would not pose a major threat in a breach or failure occurrence.

HISTORICAL OCCURRENCES

There is no record of dam breaches in Wayne County. However, several breach scenarios in the county could be catastrophic.

PROBABILITY OF FUTURE OCCURRENCES

Given the current dam inventory and historic data, a dam breach is unlikely (less than 1 percent annual probability) in the future. However, as has been demonstrated in the past, regular monitoring is necessary to prevent these events.

G.2.4 Winter Storm and Freeze

LOCATION AND SPATIAL EXTENT

Nearly the entire continental United States is susceptible to winter storm and freeze events. Some ice and winter storms may be large enough to affect several states, while others might affect limited, localized areas. The degree of exposure typically depends on the normal expected severity of local winter weather. Wayne County is not typically affected by major severe winter weather conditions and seldom receives extremely devastating winter weather, even during the winter months. Given the atmospheric nature of the hazard the entire county has uniform exposure to a winter storm.

HISTORICAL OCCURRENCES

According to the National Centers for Environmental Information, there have been a total of 11 recorded winter storm events in Wayne County since 2000 (**Table G.9**).[5] These events were reported to

[5] These ice and winter storm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is certain that additional winter storm conditions have affected Wayne County.

cause no damages. Detailed information on the recorded winter storm events can be found in **Table G.10**.[6]

TABLE G.9: SUMMARY OF WINTER STORM EVENTS IN WAYNE COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage (2013)
Wayne County	11	0/0	$0

Source: National Centers for Environmental Information

TABLE G.10: HISTORICAL WINTER STORM IMPACTS IN WAYNE COUNTY

Location	Date	Type	Deaths / Injuries	Property Damage*
State Line				
None Reported	--	--	--	--
Waynesboro				
None Reported	--	--	--	--
Unincorporated Area				
WAYNE COUNTY	21-DEC-00	WINTER STORM	0/0	$0
WAYNE COUNTY	27-JAN-00	SLEET	0/0	$0
WAYNE COUNTY	01-JAN-01	WINTER STORM	0/0	$0
WAYNE COUNTY	01-JAN-02	WINTER STORM	0/0	$0
WAYNE COUNTY	19-JAN-08	HEAVY SNOW	0/0	$0
WAYNE COUNTY	11-DEC-08	WINTER WEATHER	0/0	$0
WAYNE COUNTY	28-JAN-14	WINTER STORM	0/0	$0
WAYNE COUNTY	05-MAR-15	SLEET	0/0	$0
WAYNE COUNTY	06-JAN-17	ICE STORM	0/0	$0
WAYNE COUNTY	08-DEC-17	HEAVY SNOW	0/0	$0
WAYNE COUNTY	16-JAN-18	WINTER STORM	0/0	$0

*Property Damage is reported in 2013 dollars

Source: National Centers for Environmental Information

There have been several severe winter weather events in Wayne County. The text below describes two of the major events and associated impacts on the county. Similar impacts can be expected with severe winter weather.

January 2002 Winter Storm

A winter storm produced heavy snow across portions of southeast Mississippi. The heaviest snow recorded during the storm was four to four- and one-half inches. Icy bridges made traveling across the region very treacherous. As a result, several accidents occurred with two fatalities in Jones County.

January 2008 Winter Storm

This storm produced heavy snow across the region, with an average of three to four inches of snow. Some heavier amounts, between four to five inches, also fell in isolated areas. At the height of the snow, temperatures fell to near freezing, and accumulations occurred on roadways resulting in a number of traffic accidents. Additionally, some power outages occurred in the heaviest snow band due

[6] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

to the weight of wet snow on limbs and lines. The heaviest snow fell in the areas around Covington, Jefferson Davis, and Jones Counties.

Winter storms throughout the county have several negative externalities including hypothermia, cost of snow and debris cleanup, business and government service interruption, traffic accidents, and power outages. Furthermore, citizens may resort to using inappropriate heating devices that could to fire or an accumulation of toxic fumes.

January 2018 Winter Storm

A winter weather event occurred across the area beginning on January 16th and on into January 17th across the Gulf Coast. This event came with measurable snow with low temperatures in the 20's. The winter accumulation resulted in very hazardous traveling conditions particularly over bridges and overpasses. Several roads were closed throughout the area. The National Weather Service indicated the area received two to three inches of snow.

PROBABILITY OF FUTURE OCCURRENCES

Winter storm events will continue to occur in Wayne County. According to historical information, the annual probability is possible (between 1 and 10 percent).

FIRE-RELATED HAZARDS

G.2.5 Drought

LOCATION AND SPATIAL EXTENT

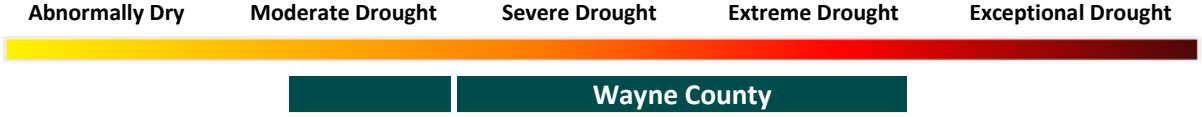
Drought and heat waves typically cover a large area and cannot be confined to any geographic or political boundaries. Furthermore, it is assumed that Wayne County would be uniformly exposed to drought and heat waves, making the spatial extent potentially widespread. It is also notable that drought and extreme heat conditions typically do not cause significant damage to the built environment but may exacerbate wildfire conditions.

HISTORICAL OCCURRENCES

Drought

According to the U.S. Drought Monitor, Wayne County had drought levels (including abnormally dry) in all of the last sixteen years (2000-2018). Records show that there were no measurable drought events. **Table G.11** shows the most severe drought classification for each year, according to U.S. Drought Monitor classifications. It should be noted that the U.S. Drought Monitor also estimates what percentage of the county is in each classification of drought severity. For example, the most severe classification reported may be exceptional, but a majority of the county may actually be in a less severe condition.

TABLE G. 11: HISTORICAL DROUGHT OCCURRENCES IN WAYNE COUNTY



2000	**EXCEPTIONAL**
2001	MODERATE
2002	MODERATE
2003	ABNORMAL
2004	ABNORMAL
2005	ABNORMAL
2006	**EXTREME**
2007	**EXTREME**
2008	MODERATE
2009	ABNORMAL
2010	SEVERE
2011	**EXTREME**
2012	MODERATE

Source: U.S. Drought Monitor

The National Centers for Environmental Information reported three drought events for Wayne County; however, there were property or crop damages associated with these events.

Heat Wave

The National Centers for Environmental Information was used to determine historical heat wave occurrences in the county.

Summer of 2000 – Hot temperatures persisted from July to September across the South and Plains. Known as the Summer of 2000 Heat Wave, high temperatures commonly peaked over 100 degrees. There were several days over 90 degree than the typical average. This was the fourth warmest July-August on record. In Waynesboro the temperature was 100 degrees or higher four days during the month with the hottest being 103 degrees.

August 2007 – A heat wave gripped most of the area with the warmest temperatures since 2000. It lasted from August 5th to the 16th.

PROBABILITY OF FUTURE OCCURRENCES

Drought

Based on historical occurrence information, it is assumed that all of Wayne County has a probability level of highly likely (100 percent annual probability) for future drought events. However, the extent (or magnitude) of drought and the amount of geographic area covered by drought, varies with each year. Historic information indicates that there is a much lower probability for extreme, long-lasting drought conditions.

Heat Wave

Based on historical occurrence information, it is assumed that all of Wayne County has a probability level of highly likely (100 percent annual probability) for future heat wave events.

G.2.6 Wildfire

LOCATION AND SPATIAL EXTENT

The entire county is at risk to a wildfire occurrence. However, several factors such as drought conditions or high levels of fuel on the forest floor, may make a wildfire more likely. Furthermore, areas in the urban-wildland interface are particularly susceptible to fire hazard as populations abut formerly undeveloped areas. The Fire Occurrence Areas in the figure below give an indication of historic location.

HISTORICAL OCCURRENCES

Based on data from the Mississippi Forestry Commission from 2008 to 2018, Wayne County experiences an average of 32.8 wildfires annually which burn an average of 318 acres per year. The data indicates that most of these fires are small, averaging nine acres per fire. **Table G.12** provides a summary of wildfire occurrences in Wayne County and **Table G.13** lists the number of reported wildfire occurrences in the county between the years 2008 and 2018.

TABLE G.12: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2008 -2018) *

	Wayne County
Average Number of Fires per year	32.8
Average Number of Acres Burned per year	317.8
Average Number of Acres Burned per fire	9.7

*These values reflect averages over a 10-year period.
Source: Mississippi Forestry Commission

TABLE G.13: HISTORICAL WILDFIRE OCCURRENCES IN WAYNE COUNTY

Year	2008	2010	2011	2012	2013	2014	2015	2016	2017	2018
Wayne County										
Number of Fires	33	51	57	33	22	44	14	47	15	12
Number of Acres Burned	980	321	349	108	85	245	67	480	355	183

**No data reported for 2009*
Source: Mississippi Forestry Commission

PROBABILITY OF FUTURE OCCURRENCES

Wildfire events will be an ongoing occurrence in Wayne County. The likelihood of wildfires increases during drought cycles and abnormally dry conditions. Fires are likely to stay small in size but could increase due local climate and ground conditions. Dry, windy conditions with an accumulation of forest floor fuel (potentially due to ice storms or lack of fire) could create conditions for a large fire that spreads quickly. It should also be noted that some areas do vary somewhat in risk. For example, highly developed areas are less susceptible unless they are located near the urban-wildland boundary. The risk will also vary due to assets. Areas in the urban-wildland interface will have much more property at risk,

resulting in increased vulnerability and need to mitigate compared to rural, mainly forested areas. In this case, the participating jurisdictions appear to have a similar risk to the surrounding areas. The probability assigned to Wayne County for future wildfire events is likely (a 10 and 100 percent annual probability).

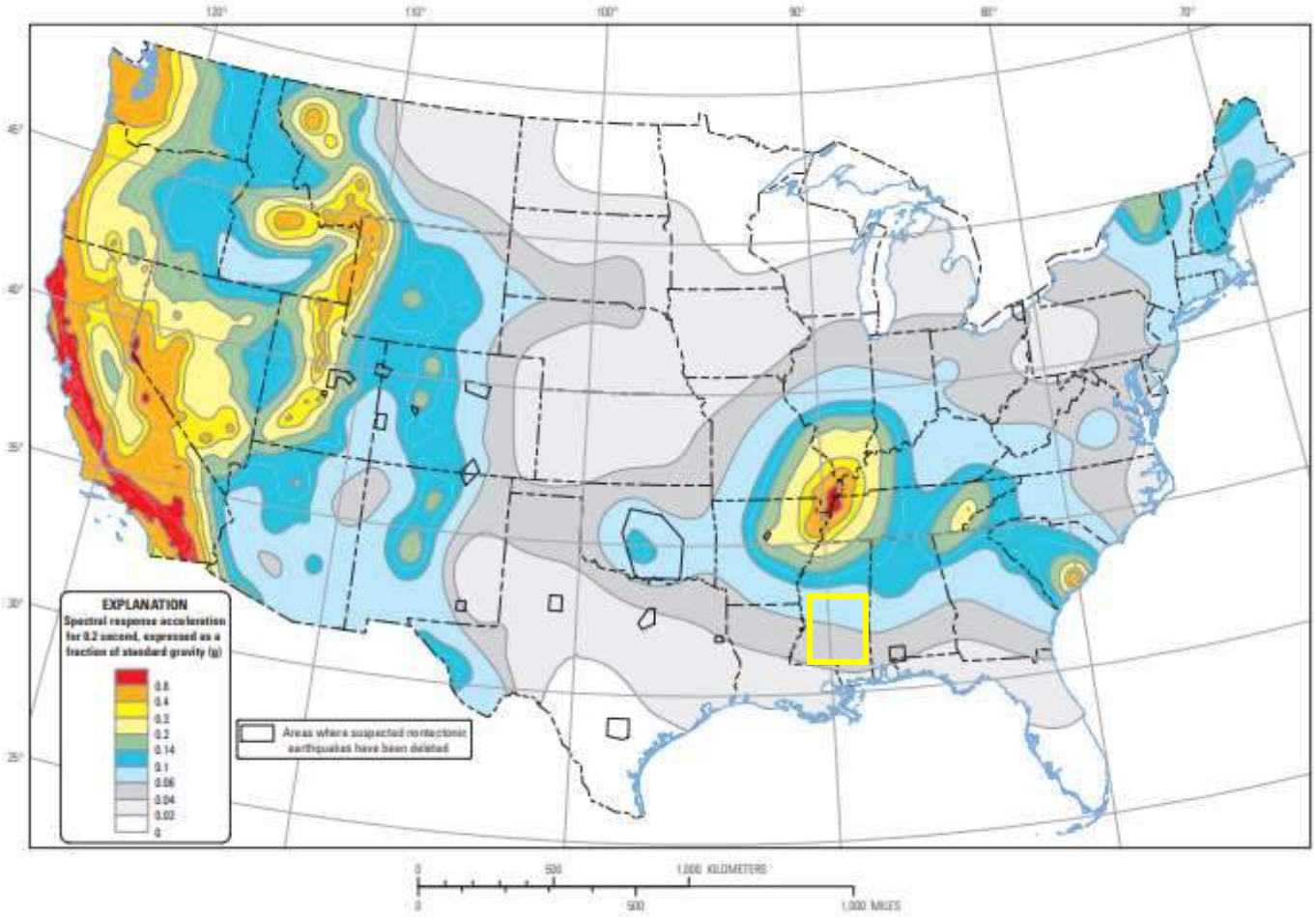
GEOLOGIC HAZARDS

G.2.7 Earthquake

LOCATION AND SPATIAL EXTENT

Figure G.5 shows the intensity level associated with Wayne County, based on the national USGS map of peak acceleration with 10 percent probability of exceedance in 50 years. It is the probability that ground motion will reach a certain level during an earthquake. The data show peak horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake) with a 10 percent probability of exceedance in 50 years. The map was compiled by the U.S. Geological Survey (USGS) Geologic Hazards Team, which conducts global investigations of earthquake, geomagnetic, and landslide hazards. According to this map, Wayne County lies within an approximate zone of level "2" to "3" ground acceleration. This indicates that the county exists within an area of moderate seismic risk.

463 **FIGURE G.5: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS**



464

465 *Source: USGS, 2019*

466

467 ***HISTORICAL OCCURRENCES***

468

469 No earthquakes are known to have affected Wayne County since 1638. **Table G.14** provides a summary
470 of earthquake events reported by the National Geophysical Data Center between 1638 and 1985.[7]

471

472 **TABLE G.14: SUMMARY OF SEISMIC ACTIVITY IN WAYNE COUNTY**

Location	Number of Occurrences	Greatest MMI Reported	Richter Scale Equivalent
State Line	0	--	--
Waynesboro	0	--	--
Unincorporated Area	0	--	--
WAYNE COUNTY TOTAL	**0**	**--**	**--**

Source: National Geophysical Data Center

473

[7] Due to reporting mechanisms, not all earthquakes events were recorded during this time.

PROBABILITY OF FUTURE OCCURRENCES

The probability of significant, damaging earthquake events affecting Wayne County is unlikely. However, it is possible that future earthquakes resulting in light to moderate perceived shaking and damages ranging from none to very light will affect the county. The annual probability level for the region is estimated to be less than 1 percent (unlikely).

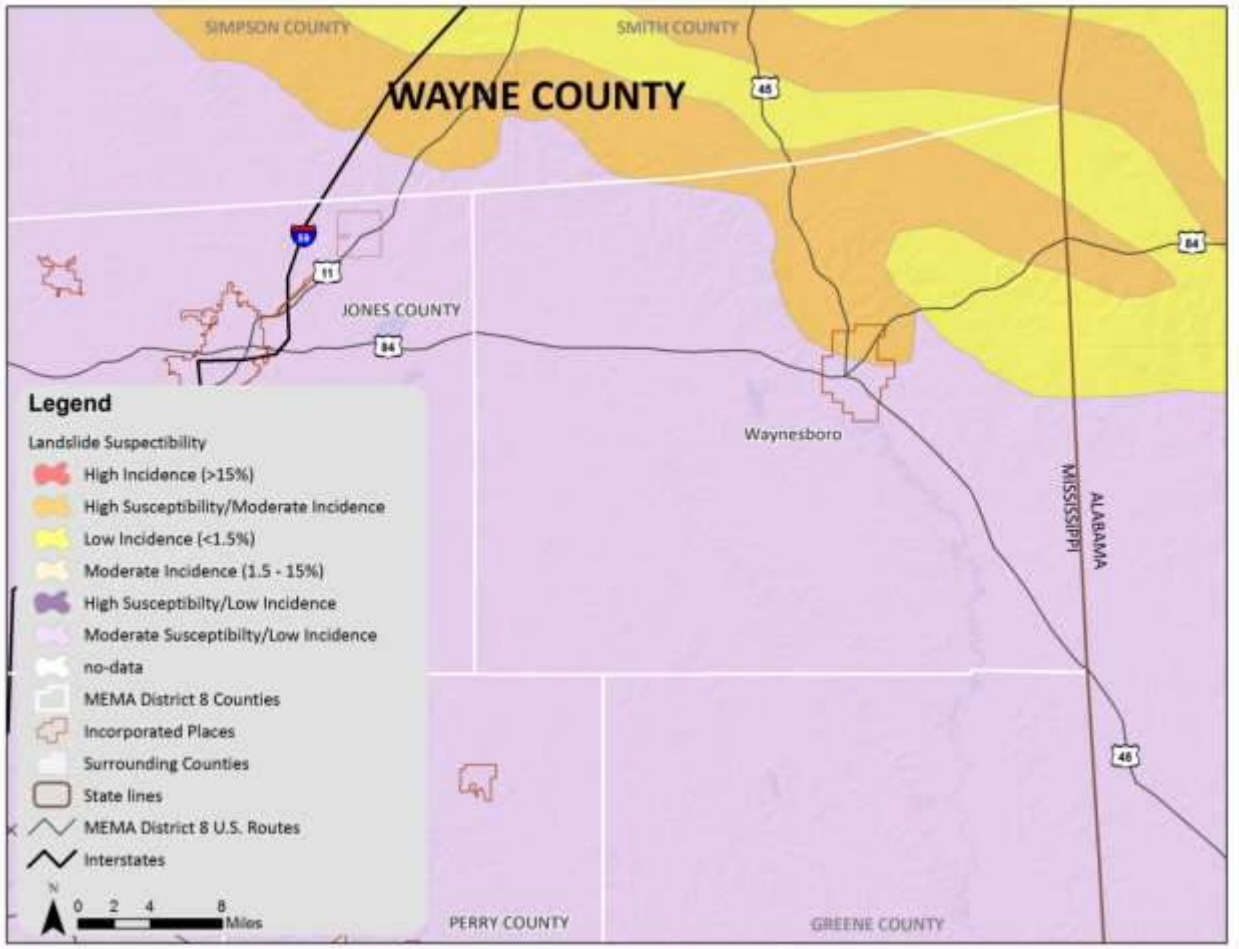
G.2.8 Landslide

LOCATION AND SPATIAL EXTENT

Landslides occur along steep slopes when the pull of gravity can no longer be resisted (often due to heavy rain). Human development can also exacerbate risk by building on previously undevelopable steep slopes. Landslides are possible throughout Wayne County.

