



**Monday, March 3, 2025  
4:00 PM**

**City Council  
Monday Meeting Agenda**

**Council Chambers  
200 Forrest Street**

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**Call to Order**

**Agenda Review**

**Citizens' Forum**

**Work Session**

- 1. 2025-173** Review of the MEMA District 8 Regional Hazard Mitigation Plan for Adoption by the City of Hattiesburg for 2025-2030, presented by Administration.
- 2. 2025-184** Downtown Roadmap, presented by Downtown Hattiesburg Association.

**Meeting Recess**

# 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:

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

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### 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, Greene, 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 chemical releases, hazardous material spills, pipeline damage, meth houses, and cyberthreats. 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 eight 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.

### 1.1.2 Building Resilient Infrastructure and Communities (BRIC)

FEMA's Building Resilient Infrastructure and Communities (BRIC) competitive annual grant program supports state, local, tribal, and territorial governments as they implement hazard mitigation projects to reduce the risks from disasters and natural hazards. The program is authorized by the Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

The BRIC program aims to categorically shift the federal focus away from reactive disaster spending and toward proactive investment in community resilience. FEMA funds BRIC with a 6% set-aside from federal post-disaster grant funds, such as Public Assistance and Individual Assistance grants. As a competitive grant program, applicants can apply on a yearly basis.

FEMA's priorities for the FY 2022 BRIC program are to:

- 1) Incentivize natural hazard risk reduction activities that mitigate risk to public infrastructure and disadvantaged communities as referenced in Executive Order 14008 – Tackling the Climate Crisis at Home and Abroad;
- 2) Incorporate nature-based solutions, including those designed to reduce carbon emissions;
- 3) Enhance climate resilience and adaptation;
- 4) Increase funding for the adoption and enforcement of the latest published editions of building codes; and
- 5) Encourage mitigation projects that meet multiple program priorities.

Through BRIC, FEMA continues to invest in a variety of mitigation activities with an added focus on infrastructure projects benefiting disadvantaged communities, nature-based solutions, climate resilience and adaption, and adopting hazard resistant building codes.

Management costs allow FEMA to provide financial assistance to reimburse the recipient and subrecipient for eligible and reasonable indirect costs, direct administrative costs, and other administrative expenses associated with a specific mitigation project or Capacity and Capability-Building (C&CB) activity. Management Costs can be submitted under the State/Territory Allocation, Tribal Set-Aside, and national competition.

The BRIC Program also offers non-financial Direct Technical Assistance (DTA) and encourages communities to participate. BRIC DTA gives full support to communities that may not have the resources to begin climate resilience planning and project solution design on their own. FEMA will give wide-ranging support to BRIC DTA communities including climate risk assessments, community engagement, partnership building, mitigation and climate adaptation planning, and BRIC program requests throughout the grant lifecycle.

1.2 PURPOSE

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

- ✦ Update the existing Covington, Forrest, Greene, Jefferson Davis, Jones, Marion, Perry, and Wayne County hazard mitigation plans into one regional 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, Greene, 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       |             | Jones County  |             |
|------------------------|-------------|---------------|-------------|
| Collins                | Mount Olive | Ellisville    | Laurel      |
| Seminary               |             | Sandersville  | Soso        |
| Forrest County         |             | Marion County |             |
| Hattiesburg            | Petal       | Columbia      |             |
| Greene County          |             | Perry County  |             |
| Leakesville            | McLain      | Beaumont      | New Augusta |
| State Line             |             | Richton       |             |
| Jefferson Davis County |             | Wayne County  |             |
| Bassfield              | Prentiss    | 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 2025 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 the plan. They plan to join the regional plan at some point in the future.

All of the jurisdictions that participated in previous planning efforts have participated in the development of this regional plan along with the inclusion of Greene County to this 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, Greene, 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 May of 2024, 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. In addition to regular meetings, committee members routinely communicated and were kept informed through an e-mail distribution list.

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 *2025 MEMA District 8 Hazard Mitigation Plan*

Each step involved in creating this document built upon the efforts of previous steps to ensure that the mitigation actions outlined at the end of this document have a valid basis for their implementation and truly address actions that will reduce the individual vulnerabilities identified throughout *District 8*.

The planning process carried out by the Mitigation Council is detailed below with a listing of basic steps completed during each task, as well as the project timeline:

### 1. Organizing the Planning Process/Building the Planning Team

- Engage local Leadership
- Engage Whole Community as well as the vulnerable populations
- Establish a Mitigation Council
- Develop and implement an outreach strategy
- Develop a project timeline.

### 2. Community Assessment

- Review existing plans and policies
- Develop community profiles
- Identify critical facilities
- Identify *District 8's overall capabilities*
- Identify participation in the National Flood Insurance Program
- Identify Repetitive Loss properties for each area

### 3. Conduct Risk/Vulnerability Assessment

- Identify hazards
- Develop hazard profiles
- Identify community assets
- Analyze the risks to determine individual vulnerabilities
- Summarize District 8's overall vulnerabilities

### 4. Develop Goals and Objectives

- Develop long-term outcomes through goal statements
- Develop specific objectives for each long-term goal.

### 5. Develop a Mitigation Strategy

- Document progress implementing previous actions
- Identify an action plan specific to each community

### 6. Plan Review, Approval, and Adoption

- Draft plan review
- Plan amendments as needed
- Final plan review
- Plan adoption

**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**

| <b>Name Title</b>                    | <b>Department/ Agency</b>                              |
|--------------------------------------|--------------------------------------------------------|
| EMA Director Brennon Chancellor      | Covington County                                       |
| City Clerk Suzette Davis             | Collins                                                |
| Mayor Billy Roberts                  | Mt. Olive                                              |
| Mayor Rick Hux                       | Seminary                                               |
| Corey Proctor, Planning Director     | Forrest County                                         |
| Marybeth Bergin, Engineering Manager | Hattiesburg                                            |
| Alderman Drew Brickson               | Petal                                                  |
| EMA Director Trent Richardson        | Greene County                                          |
| Mayor James Ragcliff                 | Leakesville                                            |
| Ashley Williams, City Clerk          | McLain                                                 |
| Mayor Willie Miller                  | State Line                                             |
| EMA Director Jocelyn M. Ragsdale     | Jefferson Davis County & Prentiss                      |
| Jason Wambolt, Water Sewer Admin.    | Bassfield                                              |
| Kim Mason, City Clerk                | Bassfield                                              |
| EMA Director Paul G. Sheffield       | Jones County, Ellisville, Laurel, Sandersville, & Soso |
| EMA Director Aaron Greene            | Marion County                                          |
| Marie Temples, Representative        | Marion County                                          |
| Mayor Justin McKenzie                | Columbia                                               |
| EMA Director Chase Dewitt            | Perry County                                           |
| Mayor Scotty L. Daily                | Beaumont                                               |
| Sherry Burns, City Clerk             | New Augusta                                            |
| Keith Stringer, Representative       | Richton                                                |
| EMA Angela Atchison                  | Wayne County                                           |
| Dwayne Rawson, City Clerk            | Waynesboro                                             |
| Tim Gordy, Area Coordinator          | MEMA                                                   |
| Calvin Williams, Mitigation Planner  | MEMA                                                   |
| Kandice McNamee, Mitigation Planner  | MEMA                                                   |
| Frank Hill, Planning Bureau Director | 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 eight counties and nineteen 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. Following the initial meeting, over the course of several phone calls, mail, and email exchanges, MEMA Mitigation Planners gathered the data needed to complete this plan. The following is a summary of the key meetings and community workshops held during the development of the plan update. 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. All meeting materials are located in **Appendix A**, and surveys and results are located in **Appendix B**.

TABLE 2.2: HAZARD MITIGATION PLANNING MEETINGS

| Meeting Dates            | Meeting Notes                                                                                                                                                                                                                                                                           |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| May 3, 2024              | MEMA Region 8 HMP Kickoff Meeting- Discussed project background and purpose, overview of the project, completed a hazard identification exercise, and discussed next steps.                                                                                                             |
| September 2024           | MEMA Region 8 HMP Mitigation Strategy Meeting- discussed plan goals and potential updates to those goals. Also sent out the Hazard Identification Survey.                                                                                                                               |
| October 2024             | MEMA Region 4 HMP Mitigation Strategy Meeting- discussed plan goals and potential updates to those goals. Also, discussed mitigation actions within the region. Also sent out Vulnerability Assessments to the Mitigation Council, and they sent them to the locals in the communities. |
| November – December 2024 | Individual County/municipality will go over their Annexes to make sure they agree with all the information and to update existing mitigation actions as well as new mitigation actions                                                                                                  |
| January 14-16 2025       | Mitigation Planning Class/Workshop                                                                                                                                                                                                                                                      |
| January— February 2025   | Reviewing of the HMP Draft at the local level.                                                                                                                                                                                                                                          |
| January 13, 2025         | Send HMP Draft to FEMA                                                                                                                                                                                                                                                                  |

## 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, a neighborhood, schools, businesses, and/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 C**.

## 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 *MEMA Mitigation Planning Staff* worked with the *MEMA District 8 Area Coordinator* and each of the eight County Emergency Management leads to initiate outreach to stakeholders, academia, and non-profits in their jurisdiction to be involved in the planning process. This allowed for a wide range of stakeholders to be involved in the planning process by providing requested data needed to update the plan. Each of the eight County Emergency Management leads invited stakeholders from their counties to participate in the planning process.

Additionally, the MEMA Mitigation Planning Staff and the County EM leads contacted Mississippi Automated Resources Information System (MARIS), Mississippi Forestry Commission, Mississippi Department of Environmental Quality, and Local Red Cross, to ask them to participate in the planning process and provide data that was used in the development of this plan.

### 2.6.1 Public Participation and Additional Stakeholder Involvement

Mitigation Staff took an active approach to engaging the public and other that hold a stake in mitigation planning in the update of this mitigation plan. The following review of steps taken in the development of previous plans; staff devised a public outreach strategy that provided several opportunities for participants as well as the general public throughout the development of this plan. The opportunities included:

- MEMA's Website
- Local and County Websites and Facebook Pages
- Surveys and Questionnaires sent out using the Whole Community Approach by placing them in places that are assessable to all, for example, placing them at public local utility departments, City Halls, local churches...
- Reviewing and commenting on the draft document

### 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.

#### 2.7.1 News Articles

See *Appendix A*

#### 2.7.2 Local Community Websites and Facebook Posts

See *Appendix A*

#### 2.7.3 Review and Commenting Opportunities

The public was given the opportunity to review copies of the plan and to provide comments on the District 4 regional plan on multiple occasions. The first opportunity took place during the draft stage of the plan, and another opportunity took place just prior to the formal adoption of the plan. The notices of these public viewings and comment opportunities were placed on the Community's or County's Websites and posted at various community buildings. Copies of the plan were also made available to the public at various locations listed in below in **Table 2.3**

# 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's district lines and is one of nine MEMA regions throughout the state. The Region is located in the southeastern portion of the state. It is bordered by the Mississippi/Alabama State Line to the east. The *MEMA District 8 Region* includes the counties of Covington, Forrest, Greene, Jefferson Davis, Jones, Marion, Perry, and Wayne. Lamar is also in *MEMA District 8* but is not a participant 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 Forrest 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**

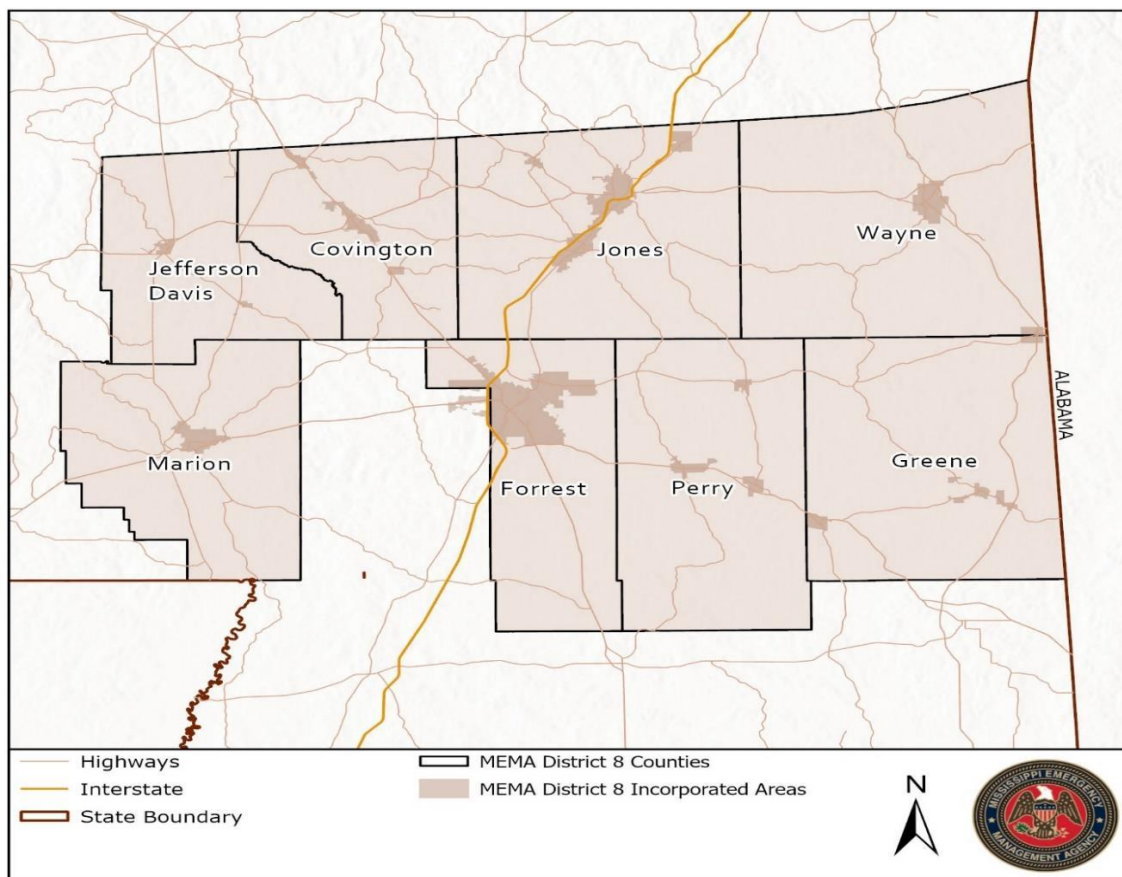
| County                 | Total Area       |
|------------------------|------------------|
| Covington County       | 415 square miles |
| Forrest County         | 470 square miles |
| Greene County          | 728 square miles |
| Jefferson Davis County | 409 square miles |
| Jones County           | 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 2010 and 2020, the majority of participating jurisdictions experienced little to no growth, and most experienced a notable decline in population. Forrest County had the only rate of growth at 4.2% percent. Due to the overall decline in population in District 8, an overall decline in vulnerability could occur. Population counts from the US Census Bureau for 2010 and 2020 for each of the participating counties and jurisdictions are presented in **Table 3.2**.

**TABLE 3.2: POPULATION COUNTS FOR PARTICIPATING COUNTIES**

| Jurisdiction           | 2010 Census Population | 2020 Census Population | % of Change 2010-2020 |
|------------------------|------------------------|------------------------|-----------------------|
| Covington County       | 19,568                 | 18,335                 | -6.3%                 |
| Forrest County         | 75,007                 | 78,162                 | +4.2%                 |
| Greene County          | 14,400                 | 13,601                 | -5.5%                 |
| Jefferson Davis County | 12,487                 | 11,320                 | -9.3%                 |
| Jones County           | 67,761                 | 66,244                 | -2.2%                 |
| Marion County          | 27,088                 | 24,439                 | -9.8%                 |
| Perry County           | 12,250                 | 11,508                 | -6%                   |
| Wayne County           | 20,747                 | 19,778                 | -4.7%                 |

Source: US Census Bureau

Based on the 2020 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 3.4** shows the Social Vulnerability Index Rankings for Each County.

**TABLE 3.3: DEMOGRAPHICS OF PARTICIPATING COUNTIES**

| <b>Jurisdiction</b>           | <b>White Persons<br/>Percent 2020</b> | <b>Black Persons,<br/>Percent 2020</b> | <b>American Indian<br/>or Alaska Native,<br/>Percent 2020</b> | <b>Other Races<br/>Percent 2020</b> | <b>Persons of<br/>Hispanic Origin,<br/>Percent 2020</b> |
|-------------------------------|---------------------------------------|----------------------------------------|---------------------------------------------------------------|-------------------------------------|---------------------------------------------------------|
| <b>Covington County</b>       | <b>60%</b>                            | <b>36%</b>                             | <b>0%</b>                                                     | <b>1%</b>                           | <b>3%</b>                                               |
| <b>Forrest County</b>         | <b>57%</b>                            | <b>37%</b>                             | <b>0%</b>                                                     | <b>1%</b>                           | <b>3%</b>                                               |
| <b>Greene County</b>          | <b>72%</b>                            | <b>26%</b>                             | <b>0%</b>                                                     | <b>1%</b>                           | <b>2%</b>                                               |
| <b>Jefferson Davis County</b> | <b>38%</b>                            | <b>59%</b>                             | <b>0%</b>                                                     | <b>1%</b>                           | <b>2%</b>                                               |
| <b>Jones County</b>           | <b>65%</b>                            | <b>29%</b>                             | <b>0%</b>                                                     | <b>1%</b>                           | <b>5%</b>                                               |
| <b>Marion County</b>          | <b>65%</b>                            | <b>32%</b>                             | <b>0%</b>                                                     | <b>1%</b>                           | <b>2%</b>                                               |
| <b>Perry County</b>           | <b>78%</b>                            | <b>19%</b>                             | <b>1%</b>                                                     | <b>0%</b>                           | <b>2%</b>                                               |
| <b>Wayne County</b>           | <b>57%</b>                            | <b>40%</b>                             | <b>0%</b>                                                     | <b>1%</b>                           | <b>2%</b>                                               |

Source: US Census Bureau

**TABLE 3.4: SOCIAL VULNERABILITY INDEX RANKINGS**

| <b>Jurisdiction</b>           | <b>Risk Rating</b>         | <b>Social Vulnerability<br/>Index Rating</b> | <b>Resilience<br/>Rating</b> |
|-------------------------------|----------------------------|----------------------------------------------|------------------------------|
| <b>Covington County</b>       | <b>Relatively Low</b>      | <b>Relatively High</b>                       | <b>Very Low</b>              |
| <b>Forrest County</b>         | <b>Relatively Moderate</b> | <b>Very High</b>                             | <b>Relatively Moderate</b>   |
| <b>Greene County</b>          | <b>Relatively Low</b>      | <b>Relatively High</b>                       | <b>Very Low</b>              |
| <b>Jefferson Davis County</b> | <b>Very Low</b>            | <b>Relatively High</b>                       | <b>Very Low</b>              |
| <b>Jones County</b>           | <b>Relatively Moderate</b> | <b>Very High</b>                             | <b>Relatively Low</b>        |
| <b>Marion County</b>          | <b>Relatively Low</b>      | <b>Very High</b>                             | <b>Very Low</b>              |
| <b>Perry County</b>           | <b>Relatively Low</b>      | <b>Relatively High</b>                       | <b>Very Low</b>              |
| <b>Wayne County</b>           | <b>Relatively Low</b>      | <b>Very High</b>                             | <b>Very Low</b>              |



### 3.3 HOUSING, INFRASTRUCTURE, AND LAND USE

#### 3.3.1 Housing

According to the 2020 US Census, there are 98,544 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 3.5**. Although some counties have an increase in housing units there has been no mention of it increasing vulnerability, the overall median home value increase could lead to an increase of vulnerability.

**TABLE 3.5: HOUSING CHARACTERISTICS OF PARTICIPATING COUNTIES**

| Jurisdiction           | Housing Units (2010) | Median Home Value (2010) | Housing Units (2020) | Median Home Value (2020) |
|------------------------|----------------------|--------------------------|----------------------|--------------------------|
| Covington County       | 8,501                | \$78,900                 | 8,415                | \$76,700                 |
| Forrest County         | 29,913               | \$144,000                | 33,831               | \$114,000                |
| Greene County          | 5123                 | \$82,000                 | 5,104                | \$97,500                 |
| Jefferson Davis County | 5,876                | \$69,500                 | 5,693                | \$87,800                 |
| Jones County           | 28,424               | \$85,000                 | 28,905               | \$120,100                |
| Marion County          | 11,838               | \$82,800                 | 11,201               | \$104,100                |
| Perry County           | 5,519                | \$82,200                 | 5,505                | \$126,400                |
| Wayne County           | 9,213                | \$64,400                 | 9,145                | \$89,100                 |

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 and Forrest 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, Greene, and Marion Counties from east to west and connects both of these counties with Hattiesburg. Highway 49 runs through Forrest and Covington Counties.

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 93 fire stations, 33 police stations, 8 medical care facilities, 7 EOCs, and 111 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 2024, **Covington County** had an average annual employment of 8,100 workers and an average unemployment rate of 2.2 percent (compared to 6.0 percent for the state). In 2023, Education Services and Health Care employed 29.6 percent and the Manufacturing industry employed 19.3 percent of the County's workforce followed by Retail Trade (17.2%), and Construction (6.7%). The average annual wage in 2023 for **Covington County** was \$40,164 compared to \$52,985 for the State of Mississippi.

In 2024, **Forrest County** had an average annual employment of 33,020 workers and an average unemployment rate of 2.4 percent. According to the MESC, in 2023, the Education Services and Health Care employed 25.2% percent of the workforce followed by Retail Trade (15.1%) and Art, Entertainment, and Food Service (13.4%). The average annual wage in **Forrest County** was \$ 49,340 compared to \$52,985 for the State of Mississippi.

In 2024, **Greene County** had an average annual employment of 4,220 workers and an average unemployment rate of 2.7 percent. According to the MESC, in 2023, the Education Services and Health Care employed 23 percent of the workforce followed by Construction (18.5%) and Manufacturing (10.3%). The average annual wage in 2023 for **Greene County** was \$ 50,000 compared to \$52,985 for the State of Mississippi.

In 2024, **Jefferson Davis County** had an average annual employment of 3,830 workers and an average unemployment rate of 3.5 percent. According to the MESC, in 2023, the Education Services and Health Care employed 29.1 percent of the workforce followed by Manufacturing (13.9%) and Retail Trade (13.8 %) and Transportation, Warehousing, and Utilities (11.3%). The average annual wage in **Jefferson Davis County** was \$36,473 compared to \$52,985 for the State of Mississippi.

**Jones County** had an average annual employment of 24,760 workers in 2024 and an average unemployment rate of 2.7 percent. According to the MESC, in 2023, the Health Care and Social Assistance employed the most people, with 20 percent of the workforce, followed by Manufacturing (18.9%) and Retail Trade (13.7%), and Construction (11.5%). The average annual wage in **Jones County** was \$49,451 compared to \$52,985 for the State of Mississippi.

In 2024, **Marion County** had an average annual employment of 10,010 workers and an average unemployment rate of 2.6 percent. In 2023, according to the MESC, Education Services and Health Care employed 24.2 percent of the workforce. Construction was the second largest industry, employing (11.5%) of workers, and Retail Trade followed closely behind (10.9%). The average annual wage in **Marion County** was \$38,399 compared to \$52,985 for the State of Mississippi.

In 2024, **Perry County** had an average annual employment of 4,190 workers and an average unemployment rate of 3.1 percent. According to the MESC, in 2023, Health Care and Social Assistance employed 22.5 percent of the workforce followed by a tie between Manufacturing and Construction (12.5 %), and Retail Trade (10.7%). The average annual wage in **Perry County** was \$48,333 compared to \$52,985 for the State of Mississippi.

In 2024, **Wayne County** had an average annual employment of 6,840 workers and an average unemployment rate of 2 percent (compared to 6.0 percent for the state). In 2023, the Health Care and Social Assistance industry continues to lead by employing the most people, with 26.7 percent of the workforce, followed by Manufacturing (19.4%) and Retail Trade (12.4%). The average annual wage in 2023 for **Wayne County** was \$34,875 compared to \$52,985 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.

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, review of past *MEMA District 8 Regional Hazard Mitigation Plan*, review of studies and reports, and review of the Mississippi State Hazard Mitigation Plan (2023). Readily available information from reputable sources (such as federal and state agencies) were 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.

**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 22 of the 29 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 were 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, the review of studies and reports, and review of the State of Mississippi Hazard Mitigation Plan (2023). 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**

| Hazards                              | Hazard Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ATMOSPHERIC HAZARDS</b>           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Avalanche</b>                     | A rapid fall or slide of a large mass of snow down a mountainside.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Climate Change</b>                | Climate change is a long-term change in the average weather patterns that have come to define Earth's local, regional and global climates.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Drought</b>                       | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Hailstorm</b>                     | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Heatwave</b>                      | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Hurricane/<br/>Tropical Storm</b> | 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 counterclockwise 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. |
| <b>Lightning</b>                     | 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, 28 people are killed each year by lightning strikes in the United States, and 73% of lightning deaths occur in June, July, and August according to the CDC.                                                                                                                                                                                                                                                                                                                                                          |
| <b>Nor'easter</b>                    | 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.                                                                                                                                                                                                                                                                                                                           |
|                                      | A tornado is a violently rotating column of air that has contact with the ground and is often visible                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |



|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tornado</b>              | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Severe Thunderstorm</b>  | 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.                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Winter Storm/ Freeze</b> | 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.                                                                                                                                                                                                                                                                                                                                  |
| <b>GEOLOGIC HAZARDS</b>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Earthquake</b>           | 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.                                                                                                                                                             |
| <b>Expansive Soils</b>      | 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.                                                                                                                                                                                       |
| <b>Landslide</b>            | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Land Subsidence</b>      | 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, hydro compaction, natural compaction, sinkholes, and thawing permafrost.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Sinkhole</b>             | 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.                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Tsunami</b>              | A series of waves generated by an undersea disturbances 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. |



|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Volcano</b>                      | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>HYDROLOGIC HAZARDS</b>           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Dam and Levee Failure</b>        | 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.                                                                                                                                                                                                                                                                                                                     |
| <b>Erosion</b>                      | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Flood</b>                        | 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).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Storm Surge</b>                  | 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. |
| <b>OTHER HAZARDS</b>                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Hazardous Materials Incident</b> | 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.                                                                                                                                                                                                                                |
| <b>Pipeline Incident</b>            | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Meth Lab Incident</b>            | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Pandemic</b>                     | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Terror Threat</b>                | 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 1969, 38 residential disaster declarations have occurred in the region. This includes 20 events related to flooding, 20 events related to tornadoes, and 7 events related to hurricane and tropical storms, 1 related to winter weather, and 1 related to a pandemic (COVID-19). (Source: FEMA Disaster Declarations.)

TABLE: 4.2: MEMA DISTRICT 8 DISASTER DECLARATIONS BY COUNTY

**SECTION 4: HAZARD IDENTIFICATION**

| Disaster Declaration Number | Year | Description                                                               | Covington | Forrest   | Greene    | Jefferson Davis | Jones     | Marrion   | Perry     | Wayne     |
|-----------------------------|------|---------------------------------------------------------------------------|-----------|-----------|-----------|-----------------|-----------|-----------|-----------|-----------|
| 271                         | 1969 | Hurricane Camille                                                         | X         | X         | X         | X               | X         | X         | X         | X         |
| 302                         | 1971 | Storms and Tornadoes                                                      |           |           |           |                 | X         |           | X         |           |
| 318                         | 1972 | Heavy Rains and Flooding                                                  |           |           |           |                 |           | X         |           |           |
| 368                         | 1973 | Heavy Raines, Tornadoes, and Flooding                                     |           |           |           |                 | X         | X         |           | X         |
| 430                         | 1974 | Heavy Rains and Flooding                                                  | X         | X         | X         | X               | X         | X         | X         | X         |
| 577                         | 1979 | Storms, Tornadoes, and Floods                                             |           |           |           |                 |           | X         |           |           |
| 599                         | 1979 | Hurricane Frederic                                                        | X         | X         | X         |                 | X         |           | X         | X         |
| 618                         | 1980 | Storms, Flood, Mudslides, and Tornadoes                                   |           | X         |           |                 |           | X         |           |           |
| 678                         | 1983 | Severe Storms, Tornadoes, and Floods                                      | X         | X         | X         |                 |           | X         | X         |           |
| 787                         | 1987 | Severe Storms, Tornadoes, and Floods                                      |           |           |           |                 | X         |           |           |           |
| 859                         | 1990 | Severe Storms, Tornadoes, and Floods                                      | X         | X         | X         |                 | X         | X         | X         |           |
| 968                         | 1992 | Severe Storms, High Winds, and Tornadoes                                  | X         |           |           | X               |           |           |           |           |
| 1251                        | 1998 | Hurricane Georges                                                         | X         | X         | X         | X               | X         | X         | X         | X         |
| 1360                        | 2001 | Severe Storms and Tornadoes                                               |           | X         |           |                 | X         | X         | X         |           |
| 1459                        | 2003 | Severe Storms, Tornadoes, and Floods                                      |           |           |           | X               |           | X         |           | X         |
| 1550                        | 2004 | Hurricane Ivan                                                            | X         | X         | X         | X               | X         | X         | X         | X         |
| 1594                        | 2005 | Hurricane Dennis                                                          | X         | X         | X         | X               | X         |           | X         | X         |
| 1604                        | 2005 | Hurricane Katrina                                                         | X         | X         | X         | X               | X         | X         | X         | X         |
| 1974                        | 2008 | Hurricane Gustav                                                          |           | X         |           | X               |           | X         |           |           |
| 1837                        | 2009 | MS Severe Storms, Tornadoes, and Flooding                                 |           |           | X         | X               |           |           |           | X         |
| 1972                        | 2011 | MS Severe Storms, Tornadoes, Straight-line Winds, and Associated Flooding |           |           | X         |                 |           |           |           |           |
| 4081                        | 2012 | Hurricane Isaac                                                           | X         | X         | X         | X               | X         | X         | X         | X         |
| 4101                        | 2013 | MS Severe Storms, Tornadoes, and Flooding                                 |           | X         | X         | X               |           | X         | X         | X         |
| 4175                        | 2014 | MS Severe Storms, Tornadoes, and Flooding                                 |           |           |           |                 | X         |           |           | X         |
| 4205                        | 2015 | MS Severe Storms and Tornadoes                                            |           |           |           |                 |           | X         |           |           |
| 4268                        | 2016 | MS Severe Storms and Flooding                                             | X         | X         | X         | X               | X         | X         | X         | X         |
| 4295                        | 2017 | MS Severe Storms, Tornadoes, Straight-line Winds, and Associated Flooding |           | X         |           |                 |           |           | X         |           |
| 4350                        | 2017 | Hurricane Nate                                                            |           |           | X         |                 |           |           |           |           |
| 4415                        | 2018 | MS Severe Storms, Tornadoes, and Flooding                                 | X         | X         | X         |                 | X         | X         | X         | X         |
| 4470                        | 2019 | MS Severe Storms, Straight-line Winds, and Flooding                       |           |           |           |                 |           |           |           |           |
| 4528                        | 2020 | Covid-19                                                                  | X         | X         | X         | X               | X         | X         | X         | X         |
| 4536                        | 2020 | MS Severe Storms, Tornadoes, Straight-line Winds, and Flooding            | X         |           |           | X               |           | X         |           |           |
| 4538                        | 2020 | MS Severe Storms, Flooding, and Mudslides                                 |           |           |           |                 |           | X         |           |           |
| 4551                        | 2020 | MS Severe Storms, Tornadoes, Straight-line Winds, and Flooding            | X         |           |           | X               | X         |           |           | X         |
| 4576                        | 2020 | Hurricane Zeta                                                            |           |           | X         |                 |           |           | X         | X         |
| 4598                        | 2021 | MS Severe Winter Storms                                                   | X         |           |           | X               |           |           |           |           |
| 4626                        | 2021 | Hurricane Ida                                                             | X         | X         | X         | X               | X         | X         | X         | X         |
| 4727                        | 2023 | MS Severe Storms, Tornadoes, and Straight-line Winds                      | X         |           |           | X               | X         |           | X         | X         |
| <b>Total: 38</b>            |      | <b>TOTAL NUMBER OF DECLARATIONS PER COUNTY</b>                            | <b>19</b> | <b>19</b> | <b>19</b> | <b>19</b>       | <b>20</b> | <b>23</b> | <b>20</b> | <b>20</b> |

Source: Declared Disasters: FEMA.gov

## 4.4 HAZARD EVALUATION

**TABLE 4.3: DOCUMENTATION OF THE HAZARD EVALUATION PROCESS**

| Hazard Considered                     | Potential in District 8 (YES or NO) | How was this determination made?                                                                                                                                                                                                                        | Why was the determination made?                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Avalanche</b>                      | <b>NO</b>                           | <ul style="list-style-type: none"> <li>* Review of US Forest Service National Avalanche Center Website</li> <li>* Review of State and District 8 HMP</li> </ul>                                                                                         | <ul style="list-style-type: none"> <li>* There is not risk or history of avalanche events in Mississippi, nor was it included in previous District 8 or the State HMP</li> </ul>                                                                                                                                                                |
| <b>Drought</b>                        | <b>YES</b>                          | <ul style="list-style-type: none"> <li>* Review of the US Drought Monitor website.</li> <li>* Review of the State HMP and Previous District 8 HMP</li> </ul>                                                                                            | <ul style="list-style-type: none"> <li>* The US Drought Monitor shows the area has experienced extreme droughts.</li> <li>* The State HMP and Previous District 8 HMP included drought</li> </ul>                                                                                                                                               |
| <b>Hailstorm</b>                      | <b>YES</b>                          | <ul style="list-style-type: none"> <li>* Review of NOAA NCEI Storm Events Database</li> <li>* Review of the State HMP and Previous District 8 HMP</li> </ul>                                                                                            | <ul style="list-style-type: none"> <li>* NOAA NCEI reports several hail events in the area</li> <li>* Previous District 8 HMP included hailstorms</li> </ul>                                                                                                                                                                                    |
| <b>Heat Wave</b>                      | <b>YES</b>                          | <ul style="list-style-type: none"> <li>* Review of NOAA NCED Storm Events Database</li> <li>* Review of the State HMP and Previous District 8 HMP</li> </ul>                                                                                            | <ul style="list-style-type: none"> <li>* NOAA NCEI reports extreme heat events in the area</li> <li>* The State HMP and Previous District 8 HMP included extreme heat events</li> </ul>                                                                                                                                                         |
| <b>Hurricane &amp; Tropical Storm</b> | <b>YES</b>                          | <ul style="list-style-type: none"> <li>* Review of NOAA NCEI Storm Events Database</li> <li>* Review of the State HMP and Previous District 8 HMP</li> <li>* Review of Presidential Disaster Declarations</li> </ul>                                    | <ul style="list-style-type: none"> <li>* The State HMP and Previous District 8 HMP included Hurricanes and/or tropical storms</li> <li>* NCDC reports hurricane and tropical storm events in the MEMA District 8</li> <li>* There have also been 11 disaster declarations in District 8 related to hurricanes and/or tropical storms</li> </ul> |
| <b>Lightning</b>                      | <b>YES</b>                          | <ul style="list-style-type: none"> <li>* Review of NOAA NCEI Storm Events Database</li> <li>* Review of the State HMP and Previous District 8 HMP</li> <li>* Review of Vaisala's National Lightning Detection Network's lightning statistics</li> </ul> | <ul style="list-style-type: none"> <li>* Previous District 8 HMP included Lightning</li> <li>* NCEI reports multiple lightning events for District 8</li> <li>* According to Vaisala's U.S. NLDN, MEMA District 8 experiences an average of 12 to 20 lightning flashes per square miles per year.</li> </ul>                                    |
| <b>Nor'easter</b>                     | <b>NO</b>                           | <ul style="list-style-type: none"> <li>* Review of NOAA NCEI Storm Events Database</li> <li>* Review of the State HMP and Previous District 8 HMP</li> </ul>                                                                                            | <ul style="list-style-type: none"> <li>* Nor'easters are not profiled in the State HMP and Previous District 8 HMP</li> <li>* NCEI does not report any nor'easter activity in the area.</li> </ul>                                                                                                                                              |
| <b>Tornado</b>                        | <b>YES</b>                          | <ul style="list-style-type: none"> <li>* Review of NOAA NCEI Storm Events Database</li> <li>* Review of the State HMP and Previous District 8 HMP</li> <li>* Review of Presidential Disaster Declarations</li> </ul>                                    | <ul style="list-style-type: none"> <li>* The State HMP and Previous District 8 HMP included Tornadoes</li> <li>* NCEI reports over 200 tornado events in District 8 which has resulted in deaths, injuries, and millions in property damages.</li> <li>* District 8 has had 20 disaster declarations related to tornado events.</li> </ul>      |
| <b>Severe Thunderstorm</b>            | <b>YES</b>                          | <ul style="list-style-type: none"> <li>* Review of NOAA NCEI Storm Events Database</li> <li>* Review of the State HMP and Previous District 8 HMP</li> <li>* Review of Presidential Disaster Declarations</li> </ul>                                    | <ul style="list-style-type: none"> <li>* Previous District 8 HMP included Severe Thunderstorm &amp; high wind events.</li> <li>* NCEI reports approximately over 1000 thunderstorm events in District 8</li> <li>* District 8 has had 28 disaster declarations related to severe storm events.</li> </ul>                                       |
| <b>Hazard</b>                         | <b>Potential</b>                    | <b>How was this determination</b>                                                                                                                                                                                                                       | <b>Why was the determination</b>                                                                                                                                                                                                                                                                                                                |

| Considered                       | in District 8<br>(YES or NO) | made?                                                                                                                                                                                                                | made?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Winter Storm &amp; Freeze</b> | YES                          | <ul style="list-style-type: none"> <li>* Review of NOAA NCEI Storm Events Database</li> <li>* Review of the State HMP and Previous District 8 HMP</li> <li>* Review of Presidential Disaster Declarations</li> </ul> | <ul style="list-style-type: none"> <li>* The State HMP and Previous District 8 HMP included winter weather.</li> <li>* NCEI reports that District 8 counties have been effected by winter storms.</li> <li>* District 8 has had 1 disaster declarations related to winter weather.</li> </ul>                                                                                                                                                                                                        |
| <b>Climate Change</b>            | YES                          | <ul style="list-style-type: none"> <li>* Review of the State HMP</li> </ul>                                                                                                                                          | <ul style="list-style-type: none"> <li>* Climate Change was included in the State HMP, but was not in the previous District 8 HMP.</li> </ul>                                                                                                                                                                                                                                                                                                                                                        |
| <b>Earthquake</b>                | YES                          | <ul style="list-style-type: none"> <li>* Review of NOAA NCEI Storm Events Database</li> <li>* Review of the State HMP and Previous District 8 HMP</li> <li>* USGS Earthquake Hazards Program website</li> </ul>      | <ul style="list-style-type: none"> <li>* The State HMP and Previous District 8 HMP included earthquakes</li> <li>* Earthquakes have occurred in and around the State in the past. The New Madrid and White River Fault lines which run through or near Mississippi have generated a magnitude 8.0 earthquake within the last 200 years.</li> <li>* USGS seismic hazard maps, show peak ground acceleration with 10% probability of exceedance in 50 years for District 8 is around 2-3%g.</li> </ul> |
| <b>Expansive Soils</b>           | YES                          | <ul style="list-style-type: none"> <li>* Review of the State HMP and Previous District 8 HMP</li> <li>* Review of USGS Swelling Clays Map</li> </ul>                                                                 | <ul style="list-style-type: none"> <li>* Expansive soils were addressed in the previous MEMA District 8 hazard mitigation plan.</li> <li>* 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.</li> </ul>                                                                                                                                                                                      |
| <b>Landslide</b>                 | YES                          | <ul style="list-style-type: none"> <li>* Review of the State HMP and Previous District 8 HMP</li> <li>* Review of USGS Landslide Incidence and Susceptibility Hazard Map</li> </ul>                                  | <ul style="list-style-type: none"> <li>* The previous District 8 HMP includes landslide.</li> <li>* USGS landslide hazard maps indicate “low incidence” (less than 1.5% of the area is involved in land sliding) for all counties. However, local conditions may become more favorable for landslides due to heavy rain (Disaster Declarations; 618 and 4528).</li> </ul>                                                                                                                            |
| <b>Land Subsidence</b>           | NO                           | <ul style="list-style-type: none"> <li>* Review of the State HMP and Previous District 8 HMP</li> </ul>                                                                                                              | <ul style="list-style-type: none"> <li>* The previous District 8 HMP does not include land subsidence. The hazard was not chosen due geology of the region.</li> </ul>                                                                                                                                                                                                                                                                                                                               |
| <b>Sinkhole</b>                  | NO                           | <ul style="list-style-type: none"> <li>* Review of the State HMP and Previous District 8 HMP</li> </ul>                                                                                                              | <ul style="list-style-type: none"> <li>* The previous District 8 HMP does not include sinkhole as a hazard because there is no significant historical record of the hazard in the region.</li> <li>* The hazard was not chosen due geology of the region.</li> </ul>                                                                                                                                                                                                                                 |
| <b>Tsunami</b>                   | NO                           | <ul style="list-style-type: none"> <li>* Review of the State HMP and Previous District 8 HMP</li> <li>* Review of USGS Regional Assessment of Tsunami potential in the Gulf of Mexico</li> </ul>                     | <ul style="list-style-type: none"> <li>* The tsunami hazard is excluded from the state plan and previous District 8 HMP.</li> <li>* There is no historical record of tsunamis in the Gulf of Mexico.</li> </ul>                                                                                                                                                                                                                                                                                      |

| Hazard | Potential | How was this determination | Why was the determination |
|--------|-----------|----------------------------|---------------------------|
|--------|-----------|----------------------------|---------------------------|



| Considered                          | in District 8<br>(YES or NO)                   | made?                                                                                                                                                                                                                                                                                                                                                                               | made?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Volcano</b>                      | NO                                             | <ul style="list-style-type: none"> <li>* Review of the State HMP and Previous District 8 HMP</li> <li>* Review of USGS Volcano Hazards Program website</li> </ul>                                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>* The previous District 8 nor the State HMP include volcano.</li> <li>* There is no historical record of this hazard in the region, and there are no active volcanoes in Mississippi.</li> </ul>                                                                                                                                                                                                                                                                |
| <b>Dam &amp; Levee Failure</b>      | YES                                            | <ul style="list-style-type: none"> <li>* Review of the State HMP and Previous District 8 HMP</li> <li>* Review of MS Division of Environmental Quality dam inventory</li> </ul>                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>* Dam/levee failure is identified in the state plan as a limited hazard.</li> <li>* The previous MEMA District 8 Hazard Mitigation Plan address dam failure</li> <li>* Several dams in the region are classified as high hazard (high hazard is defined where dam failure may cause loss of life or serious damage).</li> </ul>                                                                                                                                 |
| <b>Erosion</b>                      | YES                                            | <ul style="list-style-type: none"> <li>* Review of the State HMP and Previous District 8 HMP</li> </ul>                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>* Erosion is identified as a hazard in the previous MEMA District 8 Hazard Mitigation Plan.</li> <li>* Erosion is a natural process and continuous process that impacts the region.</li> </ul>                                                                                                                                                                                                                                                                  |
| <b>Flood</b>                        | YES                                            | <ul style="list-style-type: none"> <li>* Review of NOAA NCEI Storm Events Database</li> <li>* Review of the State HMP and Previous District 8 HMP</li> <li>* Review of FEMA DFIRM flood data for the District 8 counties</li> <li>* Review of FEMA's NFIP Community Status Book and Community Rating System (CRS)</li> <li>* Review of historical disaster Declarations.</li> </ul> | <ul style="list-style-type: none"> <li>* The State HMP and Previous District 8 HMP included Floods</li> <li>* Much of the state is located in the 100-year floodplain. Further, flash floods are a common occurrence during rain storms.</li> <li>* NCEI reports that District 8 counties have been affected by hundreds of flood events, and these events caused millions in property damages.</li> <li>* There have been 20 disaster declarations associated with flooding in District 8.</li> </ul> |
| <b>Storm Surge</b>                  | NO                                             | <ul style="list-style-type: none"> <li>* Review of NOAA NCEI Storm Events Database</li> <li>* Review of the State HMP and Previous District 8 HMP</li> </ul>                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>* The previous MEMA District 8 Hazard Mitigation Plan does not include storm surge as a potential hazard.</li> <li>* No historical events were reported by NCEI.</li> <li>* Given the inland location of the MEMA District 8 Region, storm surge would not affect the area.</li> </ul>                                                                                                                                                                          |
| <b>Hazardous Materials Incident</b> | YES                                            | <ul style="list-style-type: none"> <li>* Review of the State HMP and Previous District 8 HMP</li> <li>* Review of EPA TRI sites Inventory</li> <li>* Review of PHMSA HAZMAT Incident Statistics database</li> </ul>                                                                                                                                                                 | <ul style="list-style-type: none"> <li>* The previous MEMA District 8 Hazard Mitigation Plan include hazardous materials incident as a hazard.</li> <li>* There are 60 TRI sites located in the MEMA District 8 Region.</li> </ul>                                                                                                                                                                                                                                                                     |
| <b>Pipeline Incident</b>            | YES                                            | <ul style="list-style-type: none"> <li>* Review of PHMSA HAZMAT Incident Statistics database</li> <li>* Review of Previous Region 8 Hazard Mitigation Plan</li> </ul>                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>* The MEMA District 8 Region contains 1,248 miles of gas lines and 822 miles of hazardous liquid lines</li> </ul>                                                                                                                                                                                                                                                                                                                                               |
| <b>Meth Lab Incident</b>            | YES                                            | <ul style="list-style-type: none"> <li>* Review of incident history based on local knowledge of past events and the potential for future events</li> <li>* Review of Previous Region 8 Hazard Mitigation Plan</li> </ul>                                                                                                                                                            | <ul style="list-style-type: none"> <li>* 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.</li> </ul>                                                                                                                                                                                                                                                                              |
| <b>Hazard Considered</b>            | <b>Potential in District 8<br/>(YES or NO)</b> | <b>How was this determination made?</b>                                                                                                                                                                                                                                                                                                                                             | <b>Why was the determination made?</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

|                      |            |                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Pandemic</b>      | <b>YES</b> | * Review of the State HMP and Previous District 8 HMP                                                                                                           | * Pandemic is discussed in the state plan.<br>* Pandemic is not included in the previous MEMA District 8 Hazard Mitigation Plan, but was added to this plan.                                                                                                                                                                                                                                                                                         |
| <b>Terror Threat</b> | <b>NO</b>  | * Review of the State HMP and Previous District 8 HMP                                                                                                           | * The previous District 8 HMP does not include Terror Threat, and it was determined not to include the threat, at this time.                                                                                                                                                                                                                                                                                                                         |
| <b>Wildfire</b>      | <b>YES</b> | * Review of the State HMP and Previous District 8 HMP<br>* Southern Wildfire Risk Assessment (SWRA) Data<br>* Review of Mississippi Forestry Commission website | * The State of MS Hazard Mitigation Plan identifies wildfire as a significant hazard and regular occurrence.<br>* The previous MEMA District 8 Hazard Mitigation Plan addresses wildfire.<br>* 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. |
| <b>Cyber-Attack</b>  | <b>YES</b> | * Review of the State HMP and Previous District 8 HMP                                                                                                           | * Cyber Attack is included in the state plan and previous District 8 HMP.                                                                                                                                                                                                                                                                                                                                                                            |

## 4.5 HAZARD IDENTIFICATION RESULTS

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

| ATMOSPHERIC HAZARDS                                            |  | GEOLOGIC HAZARDS                                                 |  |
|----------------------------------------------------------------|--|------------------------------------------------------------------|--|
| <input type="checkbox"/> Avalanche                             |  | <input checked="" type="checkbox"/> Earthquake                   |  |
| <input checked="" type="checkbox"/> Drought                    |  | <input checked="" type="checkbox"/> Expansive Soils              |  |
| <input checked="" type="checkbox"/> Hail Storm                 |  | <input checked="" type="checkbox"/> Landslide                    |  |
| <input checked="" type="checkbox"/> Heat Wave                  |  | <input checked="" type="checkbox"/> Land Subsidence              |  |
| <input checked="" type="checkbox"/> Hurricane & Tropical Storm |  | <input type="checkbox"/> Sinkhole                                |  |
| <input checked="" type="checkbox"/> Lightning                  |  | <input type="checkbox"/> Tsunami                                 |  |
| <input checked="" type="checkbox"/> Tornado                    |  | <input type="checkbox"/> Volcano                                 |  |
| <input checked="" type="checkbox"/> Severe Thunderstorm        |  | OTHER HAZARDS                                                    |  |
| <input checked="" type="checkbox"/> Winter Storm & Freeze      |  | <input checked="" type="checkbox"/> Hazardous Materials Incident |  |
| <input type="checkbox"/> Nor'easter                            |  | <input checked="" type="checkbox"/> Pipeline Incident            |  |
| <input checked="" type="checkbox"/> Climate Change             |  | <input checked="" type="checkbox"/> Meth Lab Incident            |  |
| HYDROLOGIC HAZARDS                                             |  | <input checked="" type="checkbox"/> Pandemic                     |  |
| <input checked="" type="checkbox"/> Dam & Levee Failure        |  | <input type="checkbox"/> Terror Threat                           |  |
| <input checked="" type="checkbox"/> Erosion                    |  | <input checked="" type="checkbox"/> Wildfire                     |  |
| <input checked="" type="checkbox"/> Flood                      |  | <input checked="" type="checkbox"/> Cyber Terrorism              |  |
| <input type="checkbox"/> Storm Surge                           |  |                                                                  |  |

☒ = Hazard considered significant enough for further evaluation in the MEMA District 8 Regional Hazard Risk Assessment.

# 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:

- ★ 5.1 Overview
- ★ 5.2 Study Area

### Hydrologic Hazards

- ★ 5.3 Flooding/Flash Flooding
- ★ 5.4 Dam & Levee Failure
- ★ 5.5 Erosion

### Fire-Related Hazards

- ★ 5.6 Wildfire
- ★ 5.7 Drought/ Heat Wave

### Geologic Hazards

- ★ 5.8 Earthquake
- ★ 5.9 Landslide
- ★ 5.10 Expansive Soil

### Atmospheric Hazards

- ★ 5.11 Winter Weather Events
- ★ 5.12 Hurricane/Tropical Storm
- ★ 5.13 Thunderstorm (wind, hail, lightning)
- ★ 5.14 Tornado

### Other Hazards

- ★ 5.15 Hazardous Materials Incident
- ★ 5.16 Cyber Attack
- ★ 5.17 Pandemic
- ★ 5.18 Climate Change

### Conclusion

- ★ 5.19 Conclusions on Hazard Risk
- ★ 5.20 Final Determinations

## 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/Flash Flooding
- Dam & Levee Failure
- Erosion

**Fire-Related Hazards**

- Wildfire
- Drought/ Heat Wave

**Geologic Hazards**

- Earthquake
- Landslide
- Expansive Soil

**Atmospheric Hazards**

- Winter Storm & Freeze
- Hurricane/Tropical Storm
- Thunderstorm (wind, hail, lightning)
- Tornado

**Other Hazards**

- Hazardous Materials Incident
- Cyber Attack
- Pandemic
- Climate Change

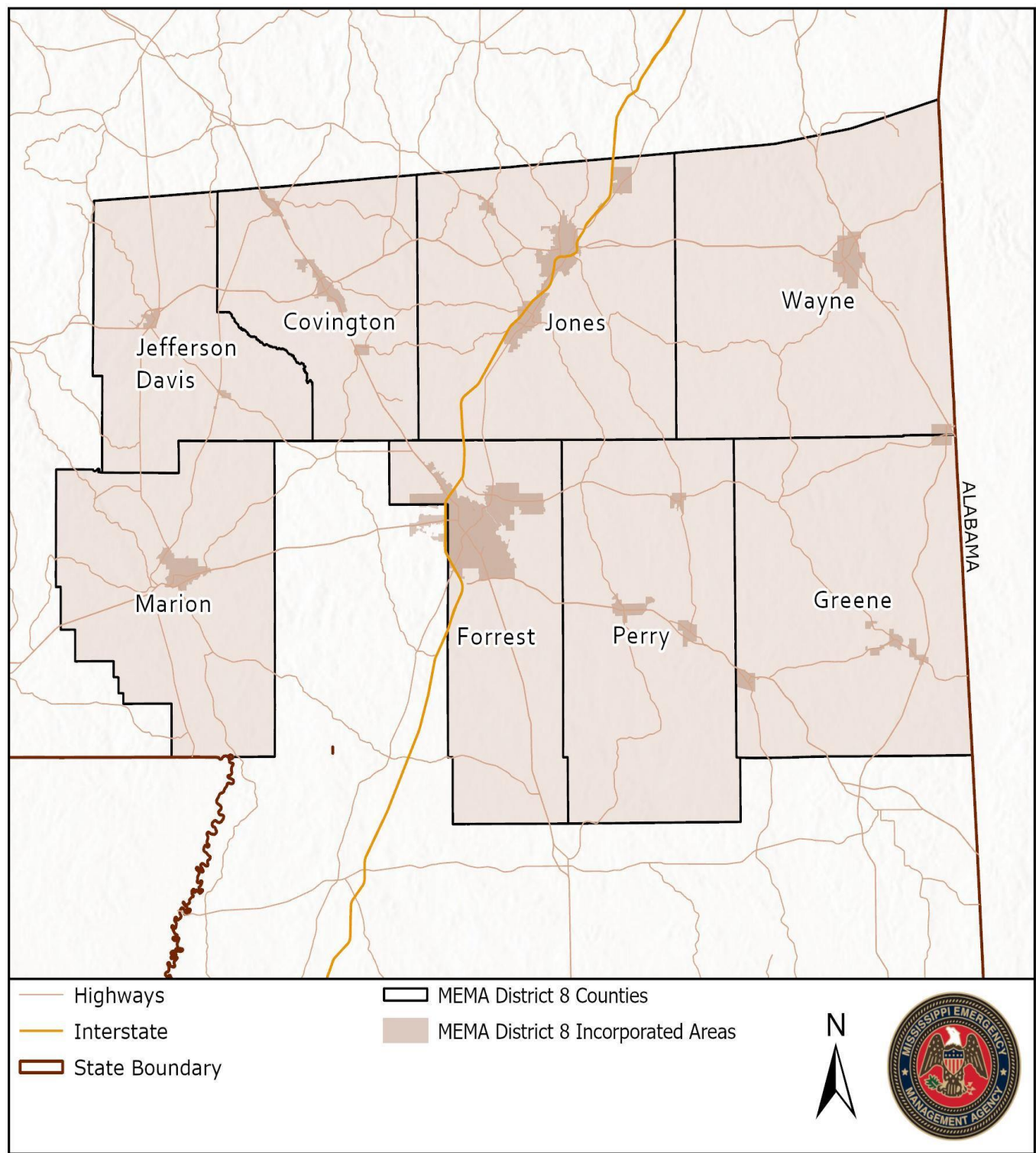
**5.2 STUDY AREA**

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**

| <b><i>Covington County</i></b>       |                    | <b><i>Jones County</i></b>  |                    |
|--------------------------------------|--------------------|-----------------------------|--------------------|
| <b>Collins</b>                       | <b>Mount Olive</b> | <b>Ellisville</b>           | <b>Laurel</b>      |
| <b>Seminary</b>                      |                    | <b>Sandersville</b>         | <b>Soso</b>        |
| <b><i>Forrest County</i></b>         |                    | <b><i>Marion County</i></b> |                    |
| <b>Hattiesburg</b>                   | <b>Petal</b>       | <b>Columbia</b>             |                    |
| <b><i>Greene County</i></b>          |                    | <b><i>Perry County</i></b>  |                    |
| <b>Leakesville</b>                   | <b>McClain</b>     | <b>Beaumont</b>             | <b>New Augusta</b> |
| <b>State Line</b>                    |                    | <b>Richton</b>              |                    |
| <b><i>Jefferson Davis County</i></b> |                    | <b><i>Wayne County</i></b>  |                    |
| <b>Bassfield</b>                     | <b>Prentiss</b>    | <b>Waynesboro</b>           |                    |

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 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**

| <b>Jurisdiction</b>            | <b>Flood</b> | <b>Erosion</b> | <b>Dam/ Levee Failure</b> | <b>Wildfire</b> | <b>Earthquake</b> | <b>Landslide</b> | <b>Expansive Soil</b> | <b>Drought/ Heat Wave</b> | <b>Winter Weather</b> | <b>Severe Storm<br/>(Wind, Hail, &amp; Lightning)</b> | <b>Hurricane &amp; Tropical<br/>Storms</b> | <b>Climate Change</b> | <b>HAZMAT</b> | <b>Pandemic</b> | <b>Pipeline Incident</b> | <b>Meth House Incident</b> | <b>Cyber Attack</b> |
|--------------------------------|--------------|----------------|---------------------------|-----------------|-------------------|------------------|-----------------------|---------------------------|-----------------------|-------------------------------------------------------|--------------------------------------------|-----------------------|---------------|-----------------|--------------------------|----------------------------|---------------------|
| <b><i>Covington County</i></b> | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Collins                        | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Mount Olive                    | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Seminary                       | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| <b><i>Forrest County</i></b>   | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Hattiesburg                    | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Petal                          | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| <b><i>Greene County</i></b>    | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Leakesville                    | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| McClain                        | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| State Line                     | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| <b><i>Jefferson Davis</i></b>  | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Bassfield                      | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Prentiss                       | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| <b><i>Jones County</i></b>     | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Ellisville                     | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Laurel                         | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Sandersville                   | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Soso                           | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| <b><i>Marion County</i></b>    | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Columbia                       | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| <b><i>Perry County</i></b>     | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Beaumont                       | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| New Augusta                    | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Richton                        | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| <b><i>Wayne County</i></b>     | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |
| Waynesboro                     | •            | •              | •                         | •               | •                 | •                | •                     | •                         | •                     | •                                                     | •                                          | •                     | •             | •               | •                        | •                          | •                   |

## 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. Climate change is expected to continue to have significant impacts on future flood hazards, with effects varying temporally and spatially around the United States (Wuebbles et al. 2017; Reidmiller et al. 2018).

Floods generally result from excessive precipitation and can be classified under *two categories*: 1) **general floods**, precipitation over a given river basin for a long period of time along with storm-induced wave action, and 2) **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.

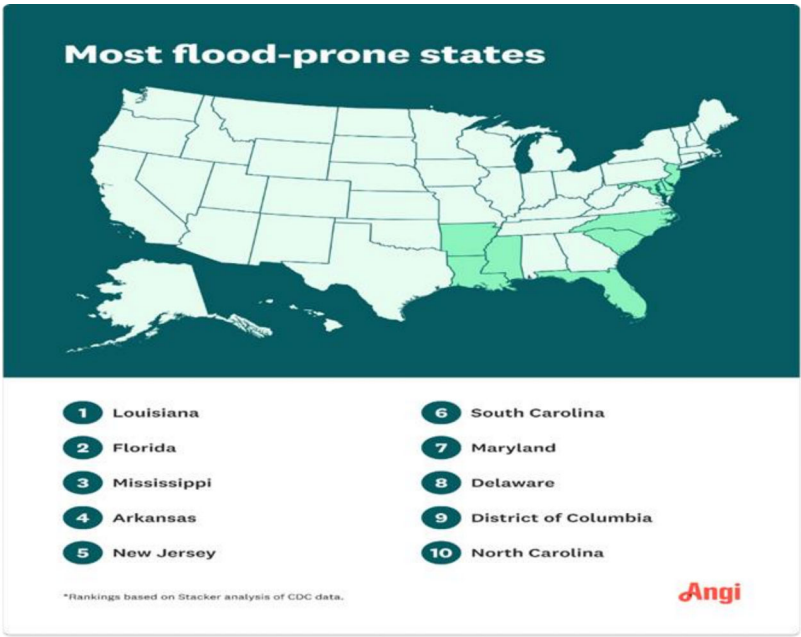
**General floods** are usually long-term events that may last for several days. The primary types of general flooding include *riverine*, *coastal*, and *urban flooding*. **Riverine flooding** is a function of excessive precipitation levels and water runoff volumes within the watershed of a stream or 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.

As of 2024, Mississippi rates third in the United States for the most flood-prone states (**Figure 5.2**)

**FIGURE 5.2: Top Flood-Prone States**



© Taurus Flood: National Flood Services LLC 2024.

5.3.2 Location and Spatial Extent

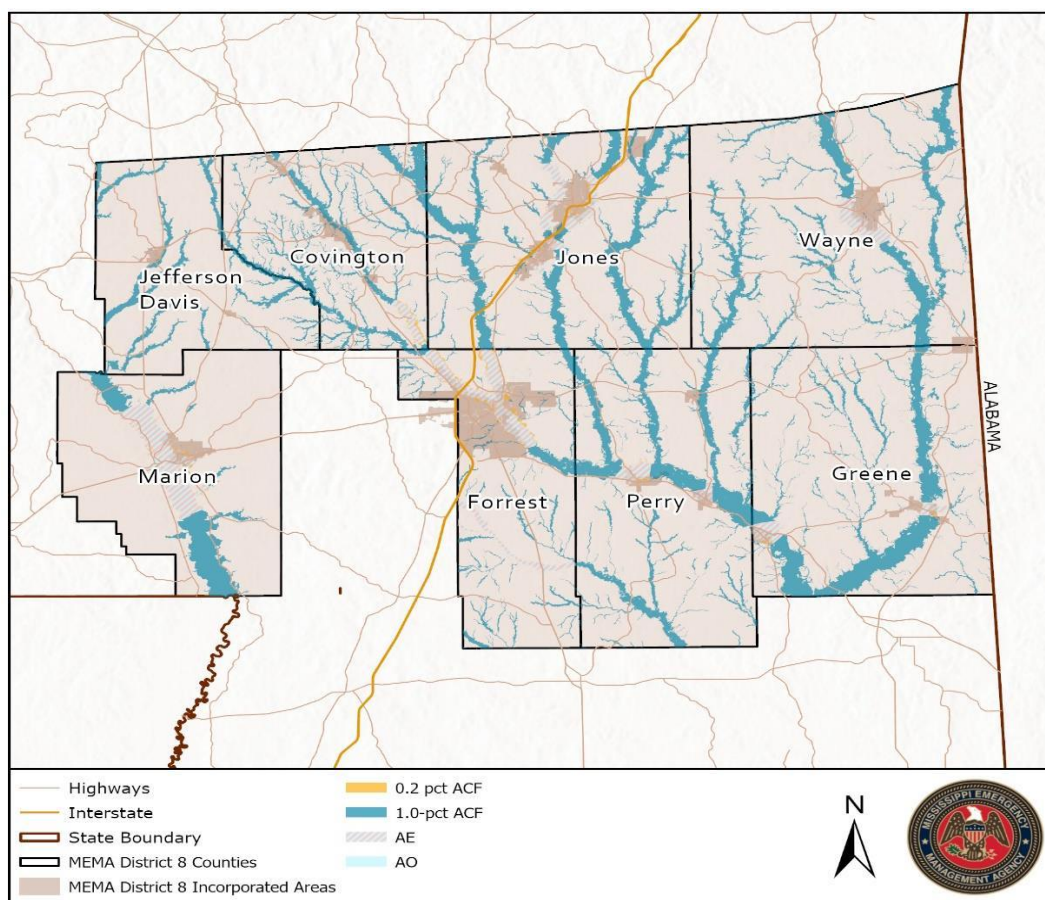
There are areas in the *MEMA District 8 Region* that are susceptible to flood events. Special flood hazard areas in the *MEMA District 8 Region* were mapped using Geographic Information System (GIS) and FEMA Digital Flood Insurance Rate Maps (DFIRM). This includes Zone A (1-percent annual chance floodplain), 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<br>(Square Miles) | 500-Year Area<br>(Square Miles) | DFIRM<br>DATE | NFIP Insured<br>SRL/RL |
|-------------------------------|---------------------------------|---------------------------------|---------------|------------------------|
| Covington County              | 80                              | 1                               | 4/5/2010      | 0                      |
| Forrest County                | 46                              | 0                               | 11/19/2021    | 28                     |
| Greene County                 | --                              | 0                               | 11/19/2021    | 0                      |
| Jefferson Davis County        | 46                              | 0                               | 12/17/2010    | 0                      |
| Jones County                  | 137                             | 1                               | 11/19/2021    | 5                      |
| Marion County                 | 83                              | 2                               | 11/19/2021    | 11                     |
| Perry County                  | 115                             | 1                               | 11/19/2021    | 1                      |
| Wayne County                  | 122                             | 0                               | 7/18/2011     | 0                      |
| MEMA District 8 Region Total: | 629                             | 5                               | --            | 45                     |

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 5.3** 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 5.3: SPECIAL FLOOD HAZARD AREAS IN THE MEMA DISTRICT 8 REGION



### 5.3.3 Historical Occurrences

Floods resulted in 20 disaster declarations in the *MEMA District 8 Region* between 1970 and 2024. 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 448 events throughout the *MEMA District 8 Region* since 2000. A summary of these events is presented in **Table 5.4**. These events accounted for \$39.13M 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 Events | Deaths   | Injuries | Property Damage (2000-2024) |
|-------------------------------|------------------|----------|----------|-----------------------------|
| <i>Covington County</i>       | 65               | 0        | 0        | \$3,177,000                 |
| <i>Forrest County</i>         | 107              | 0        | 0        | \$9,142,000                 |
| <i>Greene County</i>          | 26               | 0        | 0        | \$667,000                   |
| <i>Jefferson Davis County</i> | 32               | 0        | 0        | \$1,384,000                 |
| <i>Jones County</i>           | 105              | 0        | 0        | \$11,060,000                |
| <i>Marion County</i>          | 61               | 0        | 0        | \$10,527,000                |
| <i>Perry County</i>           | 27               | 0        | 0        | \$1,962,000                 |
| <i>Wayne County</i>           | 21               | 0        | 0        | \$1,212,000                 |
| <b>MEMA District 8 Total:</b> | <b>444</b>       | <b>0</b> | <b>0</b> | <b>\$39,130,000</b>         |

Source: NCED/NOAA

### 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 will 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 2023, 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.

### 5.3.5 Repetitive Loss Properties

The updates to this section stayed the same unless the local jurisdiction requested the information from FEMA, as they are the only ones who can receive the information due to HIPA Laws. The inform was requested from each jurisdiction. Information was updated in this section as provided by the local jurisdiction. As a result, this information is the best and most accurate that were provided 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 2023), 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.

**TABLE 5.5: SUMMARY OF INSURED FLOOD LOSSES AND REPETITIVE LOSS PROPERTIES IN MEMA DISTRICT 8 REGION**

| Location/<br>County    | Insured Flood Losses |                    | Repetitive<br>Loss<br>Properties | Repetitive Loss Properties |                     |                    |
|------------------------|----------------------|--------------------|----------------------------------|----------------------------|---------------------|--------------------|
|                        | Flood<br>Losses      | Claim<br>Payments  |                                  | Number of<br>Properties    | Number<br>of Losses | Total<br>Payments  |
| <i>Covington</i>       | 48                   | \$528,810          |                                  | 8                          | 18                  | \$291,033          |
| <i>Forrest</i>         | 23                   | \$243,475          |                                  | 22                         | 74                  | \$1,379,010        |
| <i>Greene</i>          | --                   | \$243,475          |                                  | 0                          | 0                   | \$0                |
| <i>Jefferson Davis</i> | 2                    | \$4,613            |                                  | 0                          | 0                   | \$0                |
| <i>Jones</i>           | 108                  | \$681,965          |                                  | 20                         | 55                  | \$1,070,226        |
| <i>Marion</i>          | 551                  | \$5,950,261        |                                  | 91                         | 282                 | \$3,563,949        |
| <i>Perry</i>           | 67                   | \$258,797          |                                  | 11                         | 26                  | \$116,001          |
| <i>Wayne</i>           | 24                   | \$258,596          |                                  | 3                          | 11                  | \$118,827          |
| <b>Total:</b>          | <b>823</b>           | <b>\$7,926,517</b> |                                  | <b>155</b>                 | <b>466</b>          | <b>\$6,539,046</b> |



### 5.3.6 Historical Summary of Flash Flood/Flood Losses Since Last Update By County. (1/1/2019 – 12/31/2024)

**Covington County**—Covington County had a total of 12 flash flooding events since the last update totaling \$91 thousand in damages. (Table 5.7)

**Forrest County**—Forrest County had a total of 18 flash flooding events since the last update totaling \$2.632M in damages.

**Greene County**—Greene County had a total of 2 flash flooding events since the last update totaling \$0 in damages.

**Jefferson Davis County**—Jefferson Davis County had a total of 5 flash flooding events since the last update totaling \$285 thousand in damages. (Table 5.7)

**Jones County**—Jones County had a total of 17 flash flooding events since the last update totaling \$175 thousand in damages.

**Marion County**—Marion County had a total of 7 flash flooding events since the last update totaling \$211 thousand in damages.

**Perry County**—Perry County had a total of 5 flash flooding events since the last update totaling \$10 thousand in damages.

**Wayne County**—Wayne County had a total of 2 flash flooding events since the last update totaling \$0 in damages. (Table 5.7)

**TABLE 5.7 FLASH FLOODING EVENTS BY COUNTY (2019-2023)**

| Covington County: Total Loss \$91 Thousand |           |          |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------|-----------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Location                                   | Date      | Loss     | Cause                                                                                                                                                                                                                                                                                                                                                     | Impact                                                                                                                                                                                                                                                                                                     |
| Ora                                        | 4/13/2019 | \$3,000  | During the late afternoon of April 13 and into the evening and overnight, a strong spring storm system pushed across the Lower Mississippi Valley region and brought widespread severe weather, a regional tornado outbreak, and flash flooding.                                                                                                          | <ul style="list-style-type: none"> <li>• Heavy rainfall was also impactful and multiple inches of rain quickly fell across some locations and caused flash flooding, some of it extensive.</li> <li>• Flooding occurred near Highway 49 and Sunset Road.</li> </ul>                                        |
| Collins                                    | 4/18/2019 | \$3,000  | During the daytime hours of April 18th, a developing storm system helped generate a large line of thunderstorms which then moved across the region.                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• Three parts of Evergreen Church Road were under water.</li> </ul>                                                                                                                                                                                                 |
| Gandsi                                     | 7/21/2019 | \$2,000  | Strong thunderstorms produced flash flooding.                                                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>• Water flowed across Hwy 49 between Collins and Seminary.</li> </ul>                                                                                                                                                                                               |
| Pickering                                  | 1/13/2020 | \$15,000 | A warm front was situated across southern Mississippi during the evening of January 13th. This, combined with a passing disturbance and anomalous moisture, supported numerous thunderstorms and heavy rainfall that produced widespread rainfall between 2 and 6 inches with the heavies corridor right across the central portion of the forecast area. | <ul style="list-style-type: none"> <li>• Water was across part of Highway 49 near the Mooney Branch of Okatoma Creek. Part of Old Highway 49 was flooded south of Seminary near the Seminary Canoe Rental. Part of MS Highway 589 was flooded near Seminary.</li> </ul>                                    |
| County                                     | 8/25/2020 | \$9,000  | Tropical moisture associated with Tropical Storm Marco helped to initiate showers across southeast Mississippi. Some of this rain brought flash flooding to the region.                                                                                                                                                                                   | Flooding occurred on Yates Road and on Mt. Horeb Road.                                                                                                                                                                                                                                                     |
| Collins Airport                            | 8/28/2020 | \$3,000  | Hurricane Laura made landfall along the Louisiana coast near Lake Charles in the early morning hours of August 27.                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>• Rainfall amounts up to four inches occurred along and west of the Mississippi River and this resulted in some minor flooding.</li> <li>• Minor street flooding occurred in Collins. Minor flooding also occurred on Knights Road southwest of Collins.</li> </ul> |
| Hot Coffee                                 | 3/16/2021 | \$2,000  | A stalled front, combined with a warm and moist airmass, led to the development of showers and thunderstorms across the region.                                                                                                                                                                                                                           | Water was over Highway 37 in northern Covington County.                                                                                                                                                                                                                                                    |

|                          |           |          |                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                 |
|--------------------------|-----------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Williamsburg</b>      | 6/6/2021  | \$25,000 | As an upper-level low pressure system moved over central parts of the country, a few storm systems moved across the state of Mississippi.                                                                                 | Over 200 homes were flooded in portions of Bolivar and Sunflower Counties. A few rounds of heavy rain caused flash flooding across numerous roads in various parts of Covington County. A video showed water flowing across a portion of McDonald Chapel Road south of Collins. |
| <b>Ora</b>               | 8/30/2021 | \$20,000 | Major hurricane Ida made landfall as a strong category four hurricane around 11:55am on August 29 near Grand Isle, LA. It then moved very slowly north through south central Louisiana and into Mississippi on August 30. | Rainfall amounts of 4-8 inches occurred, which resulted in localized flooding. Heavy rainfall from Tropical Storm Ida resulted in flash flooding that washed out a culvert on Ora Williamson Road.                                                                              |
| <b>Collins</b>           | 3/18/2022 | \$1,000  | Showers and thunderstorms developed in the warm, moist airmass south of a warm front.                                                                                                                                     | Flash flooding occurred as storms began to move over the same region. Kola Road was flooded near the bridge.                                                                                                                                                                    |
| <b>Williamsburg</b>      | 7/22/2022 | \$2,000  | Slow moving thunderstorms on the afternoon of July 22nd resulted in flash flooding in Covington County near Collins.                                                                                                      | Flash flooding occurred southwest of Collins near the Williamsburg community.                                                                                                                                                                                                   |
| <b>Arbo &amp; Gandsi</b> | 8/24/2022 | \$6,000  | A low-pressure system spinning over northern Louisiana and southern Arkansas brought several rounds of showers and thunderstorms producing heavy rain to Mississippi August 24th through 25th.                            | The result was widespread flooding of roads, homes, and businesses around the state. A few roads flooded in the southern part of the county including Williams Road near Highway 588 and Ed Mayfield Road.                                                                      |

### Forrest County \$2.632 Million

| Location                    | Date      | Loss        | Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------|-----------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Petal &amp; County</b>   | 1/23/2019 | \$10,000    | A low-pressure system moved east across the region, bringing widespread rainfall and a few strong to severe thunderstorms. Training thunderstorms across the Pine Belt led to flash flooding.                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Streets were flooded in West Hattiesburg, and runoff from heavy rain flooded the area near the intersection of Woody Clark Road and Batson Road.</li> <li>Flash flooding occurred along McCall Street.</li> <li>Jackson Avenue was closed due to flash flooding in Petal.</li> </ul>                                                                                                                                                                                                                                                                                                     |
| <b>Hattiesburg</b>          | 4/18/2019 | \$12,000    | <ul style="list-style-type: none"> <li>During the daytime hours of April 18th, a developing storm system helped generate a large line of thunderstorms which then moved across the region.</li> <li>The combination of multiple environmental features, set the stage for 43 tornadoes to occur over the forecast area. This ranks as 4th most for a single event across the forecast area. In addition to the tornadoes, widespread wind damage occurred as well.</li> </ul> | The combination of multiple environmental features, set the stage for 43 tornadoes to occur over the forecast area. This ranks as 4th most for a single event across the forecast area. In addition to the tornadoes, widespread wind damage occurred as well. Roads were flooded across Hattiesburg and Petal.                                                                                                                                                                                                                                                                                                                 |
| <b>Petal &amp; Glendale</b> | 5/09/2019 | \$3,000     | A slow-moving low-pressure system moved northeast from the High Plains region toward the Great Lakes between May 8th and 9th.                                                                                                                                                                                                                                                                                                                                                 | Water covered the westbound lanes of West Fourth Street near the Century Park Residence Halls on the University of Southern Mississippi campus.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>County</b>               | 5/11/2019 | \$1,735,000 | After a cold front stalled across the ArkLaMiss region the day before, the remnant stationary front served as a focus for the development of widespread showers and thunderstorms on May 11th.                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Several roads across southern Forrest County were flooded including portions of Old Highway 49 between Brooklyn and Maxie. A few roads were also washed out including Churchwell Road, Tower Road, Entekin Road, Worth Nall Road, and Bud Myers Road.</li> <li>Rockhill Brooklyn Road and A B Simmons Road were closed due to water covering the roadways after an additional round of heavy rain moved through.</li> <li>Old Highway 49 was closed near Brooklyn due to flash flooding along several portions of it from near Bud Myers Road south to near Yeaton Spur Road.</li> </ul> |
| <b>Petal</b>                | 7/14/2019 | \$1,000     | Hurricane Barry made landfall in Louisiana and quickly weakened to a tropical storm as it moved inland across the region. The storm brought severe storms and flash flooding to the region on July 14th.                                                                                                                                                                                                                                                                      | Jackson Avenue was closed in the city of Petal due to about 2 feet of water on the street.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Hattiesburg</b>          | 2/10/2020 | \$2,000     | Anomalous moisture was in place across the ArkLaMiss region as a stationary front was draped across the area.                                                                                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Some locations saw locally higher amounts of nine to ten inches. Around I-20, two to four inches of rain fell, while near an inch fell across the Highway 84 corridor.</li> <li>Flooding occurred along Highway 49 between Hardy Street and Old Highway 42.</li> </ul>                                                                                                                                                                                                                                                                                                                   |

|                                |           |           |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------|-----------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hattiesburg</b>             | 5/27/2020 | \$2,000   | Afternoon showers and thunderstorms occurred across the region as a warm, moist and unstable airmass was in place.                                                                                                                                                                                                                                                                                                           | Intermittent flooding occurred along Hardy Street between Highway 49 and 38th Avenue.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Brooklyn</b>                | 4/24/2021 | \$7,000   | Showers and thunderstorms developed in association with a frontal system that moved through the region.                                                                                                                                                                                                                                                                                                                      | Water covered a road and flowed over a bridge near Brooklyn.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Carnes</b>                  | 6/19/2021 | \$10,000  | Heavy rainfall associated with Tropical Storm Claudette produced flash flooding in southeast Mississippi.                                                                                                                                                                                                                                                                                                                    | Heavy rain associated with Tropical Storm Claudette caused flash flooding in far southern portions of Forrest County. A culvert along Joe Lee Road washed out, several roads in Brooklyn including Main Street and 4th street were flooded, and John Morris Road near Carnes was flooded over.                                                                                                                                                                                                                                                                             |
| <b>Hattiesburg</b>             | 6/24/2021 | \$35,000  | Scattered thunderstorms in late June produced isolated damaging winds and flash flooding.                                                                                                                                                                                                                                                                                                                                    | Hardy Street from 31st Avenue to 38th Avenue was flooded, and three vehicles were stranded in floodwaters beneath the 4th Street bridge.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Hattiesburg</b>             | 8/30/2021 | \$5,000   | Major hurricane Ida made landfall as a strong category four hurricane around 11:55am on August 29 near Grand Isle, LA. It then moved very slowly north through south central Louisiana and into Mississippi on August 30.                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>• Rainfall amounts of 4-8 inches occurred, which resulted in localized flooding.</li> <li>• Heavy rainfall from Tropical Storm Ida resulted in flash flooding in the city of Hattiesburg. Water covered the roadway at the intersection of Highway 49 and West Pine Street as well as at North 28th Avenue and Sims Road.</li> </ul>                                                                                                                                                                                                |
| <b>County</b>                  | 2/3/2022  | \$4,000   | A warm and anomalously moist airmass was in place across Mississippi ahead of a cold front. This front moved through the region early on the 3rd, with arctic air spilling south behind it. Ahead of the front, showers and thunderstorms developed, with some being severe and producing damaging winds. Given the high moisture content present, locally heavy rainfall occurred and resulted in localized flash flooding. | <ul style="list-style-type: none"> <li>• Rainfall amounts of four to over five and a half inches fell in portions of the Pine Belt.</li> <li>• Heavy rain fell across the Hattiesburg area. Storm totals around 4.7 to 5.7 inches fell across portions of the area. This resulted in instances of flash flooding across Hattiesburg. Flash flooding occurred on Annie Christie Lane and Collins Street in Hattiesburg, as well as on Chester Brown Road. Flooding occurred on Highway 49 and W 7th Avenue.</li> </ul>                                                      |
| <b>County</b>                  | 3/18/2022 | \$1,000   | Showers and thunderstorms developed in the warm, moist airmass south of a warm front.                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>• Flash flooding occurred as storms began to move over the same region.</li> <li>• Barrontown Road was flooded.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Riverside</b>               | 4/05/2022 | \$15,000  | A low-pressure system moving east along the Arkansas Louisiana border helped to organize a line of severe thunderstorms early in the morning of April 5th.                                                                                                                                                                                                                                                                   | After 2 to 3 inches of heavy rain fell over the Hattiesburg area, several streets in downtown mainly south of Gordons Creek were affected by flash flooding. Some roads were closed for several hours as waters pooled and then receded. This included areas near the intersection of Hardy Street and Williams Street, Bay Street, the intersection of Katie Avenue and Charles Street, the intersection of 25th Avenue and 7th Street, a portion of US Highway 49 near West Pine Street, and Short Bay Street.                                                           |
| <b>Riverside</b>               | 4/17/2022 | \$15,000  | Several rounds of severe thunderstorms produced large hail, damaging wind gusts, and tornadoes through the day on April 17th.                                                                                                                                                                                                                                                                                                | US Highway 49 at the 4th Street overpass was closed due to flooding, and the intersection of 7th St. and 25th St. was closed due to flooding.                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Hattiesburg</b>             | 6/10/2022 | \$10,000  | Storms occurred on June 10 <sup>th</sup> which lead to heavy rain and flash flooding.                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>• South 15th Avenue was closed due to Flash Flooding.</li> <li>• Barter street and South 17th Avenue were closed due to flash flooding. Vehicles were also stalled along South 17th Avenue.</li> </ul>                                                                                                                                                                                                                                                                                                                              |
| <b>Hattiesburg &amp; Petal</b> | 8/24/2022 | \$475,000 | A low-pressure system spinning over northern Louisiana and southern Arkansas brought several rounds of showers and thunderstorms producing heavy rain to Mississippi August 24th through 25th.                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>• This resulted in widespread flooding of roads, homes, and businesses around the state.</li> <li>• Flooding at Klondyke Street and Hardy St.</li> <li>• Flooding reported at the University of Southern Mississippi. Flooding on Hardy Street between 10th and 11th street and near 17th street in Hattiesburg.</li> <li>• A car flooded and high-water rescue on Highway 49 in Hattiesburg.</li> <li>• There was flooding at Sherry Lynn Drive and Oaklawn drive and also on Robinson Drive and Leeville Road in Petal</li> </ul> |

| <b>Hattiesburg</b>                       | 12/14/2022 | \$300,000 | Severe thunderstorms moved across Mississippi during the evening and overnight hours of the 13th into the 14th, with flash flooding across areas of the Delta and several tornadoes.                                                         | Heavy rain with thunderstorms across Hattiesburg resulted in numerous reports of flash flooding, with homes and vehicles impacted by high water. Water rescues from stalled vehicles occurred along Hardy street with McLeod street and Main streets blocked due to high water, flooding along Mamie street, with reports of flooding across numerous other roads across town including near Providence Street and Old highway 42.                             |
|------------------------------------------|------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Greene County: \$0</b>                |            |           |                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Location                                 | Date       | Loss      | Cause                                                                                                                                                                                                                                        | Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Royce &amp; Neely</b>                 | 1/23/2019  | \$0       | Slow moving thunderstorms produced heavy rain which caused flooding in southeast Mississippi.                                                                                                                                                | <ul style="list-style-type: none"> <li>• Heavy rain caused flooding on Highway 57 south of McLain.</li> <li>• Water over Highway 57 just north of Neely Rd.</li> </ul>                                                                                                                                                                                                                                                                                         |
| <b>Avera</b>                             | 8/25/2022  | \$0       | A wet pattern continued across the Gulf Coast as additional heavy rain led to numerous flooding reports across southwest Alabama and southeast Mississippi.                                                                                  | Water over the roadway near Indian Hill Road.                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Jefferson Davis County: \$285,000</b> |            |           |                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Location                                 | Date       | Loss      | Cause                                                                                                                                                                                                                                        | Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Prentiss &amp; County</b>             | 8/25/2020  | \$110,000 | Tropical moisture associated with Tropical Storm Marco helped to initiate showers across southeast Mississippi. Some of this rain brought flash flooding to the region.                                                                      | <ul style="list-style-type: none"> <li>• In the County water damage occurred to a home on White Rogers Road. Four homes received some water damage on Ponderosa Road, and water was over Sumrall Road. Water was over Clem School Road and culverts were washed away.</li> <li>• In Prentiss water overflowed the banks of White Sands Creek and covered Dykes Road and South Pleasant Hill Road. Water also covered Granby Road and Mt. Zion Road.</li> </ul> |
| <b>Gwinville</b>                         | 3/25/2021  | \$15,000  | Vigorous wind shear as well as ample instability would combine to generate thunderstorms that had the potential for violent severe weather. Storms developed during the afternoon, bringing damaging winds and flash flooding to the region. | A culvert along Williamson Mill Road was washed out.                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Hathorn</b>                           | 6/6/2021   | \$25,000  | As an upper-level low pressure system moved over central parts of the country. These brought rounds of severe thunderstorms and heavy rain to the region.                                                                                    | <ul style="list-style-type: none"> <li>• Over 200 homes were flooded in portions of Bolivar and Sunflower Counties.</li> <li>• Raynes Road was completely covered in water, and a portion was washed out by floodwaters.</li> </ul>                                                                                                                                                                                                                            |
| <b>Prentiss &amp; Carson</b>             | 4/17/2022  | \$15,000  | Several rounds of severe thunderstorms produced large hail, damaging wind gusts, and tornadoes through the day on April 17th.                                                                                                                | <ul style="list-style-type: none"> <li>• A portion of Choctaw Road was flooded.</li> <li>• In Prentiss the intersection area of MS Highway 42 and MS Highway 13 was flooded.</li> </ul>                                                                                                                                                                                                                                                                        |
| <b>Prentiss</b>                          | 8/24/2022  | \$120,000 | A low-pressure system spinning over northern Louisiana and southern Arkansas brought several rounds of showers and thunderstorms producing heavy rain to Mississippi August 24th through 25th.                                               | <ul style="list-style-type: none"> <li>• This resulted in widespread flooding of roads, homes, and businesses around the state.</li> <li>• Two businesses in Prentiss flooded.</li> </ul>                                                                                                                                                                                                                                                                      |
| <b>Jones County : \$175,000</b>          |            |           |                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Location                                 | Date       | Loss      | Cause                                                                                                                                                                                                                                        | Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>County</b>                            | 1/23/2019  | \$3,000   | A low-pressure system moved east across the region, bringing widespread rainfall and a few strong to severe thunderstorms. Thunderstorms across the Pine Belt led to flash flooding.                                                         | <ul style="list-style-type: none"> <li>• Flash flooding led to rising water which threatened a home along Overt Moselle Road.</li> <li>• Flash flooding led to water flowing across George Boutwell Road.</li> </ul>                                                                                                                                                                                                                                           |
| <b>Laurel</b>                            | 2/20/2019  | \$15,000  | Heavy rain and thunderstorms developed as a frontal system stalled along the coast and a series of disturbances moved through the region. Some locations received 10 to over 15 inches of rain, resulting in significant flooding.           | Several streets were closed due to flooding.                                                                                                                                                                                                                                                                                                                                                                                                                   |



|                                |           |          |                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------|-----------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hoy</b>                     | 5/11/2019 | \$2,000  | After a cold front stalled across the ArkLaMiss region the day before, the remnant stationary front served as a focus for the development of widespread showers and thunderstorms on May 11th. Following several previous rounds of heavy rainfall across the region, heavy rain associated with these showers and storms produced flooding and flash flooding across mainly eastern and southeastern Mississippi. | Matthews Road off of MS Highway 15 was closed due to flash flooding.                                                                                                                                                                                                                                                              |
| <b>Laurel &amp; Soso</b>       | 7/14/2019 | \$7,000  | Hurricane Barry made landfall in Louisiana and quickly weakened to a tropical storm as it moved inland across the region. The storm brought severe storms and flash flooding to the region on July 14th.                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>• Water covered Feed Mill Road in Soso.</li> <li>• In Laurel flash flooding occurred on Leontyne Price Boulevard between I-59 and Home Street. Home Street was flooded from Leontyne Price Boulevard to South Magnolia Street.</li> </ul>                                                  |
| <b>Laurel &amp; Moselle</b>    | 1/13/2020 | \$7,000  | A warm front was situated across southern Mississippi during the evening of January 13th. This, combined with a passing disturbance and anomalous moisture, supported numerous thunderstorms and heavy rainfall that produced widespread rainfall between 2 and 6 inches with the heaviest corridor right across the central portion of the forecast area.                                                         | <ul style="list-style-type: none"> <li>• Some roads around Moselle were flooded and impassable.</li> <li>• Several roads around Laurel were flooded and impassable.</li> </ul>                                                                                                                                                    |
| <b>Laurel</b>                  | 8/28/2020 | \$10,000 | Hurricane Laura made landfall along the Louisiana coast near Lake Charles in the early morning hours of August 27, which led to minor flooding in the area.                                                                                                                                                                                                                                                        | Moderate street flooding caused a car to stall along 15th Avenue.                                                                                                                                                                                                                                                                 |
| <b>Ellisville &amp; Laurel</b> | 2/11/2021 | \$6,000  | Flash flooding occurred due to heavy rain.                                                                                                                                                                                                                                                                                                                                                                         | Multiple streets were flooded, and ditches were full over in the city of Ellisville, and multiple streets were flooded in Laurel.                                                                                                                                                                                                 |
| <b>Laurel</b>                  | 3/25/2021 | \$5,000  | Storms developed during the afternoon, bringing damaging winds and flash flooding to the region.                                                                                                                                                                                                                                                                                                                   | Flooding occurred east of the Interstate exchange in Laurel.                                                                                                                                                                                                                                                                      |
| <b>Laurel</b>                  | 6/6/2021  | \$50,000 | As an upper-level low pressure system moved over central parts of the country, a few storm systems moved across the state of Mississippi.                                                                                                                                                                                                                                                                          | Street flooding occurred in Laurel, especially in the southern part of the city. A few cars were flooded.                                                                                                                                                                                                                         |
| <b>County</b>                  | 8/30/2021 | \$15,000 | <ul style="list-style-type: none"> <li>• Major hurricane Ida made landfall as a strong category four hurricane August 29 near Grand Isle, LA. It then moved very slowly north through south central Louisiana and into Mississippi.</li> <li>• Rainfall amounts of 4-8 inches occurred, which resulted in localized flooding.</li> </ul>                                                                           | Heavy rainfall from Tropical Storm Ida resulted in flash flooding across Jones County. The intersection of Monroe Road and Emmons Road was underwater as well as a one eight mile stretch of RV Lindley Road.                                                                                                                     |
| <b>Laurel &amp; County</b>     | 3/18/2022 | \$12,000 | Showers and thunderstorms developed in the warm, moist air mass south of a warm front. Flash flooding occurred as storms began to move over the same region.                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• Flooding occurred in Laurel on Leontyne Price Blvd and Pendorff road. Multiple streets were flooded in town. A few vehicles stalled out from driving in flooded roads.</li> <li>• Flooding occurred near the intersection of Burnt Bridge Road and Palmer Road in Ellisville.</li> </ul> |
| <b>Laurel</b>                  | 7/4/2022  | \$5,000  | Numerous showers and thunderstorms developed across the area on the afternoon of July 4th. Some of these storms had torrential downpours which resulted in flash flooding in portions of Jones and Rankin Counties.                                                                                                                                                                                                | Multiple streets were flooded in Laurel.                                                                                                                                                                                                                                                                                          |
| <b>Moselle</b>                 | 8/24/2022 | \$5,000  | A low-pressure system brought rounds of showers, thunderstorms, and heavy rain to MS which led to flash flooding.                                                                                                                                                                                                                                                                                                  | A few roads were flooded around Moselle. This resulted in widespread flooding of roads, homes, and businesses around the state.                                                                                                                                                                                                   |
| <b>Laurel</b>                  | 6/16/2023 | \$30,000 | An upper-level disturbance triggered a cluster of thunderstorms along a stationary front boundary. These storms intensified and grew upscale into an intense mesoscale convective system (MCS) as they moved east-southeast along an axis of increased moisture and strong instability that extended toward the Central Gulf Coast.                                                                                | A few cars were submerged in the Teresa Street underpass in Laurel.                                                                                                                                                                                                                                                               |
| <b>County</b>                  | 6/17/2023 | \$1,000  | Convergence of moisture along a stationary front in southern Mississippi triggered thunderstorms during the day on June 17th.                                                                                                                                                                                                                                                                                      | A portion of Dome House Road in the Glade community was flooded.                                                                                                                                                                                                                                                                  |
| <b>Laurel</b>                  | 7/11/2023 | \$1,000  | Scattered storms developed each afternoon. A few storms became strong to severe.                                                                                                                                                                                                                                                                                                                                   | Multiple incidences of street flooding were observed in the Laurel area                                                                                                                                                                                                                                                           |



| <b>Hoy</b>                      | 1/24/2024 | \$1,000   | With an upper-level trough of low pressure situated over Central Plains and a very moist air mass extending north through the Mississippi River Valley, training showers and thunderstorms produced heavy rain and flooding over parts of Mississippi. | Creeks and fields were flooding.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------|-----------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Marion County: \$211,000</b> |           |           |                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Location                        | Date      | Loss      | Cause                                                                                                                                                                                                                                                  | Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Columbia &amp; County</b>    | 7/4/2020  | \$5,000   | An area of intense and slower moving storms produced some flash flooding around the Columbia area in southeast Mississippi.                                                                                                                            | Heavy rain caused flash flooding on several roads on the western side of downtown Columbia and toward the Foxworth area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Columbia &amp; County</b>    | 7/8/2020  | \$3,000   | Scattered thunderstorms developed in an unstable air mass across Mississippi during the late morning of July 8th.                                                                                                                                      | <ul style="list-style-type: none"> <li>• Water blocked a portion of South High School Road in Columbia.</li> <li>• Water blocked part of Pine Burr Road near MS Highway 13 South.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Columbia</b>                 | 2/11/2021 | \$118,000 | Flash flooding occurred due to heavy rain.                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>• Flash flooding occurred around Columbia. Flooding occurred at Eagle Day Avenue and Highway 98. A furniture store in this area had water enter the building. Flooding occurred at Pineview Drive and at Meadowood Drive. In both of these locations, water entered a home. Multiple city streets were flooded in Columbia as well as parking lots under water and water entered a home. Flash flooding reported at Meadowood Road in Downtown Columbia. Flash flooding reported at Pineview Drive. Water began entering a residential home. Multiple city streets flooded along with parking lots under water. Water is also inside one home of a special needs person. Fire department and the police deployed sandbags.</li> <li>• Portions of Columbia Purvis Road were underwater. A vehicle got stuck and required a water rescue.</li> <li>• A portion of Highway 13 was underwater in the county.</li> </ul> |
| <b>Columbia</b>                 | 4/10/2021 | \$3,000   | Showers and thunderstorms developed in association with a frontal system moving through the region.                                                                                                                                                    | Water covered roads in Columbia.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Columbia</b>                 | 3/18/2022 | \$2,000   | Showers and thunderstorms developed in the warm, moist airmass south of a warm front.                                                                                                                                                                  | Multiple streets were flooded in Columbia, some were closed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Columbia</b>                 | 4/5/2022  | \$5,000   | A low-pressure system moving east along the Arkansas Louisiana border helped to organize a line of severe thunderstorms early in the morning of April 5th.                                                                                             | Several roads were flooded in Columbia.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Columbia</b>                 | 1/24/2024 | \$75,000  | With an upper-level trough of low pressure situated over Central Plains and a very moist air mass extending north through the Mississippi River Valley, training showers and thunderstorms produced heavy rain and flooding over parts of Mississippi. | Flood prone roads were covered with 4 to 8 inches of water, and other roads were closed with cars stalled in floodwaters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Perry County: \$10,000</b>   |           |           |                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Location                        | Date      | Loss      | Cause                                                                                                                                                                                                                                                  | Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>New Augusta &amp; County</b> | 5/11/2019 | \$10,000  | A stalled front just to the northwest of the area combined with several upper-level disturbances moving across created several rounds of heavy rain.                                                                                                   | <ul style="list-style-type: none"> <li>• In the county, Lake Road was closed due to a possible washout. Janice Brooklyn Road was closed due to flooding. Water over several road including Bailey Road, McKenzie Road and Old River Road.</li> <li>• Flooding along Benndale Road in Janice.</li> <li>• Water over the Wingate Road near New Augusta School.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|                    |            |     |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------|------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Janice</b>      | 10/28/2020 | \$0 | Hurricane Zeta made landfall in southeast Louisiana during the late afternoon hours. It brought heavy rain that lead to flash flooding.            | <ul style="list-style-type: none"> <li>• Perry County MS: The county experienced sustained strong tropical storm force winds with frequent gusts to hurricane force. This resulted in significant tree and power line damage. Numerous to widespread power outages were reported. 36 homes were damaged, experiencing either roof damage or damage due to downed trees.</li> <li>• Two roads washed out due to flash flooding.</li> </ul> |
| <b>Tallahala</b>   | 6/6/2021   | \$0 | Strong thunderstorm developed in southeast Mississippi and produced locally heavy rain along with strong wind gusts that caused some damage.       | Heavy rain caused pumping station road to be closed due to culverts washing out.                                                                                                                                                                                                                                                                                                                                                          |
| <b>Runnelstown</b> | 2/3/2022   | \$0 | Heavy rain from slow moving storms also caused flooding in some areas.                                                                             | Heavy caused water to cover the road on Buck Creek Loop, Henry James Road and Corinth Church Road.                                                                                                                                                                                                                                                                                                                                        |
| <b>Rhodes</b>      | 8/24/2022  | \$0 | A very favorable pattern for heavy rain combined with already wet ground conditions led to development of heavy rain and flooding across the area. | Heavy rains caused water to cover the road on Good Hope Church Road.                                                                                                                                                                                                                                                                                                                                                                      |

### Wayne County: \$0

| Location          | Date      | Loss | Cause                                                                                                                                                       | Impact                                                                                                                                                                                                                                                                                |
|-------------------|-----------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Waynesboro</b> | 7/13/2022 | \$0  | Slow moving thunderstorms caused heavy rain which produced flooding in southeast Mississippi.                                                               | Heavy rain caused flooding on several streets in Waynesboro.                                                                                                                                                                                                                          |
| <b>County</b>     | 8/25/2022 | \$0  | A wet pattern continued across the Gulf Coast as additional heavy rain led to numerous flooding reports across southwest Alabama and southeast Mississippi. | <ul style="list-style-type: none"> <li>• Water over the roadway near Winchester Cross Road near Highway 45.</li> <li>• Water over the roadway on Bud Stevens Roads off Big Creek Road.</li> <li>• Heavy rain caused water to cover several roads in southern Wayne County.</li> </ul> |

## 5.3.7 Possible Effects of Climate Change

Flooding is the most common and costly natural disaster in the United States. The risk of flooding is constantly increasing due to climate change: rising sea levels, wildfires, changing precipitation patterns and more. Flooding is an increasing issue as our climate changes. Compared to the beginning of the 20th century, there are both stronger and more frequent abnormally heavy precipitation events across most of the United States. From 1980–2000, the NFIP paid almost \$9.4 billion in flood insurance claims. From 2000–2020, that number increased over 660% to \$62.2 billion due to the changing climate. Since 1996, 99% of counties in the U.S. have experienced a flood, but only 4% of homeowners have flood insurance.

**Climate Change:** A change in the state of the climate that can be identified by changes in the mean and/or variability of its properties and that persists for an extended period, typically decades or longer. **Climate change** may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions, persistent human-driven changes in the composition of the atmosphere or in land use (USGCRP 2022-2031 Strategic Plan).

The size, or magnitude, of flood events is influenced by how much water enters the waterway upstream—and how quickly. Flood frequency largely depends on the frequency of weather events. Large flood events can damage homes, roads, bridges, and other infrastructure; wipe out farmers' crops; and harm or displace people. Although regular flooding helps to maintain the nutrient balance of soils in the flood plain, larger or more frequent floods could disrupt ecosystems by displacing aquatic life, impairing water quality, and increasing soil erosion. By inundating water treatment systems with sediment and contaminants, and promoting the growth of harmful microbes, floods can directly affect the water supplies that communities depend on.

**Climate change** may also cause river floods to become larger or more frequent than they used to be in some places yet become smaller and less frequent in other places. As warmer temperatures cause more water to evaporate from the land and oceans, changes in the size and frequency of heavy precipitation events may in turn affect the size and frequency of river flooding. Changes in streamflow, the timing of snowmelt, and the amount of snowpack that accumulates in the winter can also affect flood patterns.

**"Heavy precipitation"** refers to instances during which the amount of rain or snow experienced in a location substantially exceeds what is normal. What constitutes a period of heavy precipitation varies according to location and season.

**Climate change** can affect the intensity and frequency of precipitation. Warmer oceans increase the amount of water that evaporates into the air. When more moisture-laden air moves over land or converges into a storm system, it can produce more intense precipitation—for example, heavier rain and snow storms. The potential impacts of heavy precipitation include crop damage, soil erosion, and an increase in flood risk due to heavy rains—which in turn can lead to injuries, drownings, and other flooding-related effects on health. In addition, runoff from precipitation can impair water quality as pollutants deposited on land wash into water bodies.

Heavy precipitation does not necessarily mean the total amount of precipitation at a location has increased—just that precipitation is occurring in more intense events. However, changes in the intensity of precipitation, when combined with changes in the interval between precipitation events, can also lead to changes in overall precipitation totals.

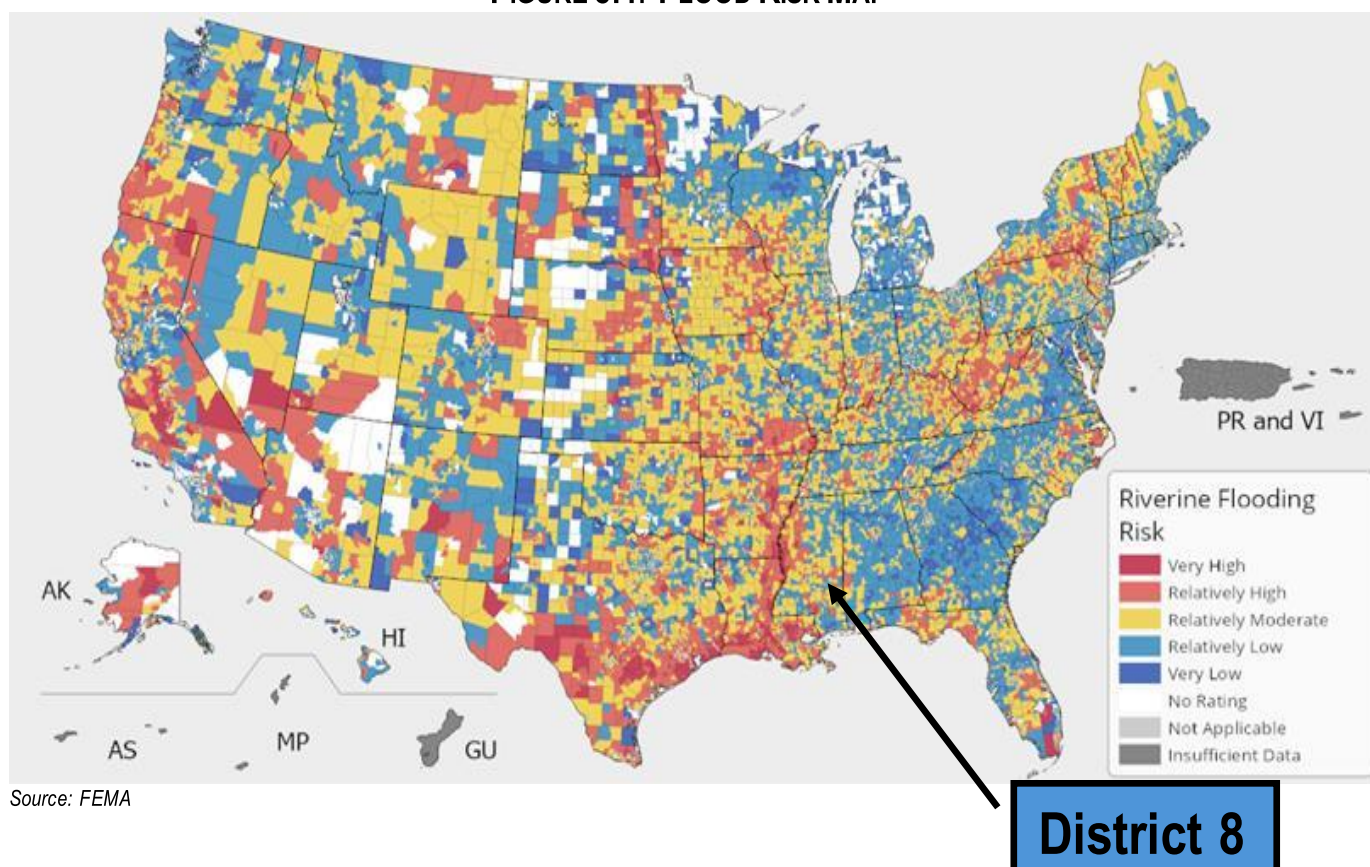
<https://www.epa.gov/climate-indicators/climate-change-indicators-river-flooding>

### 5.3.8 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.

**FIGURE 5.4: FLOOD RISK MAP**



## 5.4 DAM AND LEVEE FAILURE

### 5.4.1 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.

In order to assess the risk posed by a dam or levee failure, the Mississippi Department of Environmental Quality (MDEQ) keeps an inventory of dam inundation maps based on breach analyses conducted for high hazard dams. These maps, as well as existing plans, studies, reports and technical information, are available to the jurisdiction and dam owners as part of the existing MDEQ Emergency Action Planning efforts.

### 5.4.2 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 5.8** explains these classifications.

TABLE 5.8: 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.                                                                                                                                                                                                                                               |
| Significate           | 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 eighteen high hazard dams in the *MEMA District 8 Region*. **Figure 5.5** shows the location of each of these high hazard dams and **Table 5.9** lists the number in each county. More detailed information can be found in each jurisdictional annex.

FIGURE 5.5: MEMA DISTRICT 8 REGION HIGH HAZARD DAM LOCATIONS



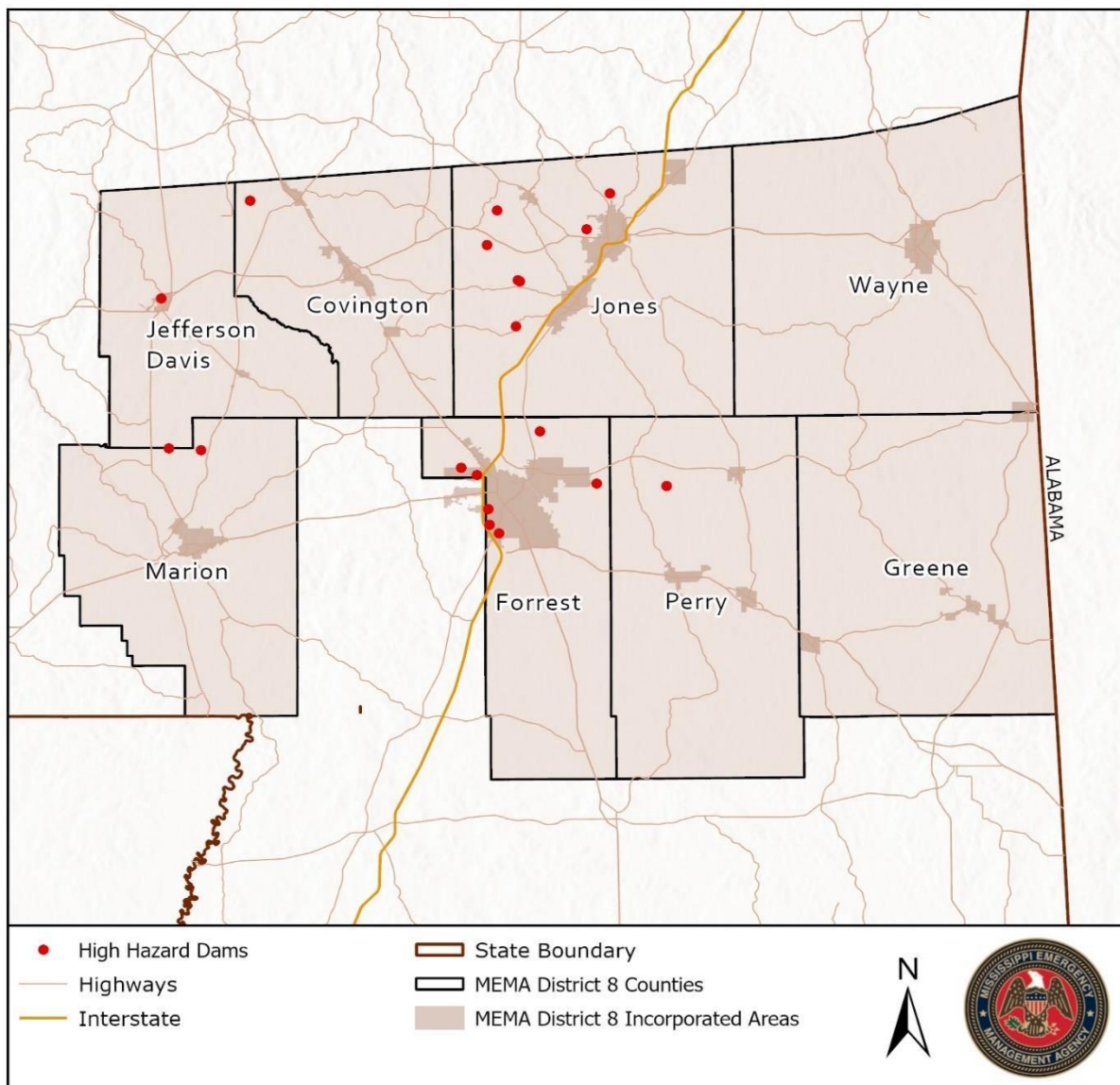


TABLE 5.9: MEMA DISTRICT 8 REGION HIGH HAZARD DAMS

| Location                      | # of High Hazard Dams |
|-------------------------------|-----------------------|
| Covington County              | 1                     |
| Forrest County                | 7                     |
| Greene County                 | 0                     |
| Jefferson Davis County        | 2                     |
| Jones County                  | 5                     |
| Marion County                 | 2                     |
| Perry County                  | 1                     |
| Wayne County                  | 0                     |
| <b>MEMA District 8 Total:</b> | <b>18</b>             |

Source: Mississippi Division of Environmental Quality



### 5.4.3 Historical Occurrences

A total of two dams have been breached in the *MEMA District 8 Region*. Two dam breaches have occurred in Jones County one in 1993 (Indian Springs Lake) and one 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.