According to **Figure G.6** below, the entire county falls under a low incidence area (yellow and light purple). This indicates that less than 1.5 percent of the area is involved in landsliding. The areas in yellow are defined as low incidence and low susceptibility. The areas in light purple, however, indicate that a moderate susceptibility to landsliding activity is present. In addition, there is a small area of land in the northeast corner of the county (depicted in orange) reported as high susceptibility and moderate incidence. This area is the area at greatest risk to landsliding according to the United States Geological Survey data. There are no changes with susceptibility to the landslide hazard since the last plan update.

FIGURE G.6: LANDSLIDE SUSCEPTIBILITY AND INCIDENCE MAP OF WAYNE COUNTY



Source: USGS

HISTORICAL OCCURRENCES

There is no extensive history of landslides in Wayne. Landslide events typically occur in isolated areas.

PROBABILITY OF FUTURE OCCURRENCES

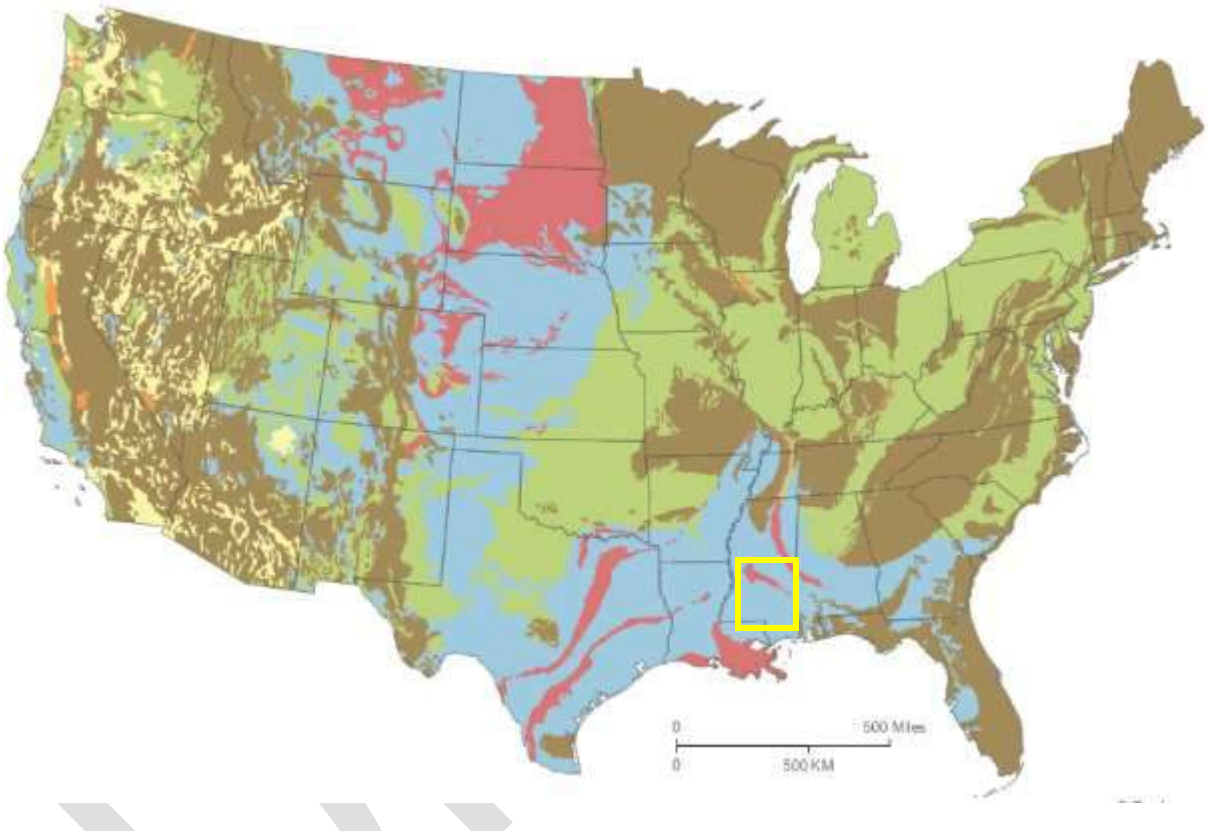
Based on historical information and the USGS susceptibility index, the probability of future landslide events is possible (1 to 10 percent probability). The USGS data indicates that nearly all areas in Wayne County have a low landslide incidence rate except for a small area in the northeast corner that is reported to have a moderate incidence rate. However, most areas are reported as having moderate or high susceptibility to landsliding activity. Local conditions may become more favorable for landslides due to heavy rain, for example. This would increase the likelihood of occurrence. It should also be noted that some areas in Wayne County have greater risk than others given factors such as steepness on slope and modification of slopes.

G.2.7 Expansive Soils

LOCATION AND SPATIAL EXTENT

Due to the amount of clay minerals present in Wayne County, expansive soils present a threat to the county. Areas underlain by soils with swelling potential are shown in **Figure G.7**. The areas in blue are underlain with generally less than 50 percent clay having high swelling potential.

FIGURE G.7: SWELLING CLAYS IN MISSISSIPPI



Over 50 percent of these areas are underlain by soils with abundant clays of high swelling potential.

Less than 50 percent of these areas are underlain by soils with clays of high swelling potential.

Over 50 percent of these areas are underlain by soils with abundant clays of slight to moderate swelling potential.

Less than 50 percent of these areas are underlain by soils with abundant clays of slight to moderate swelling potential.

These areas are underlain by soils with little to no clays with swelling potential.

Data insufficient to indicate the clay content or the swelling potential of soils.

**Source: USGS*

HISTORICAL OCCURRENCES

There is no historical record of significant expansive soil events in Wayne County. However, expansive soils can cause considerable damage to structural foundations in the county, although they do not pose a significant threat to human life.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical information, the probability of future expansive soil events is possible (between 1 and 100 percent annually).

WIND-RELATED HAZARDS

G.2.10 Hurricane and Tropical Storm

LOCATION AND SPATIAL EXTENT

Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact Wayne County. All areas in Wayne County are equally susceptible to hurricane and tropical storms.

HISTORICAL OCCURRENCES

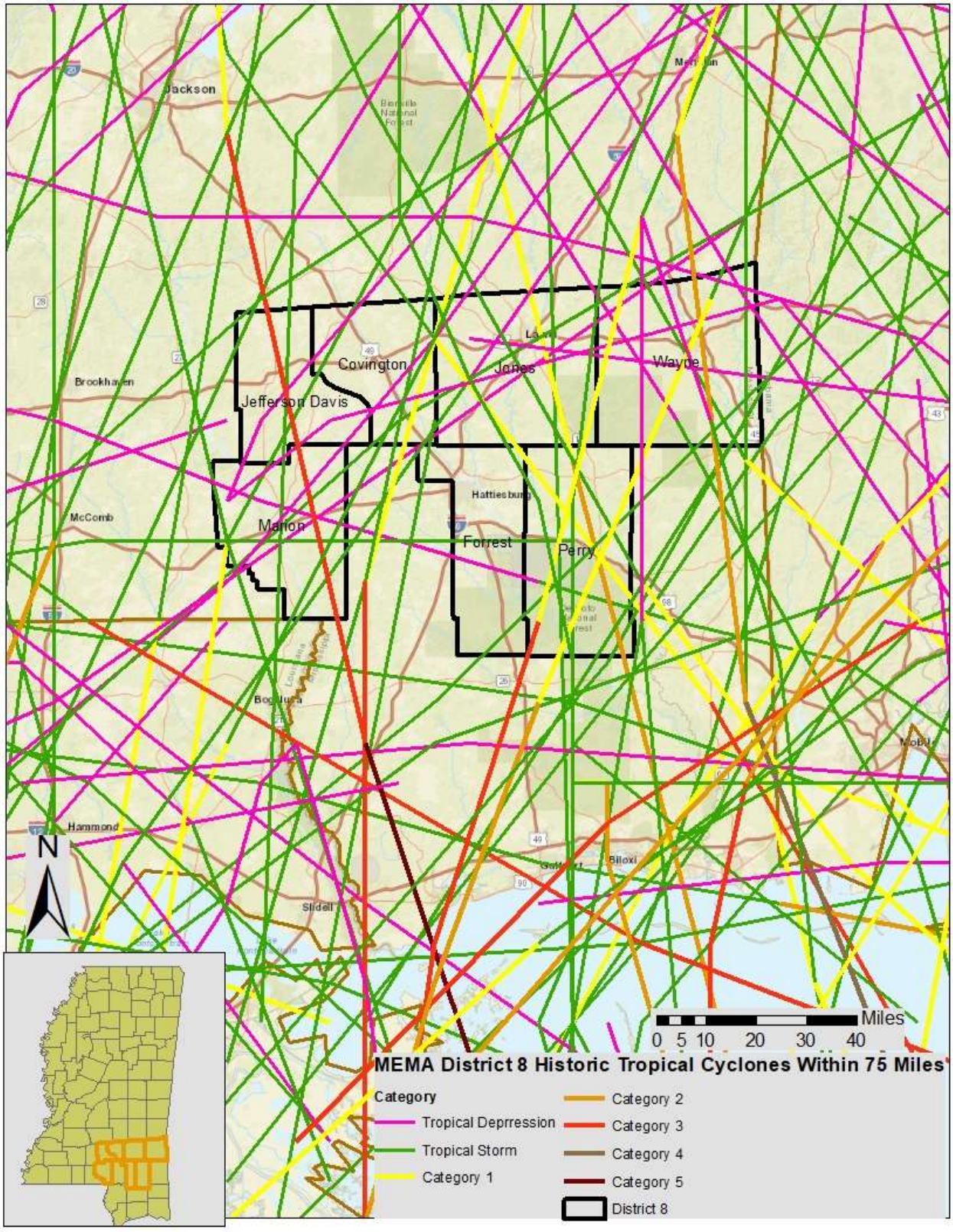
According to the National Hurricane Center's historical storm track records, a total of 64 hurricanes have passed within 75 miles of the county since 1851. This includes 1 category 5 storm, 1 category 4 storm, 8 category 3 storms, 4 category 2 storms, 9 category 1 storms, and 41 tropical storms as shown in **Figure G.8**.[8]

Of the recorded storm events, a total of 12 tracks passed directly through the county including the Unnamed Hurricane of 1855, Unnamed Hurricane of 1860, and Hurricane Frederic (1979). All of these events where tropical storms when they traversed the county except three aforementioned hurricanes. The Unnamed Hurricanes passed through as Category 1 storms and Frederic passed through as a Category 2 storm. **Table G.15** provides the detail for each storm that passed through the county including date of occurrence, name (if applicable), maximum wind speed (as recorded when traversing the county) and category of the storm based on the Saffir-Simpson Scale.

Fortunately, there have been no significant storms to have hit the area since the last planning period.

FIGURE G.8: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF WAYNE COUNTY

[8] These storm track statistics do not include extra-tropical storms. Though these related hazard events are less severe in intensity, they may cause significant local impact in terms of rainfall and high winds.



573
574 *Source: National Oceanic and Atmospheric Administration; National Hurricane Center*
575

576 **TABLE G.15: HISTORICAL STORM TRACKS WITHIN 75 MILES OF WAYNE COUNTY**
577 **(1850–2019)**

Date of Occurrence	Storm Name	Maximum Wind Speed (miles per hour)	Storm Category
9/16/1855	UNNAMED	81	Category 1
9/15/1860	UNNAMED	81	Category 1
8/13/1881	UNNAMED	46	Tropical Storm
9/12/1892	UNNAMED	46	Tropical Storm
9/22/1907	UNNAMED	40	Tropical Storm
6/13/1912	UNNAMED	52	Tropical Storm
9/14/1912	UNNAMED	46	Tropical Storm
10/16/1932	UNNAMED	46	Tropical Storm
9/16/1939	UNNAMED	40	Tropical Storm
9/10/1944	UNNAMED	40	Tropical Storm
9/16/1960	ETHEL	40	Tropical Storm
9/13/1979	FREDERIC	109	Category 2
8/4/1995	ERIN	52	Tropical Storm
10/07/17	UNNAMED	60	Tropical Storm

Source: National Hurricane Center and National Centers for Environmental Information

578
579 Federal records indicate that disaster declarations were made in 1969 (Hurricane Camille), 1979
580 (Hurricane Frederic), 1998 (Hurricane Georges), 2004 (Hurricane Ivan), 2005 (Hurricane Dennis), 2005
581 (Hurricane Katrina), and 2012 (Hurricane Isaac).[9] Hurricane and tropical storm events can cause
582 substantial damage in the area due to high winds and flooding.
583
584 Flooding and high winds from hurricanes and tropical storms can cause damage throughout the county.
585 Anecdotes are available from NCEI for the major storms that have impacted the county as found below:
586
587 **Hurricane Erin** – August 20, 1995
588 Hurricane Erin moved out of Washington County, Alabama into Greene and Wayne Counties in
589 Mississippi. The storm moved generally along Highway 45 passing just south of Waynesboro. Trees and
590 power lines were blown down across Northern Greene, Northern Perry and most of Wayne Counties as
591 Erin moved northwest. Some homes were damaged along Highway 45 and in the cities of Buckatunna
592 and Waynesboro. Most of the damage was from trees falling on homes or shingles being blown from
593 roofs. Wind speeds of 50 to 60 mph were estimated in Waynesboro. Preliminary damage estimates in
594 these three counties was around $100 thousand.
595
596 **Hurricane Ivan** – September 16, 2004
597 Thousands of trees were blown down across Eastern Mississippi during the event as well as hundreds of
598 power lines. The strong wind itself did not cause much structural damage, however the fallen trees did.
599 These downed trees accounted for several hundred homes, mobile homes and businesses to be
600 damaged or destroyed. Most locations across Eastern Mississippi reported sustained winds between 30
601 and 40 mph with Tropical Storm force gusts between 48 and 54 mph. The strongest reported winds
602 occurred in Newton, Lauderdale and Oktibbeha Counties.

[9] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

Overall, rainfall totals were held in check as Ivan steadily moved north. The heaviest rains were confined to far Eastern Mississippi where 3 to 4 inches fell over a 15 hour period. Due to the duration of the rain no flooding was reported. Across Eastern Mississippi, Hurricane Ivan was responsible for one fatality. This fatality occurred in Brooksville (Noxubee County) when a tree fell on a man. Damage from Ivan was estimated at $200 million.

Hurricane Katrina – August 25, 2005
Hurricane Katrina will likely go down as the worst and costliest natural disaster in United States history. The amount of destruction, the cost of damaged property/agriculture and the large loss of life across the affected region has been overwhelming. Catastrophic damage was widespread across a large portion of the Gulf Coast region. The devastation was not only confined to the coastal region, widespread and significant damage occurred well inland up to the Hattiesburg area and northward past Interstate 20.

Devastation from Hurricane Katrina was widespread across the region. Hurricane force winds were common across the area. The region received sustained winds of 60-80 mph with gusts ranging from 80-120 mph. There was widespread damage to trees and power lines. Wind damage to structures was also widespread, with roofs blown off or partially peeled. Hundreds of signs were shredded or blown down. Businesses sustained structural damage. Power outages lasted from a few days to as long as four weeks. Agriculture and timber industries were severely impacted. Row crops, including cotton, rice, corn, and soybeans, took a hard hit. Other impacted industries were the catfish industry, dairy and cattle industry, and nursery businesses.

PROBABILITY OF FUTURE OCCURRENCES

Based on historical evidence, the probability level of future occurrence is likely (annual probability between 10 and 100 percent). Given the regional nature of the hazard, all areas in the county are equally exposed to this hazard. However, when the county is impacted, the damage could be catastrophic, threatening lives and property throughout the planning area.

G.2.11 Thunderstorm

LOCATION AND SPATIAL EXTENT

Thunderstorm / High Wind
A thunderstorm event is an atmospheric hazard, and thus has no geographic boundaries. It is typically a widespread event that can occur in all regions of the United States. However, thunderstorms are most common in the central and southern states because atmospheric conditions in those regions are favorable for generating these powerful storms. Also, Wayne County typically experiences several straight-line wind events each year. These wind events can and have caused significant damage. It is assumed that Wayne County has uniform exposure to an event and the spatial extent of an impact could be large.

Hailstorm
Hailstorms frequently accompany thunderstorms, so their locations and spatial extents coincide. It is assumed that Wayne County is uniformly exposed to severe thunderstorms; therefore, all areas of the county are equally exposed to hail which may be produced by such storms.

Lightning

Lightning occurs randomly, therefore it is impossible to predict where and with what frequency it will strike. It is assumed that all of Wayne County is uniformly exposed to lightning.