### 5.4.4 Probability of Future Occurrence

Given the current dam inventory and historic data available at this time, a dam breach is not likely at this time (less than 1 percent annual probability). Dam breach evaluations have been completed for some, but not all High Hazard dams listed in *Section 5.5.2*. Evaluation studies and inundation maps completed are available from the Mississippi Department of Environmental Quality Dam Safety Division. As further analysis are completed for the remaining structures, those studies will be utilized to inform the decision-making process to reduce to risk to downstream lives and property.

### 5.4.5 FEMA HHPD Grant Program – Lynn Cartlage Lake Dam

The Lynn Cartlage lake Dam, locally referred to the Longleaf Acres Dam, is being rehabilitated through the FEMA High Hazard Potential Dam Program. The rehabilitation actions include adding soil to the backslope of the dam to increase the width and make the dam easier to operate and maintain, resize the spillways to increase the capacity to pass water during extreme weather events and add wave wash protection to the front face of the dam to fortify against erosion damage and reduce the risk of failure. All structures around the dam are constructed above the top of dam elevation, so there is no concern with upstream flooding potential. With the resized spillway capacity, risk from a cascading storm event will be substantially reduced since the structure is modified to meet Probable Maximum Precipitation requirements for a High hazard structure. Since this is a recreational lake and not used for mining or coal ash storage, there are no environmental impacts anticipated from a potential dam breach. There are residual risk concerns for downstream lives and property in the event the dam potentially fails and breaches in the future, but the rehabilitation activities are reducing the potential risk and Forrest County has maintained an Operation and Maintenance Plan for the dam to ensure appropriate monitoring and maintenance with be performed for the structure to minimize those risks to the maximum extent practicable.



The inundation map above represents a sunny day, top of dam failure analysis performed using HEC-RAS modeling software. There are 10 homes in the inundation footprint that are projected to receive flood waters above the finished floor elevation. At 2.5 persons per home, this represents a Population at Risk (PAR) of 25. The resulting release from a potential dam failure is projected to overtop the downstream the 4-lane State Highway 49, but the depth of flow would not be considered substantial enough to cause long term damage to the infrastructure.

## 5.5 EROSION

### 5.5.1 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.

### 5.5.2 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.

### 5.5.3 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.

## 5.5.4 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*.

## 5.6 WILDFIRE

### 5.6.1 Background

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

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.

### 5.6.2 Location and Spatial Extent

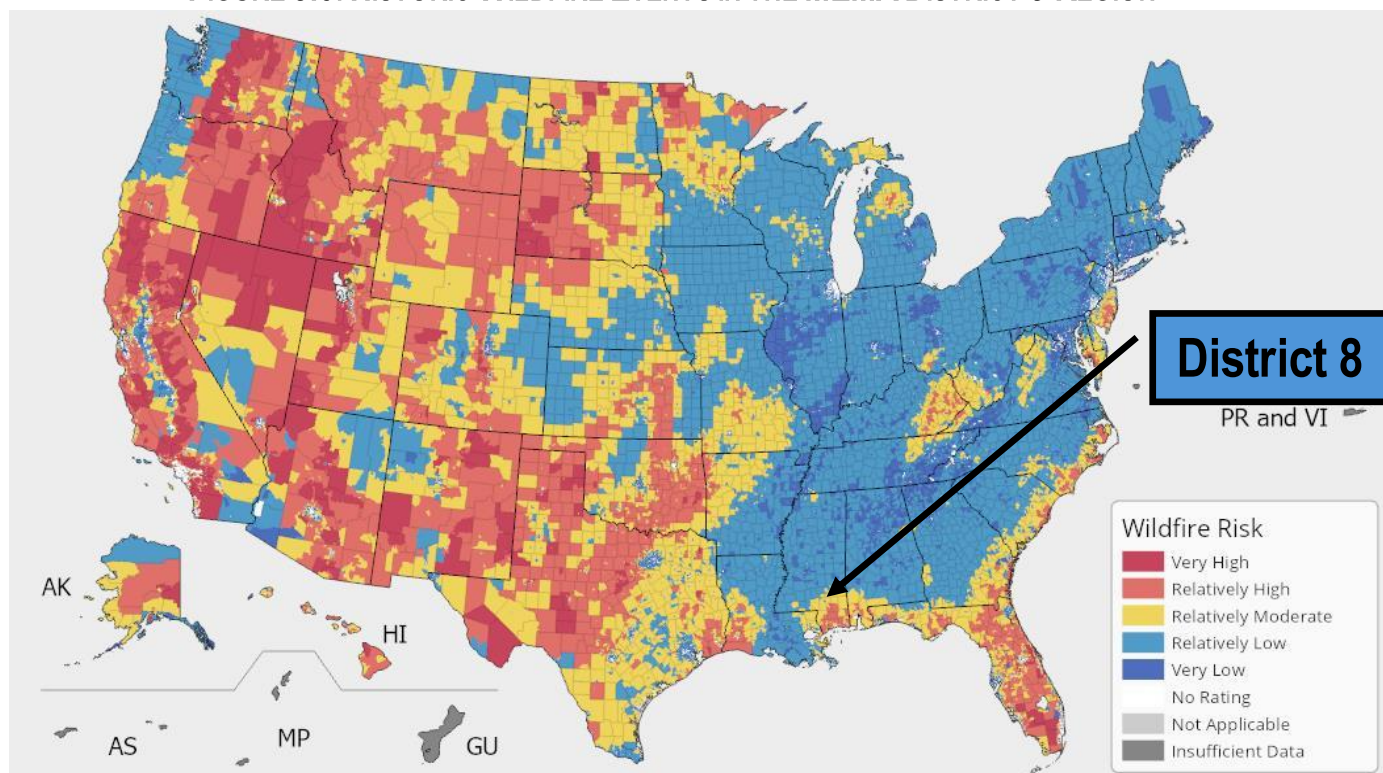
The entire region is at risk to a wildfire occurrence. However, several factors such as drought conditions or high levels of fuel on the forest floor, may make a wildfire more likely. Furthermore, areas in the urban-wildland interface are particularly susceptible to fire hazard as populations abut formerly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

### 5.6.3 Historical Occurrences



**Figure 5.6** 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 5.6: HISTORIC WILDFIRE EVENTS IN THE MEMA DISTRICT 8 REGION**



Source: FEMA

Based on data from the Mississippi Forestry Commission from 2019 to 2023, the *MEMA District 8 Region* experienced an average of 32 wildfires annually which burned a combined 234 acres, on average. **Table 5.10** 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 2010 and 2023 is listed in the jurisdiction-specific annexes. (Decimals were rounded to the nearest whole number.)

**TABLE 5.10: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2010 -2023)\***

| Location                      | Average Number of Fires per Year | Average Number of Acres Burned per Year | Average Number of Acres Burned per Fire |
|-------------------------------|----------------------------------|-----------------------------------------|-----------------------------------------|
| <i>Covington County</i>       | 25                               | 124                                     | 5                                       |
| <i>Forrest County</i>         | 20                               | 198                                     | 10                                      |
| <i>Greene County</i>          | 34                               | 446                                     | 13                                      |
| <i>Jefferson Davis County</i> | 58                               | 573                                     | 10                                      |
| <i>Jones County</i>           | 22                               | 180                                     | 8                                       |
| <i>Marion County</i>          | 48                               | 592                                     | 12                                      |
| <i>Perry County</i>           | 19                               | 287                                     | 15                                      |
| <i>Wayne County</i>           | 27                               | 193                                     | 7                                       |
| <b>Total MEMA District 8:</b> | <b>32</b>                        | <b>324</b>                              | <b>10</b>                               |

Source: MS Forestry Commission

## 5.6.4 Possible Effects of Climate Change

**Climate change** has been a key factor in increasing the risk and extent of wildfires in the Western United States. Wildfire risk depends on a number of factors, including temperature, soil moisture, and the presence of trees, shrubs, and other potential fuel. All these factors have strong direct or indirect ties to climate variability and climate change. **Climate change** enhances the drying of organic matter in forests (the material that burns and spreads wildfire) and has doubled the number of large fires in the United States.

Research shows that changes in climate create warmer, drier conditions. Increased drought, and a longer fire season are boosting these increases in wildfire risk. For much of the U.S. West, projections show that an average annual 1 degree C temperature increase would increase the median burned area per year as much as 600 percent in some types of forests. In the Southeastern United States modeling suggests increased fire risk and a longer fire season, with at least a 30 percent increase from 2011 in the area burned by lightning-ignited wildfire by 2060.

More than 80 percent of U.S. wildfires are caused by people—warmer temperatures and drier conditions can help fires spread and make them harder to put out. Warmer, drier conditions also contribute to the spread of the mountain pine beetle and other insects that can weaken or kill trees, building up the fuels in a forest.

Land use and forest management also affect wildfire risk. **Changes in climate** add to these factors and are expected to continue to increase the area affected by wildfires in the United States. According to the National Oceanic and Atmospheric Administration, “Climate change, including increased heat, extended drought, and a thirsty atmosphere, has been a key driver in increasing the risk and extent of wildfires in the western United States during the last two decades. Wildfires require the alignment of a number of factors, including temperature, humidity, and the lack of moisture in fuels, such as trees, shrubs, grasses, and forest debris. All these factors have strong direct or indirect ties to climate variability and climate change.”

Wildfires threaten human health and safety. Direct human fatalities are the result of entrapment when people or firefighters are unable to escape a fire. Additionally, smoke exposure may impact communities far beyond a wildfire burn area, causing or exacerbating health problems. Water supplies can be adversely affected during a wildfire and for years afterward due, in part, to contaminants associated with ash settling on streams, lakes, and water reservoirs. Wildfires can also impact the short- and long-term migration of displaced residents, including short-term emergency evacuations and long-term displacements when homes are destroyed. Wildfires are increasingly destructive and costly. Between 1980 and 2021, the United States experienced 20 wildfire events that caused more than \$1 billion in damage; 16 of those 20 wildfires occurred since 2000. Source FEMA

Fire weather primes the landscape for wildfires to start and spread. **Fire weather** refers to meteorological conditions that promote the spread of wildfires. According to Climate Central, their analysis focuses on three conditions fundamental to fire weather: relative humidity, temperature, and wind.

When relative humidity levels are very low, the air pulls moisture from the land, leaving vegetation dry and prone to burning. This analysis shows decreasing relative humidity has been a major factor in boosting annual fire weather days for many locations across the U.S.

Hotter temperatures have a direct influence on fire behavior, heating the fuels and making them more likely to ignite. Fire weather conditions also restrict firefighters' ability to put out wildfires. Climate change is causing warmer nighttime temperatures, which decreases the overnight relative humidity that once helped firefighters gain control over wildfires.

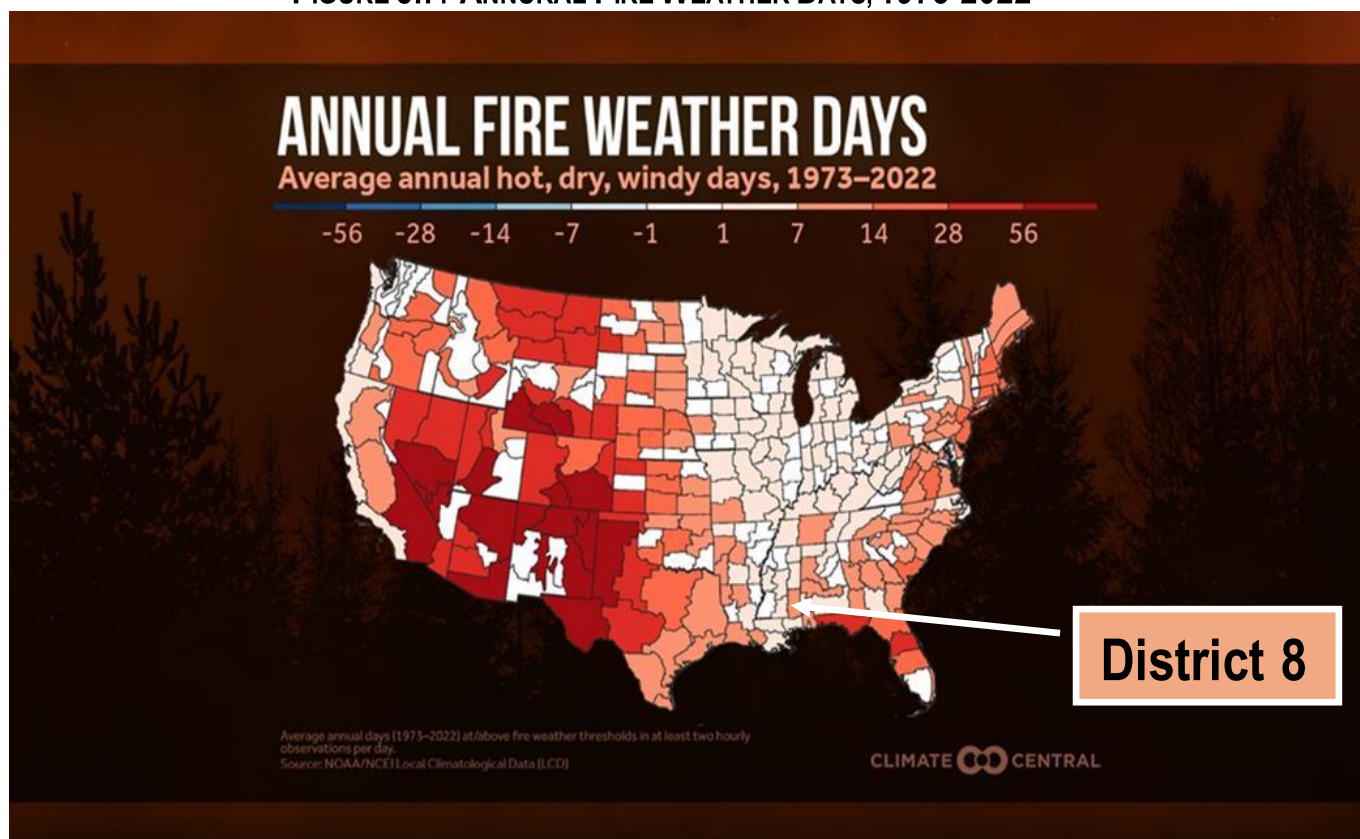
Wind supplies oxygen to a fire, causing it to burn more rapidly. Wind increases evaporation, drying out the land. Wind also carries embers, which helps fires spread. See **Figure 5: 7**. For annual fire weather days. (Source: *Climate Central*)

## 5.6.5 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).

**FIGURE 5.7: ANNURAL FIRE WEATHER DAYS, 1973-2022**



## 5.7 DROUGHT/ HEAT WAVE

## 5.7.1 Background

### DROUGHT

**Drought** is the absence of precipitation, rather than the presence of an event such as a hurricane, tornado, or fire. It's often described as a "creeping phenomenon" because it slowly impacts many sectors of the economy and operates on many different timescales. Just as drought is difficult to define, it's also difficult to predict and monitor—particularly when marking the beginning and end of a period of drought.

**Drought's effects** also vary from region to region. Due to climatic differences, what might be considered a drought in one part of the country may not be a drought somewhere else. 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, 4) socioeconomic, or 5) ecological. **Table 5.11** presents definitions for these types of drought.

**TABLE 5.11 DROUGHT CLASSIFICATION DEFINITIONS**

|                               |                                                                                                                                                                                                       |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Meteorological Drought</b> | The degree of dryness or departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales. (When dry weather patterns dominate an area). |
| <b>Hydrologic Drought</b>     | The effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels. (When low water supply becomes evident in a water system).                                       |
| <b>Agriculture Drought</b>    | Soil moisture deficiencies relative to water demands of plant life, usually crops. (When crops become affected by drought).                                                                           |
| <b>Socioeconomic Drought</b>  | The effect of demands for water exceeding the supply as a result of a weather-related supply shortfall. (When the supply and demand of various commodities is affected by drought).                   |
| <b>Ecological Drought</b>     | When natural ecosystems are affected by drought                                                                                                                                                       |

Source: Drought.gov



Meteorological Drought



Hydrological Drought



Agricultural Drought



Socioeconomic Drought



Ecological Drought

### EXAMPLES OF DROUGHT IMPACTS

Drought can lead to a wide range of environmental, social, and economic impacts. Below are just a few examples of the far-reaching consequences of drought.

**Agriculture**—Drought can reduce the water availability and quality necessary for productive farms, ranches, and grazing lands. It can also contribute to insect outbreaks, increases in wildfire, and altered rates of carbon, nutrient, and water cycling—impacting agricultural production and critical ecosystem services.

**Transportation**—Drought impacts port and waterway transportation and supply chains, resulting in increased transportation costs. Higher temperatures that coexist with drought can impact roads, airport runways, and rail lines.

**Wildfire**—Drought can be a contributing factor to wildfire. Dry, hot, and windy weather combined with dried out (and more flammable) vegetation can increase the probability of large-scale wildfires.

**Public Health**—Drought can cause significant human health outcomes, including decreased water quantity and quality, increased incidence of illness and disease (e.g., Valley Fever), adverse mental health outcomes as livelihoods are challenged, and overall, increased mortality rates.

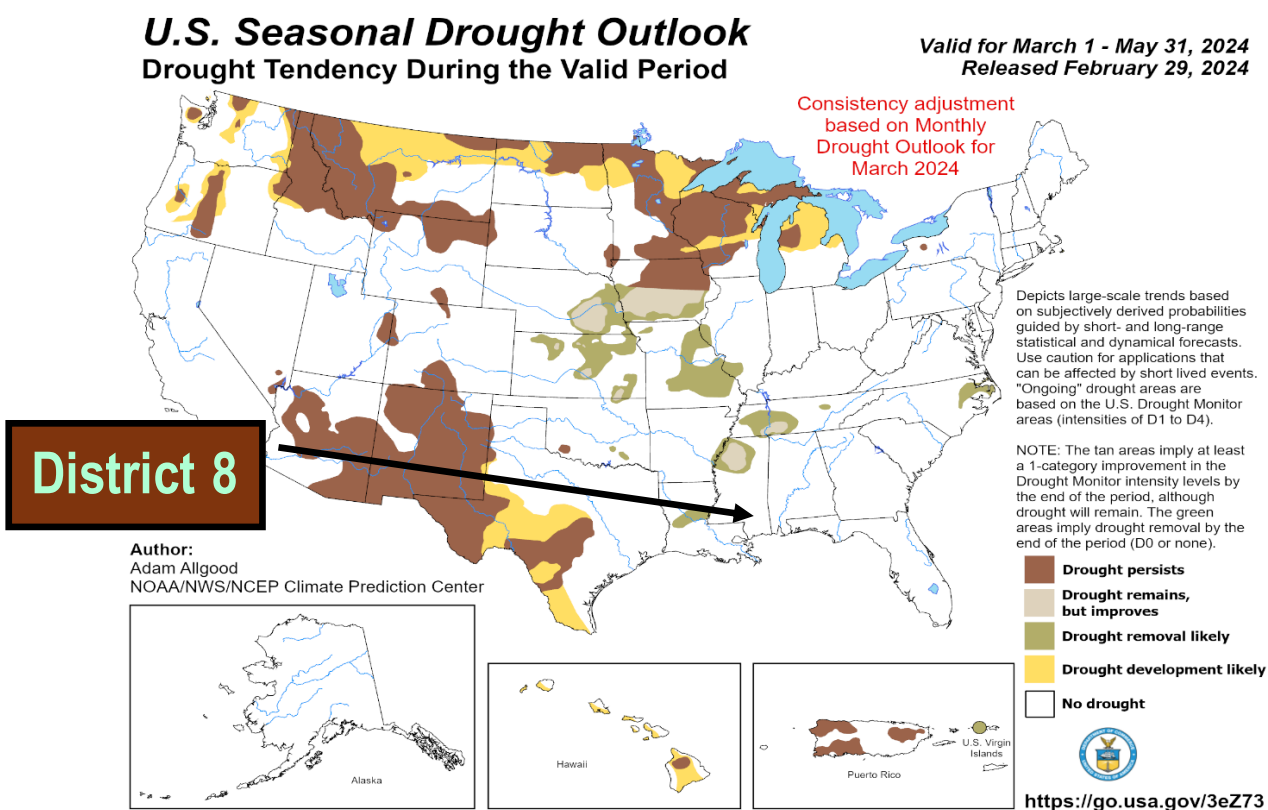
**Ecosystems**—Drought can alter or degrade critical functions of healthy ecosystems, including reduced plant growth, reduction or extinction of local species, and landscape-level transitions (e.g., a forest being replaced by a grassland).

**Water Quality**—During drought, decreased water levels, warmer temperatures, and soil runoff can lead to algal growth, lower dissolved oxygen levels, and increased turbidity, posing health risks for human and aquatic life.

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 5.8**, the **Palmer Drought Severity Index Summary Map** for the United States, drought affects most areas of the United States but is less severe in the Eastern and Southeastern United States.

**FIGURE 5.8: PALMER DROUGHT SEVERITY INDEX SUMMARY MAP FOR THE UNITED STATES**



Source: US Drought Monitor

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**



|           |                            |                                                                                                                                                                                   |
|-----------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>D0</b> | <b>Abnormally Dry</b>      | 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 |
| <b>D1</b> | <b>Moderate Drought</b>    | Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested                        |
| <b>D2</b> | <b>Severe Drought</b>      | Crop or pasture losses likely; water shortages common; water restrictions imposed                                                                                                 |
| <b>D3</b> | <b>Extreme Drought</b>     | Major crop/pasture losses; widespread water shortages or restrictions                                                                                                             |
| <b>D4</b> | <b>Exceptional Drought</b> | Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies                                                   |

Source: Climate Central

## 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 of days or several weeks. In most of the United States, extreme heat conditions can also be defined as two days of temperatures over 90 degrees Fahrenheit (F). 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 Center for Environmental Information), heat is the leading weather-related killer in the United States. From 2000 through 2009, extreme heat exposure caused more than 7,800 deaths in the United States. In addition to deaths, extreme heat events cause a wide range of other health problems such as rashes, cramps, heat exhaustion, and heat stroke. Extreme heat can also make existing medical conditions worse. A 2017 National Resources Defense Council (NRDC) study looked at how an increase in the number of “dangerous summer days” will increase the number of heat-related deaths in 45 U.S. cities. An estimated 150 Americans will die every summer day due to extreme heat by 2040, with almost 30,000 heat-related deaths annually. That’s twice the number of people who are killed by gun violence annually in the U.S. today.

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 5.9**, 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 5.9: HEAT INDEX CHART**

|                    |     | Relative Humidity (in percent) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|--------------------|-----|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                    |     | 0                              | 5   | 10  | 15  | 20  | 25  | 30  | 35  | 40  | 45  | 50  | 55  | 60  | 65  | 70  | 75  | 80  | 85  | 90  | 95  | 100 |
| Air Temp<br>(in F) | 140 | 125                            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                    | 135 | 120                            | 128 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                    | 130 | 117                            | 122 | 131 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                    | 125 | 111                            | 116 | 123 | 131 | 141 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                    | 120 | 107                            | 111 | 116 | 123 | 130 | 139 | 148 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                    | 115 | 103                            | 107 | 111 | 115 | 120 | 127 | 135 | 143 | 151 |     |     |     |     |     |     |     |     |     |     |     |     |
|                    | 110 | 99                             | 102 | 105 | 108 | 112 | 117 | 123 | 130 | 137 | 143 | 150 |     |     |     |     |     |     |     |     |     |     |
|                    | 105 | 95                             | 97  | 100 | 102 | 105 | 109 | 113 | 118 | 123 | 129 | 135 | 142 | 149 |     |     |     |     |     |     |     |     |
|                    | 100 | 91                             | 93  | 95  | 97  | 99  | 101 | 104 | 107 | 110 | 115 | 120 | 126 | 132 | 138 | 144 |     |     |     |     |     |     |
|                    | 95  | 87                             | 88  | 90  | 91  | 93  | 94  | 96  | 98  | 101 | 104 | 107 | 110 | 114 | 119 | 124 | 130 | 136 |     |     |     |     |
|                    | 90  | 83                             | 84  | 85  | 86  | 87  | 88  | 90  | 91  | 93  | 95  | 96  | 98  | 100 | 102 | 106 | 109 | 113 | 117 | 122 |     |     |
|                    | 85  | 78                             | 79  | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 93  | 95  | 97  | 99  | 102 | 105 | 108 |
|                    | 80  | 73                             | 74  | 75  | 76  | 77  | 77  | 78  | 79  | 79  | 80  | 81  | 81  | 82  | 83  | 85  | 86  | 86  | 87  | 88  | 89  | 91  |
|                    | 75  | 69                             | 69  | 70  | 71  | 72  | 72  | 73  | 73  | 74  | 74  | 75  | 75  | 76  | 76  | 77  | 77  | 78  | 78  | 79  | 79  | 80  |
|                    | 70  | 64                             | 64  | 65  | 65  | 66  | 66  | 67  | 67  | 68  | 68  | 69  | 69  | 70  | 70  | 70  | 70  | 71  | 71  | 71  | 71  | 72  |

Source: NOAA

**TABLE 5.12: HEAT DISORDERS ASSOCIATED WITH HEAT INDEX TEMPERATURE**

| Heat Index Temperature<br>(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: 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 twenty-four years (2000-2024) (**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

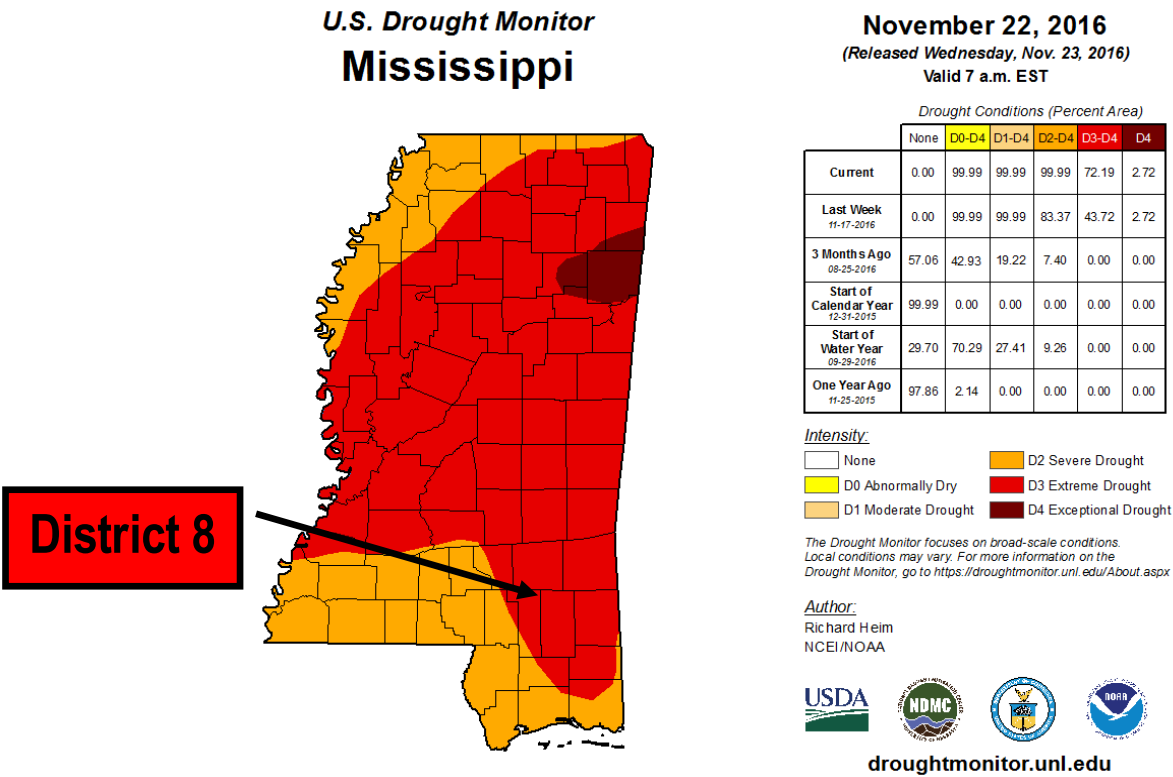
| <div>Abnormally DryModerate DroughtSevere DroughtExtreme DroughtExceptional Drought</div> |                       |                  |
|-------------------------------------------------------------------------------------------|-----------------------|------------------|
| Location                                                                                  | Number of Occurrences | Damage/Crop Loss |
| Covington County                                                                          | 11                    | \$4,221,000      |
| Forrest County                                                                            | 10                    | \$2,618,000      |
| Greene County                                                                             | 2                     | \$0              |
| Jefferson Davis County                                                                    | 10                    | \$2,729,000      |
| Jones County                                                                              | 13                    | \$3,361,000      |
| Marion County                                                                             | 10                    | \$1,366,000      |
| Perry County                                                                              | 3                     | \$0              |
| Wayne County                                                                              | 3                     | \$0              |
| MEMA District 8 Total:                                                                    | 62                    | \$14,295,000     |

Source: National Centers for Environmental Information (NCEI)/NOAA



Figure 5. 10 shows a particularly large drought that effected most of the State in 2016. Figure 5.11 shows the drought in 2023. On both occasions the entire state was experiencing a large drought and most of the state was under a burn ban.

FIGURE 5.10: PALMER DROUGHT INDEX FOR NOVEMBER 2016



HEAT WAVE

The National Centers for Environmental Information was used to determine historical heat wave occurrences in the region. **Table 5.14** shows the number of heat wave days in each county of District 8 from 2000 to 2024.

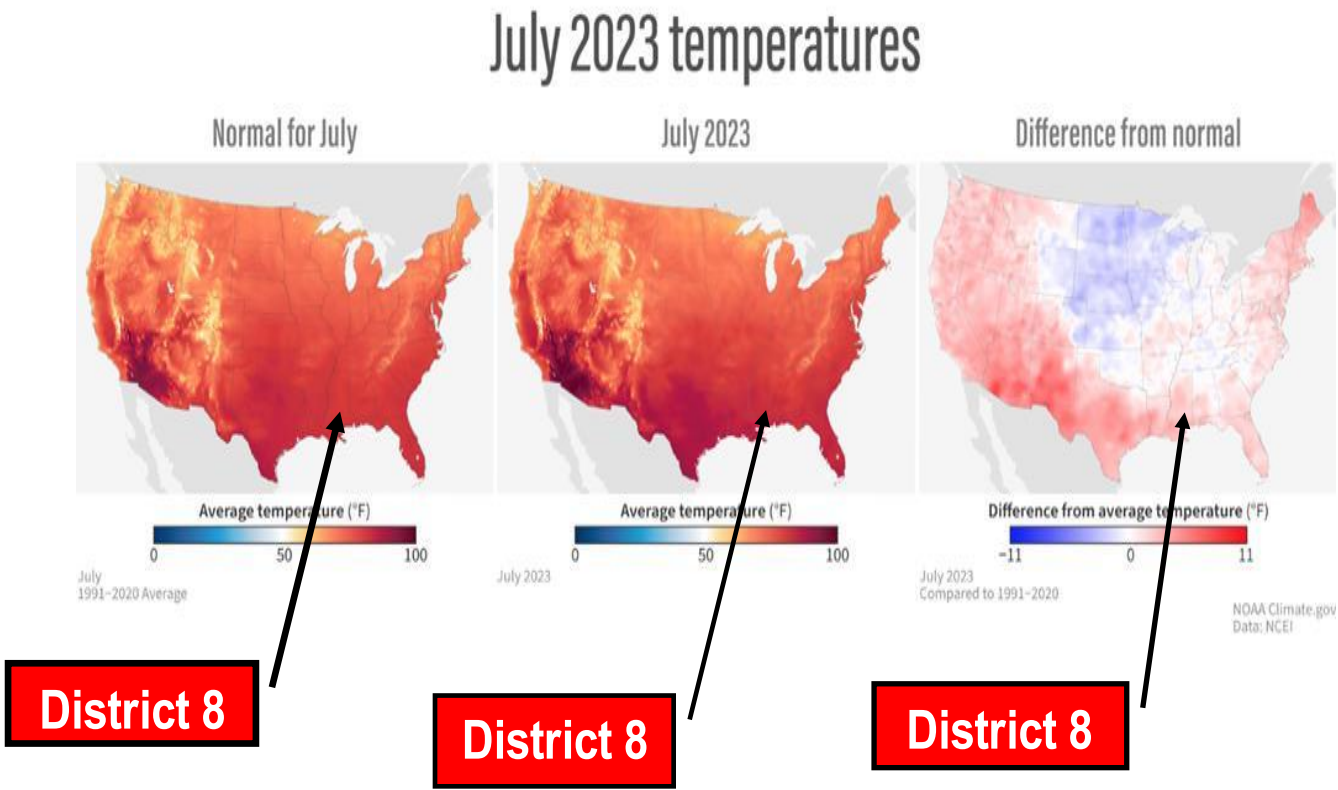
TABLE 5.14: HEAT WAVES

| Location               | Number of Heat Waves | Location      | Number of Heat Waves |
|------------------------|----------------------|---------------|----------------------|
| Covington County       | 5                    | Jones County  | 6                    |
| Forrest County         | 5                    | Marion County | 5                    |
| Greene County          | 2                    | Perry County  | 2                    |
| Jefferson Davis County | 5                    | Wayne County  | 2                    |
| MEMA District 8 Total: |                      |               | 32                   |

Source: National Centers for Environmental Information (NCEI)/NOAA

Summer of 2023 was Earth's hottest summer on record, 0.41 degrees Fahrenheit (F) (0.23 degrees Celsius (C)) warmer than any other summer in NASA's record and 2.1 degrees F (1.2 C) warmer than the average summer between 1951 and 1980. This new record comes as exceptional heat swept across much of the world, exacerbating deadly wildfires. Overall, extreme heat in the summer can put tens of millions of people under heat warnings and was linked to hundreds of heat-related illnesses and deaths. All seasons are projected to continue to get hotter (See **Figures 5.12**, Source: NOAA/National Climate Report (NCEI))

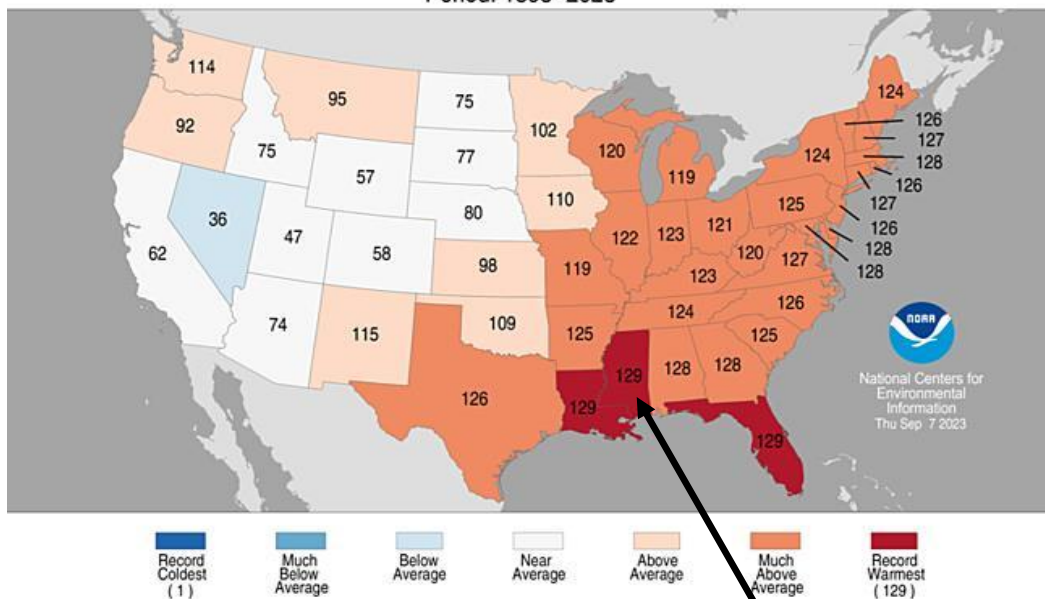
FIGURES 5.12a: HIGH TEMPERTURES OF 2023



## FIGURES 5.12b: HIGH TEMPERATURES OF 2023

### Statewide Average Temperature Ranks

January – August 2023  
Period: 1895–2023



## 5.7.4 Probability of Future Occurrences

### DROUGHT

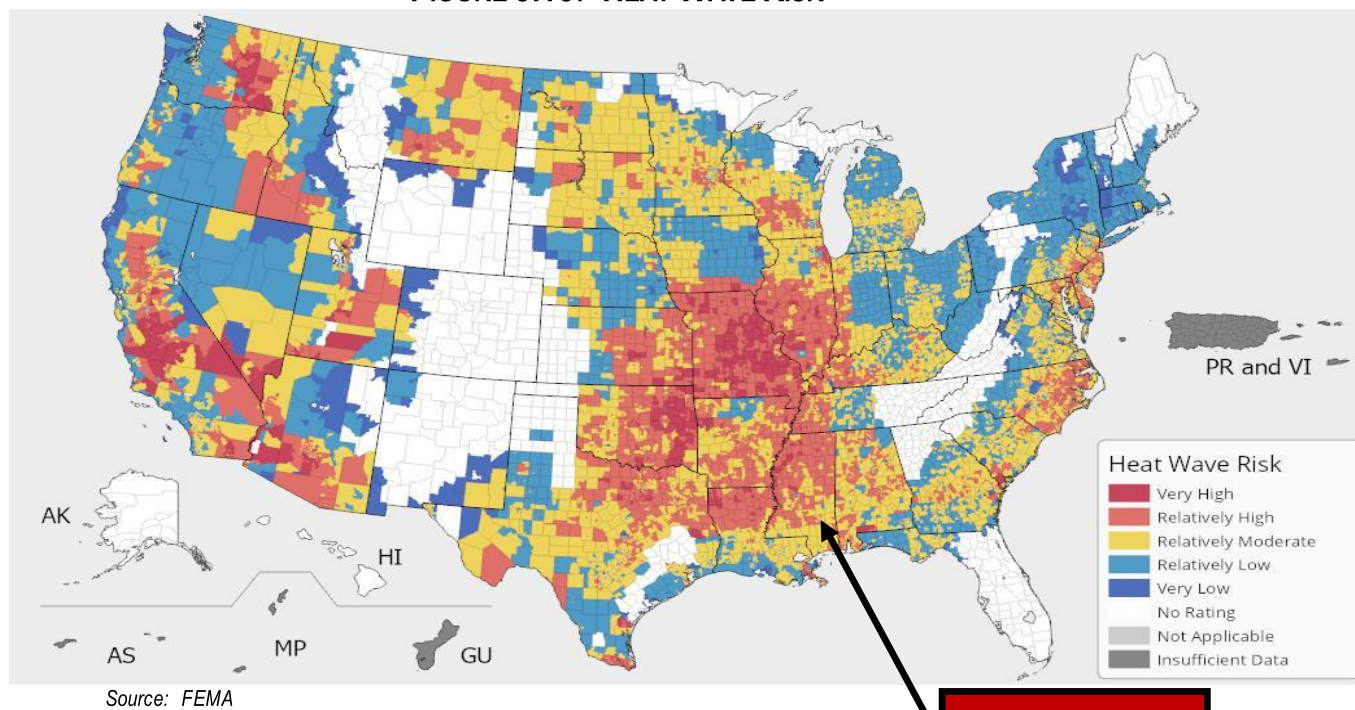
According to the Palmer Drought Severity Index (**Table 5.11**), *MEMA District 8* has a relatively low risk for drought hazard at this time, but with the climate changing, the risk of drought increases. Local areas may also experience much more severe and/or frequent drought events than what is represented 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 likely (10-100 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 likely (10-100 percent annual probability) for future heat wave events. In the National Risk Index from FEMA, a Heat Wave Risk Index score and rating represent a community's relative risk for Heat Waves when compared to the rest of the United States. The Risk Index shows Mississippi has a high probability of Heat Wave Risk. With the rise of temperatures globally there is the potential for more high heat days. See **Figure 5.13**.

FIGURE 5.13: HEAT WAVE RISK



### 5.7.5 Drought/ Heat Wave and Climate Change

**District 8**

#### DROUGHT

According to FEMA, Climate change is expected to change the frequency and intensity of drought patterns. As Earth's average temperature rises, evaporation rates will increase, leading to more precipitation in some areas and less precipitation in others. All vital infrastructure systems, both human-made and natural, face drought-related risks. Drought can affect agriculture, critical infrastructure, and various public services and create competition for water resources between urban, rural, and industrial needs, impacting all facets of society. The consequences of drought include the disruption of economic, health, and critical infrastructure systems through both direct and secondary hazards. Direct hazards include lack of raw water availability and water degradation. Secondary hazards include exacerbation of land subsidence and increases in wildfires, flooding, and dust storms. Agricultural production, critical ecosystem functions, and soil nutrient uptake rates are dependent upon water availability. Drought can alter the balance of ecosystems, affecting fish, game, wildlife, and plant species.

Ecosystems, which are vital to human communities, are interdependent and the vulnerability of one can lead to cascading impacts on another. (Source FEMA: Response and Recovery to Climate Change Planning).

#### 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 of days or several weeks. In most of the United States, extreme heat conditions can also be defined as two days of temperatures over 90 degrees Fahrenheit (F). 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 Center for Environmental Information), heat is the leading weather-related killer in the United States. From 2000 through 2009, extreme heat exposure caused more than 7,800 deaths in the United States. In addition to deaths, extreme heat events cause a wide range of other health problems such as rashes, cramps, heat exhaustion, and heat stroke. Extreme heat can also make existing medical conditions worse. A 2017 National Resources Defense Council (NRDC) study looked at how an increase in the number of "dangerous summer days" will increase the number of heat-related deaths in 45 U.S. cities. An estimated 150 Americans will die every summer day due to extreme heat by 2040, with almost 30,000 heat-related deaths annually. That's twice the number of people who are killed by gun violence annually in the U.S. today.



## 5.8 EARTHQUAKE

### 5.8.1 Background

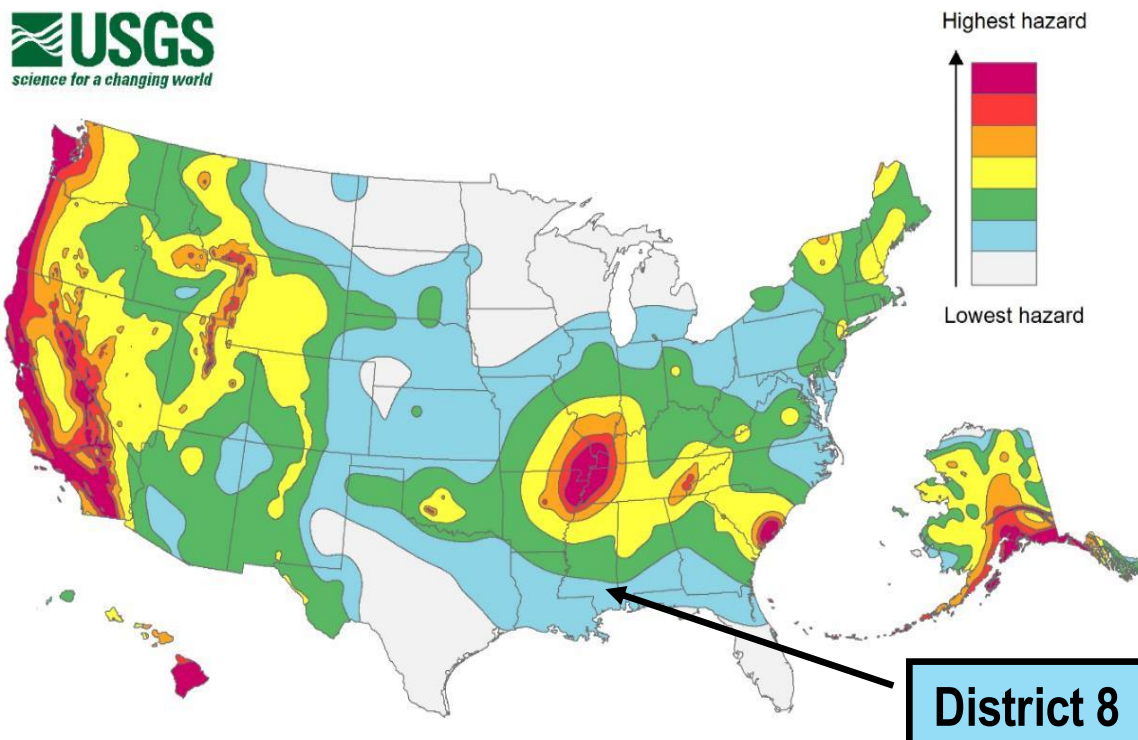
An **earthquake** is movement or trembling of the ground produced by sudden displacement of rock in the Earth's crust. **Earthquakes** result from crustal strain, volcanism, landslides, or the collapse of caverns. **Earthquakes** can affect hundreds of thousands of square miles, cause damage to property 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 quicksand. 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 5.14** shows relative seismic risk for the United States.

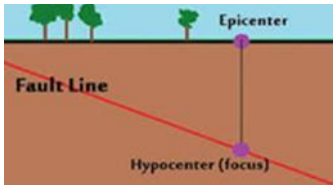
**FIGURE 5.14: UNITED STATES EARTHQUAKE HAZARD MAP**



Source: United States Geological Survey Visual 8.9: Generalized USGS seismic hazard map for the United States (2021). Map shows peak ground accelerations (in % gravity) with a 10% probability of being exceeded in 50 years ("500-year earthquake").

## 5.8.2 Hazard Description and Definitions

The United States Geographic Survey (USGS) defines an earthquake as a sudden motion or trembling of the earth caused by an abrupt release of stored energy beneath the earth’s surface. A description of technical terms associated with earthquakes is provided below:



**Epicenter**—the epicenter is the geographic location directly above the hypocenter on the earth’s surface. Ideally, the epicenter and the highest Modified Mercalli Intensity Scale (MMI) values on the isoseismic map coincide; however, his relationship is not always consistent.

**Fault**—faults can be defined as a rupture in subsurface geological materials where there is relative movement on the opposing sides of the rupture. The origin of this movement is stress built up in the earth’s crust from plate movement or other geological forces.

**Hypocenter (focus)**—the hypocenter is the location in the subsurface where the rupture took place.

**Richter Scale**—the Richter Scale is a numerical scale for expressing the magnitude of an earthquake on the basis of seismograph oscillations. The more destructive earthquakes typically have magnitudes between about 5.5 and 8.9; the scale is logarithmic and a difference of one represents an approximate thirtyfold difference in magnitude.

**Modified Mercalli Intensity Scale**—the size of an earthquake can be expressed in several ways, the most commonly used are the various magnitude scales and the Modified Mercalli Intensity Scale (MMI). There are several intensity scales, but MMI is most commonly used in this country.

**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**.

**Figure 5.17** shows, Types of Faults

TABLE 5.16: RICHTER SCALE

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

Source: FEMA

TABLE 5.17: MODIFIED MERCALLI INTENSITY SCALE FOR EARTHQUAKES

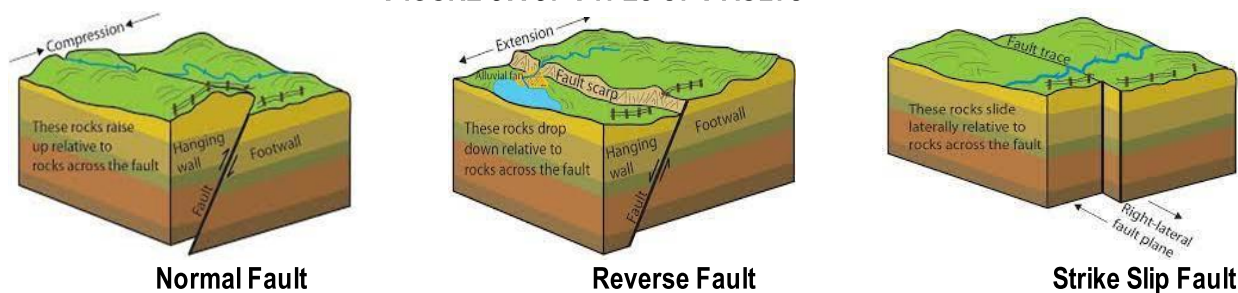
| <b>SCALE</b> | <b>INTENSITY</b>       | <b>DESCRIPTION OF EFFECTS</b>                                                                                                                                                                      | <b>CORRESPONDING Richter Scale Magnitude</b> |
|--------------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| <b>I</b>     | <b>INSTRUMENTAL</b>    | Detected only on seismographs. Usually not felt.                                                                                                                                                   | <b>1-2</b>                                   |
| <b>II</b>    | <b>FEEBLE</b>          | Felt by people resting.                                                                                                                                                                            | <b>2-3</b>                                   |
| <b>III</b>   | <b>SLIGHT</b>          | Felt by people inside like a truck rumbling by.                                                                                                                                                    | <b>3-4</b>                                   |
| <b>IV</b>    | <b>MODERATE</b>        | Felt by people walking and many people inside.                                                                                                                                                     | <b>4</b>                                     |
| <b>V</b>     | <b>SLIGHTLY STRONG</b> | Felt by nearly everyone; sleepers awake; church bells ring; some dishes, windows broken.                                                                                                           | <b>4-5</b>                                   |
| <b>VI</b>    | <b>STRONG</b>          | Felt by all; trees sway; suspended objects swing, objects fall off shelves; heavy furniture moved                                                                                                  | <b>5-6</b>                                   |
| <b>VII</b>   | <b>VERY STRONG</b>     | Slight to mild damage of good designed and constructed buildings; walls crack; plaster falls.                                                                                                      | <b>6</b>                                     |
| <b>VIII</b>  | <b>DESTRUCTIVE</b>     | Slight to mild damage of good designed and constructed buildings; damage is great in poorly built structures; Moving cars uncontrollable; masonry fractures, poorly constructed buildings damaged. | <b>6-7</b>                                   |
| <b>IX</b>    | <b>RUINOUS</b>         | Damage is considerable; Some houses collapse; ground cracks; pipes break open; building partially collapse and shifted off foundations.                                                            | <b>7</b>                                     |
| <b>X</b>     | <b>DISASTROUS</b>      | Ground cracks profusely; many buildings destroyed; most masonry and frame structures destroyed; rails built; liquefaction and landslides widespread.                                               | <b>7-8</b>                                   |
| <b>XI</b>    | <b>VERY DISASTROUS</b> | Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards.                                                                             | <b>8</b>                                     |
| <b>XII</b>   | <b>CATASTROPHIC</b>    | Total destruction: trees fall; ground rises and falls in waves.                                                                                                                                    | <b>8 or greater</b>                          |

Source: FEMA

**Normal Fault**—a normal or gravity fault is one where a fault block has moved downward as gravity moves a fault block down along an inclined plane. [Normal faults](#) are the result of an extension of the earth's crust.

**Reverse Fault**—a reverse fault is the opposite of a normal fault where a fault block has moved up an inclined fault plane, opposite of the movement that would be expected if gravity were the main force acting on the block. **Reverse faults** are a result of a shortening or compression of the earth's crust.

FIGURE 5.18: TYPES OF FAULTS



**Normal Fault**  
Source: National Park Service

**Reverse Fault**

**Strike Slip Fault**

**Strike Slip Fault**—a strike-slip fault is one where the movement is largely horizontal and oriented in the same direction as the fault trends. A **strike slip faults** result from forces acting horizontally.

**Fault Plane**—the rupture along which the movement of the fault blocks takes place can be a sharp planar feature, referred to as a **fault plane**. In this case, the direction the fault blocks moved (up, down, or sideways) can be fairly straightforward.

**Fault Zone**—is also common for the movement of fault blocks to take place across a zone consisting of multiple fault planes with small individual displacements. This zone of displacement is referred to as a fault zone and it can be a few inches wide, or it can consist of a series of large faults and may be measured in miles.

**Liquefaction**—liquefaction is an earthquake-related hazard involving geological conditions that pose a potential hazard to structures. **Liquefaction** is a complex process resulting in soils losing their bearing strength (i.e. they act more like a liquid than a solid) due to seismic-induced vibrations. The major concern is that during an earthquake the liquefaction soils became “liquid” and move laterally away from the foundation of buildings causing foundation failure or causing them to topple over.

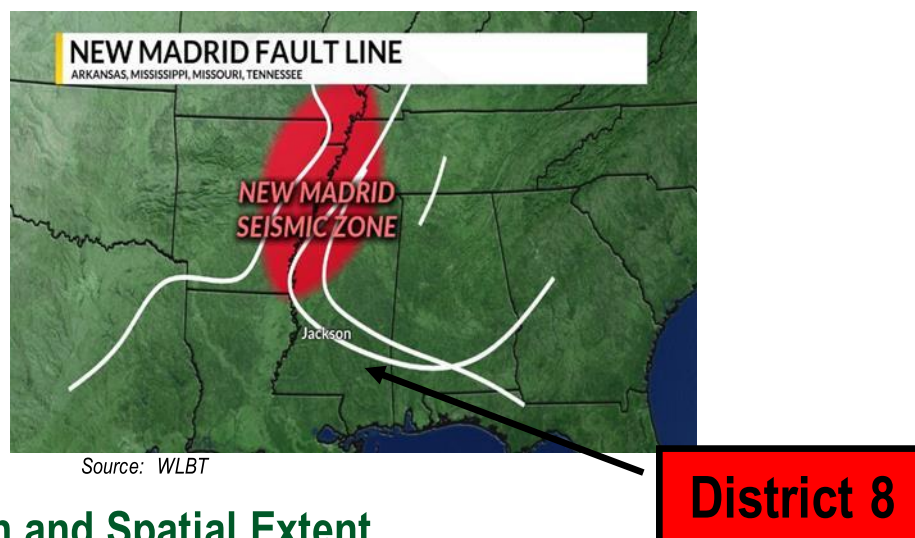
**Peak Ground Acceleration (PGA)**—the maximum level of vertical or horizontal ground acceleration caused by an earthquake. The **PGA** is typically expressed as a percent of the acceleration due to gravity.

**Magnitude**—Magnitude is determined by quantitatively analyzing instrumental recordings utilizing specific, explicitly defined formulas. (Richter Scale measures magnitude)

Earthquakes originating in Mississippi are not the only threat; those originating in surrounding states have also affected Mississippi in the past. The greatest potential threat to Mississippi from earthquakes is from a strong event in the New Madrid Seismic Zone (NMSZ). **Figure 5.19** shows *New Madrid Seismic Zone*.

FIGURE 5.19: NEW MADRID SEISMIC ZONE

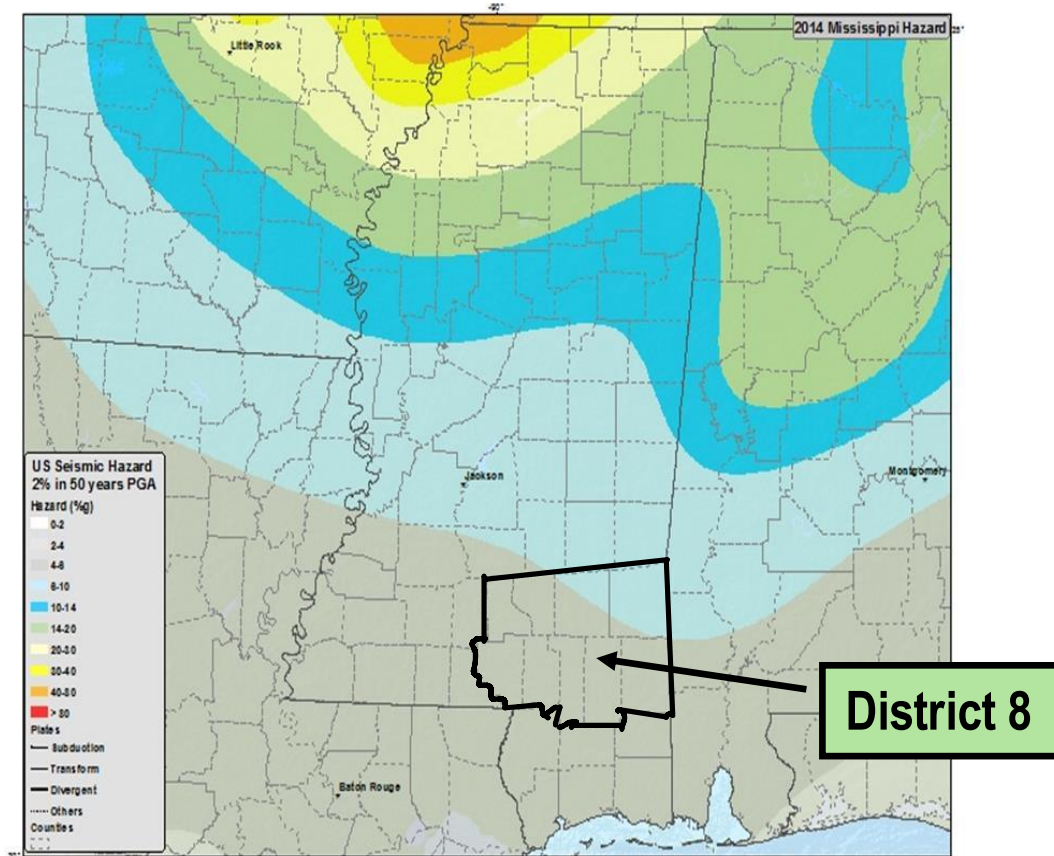




### 5.8.3 Location and Spatial Extent

**Figure 5.20** shows the intensity level associated with the *MEMA District 8 Region*, 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, 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. **Source USGS** (District 8 is outlined in Black)

**FIGURE 5.20: 2% SEISMIC HAZARD IN 50 YEARS**



### 5.8.4 Historical Occurrences/Threats

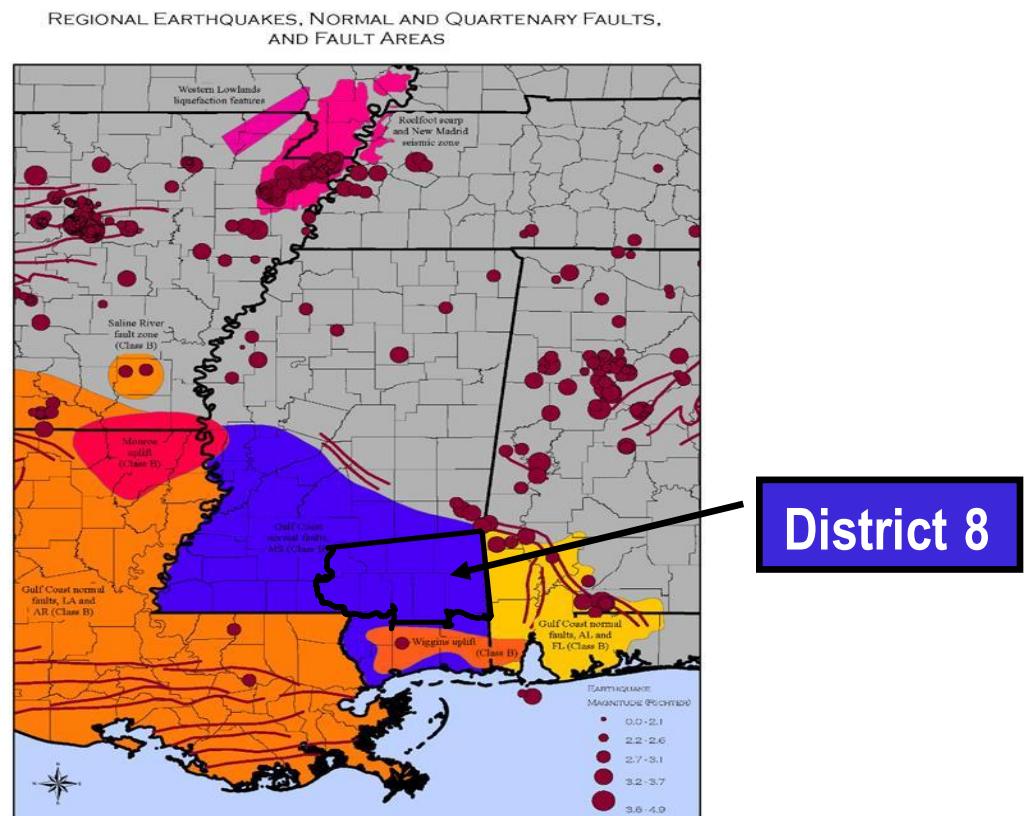
At least 8 earthquakes are known to have affected the *MEMA District 8 Region* since 1800. The strongest of these measured a V on the Modified Mercalli Intensity (MMI) scale. **Figure 5.22** provides a summary of earthquake events reported by the Department of Environmental Quality between 1853 and 2023, which is the most up-to-date information available detailed occurrence of each event including the date, distance from the epicenter, magnitude, and Modified Mercalli Intensity (if known) can be found in the jurisdiction-specific annexes. **Table 5.18** shows an earthquake that originated in *District 8*.

The greatest threat to Mississippi is from the *New Madrid Seismic Zone*. The earthquakes of 1811-1812, which originated along the *NMSZ*, shook many areas of Mississippi, reaching as far south as the Gulf Coast. Damage was reported throughout the state. The vibrations were so powerful that they rang church bells in Boston, Massachusetts. In 1843 an earthquake occurred at the southern end of the zone which shook the northern third of Mississippi strongly enough to cause damage. According to MS Department of Environmental Quality in their 2021 Publication, people in Mississippi should take precautions for another strong earthquake on the *New Madrid Seismic Zone*.

According to MDEQ, in 1944 the White River Fault Zone (WRFZ) was identified. In 1931, the Charleston earthquake in Tallahatchie County, Mississippi is believed to have been centered along this fault. This was the largest recorded Mississippi pi-centered earthquake with a magnitude of 4.0. The WRFZ runs from Grenada County, Mississippi northward approximately 280 miles to Newport, Arkansas. The WRFZ is an area that should be seen as a seismic hazard due to the close proximity of Grenada County to *MEMA District 8*.

*District 8* also borders District 6 there where the counties of Lauderdale and Clark counties has produced more than 14 earthquakes in 30 years, according to Mississippi Department of Environmental Quality (MDEQ). Most of the earthquake events have occurred in Clarke County. This area is not well known. Historically, most earthquakes that are centered in Mississippi had a magnitude of 3.5 or less which cannot be felt (4.0 or greater can be felt). Every earthquake is unique and potentially dangerous. **Figure 5.21** shows Regional Earthquakes and Fault Areas Near *District 8*. **Table 5.19** shows earthquakes which have affected Mississippi.

**FIGURE 5.21: REGIONAL EARTHQUAKES AND FAULT AREAS NEAR DISTRICT 8**



Source: *deltastate.edu*

**TABLE 5.18: EARTHQUAKES IN DISTRICT 8 IN MISSISSIPPI**

| Location                  | Date             | Intensity | Magnitude | Felt |
|---------------------------|------------------|-----------|-----------|------|
| Collins, Covington County | January 20, 2021 | II        | 2.1       | Yes  |

Source: Mississippi Department of Environmental Quality

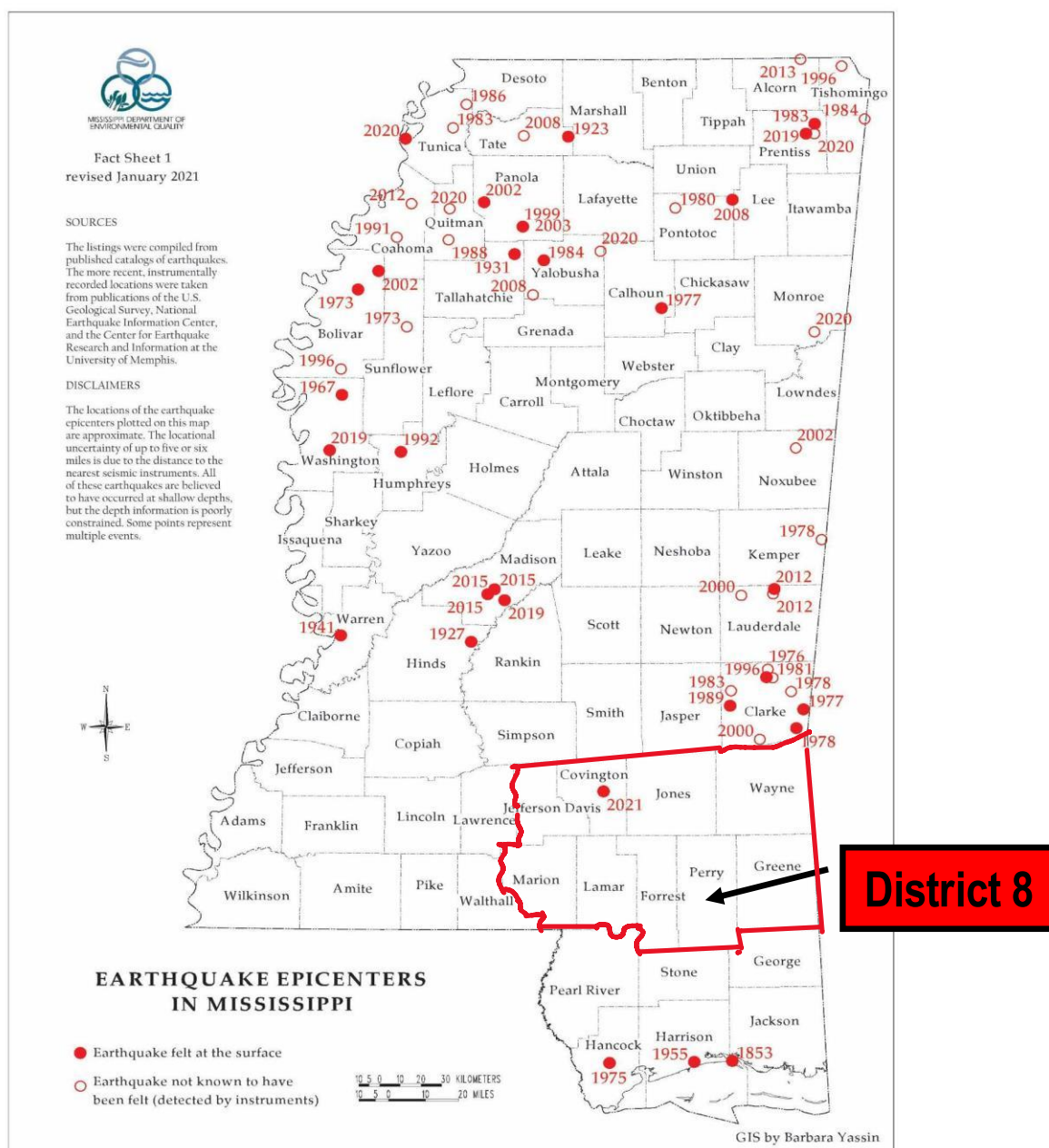
**TABLE 5.19: EARTHQUAKES WHICH HAVE AFFECTED MISSISSIPPI**

| Date      | Origin                            | Richter Scale<br>(Magnitude) | MMI<br>(Intensity) | MMI in<br>Mississippi | MEMA District 8<br>Counties Affected              |
|-----------|-----------------------------------|------------------------------|--------------------|-----------------------|---------------------------------------------------|
| 1811-1812 | New Madrid Seismic Zone           | 7.8 – 8.1                    | XI                 | <i>Unknown</i>        | <i>Affected counties as far as the Gulf Coast</i> |
| 3/29/2003 | New Madrid Seismic Zone           | <i>Unknown</i>               | 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                          |

Figure 5.22 indicates that earthquakes have occurred in Mississippi and in *District 8*.



FIGURE 5:22: EARTHQUAKES THROUGHOUT MISSISSIPPI



Source: Mississippi Department of Environmental Quality

### 5.8.5 Probability of Future Occurrences

According to MS Department of Environmental Quality in their 2021 Publication, people in Mississippi should take precautions for another strong earthquake on the *New Madrid Seismic Zone* because the southern end is only about 40 miles from the NW corner of Mississippi. Although the prediction states for MS to prepare, 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).

## 5.9 LANDSLIDE



## 5.9.1 Background

According to FEMA a **landslide** is the movement of a mass of rock, debris, or earth down a slope. Another definition states that 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.

Monetary losses from **landslides** come from the destruction of infrastructure, homes and businesses; loss of life; disruption of transportation routes; disruption and contamination of water supplies; and the difficulty of both removing and stabilizing landslide material. Even a small landslide that damages a few homes can cost millions of dollars. Losses from **landslides** in the United States were estimated in 1980 to exceed \$1 billion per year. More recently, the U.S. Geological Survey estimated annual losses to be between \$2 billion and \$4 billion per year. However, **landslide** costs across the country are not currently tracked or measured in a uniform way by any one agency, so this figure is likely to be an underestimate.

## 5.9.2 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 5.21** below, nearly the entire region falls under a moderate susceptibility/low incidence (light pink). This indicates that less than 1.5 percent of the area is involved in land sliding. The areas in yellow are defined as low incidence. The areas in orange, however, indicate that a high susceptibility and moderate incidence to land sliding 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 land sliding according to the United States Geological Survey data.

**Figure 5.20** and **Figure 5.21** delineates areas where large numbers of landslides have occurred and/or areas that are susceptible to land sliding in *District 8* and the conterminous United States.

**FIGURE 5.20: LANDSLIDE SUSCEPTIBILITY MAP OF THE MEMA DISTRICT 8 REGION**

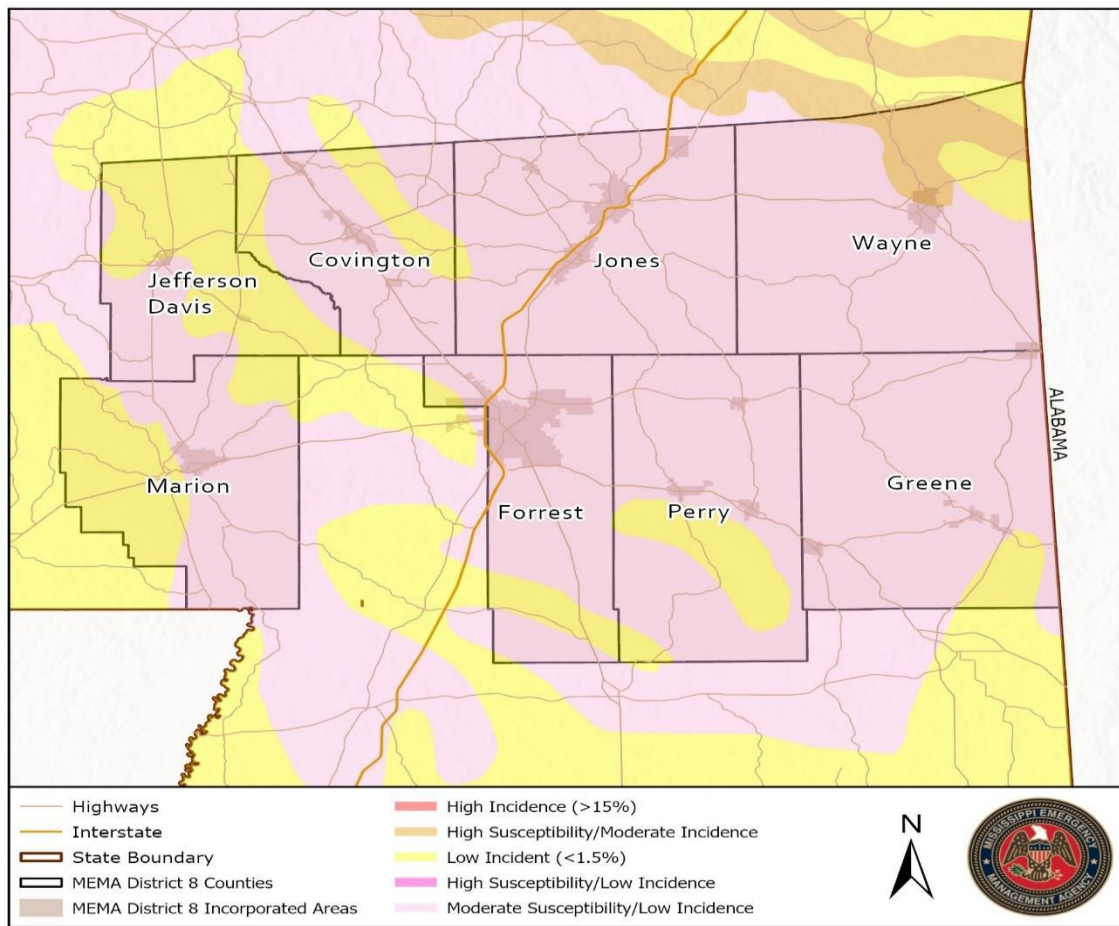
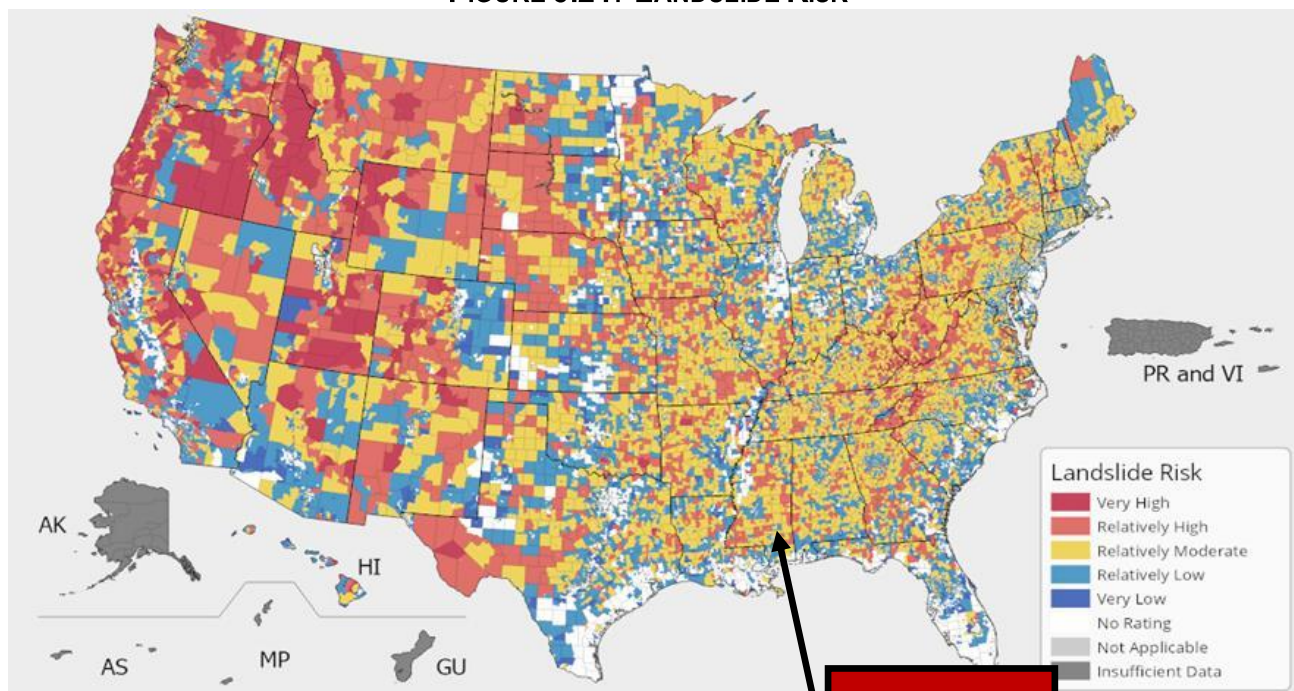


FIGURE 5.21: LANDSLIDE RISK



Source: FEMA

**District 8**

### 5.9.3 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 land sliding 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.

If scientists are correct, increasing temperatures could lead to increased incidents of heavy rain and storms. The increasing of these could lead to increased risks of land sliding.

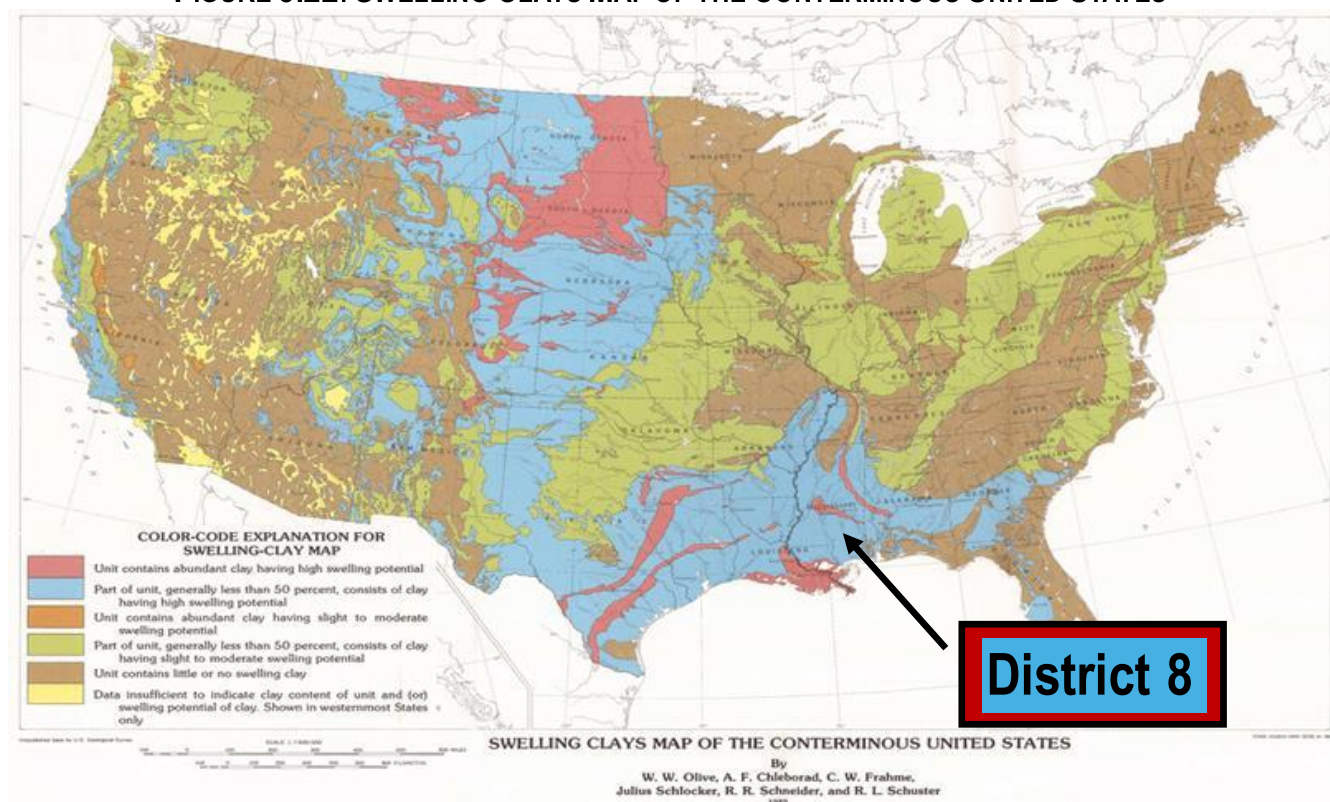
## 5.10 EXPANSIVE SOILS

### 5.10.1 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 5.22** delineates areas underlain by soils with swelling potential in the conterminous United States.

**FIGURE 5.22: SWELLING CLAYS MAP OF THE CONTERMINOUS UNITED STATES**



Source: USGS

### 5.10.2 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 5.22**. 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.

### 5.10.3 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.

### 5.10.4 Probability of Future Occurrences

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

## 5.11 WINTER STORM AND FREEZE



### 5.11.1 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 or 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.

### 5.11.2 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.

### 5.11.3 Historical Occurrences

According to the National Centers for Environmental Information, there have been a total of 82 recorded winter storm events in the *MEMA District 8 Region* since 2000 (**Table 5.20**). These events resulted in nearly \$7.2M in damages. Detailed information on the recorded winter storm events can be found in the jurisdiction-specific annexes.

**TABLE 5.20: SUMMARY OF WINTER STORM EVENTS IN THE MEMA DISTRICT 8 REGION (2000-2024)**

| Location                      | Extreme Cold<br>/ Wind Chill | Winter Weather<br>Events | Property Loss<br>& Crop Loss |
|-------------------------------|------------------------------|--------------------------|------------------------------|
| <b>Covington County</b>       | 1                            | 11                       | \$2,125,000                  |
| <b>Forrest County</b>         | 1                            | 9                        | \$620,000                    |
| <b>Greene County</b>          | 0                            | 8                        | \$0                          |
| <b>Jefferson Davis County</b> | 1                            | 13                       | \$1,960,000                  |
| <b>Jones County</b>           | 0                            | 13                       | \$1,705,000                  |
| <b>Marion County</b>          | 1                            | 9                        | \$705,000                    |
| <b>Perry County</b>           | 0                            | 7                        | \$0                          |
| <b>Wayne County</b>           | 0                            | 12                       | \$10,000                     |
| <b>Mema District 8 Total:</b> | <b>4</b>                     | <b>82</b>                | <b>\$7,125,000</b>           |

Source: NCED/NOAA

There have been several severe winter weather events in the *MEMA District 8 Region*. The text below describes some 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.

### 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.

### February 2021 Ice Storm

A light glaze of freezing rain occurred followed by a period of sleet and snow. One to three inches of snow and sleet fell, and heavy sleet fell across the county. Accumulations of one to three inches occurred across the county. Roads were covered and icy. Area transportation was greatly impacted in Covington, Forrest, Marion, Jefferson Davis, and Jones Counties.

### December 2022 Winter Storm

The coldest airmass since December of 1989 descended upon the Mid-South right before Christmas. Gusty north winds combined with very cold temperatures produced wind chills of 10 to 20 degrees below zero across north Mississippi from late Thursday, December 22nd into Friday, December 23rd. Temperatures dropped to between 0 and 5 degrees above zero during the morning of Friday, December 23rd. Numerous frozen pipes occurred in residential houses and businesses across the region. Wind chills remained below zero into the morning hours of December 24th. Wind chill values fell to 15 degrees below zero and low temperatures reached around 5 degrees above zero.

Winter storms throughout the planning area 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 cause a fire or an accumulation of toxic fumes.

There has been one Disaster Declaration in District 8 for Severe Winter Weather in 2021.

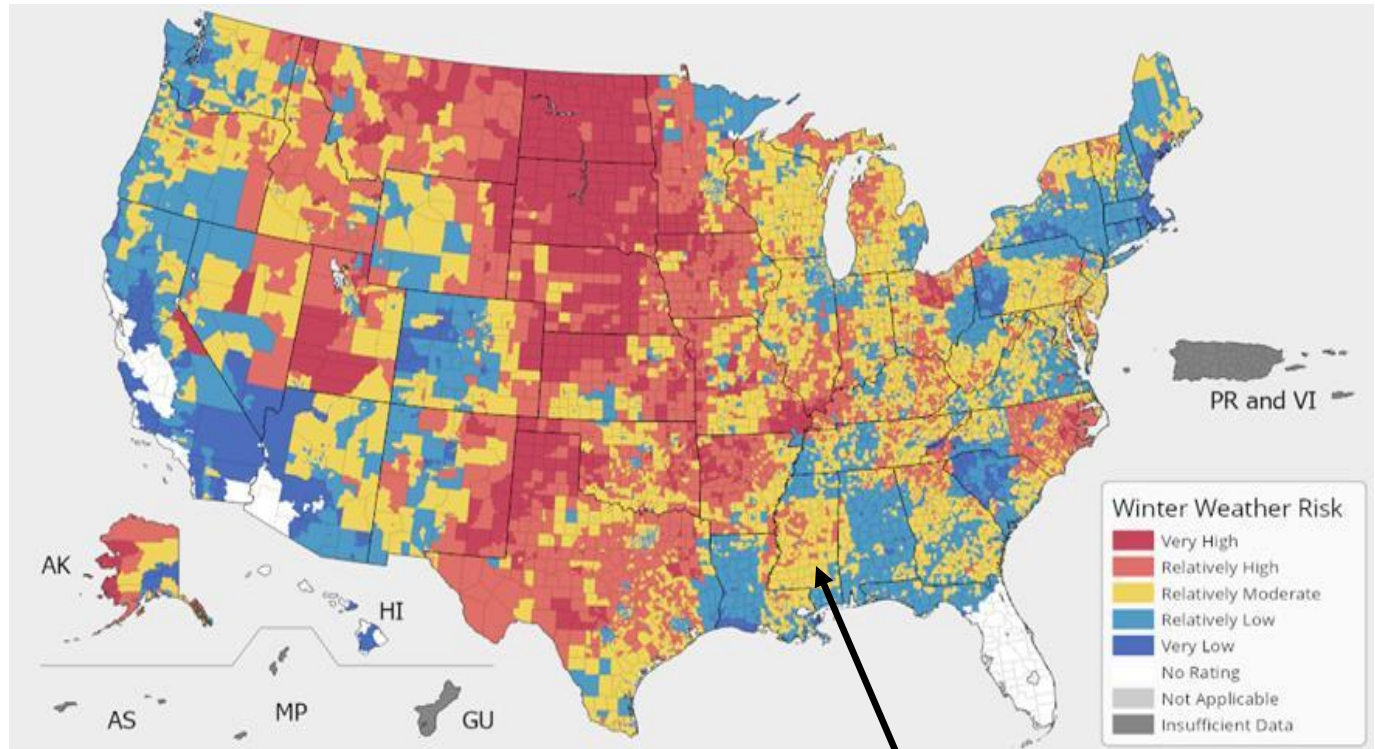
## January 2024 Winter Weather

Light accumulations of freezing rain and sleet caused slick road conditions across the county, and a single car accident occurred on Interstate 59 near Exit 90 due to slick road conditions in Jones County.

### 5.11.4 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 likely (between 10 and 100 percent).

**FIGURE 5.22: FEMA WINTER WEATHER RISK MAP**



Source: FEMA

In the National Risk Index, a Winter Weather Risk Index score and rating represent a community's relative risk for Winter Weather when compared to the rest of the United States. See **Figure 5.22**

**District 8**

## 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 counterclockwise 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.

According to FEMA Hurricane-related damage has significantly risen over the past 20 years. In the US from 1950 to 1989, hurricanes caused \$1.6 billion dollars in damage. From 1989 to 1995, the number jumped to \$6.2 billion, and then to \$150 billion for 2004-2005. From 2006-2015, the continental US experienced an 11-year “**major Hurricane**” drought which ended with a very active and costly 2017 hurricane season. During the 11-year drought, there have been sizable growth patterns in coastal population, housing size, and nominal wealth in the most hurricane prone areas. This season cost Texas and Florida an overall economic damage losses in excess of \$125 billion.

The costliest hurricanes in US history are:

- **Hurricane Katrina (2005): \$192.5 billion 50 knots**
- **Hurricane Harvey (2017): \$152.5 billion 40 knots**
- **Hurricane Ian (2022): \$114.0 billion**
- **Hurricane Maria (2018): \$109.8 billion 70 knots**
- **Hurricane Sandy (2012): \$84.6 billion 40 knots**
- **Hurricane Ida (2021): \$78.7 billion 60 knots**

Source: *Weather.com & climatecentral.org*

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 5.21**), which rates **hurricane intensity** on a scale of 1 to 5, with 5 being the most intense.

The following are terms to describe hurricanes and tropical storms:

**Tropical Depression**—A tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) is 33 knots (38 mph or 62 km/hr.) or less.

**Tropical Storm**—A tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) ranges from 34 knots (39 mph or 63 km/hr.) to 63 knots (73 mph or 118 km/hr.).

**Hurricane**—A tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) ranges from 64 knots (74 mph or 119 km/hr.) or higher.

**TABLE 5.21: SAFFIRE-SIMPSON SCALE**



| Category | Maximum Sustained Wind Speed (MPH)           |
|----------|----------------------------------------------|
| 1        | 74—95 mph<br>64-82 knots<br>119-153 km/h     |
| 2        | 96—110 mph<br>83—95 knots<br>154—177 km/h    |
| 3        | 111—129 mph<br>96—112 knots<br>178—208 km/h  |
| 4        | 130—156 mph<br>113—136 knots<br>209—251 km/h |
| 5        | 157 + mph<br>137 + knots<br>252 + km/h       |

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 5.22** 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 5.22: HURRICANE DAMAGE CLASSIFICATIONS**

| Storm Category | Damage Level | Description of Damages                                                                                                                                                                                                                                                                                                                                                                           | Photo Example                                                                        |
|----------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1              | MINIMAL      | <u>Very dangerous winds will produce some damage:</u> Well-constructed frame homes could have damage to roof, shingles, vinyl siding, and gutters. Large branches of trees will snap, and shallowly rooted trees may be toppled. Extensive damage to powerlines and poles likely will result in power outages that could last a few to several days.                                             |   |
| 2              | MODERATE     | <u>Extremely dangerous winds will cause extensive damage:</u> Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped and uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.                                                                             |   |
| 3              | EXTENSIVE    | <u>Devastating damage will occur:</u> Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.                                                                                                     |   |
| 4              | EXTREME      | <u>Catastrophic damage will occur:</u> Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or of the exterior walls. Most trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to months. Most of the area will be uninhabitable for weeks or months. |   |
| 5              | CATASTROPHIC | <u>Catastrophic damage will occur:</u> A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks to months.                                                                                |  |

Source: National Hurricane Center; FEMA

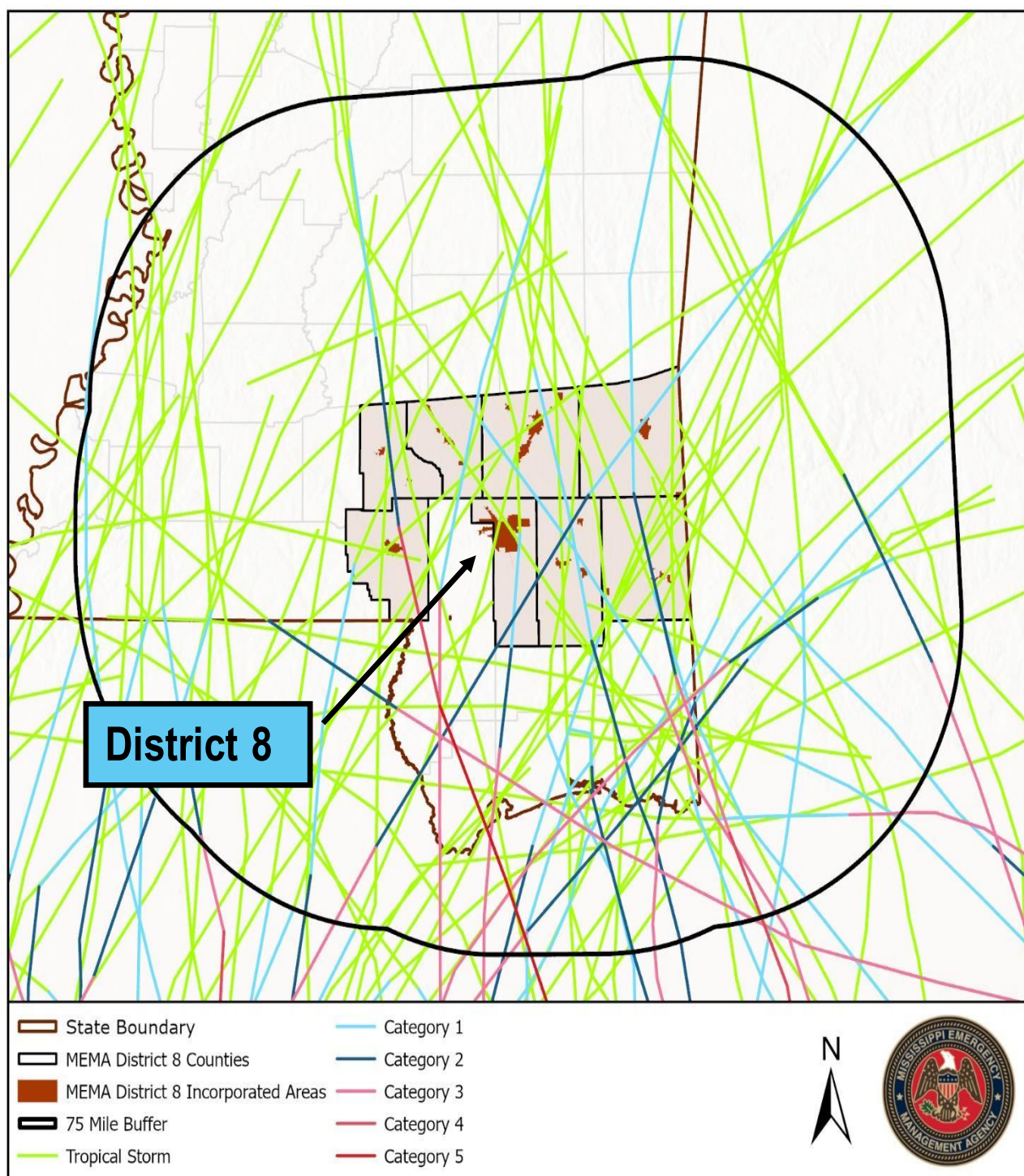
## 5.12.2 Location and Spatial Extent

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 5.23**. Thirty-one of these tracks passed directly through the region. Notable storms include Hurricane Camille (1969), Hurricane Frederic (1979), and Hurricane Katrina (2005). More detailed information is available in the county annexes.

**FIGURE 5.23: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF THE MEMA DISTRICT 8 REGION**



## Federal Declarations

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), 2012 (Hurricane Isaac), 2017 (Hurricane Nate), 2020 (Hurricane Zeta), and 2021 (Hurricane Ida). 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 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.

### **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 Issac—August 30, 2012**

Hurricane Isaac was a tropical cyclone that spent most of its life as a tropical storm but became a category 1 hurricane (on the Saffir-Simpson Hurricane Wind Scale) a few hours before making landfall in southeastern Louisiana. The cyclone produced heavy rainfall and inland flooding across portions of the Caribbean as it moved through the Lesser Antilles, and it made land falls along the southwestern peninsula of Haiti and extreme eastern Cuba. Isaac became a large tropical cyclone and caused extensive storm surge and inland flooding over southern Mississippi and southeastern Louisiana. Isaac is estimated to be directly responsible for 34 deaths: 24 in Haiti, 5 in the Dominican Republic, and 5 in the United States. Most of extreme southwestern Alabama, southern Mississippi and southeastern Louisiana received greater than 10 inches of rain, which produced both flash flooding and river flooding.

### **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.

### **Hurricane Ida—August 30-31, 2021**

As a tropical cyclone, Ida produced widespread heavy rains along portions of the northern Gulf coast states northward and eastward into the Tennessee Valley. Rainfall totals of more than 10 inches occurred over portions of southeastern Louisiana, southeastern Mississippi, and southwestern Alabama, with a maximum storm total of 15.04 inches at Ponchatoula, Louisiana, and a storm total of 13.65 inches near Kiln, Mississippi. Rainfall totals of 5–9 inches with locally higher amounts occurred over much of the remainder of eastern Mississippi, southwestern Alabama, and the western Florida Panhandle, and 3-5 inches in western and northern Alabama, northwestern Georgia, eastern Tennessee, and central and eastern Kentucky. These rains produced freshwater flooding, especially along the Tangipahoa, Tchefuncte, Tickfaw, and Bogue Falaya Rivers in southeastern Louisiana and the Tchoutacabouffa, Biloxi, Wolf, and Jourdan Rivers in southeastern Mississippi.

Ida was responsible for 35 known tornadoes. As a tropical cyclone, the system produced 24 tornadoes, including 2 in Louisiana, 13 in Mississippi, 7 in Alabama, and 2 in Virginia. All of them were rated EF-1 or EF-0 on the enhanced Fujita scale. These tornadoes generally had minor impact, although three people were injured by a tornado in Mobile County, Alabama. The

tornadoes in Mississippi were concentrated in the coastal counties of Harrison, Hancock, and Jackson, and several of them were waterspouts that moved onshore.

Ida directly caused six deaths 4 as a tropical cyclone – four in Louisiana and two in Mississippi. One death in Louisiana was a drowning in storm surge in Lafite in Jefferson Parish, while a second was a drowning when a car was driven into freshwater flooding in New Orleans. The two other deaths in Louisiana were due to high winds that damaged buildings in Ascension and St. James Parishes. The two direct deaths in Mississippi occurred when flooding washed out a bridge in George County, resulting in seven cars running off the road and into the floodwaters.

### Tropical Storm Francine—September 12, 2024

Tropical Storm Francine made landfall in southern Louisiana on the evening of September 11th, 2024. The weakening storm produced strong wind damage as it moved across central Mississippi the morning of September 12th, 2024.

## 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.

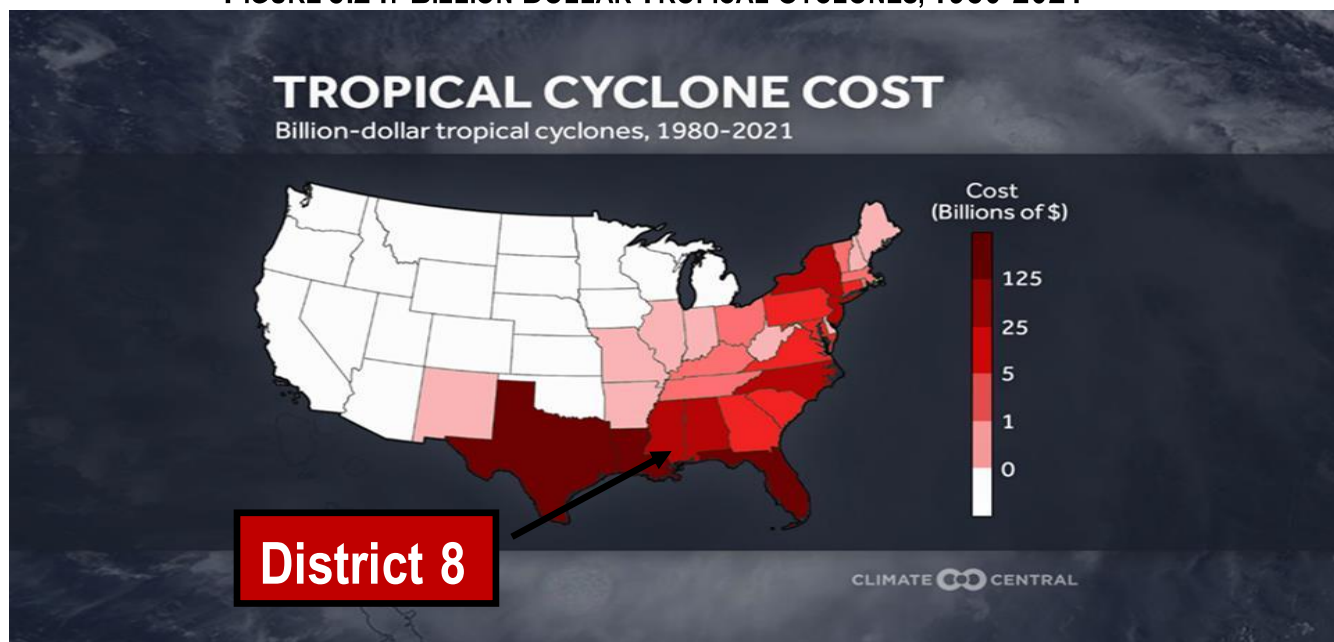
## 5.12.5 Tropical Cyclones and Climate Change

Warming oceans are fueling stronger tropical cyclones—the most costly and deadly weather disasters in the U.S. About 80% of major hurricanes undergo rapid intensification. In the Atlantic, 170 landfalling tropical cyclones have experienced rapid intensification since 1980. Of the 56 tropical cyclones that have caused at least \$1 billion in damage in the U.S. from 1980-2021, 73% underwent rapid intensification.

### Landfalling Tropical Cyclones

Of the 10 most costly weather disasters in the U.S., eight were hurricanes. The top three (Hurricanes Maria, Harvey, and Katrina) resulted in a total of 4,903 lives lost and over \$442 billion in damages. As we know, Katrina caused widespread devastation across Mississippi. See **Figure 5.24**

**FIGURE 5.24: BILLION-DOLLAR TROPICAL CYCLONES, 1980-2021**



The effects of climate change on hurricanes are complex, but research shows rising temperatures are causing hurricanes to become more intense. Higher tropical cyclone rainfall rates are expected with further warming. And rising sea levels further enhance the risk of flooding from tropical cyclones, sometimes increasing hurricane damages by billions of dollars.

Ocean warming due to human-caused climate change is fueling an increased proportion of intense tropical cyclones and contributing to an increased fraction of storms that undergo rapid intensification. The Changes are likely to change/increase the hurricane tracks, storm strength (wind/rain/tornadoes/surge), and the impacts of tropical cyclones may worsen and cause more damage further inland.

Since 1979, human-caused warming has increased the global likelihood of a tropical cyclone developing into a major hurricane (category 3 or higher) by about 8% per decade. The latest IPCC reports conclude that the proportion of very intense (category 4 and 5) tropical cyclones is projected to increase globally with continued warming. Of the 56 tropical cyclones that have caused at least \$1 billion in damage in the U.S. from 1980-2021, 73% underwent rapid intensification. (Source: Climate Central)

According to FEMA the observed increases in atmospheric and ocean temperatures associated with climate change have the potential to change in severity of tropical cyclones. Research has found that tropical cyclones are getting slower (but intensifying faster) and stronger—both of which can increase rainfall amounts and the possibility of flooding and flash flooding.

## 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.

For a thunderstorm to be designated as a “*significant severe*” by the National Weather Service, it must: 1) hail > 2 inches in diameter, 2) an EF-2 or stronger tornado, or 3) wind gusts in excess of 75 mph.

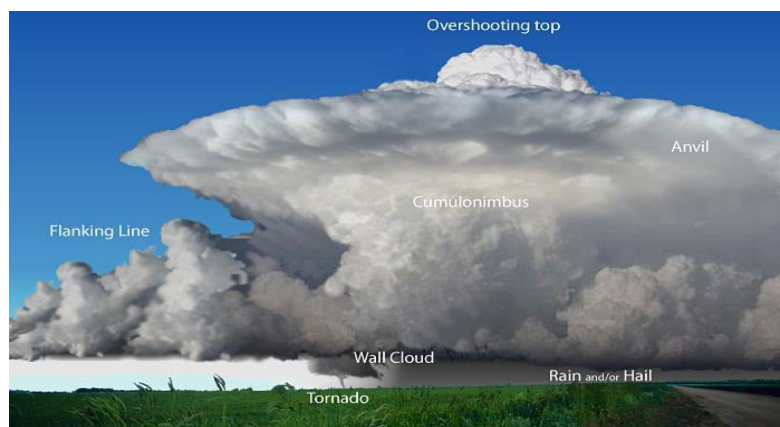
**Downbursts** are also possible with thunderstorm events. Such events are an excessive burst of wind in excess of 125 miles per hour. They are often confused with tornadoes. **Downbursts** are caused by down drafts from the base of a convective thunderstorm cloud. It occurs when rain-cooled air within 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**.” **Downbursts** can occur with little to no warning and are very difficult to predict. A **downburst** can either be “**wet**” or “**dry**”. A “**wet downdraft**” can be accompanied by hail and heavy rain, or it can be a “**dry downdraft**” and have no associated precipitation.

### Thunderstorm Types: (Source NOAA)

1. **Single-cell Thunderstorm**—are small, brief, weak storms that grow and die within an hour or so. They are typically driven by heating on a summer afternoon. **Single-cell storms** may produce brief heavy rain and lightning. They are often called “*popcorn*” *convection*.
2. **Multi-cell Storm**—is a common, garden-variety thunderstorm in which new updrafts form along the leading edge of rain-cooled air (the gust front). Individual cells usually last 30 to 60 minutes, while the system as a whole may last for many hours. **Multicell storms** may produce hail, strong winds, brief tornadoes, and /or flooding.
3. **Squall line**—is a line of thunderstorms that often forms along a low-pressure system’s cold front **Squall lines** result as the leading edge of a cold, dense air mass acts to wedge and lift warm air vertically. They are comprised of strong to severe thunderstorms, and commonly produce wind damage and flash flooding, and can also spawn embedded or rain-wrapped tornadoes.
4. **Supercell Thunderstorm**—is a long-lived (greater than 1 hour) and highly organized storm feeding off an *updraft* (a rising current of air) that is tilted and rotating. This *rotating updraft* - as large as 10 miles in diameter and up to 50,000 feet tall - can be present as much as 20 to 60 minutes before a tornado forms. Scientists call this rotation a **mesocyclone** when it is detected by Doppler radar. The tornado is a very small extension of this larger rotation. Most large and violent tornadoes come from **supercells**. See **Figure 5.25**.

**FIGURE 5.25: FEATURES OF A SUPERCCELL THUNDERSTORM**





Source: NOAA

5. **“Bow Echo”**—is a radar signature of a squall line that “bows out” as winds fall behind the line and circulations develop on either end. A strongly **bowed echo** may indicate high winds in the middle of the line, where the storms are moving forward most quickly. Brief tornadoes may occur on the leading edge of a **bow echo**. Often the north side of a bow echo becomes dominant over time, gradually evolving into a comma-shaped storm complex. See **Figure 5.26**.

**FIGURE 5.26: IMAGE OF A “BOW ECHO”**



Source: NOAA

6. **Mesoscale Convective System (MCS)**—is a collection of thunderstorms that act as a system. An **MCS** can spread across an entire state and last more than 12 hours. On radar one of these monsters might appear as a solid line, a broken line, or a cluster of cells. This all-encompassing term can include any of the following storm types:
- a) **Mesoscale convective complex (MCC)**—A particular type of **MCS**, an **MCC** is a large, circular, long-lived cluster of showers and thunderstorms identified by satellite. It often emerges out of other storm types during the late-night and early-morning hours. **MCCs** can cover an entire state.
  - b) **Mesoscale convective vortex (MCV)**—A low-pressure center within an **MCS** that pulls winds into a circling pattern, or vortex. With a core only 30 to 60 miles wide and 1 to 3 miles deep, an **MCV** is often overlooked in standard weather analyses. But an **MCV** can take on a life of its own, persisting for up to 12 hours after its parent **MCS** has dissipated. This orphaned **MCV** will sometimes then become the seed of the next thunderstorm outbreak. An **MCV** that moves into tropical waters, such as the Gulf of Mexico, can serve as the nucleus for a tropical storm or hurricane.
  - c) **Derecho**—is a widespread, long-lived windstorm that is associated with a band of rapidly moving showers or thunderstorms. Although a **derecho** can produce destruction similar to that of tornadoes, the damage typically is directed in one direction along a relatively straight swath. As a result, the term “straight-line wind damage” sometimes is used to describe derecho damage. By definition, if the wind damage swath extends more than 240 miles (about 400 kilometers) and includes wind gusts of at least 58 mph (93 km/h) or greater along most of its length, then the event may be classified as a derecho.

Table 5.23 shows the SPC severe thunderstorm risk categories.

**TABLE 5.23: SPC SEVERE THUNDERSTORM RISK CATEGORIES**

| Thunderstorms<br>(No label)                                                                           | 1-Marginal<br>(MRGL)                                                                                  | 2-Slight<br>(SLGT)                                                                                                        | 3-Enhanced<br>(ENH)                                                                                | 4-Moderate<br>(MDT)                                                           | 5-High<br>(High)                                                                                 |
|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| No severe thunderstorms expected<br><i>Lightning/flooding threats do exist with all thunderstorms</i> | Isolated severe thunderstorms possible<br><i>Limited in duration and/or coverage and/or intensity</i> | Scattered severe thunderstorms possible<br><i>Short-lived and/or not widespread, isolated intense storms are possible</i> | Numerous severe thunderstorms possible<br><i>More persistent and/or widespread, a few intense.</i> | Widespread severe storms likely<br><i>Long-lived, widespread and intense.</i> | Widespread severe storms expected<br><i>Long lived, very widespread and particularly intense</i> |

Source: FEMA

## HAIL

**Hail** is an irregular shaped ball of ice that falls within thunderstorm updrafts. Each **hailstone** begins its life as a rain drop or ice crystal that is erratically recycled within a thunderstorm's updraft. As the **hailstone** is tossed, it collides with small rain drops, which freeze onto the surface of the stone which allows it to grow in layers. Once the **hailstone** is too large to be held up by the updraft, it falls to the ground at speeds approaching 100 mph. **Hailstorms** are a potentially damaging outgrowth of severe thunderstorms. **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 5.24** shows the TORRO Hailstorm Intensity Scale which is a way of measuring hail severity.