HISTORICAL OCCURRENCES

Thunderstorm / High Wind

Severe storms resulted in three disaster declarations in Wayne County in 2003, 2009, and 2013.[10] According to NCEI, there have been 97 reported thunderstorm and high wind events since 1979 in Wayne County.[11] These events caused over $752,000 in damages and seven reported injuries. **Table G.16** summarizes this information. **Table G.17** presents detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event. [12]

TABLE G.16: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN WAYNE COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
State Line	7	0/0	$67,209
Waynesboro	24	0/0	$216,918
Unincorporated Area	66	0/7	$321,605
WAYNE COUNTY TOTAL	**97**	**0/7**	**$752,732**

Source: National Centers for Environmental Information

TABLE G.17: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN WAYNE COUNTY

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
State Line					
State Line	02-JAN-99	STRONG WINDS	55 kts.	0/0	$7,563
State Line	20-AUG-01	TSTM WIND	50 kts.	0/0	$11,406
State Line	14-APR-07	THUNDERSTORM WIND	50 kts.	0/0	$14,329
State Line	20-DEC-07	THUNDERSTORM WIND	50 kts.	0/0	$17,911
State Line	28-JUN-14	THUNDERSTORM WIND	61 kts.	0/0	$10,000
State Line	23-FEB-16	THUNDERSTORM WIND	52 kts.	0/0	$3,000
State Line	23-FEB-16	THUNDERSTORM WIND	52 kts.	0/0	$3,000
Waynesboro					
Waynesboro	06-JAN-95	THUNDERSTORM WINDS	0 kts.	0/0	$1,657
Waynesboro	07-MAR-95	THUNDERSTORM WINDS	0 kts.	0/0	$16,572
Waynesboro	27-OCT-95	THUNDERSTORM WINDS	0 kts.	0/0	$3,314
Waynesboro	28-JAN-97	TSTM WIND	52 kts.	0/0	$6,292
Waynesboro	21-FEB-97	TSTM WIND	52 kts.	0/0	$2,360

[10] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.
[11] These thunderstorm events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional thunderstorm events have occurred in Wayne County. As additional local data becomes available, this hazard profile will be amended.
[12] The dollar amount of damages provided by NCEI is divided by the number of affected counties to reflect a damage estimate for the county.

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Waynesboro	26-APR-97	TSTM WIND	50 kts.	0/0	$1,573
Waynesboro	28-MAY-97	TSTM WIND	50 kts.	0/0	$2,360
Waynesboro	24-OCT-97	TSTM WIND	50 kts.	0/0	$3,933
Waynesboro	02-APR-00	TSTM WIND	60 kts.	0/0	$7,343
Waynesboro	16-JUL-00	TSTM WIND	55 kts.	0/0	$7,343
Waynesboro	16-DEC-00	TSTM WIND	50 kts.	0/0	$7,343
Waynesboro	12-MAR-01	TSTM WIND	60 kts.	0/0	$7,129
Waynesboro	13-OCT-01	TSTM WIND	60 kts.	0/0	$14,258
Waynesboro	25-AUG-02	TSTM WIND	55 kts.	0/0	$41,527
Waynesboro	06-AUG-03	TSTM WIND	50 kts.	0/0	$6,720
Waynesboro	30-APR-05	TSTM WIND	50 kts.	0/0	$19,002
Waynesboro	24-MAY-05	TSTM WIND	50 kts.	0/0	$12,688
Waynesboro	04-APR-08	THUNDERSTORM WIND	50 kts.	0/0	$11,593
Waynesboro	11-APR-08	THUNDERSTORM WIND	50 kts.	0/0	$13,911
Waynesboro	04-APR-11	THUNDERSTORM WIND	50 kts.	0/0	$0
Waynesboro	13-OCT-14	THUNDERSTORM WIND	52 kts.	0/0	$5,000
Waynesboro	15-FEB-16	THUNDERSTORM WIND	52 kts.	0/0	$20,000
Waynesboro	02-JAN-17	THUNDERSTORM WIND	52 kts.	0/0	$0
Waynesboro	01-11-18	THUNDERSTORM WIND	61 kts.	0/0	$5,000
WAYNE COUNTY	04-APR-79	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	04-NOV-81	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	04-NOV-81	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	03-JAN-82	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	14-NOV-83	TSTM WIND	0 kts.	0/7	$0
WAYNE COUNTY	12-FEB-84	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	08-APR-86	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	18-APR-88	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	10-MAY-88	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	04-NOV-88	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	10-FEB-90	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	03-JUN-90	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	30-AUG-90	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	30-AUG-90	TSTM WIND	0 kts.	0/0	$0

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
WAYNE COUNTY	01-MAR-91	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	14-APR-91	TSTM WIND	0 kts.	0/0	$0
WAYNE COUNTY	09-MAR-94	THUNDERSTORM WINDS	0 kts.	0/0	$852
WAYNE COUNTY	09-JUN-94	THUNDERSTORM WINDS	0 kts.	0/0	$852
Strengthford	06-JAN-95	THUNDERSTORM WINDS	0 kts.	0/0	$3,314
Strengthford	11-APR-95	THUNDERSTORM WINDS	0 kts.	0/0	$829
Strengthford	20-APR-95	THUNDERSTORM WINDS	0 kts.	0/0	$1,657
Whistler	28-MAY-95	THUNDERSTORM WINDS	0 kts.	0/0	$829
Buckatunna	12-JUL-95	THUNDERSTORM WINDS	0 kts.	0/0	$1,657
Clara	26-JAN-96	TSTM WIND	50 kts.	0/0	$3,218
DENHAM	18-MAR-96	TSTM WIND	60 kts.	0/0	$3,218
DENHAM	13-JUN-96	TSTM WIND	50 kts.	0/0	$2,414
GRETNA	26-OCT-96	TSTM WIND	50 kts.	0/0	$2,414
Mulberry	15-JAN-97	TSTM WIND	50 kts.	0/0	$2,360
DENHAM	21-FEB-97	TSTM WIND	50 kts.	0/0	$6,292
Clara	10-FEB-98	TSTM WIND	50 kts.	0/0	$4,647
Whistler	26-FEB-98	TSTM WIND	50 kts.	0/0	$4,647
Countywide	05-JUN-98	TSTM WIND	60 kts.	0/0	$116,167
Mulberry	09-JAN-99	TSTM WIND	55 kts.	0/0	$7,563
Whistler	22-JAN-99	TSTM WIND	55 kts.	0/0	$7,563
Whistler	14-APR-99	TSTM WIND	50 kts.	0/0	$4,538
EUCUTTA	25-AUG-99	TSTM WIND	50 kts.	0/0	$7,563
Mulberry	29-JAN-01	TSTM WIND	55 kts.	0/0	$7,129
MATHERVILLE	02-MAR-01	TSTM WIND	65 kts.	0/0	$14,258
EUCUTTA	02-MAR-01	TSTM WIND	55 kts.	0/0	$4,277
Clara	13-OCT-01	TSTM WIND	50 kts.	0/0	$14,258
HIWANNEE	10-NOV-02	TSTM WIND	55 kts.	0/0	$27,685
Clara	06-APR-03	TSTM WIND	50 kts.	0/0	$6,720
HIWANNEE	06-APR-03	TSTM WIND	50 kts.	0/0	$6,720
Smithtown	10-JAN-08	THUNDERSTORM WIND	50 kts.	0/0	$11,593
Buckatunna	31-JAN-08	THUNDERSTORM WIND	50 kts.	0/0	$28,982
HIWANNEE	03-MAR-08	THUNDERSTORM WIND	74 kts.	0/0	$0
Clara	15-MAY-08	THUNDERSTORM WIND	50 kts.	0/0	$17,389
Battles	04-APR-11	THUNDERSTORM WIND	50 kts.	0/0	$0
Whistler	20-FEB-14	THUNDERSTORM WIND	52 kts.	0/0	$1,000
Woodwards	28-APR-14	THUNDERSTORM WIND	83 kts.	0/0	$50,000
Whistler	02-SEP-14	THUNDERSTORM WIND	61 kts.	0/0	$5,000
Matherville	02-OCT-14	THUNDERSTORM WIND	52 kts.	0/0	$5,000
Clara	13-OCT-14	THUNDERSTORM WIND	52 kts	0/0	$5,000
Clara	31-OCT-15	THUNDERSTORM WIND	52 kts	0/0	$10,000
Buckatunna	15-FEB-16	THUNDERSTORM WIND	52 kts	0/0	$5,000
Buckatunna	15-FEB-16	THUNDERSTORM WIND	52 kts	0/0	$20,000
Clara	15-FEB-16	THUNDERSTORM WIND	52 kts	0/0	$5,000
Clara	15-FEB-16	THUNDERSTORM WIND	52 kts	0/0	$10,000

Location	Date	Type	Magnitude	Deaths / Injuries	Property Damage*
Denham	15-FEB-16	THUNDERSTORM WIND	52 kts	0/0	$3,000
Whistler	23-FEB-16	THUNDERSTORM WIND	52 kts	0/0	$3,000
Mulberry	09-JUL-16	THUNDERSTORM WIND	52 kts	0/0	$10,000
Clara	10-JUL-16	THUNDERSTORM WIND	52 kts	0/0	$5,000
Denham	10-JUL-16	THUNDERSTORM WIND	52 kts	0/0	$5,000
Whistler	10-JUL-16	THUNDERSTORM WIND	52 kts	0/0	$5,000

Source: National Centers for Environmental Information

Hailstorm

According to the National Centers for Environmental Information, 55 recorded hailstorm events have affected Wayne County since 1985.[13] **Table G.18** is a summary of the hail events in Wayne County. **Table G.19** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over $16,000 in property damages. Hail ranged in diameter from 0.75 inches to 1.75 inches. It should be noted that hail is notorious for causing substantial damage to cars, roofs, and other areas of the built environment that may not be reported to the National Centers for Environmental Information. Therefore, it is likely that damages are greater than the reported value.

TABLE G.18: SUMMARY OF HAIL OCCURRENCES IN WAYNE COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
State Line	2	0/0	$0
Waynesboro	11	0/0	$1,180
Unincorporated Area	42	0/0	$15,393
WAYNE COUNTY TOTAL	**55**	**0/0**	**$16,573**

Source: National Centers for Environmental Information

TABLE G.19: HISTORICAL HAIL OCCURRENCES IN WAYNE COUNTY

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
State Line				
State Line	25-APR-03	0.75 in.	0/0	$0
State Line	15-MAR-16	1.00 in.	0/0	$0
Waynesboro				
Waynesboro	06-MAR-96	0.75 in.	0/0	$0
Waynesboro	06-MAR-96	1.75 in.	0/0	$0
Waynesboro	18-MAR-96	1.75 in.	0/0	$0
Waynesboro	12-DEC-96	1.00 in.	0/0	$0
Waynesboro	22-APR-97	1.00 in.	0/0	$1,180
Waynesboro	09-MAR-99	1.00 in.	0/0	$0
Waynesboro	02-MAY-00	1.75 in.	0/0	$0
Waynesboro	11-APR-05	0.75 in.	0/0	$0
Waynesboro	22-APR-05	0.75 in.	0/0	$0
Waynesboro	09-MAY-06	0.88 in.	0/0	$0

[13] These hail events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional hail events have affected Wayne County. As additional local data becomes available, this hazard profile will be amended.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*
Waynesboro	22-MAR-15	1.00 in.	0/0	$0
WAYNE COUNTY	11-JUL-85	0.75	0/0	$0
WAYNE COUNTY	11-JUL-85	0.75	0/0	$0
WAYNE COUNTY	12-MAR-88	0.75	0/0	$0
WAYNE COUNTY	24-MAY-88	0.75	0/0	$0
WAYNE COUNTY	09-JUN-88	1.00	0/0	$0
WAYNE COUNTY	04-APR-89	1.00	0/0	$0
WAYNE COUNTY	04-APR-89	1.00	0/0	$0
WAYNE COUNTY	04-APR-89	1.00	0/0	$0
WAYNE COUNTY	08-NOV-89	0.80	0/0	$0
WAYNE COUNTY	21-MAY-90	0.80	0/0	$0
WAYNE COUNTY	09-APR-91	0.75	0/0	$0
WAYNE COUNTY	09-APR-91	0.75	0/0	$0
Ethel	20-AUG-95	0.75	0/0	$0
Purvis	27-OCT-95	0.88	0/0	$0
Water Oak	06-MAR-96	1.00	0/0	$0
Battles	06-MAR-96	1.00	0/0	$0
Clara	18-MAR-96	1.75	0/0	$0
Clara	07-NOV-96	0.75	0/0	$0
BUCKATUNNA	12-DEC-96	1.75	0/0	$0
WINCHESTER	12-DEC-96	0.75	0/0	$0
HIWANNEE	22-APR-97	1.00	0/0	$0
HIWANNEE	25-OCT-97	1.00	0/0	$0
Boice	01-NOV-97	0.75	0/0	$0
Boice	12-JAN-98	0.75	0/0	$0
Mulberry	07-MAR-98	0.75	0/0	$0
EUCUTTA	01-APR-00	1.75	0/0	$0
HIWANNEE	03-APR-01	1.75	0/0	$0
Clara	06-JUL-02	0.75	0/0	$0
BUCKATUNNA	13-MAR-03	0.75	0/0	$0
Battles	25-APR-03	0.75	0/0	$0
Mulberry	03-MAY-03	0.88	0/0	$0
HIWANNEE	07-APR-04	0.75	0/0	$0
Clara	22-MAR-05	0.75	0/0	$0
BUCKATUNNA	11-APR-05	0.75	0/0	$0
Clara	22-APR-05	1.75	0/0	$3,800
Clara	22-APR-05	0.88	0/0	$0
Boice	26-APR-05	0.75	0/0	$0
MATHERVILLE	20-JUN-08	0.88	0/0	$11,593
Clara	15-APR-11	1.75	0/0	$0
BUCKATUNNA	31-MAY-12	1.00	0/0	$0
HIWANNEE	20-FEB-14	1.00	0/0	$0
EUCUTTA	27-MAR-17	1.00	0/0	$0

*All damage may not have been reported.
Source: National Centers for Environmental Information

681

Lightning

According to the National Centers for Environmental Information, there have been five recorded lightning events in Wayne County since 1995. These events resulted in almost $136,000 in damages and two reported injuries, as listed in summary **Table G.20**.[14] However, it is likely that more lightning events have in fact impacted the county. Many of the reported events are those that caused damage, and it should be expected that damages are likely much higher for this hazard than what is reported. Detailed information on historical lightning events can be found in **Table G.21**.

TABLE G.20: SUMMARY OF LIGHTNING OCCURRENCES IN WAYNE COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
State Line	0	0/0	$0
Waynesboro	5	0/2	$135,618
Unincorporated Area	0	0/0	$0
WAYNE COUNTY TOTAL	**5**	**0/2**	**$135,618**

Source: National Centers for Environmental Information

TABLE G.21: HISTORICAL LIGHTNING OCCURRENCES IN WAYNE COUNTY

Location	Date	Deaths / Injuries	Property Damage*	Details
State Line				
None Reported	--	--	--	--
Waynesboro				
Waynesboro	06-JAN-95	0/0	$49,715	Lightning severely damaged a house.
Waynesboro	09-SEP-96	0/0	$3,218	Lightning struck a house near Waynesboro. The lightning strike caused a fire. The owners were able to extinguish the fire with only minor damage reported.
Waynesboro	22-JUL-98	0/0	$15,489	Lightning struck a florist shop in Waynesboro.
Waynesboro	11-JUN-01	0/2	$0	Two men working on Nabors Drilling Rig were injured when lightning struck the "grasshopper". They were both knocked to the ground by the strike. They were taken to the hospital, examined and released.
Waynesboro	27-AUG-03	0/0	$67,196	Lightning struck a home and started a fire. The fire destroyed the home before the fire department could extinguish the blaze. No one was injured.
Unincorporated Area				
None Reported	--	--	--	--

* All damage may not have been reported.

Source: National Centers for Environmental Information

[14] These lightning events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional lightning events have occurred in Wayne County. As additional local data becomes available, this hazard profile will be amended.

PROBABILITY OF FUTURE OCCURRENCES

Thunderstorm / High Wind

Given the high number of previous events, it is certain that wind events, including straight-line wind and thunderstorm wind, will occur in the future. This results in a probability level of highly likely (100 percent annual probability) for future wind events for the entire county.

Hailstorm

Based on historical occurrence information, it is assumed that the probability of future hail occurrences is likely (10 – 100 percent annual probability). Since hail is an atmospheric hazard (coinciding with thunderstorms), it is assumed that Wayne County has equal exposure to this hazard. It can be expected that future hail events will continue to cause minor damage to property and vehicles throughout the county.

Lightning

Although there was not a high number of historical lightning events reported in Wayne County via NCDC data, it is a regular occurrence accompanied by thunderstorms. In fact, lightning events will assuredly happen on an annual basis, though not all events will cause damage. According to Vaisala's U.S. National Lightning Detection Network (NLDN®), Wayne County is located in an area of the country that experienced an average of 6 to 8 lightning flashes per square kilometer per year between 1997 and 2010. Therefore, the probability of future events is highly likely (100 percent annual probability). It can be expected that future lightning events will continue to threaten life and cause minor property damages throughout the county.

G.2.12 Tornado

LOCATION AND SPATIAL EXTENT

Tornadoes occur throughout the state of Mississippi, and thus in Wayne County. Tornadoes typically impact a relatively small area, but damage may be extensive. Event locations are completely random, and it is not possible to predict specific areas that are more susceptible to tornado strikes over time. Therefore, it is assumed that Wayne County is uniformly exposed to this hazard.

HISTORICAL OCCURRENCES

Tornadoes resulted in five disaster declarations in Wayne County in 1973, 2003, 2009, 2013 and 2014.[15] According to the National Centers for Environmental Information, there have been a total of 22 recorded tornado events in Wayne County since 1973 (**Table G.22**), resulting in nearly $61.7 million in property damages.[16] In addition, two fatalities were reported. The magnitude of these tornadoes ranges from F0 to F4 in intensity, although an F5 event is possible. Detailed information on historic tornado events can be found in **Table G.23**.

[15] A complete listing of historical disaster declarations can be found in Section 4: Hazard Identification.

[16] These tornado events are only inclusive of those reported by the National Centers for Environmental Information (NCEI). It is likely that additional tornadoes have occurred in Wayne County. As additional local data becomes available, this hazard profile will be amended.

737 **TABLE G.22: SUMMARY OF TORNADO OCCURRENCES IN WAYNE COUNTY**

Location	Number of Occurrences	Deaths / Injuries	Property Damage
State Line	4	0/0	$117,133
Waynesboro	2	0/0	$31,720
Unincorporated Area	16	2/0	$61,521,199
WAYNE COUNTY TOTAL	**22**	**2/0**	**$61,670,052**

Source: National Centers for Environmental Information

738

739 **TABLE G.23: HISTORICAL TORNADO IMPACTS IN WAYNE COUNTY**

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
State Line					
State Line	27-OCT-95	F0	0/0	$0	A tornado briefly touched down along U.S. Highway 45 near State Line. No damage was found.
State Line	24-NOV-04	F0	0/0	$6,524	A weak tornado downed trees near State Line.
State Line	15-APR-11	F0	0/0	$10,609	The tornado continued northeast out of the State Line, Mississippi area. The National Weather Service Damage Survey Team observed a 100-yard-wide path of trees snapped with some minor damage to the roofing structure of a home. The tornado continued to the east crossing into Washington County, Alabama.
State Line	23-FEB-16	F1	0/0	$100,000	The National Weather Service storm survey team found a third tornado touchdown in a heavily wooded area near State Line. Numerous large diameter (greater than 2 feet) hardwood and pine trees were either snapped near the base of the trunk or uprooted. The tornado continued affecting mostly wooded areas before lifting just to the northeast of Woulard Bend River Road.
Waynesboro					
Waynesboro	17-MAY-03	F0	0/0	$6,720	A weak tornado briefly touched down near Waynesboro, blowing down several trees.
Waynesboro	07-OCT-17	F0	0/0	$25,000	A brief EF-0 tornado initially touched down on Jo Land Drive, moved west northwest, and lifted just north of County Farm Road and Old Highway 145. Three homes experienced roof damage. Some trees were also uprooted.
Unincorporated Area					
WAYNE COUNTY	08-MAY-73	F1	0/0	$1,421,475	
WAYNE COUNTY	26-FEB-58	F3	2/0	$21,863	
WAYNE COUNTY	09-JAN-72	F3	0/0	$151,232	
WAYNE COUNTY	28-JUN-57	F2	0/0	$2,247,360	

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
WAYNE COUNTY	11-MAY-59		0/0	$21,749	
WAYNE COUNTY	04-FEB-60	F1	0/0	$21,285	
WAYNE COUNTY	04-NOV-88	F3	0/0	$533,525	
WAYNE COUNTY	28-FEB-87	F4	0/0	$55,563,194	
Smithtown	19-FEB-96	F1	0/0	$80,456	A TORNADO MOVED OUT OF GREENE COUNTY INTO WAYNE COUNTY ABOUT 222 PM CDT 3 MILES WEST OF SMITHTOWN AND 1 MILE WEST OF MS HWY 63. THE TORNADO CROSSED MS HWY 63 AND THEN SKIPPED ALONG THE GROUND ACROSS MOSTLY OPEN FIELDS BEFORE LIFTING BACK INTO THE CLOUDS JUST EAST OF CHICORA. SEVERAL HOMES HAD ROOF AND SIDING DAMAGE AND NUMEROUS TREES WERE BLOWN DOWN BY THE TORNADO. THE TORNADO SKIPPED ALONG THE GROUND FOR ABOUT 13 MILES WHILE IT WAS IN WAYNE COUNTY.
Good Hope	18-MAR-96	F1	0/0	$24,137	A TORNADO MOVED OUT OF PERRY COUNTY TWO MILES NORTH OF GOOD HOPE INTO WAYNE COUNTY. THE TORNADO SKIPPED ALONG THE GROUND PASSING JUST SOUTH OF MULBERRY BEFORE LIFTING BACK INTO THE CLOUD NEAR STATE HWY 63 FOUR MILES SOUTH OF WATER OAK. THE TORNADO PASSED MOSTLY OVER OPEN LAND WITH DAMAGE CONFINED TO TREES AND POWER LINES. THE TORNADO WAS ON THE GROUND FOR ABOUT TWELVE MILES IN WAYNE COUNTY.
Mulberry	18-MAR-96	F1	0/0	$16,091	A TORNADO MOVED OUT OF PERRY COUNTY AND INTO WAYNE COUNTY THREE MILES SOUTHWEST OF MULBERRY. THE STORM WAS ON THE GROUND FOR ABOUT THREE MILES AND THEN LIFTED BACK INTO THE CLOUD ABOUT TWO MILES SOUTHEAST OF MULBERRY. DAMAGE WAS CONFINED TO TREES AND POWER LINES BEING BLOWN DOWN.

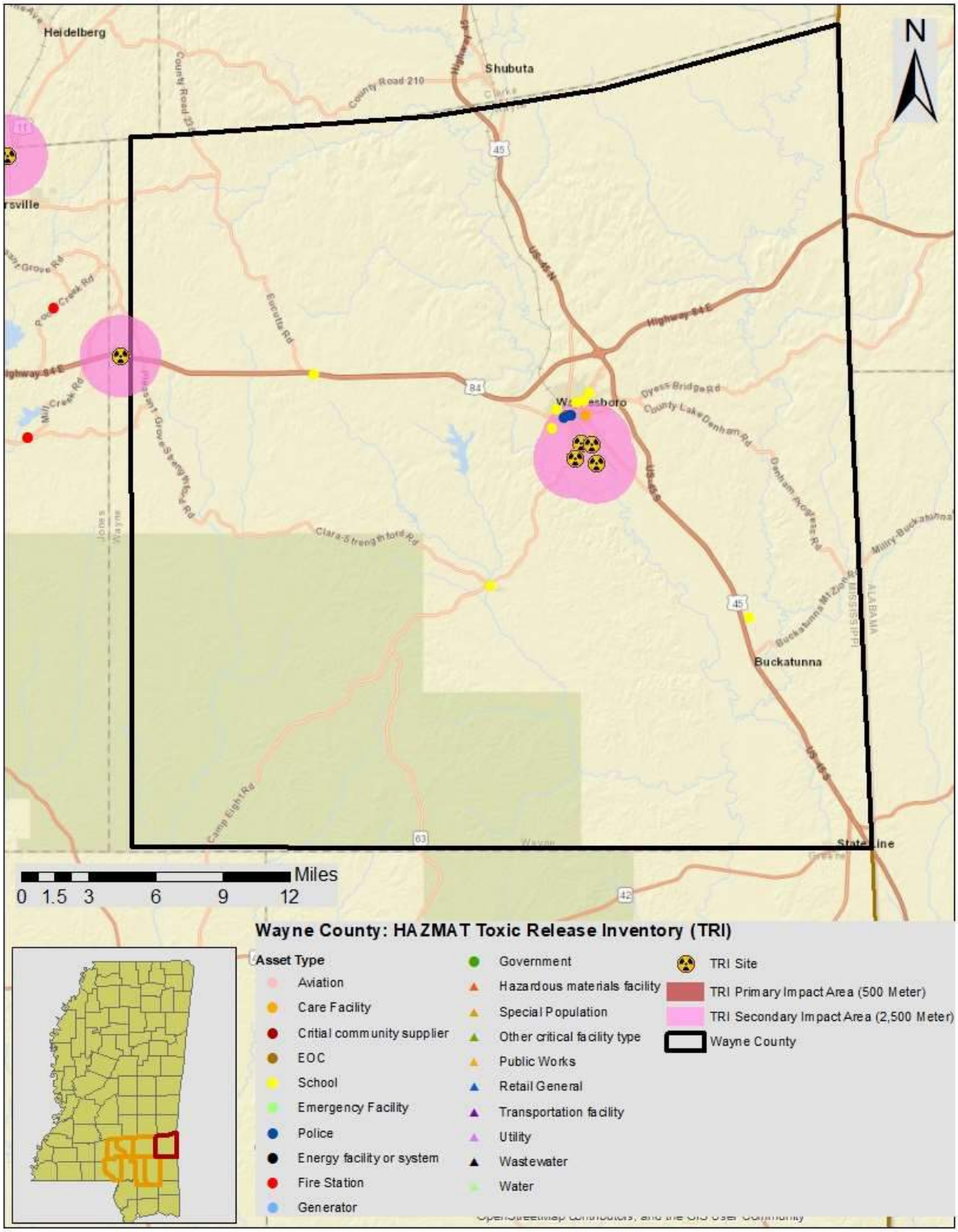
Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
BUCKATUNNA	18-MAR-96	F0	0/0	$64,364	THE SAME STORM SYSTEM DROPPED ANOTHER TORNADO ABOUT NINE MILES SOUTHWEST OF BUCKATUNNA. THE TORNADO MOVED EAST NORTHEAST AND PASSED NEAR THE CITY OF BUCKATUNNA. THE TORNADO CONTINUED ON ACROSS U. S. HIGHWAY 45 AND THEN LIFTED BACK INTO THE CLOUD JUST BEFORE ENTERING INTO SOUTHWEST ALABAMA, ABOUT THREE MILES NORTHEAST OF BUCKATUNNA. THE TORNADO SKIPPED ALONG THE GROUND MOSTLY ALONG OPEN FARM LAND FOR ABOUT TWELVE MILES. DAMAGE WAS CONFINED TO MOSTLY DOWNED TREES AND POWER LINES. IN THE CITY OF BUCKATUNNA, SOME HOMES SUFFERED MINOR ROOF DAMAGE FROM SHINGLES BEING BLOWN OFF AND ALSO FROM TREES BEING BLOWN ON HOMES. NO INJURIES WERE REPORTED.
WHISTLER	15-NOV-06	F1	0/0	$307,468	A tornado entered the southwest part of Wayne County from Jones County just south of US Highway 84. The tornado moved northeast causing mostly tree damage and crossed Highway 84. The tornado then crossed Harry Pippen Drive where it pushed a large tree on to a house. The tornado continued northeast over private property where it strengthened to an F1. Here it caused considerable tree damage and damaged a barn near Pleasant Grove Altair Road. The tornado crossed the road and this is where most of the damage occurred. A mobile home that was tied down was flipped and demolished. A large shed was flattened. Other homes in this area lost shingles and trees. The tornado lifted near Pleasant Grove Altair Road and Jack Fleming Road intersection.
WHISTLER	15-APR-11	F0	0/0		Tornado reported by EMA north of Strengthford near the Whistler area.
EUCUTTA	28-APR-14	F1	0/0	$50,000	The National Weather Service Storm Survey team found that a small weak tornado moved into northwest Wayne County from northeast Jones County. The tornado tracked from west to east at around 50 mph. The most significant damage occurred to a chicken farm and to a mobile home that was rolled off its foundation. A family of four were inside the mobile home at the time it was hit by the tornado and escaped with minor injuries.

Location	Date	Magnitude	Deaths / Injuries	Property Damage*	Details
HIWANNEE	28-APR-14	F2	0/0	$1,000,000	The N National Weather Service Survey team found evidence of a strong tornado that tracked across north central and northeast Wayne County. The tornado tracked from the west to the east at around 50 mph. A single-family home located on Waller Ridge Road and several single family homes and mobile homes on Spinkes Hayes Road were destroyed. Minor to moderate damage occurred to numerous other residences from Spinkes Hayes Road to Matherville Diamond Road.

Source: National Centers for Environmental Information

740
741 ***PROBABILITY OF FUTURE OCCURRENCES***
742
743 According to historical information, tornado events pose a significant threat to Wayne County. The
744 probability of future tornado occurrences affecting Wayne County is likely (10 – 100 percent annual
745 probability).
746
747 ## G.2.13 Hazardous Materials Incidents
748
749 ***LOCATION AND SPATIAL EXTENT***
750
751 **Hazardous Materials**
752 Wayne County has four TRI sites. These sites are shown in **Figure G.9.**
753

754 **FIGURE G.9: TOXIC RELEASE INVENTORY (TRI) SITES IN WAYNE COUNTY**



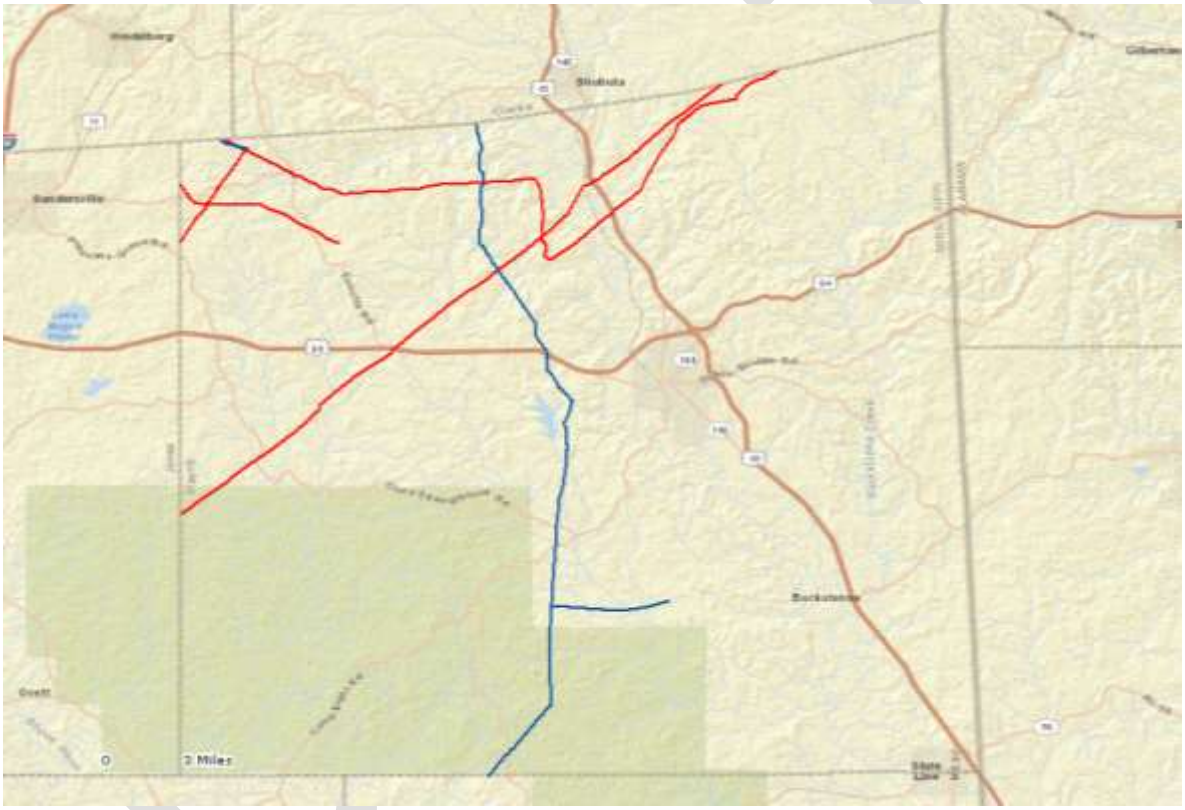
755
756 *Source: EPA*
757

In addition to "fixed" hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially at risk to an incident.

Pipelines

There are two distinct types of pipelines that are used in the transport of potentially hazardous materials, gas lines and hazardous liquid lines. **Figure G.10** shows the trunk lines for each of these material types but does not show the gathering or distribution pipelines. Gas lines are in blue and hazardous liquid lines are in red. This data has not changed since the last plan update.

FIGURE G.3: PIPELINES IN WAYNE COUNTY



Source: Pipeline and Hazardous Materials Safety Administration

Meth Labs

One of the greatest concerns about meth labs is that they are clandestine in nature. Additionally, once a meth lab has been identified, police authorities generally attempt to eliminate the site as quickly as possible. Therefore, it is nearly impossible to identify specific locations for meth labs and instead, the entire planning area is considered to be at risk to this hazard.

HISTORICAL OCCURRENCES

Hazardous Materials

There has been a total of six recorded HAZMAT incidents in Wayne County since 1979 (**Table G.24**), resulting in $4,450 in property damages. In addition, one injury was reported. **Table G.25** presents detailed information on historic HAZMAT incidents in Wayne County as reported by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA).

TABLE G.24: SUMMARY OF HAZMAT INCIDENTS IN WAYNE COUNTY

Location	Number of Occurrences	Deaths / Injuries	Property Damage
State Line	0	0/0	$0
Waynesboro	5	0/1	$400
Unincorporated Area	1	0/0	$4,050
WAYNE COUNTY TOTAL	**6**	**0/1**	**$4,450**

Source: USDOT PHMSA

TABLE G.25: HAZMAT INCIDENTS IN WAYNE COUNTY

Report Number	Date	City	Mode	Serious Incident?	Fatalities/ Injuries	Damages ($)	Quantity Released
State Line							
None Reported	--	--	--	--	--	--	--
Waynesboro							
I-1998100617	10/2/1998	WAYNESBORO	Highway	No	0/0	$400	5 LGA
I-1979120895	11/18/1979	WAYNESBORO	Highway	No	0/0	$0	42 LGA
I-2000031243	3/16/2000	WAYNESBORO	Highway	No	0/0	$0	0
I-2012100243	9/14/2012	WAYNESBORO	Highway	No	0/0	$0	10 LGA
E-2012110328	9/14/2012	WAYNESBORO	Highway	Yes	0/0	$0	15 LGA
Unincorporated Area							
I-2003031009	2/15/2003	EUCUTTA	Highway	No	0/0	$4,050	20 LGA

Source: USDOT PHMSA

Pipelines

Between 2002 and 2013, there have been no pipeline incidents in Wayne County.

Meth Labs

Meth lab incidents have occurred at various times throughout Wayne County. Although there is not an extensive documented record of these events, they have occurred in the past and are generally confined to single sites, often in residential areas.

PROBABILITY OF FUTURE OCCURRENCES

Hazardous Materials

Given the location of four toxic release inventory sites in Wayne County and several roadway and rail incidents, it is possible that a hazardous material incident may occur in the county (between one percent and ten percent annual probability). County and town officials are mindful of this possibility and take precautions to prevent such an event from occurring. Furthermore, there are detailed plans in place to respond to an occurrence.

Although there are just four TRI sites and a limited record of previous events in the county, hazardous materials incidents will continue to be a threat. The county may also be impacted by neighboring counties which also face risk due to TRI sites and narrow roadways.

Pipelines

Although there have been no pipeline incidents, there are 109 miles of gas and hazardous liquid lines in Wayne County. Therefore, it is anticipated that there will be future pipeline incidents in Wayne County.

Meth Labs

Meth lab incidents will likely continue to occur throughout Wayne County and are considered possible.