**TABLE 5.24: TORRO HAILSTORM INTENSITY SCALE**

| Scale | Intensity Category   | Diameter (mm) | Diameter (inches) | Description                | Typical Damage Impacts                                                                          |
|-------|----------------------|---------------|-------------------|----------------------------|-------------------------------------------------------------------------------------------------|
| H0    | Hard Hail            | 5             | 0 - 0.2           | Pea                        | No damage                                                                                       |
| H1    | Potentially damaging | 5-15          | 0.2 - 0.6         | Mothball                   | Slight damage to crops and plants                                                               |
| H2    | Significant          | 10-20         | 0.4 - 0.8         | Marble, grape, Nickle      | Significant damage to crops and vegetation                                                      |
| H3    | Severe               | 20-30         | 0.8 – 1.2         | Walnut, Quarter            | Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored |
| H4    | Severe               | 25-40         | 1 – 1.6           | Pigeon egg, Ping-pong ball | Widespread glass damage, vehicle bodywork damage                                                |
| H5    | Destructive          | 30-50         | 1.2 - 2           | Golf ball                  | The wholesale destruction of glass, damage to tiled roofs, significant risk of injuries         |
| H6    | Destructive          | 40-60         | 1.6 - 2.4         | Egg                        | Bodywork of grounded aircraft dented; brick walls pitted                                        |
| H7    | Destructive          | 50-75         | 2 - 3             | Tennis ball                | Severe roof damage, risk of serious injuries                                                    |
| H8    | Destructive          | 60-90         | 1.6 - 3.5         | Large Orange, Baseball     | Severe damage to aircraft bodywork                                                              |
| H9    | Super Hailstorms     | 75-100        | 3 - 3.9           | Grapefruit                 | Extensive structural damage. Risk of severe or fatal injuries to persons caught in the open     |
| H10   | Super Hailstorms     | >100          | > 3.9             | Melon                      | Extensive structural damage. Risk of severe or fatal injuries to persons caught in the open     |

Approximate range (typical maximum size in bold), since other factors (e.g. number and density of hailstones, hail fall speed and surface wind speeds) affect severity.  
Source: [torro.org.uk/research](http://torro.org.uk/research)

## 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 which is 5 times hotter than the sun. **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 28** shows the lightning risk for the U.S. by state and county.

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 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 24 disaster declarations in the *MEMA District 8 Region* between 1971 and 2024. According to National Centers for Environmental Information, there have been 1,205 reported thunderstorm and high wind events since 2000 in the *MEMA District 8 Region*. These events caused over \$24M in damages. There were also reports of three fatalities and sixteen injuries. **Table 5.25** summarizes this information from 2000-2024. Detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event are presented in the jurisdiction-specific annexes.

TABLE 5.25: SUMMARY OF THUNDERSTORM/HIGH WIND OCCURRENCES IN THE MEMA DISTRICT 8 REGION

| County                        | Number of Events | Deaths   | Injuries  | Crop Damage      | Property Damage     |
|-------------------------------|------------------|----------|-----------|------------------|---------------------|
| <i>Covington County</i>       | 187              | 0        | 0         | \$0              | \$4,825,100         |
| <i>Forrest County</i>         | 233              | 2        | 2         | \$3,000          | \$3,731,100         |
| <i>Greene County</i>          | 55               | 0        | 2         | \$0              | \$597,000           |
| <i>Jefferson Davis County</i> | 153              | 0        | 0         | \$60,000         | \$2,888,500         |
| <i>Jones County</i>           | 274              | 1        | 11        | \$130,000        | \$8,041,510         |
| <i>Marion County</i>          | 133              | 0        | 0         | \$130,000        | \$2,422,100         |
| <i>Perry County</i>           | 64               | 0        | 0         | \$0              | \$695,500           |
| <i>Wayne County</i>           | 69               | 0        | 1         | \$0              | \$523,000           |
| <b>TOTAL:</b>                 | <b>1,168</b>     | <b>3</b> | <b>16</b> | <b>\$573,000</b> | <b>\$23,721,810</b> |

Source: NCED/NOAA

### HAIL

According to the National Centers for Environmental Information, 514 recorded [hailstorm events](#) have affected the *MEMA District 8 Region* since 2000. **Table 5.26** 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 \$35M in property damages, the majority of which were reported in Jones and Forrest County, although Marion County has the highest property damage total at over 28M. Hail ranged in diameter from 0.75 inches to 4.00 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 5.26: SUMMARY OF HAIL OCCURRENCES IN THE MEMA DISTRICT 8 REGION (2000-2024)**

| County                        | Number of Events | Deaths   | Injuries | Crop Damage    | Property Damage     | Largest in Magnitude |
|-------------------------------|------------------|----------|----------|----------------|---------------------|----------------------|
| <i>Covington County</i>       | 51               | 0        | 0        | \$0            | \$1,426,000         | 2.75 in.             |
| <i>Forrest County</i>         | 122              | 0        | 0        | \$0            | \$1,660,000         | 2.5 in.              |
| <i>Greene County</i>          | 32               | 0        | 0        | \$0            | \$3,000             | 2.75 in.             |
| <i>Jefferson Davis County</i> | 57               | 0        | 0        | \$0            | \$519,000           | 2.5 in.              |
| <i>Jones County</i>           | 112              | 0        | 0        | \$3,000        | \$3,508,000         | 2.75 in.             |
| <i>Marion County</i>          | 81               | 0        | 0        | \$0            | \$28,077,000        | 4.0 in.              |
| <i>Perry County</i>           | 30               | 0        | 0        | \$0            | \$7,000             | 2.5 in.              |
| <i>Wayne County</i>           | 28               | 0        | 0        | \$0            | \$13,000            | 1.75                 |
| <b>Total:</b>                 | <b>513</b>       | <b>0</b> | <b>0</b> | <b>\$3,000</b> | <b>\$35,213,000</b> | <b>--</b>            |

Source: NCED/NOAA

**FIGURE 5:27 PICTURES OF HAIL DAMAGE**





## LIGHTNING

According to the National Centers for Environmental Information, there have been a total of 63 recorded lightning events in the *MEMA District 8 Region* since 2000. These events resulted in over \$3M in damages, as listed in summary **Table 5.27**. Furthermore, lightning has caused one death and seven injuries in the *MEMA District 8 Region*. Detailed information on historical lightning events can be found in the jurisdiction-specific annexes.

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

| County                        | Number of Events | Deaths/Injuries | Property Damage    |
|-------------------------------|------------------|-----------------|--------------------|
| <i>Covington County</i>       | 3                | 0/0             | \$35,000           |
| <i>Forrest County</i>         | 25               | 1/2             | \$1,231,000        |
| <i>Greene County</i>          | 2                | 0/0             | \$70,000           |
| <i>Jefferson Davis County</i> | 5                | 0/1             | \$351,000          |
| <i>Jones County</i>           | 21               | 0/2             | \$916,000          |
| <i>Marion County</i>          | 5                | 0/0             | \$342,000          |
| <i>Perry County</i>           | 1                | 0/0             | \$60,000           |
| <i>Wayne County</i>           | 2                | 0/2             | \$50,000           |
| <b>TOTAL:</b>                 | <b>63</b>        | <b>1/7</b>      | <b>\$3,055,000</b> |

Source: NCED/NOAA

## 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.

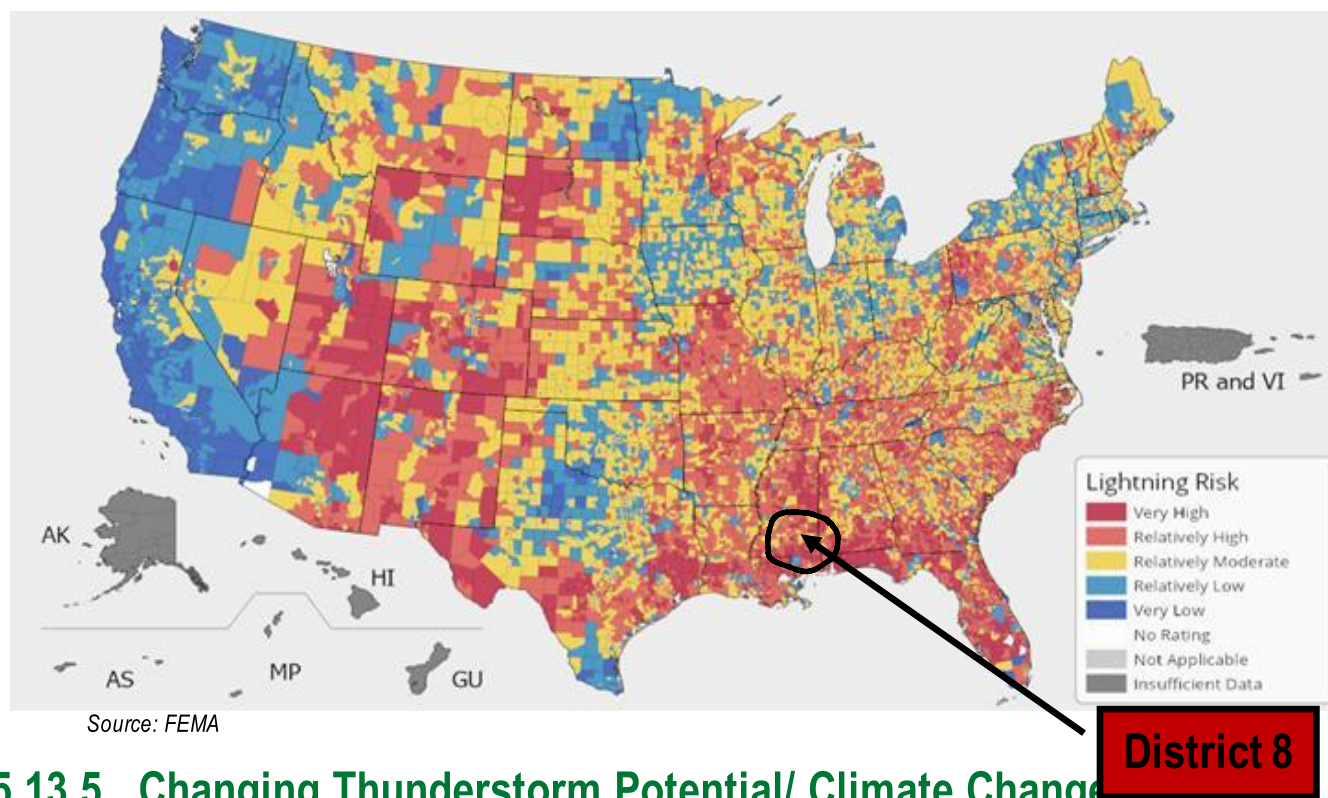
### HAILSTORM

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. 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.

**FIGURE 5.28: LIGHTNING RISK IN THE UNITED STATES**



### 5.13.5 Changing Thunderstorm Potential/ Climate Change

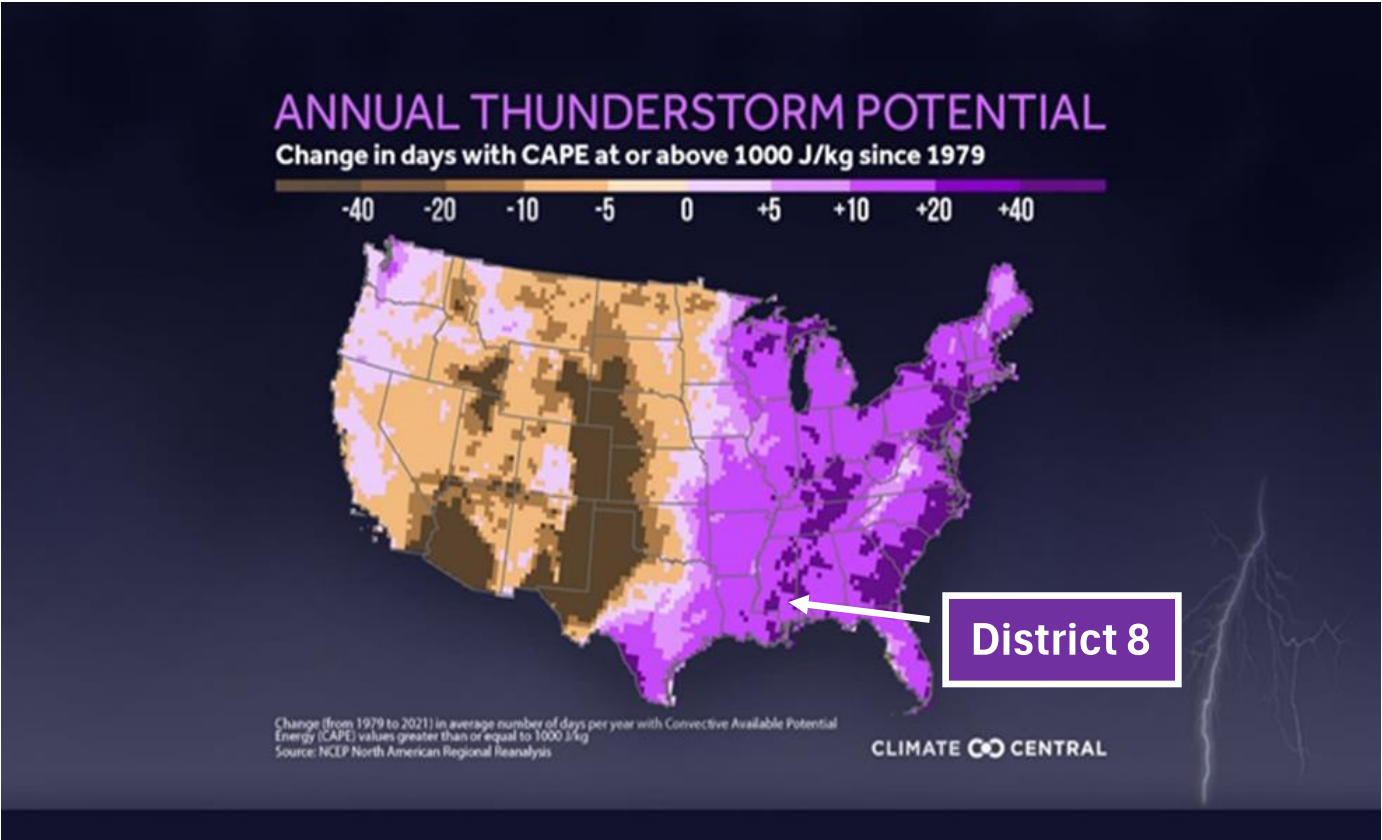
Climate change is supercharging the water cycle, leading to heavier rainfall extremes in many parts of the U.S., which can lead to hazardous flash flooding and landslides. As temperatures continue to rise, more and more water vapor could evaporate into the atmosphere, and water vapor is the fuel for storms. As developments in hazardous areas continue and atmospheric instability increases, critical infrastructure sites will see increased damage. The number of tornadoes in large outbreaks, and the frequency of storm-producing weather conditions, is trending upwards.

Severe weather is considered to be an intense variation of a regionally common weather event, such as a heavy rainfall event or damaging winds. Severe weather—thunderstorms that produce tornadoes, damaging wind, and/or hail—account for nearly half of all billion-dollar weather disasters in the U.S. since 1980.

Extreme weather identifies the trend of more severe weather events both in frequency and intensity, such as torrential rain (excessive rain periods where over one month of rain can fall during a single storm) or record-breaking peak gusts with widespread wind damage. Extreme weather is the most intense climate element observed during a given period, typically longer lasting or more damaging than the historical ‘worst case’ events. Extreme weather threats are unusually severe weather can be amplified by climate change which can cause devastating impacts on communities, infrastructure, agricultural, and natural ecosystems. Since 1980, severe storms have caused over \$383 billion in total damages.

There has been increases in hourly rainfall intensity; the risks posed by short bursts of extreme rainfall—for flooding, health, and the economy—are relevant for both wet and dry locations. An increase in the Simple Hourly Rainfall Intensity Index indicates an increase in hourly rainfall intensity—in other words, more rain falling per hour; 90% of the 150 stations analyzed had an increase in hourly rainfall intensity since 1970, the average change in the Simple Hourly Rainfall Intensity Index from 1970 to 2021 was +13%, and 63% (95/150) of stations had an increase in hourly rainfall intensity of +10% or more. But even as a warming climate might decrease the overall number of storms that form, it seems to be increasing the number of intense storms. **Figure 5.29** shows Annual Thunderstorm Potential. Source: *Climate Central*.

**FIGURE 5.29: ANNUAL THUNDERSTORM POTENTIAL**



Source: Climate Central

### 5.14 TORNADO

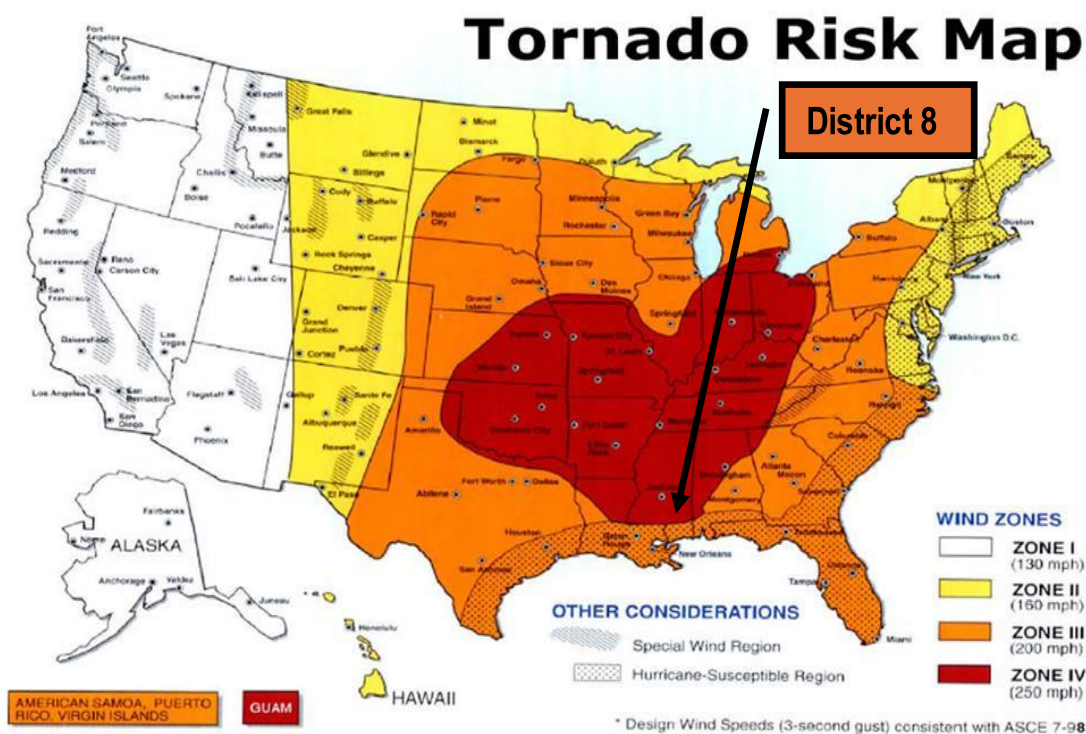


## 5.14.1 Background

A **tornado** is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. A **Tornado** is a narrow, violently rotating column of air that extends from the base of a thunderstorm to the ground and is visible only if it forms a condensation funnel made up of water droplets, dust, and debris. **Tornadoes** can be among the most violent phenomena of all atmospheric storms we experience. **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. **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.

About 1,200 **tornadoes** hit the U.S. yearly resulting in an average of 80 deaths and 1,500 injuries. Since official **tornado records** only date back to 1950, we do not know the actual average number of **tornadoes** that occur each year. Plus, **tornado** spotting and reporting methods have changed a lot over the last several decades, which means that we are observing more tornadoes that actually happen. **Tornado Alley** is a nickname invented by the media to refer to a broad area of relatively high tornado occurrence in the central United States. Various “**Tornado Alley**” maps look different because tornado occurrence can be measured many ways: by all tornadoes, tornado county-segments, strong and violent tornadoes only, and databases with different time periods. **Tornadoes** can occur and have been reported in all fifty states! 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 5.30 shows tornado risk in the United States based on the number of recorded tornadoes.

FIGURE 5.30: TORNADO ACTIVITY IN THE UNITED STATES



Source: Disasterphilanthropy.org



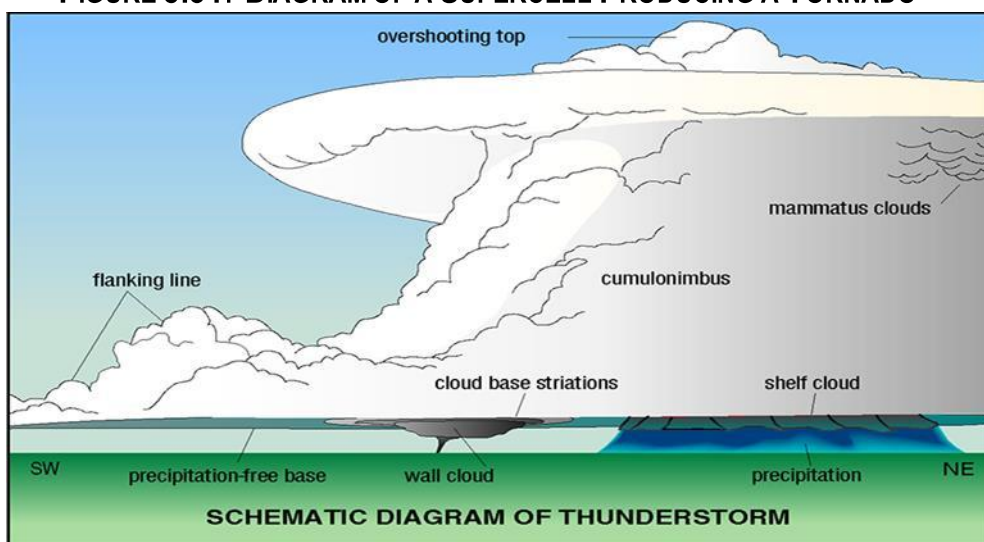
In the National Risk Index, a Tornado Risk Index score and rating represent a community's relative risk for Tornadoes when compared to the rest of the United States. A Tornado Expected Annual Loss score and rating represent a community's relative level of expected building and population loss each year due to Tornadoes when compared to the rest of the United States.

A **Tornado WATCH** is issued by the **NOAA Storm Prediction Center** meteorologists who watch the weather 24/7 across the entire U.S. for weather conditions that are favorable for tornadoes and severe weather. A watch can cover parts of a state or several states. Watch and prepare for severe weather and stay tuned to NOAA Weather Radio to know when warnings are issued.

A **Tornado WARNING** is issued by your local **NOAA National Weather Service Forecast Office** meteorologists who watch the weather 24/7 over a designated area. This means a tornado has been reported by spotters or indicated by radar and there is a serious threat to life and property to those in the path of the tornado. A **tornado warning indicates that you should ACT NOW** to find safe shelter! A warning can cover parts of counties or several counties in the path of danger.

The most destructive **tornadoes** occur from supercells, which are rotating thunderstorms with a well-defined radar circulation called a mesocyclone. (Supercells can also produce damaging hail, severe non-tornadic winds, frequent lightning, and flash floods.) Tornado formation is believed to be dictated mainly by things which happen on the storm scale, in and around the mesocyclone (See **Figure 5.31**)

**FIGURE 5.31: DIAGRAM OF A SUPERCCELL PRODUCING A TORNADO**



Source: NOAA

## HOW TO IDENTIFY A TORNADO

**Inflow bands** are ragged bands of low cumulus clouds extending from the main storm tower usually to the southeast or south. The presence of inflow bands suggests that the storm is gathering low-level air from several miles away. If the inflow bands have a spiraling nature to them, it suggests the presence of rotation.

The **beaver's tail** is a smooth, flat cloud band extending from the eastern edge of the rain-free base to the east or northeast. It usually skirts around the southern edge of the precipitation area. It also suggests the presence of rotation.

A **wall cloud** is an isolated cloud lowering attached to the rain-free base of the thunderstorm. The wall cloud is usually to the rear of the visible precipitation area.

A **wall cloud** that may produce a tornado can exist for 10–20 minutes before a tornado appears, but not always. A wall cloud may also persistently rotate (often visibly), have strong surface winds flowing into it, and may have rapid vertical motion indicated by small cloud elements quickly rising into the rain-free base.

As the storm intensifies, the updraft draws in low-level air from several miles around. Some low-level air is pulled into the updraft from the rain area. This rain-cooled air is very humid; the moisture in the rain-cooled air quickly condenses below the **rain-free base** to form the **wall cloud**.

The **rear flank downdraft (RFD)** is a downward rush of air on the back side of the storm that descends along with the tornado. The **RFD** looks like a “clear slot” or “bright slot” just to the rear (southwest) of the wall cloud. It can also look like curtains of rain wrapping around the cloud base circulation. The **RFD** causes gusty surface winds that occasionally have embedded downbursts. The rear flank downdraft is the motion in the storm that causes the hook echo feature on radar.

A **condensation funnel** is made up of water droplets and extends downward from the base of the thunderstorm. If it is in contact with the ground, it is a tornado; otherwise, it is a funnel cloud. Dust and debris beneath the condensation funnel confirm a tornado's presence (see **Figure 5.31**).

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). Tornadoic 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 5.28**). Tornado magnitudes that were determined in 2005 and later were determined using the Enhanced Fujita Scale (**Table 5.29**).

**TABLE 5.28: THE FUJITA SCALE (EFFECTIVE PRIOR TO 2005)**

| F-SCALE NUMBER | INTENSITY                    | WIND SPEED (MPH) | TPYE OF DAMAGE DONE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------|------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>F0</b>      | <b>Gale Tornado</b>          | <b>40—72</b>     | Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages to sign boards.                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>F1</b>      | <b>Moderate Tornado</b>      | <b>73—112</b>    | 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.                                                                                                                                                                                                                                                                                             |
| <b>F2</b>      | <b>Significant Tornado</b>   | <b>113—157</b>   | Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.                                                                                                                                                                                                                                                                                                                                       |
| <b>F3</b>      | <b>Severe Tornado</b>        | <b>158—206</b>   | Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>F4</b>      | <b>Devastating Tornado</b>   | <b>207—260</b>   | Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown, and large missiles generated.                                                                                                                                                                                                                                                                                                                                                                   |
| <b>F5</b>      | <b>Incredible Tornado</b>    | <b>261—318</b>   | 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.                                                                                                                                                                                                                                                              |
| <b>F6</b>      | <b>Inconceivable Tornado</b> | <b>319—379</b>   | 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. |

TABLE 5.29: THE ENHANCED FUJITA SCALE (EFFECTIVE 2005 AND LATER)

| EF-SCALE NUMBER | INTENSITY PHASE | 3 SECOND GUST (MPH) | TYPE OF DAMAGE DONE                                                                                                                                                                                                                        |
|-----------------|-----------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EF0             | Gale            | 64—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

## TYPES OF TORNADOS

Nearly 20% of all tornadoes are associated with lines of strong thunderstorms called “**quasi-linear convective systems**” (QLCS). **QLCS tornadoes** frequently occur during the late night and early morning hours. These tornadoes, however, tend to be weaker and shorter-lived on average than those associated with supercell thunderstorms. NSSL researchers are looking for ways to detect **QLCS tornadoes** more effectively.

Another type of *non-supercell tornado* is a **landspout**. A **landspout** is a tornado with a narrow, rope-like condensation funnel that forms while the thunderstorm cloud is still growing and there is no rotating updraft - the spinning motion originates near the ground.

**Waterspouts** are similar to landspouts; except they occur over water. Damage from these types of tornadoes tends to be EF2 or less.

### 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. See **Figure 5.32**.

### 5.14.3 Historical Occurrences

Tornadoes resulted in 19 disaster declarations in the *MEMA District 8 Region* between 1973 and 2024. According to the National Centers for Environmental Information, there have been a total of 216 recorded tornado events in the *MEMA District 8 Region* since 2000 (**Table 5.30**), resulting in almost \$205.4M in property and crop damages. In addition, 19 fatalities and 358 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.

**TABLE 5.30: SUMMARY OF TORNADO OCCURRENCES IN THE MEMA DISTRICT 8 REGION**

| Location                      | Total Number of Events | Deaths    | Injuries   | Property Damage      | Crop Damage         |
|-------------------------------|------------------------|-----------|------------|----------------------|---------------------|
| <i>Covington County</i>       | 33                     | 0         | 17         | \$38,540,000         | \$4,800,000         |
| <i>Forrest County</i>         | 27                     | 4         | 134        | \$43,711,500         | \$549,500           |
| <i>Greene County</i>          | 17                     | 1         | 26         | \$12,640,000         | \$0                 |
| <i>Jefferson Davis County</i> | 30                     | 4         | 6          | \$27,658,000         | \$5,000,000         |
| <i>Jones County</i>           | 46                     | 6         | 119        | \$35,961,000         | \$4,450,000         |
| <i>Marion County</i>          | 32                     | 4         | 55         | \$30,034,000         | \$25,000            |
| <i>Perry County</i>           | 12                     | 0         | 1          | \$218,000            | \$0                 |
| <i>Wayne County</i>           | 19                     | 0         | 0          | \$1,705,000          | \$0                 |
| <b>TOTAL:</b>                 | <b>216</b>             | <b>19</b> | <b>358</b> | <b>\$190,467,500</b> | <b>\$14,839,500</b> |

Source: NCED/NOAA

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 it 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.

**Greene County**- On April 15, 2011, the National Weather Service aerial survey revealed a continuous long track tornado from just west of Leakesville, Mississippi to Deer Park, Alabama. The tornado touched down west of Leakesville south of Highway 57. It crossed the highway, strengthened to EF-3 intensity, and then turned east toward the city of Leakesville paralleling Highway 57. The tornado damaged 98 homes: 47 with minor damage, 28 with major damage, and 23 homes completely destroyed. 14 businesses were completely destroyed. One fatality occurred in a destroyed mobile home. In Mississippi, the tornado did an estimated 11.1 million dollars' worth of property damage to homes and businesses. The tornado continued east northeast into extreme southwest Washington County, Alabama.

**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.

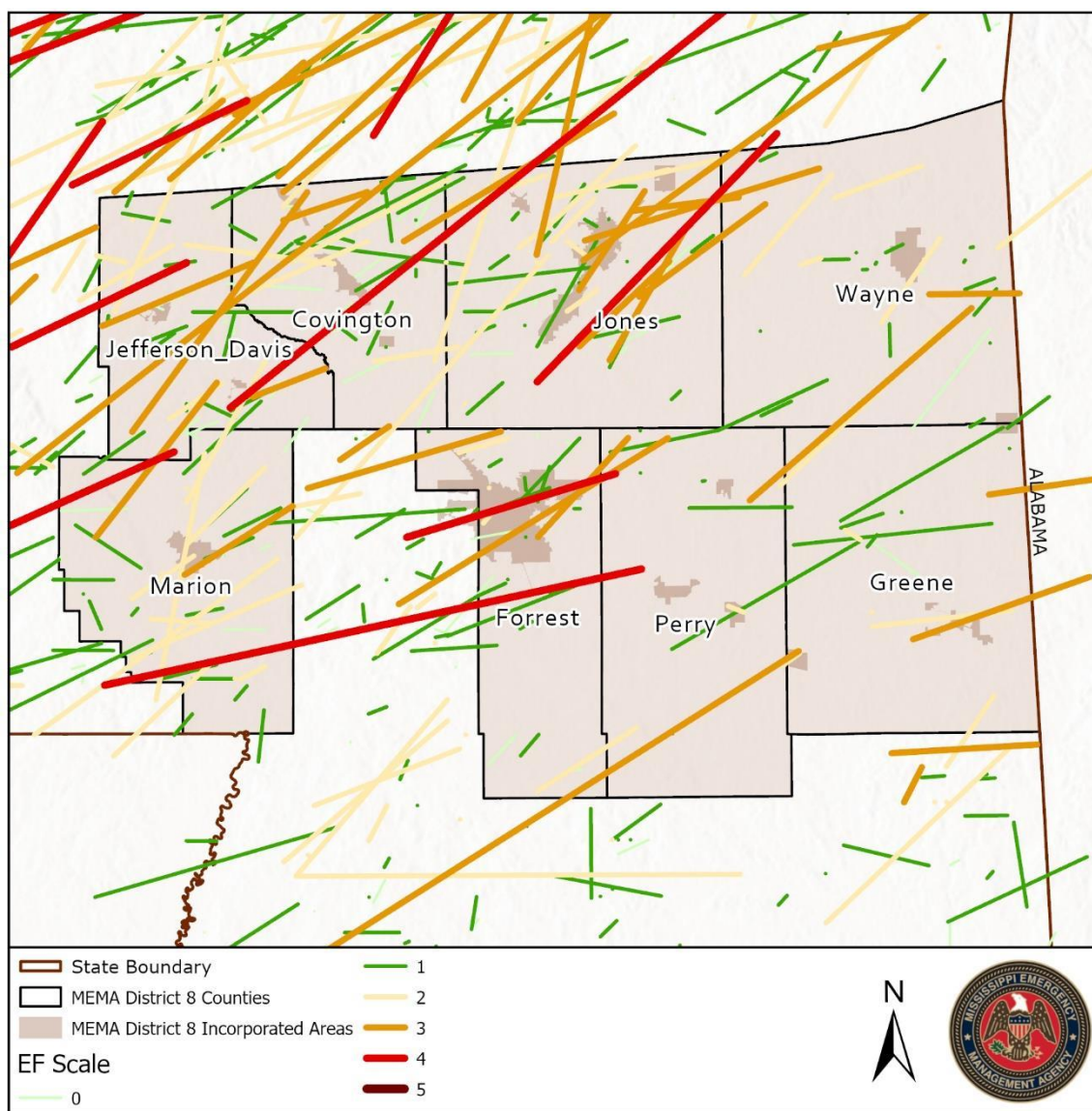
**Covington, Jones, & Jefferson Davis County**- On April 12, 2020, an outbreak of severe weather occurred on Easter Sunday, 2020. This was a multifaceted event with a few different waves of activity, each of which brought their own



unique hazardous weather to the residents of the region. This outbreak had a total of 20 tornadoes across the NWS Jackson service area. Of these, two tornadoes were long tracked and in excess of 60 miles. Additionally, the most intense tornado was historically significant as it was the widest tornado in Mississippi history at 2.25 miles and ranks as the third widest nationally. Unfortunately, fatalities occurred across the region, most of which came from the two long track tornadoes. Total fatalities were 14, which were across several counties and almost 100 people were injured. Of the 20 tornadoes, two were rated as EF4, one was an EF3, four were EF2, ten were EF1 and there were three EF0.

In Covington County an EF3 and EF4 tornadoes caused 6 injuries and almost \$40M in damages. In Jones county the EF4 tornadoes caused 3 fatalities and 80 injuries, and it caused almost 15M in damages. In Jefferson Davis an EF4 tornado caused \$25M in damages, 4 deaths, and 4 injuries. More detailed information is located in the county annexes.

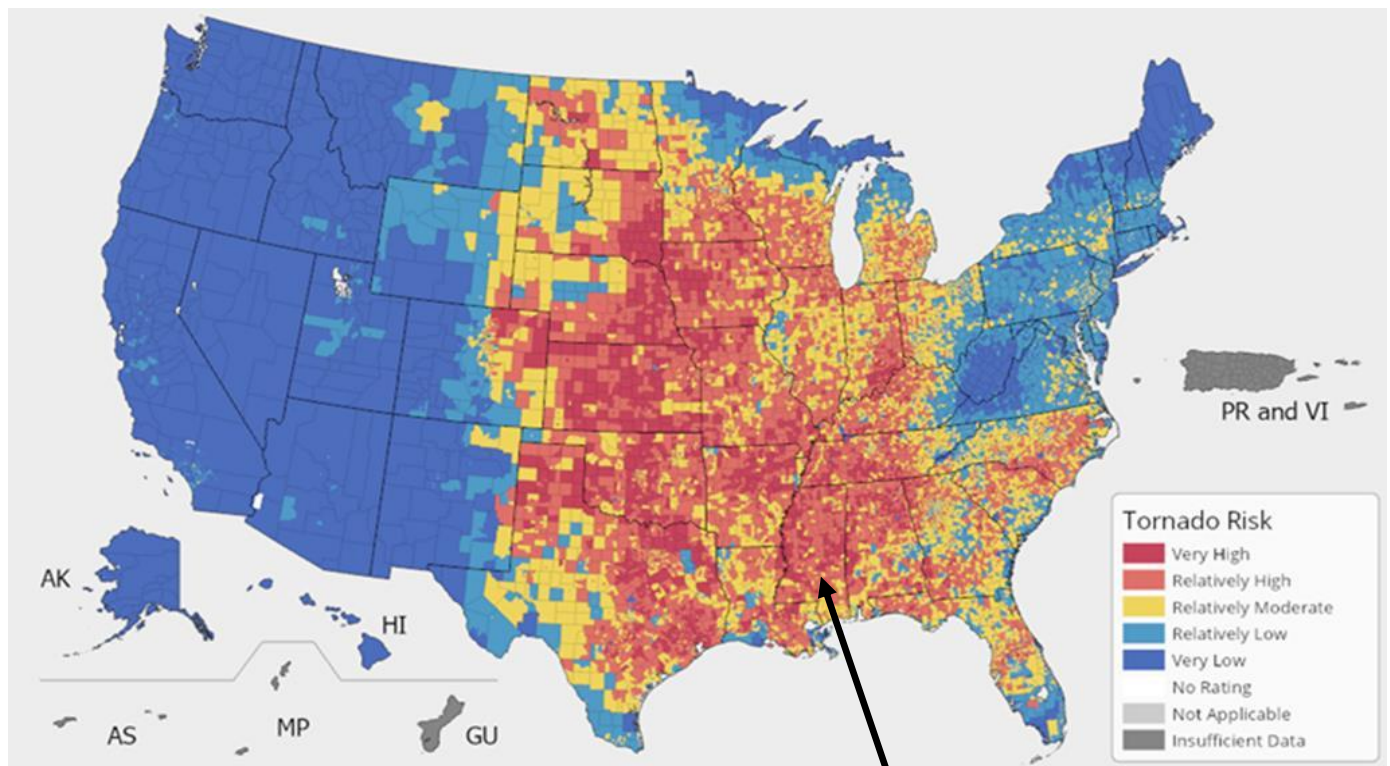
**FIGURE 5.32: TORNADO HISTORY MEMA DISTRICT 8 REGION**



#### 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). See **Figure 5.33**.

**FIGURE 5.33: TORNADO RISK MAP**



Source: Climate Central

### 5.14.5 Tornadoes and Climate Change

**District 8**

**Tornadoes:** Changes in severe weather, such as tornadoes and thunderstorms, due to climate change is difficult to assess, but a recent peer-reviewed paper presents evidence that there is a shift in the historic record, as the number of tornado events in southeastern states have increased while those in Tornado Alley have decreased. Global temperatures rose about 1.8°F (1°C) from 1901 to 2020. **Tornadoes** also need spin. It's unclear how the wind shear that generates tornado spin responds to rising temperatures. Still, the number of **tornadoes** in large outbreaks, and the frequency of storm-producing weather conditions, is trending upwards. Source: Climate Central.

## 5.15 HAZARDOUS MATERIALS INCIDENTS

5.15.1 Background

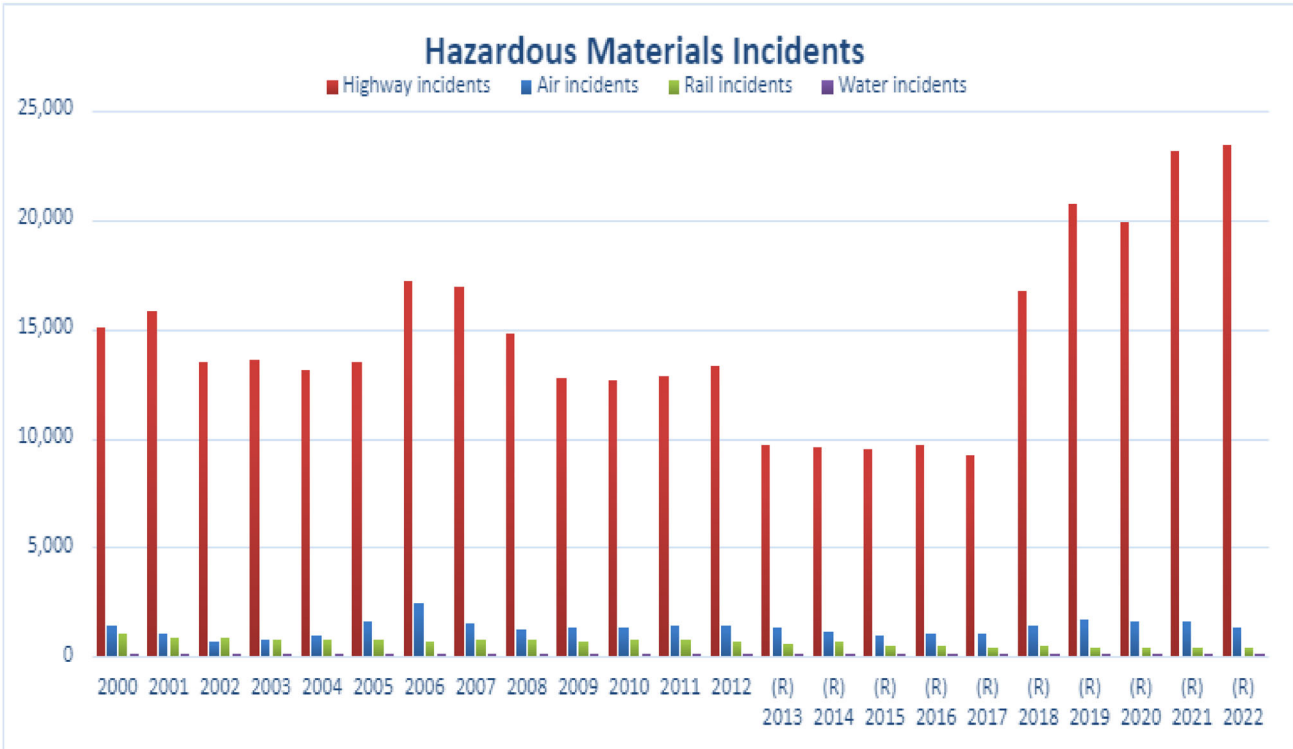
HAZARDOUS MATERIALS

**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 25,000 HAZMAT events occur each year, 23,405 of which are highway incidents, 367 are railroad incidents, and 1,381 are due to other causes. (Source: Bureau of Transportation Statistics). See Figure 5.34. 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.

**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. Table 5.31 show the hazard material incidents per year.

FIGURE 5.34: HAZARDOUS MATERIALS INCIDENTS IN THE U.S.



Source: Bureau of Transportation

TABLE 5.31: INCIDENTS BY TRANSPORTATION PHASE

|                      |  |  |      |  |
|----------------------|--|--|------|--|
| Transportation Phase |  |  | Non- |  |
|----------------------|--|--|------|--|



|                           | Incidents     | Hospitalized | Hospitalized | Fatalities | Damages             |
|---------------------------|---------------|--------------|--------------|------------|---------------------|
| <b>IN TRANSIT</b>         | <b>8,414</b>  | <b>14</b>    | <b>44</b>    | <b>11</b>  | <b>\$37,082,298</b> |
| <b>IN TRANSIT STORAGE</b> | <b>776</b>    | <b>0</b>     | <b>7</b>     | <b>0</b>   | <b>\$2,085,737</b>  |
| <b>LOADING</b>            | <b>4,135</b>  | <b>2</b>     | <b>0</b>     | <b>0</b>   | <b>\$391,415</b>    |
| <b>UNLOADING</b>          | <b>10,912</b> | <b>3</b>     | <b>11</b>    | <b>0</b>   | <b>\$2,948,777</b>  |

Source: U.S. Department of Transportation

## 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.

## 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 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.

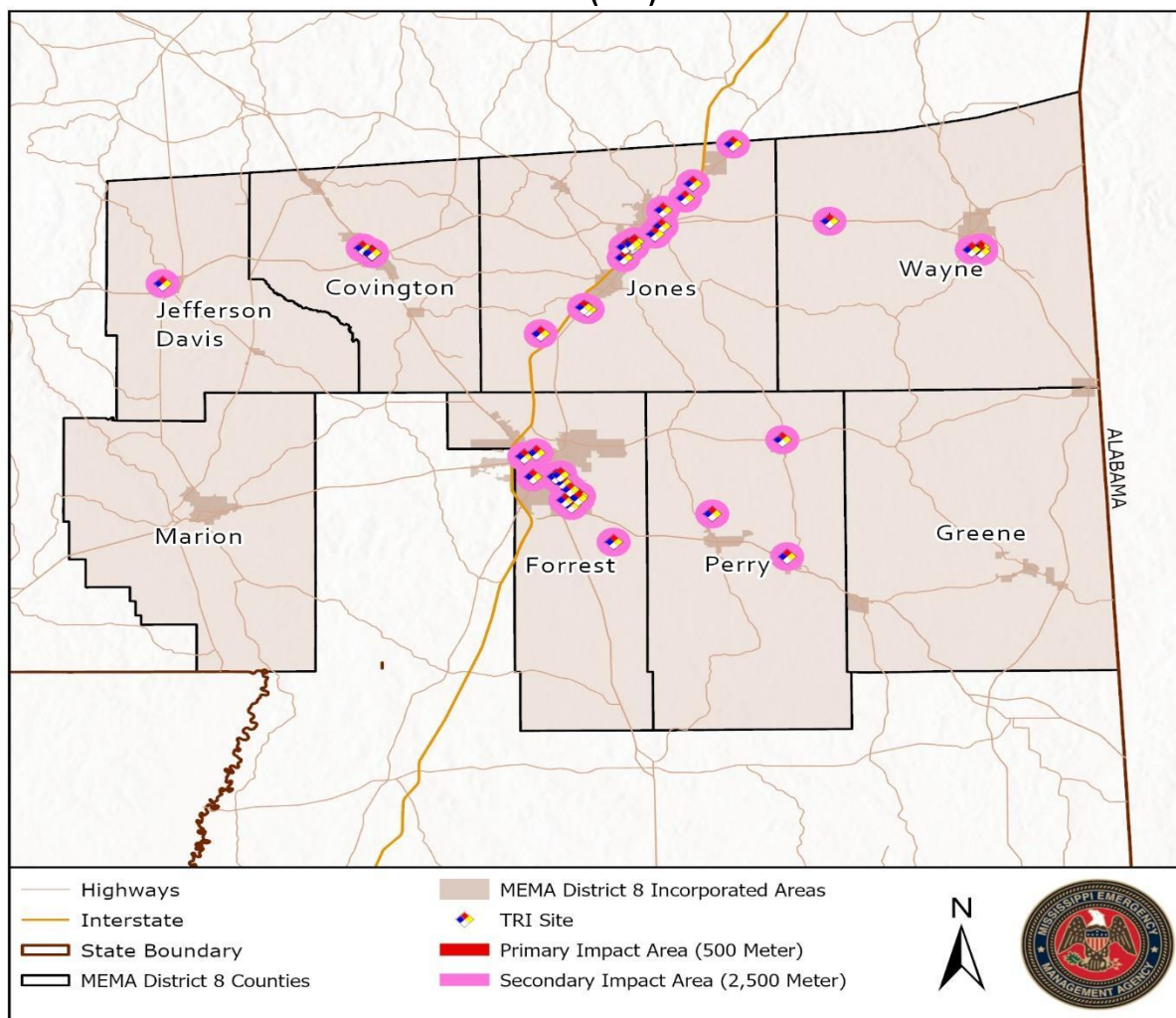
## 5.15.2 Location and Spatial Extent



## 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 5.34**.

**FIGURE 5.34: TOXIC RELEASE INVENTORY (TRI) SITES IN THE MEMA DISTRICT 8 REGION**

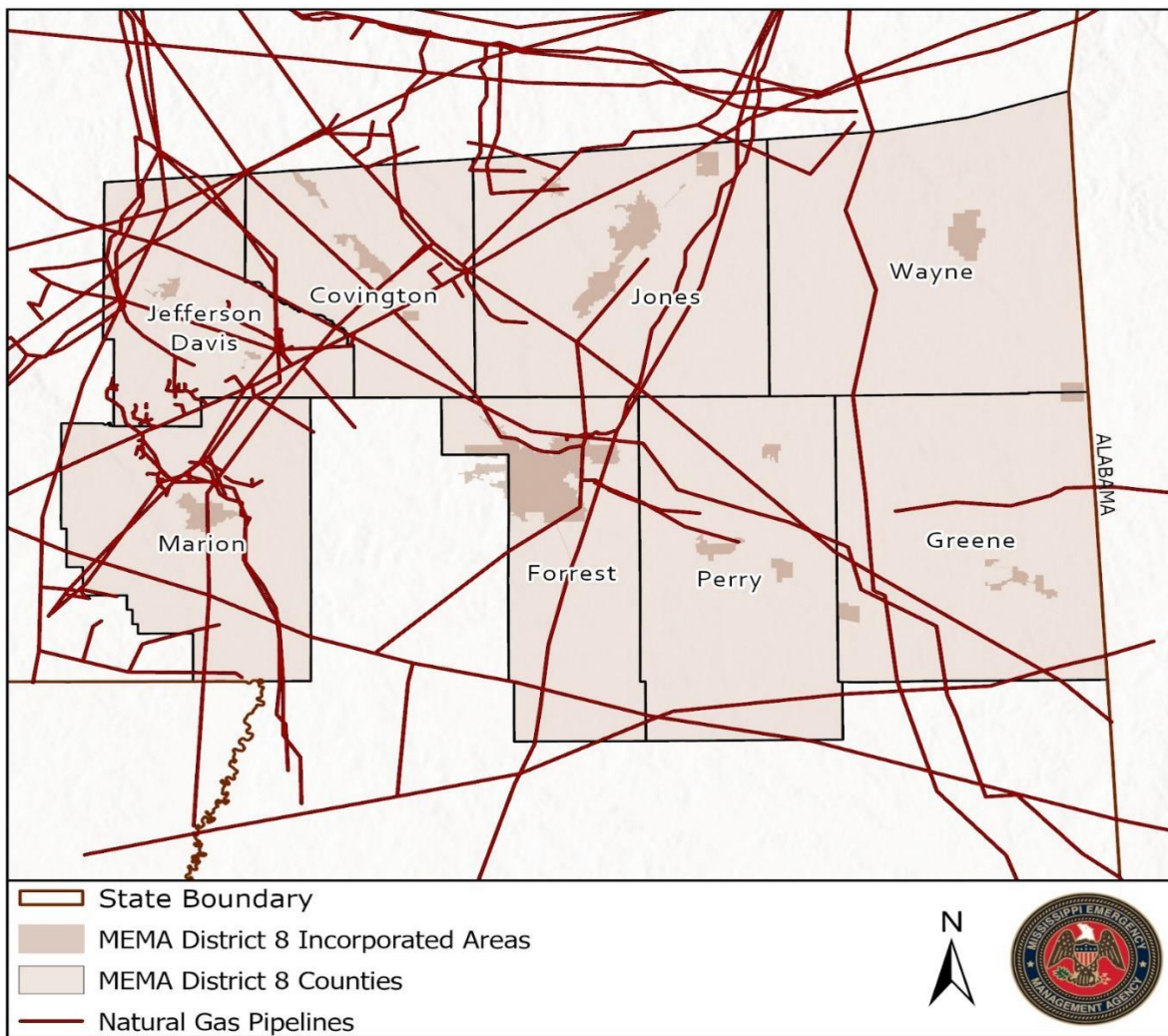


In addition to “fixed” hazardous materials locations, hazardous materials may also impact the region via roadways and rail. Many roads in the region are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially 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.

**FIGURE 5.34: PIPELINES IN THE MEMA DISTRICT 8 REGION**



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

**TABLE 5.32: SUMMARY OF HAZMAT INCIDENTS IN THE MEMA DISTRICT 8 REGION**

| Location                      | # of Events | Deaths   | Injuries | Property Damage  |
|-------------------------------|-------------|----------|----------|------------------|
| <i>Covington County</i>       | 24          | 1        | 0        | \$19,750         |
| <i>Forrest County</i>         | 100         | 0        | 0        | \$336,370        |
| <i>Greene County</i>          | 1           | 0        | 0        | \$0              |
| <i>Jefferson Davis County</i> | 1           | 0        | 0        | \$55,300         |
| <i>Jones County</i>           | 54          | 1        | 0        | \$102,315        |
| <i>Marion County</i>          | 5           | 0        | 2        | \$317,999        |
| <i>Perry County</i>           | 7           | 0        | 0        | \$0              |
| <i>Wayne County</i>           | 6           | 0        | 1        | \$4,450          |
| <b>TOTAL:</b>                 | <b>198</b>  | <b>2</b> | <b>3</b> | <b>\$836,184</b> |

Source: USDOT PHMSA

## PIPELINES

Between 2002 and 2024, there have been four pipeline incidents in the *MEMA District 8 Region*. These incidents are listed in **Table 5.33** below.

**TABLE 5.33: SUMMARY OF HAZMAT PIPELINE INCIDENTS IN THE MEMA DISTRICT 8 REGION**

| Location        | Date      | Operator                        | Deaths/<br>Injuries | Property<br>Damage |
|-----------------|-----------|---------------------------------|---------------------|--------------------|
| <i>Petal</i>    | 4/22/2003 | N/A                             | 0/0                 | \$55,300           |
| <i>Columbia</i> | 8/4/2004  | Gulf South Pipeline Company     | 0/0                 | \$106,991          |
| <i>Collins</i>  | 4/11/2009 | Transmonaigne Operating Company | 0/0                 | \$85,904           |
| <i>Columbia</i> | 9/10/2009 | Gulf South Pipeline Company     | 0/0                 | \$103,511          |
| <b>TOTAL:</b>   | <b>4</b>  |                                 | <b>0/0</b>          | <b>\$351,706</b>   |

## 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 ATTACK**

### **5.16.1 Background**



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. Many aspects of our lives rely on the Internet and computers, including communications (email, cell phones, texting), transportation (traffic control signals, car engine systems, airplane navigation), government (birth/death records, social security, licensing, tax records), finance (bank accounts, loans, electronic paychecks), medicine (equipment, medical records), and education (virtual classrooms, online report cards, research). Consider how much of your personal information is stored either on your own computer or on someone else's system. How is that data and the systems on which that data resides (or is transmitted) kept secure? Cyber security involves protecting the information and systems we rely on every day whether at home, work or school.

The increasing volume and sophistication of cyber security threats including targeting phishing scams, data theft, and other online vulnerabilities demand that we remain vigilant about securing our systems and information. The average unprotected computer (i.e. does not have proper security controls in place) connected to the Internet can be compromised in moments. Thousands of infected web pages are being discovered every day. Hundreds of millions of records have been involved in data breaches. New attack methods are launched continuously. These are just a few examples of the threats facing us, and they highlight the importance of information security as a necessary approach to protecting data and systems. Source: Mississippi Office of Homeland Security (MOHS). 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 six motives in are listed in the table below. See **Table 5.34**.

TABLE 5.34: TOP MOTIVES FOR CYBERTERRORISM

| Motives | Definitions |
|---------|-------------|
|---------|-------------|

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Cyber Crime</b>     | 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.                                                                                                                                                                                                                                                                                          |
| <b>Cyber Espionage</b> | 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. |
| <b>Hacktivism</b>      | 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.                                                                                                                                                          |
| <b>Cyber Warfare</b>   | Actions by a nation-state to penetrate another nation's computers or networks for the purposes of causing damage or disruption.                                                                                                                                                                                                                                                                                                                 |
| <b>Phishing</b>        | is when attackers send scam emails (or text messages) that contain links to malicious websites. The websites may contain malware (such as ransomware) which can sabotage systems and organizations. Or they might be designed to trick users into revealing sensitive information (such as passwords) or transferring money.                                                                                                                    |
| <b>Spear Phishing</b>  | Phishing emails can hit an organization of any size and type. You might get caught up in a mass campaign (where emails are sent indiscriminately to millions of inboxes), or it could be the first step in a targeted attack against your company, or a specific employee. In these targeted campaigns, the attacker uses information about your employees or company to make their messages even more persuasive and realistic.                |

## 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 call and control of wastewater treatment have been exempted from the attack.

**On September 13, 2023**, the Singing River Health System confirmed that the threat actor behind the attack exfiltrated limited data from its systems. In an October 18, 2023, update, the health system said it is still investigating the extent to which patient information was affected and the number of individuals involved. To meet breach reporting requirements, the breach has been reported to the HHS' Office for Civil Rights as affecting at least 501 individuals. The total will be updated when the investigation concludes.

**On December 18, 2023**, Singing River Health System confirmed that 252,890 patients had their data compromised in the incident and notification letters were mailed on January 12, 2023.

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 night.

Mississippi has the highest resilience to cybercrime in the United States. According to NetworkBuildz, there have been only 345 reported cyber-attacks over the last five years in Mississippi. The research examined each annual FBI Internet Crime Report of cyber-attacks in each state over the last five years, which were then compared by 100,000 people to reveal the states with the lowest risk of cybercrime. The study revealed that Mississippi residents are at the lowest risk of cybercrime in the country. Over the last five years, Mississippi experienced its highest occurrence of cybercrimes in 2022, with a total of 2,478 cyber-attacks. Overall, between 2018-2022, the state recorded 10,227 total cyber-attacks, which equates to 345 cybercrimes per 100,000 people and correlates to a total victim loss of \$82,758,951. North Dakota and Kansas take second and third place.

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 Jurisdiction could be impacted and compelled to respond to **cyberterrorism** 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.

On average, hackers attempt 26,000 **cyberattacks** per day, or once every three seconds, in the United States and 90% of all cyber-attacks begin with phishing. That statistic alone (by Forbes) should alarm every municipality, company, and private citizen in this country and beyond. According to Cybersecurity Ventures, the global annual cost of cybercrime is predicted to reach \$9.5 trillion in 2024. Compounding this is the rising cost of damages resulting from cybercrime, which is expected to reach \$10.5 trillion by 2025.

## 5.17 PANDEMIC

### 5.17.1 Background

An **influenza pandemic** is a global outbreak of a new influenza A virus that is very different from current and recently circulating human seasonal influenza A viruses. Pandemics happen when new (novel) influenza A viruses emerge which are able to infect people easily and spread from person to person in an efficient and sustained way. Because the virus is new to humans, very few people will have immunity against the **pandemic virus**, and a vaccine might not be widely available. The new virus will make a lot of people sick. How sick people get will depend on the characteristics of the virus, whether or not people have any immunity to that virus, and the health and age of the person being infected. With seasonal flu, for example, certain chronic health conditions are known to make those people more susceptible to serious flu infections. **Pandemics** begin as influenza (such as H5N1) but once the infection reaches global proportions it becomes a pandemic. A **pandemic** results when a virus mutates from an animal to a strain that can be passed to humans. Humans have no immunity to these new strains, making them especially deadly. The strain may ultimately mutate to a form where it can be passed from human-to-human. Given the lack of immunity, the virus spreads quickly and can have devastating effects on the population. When the virus spreads globally, it is deemed a pandemic.

The World Health Organization (WHO) constantly monitors flu cases throughout the world. WHO has developed a system of identifying where the world stands with regard to pandemic flu. The system has six phases :

**Phase 1:** No new influenza virus has been found in people or animals.

**Phase 2:** New virus has appeared in animals, but no human cases.

**Phase 3:** A new strain of animal influenza virus infects humans, but there have not been human-to-human infections.

**Phase 4:** The new virus passes from person to person, but transmission is limited and confined to a certain location.

**Phase 5:** There is frequent transmission of the virus between people in a particular place, but it hasn't spread to the rest of the world.

**Phase 6: Pandemic.** The virus is widespread worldwide.

**Post-Peak Period:** Levels of pandemic influenza in most countries have dropped below peak levels.

**Possible New Wave:** Level of pandemic influenza activity in most counties rising again.

**Post-Pandemic Period:** Levels of influenza activity have returned to levels seen for seasonal influenza.

**Pandemics** are also known to occur in waves. For example, initial wave of infected persons may be those first to contract the virus. These people may subsequently pass it to health officials or family members. For this reason, the duration of pandemic outbreaks tends to last weeks or even months.

## 5.17.2 Location and Spatial Extent

**Pandemics** are global in nature. However, they may start anywhere. *MEMA District 8* chose to analyze this hazard after the COVID Pandemic.

All populations should be considered at risk to **pandemic**. Buildings and infrastructure are not directly impacted by the virus but could be indirectly impacted if people are not able to operate and maintain them due to illness. Many buildings may be shutdown, at least temporarily, as a result. Employers may initiate work from home procedures for non-essential workers in order to help stop infection. Commerce activities, and thus the economy, may suffer greatly during this time.

## 5.17.3 Historical Occurrences

Since the 1500s, influenza pandemics have occurred about three times every century or roughly every 10-50 years. The Black Death devastated European populations in the 14th century. Nearly a third of the population (20-30 million) was killed over six years. From 1817 to present, seven Cholera Pandemics have impacted to the world and killed millions. Perhaps most severe, was the Third Cholera Pandemic (1852-1959) which started in China. Isolated cases can still be found in the Western U.S.



today. There were three major pandemics in the 20th century (1918-1919, 1957-1958, and 1968-1969). The most infamous pandemic flu of the 20th century, however, was that of 1918-1919. Since the 1960s, there has been several pandemics, the 2009 H1N1 influenza. The pandemics of the 20th and 21st centuries that impacted the United States are detailed below.

**1918 Pandemic (H1N1) Spanish Flu:** The 1918 influenza pandemic was the most severe pandemic in recent history. It was caused by an H1N1 virus with genes of avian origin. Although there is not universal consensus regarding where the virus originated, it spread worldwide during 1918-1919. In the United States, it was first identified in military personnel in spring 1918. It is estimated that about 500 million people or one-third of the world's population became infected with this virus. The number of deaths was estimated to be at least 50 million worldwide with about 675,000 occurring in the United States. Mortality was high in people younger than 5 years old, 20-40 years old, and 65 years and older. The high mortality in healthy people, including those in the 20-40-year age group, was a unique feature of this pandemic. With no vaccine to protect against influenza infection and no antibiotics to treat secondary bacterial infections that can be associated with influenza infections, control efforts worldwide were limited to non-pharmaceutical interventions such as isolation, quarantine, good personal hygiene, use of disinfectants, and limitations of public gatherings, which were applied unevenly. *Source CDC.*

In Mississippi, state officials noted that "epidemics have been reported from a number of places in the State," on October 4th, 1918. By the 18th, twenty-six localities reported 1,934 cases (the real number of cases was likely much higher). West Point, Mississippi was hit especially hard, and quarantine was established. It is estimated that over 6,000 people died in Mississippi, though that number may be much higher as death records were not widely recorded.

**1957-1958 Pandemic (H2N2 virus) Asian Flu:** In February 1957, a new influenza A (H2N2) virus emerged in East Asia, triggering a pandemic ("Asian Flu"). This H2N2 virus was comprised of three different genes from an H2N2 virus that originated from an avian influenza A virus, including the H2 hemagglutinin and the N2 neuraminidase genes. It was first reported in Singapore in February 1957, Hong Kong in April 1957, and in coastal cities in the United States in summer 1957. The estimated number of deaths was 1.1 million worldwide and 116,000 in the United States.

**1968 Pandemic (H3N2 virus) Hong Kong Flu:** The 1968 pandemic was caused by an influenza A (H3N2) virus comprised of two genes from an avian influenza A virus, including a new H3 hemagglutinin, but also contained the N2 neuraminidase from the 1957 H2N2 virus. It was first noted in the United States in September 1968. The estimated number of deaths was 1 million worldwide and about 100,000 in the United States. Most excess deaths were in people 65 years and older. The H3N2 virus continues to circulate worldwide as a seasonal influenza A virus. Seasonal H3N2 viruses, which are associated with severe illness in older people, undergo regular antigenic drift. It was milder than both the Asian and Spanish influenza viruses. It was similar to the Asian Flu, which may have provided some immunity to the virus. It had the most severe impact on elderly populations.

**2009 H1N1 Pandemic (H1N1pdm09 virus):** This flu was derived from human, swine, and avian virus strains. It was initially reported in Mexico in April 2009. On April 26, the U.S. government declared H1N1 a public health emergency. A vaccine was developed and over 80 million were vaccinated which helped minimize the impacts. The virus had mild impacts on most of the population but did cause death (usually from viral pneumonia) in high-risk populations such as pregnant women, obese persons, indigenous people, and those with chronic respiratory, cardiac, neurological, or immunity conditions. From April 12, 2009, to April 10, 2010, CDC estimated there were 60.8 million cases (range: 43.3-89.3 million), 274,304 hospitalizations (range: 195,086-402,719), and 12,469 deaths (range: 8868-18,306) in the United States due to the (H1N1)pdm09 virus. CDC estimated that 151,700-575,400 people worldwide died from (H1N1)pdm09 virus infection during the first year the virus circulated.\*\* Globally, 80 percent of (H1N1)pdm09 virus-related deaths were estimated to have occurred in people younger than 65 years of age. This differs greatly from typical seasonal influenza epidemics, during which about 70 percent to 90 percent of deaths are estimated to occur in people 65 years and older.

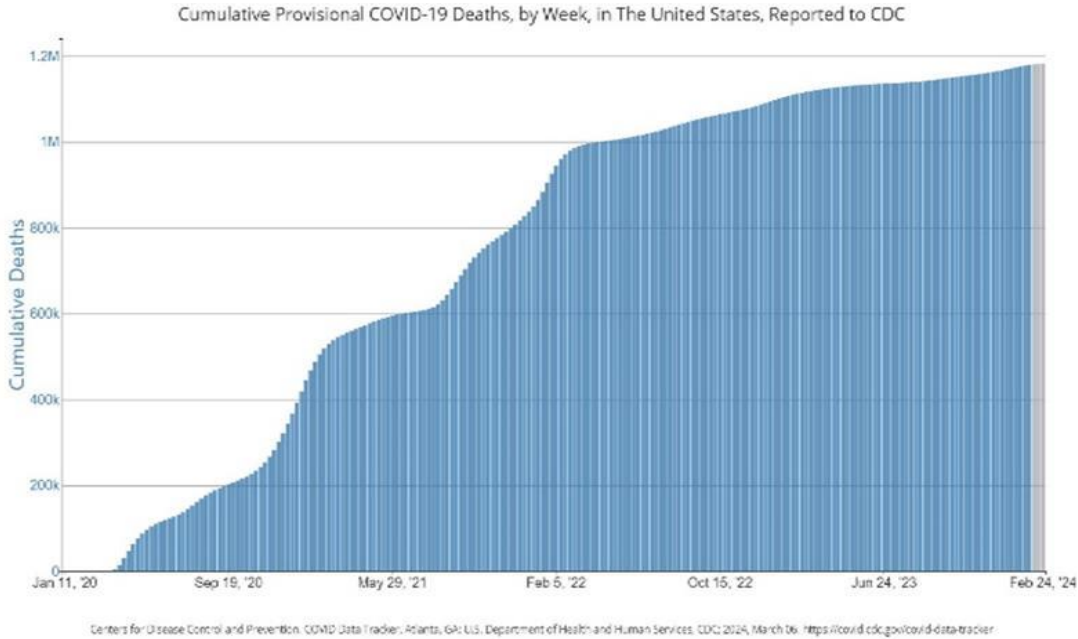
Though the 2009 flu pandemic primarily affected children and young and middle-aged adults, the impact of the (H1N1)pdm09 virus on the global population during the first year was less severe than that of previous pandemics.

**COVID-19 (coronavirus disease 2019):** Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States.

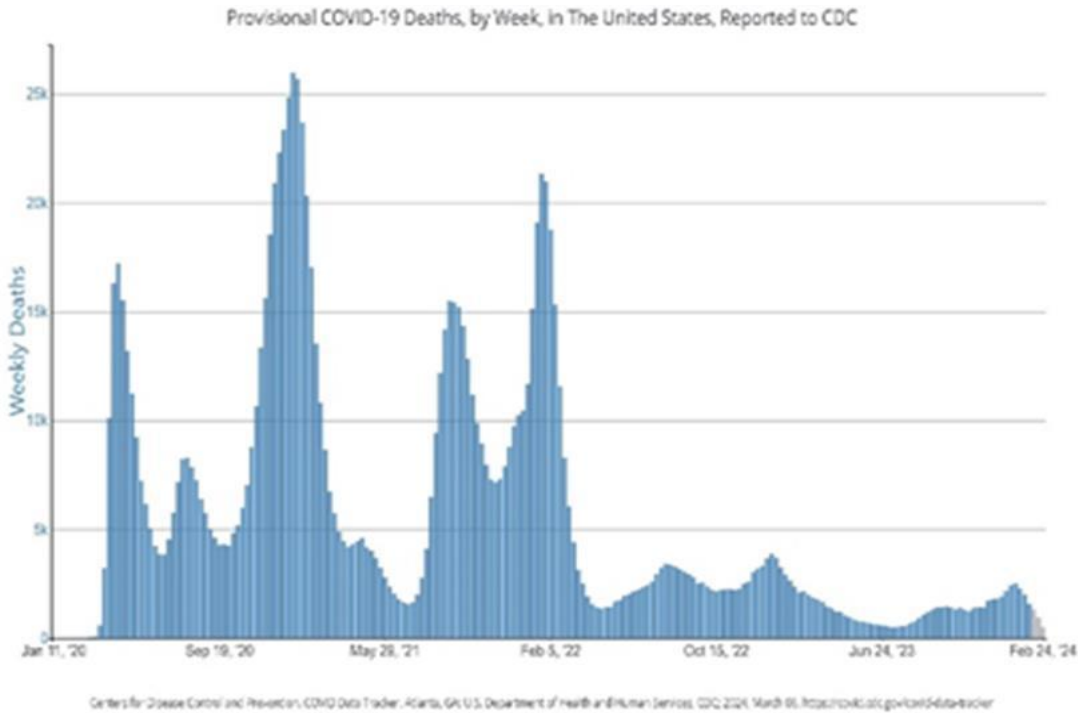
COVID-19 most often causes respiratory symptoms that can feel much like a cold, the flu, or pneumonia. COVID-19 may attack more than your lungs and respiratory system. Other parts of your body may also be affected by the disease. Most people with COVID-19 have mild symptoms, but some people become severely ill. Some people are more likely than others to get very sick if they get COVID-19. This includes people who are older, are immunocompromised, have certain disabilities, or have

underlying health conditions. Understanding your COVID-19 risk and the risks that might affect others can help you make decisions to protect yourself and others. Source: CDC. See Figure 5.34 A and B.

**FIGURES 5.34 A: U.S. CUMMULATIVE DEATHS AND U.S. WEEKLY DEATHS**

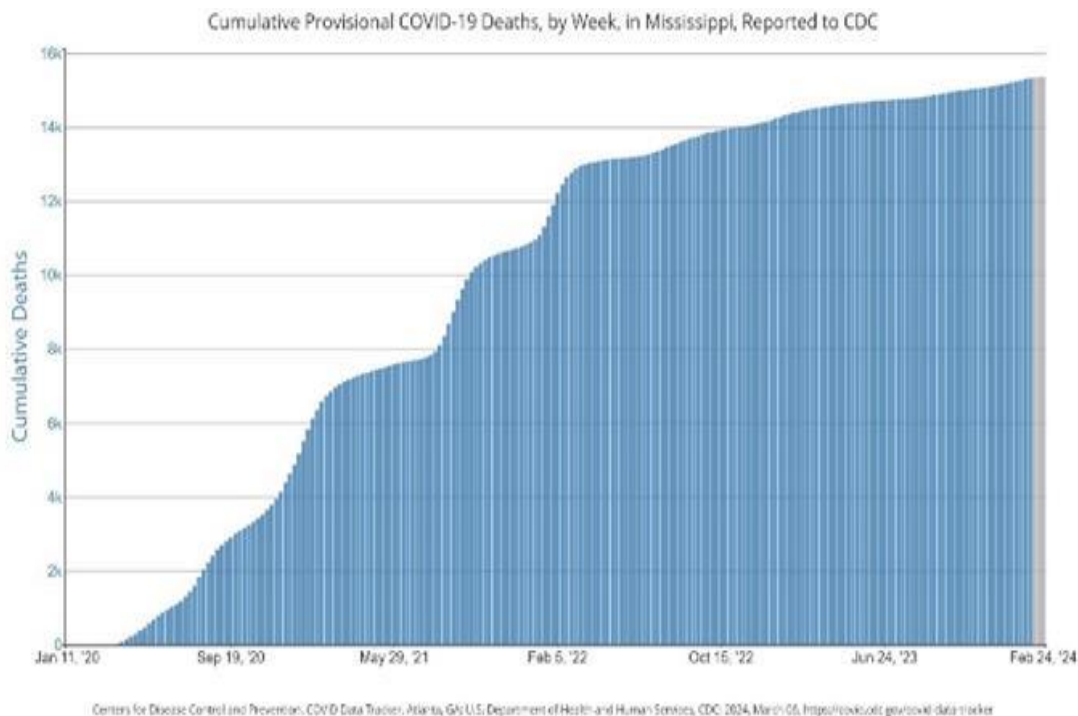


**FIGURES 5.34 A: U.S. CUMMULATIVE DEATHS AND U.S. WEEKLY DEATHS CONTINUED**

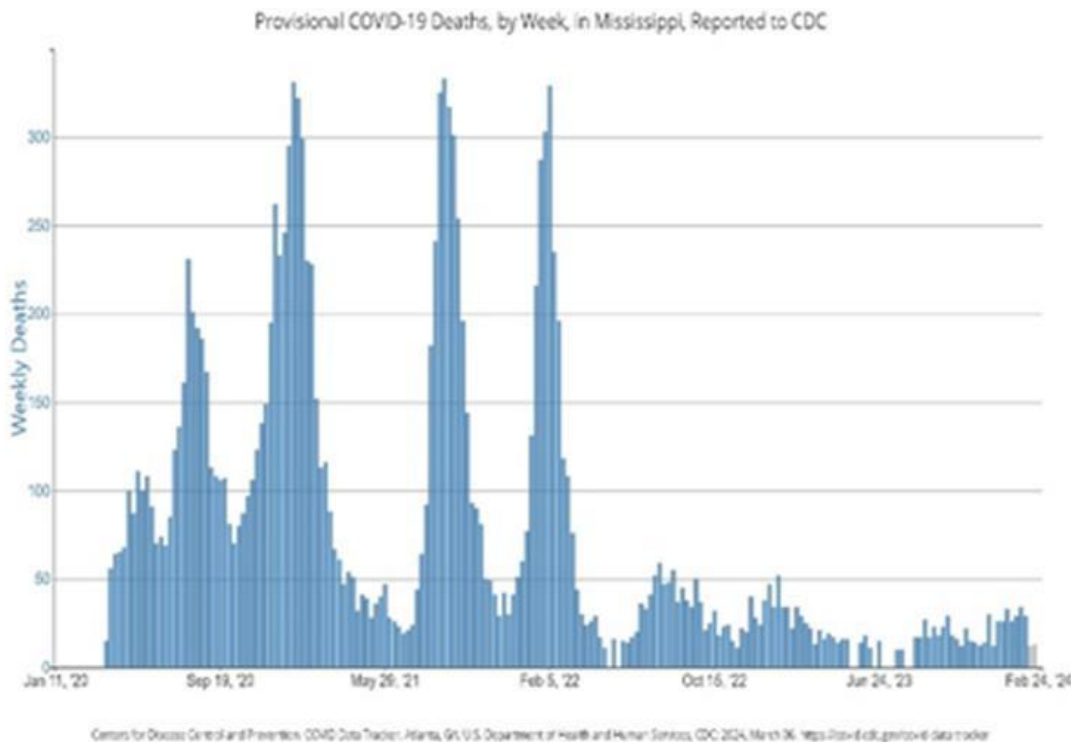


Source: CDC

**FIGURE 38 B: MISSISSIPPI CUMULATIVE DEATHS AND WEEKLY DEATHS IN MISSISSIPPI**



**FIGURE 38 B: MISSISSIPPI CUMULATIVE DEATHS AND WEEKLY DEATHS IN MISSISSIPPI CONTINUED**



Source: CDC

In addition to the pandemics above, there have been several cases of pandemic threats, some of which reached epidemic levels. They were contained before spreading globally. Examples include Smallpox, Polio, Tuberculosis, Malaria, AIDS, SARS and Yellow Fever. Advances in medicine and technology have been instrumental in containing the spread of viruses in recent history.

It is notable that no birds have been infected with Avian Flu in North and South America.

## 5.17.4 Probability of Future Occurrences

Based on historical occurrence information, it is assumed that all of the *MEMA District 8 Region* has a probability level of unlikely (less than 1 percent annual probability) for future pandemics events. While pandemic can have devastating impacts, they are relatively rare.

The Mississippi State Department of Health maintains a state pandemic plan which can be found here: <http://www.msdh.state.ms.us/msdhsite/index.cfm/44,1136,122,154,pdf/SNSPlan.pdf>

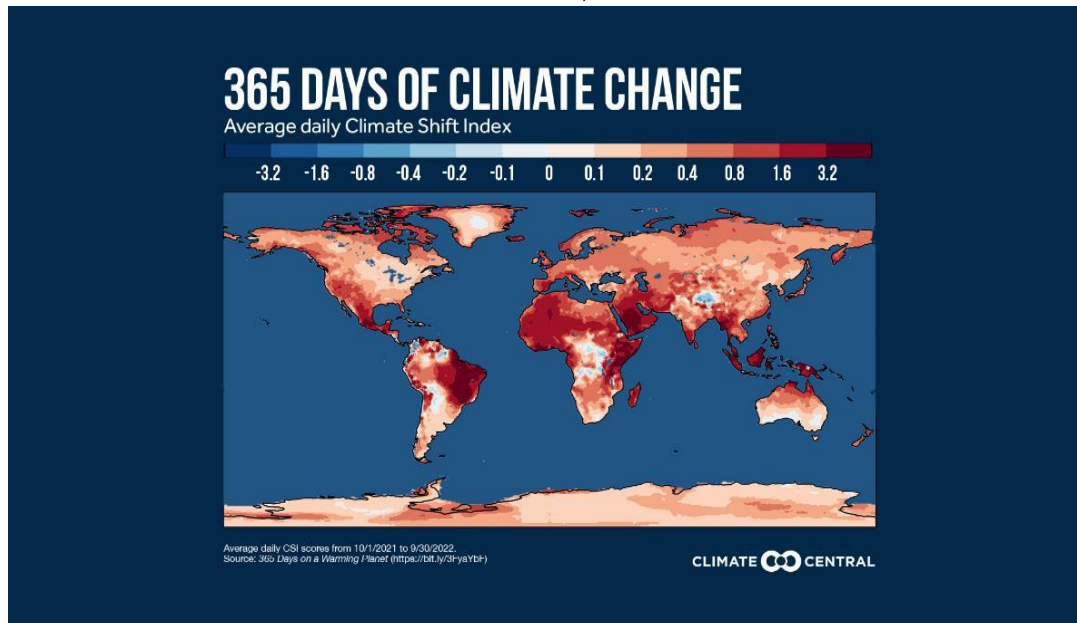
## 5.18 CLIMATE CHANGE



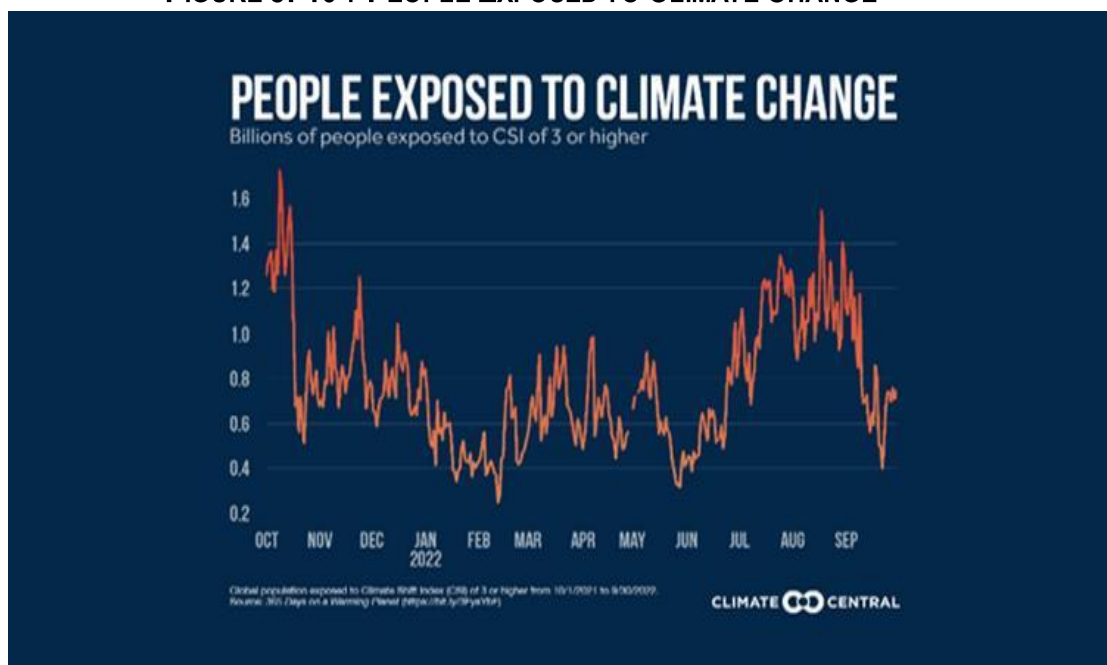
## 5.18.1 Background

Over the last 12 months, human-caused climate change affected temperatures experienced by 7.6 billion people. That's nearly every person on the planet (96% of the global population). Scientists have been measuring the signals of human-driven global climate change for decades. We know how much planet-warming carbon dioxide we've released into the atmosphere since 1850 (660 billion metric tons). And we know how much global temperatures have increased since then (2°F, or 1.1°C). An estimated 55% of the global population lives in cities, where urban heat islands worsen the risks posed by extreme heat. Climate Central's analysis reveals that billions of people in 1,000+ global cities are already experiencing climate change in their daily lives. Source: Climate Central. See **Figures 5.39** and **5.40**

**FIGURE 5.39 : 10/1/2021 TO 9/30/2022; 365 DAYS OF CLIMATE CHANGE**



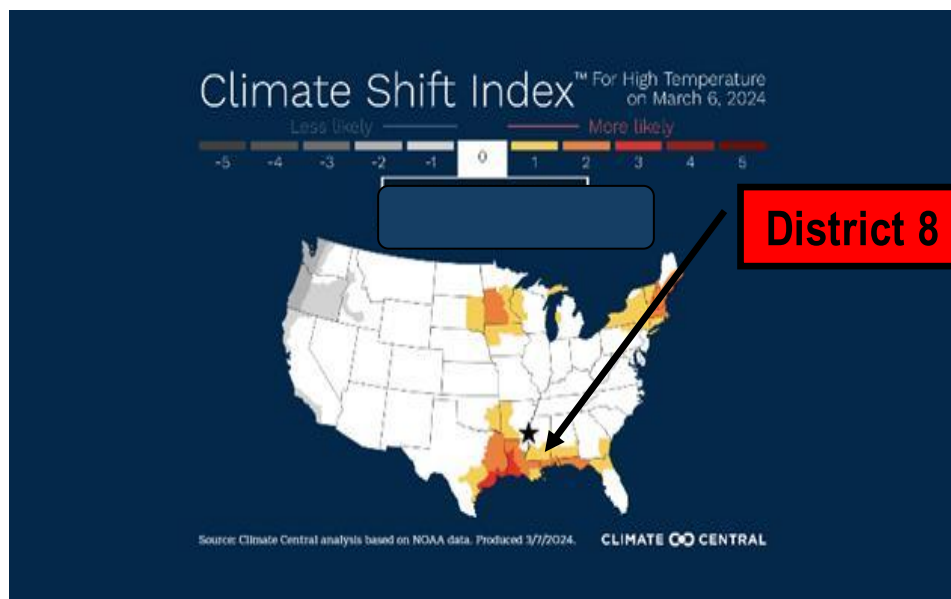
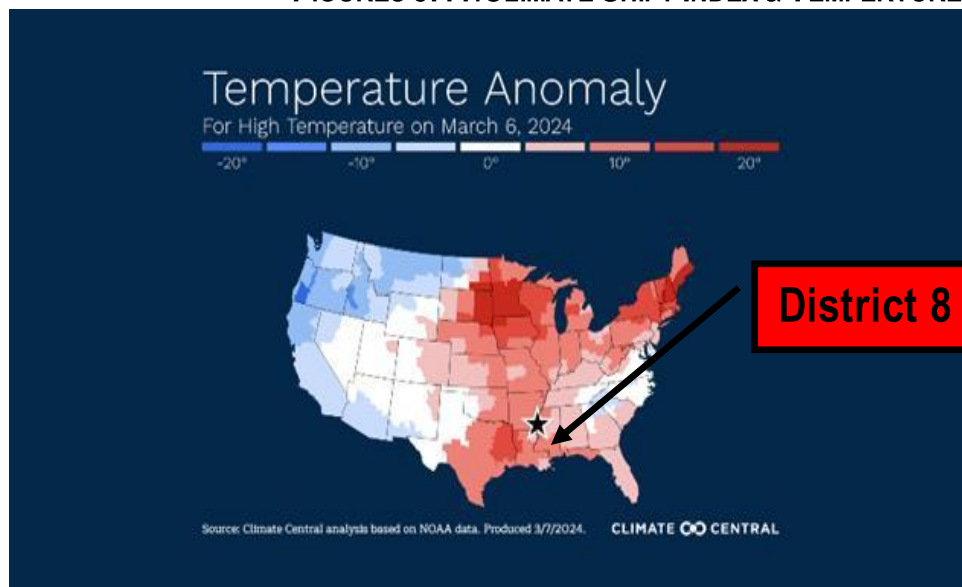
**FIGURE 5. 40 : PEOPLE EXPOSED TO CLIMATE CHANGE**



Source: Climate Central

The **Climate Shift Index™ (CSI)** is a tool developed by Climate Central in 2022 and grounded in the latest peer-reviewed attribution science. The **Climate Shift Index™ (CSI)** has 11 levels: five positive, five negative, and one representing no change. **CSI levels** indicate how climate change has altered the frequency of daily high, low, and average temperatures at a given location. **CSI levels** from +1 to +5 indicate that human-caused climate change has made the observed or forecasted temperatures more likely or, equivalently, more common. **CSI levels** from -1 to -5 indicate temperatures that are becoming less likely or less common due to human-caused climate change. and **Figures 5.41**.

**FIGURES 5.41: CLIMATE SHIFT INDEX & TEMPERATURE ANOMALYS**



Source: Climate Central

The **Climate Shift Index™** is based on the ratio of the local frequency of a particular daily temperature in the current climate to the estimated frequency of that temperature in a world without human-caused climate change. The **CSI** is a categorical scale, with the categories defined by the ratio of how common (or likely) a temperature is in today's altered climate vs. how common it would be in a climate without human-caused climate change. For the positive **CSI** conditions (which occur much more often than the negative), we assigned a simple descriptor to these events. **See Table 5.35** Source: Climate Central

TABLE 5.35: CLIMATE SHIFT INDEX SCALE

| Descriptor  | CSI Level | Interpretation                                                                                                                                                                            | CSI Level | Interpretation                                                                                                                                                                           |
|-------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No Effect   | 0         | The influence of climate change on the conditions (i.e. the daily high or low temperature) is not detectable. These conditions could occur about as often with or without climate change. | 0         | The influence of climate change on the conditions(i.e. the daily high or low temperature) is not detectable. These conditions could occur about as often with or without climate change. |
| Moderate    | 1         | Climate change made the conditions at least 1.5 times more likely. A CSI level of 1 indicates a detectable climate influence.                                                             | -1        | Climate change made the conditions at least 1.5 times less likely.                                                                                                                       |
| Strong      | 2         | Climate change made the conditions at least twice as common. CSI levels of 2 and higher indicate a dominant climate influence.                                                            | -2        | Climate change made the conditions at least 2x less common.                                                                                                                              |
| Very Strong | 3         | Climate change made the conditions at least 3x more likely                                                                                                                                | -3        | Climate change made the conditions at least 3x less likely                                                                                                                               |
| Extreme     | 4         | Climate change made the conditions at least 4x more common. These conditions would be extremely rare without climate change                                                               | -4        | Climate change made the conditions at least 4x more common. These conditions would be extremely rare with climate change                                                                 |
| Exceptional | 5         | Climate change made the conditions at least 5x more likely, potentially far more. This is an exceptional event driven by climate change.                                                  | -5        | Climate change made the conditions more than 5x less likely. These conditions are becoming exceptionally rare with climate change.                                                       |

## 5.18.2 Location and Spatial Extent

### Cold/Winter Weather

Extreme cold events still occur in a warming world, but they're getting shorter and milder. Since 1970, the coldest day of the year has warmed by 7°F on average across 242 U.S. locations analyzed by *Climate Central*. Yearly coldest temperatures rose at least 1°F in 97% of locations across every U.S. region. Coldest days have warmed the most on average in the Ohio Valley (8.7°F) and Northwest (8.4°F). Warming during the coldest time of year has year-round effects — on seasonal allergies, fruit and nut crops, water supplies, winter sports, and more. While extreme and dangerous cold events like last week's still occur in a warming world, cold extremes are generally becoming less frequent and milder across the U.S.

### Thunderstorms/Heavy Rainfall

Climate change is supercharging the water cycle, leading to heavier rainfall extremes in many parts of the U.S., which can lead to hazardous flash flooding and landslides. 90% of the 150 U.S. locations analyzed now experience more average rainfall per hour than in 1970. The average change in hourly rainfall intensity across all 150 stations from 1970 to 2021 was +13%. Increases in hourly rainfall intensity were widespread; the risks posed by short bursts of extreme rainfall—for flooding, health, and the economy—are relevant for both wet and dry locations.

### Hurricane/Tropical Storms

Tropical cyclones and climate change: The effects of climate change on hurricanes are complex, but research shows rising temperatures are causing hurricanes to become more intense. Higher tropical cyclone rainfall rates are expected with further warming. And rising sea levels further enhance the risk of flooding from tropical cyclones, sometimes increasing hurricane damages by billions of dollars. Ocean warming due to human-caused climate change is fueling an increased proportion of intense tropical cyclones and contributing to an increased fraction of storms that undergo rapid intensification. Warming oceans are fueling stronger tropical cyclones—the most costly and deadly weather disasters in the U.S. Of the 10 most costly weather disasters in U.S. history, eight were hurricanes. About 80% of major hurricanes undergo rapid intensification. In the Atlantic, 170 landfalling tropical cyclones have experienced rapid intensification since 1980. Of the 56 tropical cyclones that have caused at least \$1 billion in damage in the U.S. from 1980-2021, 73% underwent rapid intensification.

## 5.18.3 Historical Occurrences

### **Cold/Winter Weather**

From 1970 to 2021, winter cold snaps got shorter — by six days on average — in 97% of 244 U.S. locations. Climate Central analyzed trends in minimum annual temperatures in 242 U.S. locations to see how the coldest days of the year have changed from 1970 to 2023. The analysis shows that the coldest days are losing their chill:

- Across all 242 locations, annual coldest temperatures have warmed by 7°F on average since 1970.
- Yearly coldest temperatures rose at least 1°F in 234 (97%) of locations — and by at least 5°F in 179 (74%) of locations.
- A rise of at least 10°F was recorded in 50 locations — one-third of which were located in the Ohio Valley.

### **Thunderstorms/Heavy Rainfall**

Intensifying rainfall has been affecting Americans for more than three decades. Changes in rainfall from 1988 to 2017 accounted for one-third of U.S. flood damages (about \$73 billion) over that same period. And the most intense downpours caused the largest damages. Intensifying rainfall has been affecting Americans for more than three decades. Changes in rainfall from 1988 to 2017 accounted for one-third of U.S. flood damages (about \$73 billion) over that same period. And the most intense downpours caused the largest damages.

### **Hurricane/Tropical Storms**

Landfalling tropical cyclones: Tropical cyclones, which include hurricanes and tropical storms, are the most deadly and costly weather disasters in the U.S. by far. Tropical cyclones with damages exceeding \$1 billion account for a total of \$1.19 trillion in damage since 1980—more than half of the cost of all billion-dollar disasters since then.

Of the 10 most costly weather disasters in the U.S., eight were hurricanes. The top three (Hurricanes Maria, Harvey, and Katrina) resulted in a total of 4,903 lives lost and over \$442 billion in damages. Total billion-dollar tropical cyclone costs are highest in Louisiana, Texas, and Florida—but extend to 29 states throughout the South, Southeast, Northeast, and Ohio Valley, as well as to Hawaii, Puerto Rico, and the U.S. Virgin Islands.

Tropical cyclones can generate multiple devastating hazards including storm surge, heavy rainfall, flooding, winds of 100 mph or more, and tornadoes. About half of the fatalities in the U.S. attributed to Atlantic tropical cyclones from 1963-2012 were due to storm surge. Another 27% of fatalities were due to heavy rainfall, which increases the risk of flooding far from the coast. The risks multiply when hurricane-induced power outages overlap with other extreme events such as heatwaves.

While the frequency of landfalling hurricanes in the continental U.S. hasn't changed from 1900-2017, the resulting economic losses have increased significantly over the same period. Population growth and regional wealth along the U.S. Gulf and East Coasts (increased exposure) are reflected in the increased damage.

## **5.18.4 Probability of Future Occurrences**

**Cold/Winter Weather:** Much of the U.S. typically experiences the coldest days of the year in mid- to late-January. But as the planet warms, those coldest days are warming up, too. Winter warming has and will continue to have year-round effects:

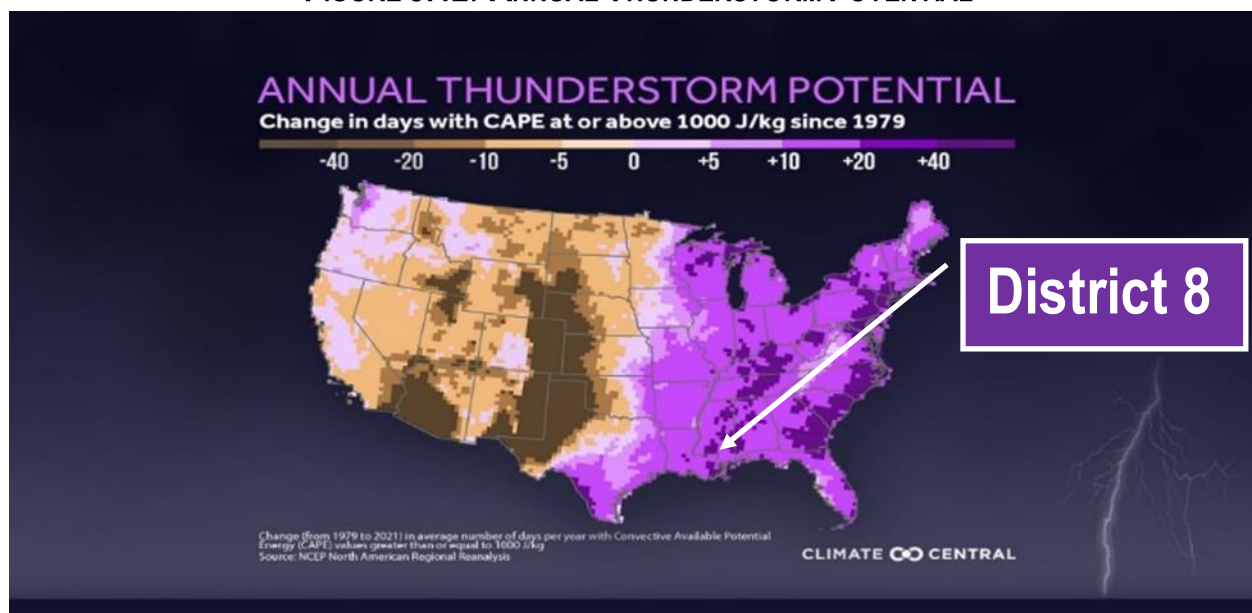
- Contributes to longer growing seasons and longer allergy seasons.
- Disrupts the chill that valuable fruit and nut crops depend on.
- Changes the timing, location, and amount of snowfall — as well as spring snowmelt and water supplies.
- Decreases home heating demand, which can be offset by longer, higher cooling demand during warm seasons.
- Allows mosquitos to thrive; annual mosquito days have risen with temperatures across the U.S.
- Can have serious consequences for cold-weather sports in the U.S. and around the world.

**Thunderstorms/Heavy Rainfall:** Heavy downpours bring more rain over a shorter period, which can lead to flash flooding and landslides. These events are especially hazardous because their rapid onset limits time to issue warnings and get people out of harm's way. An increase in the Simple Hourly Rainfall Intensity Index indicates an increase in hourly rainfall intensity—in other words, more rain falling per hour. More rain per hour in most places—even dry ones and 90% of the 150 stations analyzed had an increase in hourly rainfall intensity since 1970.

The average change in the Simple Hourly Rainfall Intensity Index from 1970 to 2021 was +13%. 3% (95/150) of stations had an increase in hourly rainfall intensity of +10% or more. See **Figure 5.42**.



FIGURE 5.42: ANNUAL THUNDERSTORM POTENTIAL



Source: Climate Central

Thunderstorm severity is a sliding scale. Warm, rising air is central to the formation of thunderstorms. The amount of energy available for this rising air is called convective available potential energy (CAPE). Higher CAPE values mean more energy available to move throughout the atmosphere, and thus greater potential for thunderstorms.

**Severe Storms:** As our climate continues to warm, certain conditions favorable to thunderstorms and tornadoes are occurring more often and severe weather activity is expanding into historically less-active seasons and regions.

**Severe storms** — thunderstorms that produce tornadoes, damaging wind, and/or hail — are localized events with limited historical records — making it difficult to directly link their occurrence to global climate change.

Thunderstorm potential depends on the season. The highest CAPE values generally occur between April and September each year—the same months that have historically seen the most frequent, costly, and deadly impacts from severe storms in the U.S.

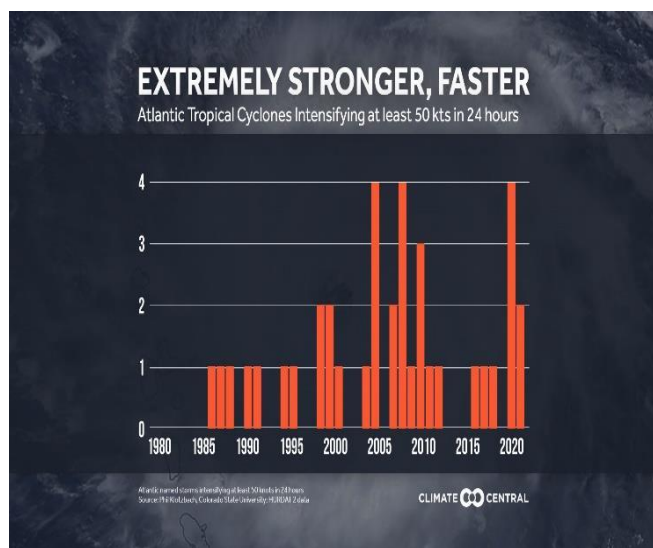
Here's some of what we do know:

- Although the number of tornadoes each year hasn't changed since 1970 (when excluding the weakest events), tornado variability has increased — concentrated in fewer outbreaks of larger magnitude. And tornado frequency has shifted eastward since 1979, with increased tornadic activity observed in the South, Southeast, and Ohio Valley.
- Since 1979, parts of the eastern U.S. have seen up to 15 more days annually with high convective available potential energy during spring and summer—prime time for thunderstorms.
- Studies suggest that conditions favorable to severe thunderstorms will become about 5-20% more frequent per 1.8°F of warming. Whether these changing conditions will ultimately result in the formation of more severe storms remains an active area of research.

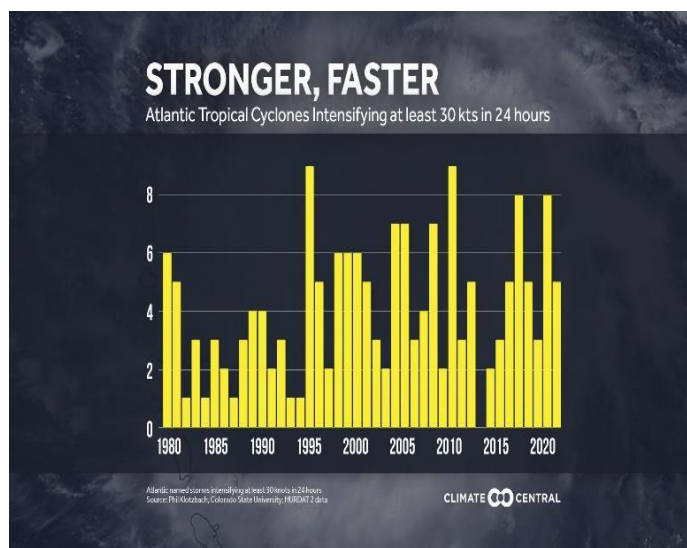
**Hurricane/Tropical Storms & Rapidly intensifying hurricanes:** About 80% of major hurricanes (category 3-5) undergo rapid intensification—defined as an increase in the maximum sustained winds of a tropical cyclone of at least 30 kt (about 35 mph) in a 24-hour period. It can be challenging to forecast rapid intensification, and this contributes to the high human and financial toll of such storms.

From 1980-2021, 170 landfalling Atlantic tropical cyclones experienced rapid intensification above the 30 kt threshold. Of these storms, 22% (38) experienced extremely rapid intensification (an increase in maximum sustained winds of at least 50 kt (about 58 mph) in a 24-hour period). See **Figures 5.43**. Of the 56 tropical cyclones that have caused at least \$1 billion in damage in the U.S. from 1980-2021, 73% underwent rapid intensification.

FIGURES 5.43: INCREASING STRONGER AND FASTER TROPICAL CYCLONES



Source: Climate Central



Rising losses from tropical cyclones: The risks from tropical cyclones reflect a combination of three factors:

- physical hazards that result from tropical cyclones (e.g., storm surge),
- exposure of people and property to these hazards where and when they occur, and
- the vulnerability of populations in the storm track (e.g., capacity to respond and recover).

**Tropical Cyclones:** Warming oceans fuel stronger tropical cyclones that bring more heavy rainfall and higher storm surge when they make landfall. Warming of the surface ocean due to human-caused climate change is fueling an increased proportion of intense tropical cyclones and contributing to an increased fraction of storms that undergo rapid intensification. Higher tropical cyclone rainfall rates are expected with further warming. Greater rainfall intensity can increase the risk of inland flooding, which accounts for more than half of past U.S. hurricane deaths.

**Droughts:** Droughts are likely to be more severe because periods without rain may be longer and very hot days will be more frequent. More warming, more extremes, more people at risk. As the planet warms, many dangerous extreme events — from **heat waves** to **wildfires** and **heavy rainfall** and **floodings** — have become more frequent and/or intense around the globe.

**Drought:** Rising global temperatures are altering the water cycle and increasing the risk of drought in parts of the U.S. Warming air increases the potential evaporation from the land and transpiration from plants. This process increases the water available for precipitation in some areas but leads to drying in other areas.

Risks of severe and prolonged **megadroughts** in the Southwest are projected to intensify over this century with continued warming. As the climate continues to warm, the western U.S. also faces increasing risks of hydrological drought due to declining snowpack and earlier spring melt.

**Flooding:** Climate change is bringing heavier rainfall extremes and increased, inequitable flood risk to many parts of the U.S. For every 1°F of warming the air can hold an extra 4% of moisture, increasing the chances of heavier downpours that contribute to the risk of flash floods. Precipitation extremes are likely to increase globally, even in regions with decreasing average precipitation such as the U.S. Southwest, which is likely to face more intense **flash floods** with high future levels of heat-trapping emissions.

**Wildfire:** More frequent hot, dry, windy conditions contribute to more wildfires that put people and ecosystems at risk. **Wildfires** can be an ecologically important disturbance. But human-caused climate change, poor land management practices, and sprawling development have increased both the availability of fuel and the frequency of weather conditions that spark and spread dangerous fires. Regardless of how fires start, more frequent hot, dry, windy conditions affect fuel availability, fire behavior (ignition, duration, and spreading), and can compromise suppression efforts.

Assessing how climate change impacts severe weather is challenging because severe storms are complex, local, and short-lived. CAPE quantifies air instability, just one of several important factors in severe weather formation. Tornadoes also need spin. It's unclear how the wind shear that generates tornado spin responds to rising temperatures. Still, the number of tornadoes in large outbreaks, and the frequency of storm-producing weather conditions, is trending upwards.

### 5.18.5 Billion Dollar Disasters and Their Impacts

One of the key transformations is scaling up insured loss data to account for uninsured and underinsured losses, which differs by peril, geography, and asset class. However, these loss assessments do not take into account losses to natural capital or assets, healthcare related losses, or values associated with loss of life. Therefore, our estimates should be considered conservative with respect to what is truly lost but cannot be completely measured.

The increases in population and material wealth over the last several decades are an important factor for higher damage potential. These trends are further complicated by the fact that many population centers and infrastructure exist in vulnerable areas like coasts, river floodplains and the wildland urban interface, while building codes are often insufficient in reducing damage from extreme events. **Climate change** is also playing a role in the increasing frequency of some types of extreme weather that lead to billion-dollar disasters. According to NASA, as Earth's climate changes, it is impacting extreme weather across the planet. Record-breaking heat waves on land and in the ocean, drenching rains, severe floods, years-long droughts, extreme wildfires, and widespread flooding during hurricanes are all becoming more frequent and more intense.

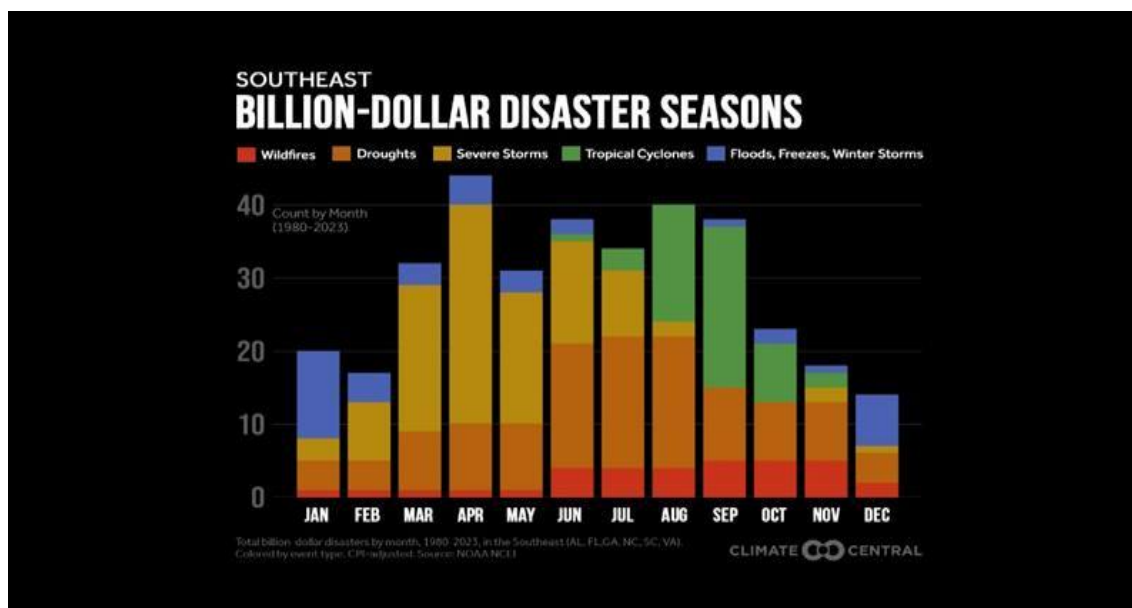
The rise in billion-dollar disasters is due both to our warming climate and to the growing number of people, homes, and businesses in at-risk areas. Extreme weather associated with climate change may impact critical infrastructure, which can cause complex secondary impacts. Plans and actions that address readiness, response, and recovery should consider climate change in the broader emergency management resilience framework to ensure that maladaptive practices, such as actions that increase risk in another phase, are not incorporated.

Scientists have predicted that droughts and floods will become more frequent and severe as our planet warms and climate changes but detecting this on regional and continental scales has proven difficult. Now a new NASA-led study confirms that **major droughts and pluvials** – periods of excessive precipitation and water storage on land – have indeed been occurring more often.