G.2.14 Cyber Attack

A cyber-attack is a malicious, intentional attempt to breach the information technology (IT) infrastructure of an individual or organization. The State of Mississippi defines a cyberterrorism incident as any adverse premeditated, politically, financially or maliciously motivated attack against informational systems. A cyberterrorism event can impact one or more of Wayne County's and its, corresponding departments' and divisions' information assets by the following ways, which includes, but are not limited to, the following:

- Unauthorized use
- Denial of Service
- Malicious code
- Network system failures
- Application system failures
- Unauthorized disclosure or loss of information
- Information security breach
- Structured Query Language (SQL) Injection

LOCATION AND HAZARD EXTENT

The cyberterrorism hazard is not geographically based. Attacks can originate from any computer to affect any other computer in the world. If a system is connected to the Internet or operating on a wireless frequency, it is susceptible to exploitation. Targets of cyberterrorism can be individual computers, networks, organizations, business sectors, or governments. Financial institutions and retailers are often targeted to extract personal and financial data that can be used to steal money from individuals and banks.

HISTORICAL OCCURRENCES

There have been no known historical occurrences to have occurred in in Wayne County to date.

PROBABILITY OF FUTURE OCCURRENCES

As is the case for any governmental organization, there will always be the potential for impact for Wayne County. As such, the county will continue to be compelled to respond to cyberterrorisms in the future. The nature of these attacks is projected to evolve in sophistication over time. Wayne County will

take a proactive position in its cyber security efforts and is expected to remain vigilant in its efforts to prevent attacks from occurring and/or disrupting business operations.

The reality remains that many computers and networks in organizations of all sizes and industries around the United States will continue to suffer intrusion attempts on a daily basis from viruses and malware that are passed through web sites and emails. Again, the potential for harm via this hazard is always present.

G.2.15 Conclusions on Hazard Risk

The hazard profiles presented above were developed using best available data and result in what may be considered principally a qualitative assessment as recommended by FEMA in its "How-to" guidance document titled *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA Publication 386-2). It relies heavily on historical and anecdotal data, stakeholder input, and professional and experienced judgment regarding observed and/or anticipated hazard impacts. It also carefully considers the findings in other relevant plans, studies, and technical reports.

HAZARD EXTENT

Table G.26 describes the extent of each natural hazard identified for Wayne County. The extent of a hazard is defined as its severity or magnitude, as it relates to the planning area.

TABLE F.26: EXTENT OF WAYNE COUNTY HAZARDS

Flood-related Hazards	
Flood	Flood extent can be measured by the amount of land and property in the floodplain as well as flood height and velocity. The amount of land in the floodplain accounts for 15.0 percent of the total land area in Wayne County. Flood depth and velocity are recorded via United States Geological Survey stream gages throughout the region. While a gage does not exist for each participating jurisdiction, there is one at or near many areas. The greatest peak discharge recorded for the county was at the Chickasawhay River near Waynesboro in 1900. Water reached a discharge of 73,000 cubic feet per second and the stream gage height was recorded at 50.30 feet.
Erosion	The extent of erosion can be defined by the measurable rate of erosion that occurs. There are no erosion rate records located in Wayne County.
Dam Failure	Dam Failure extent is defined using the Mississippi Division of Environmental Quality criteria. There is one dam classified as high-hazard in the county.
Winter Storm and Freeze	The extent of winter storms can be measured by the amount of snowfall received (in inches). Official long-term snow records are not kept for Wayne County. However, the greatest snowfall reported in Jackson (northwest of the county) was 11.7 inches in 1904 and in Meridian (north of the county) was 14.0 inches in 1963.
Fire-related Hazards	

Drought / Heat Wave	Drought extent is defined by the U.S. Drought Monitor Classifications which include Abnormally Dry, Moderate Drought, Severe Drought, Extreme Drought, and Exceptional Drought. According to the U.S. Drought Monitor Classifications, the most severe drought condition is Exceptional. Wayne County has received this ranking once over the eighteen-year reporting period. The extent of extreme heat can be measures by the record high temperature recorded. Official long-term temperature records are not kept for any areas in Wayne County. However, the highest recorded temperature in Hattiesburg (southwest of the county) was 106°F in 1989.
Wildfire	Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2008-2018. The greatest number of fires to occur in Wayne County in any year was 57 in 2011. The greatest number of acres to burn in the county in a single year occurred in 2008 when 980 acres were burned. Although this data lists the extent that has occurred, larger and more frequent wildfires are possible throughout the county.
Geologic Hazards	
Earthquake	Earthquake extent can be measured by the Richter Scale and the Modified Mercalli Intensity (MMI) scale and the distance of the epicenter from Wayne County. According to data provided by the National Geophysical Data Center, no recorded earthquakes have been located in the county. However, USGS data shows Wayne County lies within an approximate zone of level .04 ground acceleration. This indicates that the county exists within an area of moderate seismic risk.
Landslide	As noted above in the landslide profile, there is no extensive history of landslides in Wayne County and landslide events typically occur in isolated areas. This provides a challenge when trying to determine an accurate extent for the landslide hazard. However, when using USGS landslide susceptibility index, extent can be measured with incidence, which is low throughout most of the county except for a small area of land in the northeast corner where it is moderate. There is also susceptibility throughout the county.
Expansive Soils	As noted above in the expansive soils profile, there is no historical record of significant expansive soil events in Wayne County. Again, this provides a challenge when trying to determine an accurate extent for the expansive soils hazard. However, when using USGS data on soils with clay swelling potential, extent can be measured with swelling potential, which is high in less than 50 percent of the soils Wayne County.
Wind-related Hazards	
Hurricane and Tropical Storm	Hurricane extent is defined by the Saffir-Simpson Scale which classifies hurricanes into Category 1 through Category 5. The greatest classification of hurricane to traverse directly through Wayne County was a Category 2 storm (Hurricane Frederic in 1979) which carried tropical force winds of 109 miles per hour upon arrival in the county.

Thunderstorm / Hail / Lightning	Thunderstorm extent is defined by the number of thunder events and wind speeds reported. According to a 63-year history from the National Centers for Environmental Information, the strongest recorded wind event in Wayne County was reported on March 3, 2008 at 74 knots (approximately 85 mph). It should be noted that future events may exceed these historical occurrences. Hail extent can be defined by the size of the hail stone. The largest hail stone reported in Wayne County was 1.75 inches (last reported on April 15, 2011). It should be noted that future events may exceed this. According to the Vaisala's flash density map, Wayne County is located in an area that experiences 6 to 8 lightning flashes per square kilometer per year. It should be noted that future lightning occurrences may exceed these figures.
Tornado	Tornado hazard extent is measured by tornado occurrences in the US provided by FEMA as well as the Fujita/Enhanced Fujita Scale. The greatest magnitude reported in Wayne County was an F4 (reported on February 28, 1987).
Other Hazards	
Hazardous Materials Incident	According to USDOT PHMSA, the largest hazardous materials incident reported in the county is 42 LGA released on the highway in Waynesboro. It should be noted that larger events are possible. A pipeline incident could have a potentially large impact in terms of extent. Based on recent history, the largest spill in the last 10 years in Mississippi caused over 10,000 barrels of hazardous liquid to be spilled. Because of the generally small-scale nature of most meth labs, the extent of a fire or explosion that was caused by a meth lab incident would likely not be larger than a few acres.
Cyber Attack	The extent of cyberterrorism is difficult to estimate. Attacks can originate from any computer to affect any other computer in the world. The resulting damages depends on the demands of the cyberterrorist.

PRIORITY RISK INDEX RESULTS

In order to draw some meaningful planning conclusions on hazard risk for Wayne County, the results of the hazard profiling process were used to generate countywide hazard classifications according to a "Priority Risk Index" (PRI). More information on the PRI and how it was calculated can be found in Section 5.16.2.

Table G.27 summarizes the degree of risk assigned to each category for all initially identified hazards based on the application of the PRI. Assigned risk levels were based on the detailed hazard profiles developed for this section, as well as input from the Regional Hazard Mitigation Council. The results were then used in calculating PRI values and making final determinations for the risk assessment.

TABLE G.27: SUMMARY OF PRI RESULTS FOR WAYNE COUNTY

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Flood-related Hazards						
Flood	Likely	Limited	Small	6 to 12 hours	Less than 24 hours	**2.4**
Erosion	Possible	Minor	Small	More than 24 hours	More than 1 week	**1.8**
Dam Failure	Unlikely	Critical	Moderate	More than 24 hours	Less than 6 hours	**2.0**
Winter Storm and Freeze	Possible	Limited	Large	More than 24 hours	Less than 24 hours	**2.3**
Fire-related Hazards						
Drought / Heat Wave	Highly Likely	Minor	Large	More than 24 hours	More than 1 week	**2.8**
Wildfire	Likely	Minor	Small	Less than 6 hours	Less than 1 week	**2.1**
Geologic Hazards						
Earthquake	Unlikely	Minor	Moderate	Less than 6 hours	Less than 6 hours	**1.7**
Landslide	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Expansive Soils	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Wind-related Hazards						
Hurricane and Tropical Storm	Likely	Catastrophic	Large	More than 24 hours	Less than 24 hours	**3.2**
Thunderstorm Wind / High Wind	Highly Likely	Limited	Moderate	Less than 6 hours	Less than 6 hours	**2.9**
Hailstorm	Likely	Minor	Small	Less than 6 hours	Less than 6 hours	**2.1**
Lighting	Highly Likely	Limited	Negligible	Less than 6 hours	Less than 6 hours	**2.5**
Tornado	Likely	Critical	Small	Less than 6 hours	Less than 6 hours	**2.7**
Other Hazards						
Hazardous Materials Incident	Unlikely	Limited	Small	Less than 6 hours	Less than 24 hours	**1.9**
Pipeline Incident	Possible	Limited	Small	Less than 6 hours	Less than 24 hours	**2.2**
Meth Lab Incident	Possible	Minor	Small	Less than 6 hours	Less than 6 hours	**1.8**
Cyber-Attack	Unlikely					

G.2.16 Final Determinations on Hazard Risk

The conclusions drawn from the hazard profiling process for Wayne County, including the PRI results and input from the Regional Hazard Mitigation Council, resulted in the classification of risk for each identified hazard according to three categories: High Risk, Moderate Risk, and Low Risk (**Table F.28**). For purposes of these classifications, risk is expressed in relative terms according to the estimated impact that a hazard will have on human life and property throughout all of Wayne County. A more quantitative analysis to estimate potential dollar losses for each hazard has been performed separately and is described in Section 6: *Vulnerability Assessment* and below in Section F.3. It should be noted that although some hazards are classified below as posing low risk, their occurrence of varying or

unprecedented magnitudes is still possible in some cases and their assigned classification will continue to be evaluated during future plan updates.

TABLE G.28: CONCLUSIONS ON HAZARD RISK FOR WAYNE COUNTY

HIGH RISK	Hurricane and Tropical Storm Thunderstorm Wind / High Wind Tornado Flood
MODERATE RISK	Drought / Heat Wave Dam Failure Lightning Hailstorm Pipeline Incident Hazardous Material Incident Wildfire
LOW RISK	Winter Storm and Freeze Expansive Soils Landslide Erosion Earthquake Meth Lab Incident Cyber Attack

G.3 WAYNE COUNTY VULNERABILITY ASSESSMENT

This subsection identifies and quantifies the vulnerability of Wayne County to the significant hazards previously identified. This includes identifying and characterizing an inventory of assets in the county and assessing the potential impact and expected amount of damages caused to these assets by each identified hazard event. More information on the methodology and data sources used to conduct this assessment can be found in Section 6: *Vulnerability Assessment*.

G.3.1 Asset Inventory

Table G.29 lists the number of parcels and the total assessed value of improvements for Wayne County and its participating jurisdictions (study area of vulnerability assessment).[17]

[17] Total assessed values for improvements is based on tax assessor records as joined to digital parcel data. This data does not include dollar figures for tax-exempt improvements such as publicly-owned buildings and facilities. It should also be noted that, due to record keeping, some duplication is possible thus potentially resulting in an inflated value exposure for an area.

TABLE G.29: IMPROVED PROPERTY IN WAYNE COUNTY

Location	Number of Parcels	Total Assessed Value of Improvements
Wayne County	9,627	$1,501,381,000

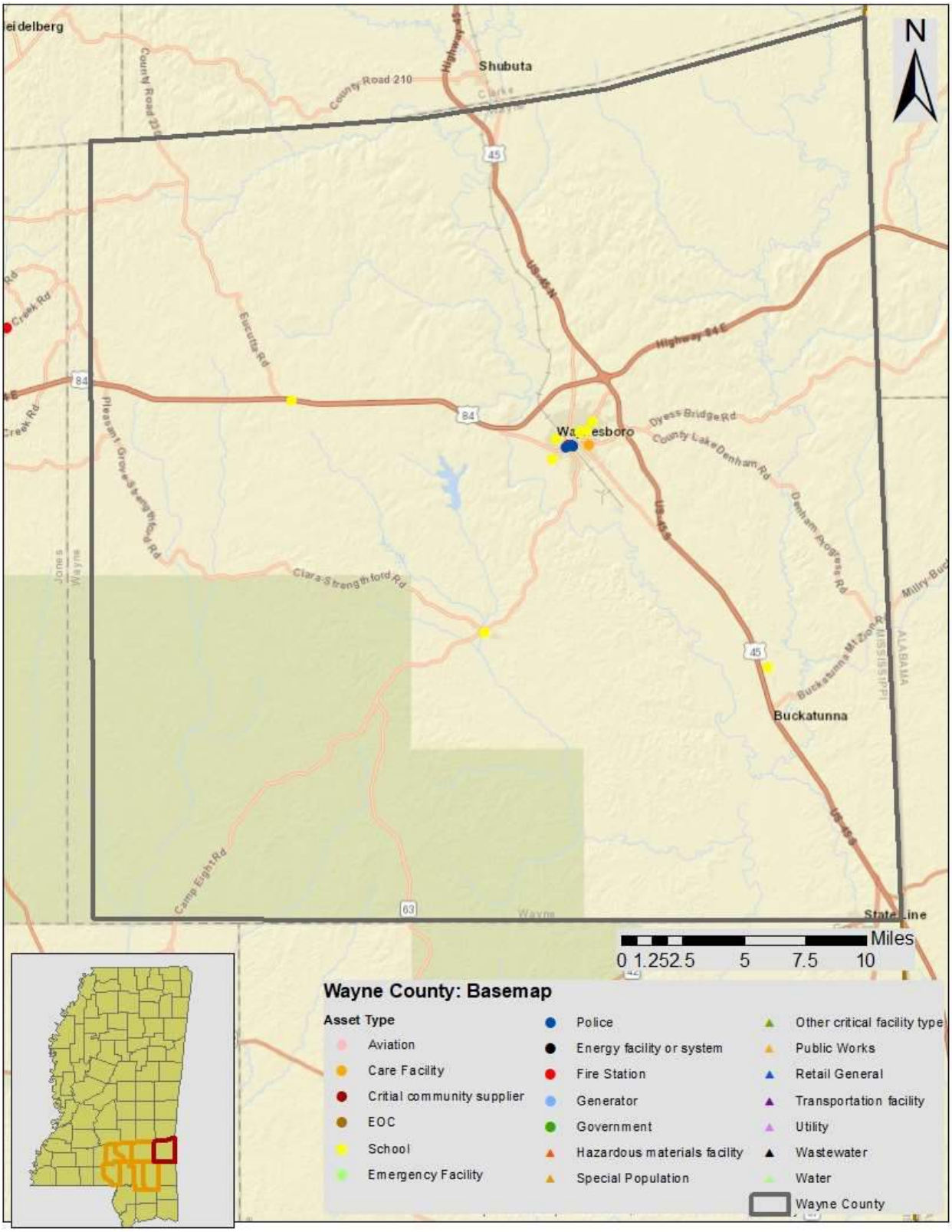
Table G.30 lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools and other critical facilities located in Wayne County. HAZUS-MH 4.2 was used to obtain the critical facilities for the county and this data was updated to reflect recent changes. In addition, **Figure G.11** shows the locations of essential facilities in Wayne County. **Table G.32**, near the end of this section, shows a complete list of the critical facilities by name, as well as the hazards that affect each facility. As noted previously, this list is not all-inclusive and only includes information provided by the county.

TABLE G.30: CRITICAL FACILITY INVENTORY IN WAYNE COUNTY

Location	Fire Stations	Police Stations	Medical Care Facilities	EOC	Schools
State Line	0	0	0	0	0
Waynesboro	2	2	1	1	8
Unincorporated Area	0	0	0	0	1
WAYNE COUNTY TOTAL	**2**	**2**	**1**	**1**	**9**

Source: HAZUS-MH 4.2

939 **FIGURE G.4: CRITICAL FACILITY LOCATIONS IN WAYNE COUNTY**



940
941 *Source: HAZUS-MH 4.2*
942

G.3.2 Social Vulnerability

In addition to identifying those assets potentially at risk to identified hazards, it is important to identify and assess those particular segments of the resident population in Wayne County that are potentially at risk to these hazards.

Table G.31 lists the population by jurisdiction according to U.S. Census 2010 population estimates. These counts are presented at the county and municipal levels. The total population in Wayne County according to Census data is 20,747 persons. Additional population estimates are presented above in Section G.1.

TABLE G.31: TOTAL POPULATION IN WAYNE COUNTY

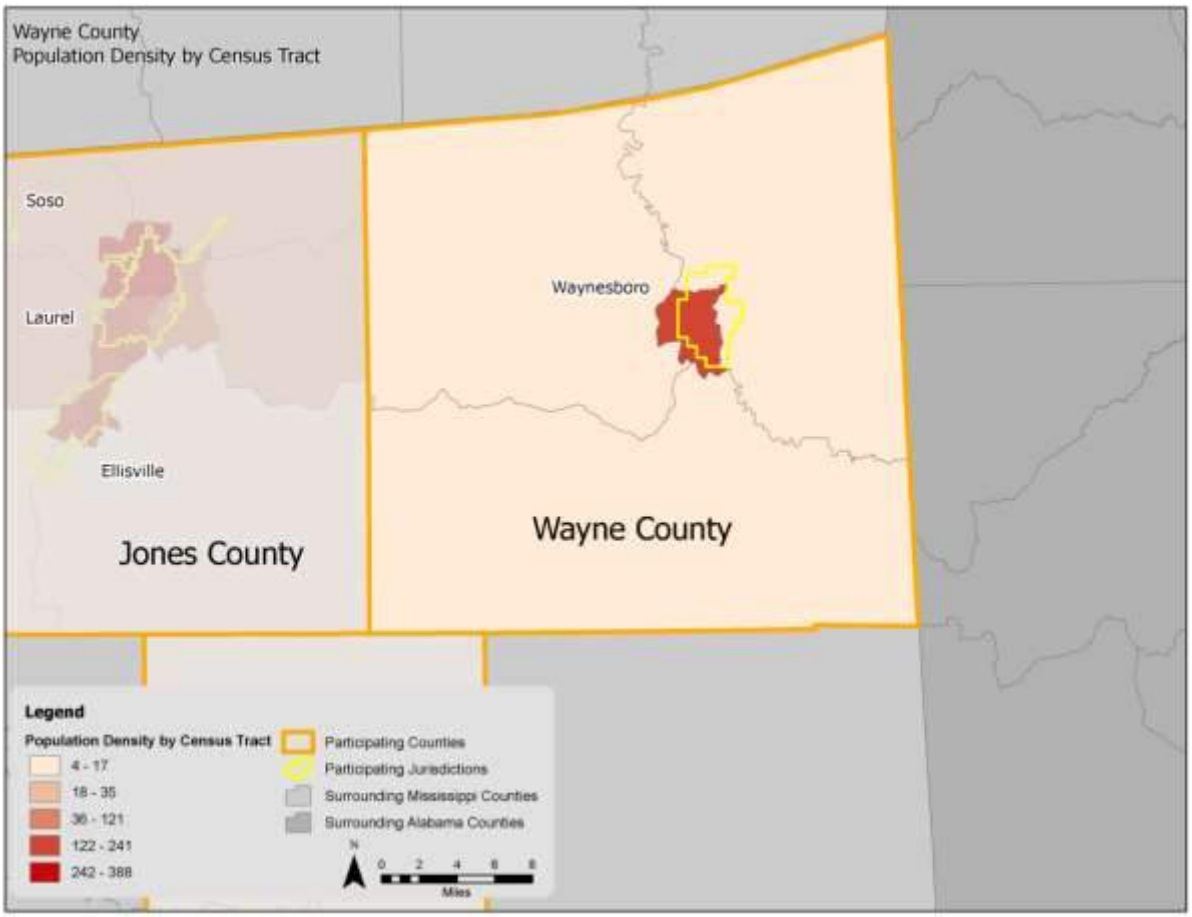
Location	Total 2010 Population
State Line	565
Waynesboro	5,043
Unincorporated Area	15,139
WAYNE COUNTY TOTAL	**20,747**

Source: U.S. Census 2010

In addition, **Figure G.12** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2010.[18]

[18] Population by census block was not available at the time this plan was completed.

FIGURE G.5: POPULATION DENSITY IN WAYNE COUNTY



Source: U.S. Census Bureau, 2010

G.3.3 Vulnerability Assessment Results

As noted in Section 6: *Vulnerability Assessment*, only hazards with a specific geographic boundary, available modeling tool, or sufficient historical data allow for further analysis. Those results, specific to Wayne County, are presented here. All other hazards are assumed to impact the entire planning region (drought, hailstorm, lightning, thunderstorm wind, tornado, and winter storm and freeze) or, due to lack of data, analysis would not lead to credible results (dam and levee failure, erosion, expansive soils, and landslide). The total county exposure, and thus risk, was presented in **Table G.29**.

The hazards to be further analyzed in this section include: flood, wildfire, earthquake, hurricane and tropical storm winds, and hazardous materials incident.

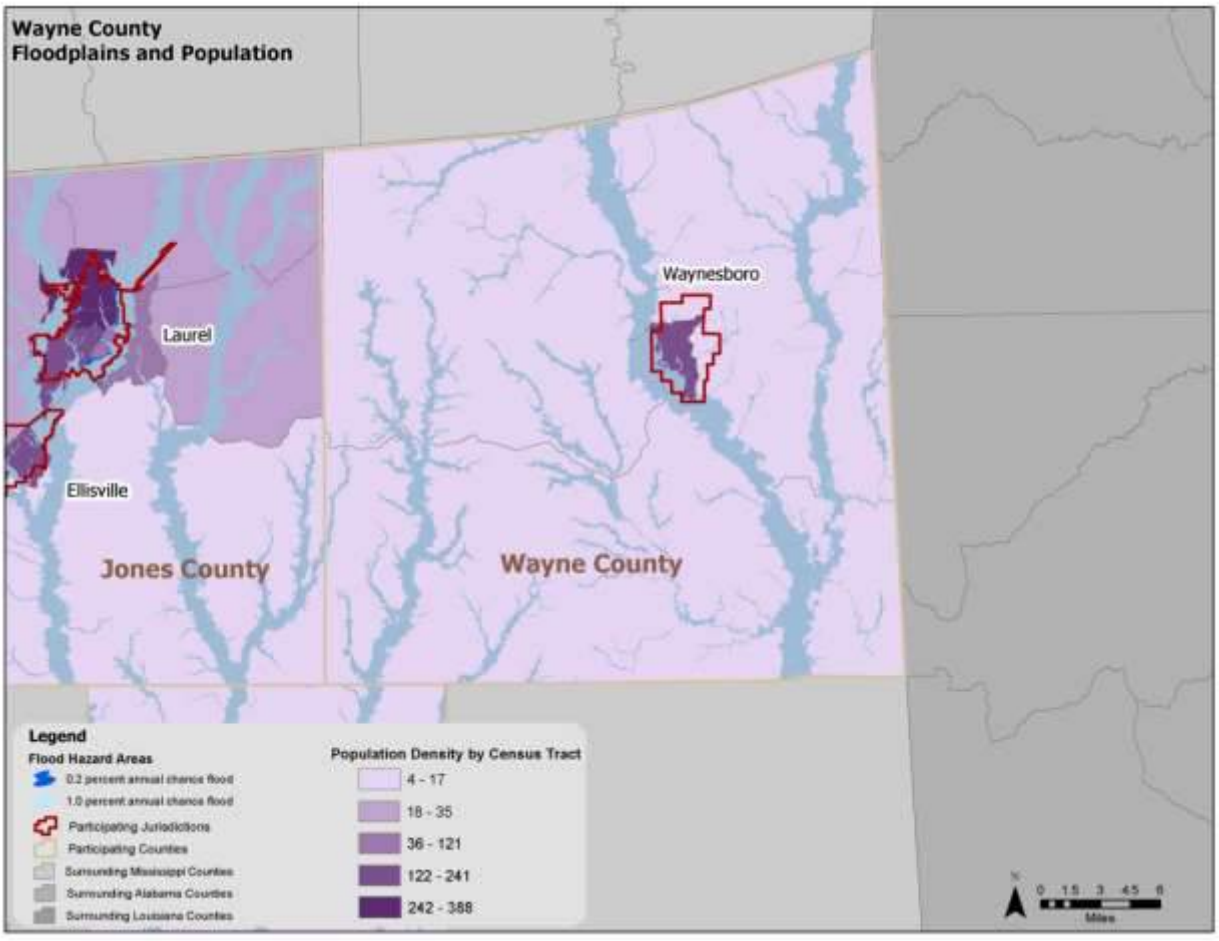
FLOOD

Historical evidence indicates that Wayne County is susceptible to flood events. A total of 18 flood events have been reported by the National Centers for Environmental Information resulting in $1.241M in damages.

Social Vulnerability

Since 2010 population was available at the tract level, it was difficult to determine a reliable figure on population at-risk to flood due to tract level population data. **Figure G.13** is presented to gain a better understanding of at-risk population. This information has not changed since the last plan update.

FIGURE G.13: POPULATION DENSITY NEAR FLOODPLAINS



Source: FEMA DFIRM, U.S. Census 2010

Critical Facilities

The critical facility analysis revealed that there are a no critical facilities located in the Wayne County 1.0-percent annual chance floodplain and 0.2-percent annual chance floodplain based on FEMA DFIRM boundaries and GIS analysis. A list of specific critical facilities and their associated risk can be found in **Table G.32** at the end of this section.

In conclusion, a flood has the potential to impact many existing and future buildings and populations in Wayne County, though some areas are at a higher risk than others. All types of structures in a floodplain are at-risk, though elevated structures will have a reduced risk. As noted, the floodplains used in this analysis include the 100-year and 500-year FEMA regulated floodplain boundaries. It is certainly possible that more severe events could occur beyond these boundaries or urban (flash) flooding could impact additional structures. Such site-specific vulnerability determinations are outside the scope of

this assessment but will be considered during future plan updates. Furthermore, areas subject to repetitive flooding should be analyzed for potential mitigation actions.

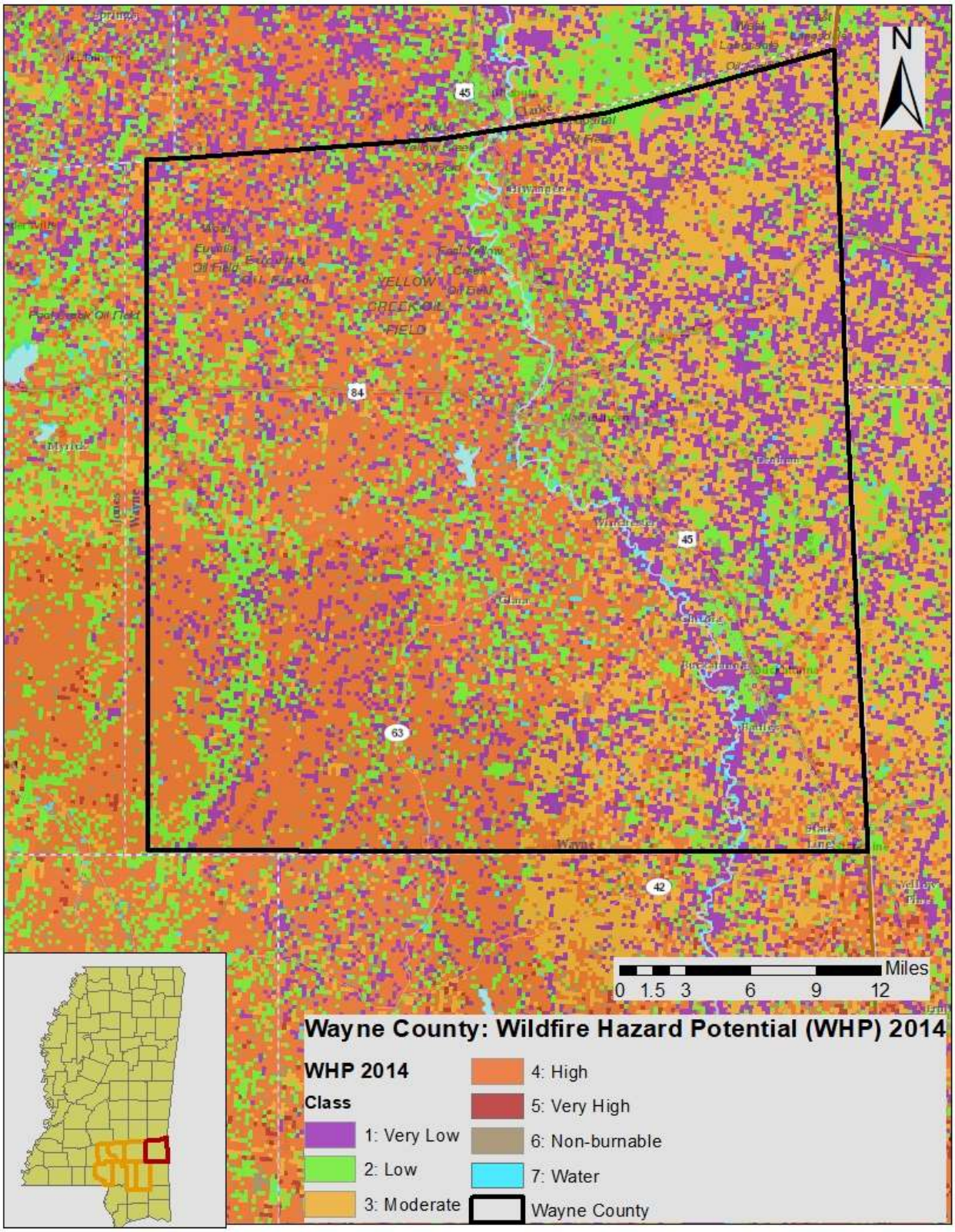
WILDFIRE

Although historical evidence indicates that Wayne County is susceptible to wildfire events, there are few reports of damage.

To estimate exposure to wildfire, the wildfire hazard potential (WHP 2014) data provided via the US Forest Service was utilized. A GIS analysis was performed with the WHP dataset and identified critical facilities throughout MEMA District 8 in order to show the level of vulnerability.

Figure A.14 shows the wildfire hazard potential for Covington County. Most of the planning areas falls within the very low to high category.

1017 **FIGURE G.6: WILDFIRE RISK AREAS IN WAYNE COUNTY**



1018
1019 *Source: U.S. Forrest Service*
1020

Social Vulnerability

Although not all areas have equal vulnerability, there is some susceptibility across the entire county. It is assumed that the total population is at risk to the wildfire hazard. Determining the exact number of people in certain wildfire zones is difficult with existing data and could be misleading.

Critical Facilities

The critical facility analysis revealed that there is one critical facility located in an area considered very low risk valued at over $5.8M. There are three critical facilities located in an area considered low risk valued at nearly $28M, and there is an additional structure located in an area considered high risk valued at $4.7M. It should be noted, however, that several factors could impact the spread of a wildfire putting all facilities at risk. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

In conclusion, a wildfire event has the potential to impact many existing and future buildings, critical facilities, and populations in Wayne County.

EARTHQUAKE

The HAZUS-MH earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS-MH model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS-MH 4.2 estimates a total exposure of approximately $20,561,000 which includes buildings, inventory, and contents throughout the region. While this number is not an exact representation of assessed tax value, it is helpful in assessing the results of the HAZUS-MH scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS-MH estimates that no buildings would be moderately damaged.

Social Vulnerability

It can be assumed that all existing future populations are at risk to the earthquake hazard. No fatalities or injuries were reported in the above HAZUS-MH arbitrary scenario.

Critical Facilities

There are 15 critical facilities identified for Covington County, valued at $77,706,036. All are vulnerable to the earthquake hazard.

In conclusion, an earthquake has the potential to impact all existing and future buildings, facilities, and populations in Wayne County. The HAZUS-MH scenario indicates that minimal damage is expected from an earthquake occurrence. While Wayne County may not experience a large earthquake (there are none on record), localized damage is possible with an occurrence. A list of specific critical facilities and their associated risk can be found in **Table G.32** at the end of this section.

HURRICANE AND TROPICAL STORM

Historical evidence indicates that Wayne County has an elevated risk to the hurricane and tropical storm hazard. Several tracks have come near or traversed through the county, as shown and discussed in Section G.2.10.

Hurricanes and tropical storms can cause damage through numerous additional hazards such as flooding, erosion, tornadoes, and high winds, thus it is difficult to estimate total potential losses from these cumulative effects. The current HAZUS-MH hurricane model only analyzes hurricane winds and is not capable of modeling and estimating cumulative losses from all hazards associated with hurricanes; therefore, only hurricane winds are analyzed in this section. It can be assumed that all existing and future buildings and populations are at risk to the hurricane and tropical storm hazard. HAZUS-MH 4.2 was used to determine vulnerability to the hazard for a 100-Year event. There are an estimated 100,000 buildings in the region with a total building replacement value of $20,562,000. A 100-year probabilistic scenario was created and modeled. HAZUS-MH estimated that approximately 1,892 buildings would be at least moderately damaged by the event; this is over two percent of the buildings in the Region. There are an estimated 69 buildings that would be damaged beyond repair.

Economic Losses

HAZUS-MH estimated economic losses for the scenario event. HAZUS-MH estimated losses at $349.5M, which represents 1.7 percent of the total replacement value of the region's buildings. Nine percent of the losses were related to business interruption in the scenario region. 88 percent of the losses were sustained by residential structures.

Debris Generation

As part of the scenario, HAZUS-MH estimated the amount of debris that would be generated by the event. The types of debris considered were brick/wood, reinforced concrete/steel, eligible tree debris, and other tree debris. HAZUS-MH estimated that a total of 2,165,680 tons of debris would be generated by the event. Of that amount, 93 percent would be other tree debris, approximately 1.5 percent would be brick/wood, and the rest would comprise of would be eligible tree debris and brick/wood. Assuming a load of 25 tons per truck, this would equate to 1,190 truckloads of debris from this scenario.

Social Vulnerability

Given equal susceptibility across the county, it is assumed that the total population is at risk to the hurricane and tropical storm hazard.

Critical Facilities

Given equal vulnerability across Wayne County, all critical facilities are considered to be at risk. There are 15 critical facilities identified for Wayne County, valued at $77,706,036. Some buildings may perform better than others in the face of such an event due to construction and age, among other factors. In general, determining individual building response is beyond the scope of this plan. However, this plan will consider mitigation actions for vulnerable structures, including critical facilities, to reduce the impacts of the hurricane wind hazard. A list of specific critical facilities and their associated risk can be found in **Table G.32** at the end of this section.

In conclusion, a hurricane event has the potential to impact many existing and future buildings, critical facilities, and populations in Wayne County. Hurricane events can cause substantial damage in their wake including fatalities, extensive debris clean-up, and extended power outages.