The U.S. was hit with a record 28-billion-dollar weather and climate disasters in 2023. These events resulted in an estimated 492 lives lost and over \$93 billion in damages. The previous annual record, 22 disasters, was set in 2020. See **Figure 5.44**. Among 2023's historic number of weather and climate disasters were:

- An unprecedented number of severe storms and tornado outbreaks throughout the central U.S.
- A devastating fire outbreak in Maui, Hawai'i — the deadliest U.S. wildfire in at least a century.
- Southern and Midwestern drought, resulting in extensive agricultural losses and disrupted commerce along the Mississippi River.
- Heavy flooding in California following a string of at least 12 atmospheric river storms.
- Hurricane Idalia made landfall in Florida, fueled by record-shattering sea surface temperatures.
- Heavy rainfall and flooding events in Florida and the Northeast — with some areas reporting up to eight inches of rainfall within 24-hours.

**FIGURE 5.44: INCREASE OF BILLION-DOLLAR DISASTER SEASONS**



Source: Climate Central and CISA

The disasters of 2023 are part of a larger trend. Billion-dollar weather and climate disasters have become more frequent and more costly, bringing different risks to each U.S. region. See **Figure 5.44**. As climate change continues to amplify extreme weather events, critical infrastructure sites will need to revisit building codes, material limitations, and regional damages during past severe events to address areas at greatest immediate risk. Overlapping or back-to-back extreme events are known as compound extreme events. We saw compound events in 2020 and 2021, when overlapping droughts and megafires devastated the western U.S. while the eastern U.S. faced back-to-back hurricanes. And in 2023, over a dozen southern and central states faced overlapping impacts from billion-dollar drought and severe storms. Billion-dollar disasters were 2.7 times more frequent over the last 20 years than during the previous 20 years. Over the same period, the average annual cost of these events has more than tripled from \$28 billion per year (1984-2003) to \$101 billion per year (2004-2023). The rise in U.S. billion-dollar disasters reflects a mix of factors:

- First, as heat-trapping pollution continues to warm the planet, many types of extreme weather and climate hazards are becoming more frequent and/or more intense in the U.S. and across the globe.
- Second, as the population has grown, so has the overall number of people, homes, and businesses at risk when extreme events occur.
- Lastly, accelerated development in fire-prone areas, along coasts, and in floodplains can multiply the damage done by a given extreme event.

Such compound disasters multiply the risks for communities and strain state and federal emergency response resources. The rise in compound events is also reflected in the dramatic decrease in the time between billion-dollar events. Over the last five years (2019-2023), there were 16 days on average between U.S. billion-dollar disasters, compared to 82 days in the 1980s. In 2023, the average time between billion-dollar disasters was just 12 days. Having less time between disasters can mean less time and resources available for communities to respond, recover quickly, and prepare for future risks. Often, these risks aren't equally shared.

Although rainfall during spring is likely to increase during the next 40 to 50 years, the total amount of water running off into rivers or recharging ground water is likely to decline 2.5 to 5 percent, as increased evaporation offsets the greater rainfall.

## 5.19 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.



5.19.1 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 Planning Council* 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, as summarized in **Table 5.36**. 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:

**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/tropical storm) and 2.9 (thunderstorm wind / high wind). Prior to being finalized, *PRI values* for each identified hazard were reviewed and accepted by the members of the *MEMA District 8 Regional Hazard Mitigation Planning Council*. See **Table 5.37**.

TABLE 5.36: PRIORITY RISK INDEX FOR THE MEMA DISTRICT 4 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           |                           |

### 5.19.2 Priority Risk Index Results

**Table 5.37** 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 5.37: SUMMARY OF PRI RESULTS FOR THE MEMA DISTRICT 8 REGION**

| <b>Hazard</b>                       | <b>Category/Degree of Risk</b> |               |                       |                     |                    |                  |
|-------------------------------------|--------------------------------|---------------|-----------------------|---------------------|--------------------|------------------|
|                                     | <b>Probability</b>             | <b>Impact</b> | <b>Spatial Extent</b> | <b>Warning Time</b> | <b>Duration</b>    | <b>PRI Score</b> |
| <b>Hydrological Hazards</b>         |                                |               |                       |                     |                    |                  |
| <b>Flood</b>                        | Likely                         | Limited       | Small                 | 6 to 12 hours       | Less than 24 hours | <b>2.4</b>       |
| <b>Erosion</b>                      | Possible                       | Minor         | Small                 | More than 24 hours  | More than a week   | <b>1.8</b>       |
| <b>Dam Failure</b>                  | Unlikely                       | Critical      | Moderate              | More than 24 hours  | Less than 6 hours  | <b>2.0</b>       |
| <b>Fire-Related Hazards</b>         |                                |               |                       |                     |                    |                  |
| <b>Drought/ Heat Wave</b>           | Highly Likely                  | Minor         | Large                 | More than 24 hours  | More than a week   | <b>2.8</b>       |
| <b>Wildfire</b>                     | Likely                         | Minor         | Small                 | Less than 6 hours   | Less than 1 week   | <b>2.3</b>       |
| <b>Geologic Hazards</b>             |                                |               |                       |                     |                    |                  |
| <b>Earthquake</b>                   | Unlikely                       | Minor         | Moderate              | Less than 6 hours   | Less than 6 hours  | <b>1.7</b>       |
| <b>Landslide</b>                    | Unlikely                       | Minor         | Small                 | Less than 6 hours   | Less than 6 hours  | <b>1.5</b>       |
| <b>Expansive Soil</b>               | Possible                       | Minor         | Small                 | Less than 6 hours   | Less than 6 hours  | <b>1.8</b>       |
| <b>Atmospheric Hazards</b>          |                                |               |                       |                     |                    |                  |
| <b>Hurricane/Tropical Storm</b>     | Likely                         | Catastrophic  | Large                 | More than 24 hours  | Less than 24 hours | <b>3.2</b>       |
| <b>Thunderstorm/High Wind</b>       | Highly Likely                  | Limited       | Moderate              | Less than 6 hours   | Less than 6 hours  | <b>2.9</b>       |
| <b>Hail</b>                         | Likely                         | Minor         | Small                 | Less than 6 hours   | Less than 6 hours  | <b>2.1</b>       |
| <b>Lightning</b>                    | Highly Likely                  | Limited       | Negligible            | Less than 6 hours   | Less than 6 hours  | <b>2.5</b>       |
| <b>Tornado</b>                      | Likely                         | Critical      | Small                 | Less than 6 hours   | Less than 6 hours  | <b>2.7</b>       |
| <b>Winter Weather/Freeze</b>        | Possible                       | Limited       | Large                 | More than 24 hours  | Less than 24 hours | <b>2.3</b>       |
| <b>Other Hazards</b>                |                                |               |                       |                     |                    |                  |
| <b>Hazardous Materials Incident</b> | Unlikely                       | Limited       | Small                 | Less than 6 hours   | Less than 24 hours | <b>1.9</b>       |
| <b>Pipeline Incident</b>            | Possible                       | Limited       | Small                 | Less than 6 hours   | Less than 24 hours | <b>2.2</b>       |
| <b>Meth Lab Incident</b>            | Possible                       | Minor         | Small                 | Less than 6 hours   | Less than 6 hours  | <b>1.8</b>       |
| <b>Cyber Attack</b>                 | Unlikely                       | Limited       | Small                 | Less than 6 hours   | Less than 24 hours | <b>1.9</b>       |
| <b>Pandemic</b>                     | Possible                       | Critical      | Large                 | More than a week    | More than a week   | <b>2.8</b>       |
| <b>Climate Change</b>               | Possible                       | Critical      | Large                 | More than a week    | More than a week   | <b>2.6</b>       |

## 5.20 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 5.38). 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 5.38: CONCLUSIONS ON HAZARD RISK FOR THE MEMA DISTRICT 8 REGION**

|                      |                                                                                                                                                                                            |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High Risk</b>     | <i>Hurricane and Tropical Storm</i><br><i>Thunderstorm/ High Wind</i><br><i>Tornado</i><br><i>Drought/ Heat Wave</i><br><i>Pandemic</i><br><i>Lightning</i>                                |
| <b>Moderate Risk</b> | <i>Dam Failure</i><br><i>Flood</i><br><i>Hailstorm</i><br><i>Pipeline Incident</i><br><i>Hazardous Material</i><br><i>Wildfire</i><br><i>Winter Weather Event</i><br><i>Climate Change</i> |
| <b>Low Risk</b>      | <i>Expansive Soils</i><br><i>Erosion</i><br><i>Earthquake</i><br><i>Landslide</i><br><i>Hazardous Material Incident</i><br><i>Meth Lab Incident</i><br><i>Cyber Terrorism</i>              |



# 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, 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**.

## 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. ArcGIS™ 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 2020 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

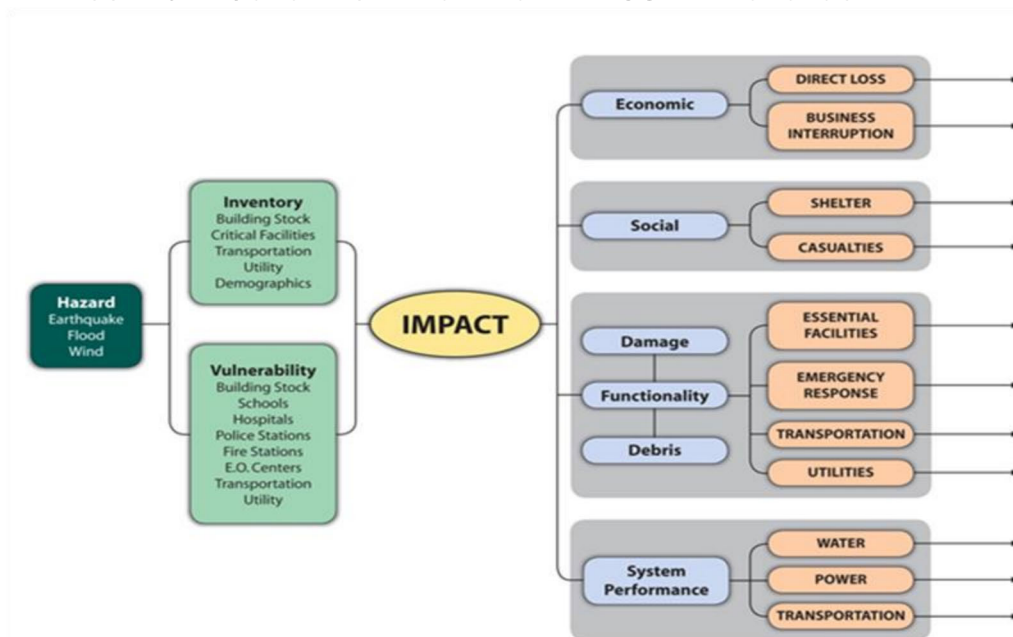
There are several models that exist to model hazards. **HAZUS** was used in this vulnerability assessment to address the aforementioned hazards.

## HAZUS

HAZUS (“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 to produce hazard damage loss estimations for hazards for the planning area. At the time this analysis was completed, HAZUS was used to estimate potential damages from hurricane winds, earthquake hazards, and flood hazards using HAZUS methodology. Although the program can also model losses for storm surge, it was not used in this Risk Assessment. **Figure 6.1** illustrates the conceptual model of the *HAZUS* methodology.

**FIGURE 6.1: CONCEPTUAL MODEL OF HAZUS METHODOLOGY**



**HAZUS** is capable of providing a variety of loss estimation results. Results are based on location-specific scenarios 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 was used to assess flood vulnerability for the Region. The scenario chosen was a probabilistic 100-year event and reports expected building damages, 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. It was provided for use in this plan by the Mississippi Forestry Commission.

**EARTHQUAKE**—HAZUS 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 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 in the scenario.

**HAZARDOUS MATERIALS INCIDENT**—For the fixed hazardous materials incident analysis, Toxic Release Inventory (TRI) data was used. The Toxic 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, bio accumulative, 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 National Atlas. 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. 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. A general overview of improved property for the area was identified, and critical facilities were 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. HAZUS 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 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 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*.

**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). HAZUS 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<br>Parcels | Total Assessed Value<br>of Improvements |
|-------------------------------|----------------------|-----------------------------------------|
| <i>Covington County</i>       | 8,877                | \$1,613,517,000                         |
| <i>Forrest County</i>         | 28,780               | \$7,621,195,000                         |
| <i>Greene County</i>          | --                   | --                                      |
| <i>Jefferson Davis County</i> | 5,782                | \$852,147,000                           |
| <i>Jones County</i>           | 29,059               | \$5,912,251,000                         |
| <i>Marion County</i>          | 12,536               | \$2,186,833,000                         |
| <i>Perry County</i>           | 5,608                | \$874,179,000                           |
| <i>Wayne County</i>           | 9,627                | \$1,501,381,000                         |
| <b>MEMA District 8 Total:</b> | <b>100,269</b>       | <b>\$19,060,122,000</b>                 |

Source: HAZUS-MH

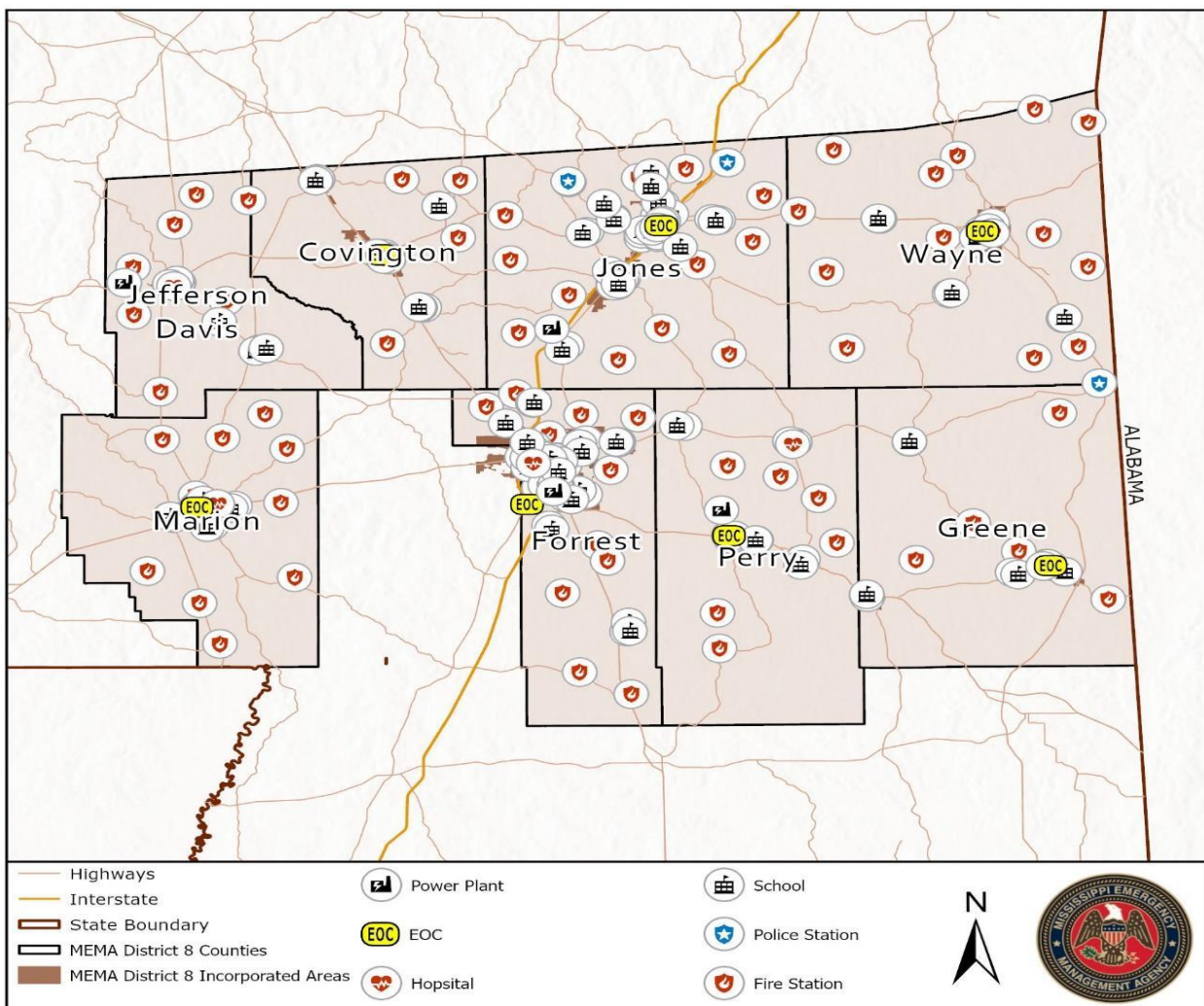
**Table 6.2** lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools located in the *MEMA District 8 Region* according to HAZUS Version Data from HAZUS was analyzed and checked against current records for each critical facility to determine both an accurate location and whether or not the facility was still in existence.

In addition, **Figure 6.2** shows the locations of essential facilities in the *MEMA District 8 Region*. **Table 6.6**, 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 through HAZUS and local data as provided.

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

| Location                      | Fire Station | Police Stations | Medical Care Facilities | EOC      | Schools   |
|-------------------------------|--------------|-----------------|-------------------------|----------|-----------|
| <i>Covington County</i>       | 2            | 3               | 1                       | 0        | 10        |
| <i>Forrest County</i>         | 25           | 3               | 2                       | 1        | 26        |
| <i>Greene County</i>          | 10           | 5               | 9                       | 1        | 6         |
| <i>Jefferson Davis County</i> | 2            | 1               | 1                       | 1        | 8         |
| <i>Jones County</i>           | 2            | 3               | 1                       | 1        | 22        |
| <i>Marion County</i>          | 3            | 2               | 1                       | 1        | 11        |
| <i>Perry County</i>           | 1            | 2               | 1                       | 0        | 6         |
| <i>Wayne County</i>           | 2            | 2               | 1                       | 1        | 9         |
| <b>MEMA District 8 Total:</b> | <b>47</b>    | <b>21</b>       | <b>17</b>               | <b>6</b> | <b>98</b> |

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



## 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 2020. The total population in the *MEMA District 8 Region* according to Census data was 244,143 persons in 2020. The 2023 population data is presented below as an estimate; however, 2020 population data will be used throughout the vulnerability assessment. The overall population in District 8 has declined which could lead to a decrease in vulnerability. Additional population estimates are presented in *Section 3: Community Profile*.

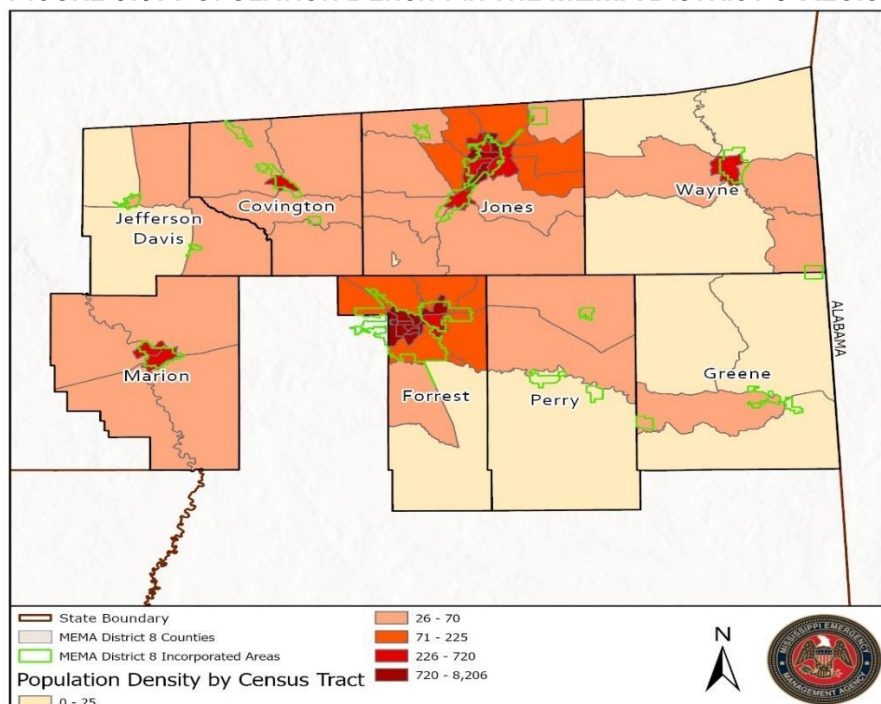
**TABLE 6.3: TOTAL POPULATION IN THE MEMA DISTRICT 8 REGION**

| Location                      | 2020 Population | 2023 Population |
|-------------------------------|-----------------|-----------------|
| <i>Covington County</i>       | 18,142          | 18,059          |
| <i>Forrest County</i>         | 78,162          | 78,208          |
| <i>Greene County</i>          | 13,540          | 13,601          |
| <i>Jefferson Davis County</i> | 11,320          | 10,969          |
| <i>Jones County</i>           | 67,244          | 66,250          |
| <i>Marion County</i>          | 24,439          | 24,224          |
| <i>Perry County</i>           | 11,508          | 11,315          |
| <i>Wayne County</i>           | 19,788          | 19,703          |
| <b>MEMA District 8 Total:</b> | <b>244,143</b>  | <b>242,329</b>  |

Source: US Census Bureau

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 2020. As can be seen in the figure the population is spread out, with concentrations in Laurel, Hattiesburg, Columbia, and Waynesboro (The data for this can be found in the county annexes). The overall population in District 8 has declined which could lead to a decrease in vulnerability.

**FIGURE 6.3: POPULATION DENSITY IN THE MEMA DISTRICT 8 REGION**



## 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**.

Since the previous plan, the jurisdictions are not aware of any developments in hazard prone areas that have increased or decreased vulnerability.

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 444 flood events have been reported by the National Centers for Environmental Information since 2000 resulting in almost \$40M in damages.

As the HAZUS model suggests below, and historical occurrences confirm, any flood activity in the area is likely to inflict damage to the planning area. HAZUS 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 scenario.

For the flood hazard vulnerability assessment, a probabilistic scenario, 100-year event, was created to estimate damages to the planning area. HAZUS 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**

|                    | 1-10      | 11-20      | 21-30     | 31-40     | 41-50     | >50       |
|--------------------|-----------|------------|-----------|-----------|-----------|-----------|
| <b>Agriculture</b> | 0         | 0          | 0         | 0         | 0         | 0         |
| <b>Commercial</b>  | 0         | 4          | 4         | 0         | 0         | 1         |
| <b>Education</b>   | 1         | 0          | 0         | 0         | 0         | 0         |
| <b>Government</b>  | 0         | 0          | 0         | 0         | 0         | 0         |
| <b>Industrial</b>  | 0         | 0          | 0         | 0         | 0         | 0         |
| <b>Religion</b>    | 0         | 1          | 0         | 0         | 0         | 0         |
| <b>Residential</b> | 60        | 159        | 77        | 68        | 50        | 95        |
| <b>Total:</b>      | <b>61</b> | <b>163</b> | <b>77</b> | <b>68</b> | <b>50</b> | <b>96</b> |

### ECONOMIC LOSS

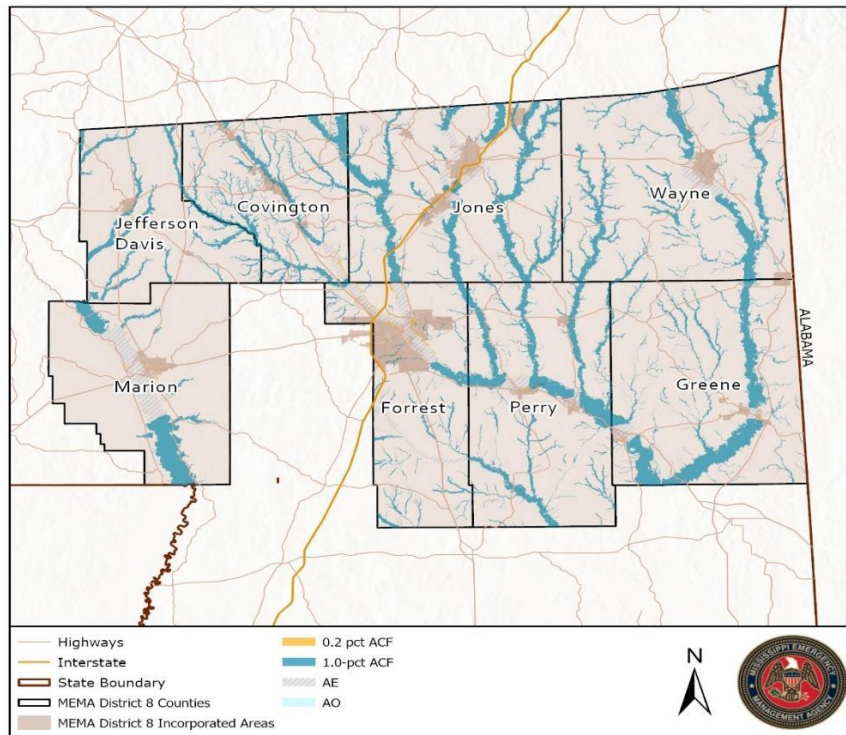
HAZUS estimated economic losses for the scenario event. All told, HAZUS estimated losses at \$703M, including buildings and lifelines. Approximately 44 percent of the losses were related to business interruption in the scenario region. 40.71 percent of the losses were sustained by residential structures.

### 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, Ellisville, New Augusta, Hattiesburg, Leakesville, 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**

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 6.16** at the end of this section.

**TABLE 6.5 FLOOD SCENARIO ESSENTIAL FACILITY EXPECTED DAMAGES**

| Classification                    | Total | Number of Facilities           |                                   |                           |
|-----------------------------------|-------|--------------------------------|-----------------------------------|---------------------------|
|                                   |       | At Least Moderate Damage > 50% | At Least Substantial Damage > 50% | Loss of Use >50% on 1-Day |
| Emergency Operations Center (EOC) | 3     | 0                              | 0                                 | 0                         |
| Fire Stations (Paid)              | 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.

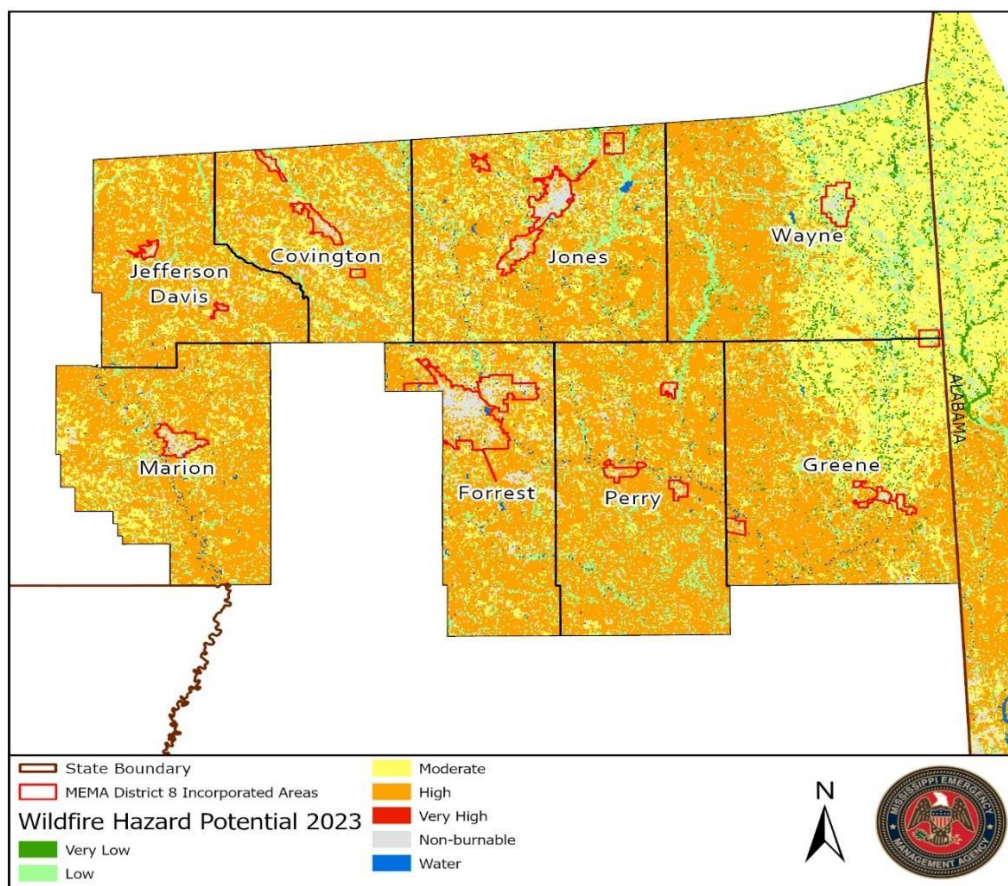
## 6.5.2 Wildfire

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 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**



## 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 6.16** 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 model suggests below, and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the planning area. HAZUS 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 scenario.

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

**FIGURE 6.6 EARTHQUAKE DAMAGE CATEGORIES BY GENERAL OCCUPANCY**

|                   | None           |      | Slight   |     | Moderate |     | Extensive |     | Complete |     |
|-------------------|----------------|------|----------|-----|----------|-----|-----------|-----|----------|-----|
|                   | Count          | (%)  | Count    | (%) | Count    | (%) | Count     | (%) | Count    | (%) |
| Agriculture       | 367            | .37% | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| Commercial        | 5560           | 6%   | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| Education         | 205            | .21% | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| Government        | 201            | .20% | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| Industrial        | 1340           | 1%   | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| Other Residential | 22,433         | 22%  | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| Religion          | 796            | .80% | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| Single Family     | 69,368         | 69%  | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| <b>TOTAL:</b>     | <b>100,270</b> |      | <b>0</b> |     | <b>0</b> |     | <b>0</b>  |     | <b>0</b> |     |

As the figure shows, most damage was found to be in residential structures. **Table 6.6** provides the details of these findings by occupancy type and **Table 6.7** provides the details by building type.

**TABLE 6.7: EARTHQUAKE SCENARIO EXPECTED BUILDING DAMAGES BY BUILDING TYPE**

|                      | None           |      | Slight   |     | Moderate |     | Extensive |     | Complete |     |
|----------------------|----------------|------|----------|-----|----------|-----|-----------|-----|----------|-----|
|                      | Count          | (%)  | Count    | (%) | Count    | (%) | Count     | (%) | Count    | (%) |
| Wood                 | 69,339         | 69%  | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| Steel                | 2,559          | 3%   | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| Concrete             | 660            | .66% | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| Precast              | 660            | .66% | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| Reinforced Masonry   | 255            | .25% | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| Unreinforced Masonry | 7,296          | 7%   | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| Manufactured Housing | 19,500         | 19%  | 0        | 0%  | 0        | 0%  | 0         | 0%  | 0        | 0%  |
| <b>TOTAL:</b>        | <b>100,269</b> |      | <b>0</b> |     | <b>0</b> |     | <b>0</b>  |     | <b>0</b> |     |

### TRANSPORTATION AND UTILITY DAMAGE

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

**TABLE 6.8: EARTHQUAKE SCENARIO- EXPECTED DAMAGES TO TRANSPORTATION SYSTEM**

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

HAZUS 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. The table below shows the results of expected damages to utility system facilities.

**TABLE 6.9: EARTHQUAKE SCENARIO- EXPECTED DAMAGES TO UTILITY SYSTEM**

| System         | Number of Locations |                                     |                         |                          |             |
|----------------|---------------------|-------------------------------------|-------------------------|--------------------------|-------------|
|                | Total #             | With at Least<br>Moderate<br>Damage | With Complete<br>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           |
| Electric Power | 2                   | 0                                   | 0                       | 2                        | 2           |
| Communication  | 26                  | 0                                   | 0                       | 26                       | 26          |

### DEBRIS GENERATION

As part of the model, HAZUS 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 estimated that a total of 0 tons of debris would be generated by the event.



### ECONOMIC LOSS

HAZUS estimated economic losses for the scenario event. All told, HAZUS 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.

**TABLE 6.10 EARTHQUAKE SCENARIO ECONOMIC LOSS ESTIMATES**

| Category                    | Area             | Single Family | Other Residential | Commercial | Industrial | Others   | Totals   |
|-----------------------------|------------------|---------------|-------------------|------------|------------|----------|----------|
| <b>Income Losses</b>        | Wage             | 0             | 0                 | 0          | 0          | 0        | 0        |
|                             | Capital-Related  | 0             | 0                 | 0          | 0          | 0        | 0        |
|                             | Rental           | 0             | 0                 | 0          | 0          | 0        | 0        |
|                             | Relocation       | 0             | 0                 | 0          | 0          | 0        | 0        |
|                             | <b>Subtotal:</b> | <b>0</b>      | <b>0</b>          | <b>0</b>   | <b>0</b>   | <b>0</b> | <b>0</b> |
| <b>Capital Stock Losses</b> | Structural       | 0             | 0                 | 0          | 0          | 0        | 0        |
|                             | Non-Structural   | 0             | 0                 | 0          | 0          | 0        | 0        |
|                             | Content          | 0             | 0                 | 0          | 0          | 0        | 0        |
|                             | Inventory        | 0             | 0                 | 0          | 0          | 0        | 0        |
|                             | <b>Subtotal:</b> | <b>0</b>      | <b>0</b>          | <b>0</b>   | <b>0</b>   | <b>0</b> | <b>0</b> |
| <b>Total:</b>               |                  |               | <b>0</b>          | <b>0</b>   | <b>0</b>   | <b>0</b> | <b>0</b> |

### 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 arbitrary scenario.

### CRITICAL FACILITIES

The HAZUS 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 6.11: EARTHQUAKE SCENARIO ESSENTIAL FACILITY EXPECTED DAMAGES**

| Classification         | Total     | Number of Facilities           |                       |                                   |
|------------------------|-----------|--------------------------------|-----------------------|-----------------------------------|
|                        |           | At least Moderate Damage > 50% | Complete Damage > 50% | With Functionality > 50% on Day 1 |
| <i>Hospitals</i>       | <b>6</b>  | <b>0</b>                       | <b>0</b>              | <b>6</b>                          |
| <i>Schools</i>         | <b>99</b> | <b>0</b>                       | <b>0</b>              | <b>99</b>                         |
| <i>EOCs</i>            | <b>3</b>  | <b>0</b>                       | <b>0</b>              | <b>3</b>                          |
| <i>Police Stations</i> | <b>26</b> | <b>0</b>                       | <b>0</b>              | <b>26</b>                         |
| <i>Fire Stations</i>   | <b>33</b> | <b>0</b>                       | <b>0</b>              | <b>33</b>                         |

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 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, Hurricane Isaac, Hurricane Nate, Hurricane Zeta, and Hurricane Ida) 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 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 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. A 100-year probabilistic scenario was created and modeled. The results are presented in the following pages.

HAZUS estimated that at least 1,892 buildings would be at least moderately damaged by the event; this is over two percent of the buildings in the Region. 69 buildings would be completely destroyed. The **Table 6.12** below shows the distribution of damage by type of occupancy and **Table 6.13** shows the distribution of damage by building type.

**TABLE 6.12: HURRICANE AND TROPICAL STORM 100-YEAR EVENT SCENARIO EXPECTED BUILDING DAMAGES BY OCCUPANCY TYPE**

| Occupancy          | None          |     | Minor         |     | Moderate     |     | Severe       |      | Destruction  |      |
|--------------------|---------------|-----|---------------|-----|--------------|-----|--------------|------|--------------|------|
|                    | Count         | (%) | Count         | (%) | Count        | (%) | Count        | (%)  | Count        | (%)  |
| <i>Agriculture</i> | 328           | 87% | 29            | 8%  | 12           | 3%  | 6            | 2%   | 0.70         | .18% |
| <i>Commercial</i>  | 4,858         | 87% | 520           | 9%  | 167          | 3%  | 15           | .27% | 0.21         | 0%   |
| <i>Education</i>   | 178           | 88% | 18            | 9%  | 5            | 2%  | 0.43         | .21% | 0            | 0%   |
| <i>Government</i>  | 185           | 90% | 16            | 7%  | 4            | 2%  | 0.36         | .18% | 0            | 0%   |
| <i>Industrial</i>  | 1,197         | 89% | 111           | 8%  | 27           | 2%  | 3.5          | .26% | 0.15         | .01% |
| <i>Religion</i>    | 710           | 89% | 70            | 9%  | 15           | 2%  | 1            | .15% | 0            | 0%   |
| <i>Residential</i> | 80,568        | 88% | 9,600         | 10% | 1,498        | 2%  | 68           | .07% | 68           | .07% |
| <b>Total:</b>      | <b>88,024</b> |     | <b>10,364</b> |     | <b>1,728</b> |     | <b>94.29</b> |      | <b>69.06</b> |      |

**TABLE 6.13: 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% | 125   | 10% | 42    | 3%   | 2  | .18% | 0  | 0%   |
| Masonry              | 6,507  | 86% | 746   | 10% | 265   | 4%   | 17 | .22% | 1  | .02% |
| Manufactured Housing | 18,930 | 97% | 347   | 2%  | 158   | .81% | 5  | .03% | 54 | .28% |
| Steel                | 2,245  | 88% | 210   | 8%  | 95    | 4%   | 11 | .43% | 0  | .01% |
| Wood                 | 59,775 | 86% | 8,475 | 12% | 1,006 | 1.5% | 59 | .08% | 23 | .03% |

### ECONOMIC LOSSES

HAZUS 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 6.14** below provides a summary of the losses associated with the building damage.

**TABLE 6.14: HURRICANE / TROPICAL STORM SCENARIO ECONOMIC LOSSES**

| Category                   | Area             | Residential    | Commercial    | Industrial   | Others       | Total          |
|----------------------------|------------------|----------------|---------------|--------------|--------------|----------------|
| Property Damage            | Building         | 214,500        | 16,229        | 2,300        | 3,736        | 236,766        |
|                            | Content          | 72,064         | 5,024         | 1,020        | 1,153        | 79,260         |
|                            | Inventory        | 0              | 113           | 181          | 35           | 330            |
|                            | <b>Subtotal:</b> | <b>286,564</b> | <b>21,366</b> | <b>3,501</b> | <b>4,924</b> | <b>316,356</b> |
| Business Interruption Loss | Income           | 36             | 2,516         | 34           | 508          | 3,093          |
|                            | Relocation       | 12,522         | 3,275         | 216          | 845          | 16,858         |
|                            | Rental           | 6,839          | 1,557         | 28           | 64           | 8,487          |
|                            | Wage             | 84             | 2,498         | 56           | 2,110        | 4,748          |
|                            | <b>Subtotal:</b> | <b>19,481</b>  | <b>9,846</b>  | <b>334</b>   | <b>3,527</b> | <b>33,186</b>  |

### DEBRIS GENERATION

As part of the scenario, HAZUS 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 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 244,143) 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 probabilistic analysis indicated that several essential facilities would be impacted. **Table 6.15** shows the types of facilities as well as expected function after an event.

**TABLE 6.15: HURRICANE / TROPICAL STORM SCENARIO ESSENTIAL FACILITY EXPECTED DAMAGES**

| Classification         | Total | Probability of at Least Moderate Damage > 50% | Probability of Complete Damage > 50% | Expected Loss of Use <1 Day |
|------------------------|-------|-----------------------------------------------|--------------------------------------|-----------------------------|
| <i>EOCs</i>            | 3     | 0                                             | 0                                    | 3                           |
| <i>Fire Stations</i>   | 33    | 0                                             | 0                                    | 33                          |
| <i>Hospitals</i>       | 6     | 0                                             | 0                                    | 6                           |
| <i>Police Stations</i> | 26    | 0                                             | 0                                    | 26                          |
| <i>Schools</i>         | 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

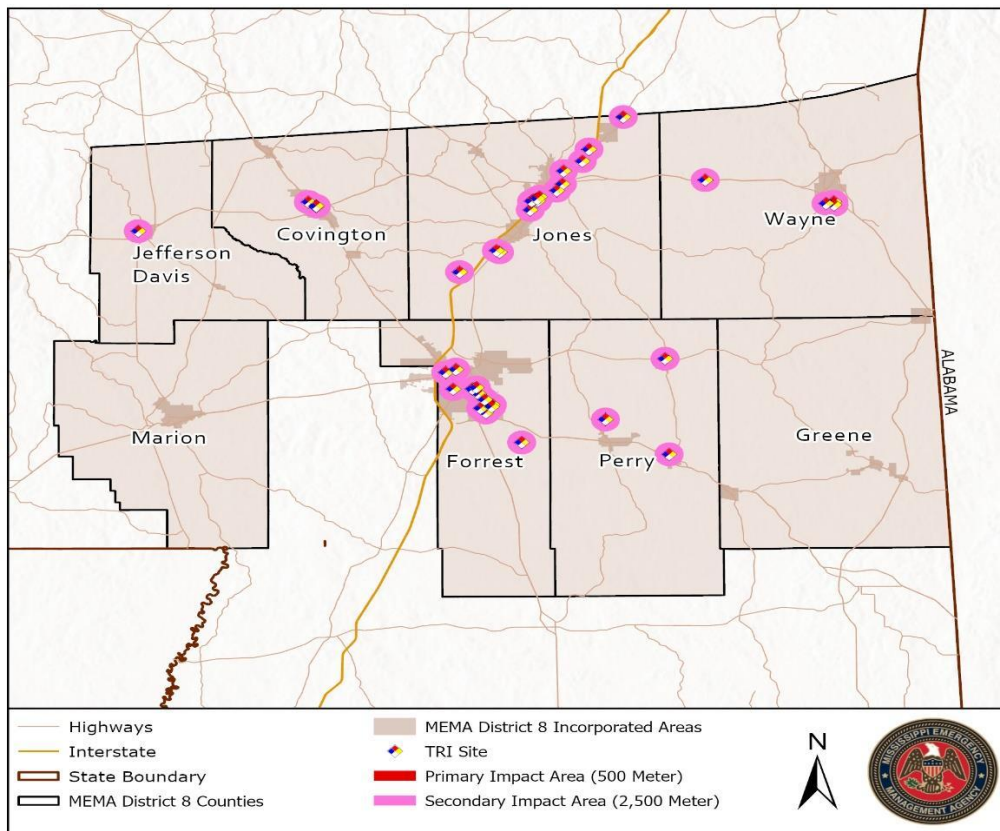
Although historical evidence and existing Toxic Release Inventory sites indicate that the *MEMA District 8 Region* is susceptible to hazardous materials events, there are few reports of damage.

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.

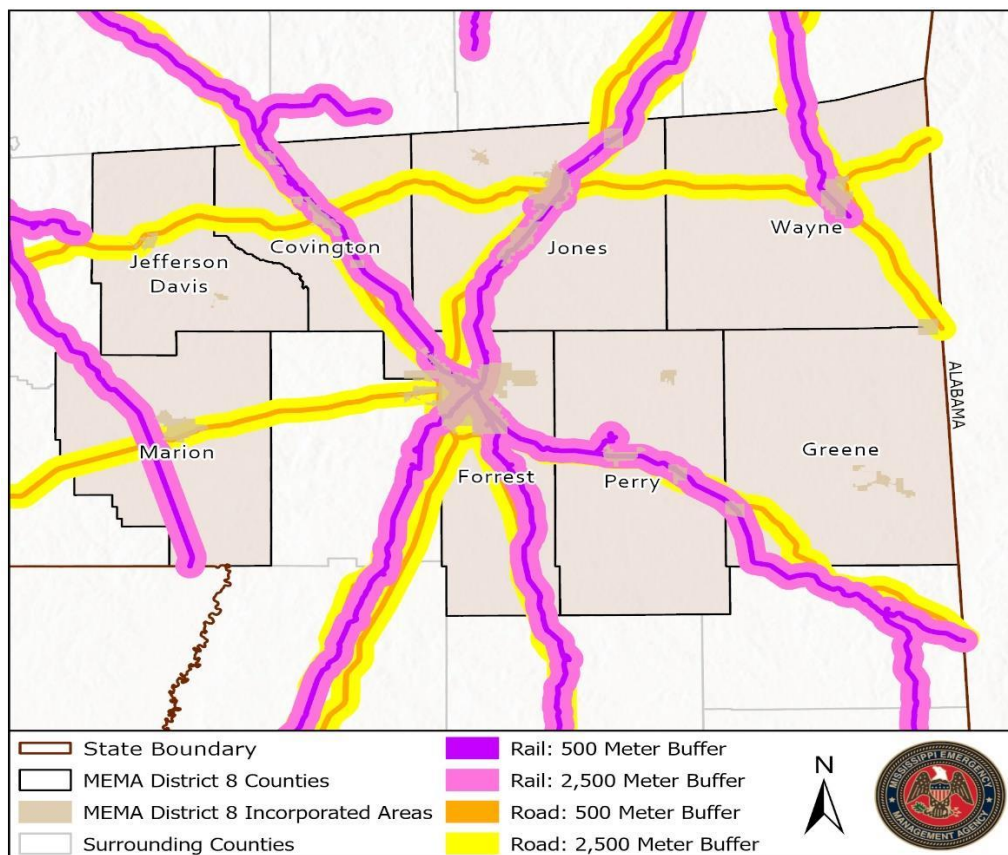
In order to conduct the vulnerability assessment for this hazard, GIS analysis was used for fixed and mobile areas. In both scenarios, two sizes of buffers—500 and 2,500 meters—were used. These areas are assumed to respect the different levels of effect: immediate (primary) and secondary. Primary and 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 6.7**. 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 6.8** shows the areas used for mobile toxic release buffer analysis.

**FIGURE 6.7: TRI SITES WITH BUFFERS IN THE MEMA DISTRICT 8 REGION**





**FIGURE 6.8: MOBILE HAZMAT BUFFERS IN THE MEMA DISTRICT 8 REGION**



## SOCIAL VULNERABILITY

Given high susceptibility across the entire *MEMA District 8 Region*, it is assumed that the total population is at risk. It should be noted that areas of population concentration (near Hattiesburg, Laurel and Waynesboro, for example) 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 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 6.16** 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 6.16** 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 VULNERABILITY

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

1. 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.
2. 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.
3. 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**

6.16 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”).

**TABLE 6.16: AT-RISK CRITICAL FACILITIES**

|                                             |                  | Other             |                                      |                                       | Atmospheric |                                  |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
|---------------------------------------------|------------------|-------------------|--------------------------------------|---------------------------------------|-------------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
| Facility Name                               | Facility Type    | WHP Hazard        | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder-storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |
| <b>Covington County Critical Facilities</b> |                  |                   |                                      |                                       |             |                                  |                           |         |                       |             |            |                     |                |                |
| City of Collins Fire Dept.                  | Fire Dept.       | Non-burnable      | X                                    | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                |                |
| Collins City Police Dept.                   | Police Station   | Non-burnable      | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     | X              |                |
| Collins Elementary                          | School           | Non-burnable      | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     | X              |                |
| Collins Middle School                       | School           | Non-burnable      | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Collins High School                         | School           | Non-burnable      | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Collins Fire Dept.                          | Fire Dept.       | Non-burnable      | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Collins Police Station                      | Police Station   | Moderate          |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Collins Police Station                      | Police Station   | Moderate          |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Collins Maintenance Build.                  | Gov.             | Non-burnable      | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     | X              |                |
| Covington CO Vocational Tech.               | School           | Non-burnable      | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Covington CO Alt. School                    | School           | Non-burnable      | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Covington County Sheriff EOC                | Police Dept. EOC | Non-burnable HIGH | X                                    | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     | X              |                |
| Hopewell Elem. School                       | School           | Non-burnable      |                                      |                                       | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Lagoon                                      | Utility          | Moderate          | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Water Well 1                                | Utility          | Moderate          | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     | X              |                |
| Water Well 4                                | Utility          | Non-burnable      | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Mt. Olive Attend. Center                    | School           | Non-burnable      | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| CLEM VFD                                    | Fire Dept.       | HIGH              |                                      |                                       | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Hot Coffee VFD                              | Fire Station     | Non-burnable      | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Mt. Olive City Police Dept.                 | Police Station   | Non-burnable      | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| East Covington VFD                          | Fire Dept.       | Moderate          |                                      |                                       | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Seminary Attend. Center                     | School           | Non-burnable      |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Seminary Baptist Kinder.                    | School           | Non-burnable      |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Seminary Town Police Dept                   | Police Station   | Non-burnable      |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Southwest Covington VFD                     | Fire Station     | VERY HIGH         | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
|                                             |                  | Other             |                                      |                                       | Atmospheric |                                  |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
| Facility                                    | Facility Type    | WHP               | Fixed HAZMAT 500-2500M               | Mobile HAZMAT 500-2500M               | Drought     | Thunder -storm,                  | Hurricane /Tropical       | Tornado | Winter Storm &        | Earth-      | Land-slide | Dam & Levee         | 100-Year       | 500-Year       |

**SECTION 6: VULNERABILITY ASSESSMENT**

| Name                                      |                  | Hazard       | Roads & Rails                  | Roads & Rails                   |         | Lightning, & Hail                 | Storm                     |         | Freeze                | quake       |            | Failure             | Flood           | Flood           |
|-------------------------------------------|------------------|--------------|--------------------------------|---------------------------------|---------|-----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| <b>Forrest County Critical Facilities</b> |                  |              |                                |                                 |         |                                   |                           |         |                       |             |            |                     |                 |                 |
| Brooklyn Utility Association              | Utility          | VERY HIGH    |                                | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Brooklyn VFD                              | Fire Station     | Non-burnable |                                | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO Ag. HS/ library/ Safe Room     | School           | Non-burnable |                                | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO Dist. 5 Barn                   | Service/ Repair  | Non-burnable |                                | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Janice VFD                                | Fire Station     | HIGH         |                                |                                 | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| South Forrest Attend. Center/ Safe Room   | School           | Non-burnable |                                | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| 9 <sup>th</sup> Grade Academy- HHS        | School           | Non-burnable |                                | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| AAA Ambulance Service                     | Medical          | Non-burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Alpha Christian Sch.                      | School           | Non-burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Bedford Care Center                       | Care Facility    | Non-burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Blair Center Hattiesburg High             | School           | Non-burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Bobby L. Chain Airport                    | Airport          | Non-burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Burney Elem. School                       | School           | Non-burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Camp Shelby                               | Military         | Non-burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Central Baptist School                    | School           | Non-burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| City of Hattiesburg                       | Utility (water)  | Non-burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 | X               |
| City of Hattiesburg                       | Govt.            | Non-burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| City of Hattiesburg- Clean Earth          | Utility (energy) | Non-burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 | X               |
|                                           | HAZ-MAT          | HIGH         |                                | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Department of Human Services              | Govt.            | Non-burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Dixie Attend. Center Safe Room            | School           | HIGH         |                                | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Dixie Comm. Utility Assos.                | Utility (water)  | Non-burnable |                                | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Dixie VFD                                 | Fire Station     | Non-burnable |                                | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Earl Travillion Attend. Center            | School           | HIGH         | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Earl Travillion Elementary                | School           | HIGH         | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Entex Gas Pipeline Sta.                   | Energy Facility  | Non-burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| FEMA Comm. Shelter                        | Educ.            | Non-Burnable | X                              | X                               | X       | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
|                                           |                  |              | Other                          |                                 |         | Atmospheric                       |                           |         |                       | Geologic    |            | Hydrologic          |                 |                 |
| Facility Name                             | Facility Type    | WHP Hazard   | Fixed HAZMAT 500-2500M Roads & | Mobile HAZMAT 500-2500M Roads & | Drought | Thunder -storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |



| Forrest County Critical Facilities Continued |                          |              |                                      |                                       |             |                                   |                           |         |                       |             |            |                     |                 |                 |
|----------------------------------------------|--------------------------|--------------|--------------------------------------|---------------------------------------|-------------|-----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| Forrest CO Circuit Court                     | Govt./ Court             | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO Circuit Courthouse                | Govt./ Court             | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO Coroner's Off.                    | Emerg. Service           | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO District 1 Barn                   | Service/ Repair          | HIGH         |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO District 2 Barn                   | Service/ Repair          | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO District 2 Central Shop           | Service/ Repair          | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO Eval. Center                      | Govt. EMS                | Low          |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO Health Dept.                      | Care Facility            | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO Juvenile Deten. Center            | Police Detent. Center    | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     | X               |                 |
| Forrest CO Justice Court                     | Govt./ Court             | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO Multi-Purpose Center              | Govt. Facility           | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO Schools                           | Admin Offices            | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO Sheriff                           | Police Station           | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO Sheriff's Dept.                   | Police Station           | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO Sheriff's Service Center          | Repair/ Service (Police) | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest General Hospital                     | Care Facility            | HIGH         | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Forrest CO District 4 Barn                   | Service/ Repair          | Non-burnable |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Glendale Utility District                    | Utility (Water)          | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Grace Christian Elem. School                 | School                   | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Hattiesburg Clinic                           | Care Facility            | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Hattiesburg Convalescent Center              | Care Facility            | Non-burnable | X                                    | X                                     | X           | X                                 | X                         | X       | X                     | X           |            |                     |                 |                 |
| Hattiesburg Fire Dept.                       | Fire Station             | Moderate     | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Hattiesburg Fire Dept. #1                    | Fire Station             | Moderate     | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Hattiesburg Fire Dept. #3                    | Fire Station             | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Hattiesburg Fire Dept. #4                    | Fire Station             | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     | X               |                 |
| Hattiesburg Fire Dept. #5                    | Fire Station             | Moderate     | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Hattiesburg Fire Dep #6                      | Fire Station             | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
|                                              |                          | Other        |                                      |                                       | Atmospheric |                                   |                           |         |                       | Geologic    |            | Hydrologic          |                 |                 |
| Facility Name                                | Facility Type            | WHP Hazard   | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder -storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |

## Forrest County Critical Facilities Continued

|                                       |                         |              |   |   |   |   |   |   |   |   |  |  |   |  |
|---------------------------------------|-------------------------|--------------|---|---|---|---|---|---|---|---|--|--|---|--|
| Hattiesburg Fire Dep#7                | Fire Station            | Low          | X | X | X | X | X |   | X | X |  |  |   |  |
| Hattiesburg Fire Dep #8               | Fire Station            | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Hattiesburg High School               | School                  | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |  |
| Hattiesburg Med. Supply               | EMS center              | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Hattiesburg Police Chief              | Police                  | Non-burnable |   |   | X | X | X |   | X | X |  |  |   |  |
| Hattiesburg Police Dept.              | Police Station          | Non-burnable | X | X | X | X | X | X | X | X |  |  | X |  |
| Hawkins Elem. School                  | School                  | Moderate     | X | X | X | X | X |   | X | X |  |  | X |  |
| Jessie L. Brown Tax Services          | Emer. Service Center    | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |  |
| Lillie Burney Elementary              | School                  | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |  |
| Loyalton of Hattiesburg               | Nursing Home            | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Mary Bethune Alternative              | School                  | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |  |
| McLaurin VFD                          | Fire Station            | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| McLaurin/ Dantzler VFD Station #2     | Fire Station            | HIGH         |   |   | X | X | X |   | X | X |  |  |   |  |
| Merit Health Medical Group            | Care Facility           | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Mississippi Power                     | Utility/ Energy         | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |  |
| Mississippi Power CO                  | Utility/ Energy         | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |  |
| Monroe Hall, LLC- Bedford Care Center | Nursing Home            | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |  |
| Montessori Children's House           | School                  | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |  |
| N R Burger Middle School              | School                  | HIGH         | X | X | X | X | X |   | X | X |  |  |   |  |
| North Forrest Attend. Center          | School                  | Moderate     |   | X | X | X | X |   | X | X |  |  |   |  |
| North Forrest Elementary & Safe Room  | School                  | Moderate     |   | X | X | X | X |   | X | X |  |  |   |  |
| North Forrest High School & Safe Room | School                  | Moderate     |   | X | X | X | X |   | X | X |  |  |   |  |
| North Forrest VFD                     | Fire Station            | HIGH         | X | X | X | X | X |   | X | X |  |  |   |  |
| North Forrest VFD Station 1           | Fire Station            | HIGH         | X | X | X | X | X |   | X | X |  |  |   |  |
| North Forrest VFD Station #2          | Fire Station            | HIGH         |   | X | X | X | X |   | X | X |  |  |   |  |
| Old Federal Building                  | City Court              | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |  |
| Paul B. Johnson State Park            | Other critical facility | HIGH         |   | X | X | X | X |   | X | X |  |  |   |  |