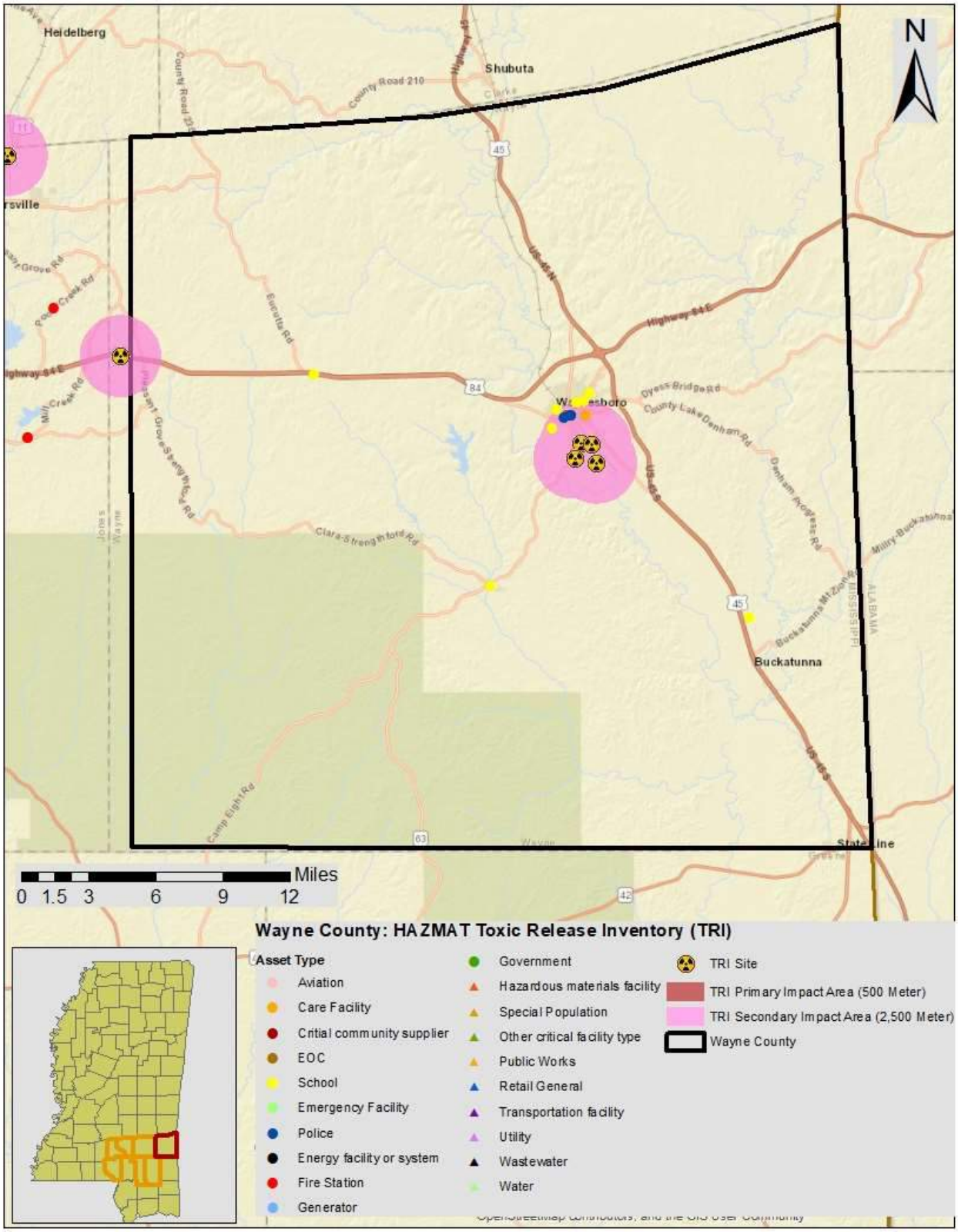
HAZARDOUS MATERIALS INCIDENT

Although historical evidence and existing Toxic Release Inventory sites indicate that Wayne County is susceptible to hazardous materials events, there are few reports of damage.

Most hazardous materials incidents that occur are contained and suppressed before destroying any property or threatening lives. However, they can have a significant negative impact. Such events can cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. In a hazardous materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions will directly affect how the hazard develops. Certain chemicals may travel through the air or water, affecting a much larger area than the point of the incidence itself. Non-compliance with fire and building codes, as well as failure to maintain existing fire and containment features, can substantially increase the damage from a hazardous materials release. The duration of a hazardous materials incident can range from hours to days. Warning time is minimal to none.

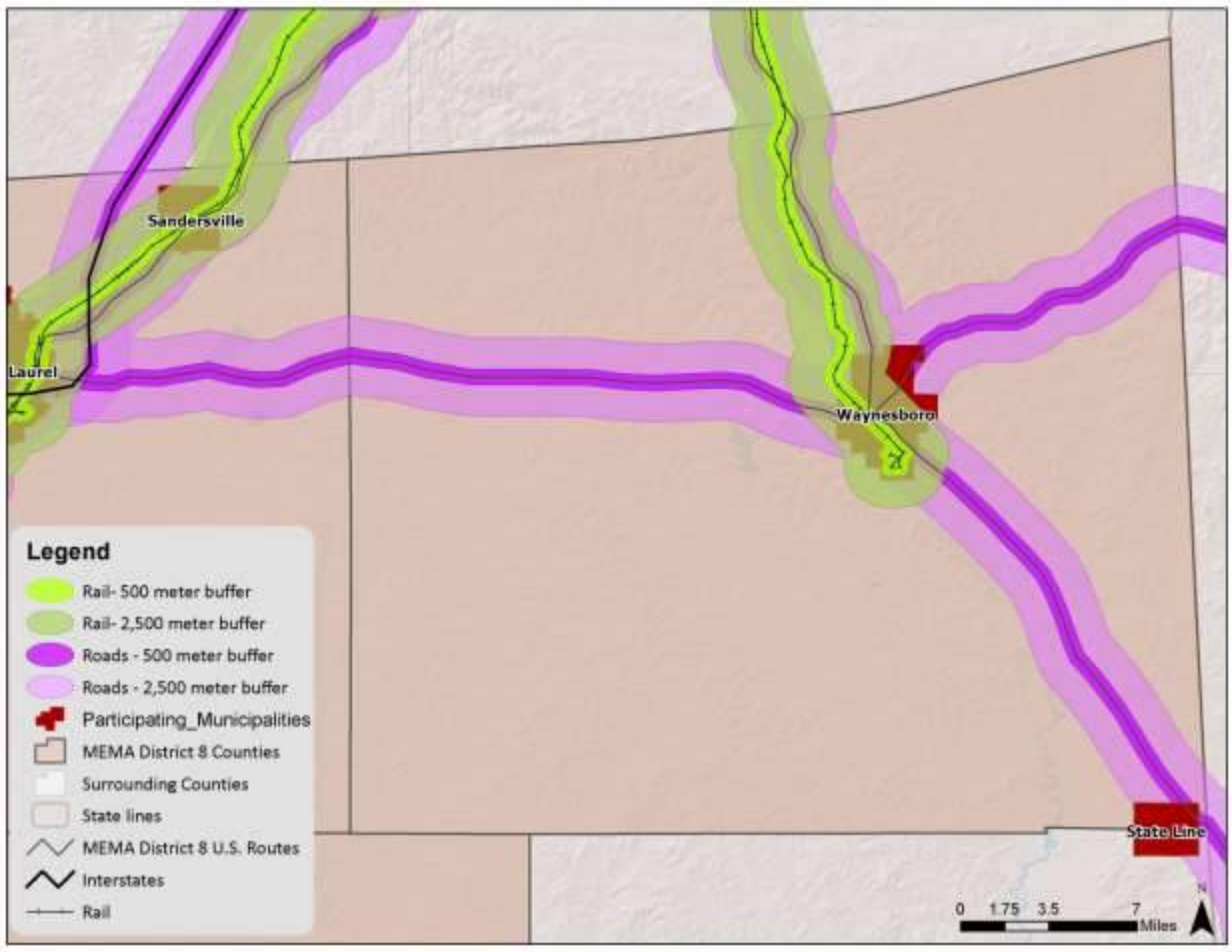
In order to conduct the vulnerability assessment for this hazard, GIS analysis was used for fixed and mobile areas. In both scenarios, two sizes of buffers—500 and 2,500 meters—were used. These areas are assumed to respect the different levels of effect: immediate (primary) and secondary. Primary and secondary impact sites were selected based on guidance from FEMA 426, Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings and engineering judgment. For the fixed site analysis, geo-referenced TRI listed toxic sites in Wayne County, along with buffers, were used for analysis as shown in **Figure G.15.** For the mobile analysis, the major roads (Interstate highway, U.S. highway, and State highway) and railroads, where hazardous materials are primarily transported that could adversely impact people and buildings, were used for the GIS buffer analysis. **Figure G.16** shows the areas used for mobile toxic release buffer analysis. The mobile toxic release buffer data did not change since the last plan update.

1143 **FIGURE G.7: TRI SITES WITH BUFFERS IN WAYNE COUNTY**



1144
1145 *Source: EPA*
1146

FIGURE G.8: MOBILE HAZMAT BUFFERS IN WAYNE COUNTY



Social Vulnerability

Given high susceptibility across the entire county, it is assumed that the total population is at risk to a hazardous materials incident. It should be noted that areas of population concentration may be at an elevated risk due to a greater burden to evacuate population quickly.

Critical Facilities

Fixed Site Analysis:

The critical facility analysis for fixed TRI sites revealed that there are no critical facilities that would be impacted by only the 500M HAZMAT risk zone. There are ten critical facilities that would be impacted by the 2500M HAZMAT risk zone, valued at over $37M. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

Mobile Analysis:

The critical facility analysis for transportation corridors in Wayne County revealed that there are 13 critical facilities located in the 500M Highway mobile HAZMAT buffer areas valued at nearly $70M, and there are seven critical facilities located in the 500M Railway mobile HAZMAT buffer areas valued at approximately $6.6M.

Expanding to a 2500M HAZMAT risk zone reveals that there are 14 critical facilities located in the highway mobile HAZMAT buffer areas are vulnerable, valued at $71.8M. There are 13 critical facilities located in the railway mobile HAZMAT buffer area that are vulnerable, valued at over $67M. A list of specific critical facilities and their associated risk can be found in **Table A.32** at the end of this section.

In conclusion, a hazardous material incident has the potential to impact many existing and future buildings, critical facilities, and populations in Wayne County. Those areas in a primary buffer are at the highest risk, though all areas carry some vulnerability due to variations in conditions that could alter the impact area (i.e., direction and speed of wind, volume of release, etc). Further, incidents from neighboring counties could also impact the county and participating jurisdictions.

CONCLUSIONS ON HAZARD VULNERABILITY

Table G.32 shows the critical facilities vulnerable to additional hazards analyzed in this section. The table lists those assets that are determined to be exposed to each of the identified hazards (marked with an "**X**").

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TABLE G.32: AT-RISK CRITICAL FACILITIES IN WAYNE COUNTY

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[19]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Wayne County																					
BUCKATUNNA ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X									X			High
BEAT FOUR ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X								X	X			High
CLARA ELEMENTARY SCHOOL	School	X	X	X	X	X		X	X												Very Low
WAYNE ACADEMY	School	X	X	X	X	X		X	X									X	X	X	Low
WAYNE CO VOCATIONAL COMPLEX	School	X	X	X	X	X	X	X	X							X	X	X		X	Non-burnable
WAYNE COUNTY ALTERNATIVE SCHOOL	School	X	X	X	X	X	X	X	X							X	X	X		X	Non-burnable
Wayne County Civil Defense	Emergency Facility	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
WAYNE COUNTY HIGH SCHOOL	School	X	X	X	X	X	X	X	X								X	X		X	Low
Wayne County Sheriff	Police Station	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
Wayne County VFD	Fire Department	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
WAYNE GENERAL HOSPITAL	Care Facility	X	X	X	X	X		X	X							X	X	X		X	Non-burnable
WAYNESBORO ELEMENTARY SCH	School	X	X	X	X	X	X	X	X								X	X		X	Non-burnable

[19] As noted previously, these facilities could be at risk to dam failure if located in an inundation area. Data was not available to conduct such an analysis. There was no local knowledge of these facilities being at risk to dam failure. As additional data becomes available, more in-depth analysis will be conducted.

		ATMOSPHERIC							GEOLOGIC			HYDROLOGIC			OTHER						
FACILITY NAME	FACILITY TYPE	Drought	Hailstorm	Hurricane and Tropical Storm	Lightning	Thunderstorm	Tornado	Winter Storm and Freeze	Earthquake	Landslide – Mod	Landslide- High	Dam and Levee Failure[19]	Flood – 100 yr	Flood – 500 yr	Fixed HAZMAT 500m	Fixed HAZMAT 2,500 meter	Mobile HZMT Roads 500 METER	Mobile HZMT Roads 2,500 meter	Mobile HZMT Rails 500 METER	Mobile HZMT Rails 2,500 meter	Wildfire
Waynesboro Fire Department	Fire Department	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
WAYNESBORO MIDDLE SCHOOL	School	X	X	X	X	X		X	X							X	X	X		X	Low
Waynesboro Police Clerk	Police Station	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable
Waynesboro Police Dept	Police Station	X	X	X	X	X	X	X	X							X	X	X	X	X	Non-burnable

G.4 WAYNE COUNTY CAPABILITY ASSESSMENT

This subsection discusses the capability of Wayne County to implement hazard mitigation activities. More information on the purpose and methodology used to conduct the assessment can be found in Section 7: *Capability Assessment*.

G.4.1 Planning and Regulatory Capability

Table G.32 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for Wayne County. A checkmark (✓) indicates that the given item is currently in place and being implemented. An asterisk (*) indicates that the given item is currently being developed for future implementation. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the MEMA District 8 Regional Hazard Mitigation Plan.

TABLE G.32: RELEVANT PLANS, ORDINANCES, AND PROGRAMS

Planning Tool/Regulatory Tool	Hazard Mitigation Plan	Comprehensive Land Use Plan	Floodplain Management Plan	Open Space Management Plan (Parks & Rec/Greenway Plan	Stormwater Management Plan/Ordinance	Natural Resource Protection Plan	Flood Response Plan	Emergency Operations Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	National Flood Insurance Program (NFIP)	NFIP Community Rating System
WAYNE COUNTY	✓			✓				✓	✓	✓			✓		✓							✓	
State Line	✓			✓				✓	✓	✓			✓		✓							✓	
Waynesboro	✓	✓		✓	✓			✓	✓	✓		✓	✓		✓	✓	✓		✓	✓	✓	✓	

A more detailed discussion on the county's planning and regulatory capabilities follows.

EMERGENCY MANAGEMENT

Hazard Mitigation Plan
Wayne County has previously adopted a hazard mitigation plan. The Town of State Line and the City of Waynesboro were also included in this plan.

Emergency Operations Plan
Wayne County maintains an emergency operations plan through its Emergency Management Agency. The Town of State Line and the City of Waynesboro are each covered by this plan.

GENERAL PLANNING

Comprehensive Land Use Plan
Wayne County has not adopted a county comprehensive land use plan. However, the City of Waynesboro adopted a city comprehensive plan that was adopted in 1998.

Zoning Ordinance
Wayne County does not have a zoning ordinance in place. However, the City Waynesboro has a zoning ordinance that was adopted in 1998.

Subdivision Ordinance
Wayne County does not have a subdivision ordinance in place. However, the City of Waynesboro adopted subdivision regulations concurrently with its zoning ordinance in 1998.

Building Codes, Permitting, and Inspections
Wayne County and the City of Waynesboro have both adopted building codes.

FLOODPLAIN MANAGEMENT

Table G.33 provides NFIP policy and claim information for each participating jurisdiction in Wayne County.

TABLE G.33: NFIP POLICY AND CLAIM INFORMATION

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance in Force	Closed Claims	Total Payments to Date
WAYNE COUNTY†	8/16/88	7/18/11	44	$6,960,900	6	$117,636
State Line	8/19/85	7/18/11(M)	1	$22,900	1	$6,924
Waynesboro	8/16/88	7/18/11	32	$3,136,500	17	$134,036

†Includes unincorporated areas of county only
(M) – No Elevation Determined, All Zone A, C and X
Source: NFIP Community Status information as of 3/31/13; NFIP claims and policy information as of 5/15/13

Flood Damage Prevention Ordinance
All communities participating in the NFIP are required to adopt a local flood damage prevention ordinance. Wayne County, the Town of State Line, and the City of Waynesboro all participate in the NFIP and have adopted flood damage prevention ordinances.

Open Space Management Plan
Wayne County, the Town of State Line, and the City of Waynesboro all included in the Southern Mississippi Planning and Development District (SMPDD) Regional Open Space Plan that was written in 1973.

G.4.2 Administrative and Technical Capability

Table G.34 provides a summary of the capability assessment results for Wayne County with regard to relevant staff and personnel resources. A checkmark (✓) indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill.

TABLE G.34: RELEVANT STAFF / PERSONNEL RESOURCES

Staff / Personnel Resource	Planners with knowledge of land development/land management practices	Engineers or professionals trained in construction practices related to buildings and/or infrastructure	Planners or engineers with an understanding of natural and/or human-caused hazards	Emergency Manager	Floodplain Manager	Land Surveyors	Scientists familiar with the hazards of the community	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS and/or Hazus	Resource development staff or grant writers
WAYNE COUNTY		✓	✓	✓	✓	✓	✓	✓	✓	
State Line		✓	✓	✓		✓	✓	✓	✓	
Waynesboro		✓	✓	✓	✓	✓	✓	✓	✓	

Credit for having a floodplain manager was given to those jurisdictions that have a flood damage prevention ordinance, and therefore an appointed floodplain administrator, regardless of whether the appointee was dedicated solely to floodplain management. Credit was given for having a scientist familiar with the hazards of the community if a jurisdiction has a Cooperative Extension Service or Soil and Water Conservation Department. Credit was also given for having staff with education or expertise to assess the community's vulnerability to hazards if a staff member from the jurisdiction was a participant on the existing hazard mitigation plan's planning committee.

G.4.3 Fiscal Capability

Table G.35 provides a summary of the results for Wayne County with regard to relevant fiscal resources. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard mitigation purposes (including match funds for state and federal mitigation grant funds) according to the previous county hazard mitigation plan.

TABLE G.35: RELEVANT FISCAL RESOURCES

Fiscal Tool / Resource	Capital Improvement Programming	Community Development Block Grants (CDBG)	Special Purpose Taxes (or taxing districts)	Gas/Electric Utility Fees	Water/Sewer Fees	Stormwater Utility Fees	Development Impact Fees	General Obligation, Revenue, and/or Special Tax Bonds	Partnering Arrangements or Intergovernmental Agreements
WAYNE COUNTY	✓	✓	✓	✓	✓			✓	✓
State Line	✓	✓	✓	✓	✓			✓	✓
Waynesboro	✓	✓	✓	✓	✓			✓	✓

G.4.4 Political Capability

During the months immediately following a disaster, local public opinion in Wayne County is more likely to shift in support of hazard mitigation efforts.

G.5 WAYNE COUNTY MITIGATION STRATEGY

This subsection provides the blueprint for Wayne County to follow in order to become less vulnerable to its identified hazards. It is based on general consensus of the Regional Hazard Mitigation Council and the findings and conclusions of the capability assessment and risk assessment. Additional Information can be found in Section 8: *Mitigation Strategy* and Section 9: *Mitigation Action Plan*.

G.5.1 Mitigation Goals

Wayne County developed five mitigation goals in coordination with the other participating MEMA District 8 Region jurisdictions. The regional mitigation goals are presented in **Table G.36**.

TABLE G.36: MEMA DISTRICT 8 REGIONAL MITIGATION GOALS

	Goal
Goal #1	Develop a sustainable, comprehensive mitigation program to ensure safer communities.
Goal #2	Reduce or avoid loss of life, injury, and damage to property, the economy, and the environment.
Goal #3	Enhance preparedness and effective response to hazards.

	Goal
Goal #4	Strengthen and improve local mitigation capabilities.
Goal #5	Increase public awareness of hazard mitigation, hazard risk, and protective measures that can be taken to minimize potential loss and damage.

G.5.2 Mitigation Action Plan

The mitigation actions proposed by Wayne County, the Town of State Line, and the City of Waynesboro are listed in the following individual Mitigation Action Plans.

Wayne County Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	County	Annual review	Action ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA	Within 1 year; Upon request	Action ongoing
P-3	Consider adoption of flood damage prevention ordinance in Wayne County.	FL	High	Self-funded	No cost	County, County Floodplain Administrator	Ongoing	Action ongoing. Implemented 2011.
P-4	Consider adoption of subdivision regulations in Wayne County.	TH, FL, HU, TS	Medium	Self-funded	No cost	County	Ongoing	Deferred
P-5	Monitor flood levels of local rivers.	FL	High	HMGP	Unknown	County	Within 5 years	Action ongoing
P-6	Continue to maintain and upgrade drainage facilities within the County.	HU, TS, FL, BH	High	Self-funded	Unknown	County	Within 2 years; Next round of HMGP funding; Annual review	Action ongoing. Some progress implemented- clean out ditches annually.
P-7	Consider adoption of a comprehensive drainage plan.	HU, TS, FL, NH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Annual review	Deferred. Waynesboro is mapping drainage areas and it will include elevations, cross sections, and flow directions.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-8	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	County	Within 5 years	Action ongoing
P-9	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Ongoing	Completed September 2019
P-10	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	County	Within 2 years	Action ongoing
P-11	Develop a comprehensive plan.	All	High	CDBG, MSDA	Unknown	County		Completed. Delete
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	County	Within 5 years	Action ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County	Within 3 years	Action ongoing
PP-3	Continue to retrofit public buildings to withstand natural hazards such as hurricanes and flooding.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Action ongoing
PP-4	Ensure that public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO	High	Self-funded	No additional cost	County	Within 1 year	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County	Within 2 years; Next round of HMGP funding	Action ongoing
PP-6	Elevation and Acquisition of Flood prone structures	FL	Medium	HMA, MEMA	TBD	County	2024	New
PP-7	Generators and hook-ups for critical facilities	TH, HU, TS, TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-8	Warning sirens throughout planning area	TH, TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-9	Individual saferooms throughout planning area	TO	Medium	HMA, MEMA	$5,000+	County	2024	New
PP-10	361 Saferooms were needed-location is TBD	TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-11	Elevation of critical facilities, such as pumps, and equipment	FL	Medium	HMA, MEMA	TBD	County	2024	New
PP-12	Floodproofing measures for critical facilities prone to flood	FL	Medium	HMA, MEMA	TBD	County	2024	New
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Medium	Donation	Low or no cost	MS Land Trust, Land Trust for the MS Coastal Plain, County	Within 5 years	Action ongoing
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Within 2 years	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County SD, County VFDs	Within 2 years	Action ongoing. Waynesboro has reverse call back system in place as of 2018.
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters and adding safe rooms.	All	High	HMGP	Unknown	County EMA	Within 2 years	Action ongoing
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA	Within 2 years	Action ongoing
ES-5	Improve disaster communication systems within the County.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing. MSWINN at Fire Department and all use social media.
ES-6	Explore establishment of a County-wide central dispatch system.	All	High	HMGP	Unknown	County EMA		Action completed. Delete
ES-7	Ensure that emergency sirens are in place county-wide.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-8	Install warning informers in buildings that house vulnerable populations.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-9	Install Alert FM service at radio station.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action completed
ES-10	Upgrade Emergency Broadcast System capabilities.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	HU, TS	Medium	Self-funded	No additional cost	County	Within 2 years	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	HU, TS	Medium	Self-funded	No additional cost	County	Within 1 year	Action ongoing
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County	Within 2 years; Next round of HMGP funding	Action ongoing
ES-14	Host a meeting to review Wayne County Comprehensive Emergency Management Plan.	TT	High	Self-funded	No additional cost	County LEPC, County	Within 2 years; Next round of HMGP funding	Action ongoing
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County	Ongoing	Action ongoing
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County	Within 2 years	Action ongoing
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	County	Within 2 years	Action ongoing
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Within 1 year	Action ongoing
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA, County Fire Coordinator	Within 1 year; Annual presentations	Action ongoing
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL; Multiple	High	Self-funded	No additional cost	County EMA	Upon request	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-5	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	County	Within 2 years	Action ongoing
PEA-6	Education and outreach regarding drought and water conservation procedures	All	Medium	Self-funded	Low or no cost	County	2024	New

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

County EMA = Wayne County Emergency Management Agency County SD = Wayne County Sheriff's Dept. County VFD = Wayne County Volunteer Fire Dept. County LEPC = Wayne County Local Emergency Planning Committee

Town of State Line Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High	N/A	No additional cost	Town	Annual review	Action ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA	Within 1 year; Upon request	Action ongoing
P-3	Consider adoption of flood damage prevention ordinance in Wayne County.	FL	High	Self-funded	No additional cost	County, County Floodplain Administrator	Ongoing	Action ongoing. Implemented 2011.
P-4	Consider adoption of subdivision regulations in Wayne County.	TH, FL, HU, TS	Medium	Self-funded	No cost	County	Ongoing	Deferred
P-5	Monitor flood levels of local rivers.	FL	High	HMGP	Unknown	Town	Within 5 years	Action ongoing
P-6	Continue to maintain and upgrade drainage facilities within the County.	HU, TS, FL, BH	High	Self-funded	Unknown	Town	Within 2 years; Next round of HMGP funding; Annual review	Action ongoing. Some progress implemented- clean out ditches annually.
P-7	Consider adoption of a comprehensive drainage plan.	HU, TS, FL, NH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	Town	Annual review	Deferred. Waynesboro is mapping drainage areas and it will include elevations, cross sections, and flow directions.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-8	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	Town	Within 5 years	Action ongoing
P-9	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Ongoing	Completed September 2019
P-10	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	Town	Within 2 years	Action ongoing
P-11	Develop a comprehensive plan.	All	High	CDBG, MSDA	Unknown	Town		Completed. Delete
Property Protection								
PP-1	Promote alternative construction techniques such as the building of “safe rooms” in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	Town	Within 5 years	Action ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, Town	Within 3 years	Action ongoing
PP-3	Continue to retrofit public buildings to withstand natural hazards such as hurricanes and flooding.	All	High	HMGP	Unknown	Town	Within 2 years; Next round of HMGP funding	Action ongoing
PP-4	Ensure that public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO	High	Self-funded	No additional cost	Town	Within 1 year	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, Town	Within 2 years; Next round of HMGP funding	Action ongoing
PP-6	Elevation and Acquisition of Flood prone structures	FL	Medium	HMA, MEMA	TBD	County	2024	New
PP-7	Generators and hook-ups for critical facilities	TH, HU, TS, TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-8	Warning sirens throughout planning area	TH, TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-9	Individual saferooms throughout planning area	TO	Medium	HMA, MEMA	$5,000+	County	2024	New
PP-10	361 Saferooms were needed-location is TBD	TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-11	Elevation of critical facilities, such as pumps, and equipment	FL	Medium	HMA, MEMA	TBD	County	2024	New
PP-12	Floodproofing measures for critical facilities prone to flood	FL	Medium	HMA, MEMA	TBD	County	2024	New
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Medium	Donation	Low or no cost	MS Land Trust, Land Trust for the MS Coastal Plain, Town	Within 5 years	Action ongoing
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Within 2 years	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County SD, County VFDs	Within 2 years	Action ongoing. Waynesboro has reverse call back system in place as of 2018.
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters and adding safe rooms.	All	High	HMGP	Unknown	County EMA	Within 2 years	Action ongoing
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA	Within 2 years	Action ongoing
ES-5	Improve disaster communication systems within the County.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing. MSWINN at Fire Department and all use social media.
ES-6	Explore establishment of a County-wide central dispatch system.	All	High	HMGP	Unknown	County EMA		Action completed. Delete
ES-7	Ensure that emergency sirens are in place county-wide.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-8	Install warning informers in buildings that house vulnerable populations.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-9	Install Alert FM service at radio station.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action completed
ES-10	Upgrade Emergency Broadcast System capabilities.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	HU, TS	Medium	Self-funded	No additional cost	Town	Within 2 years	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	HU, TS	Medium	Self-funded	No additional cost	Town	Within 1 year	Action ongoing
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County, Town	Within 2 years; Next round of HMGP funding	Action ongoing
ES-14	Host a meeting to review Wayne County Comprehensive Emergency Management Plan.	TT	High	Self-funded	No additional cost	County LEPC, County, Town	Within 2 years; Next round of HMGP funding	Action ongoing
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, Town	Ongoing	Action ongoing
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, Town	Within 2 years	Action ongoing
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	Town	Within 2 years	Action ongoing
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Within 1 year	Action ongoing
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA, County Fire Coordinator	Within 1 year; Annual presentations	Action ongoing
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL; Multiple	High	Self-funded	No additional cost	County EMA	Upon request	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-5	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	Town	Within 2 years	Action ongoing
PEA-6	Education and outreach regarding drought and water conservation procedures	All	Medium	Self-funded	Low or no cost	County	2024	New

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

County EMA = Wayne County Emergency Management Agency County SD = Wayne County Sheriff's Dept. County VFD = Wayne County Volunteer Fire Dept. County LEPC = Wayne County Local Emergency Planning Committee

City of Waynesboro Mitigation Action Plan

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
Prevention								
P-1	Identify high risk areas where hazards are most likely to occur.	All	High		No additional cost	City	Annual review	Action ongoing
P-2	Site-locate vulnerable population on a County-wide map.	Multiple	High	Area Agency on Aging, USDA Rural Dev., COPS, FIRE	Unknown	County EMA	Within 1 year; Upon request	Action ongoing
P-3	Strictly enforce the flood damage prevention ordinance.	FL	High	Self-funded	No additional cost	City Floodplain Administrator	Ongoing	Action ongoing. Implemented 2011.
P-4	Strictly enforce subdivision regulations concerning developments in flood hazard areas.	TH, FL, HU, TS	Medium	Self-funded	No additional cost	City	Ongoing	Deferred
P-5	Monitor flood levels of local rivers.	FL	High	HMGP	Unknown	City	Within 5 years	Action ongoing
P-6	Continue to maintain and upgrade drainage facilities within the County.	HU, TS, FL, BH	High	Self-funded	Unknown	City	Within 2 years; Next round of HMGP funding; Annual review	Action ongoing. Some progress implemented- clean out ditches annually.
P-7	Consider adoption of a comprehensive drainage plan.	HU, TS, FL, NH	High	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	City	Annual review	Deferred. Waynesboro is mapping drainage areas and it will include elevations, cross sections, and flow directions.

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
P-8	Map the easements and rights-of-way of roadways and drainage ways.	All	Low to Medium	CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.	Unknown	City	Within 5 years	Action ongoing
P-9	Develop a government services continuity plan.	All	Medium	USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, City	Ongoing	Completed September 2019
P-10	Support the development of a shared geographic data system for land use and site planning.	All	Medium to High	Self-funded	No additional cost	City	Within 2 years	Action ongoing
P-11	Develop a comprehensive plan.	All	High	CDBG, MSDA	Unknown	City		Completed. Delete
P-12	Develop City-wide H&H study	FL	High	Self-Funded	Unknown	City	2024	New
Property Protection								
PP-1	Promote alternative construction techniques such as the building of "safe rooms" in new construction and when remodeling existing structures.	HU, TS, TO, TH	Medium	Self-funded	No additional cost	City	Within 5 years	Action ongoing
PP-2	Ensure that structures in floodplain areas are elevated.	FL	High	Self-funded	No additional cost	County, City	Within 3 years	Action ongoing
PP-3	Continue to retrofit public buildings to withstand natural hazards such as hurricanes and flooding.	All	High	HMGP	Unknown	City	Within 2 years; Next round of HMGP funding	Action ongoing
PP-4	Ensure that public buildings are designed and built to hurricane resistant building codes.	HU, TS, TO	High	Self-funded	No additional cost	City	Within 1 year	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PP-5	Ensure secure operation of water wells, water tanks and wastewater treatment facilities.	All	High	HMGP, USDA Rural Dev., CDBG, Small Muni. Grant	Unknown	County, City	Within 2 years; Next round of HMGP funding	Action ongoing
PP-6	Elevation and Acquisition of Flood prone structures	FL	Medium	HMA, MEMA	TBD	County	2024	New
PP-7	Generators and hook-ups for critical facilities	TH, HU, TS, TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-8	Warning sirens throughout planning area	TH, TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-9	Individual saferooms throughout planning area	TO	Medium	HMA, MEMA	$5,000+	County	2024	New
PP-10	361 Saferooms were needed-location is TBD	TO	Medium	HMA, MEMA	TBD	County	2024	New
PP-11	Elevation of critical facilities, such as pumps, and equipment	FL	Medium	HMA, MEMA	TBD	County	2024	New
PP-12	Floodproofing measures for critical facilities prone to flood	FL	Medium	HMA, MEMA	TBD	County	2024	New
Natural Resource Protection								
NRP-1	Preserve natural wetlands and riparian areas through acquisition of conservation easements.	HU, TS, FL	Medium	Donation	Low or no cost	MS Land Trust, Land Trust for the MS Coastal Plain, City	Within 5 years	Action ongoing
Emergency Services								
ES-1	Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.	All	Medium	Self-funded, MEMA	Low or no cost	County EMA	Within 2 years	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-2	Establish a notification procedure for populations in high risk areas.	All	Medium	Self-funded	No additional cost	County EMA, County SD, County VFDs	Within 2 years	Action ongoing. Waynesboro has reverse call back system in place as of 2018.
ES-3	Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters and adding safe rooms.	All	High	HMGP	Unknown	County EMA	Within 2 years	Action ongoing
ES-4	Explore potential sites for a new special needs shelter.	HU, TS, FL	High	HMGP	Unknown	County EMA	Within 2 years	Action ongoing
ES-5	Improve disaster communication systems within the County.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing. MSWINN at Fire Department and all use social media.
ES-6	Explore establishment of a County-wide central dispatch system.	All	High	HMGP	Unknown	County EMA		Action completed. Delete
ES-7	Ensure that emergency sirens are in place county-wide.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-8	Install warning informers in buildings that house vulnerable populations.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-9	Install Alert FM service at radio station.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action completed
ES-10	Upgrade Emergency Broadcast System capabilities.	All	High	HMGP	Unknown	County EMA	Within 2 years; Next round of HGMP funding	Action ongoing
ES-11	Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.	HU, TS	Medium	Self-funded	No additional cost	City	Within 2 years	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
ES-12	Enhance identification of evacuation routes through the distribution of MDOT maps.	HU, TS	Medium	Self-funded	No additional cost	City	Within 1 year	Action ongoing
ES-13	Ensure continuity of utility services for public buildings and other critical facilities.	All	High	HMGP	Unknown	County, City	Within 2 years; Next round of HMGP funding	Action ongoing
ES-14	Host a meeting to review Wayne County Comprehensive Emergency Management Plan.	TT	High	Self-funded	No additional cost	County LEPC, County, City	Within 2 years; Next round of HMGP funding	Action ongoing
ES-15	Actively search for and identify funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.	TT	Medium to High	DHS, SAFER, COPS, FIRE, Others	Unknown	County, City	Ongoing	Action ongoing
Structural Projects								
SP-1	Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.	HU, TS, FL, RH	Low to Medium	Self-funded	No additional cost	County, City	Within 2 years	Action ongoing
Public Education and Awareness								
PEA-1	Explore continuing education programs/ opportunities for staff and elected officials.	FL, TH, HU, TS	Medium	Self-funded, MEMA	Low cost	City	Within 2 years	Action ongoing
PEA-2	Provide education and outreach materials to citizens and visitors.	All	High	Self-funded	No cost	County EMA	Within 1 year	Action ongoing
PEA-3	Encourage the development of Family Disaster Plans.	All	High	Self-funded, COPS, FIRE	Low or no cost	County EMA, County Fire Coordinator	Within 1 year; Annual presentations	Action ongoing
PEA-4	Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.	FL; Multiple	High	Self-funded	No additional cost	County EMA	Upon request	Action ongoing

Action #	Description	Hazard(s) Addressed	Relative Priority	Funding Sources	Estimated Cost	Responsible Party	Target Completion Date	2019 Action Implementation Status
PEA-5	Encourage businesses to develop business continuity or contingency operating plans.	CH	High	Self-funded, Chamber of Comm., SCORE	Low or no cost	City	Within 2 years	Action ongoing
PEA-6	Education and outreach regarding drought and water conservation procedures	All	Medium	Self-funded	Low or no cost	County	2024	New

FL = Flood TH = Thunderstorm HU = Hurricane TS = Tropical Storm TO = Tornado BH = Biological Hazards TT = Transportation and Technological Hazards RH = Roadway Hazards CH = Civil Hazards

County EMA = Wayne County Emergency Management Agency County SD = Wayne County Sheriff's Dept. County VFD = Wayne County Volunteer Fire Dept. County LEPC = Wayne County Local Emergency Planning Committee

Appendix A: Adoption Resolutions

Place holder

Appendix B: Meeting Materials

Appendix B: Plan Review Tool