## Other

## Atmospheric

## Geologic

## Hydrologic

| Facility Name | Facility Type | WHP Hazard | Fixed HAZ MAT 500-2500M Roads & Rails | Mobile HAZ MAT 500-2500M Roads & Rails | Drought | Thunder-storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |
|---------------|---------------|------------|---------------------------------------|----------------------------------------|---------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
|---------------|---------------|------------|---------------------------------------|----------------------------------------|---------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|

## Forrest County Critical Facilities Continued

|                                            |                              |              |   |   |   |   |   |   |   |   |  |  |   |   |
|--------------------------------------------|------------------------------|--------------|---|---|---|---|---|---|---|---|--|--|---|---|
| Presbyterian Christian Sch.                | School                       | Low          |   | X | X | X | X | X | X | X |  |  |   |   |
| Rawls Springs Attend. Center               | School                       | HIGH         | X | X | X | X | X |   | X | X |  |  |   | X |
| Rawls Springs Utility District             | Waste Water                  | Low          | X | X | X | X | X |   | X | X |  |  | X |   |
| Rawls Springs VFD                          | Fire Station                 | Moderate     |   | X | X | X | X |   | X | X |  |  |   |   |
| Resinall MS Inc.                           | HAZ-MAT                      | Moderate     | X | X | X | X | X |   | X | X |  |  |   |   |
| Rowan Elem. School                         | School                       | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |   |
| Sacred Heart Sch. & Library                | School                       | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Sam's Club #6503                           | Retail                       | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |   |
| South MS Chapter of the American Red Cross | Emerg. Service in a Disaster | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| South MS Electric Power Association        | Utility/Power                | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |   |
| Southeast MS Rural Health Initiative, Inc. | Care Facility                | HIGH         | X | X | X | X | X |   | X | X |  |  |   |   |
| Southern Bone & Joint Specialists          | Care Facility                | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |   |
| Spire Energy                               | Utility/Energy               | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Thames Elem. School                        | School                       | HIGH         | X | X | X | X | X |   | X | X |  |  |   |   |
| The Emerg. Manag. District                 | EMS Center                   | Moderate     |   | X | X | X | X | X | X | X |  |  |   |   |
| U.S. Postal Service                        | Govt.                        | HIGH         | X | X | X | X | X |   | X | X |  |  |   |   |
| U.S. Postal Service                        | Govt.                        | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| University of Southern MS                  | College                      | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| University of Southern MS Public Safety    | College Police Station       | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| USM Physical Plant                         | Critical Facility            | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Walmart Supercenter #2717                  | Retail                       | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |   |
| Walmart Supercenter #916                   | Retail                       | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |   |
| Woodley Elem. School                       | School                       | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Carnes VFD                                 | Fire Dept                    | Low          |   |   | X | X | X |   | X | X |  |  |   |   |
| Carnes VFD Rescue                          | Fire Dept.                   | Low          |   |   | X | X | X |   | X | X |  |  |   |   |
| Barrontown Utility District                | Utility (Water)              | Low          |   |   | X | X | X |   | X | X |  |  |   |   |
| Bedford Care Center of Petal               | Nursing Home                 | HIGH         | X | X | X | X | X |   | X | X |  |  |   | X |

## Other

## Atmospheric

## Geologic

## Hydrologic

Facility Name

Facility Type

WHP Hazard

Fixed HAZ MAT  
500-2500M  
Roads & RailsMobile HAZ MAT  
500-2500M  
Roads & Rails

Drought

Thunder -storm,  
Lightning,  
& HailHurricane  
/Tropical  
Storm

Tornado

Winter  
Storm &  
Freeze

Earth-quake

Land-slide

Dam &  
Levee  
Failure100-  
Year  
Flood500-  
Year  
Flood

## Forrest County Critical Facilities Continued

|                                       |                  |              |   |   |   |   |   |   |   |   |  |  |   |   |
|---------------------------------------|------------------|--------------|---|---|---|---|---|---|---|---|--|--|---|---|
| Diversified CPC                       | Utility/ Energy  | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Dixie Electric Power Assoc.           | Energy/ Utility  | Moderate     |   |   | X | X | X |   | X | X |  |  |   |   |
| Dixie Pipeline Company                | Transport        | Non-burnable | X | X | X | X | X |   | X | X |  |  |   | X |
| Eastabuchie Utility Assoc.            | Utility (Water)  | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |   |
| Enterprise Products Operating LP      | HAZ-MAT Facility | Non-burnable | X | X | X | X | X |   | X | X |  |  | X |   |
| Forrest County District 3 Barn        | Service/ Repair  | Low          |   |   | X | X | X |   | X | X |  |  |   |   |
| Lone Star NGL                         | HAZ-MAT          | Non-burnable | X | X | X | X | X |   | X | X |  |  | X |   |
| Macedonia VFD                         | Fire Station     | Low          |   |   | X | X | X |   | X | X |  |  |   |   |
| Macedonia VFD Station #2              | Fire Station     | HIGH         |   |   | X | X | X |   | X | X |  |  |   |   |
| Macedonia VFD Station #3              | Fire Station     | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |   |
| Mid Coast Energy (Enbridge Petroleum) | Utility/ Energy  | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Petal City Hall                       | City Hall        | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Petal City Police Dept                | Police Station   | Non-burnable | X | X | X | X | X | X | X | X |  |  |   |   |
| Petal City Public Works Dept.         | Govt.            | Moderate     | X | X | X | X | X |   | X | X |  |  | X |   |
| Petal Civic Center                    | Emerg. Shelter   | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Petal Elem. School                    | School           | Non-burnable |   |   | X | X | X |   | X | X |  |  |   |   |
| Petal Fire Department                 | Fire Station     | Moderate     | X | X | X | X | X | X | X | X |  |  |   |   |
| Petal Fire Station #1                 | Fire Station     | Moderate     | X | X | X | X | X | X | X | X |  |  |   |   |
| Petal Fire Station #2                 | Fire Station     | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Petal Fire Station #3                 | Fire Station     | Non-burnable |   |   | X | X | X |   | X | X |  |  |   |   |
| Petal Gas Storage                     | Utility Care     | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Petal High School & Safe Room         | School           | Non-burnable |   |   | X | X | X |   | X | X |  |  |   |   |
| Petal Lift Station                    | Waste-water      | HIGH         | X | X | X | X | X |   | X | X |  |  | X |   |
| Petal Lift Station                    | Waste-water      | HIGH         | X | X | X | X | X |   | X | X |  |  | X |   |
| Petal Lift Station                    | Waste-water      | HIGH         | X | X | X | X | X |   | X | X |  |  |   |   |
| Petal Lift Station                    | Waste-water      | HIGH         | X |   | X | X | X |   | X | X |  |  |   |   |
| Petal Lift Station                    | Waste-water      | HIGH         | X | X | X | X | X | X | X | X |  |  |   | X |
| Petal Lift Station                    | Waste-water      | HIGH         | X | X | X | X | X | X | X | X |  |  |   |   |

## Other

## Atmospheric

## Geologic

## Hydrologic

Facility Name

Facility Type

WHP Hazard

Fixed HAZMAT  
500-2500M  
Roads & RailsMobile HAZMAT  
500-2500M  
Roads & Rails

Drought

Thunder-storm,  
Lightning,  
& HailHurricane  
/Tropical  
Storm

Tornado

Winter  
Storm  
&  
Freeze

Earth-quake

Land-slide

Dam &  
Levee  
Failure100-  
Year  
Flood500-  
Year  
Flood



## Forrest County Critical Facilities Continued

[illegible]

|               |               | Other      |                                      |                                       | Atmospheric |                                   |                           |         |                       | Geologic    |            | Hydrologic          |                 |                 |
|---------------|---------------|------------|--------------------------------------|---------------------------------------|-------------|-----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| Facility Name | Facility Type | WHP Hazard | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder -storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |

## Forrest County Critical Facilities Continued

|                                      |                |              |   |   |   |   |   |   |   |   |  |  |  |  |
|--------------------------------------|----------------|--------------|---|---|---|---|---|---|---|---|--|--|--|--|
| Petal Lift Station                   | Waste-water    | HIGH         |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | HIGH         |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | HIGH         |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | Moderate     |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | Moderate     |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | Moderate     |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | Moderate     |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | Moderate     |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | Non-burnable |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | Non-burnable |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | Non-burnable |   | X | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | Non-burnable |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | Non-burnable |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | Non-burnable |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Lift Station                   | Waste-water    | Non-burnable |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Middle School & Safe Room      | School         | Non-burnable | X | X | X | X | X | X | X | X |  |  |  |  |
| Petal Plant A-Water Well             | Utility        | HIGH         | X | X | X | X | X |   | X | X |  |  |  |  |
| Petal Plant B-Water Well             | Utility        | Non-burnable | X | X | X | X | X | X | X | X |  |  |  |  |
| Petal Plant C-Water Well & Tank      | Utility        | Moderate     |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal Police Department              | Police Station | Non-burnable | X | X | X | X | X | X | X | X |  |  |  |  |
| Petal Post Office                    | Govt.          | Non-burnable | X | X | X | X | X | X | X | X |  |  |  |  |
| Petal Primary School & Safe Room     | School         | Low          |   |   | X | X | X |   | X | X |  |  |  |  |
| Petal St. Pipe (Plants A & B)        | Utility        | HIGH         | X | X | X | X | X |   | X | X |  |  |  |  |
| Petal Upper Elem. School & Safe Room | School         | Moderate     |   |   | X | X | X |   | X | X |  |  |  |  |
| Runnelstown Elem. School             | School         | HIGH         |   | X | X | X | X |   | X | X |  |  |  |  |
| Sunrise Utility                      | Utility        | Non-burnable |   |   | X | X | X |   | X | X |  |  |  |  |
| Sunrise VFD                          | Fire Station   | Non-burnable |   |   | X | X | X |   | X | X |  |  |  |  |
| Sunrise VFD Station #2               | Fire Station   | HIGH         |   |   | X | X | X |   | X | X |  |  |  |  |

| Facility Name | Facility Type | Other      |                                |                                 | Atmospheric |                                  |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
|---------------|---------------|------------|--------------------------------|---------------------------------|-------------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
|               |               | WHP Hazard | Fixed HAZMAT 500-2500M Roads & | Mobile HAZMAT 500-2500M Roads & | Drought     | Thunder-storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |

|                                              |         |              | Rails | Rails |   |   |   |  |   |   |  |  |   |  |
|----------------------------------------------|---------|--------------|-------|-------|---|---|---|--|---|---|--|--|---|--|
| Forrest County Critical Facilities Continued |         |              |       |       |   |   |   |  |   |   |  |  |   |  |
| Targa                                        | HAZ-MAT | Non-burnable | X     | X     | X | X | X |  | X | X |  |  | X |  |
| W L Smith                                    | School  | Moderate     | X     | X     | X | X | X |  | X | X |  |  |   |  |
| Walmart Supercenter #887                     | Retail  | Non-burnable |       |       | X | X | X |  | X | X |  |  | X |  |

|               |               | Other      |                                      |                                       | Atmospheric |                                  |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
|---------------|---------------|------------|--------------------------------------|---------------------------------------|-------------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
| Facility Name | Facility Type | WHP Hazard | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder-storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |

## Greene County Critical Facilities

|                                  |                 |  |  |  |   |   |   |   |   |   |  |  |  |  |
|----------------------------------|-----------------|--|--|--|---|---|---|---|---|---|--|--|--|--|
| Greene CO Circuit Court          | Govt.           |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Greene CO Chancery Court         | Govt.           |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Greene CO Sheriff's Dept.        | Police Station  |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Greene CO Correctional Facility  | Police Facility |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Greene CO Emerg. Manag.          | EOC             |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Greene CO Beat IV VFD            | Fire Station    |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Greene CO Justice Court          | Govt.           |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Greene CO Courthouse             | Govt.           |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Greene CO Rural Health           | Nursing Home    |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Greene CO BOS                    | Govt.           |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Greene CO Hospital               | Care Facility   |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Greene Co. High School           | School          |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Greene Co. Career & Tech.        | School          |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Leakesville City Hall            | Govt.           |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Leakesville Police Dept.         | Police Station  |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Leakesville VFD                  | Fire Station    |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Leakesville Rehab & Nursing Home | Care Facility   |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Leakesville Public Works         | Public Works    |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Leakesville Comm. Center         | Govt.           |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Leakesville Elem. School         | School          |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Leakesville Middle School        | School          |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Family Medical Clinic            | Care Facility   |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Leakesville Medical              | Care Facility   |  |  |  | X | X | X | X | X | X |  |  |  |  |
| Wesley Medical                   | Care Facility   |  |  |  | X | X | X | X | X | X |  |  |  |  |
| McLain City Hall                 | Govt.           |  |  |  | X | X | X | X | X | X |  |  |  |  |
| McLain Police Dept.              | Police Station  |  |  |  | X | X | X | X | X | X |  |  |  |  |
| McLain Public Works              | Public Works    |  |  |  | X | X | X | X | X | X |  |  |  |  |
| McLain VFD                       | Fire Station    |  |  |  | X | X | X | X | X | X |  |  |  |  |
| McLain JR. High School           | School/ Shelter |  |  |  | X | X | X | X | X | X |  |  |  |  |

| Facility Name | Facility Type | Other      |                                |                                 | Atmospheric |                                  |                           |         |                       | Geologic    |            | Hydrologic          |                 |                 |
|---------------|---------------|------------|--------------------------------|---------------------------------|-------------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
|               |               | WHP Hazard | Fixed HAZMAT 500-2500M Roads & | Mobile HAZMAT 500-2500M Roads & | Drought     | Thunder-storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |



|                                             |                |  | Rails | Rails |   |   |   |   |   |   |  |  |  |  |
|---------------------------------------------|----------------|--|-------|-------|---|---|---|---|---|---|--|--|--|--|
| Greene County Critical Facilities Continued |                |  |       |       |   |   |   |   |   |   |  |  |  |  |
| Knobtown VFD                                | Fire Station   |  |       |       | X | X | X | X | X | X |  |  |  |  |
| Turner – Duvall Assisted Living             | Care Facility  |  |       |       | X | X | X | X | X | X |  |  |  |  |
| Sandhill VFD                                | Fire Station   |  |       |       | X | X | X | X | X | X |  |  |  |  |
| Sandhill VFD #2                             | Fire Station   |  |       |       | X | X | X | X | X | X |  |  |  |  |
| Sandhill Jr. High School                    | School         |  |       |       | X | X | X | X | X | X |  |  |  |  |
| Jonathan VFD                                | Fire Station   |  |       |       | X | X | X | X | X | X |  |  |  |  |
| Neely VFD                                   | Fire Station   |  |       |       | X | X | X | X | X | X |  |  |  |  |
| Mt. Pisgah VFD                              | Fire Station   |  |       |       | X | X | X | X | X | X |  |  |  |  |
| Pine Belt Mental Health                     | Care Facility  |  |       |       | X | X | X | X | X | X |  |  |  |  |
| State Line Police Dept.                     | Police Station |  |       |       | X | X | X | X | X | X |  |  |  |  |
| State Line Public Works                     | Public Works   |  |       |       | X | X | X | X | X | X |  |  |  |  |
| State Line VFD                              | Fire Station   |  |       |       | X | X | X | X | X | X |  |  |  |  |
| State Line Medical                          | Care Facility  |  |       |       | X | X | X | X | X | X |  |  |  |  |
| State Line City Hall                        | Govt.          |  |       |       | X | X | X | X | X | X |  |  |  |  |

|               |               | Other      |                                |                                 | Atmospheric |                           |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
|---------------|---------------|------------|--------------------------------|---------------------------------|-------------|---------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
| Facility Name | Facility Type | WHP Hazard | Fixed HAZMAT 500-2500M Roads & | Mobile HAZMAT 500-2500M Roads & | Drought     | Thunder-storm, Lightning, | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |

|                                            |                |              | Rails                                | Rails                                 |             | & Hail                            |                           |         |                       |             |            |                     |                 |                 |  |
|--------------------------------------------|----------------|--------------|--------------------------------------|---------------------------------------|-------------|-----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|--|
| Jefferson Davis County Critical Facilities |                |              |                                      |                                       |             |                                   |                           |         |                       |             |            |                     |                 |                 |  |
| Bassfield Police Dept.                     | Police Station | Non-burnable |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| Bassfield VFD                              | Fire Station   | Low          |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| G W Carver Elem & Safe Room                | School         | HIGH         |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| Good Hope Elem. School                     | School         | Moderate     |                                      |                                       | X           | X                                 | X                         | X       | X                     | X           |            |                     |                 |                 |  |
| Good Hope Fire Dept.                       | Fire Station   | HIGH         |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| Jefferson Davis High School                | School         | HIGH         |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| Bassfield Fire Dept.                       | Fire Station   | Non-burnable |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| JDCS Learning Center                       | School         | HIGH         |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| Jeff Davis CO VO Tech. & SR                | School         | HIGH         |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| Red House Fire Dept.                       | Fire Station   | HIGH         |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| Oakvale VFD/ Society Hill                  | Fire Station   | Non-burnable |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| Clem VFD/ Williamson Mill                  | Fire Station   | HIGH         |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| Granby Fire Dept.                          | Fire Station   | Moderate     |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| HWY 84 West Fire Station Inc               | Fire Dept.     | HIGH         |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| HWY 84 West Fire Station                   | Fire Station   | Low          |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| J E Johnson Elem & Safe Room               | School         | HIGH         |                                      | X                                     | X           | X                                 | X                         | X       | X                     | X           |            |                     |                 |                 |  |
| J E Johnson Head Start                     | School         | HIGH         |                                      | X                                     | X           | X                                 | X                         | X       | X                     | X           |            |                     |                 |                 |  |
| Jefferson Davis CO Admin. Build.           | Govt.          | Non-burnable |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| Jefferson Davis CO Courthouse              | Govt.          | Non-burnable |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| Jefferson Davis CO EMA                     | EOC            | Non-burnable |                                      | X                                     | X           | X                                 | X                         | X       | X                     | X           |            |                     |                 |                 |  |
| Jefferson Davis CO Sheriff's Office        | Police Dept.   | Non-burnable |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| MS Dept. of Corrections                    | Prison         | Non-burnable |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| Prentiss Christian Sch. & Safe Room        | School         | Moderate     |                                      | X                                     | X           | X                                 | X                         | X       | X                     | X           |            |                     |                 |                 |  |
| Prentiss City Hall                         | City Hall      | Non-burnable |                                      | X                                     | X           | X                                 | X                         | X       | X                     | X           |            |                     |                 |                 |  |
| Prentiss Fire Dept.                        | Fire Station   | Non-burnable |                                      | X                                     | X           | X                                 | X                         | X       | X                     | X           |            |                     |                 |                 |  |
| Prentiss Institute                         | Safe Room      | Non-burnable |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |  |
| Prentiss Reg. Hospital                     | Care Facility  | HIGH         |                                      | X                                     | X           | X                                 | X                         | X       | X                     | X           |            |                     |                 |                 |  |
|                                            |                | Other        |                                      |                                       | Atmospheric |                                   |                           |         |                       |             | Geologic   |                     | Hydrologic      |                 |  |
| Facility Name                              | Facility Type  | WHP Hazard   | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder -storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |  |

## Jefferson Davis County Critical Facilities Continued

|                             |                     |              |  |   |   |   |   |   |   |   |  |  |  |  |
|-----------------------------|---------------------|--------------|--|---|---|---|---|---|---|---|--|--|--|--|
| Prentiss Reg. Extended Care | Care Facility       | Non-burnable |  | X | X | X | X | X | X | X |  |  |  |  |
| Prentiss Senior High School | School              | Non-burnable |  | X | X | X | X | X | X | X |  |  |  |  |
| Prentiss Fire/Police Dept.  | Fire/Police Station | HIGH         |  | X | X | X | X |   | X | X |  |  |  |  |
| New Medinah Islamic School  | School              | Moderate     |  |   | X | X | X |   | X | X |  |  |  |  |

|               |               | Other      |                                            |                                             | Atmospheric |                                      |                           |         |                       | Geologic    |            | Hydrologic          |                 |                 |
|---------------|---------------|------------|--------------------------------------------|---------------------------------------------|-------------|--------------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| Facility Name | Facility Type | WHP Hazard | Fixed HAZMAT<br>500-2500M<br>Roads & Rails | Mobile HAZMAT<br>500-2500M<br>Roads & Rails | Drought     | Thunder -storm,<br>Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |

## Jones County Critical Facilities

|                                    |                 |              |   |   |   |   |   |   |   |   |  |  |   |  |
|------------------------------------|-----------------|--------------|---|---|---|---|---|---|---|---|--|--|---|--|
| Adult Deten. Facility              | Deten. Facility | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Beat 4 Barn                        | Public Works    | LOW          |   | X | X | X | X |   | X | X |  |  |   |  |
| City Hall                          | Govt.           | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Court House District 1             | Govt.           | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Ellisville Fire Department         | Fire Station    | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Ellisville Lower Elem.             | School          | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Ellisville Police Dept             | Police Station  | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Ellisville State School            | School          | Non-burnable |   | X | X | X | X |   | X | X |  |  | X |  |
| Fire Station #1                    | Fire Station    | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Fire Station #2                    | Fire Station    | Non-burnable |   | X | X | X | X |   | X | X |  |  | X |  |
| Fire Station #3                    | Fire Station    | HIGH         |   | X | X | X | X |   | X | X |  |  |   |  |
| Johnson VFD                        | Fire Station    | LOW          |   | X | X | X | X |   | X | X |  |  |   |  |
| Juvenile Deten. Facility           | Deten. Facility | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Maintenance Building (county wide) | Public Works    | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Police Department                  | Police Station  | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Public Works                       | Govt.           | HIGH         |   | X | X | X | X |   | X | X |  |  | X |  |
| Public Works                       | Govt.           | LOW          |   | X | X | X | X | X | X | X |  |  |   |  |
| Public Works                       | Govt.           | Moderate     |   | X | X | X | X | X | X | X |  |  |   |  |
| Public Works                       | Govt.           | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Public Works                       | Govt.           | VERY LOW     |   | X | X | X | X |   | X | X |  |  |   |  |
| South Jones Elem. School           | School          | LOW          |   | X | X | X | X |   | X | X |  |  | X |  |
| South Jones High School            | School          | Non-burnable |   | X | X | X | X | X | X | X |  |  |   |  |
| South Jones VFD                    | Fire Station    | LOW          |   |   | X | X | X |   | X | X |  |  |   |  |
| Southwest Jones VFD                | Fire Station    | LOW          |   |   | X | X | X |   | X | X |  |  |   |  |
| A P Fathree Voc. Tech              | School          | Moderate     | X | X | X | X | X |   | X | X |  |  |   |  |
| Beat 1 Barn                        | Public Works    | HIGH         |   |   | X | X | X |   | X | X |  |  |   |  |
| Beat 3 Barn                        | Public Works    | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Beat 5 Barn                        | Public Works    | Non-burnable | X | X | X | X | X | X | X | X |  |  |   |  |
| Calhoun VFD                        | Fire Station    | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |  |
| Court House District 2             | Govt.           | Non-burnable | X | X | X | X | X | X | X | X |  |  |   |  |

## Other

## Atmospheric

## Geologic

## Hydrologic

Facility Name

Facility Type

WHP Hazard

Fixed HAZMAT  
500-2500M  
Roads & RailsMobile HAZMAT  
500-2500M  
Roads & Rails

Drought

Thunder-storm,  
Lightning,  
& HailHurricane  
/Tropical  
Storm

Tornado

Winter  
Storm  
& Freeze

Earth-quake

Land-slide

Dam & Levee  
Failure100-  
Year  
Flood500-  
Year  
Flood



## Jones County Critical Facilities Continued

|                               |                  |              |   |   |   |   |   |   |   |   |  |  |   |   |
|-------------------------------|------------------|--------------|---|---|---|---|---|---|---|---|--|--|---|---|
| East Jones Elem. School       | School           | HIGH         | X | X | X | X | X | X | X | X |  |  |   |   |
| EOC                           | EOC              | Non-burnable | X | X | X | X | X | X | X | X |  |  |   | X |
| Fire Dept Station #1          | Fire Station     | Non-burnable | X | X | X | X | X | X | X | X |  |  |   | X |
| Fire Dept Station #2          | Fire Station     | HIGH         | X | X | X | X | X |   | X | X |  |  |   |   |
| Fire Dept Station #4          | Fire Station     | Non-burnable | X | X | X | X | X |   | X | X |  |  | X |   |
| Fire Dept Station #5          | Fire Station     | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Fire Dept Station #6          | Fire Station     | LOW          | X | X | X | X | X |   | X | X |  |  |   |   |
| Hesler-Noble Field            | General Aviation | LOW          | X | X | X | X | X |   | X | X |  |  |   |   |
| Glade Elem. School            | School           | LOW          |   |   | X | X | X |   | X | X |  |  |   |   |
| Glade VFD                     | Fire Station     | Moderate     |   |   | X | X | X |   | X | X |  |  |   |   |
| Immaculate Conception School  | School           | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Jones City Sheriff-Processing | Police Station   | Non-burnable | X | X | X | X | X | X | X | X |  |  |   |   |
| Jones County Civil Defense    | Emer. Facility   | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Jones County Sheriff-Records  | Police Station   | Non-burnable | X | X | X | X | X | X | X | X |  |  |   |   |
| Laural Christian School       | School           | HIGH         | X | X | X | X | X |   | X | X |  |  |   |   |
| Laurel City Hall              | Govt.            | Non-burnable | X | X | X | X | X | X | X | X |  |  |   |   |
| Laurel City Police Dept       | Police Station   | Non-burnable | X | X | X | X | X | X | X | X |  |  |   | X |
| Laural Educ. Center           | School           | LOW          | X | X | X | X | X |   | X | X |  |  |   |   |
| Laurel Fire Department        | Fire Station     | Non-burnable | X | X | X | X | X | X | X | X |  |  |   | X |
| Laural High School            | School           | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Laural HS VOC Complex         | School           | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| M & M VFD                     | Fire Station     | Non-burnable |   |   | X | X | X |   | X | X |  |  |   |   |
| Mason Elem. School            | School           | LOW          | X | X | X | X | X |   | X | X |  |  |   |   |
| Nora Davis Magnet School      | School           | Non-burnable | X | X | X | X | X | X | X | X |  |  |   |   |
| Northeast Jones HS            | School           | HIGH         | X | X | X | X | X |   | X | X |  |  |   |   |
| Oak Park Elem. School         | School           | Non-burnable | X | X | X | X | X | X | X | X |  |  |   |   |
| Pine Belt Educ. Center        | School           | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Pleasant Ridge VFD            | Fire Station     | HIGH         |   | X | X | X | X |   | X | X |  |  |   |   |

## Other

## Atmospheric

## Geologic

## Hydrologic

| Facility Name | Facility Type | WHP Hazard | Fixed HAZMAT<br>500-2500M<br>Roads & Rails | Mobile HAZMAT<br>500-2500M<br>Roads & Rails | Drought | Thunder-storm,<br>Lightning,<br>& Hail | Hurricane<br>/Tropical<br>Storm | Tornado | Winter<br>Storm<br>&<br>Freeze | Earth-quake | Land-slide | Dam &<br>Levee<br>Failure | 100-<br>Year<br>Flood | 500-<br>Year<br>Flood |
|---------------|---------------|------------|--------------------------------------------|---------------------------------------------|---------|----------------------------------------|---------------------------------|---------|--------------------------------|-------------|------------|---------------------------|-----------------------|-----------------------|
|---------------|---------------|------------|--------------------------------------------|---------------------------------------------|---------|----------------------------------------|---------------------------------|---------|--------------------------------|-------------|------------|---------------------------|-----------------------|-----------------------|

## Jones County Critical Facilities Continued

|                                       |                |              |   |   |   |   |   |   |   |   |  |  |   |   |
|---------------------------------------|----------------|--------------|---|---|---|---|---|---|---|---|--|--|---|---|
| Police Dept                           | Police Station | Non-burnable | X | X | X | X | X | X | X | X |  |  |   | X |
| Powers VFD                            | Fire Station   | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Public Works Facility                 | Govt.          | LOW          | X | X | X | X | X |   | X | X |  |  |   |   |
| R H Watkins High School               | School         | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Rushton VFD                           | Fire Station   | HIGH         |   |   | X | X | X |   | X | X |  |  |   |   |
| Safe Room / Shelter                   | Safe Room      | Moderate     | X | X | X | X | X | X | X | X |  |  |   |   |
| Sewer Department                      | Waste-water    | Moderate     | X | X | X | X | X |   | X | X |  |  | X |   |
| Sewer Department                      | Waste-water    | Moderate     | X | X | X | X | X |   | X | X |  |  | X |   |
| Shady Grove Elem. School              | School         | HIGH         |   | X | X | X | X |   | X | X |  |  |   |   |
| Shady Grove VFD                       | Fire Station   | HIGH         |   |   | X | X | X |   | X | X |  |  |   |   |
| Shady Grove VFD                       | Fire Station   | HIGH         |   |   | X | X | X |   | X | X |  |  |   |   |
| Sharon Elem. School                   | School         | Non-burnable |   |   | X | X | X |   | X | X |  |  |   |   |
| Sharon VFD                            | Fire Station   | HIGH         |   |   | X | X | X |   | X | X |  |  |   |   |
| Sheriff's Department                  | Police Station | Non-burnable | X | X | X | X | X | X | X | X |  |  |   |   |
| South Central Regional Medical Center | Care Facility  | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| ST Johns Day School                   | School         | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Stainton Elem. School                 | School         | Non-burnable | X | X | X | X | X |   | X | X |  |  |   |   |
| Stewart Jones Middle School           | School         | Non-burnable | X | X | X | X | X |   | X | X |  |  | X |   |
| The Star Reach Center                 | School         | LOW          | X | X | X | X | X |   | X | X |  |  |   |   |
| Water Department                      | Public Works   | Non-burnable | X | X | X | X | X | X | X | X |  |  |   | X |
| Water Department                      | Public Works   | Non-burnable | X | X | X | X | X | X | X | X |  |  |   | X |
| Water Department                      | Public Works   | Non-burnable | X | X | X | X | X | X | X | X |  |  |   | X |
| West Jones Elem. School               | School         | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |   |
| West Jones High School                | School         | Moderate     |   | X | X | X | X |   | X | X |  |  |   |   |
| Moselle Elem. School                  | School         | HIGH         |   | X | X | X | X |   | X | X |  |  |   |   |
| Moselle VFD                           | Fire Station   | HIGH         |   | X | X | X | X |   | X | X |  |  |   |   |
| Southwest Jones VFD                   | Fire Station   | HIGH         |   |   | X | X | X |   | X | X |  |  |   |   |
| Union VFD                             | Fire Station   | HIGH         |   | X | X | X | X |   | X | X |  |  |   |   |
| Ovett VFD                             | Fire Station   | Moderate     |   |   | X | X | X |   | X | X |  |  |   |   |
| Police Dept                           | Police Station | Non-burnable |   | X | X | X | X |   | X | X |  |  |   |   |

## Other

## Atmospheric

## Geologic

## Hydrologic

| Facility Name | Facility Type | WHP Hazard | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought | Thunder -storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |
|---------------|---------------|------------|--------------------------------------|---------------------------------------|---------|-----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
|---------------|---------------|------------|--------------------------------------|---------------------------------------|---------|-----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|

## Jones County Critical Facilities Continued

|                  |                |              |   |   |   |   |   |   |   |   |  |  |  |   |
|------------------|----------------|--------------|---|---|---|---|---|---|---|---|--|--|--|---|
| Sandersville VFD | Fire Station   | Non-burnable |   | X | X | X | X |   | X | X |  |  |  |   |
| Beat 2 Barn      | Public Works   | HIGH         |   |   | X | X | X |   | X | X |  |  |  |   |
| Hebron VFD       | Fire Station   | LOW          |   | X | X | X | X |   | X | X |  |  |  |   |
| Soso Police Dept | Police Station | Non-burnable | X | X | X | X | X |   | X | X |  |  |  | X |
| Soso VFD         | Fire Station   | Non-burnable | X | X | X | X | X | X | X | X |  |  |  | X |

|               |               | Other      |                        |                         | Atmospheric |                           |                           |         |                | Geologic    |            | Hydrologic          |                |                |
|---------------|---------------|------------|------------------------|-------------------------|-------------|---------------------------|---------------------------|---------|----------------|-------------|------------|---------------------|----------------|----------------|
| Facility Name | Facility Type | WHP Hazard | Fixed HAZMAT 500-2500M | Mobile HAZMAT 500-2500M | Drought     | Thunder-storm, Lightning, | Hurricane /Tropical Storm | Tornado | Winter Storm & | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |

|                                   |                |              | Roads & Rails | Roads & Rails |   | & Hail |   |   | Freeze |   |  |  |   |   |
|-----------------------------------|----------------|--------------|---------------|---------------|---|--------|---|---|--------|---|--|--|---|---|
| Marion County Critical Facilities |                |              |               |               |   |        |   |   |        |   |  |  |   |   |
| Columbia Academy                  | School         | Non-burnable |               | X             | X | X      | X |   | X      | X |  |  |   |   |
| Columbia Elem. School             | School         | Non-burnable | X             | X             | X | X      | X |   | X      | X |  |  |   |   |
| Columbia Fire Department          | Fire Station   | Moderate     | X             | X             | X | X      | X |   | X      | X |  |  | X |   |
| Columbia High School              | School         | Non-burnable | X             | X             | X | X      | X |   | X      | X |  |  |   | X |
| Columbia Police Dept              | Police Station | Non-burnable | X             | X             | X | X      | X |   | X      | X |  |  | X |   |
| Columbia Police Investigator      | Police Station | Moderate     | X             | X             | X | X      | X |   | X      | X |  |  | X |   |
| Columbia Primary Sch.             | School         | Non-burnable | X             | X             | X | X      | X | X | X      | X |  |  |   |   |
| East Columbia High School         | School         | Non-burnable |               | X             | X | X      | X |   | X      | X |  |  |   |   |
| East Marion Elem. School          | School         | Moderate     |               | X             | X | X      | X |   | X      | X |  |  |   |   |
| East Marion High School           | School         | Moderate     |               | X             | X | X      | X |   | X      | X |  |  |   |   |
| East Marion Primary Sch.          | School         | Moderate     |               | X             | X | X      | X |   | X      | X |  |  |   |   |
| Jefferson Middle School           | School         | Non-burnable | X             | X             | X | X      | X | X | X      | X |  |  |   |   |
| Marion CO VOC Complex             | School         | Non-burnable |               | X             | X | X      | X |   | X      | X |  |  |   |   |
| Marion County Civil Defense       | Emer. Facility | HIGH         |               |               | X | X      | X |   | X      | X |  |  |   |   |
| Marion County Sheriff Dept        | Police Station | Non-burnable | X             | X             | X | X      | X |   | X      | X |  |  |   |   |
| Marion General Hospital           | Care Facility  | Non-burnable |               | X             | X | X      | X | X | X      | X |  |  |   |   |
| Pine Burr VFD                     | Fire Station   | VERY HIGH    |               |               | X | X      | X |   | X      | X |  |  |   |   |
| Tri-Community VFD                 | Fire Station   | HIGH         |               |               | X | X      | X |   | X      | X |  |  |   |   |
| Southwest Marion VFD              | Fire Station   | LOW          |               |               | X | X      | X |   | X      | X |  |  |   |   |
| Southwest Marion VFD              | Fire Station   | Non-burnable |               | X             | X | X      | X |   | X      | X |  |  |   |   |
| West Marion Elementary            | School         | Non-burnable |               | X             | X | X      | X |   | X      | X |  |  |   |   |
| West Marion High School           | School         | Non-burnable |               | X             | X | X      | X |   | X      | X |  |  |   |   |
| West Marion Junior High           | School         | Non-burnable |               | X             | X | X      | X |   | X      | X |  |  |   |   |
| West Marion Primary               | School         | Non-burnable |               | X             | X | X      | X |   | X      | X |  |  | X |   |
| Southwest Marion VFD              | Fire Station   | Non-burnable |               | X             | X | X      | X |   | X      | X |  |  |   |   |
| Southwest Marion VFD              | Fire Station   | VERY HIGH    |               |               | X | X      | X |   | X      | X |  |  |   |   |

|               |               | Other      |                                      |                                       | Atmospheric |                                  |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
|---------------|---------------|------------|--------------------------------------|---------------------------------------|-------------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
| Facility Name | Facility Type | WHP Hazard | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder-storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |



## Perry County Critical Facilities

|                             |                |              |   |   |   |   |   |   |   |   |  |  |  |   |
|-----------------------------|----------------|--------------|---|---|---|---|---|---|---|---|--|--|--|---|
| Beaumont Elem. School       | School         | HIGH         | X | X | X | X | X | X | X | X |  |  |  |   |
| Beaumont Police Dept        | Police Station | LOW          | X | X | X | X | X | X | X | X |  |  |  |   |
| Beaumont VFD                | Fire Station   | Non-burnable | X | X | X | X | X | X | X | X |  |  |  |   |
| Perry CO Alt. School        | School         | HIGH         | X | X | X | X | X |   | X | X |  |  |  |   |
| New Augusta Elem. School    | School         | LOW          |   | X | X | X | X |   | X | X |  |  |  | X |
| Perry Central High School   | School         | HIGH         |   | X | X | X | X |   | X | X |  |  |  |   |
| Perry CO VOC Complex        | School         | HIGH         |   | X | X | X | X |   | X | X |  |  |  |   |
| Perry County Sheriff's Dept | Police Station | Non-burnable |   | X | X | X | X |   | X | X |  |  |  | X |
| Town of New Augusta VFD     | Fire Station   | HIGH         |   | X | X | X | X |   | X | X |  |  |  |   |
| Perry CO General Hospital   | Care Facility  | Non-burnable | X |   | X | X | X |   | X | X |  |  |  |   |
| Richton Elem. School        | School         | Non-burnable | X |   | X | X | X |   | X | X |  |  |  |   |
| Richton High School         | School         | Non-burnable | X |   | X | X | X |   | X | X |  |  |  |   |
| Richton Police Dept         | Police Station | Non-burnable | X |   | X | X | X | X | X | X |  |  |  |   |

|               |               | Other      |                                      |                                       | Atmospheric |                                  |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
|---------------|---------------|------------|--------------------------------------|---------------------------------------|-------------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
| Facility Name | Facility Type | WHP Hazard | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder-storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |

## Wayne County Critical Facilities

|                             |                |              |   |   |   |   |   |   |   |   |  |  |  |  |
|-----------------------------|----------------|--------------|---|---|---|---|---|---|---|---|--|--|--|--|
| Buckatunna Elem. School     | School         | HIGH         |   | X | X | X | X |   | X | X |  |  |  |  |
| Beat Four Elem. School      | School         | HIGH         |   | X | X | X | X |   | X | X |  |  |  |  |
| Clara Elem. School          | School         | Very Low     |   |   | X | X | X |   | X | X |  |  |  |  |
| Wayne Academy               | School         | Low          |   | X | X | X | X |   | X | X |  |  |  |  |
| Wayne CO VOC Complex        | School         | Non-burnable | X | X | X | X | X | X | X | X |  |  |  |  |
| Wayne CO Alternative School | School         | Non-burnable | X | X | X | X | X | X | X | X |  |  |  |  |
| Wayne County Civil Defense  | Emer. Facility | Non-burnable | X | X | X | X | X | X | X | X |  |  |  |  |
| Wayne County High School    | School         | Low          |   | X | X | X | X | X | X | X |  |  |  |  |
| Wayne County Sheriff        | Police Station | Non-burnable | X | X | X | X | X | X | X | X |  |  |  |  |
| Wayne County VFD            | Fire Station   | Non-burnable | X | X | X | X | X | X | X | X |  |  |  |  |
| Wayne General Hospital      | Care Facility  | Non-burnable | X | X | X | X | X |   | X | X |  |  |  |  |
| Waynesboro Elem. School     | School         | Non-burnable |   | X | X | X | X | X | X | X |  |  |  |  |
| Waynesboro Fire Dept.       | Fire Station   | Non-burnable | X | X | X | X | X | X | X | X |  |  |  |  |
| Waynesboro Middle School    | School         | Low          | X | X | X | X | X |   | X | X |  |  |  |  |
| Waynesboro Police Clerk     | Police Station | Non-burnable | X | X | X | X | X | X | X | X |  |  |  |  |
| Waynesboro Police Dept      | Police Station | Non-burnable | X | X | X | X | X | X | X | X |  |  |  |  |

# 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. 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.

### 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*. A more detailed discussion on the region’s planning and regulatory capability follows.

TABLE 7.1: RELEVANT PLANS, ORDINANCES, AND PROGRAMS



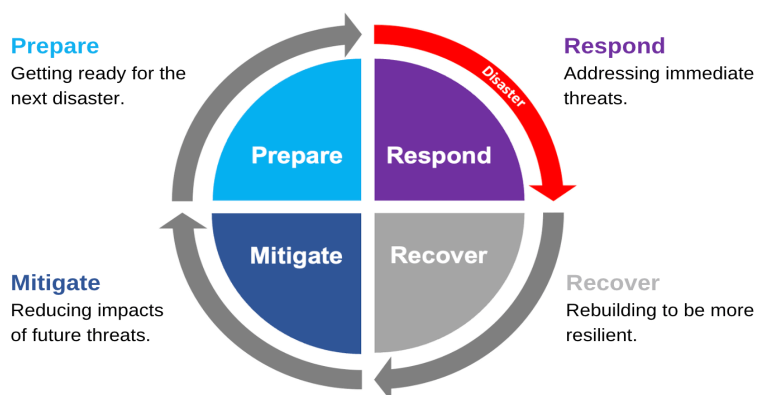
| Planning/ Regulatory Tool               | Covington County | Forrest County | Green County | Jefferson Davis County | Jones County | Marion County | Perry County | Wayne County |
|-----------------------------------------|------------------|----------------|--------------|------------------------|--------------|---------------|--------------|--------------|
| Hazard Mitigation Plan                  | ✓                | ✓              | ✓            | ✓                      | ✓            | ✓             | ✓            | ✓            |
| Comprehensive Land Use Plan             |                  |                |              |                        |              |               |              |              |
| Floodplain Management Plan              |                  |                |              |                        |              |               |              |              |
| Open Space Management Plan              | ✓                | ✓              | ✓            | ✓                      | ✓            | ✓             | ✓            | ✓            |
| Stormwater Management Plan/Ordinance    |                  | ✓              |              |                        |              |               |              |              |
| National 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 Codes                          |                  |                |              |                        |              |               | ✓            | ✓            |
| Fire Codes                              |                  |                |              |                        |              |               |              |              |
| National Flood Insurance Program (NFIP) | ✓                | ✓              | ✓            | ✓                      | ✓            | ✓             | ✓            | ✓            |
| NFIP Community Rating System            |                  |                |              | ✓                      |              |               |              |              |

### 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**

## 4 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 Workshop 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 8 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 eight 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.

**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 Cities 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. **Greene**
- ★ 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). 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.

### 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 as of 2023 |
|--------------------------------|------------------|----------------------------|------------------------|--------------------|---------------|---------------------------|
| <i>Covington County†</i>       | 12/15/1990       | 4/5/2010                   | 63                     | \$7,483,100        | 27            | \$357,325                 |
| <i>Forrest County</i>          | 12/17/2010       | 1/19/2021(M)               | 7                      | \$762,600          | 0             | \$0                       |
| <i>Greene County</i>           |                  | 11/19/2021                 |                        |                    |               |                           |
| <i>Jefferson Davis County†</i> | 12/17/2010       | 12/17/2010(M)              | 7                      | \$762,100          | 0             | \$0                       |
| <i>Jones County</i>            | 2/16/1990        | 1/19/2021                  | 133                    | \$17,174,300       | 28            | \$237,123                 |
| <i>Marion County†</i>          | 9/28/1979        | 10/18/2019                 | 189                    | \$29,435,100       | 248           | \$2,337,509               |
| <i>Perry County†</i>           | 9/1/1987         | 11/19/2021                 | 86                     | \$10,072,300       | 38            | \$131,996                 |
| <i>Wayne County†</i>           | 8/16/1988        | 7/18/2011                  | 44                     | \$6,960,900        | 6             | \$117,636                 |

† Includes unincorporated areas of county only

\* Community does not participate in the NFIP

(M) – No Elevation Determined, All Zone A, C and X

### **Scope of Work for SDEs Assistance by MEMA' Flood Plain Management Bureau**

MEMA's FPM Bureau will assist any community with training and field work to ensure that the damage estimates by the community are compliant with the NFIP. The community must request assistance in writing to the FPM Bureau. After the request is made to the FPM Bureau, the information will be given to the Office of Mitigation Director. The community should be able to estimate the number of structures in the floodplain receiving damage from the event and pass it along to the FPM Bureau. At that point, the FPM Bureau and Office of Mitigation Director will make decisions on deployment. Any community requesting assistance from the FPM Bureau should be willing to have local individuals comprise the SED Teams and run the FEMA SDE program. If the damage is so widespread that the number of requests or the number of structures supersede the capacity of the FPM Bureau, then a meeting with the Office of Mitigation Director and the State NFIP Coordinator to determine the course of action.

#### **Field Deployment Procedure:**

- Review of Safety Requirements
- Review of the site
- Review of SDE program
- Review of data collection and evaluation
- Review of data entry
- Review of the data not to be collected on the first survey.
- Review of program with the SDE teams.
- Review Crisis Track
- Data collection is not about speed, but quality.
- Calibration of the SDE Teams (Minimum of three structures).
- Point out differences in residential, non-residential and manufactured home.
- Choose Team leaders and points of contact.
- Data from all inspection teams from the first day should be reviewed. (Point out any issues).
- Data entry.

#### **Equipment for SDE Teams:**

- Flood maps for the area (Digital applications on smartphones are available).



- Teams to be comprised of ideally of three-person teams (Minimum is two-person teams).
- Teams should have a local person on each team deployed to the field.
- Maps showing the area to be inspected (maps with addresses, Subdivision lot plats, and/or tax parcels).
- Digital Cameras
- GPS units
- Drone(s)
- Dry erase boards with markers and erasers.
- Safety Equipment (i.e. Boots, bug spray, snake protection, sunscreen, etc.).
- Field inspection forms
- Each team must have a way of communicating with other teams and operations
- Pens and pencils.
- Details list of area to be covered for each day.
- If using tablets, ensure that the equipment is charged and ready to function.
- Paper SDE forms must pack-up the tablets.

### **SDE Data Entry**

Prior to field deploying the MEMA FPM Lead should review Crisis Track and print a report for all structures that have received damage in the Special Flood Hazard Area. The structures that are listed in Crisis Track should be reviewed and have an SDE completed on them. Data entry should be performed by a local person after training on the program. It is best to have a one-point data entry source. Data entry will occur daily after the teams return from the field. FPM Bureau personal will stay with the data entry along with team leaders as the data is entered in the program. After each team filed inspection forms are entered in the program, the team leader can be dismissed. The FPM Bureau person will stay until all entries have been made for the day. The FPM Bureau person will get a printed list of the day's inspections with percent damage to turn into the FPM Bureau Leader. The FPM Team Leader will compile the number of inspection and the percent damage into a report for the Office of Mitigation Director daily. All inspections to be determined between 50 and 60 percent damaged should be reevaluated by different filed teams. The local official should have a computer able to run the SDE software.

If using the tablet to run the software, FPM will export from tablet and import to local FPM computer of choice (may even print the reports for the local FPM. MEMA must retain a copy of the SDE inspections for follow-up of substantial damage.

### **Field Inspection Teams**

SDE Field Inspection Teams should consist of three team members but no less than two members (two members responsible for measuring and one to record the data. All members should make the percent damage assessments.) All data collected must be clearly marked and written on filed inspection forms. Photos of structures should be clear with at least three photos at each location (addresses board, overall structure, water line if flooding, or damage to the structure. The done should be utilized to assist with taking photos of the structure and fully assessing the structure for damage. At every inspection make for sure that you are clearly recognizable and give notice to property owner if applicable by knocking on doors and waiting for a response before proceeding. It is the responsibility of the filed team leader to maintain forms, equipment, and photos, etc. In areas that are still inaccessible, drone(s) should be used to view structures that are damaged and record the water lines.

### **Follow-up**

FPM Specialists will have monthly follow-ups with local FPMs that have substantially damaged structures to ensure compliance within their area.

**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 7.1**. 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 7.1: CRS PREMIUM DISCOUNTS, BY CLASS

| Premium Discount |        |      |          |
|------------------|--------|------|----------|
| Class            | Points | SFHA | Non-SFHA |
| 1                | 4,500  | 45%  | 10%      |
| 2                | 4,000  | 40%  | 10%      |
| 3                | 3,500  | 35%  | 10%      |
| 4                | 3,000  | 30%  | 10%      |
| 5                | 2,500  | 25%  | 10%      |
| 6                | 2,000  | 20%  | 10%      |
| 7                | 1,500  | 15%  | 5%       |
| 8                | 1,000  | 10%  | 5%       |
| 9                | 500    | 5%   | 5%       |
| 10               |        | 0    | 0        |

 FEMA

CRS Overview 12

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 Prentiss 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 | Forest County | Greene County | Jefferson Davis County | Jones County | Marion County | Perry County | Wayne County |
|---------------------------------------------------------------------------------------------------------|------------------|---------------|---------------|------------------------|--------------|---------------|--------------|--------------|
| 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                                                                                          |                  | ✓             |               |                        |              |               | ✓            | ✓            |
| Scientist familiar with the hazards of the community.                                                   | ✓                | ✓             | ✓             | ✓                      | ✓            | ✓             | ✓            | ✓            |
| 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**

| <b>Fiscal Tool/ Resource</b>                                   | <b>Covington County</b> | <b>Forest County</b> | <b>Greene County</b> | <b>Jefferson Davis County</b> | <b>Jones County</b> | <b>Marion County</b> | <b>Perry County</b> | <b>Wayne County</b> |
|----------------------------------------------------------------|-------------------------|----------------------|----------------------|-------------------------------|---------------------|----------------------|---------------------|---------------------|
| <b>Capital Improvement Program</b>                             |                         | ✓                    | ✓                    | ✓                             | ✓                   | ✓                    | ✓                   | ✓                   |
| <b>Community Development Block Grants (CDBG)</b>               | ✓                       | ✓                    | ✓                    | ✓                             | ✓                   | ✓                    | ✓                   | ✓                   |
| <b>Special Purpose Taxes (or taxing districts)</b>             |                         |                      |                      |                               |                     |                      |                     | ✓                   |
| <b>Gas/ Electric Utility Fees</b>                              |                         |                      |                      |                               |                     |                      |                     | ✓                   |
| <b>Water/ Sewer Fees</b>                                       |                         |                      |                      |                               |                     |                      |                     | ✓                   |
| <b>Stormwater Utility Fees</b>                                 |                         |                      |                      |                               |                     |                      |                     |                     |
| <b>Development Impact Fees</b>                                 |                         |                      |                      |                               |                     |                      |                     |                     |
| <b>General Obligation, Revenue, and/or Special Tax Bonds</b>   |                         | ✓                    |                      |                               |                     |                      |                     | ✓                   |
| <b>Partnering Arrangements or Intergovernmental Agreements</b> | ✓                       | ✓                    | ✓                    | ✓                             | ✓                   | ✓                    | ✓                   | ✓                   |

## 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.

## 7.4 Linking 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

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### 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 Previous Mitigation Actions

A thorough review of mitigation actions identified in the previous approved plan was conducted to determine the effectiveness of the action and the progress made to date. Each participating jurisdiction was asked to review and update each action to determine if: the action was completed; the strategy is no longer applicable; or it should be moved forward and included in the 2025 Plan Update. The updated status of previous mitigation actions is provided in the individual annex for each of D4's participating counties.

### 8.1.2 The Mitigation Action Plan

Each participating jurisdiction updated its list of mitigation actions based on the review of its risk assessment and existing capabilities. The actions include community-specific details and are included in each county's detailed mitigation action plan within the Annex section of this plan. The Mitigation Strategy for each Annex includes several changes, including those based on the streamlined list of 2020 Goals and Objectives. The table of action items includes mitigation actions identified in the 2015 plan; the outcome of each; and how the strategy was updated for the 2025 plan; and newly developed mitigation actions.

Previous plans included a large number of mitigation actions considering the size and available resources of some jurisdictions, including those with only a few hundred residents. Some EM Directors have multiple duties and can also function in one or more service roles in their communities. The same is often true for leadership at the city or town level, where those in leadership "wear many hats."

Several changes were made to streamline the Mitigation Strategy given the following considerations:

- Actions identified as falling into the Preparedness Phase of the Emergency Management Cycle were removed and recommended for consideration under Preparedness Planning. Examples of this include disaster preparedness initiatives (such as providing weather radios to residents) and NIMS training, which represent actions a community normally does to prepare for a hazard event

Professional emergency managers and their Emergency Support Functions (ESF) units called up during disaster response, develop specific plans and actions as appropriate for each event phase.

- Actions identified as being required as part of the FEMA Hazard Mitigation Planning Process were removed because these are fully spelled out under the Plan Maintenance section of this RHMP Update. Examples of this include reviewing the mitigation plan and meeting to discuss needed plan updates after a disaster occurs in the community.
- Actions that discussed similar activities were combined into one action. For example, there were previously separate action items for educating the public about natural hazards and for educating the public about manmade (technological, biological, health-related) hazards. A single outreach plan using multiple communications channels can incorporate education about all hazards to all audiences if the outreach plan is fully developed.
- In some instances, extensive description of previous actions was shortened.
- Most action items were identified by all jurisdictions. In these cases, a countywide action was developed that would be jointly implemented by all participating jurisdictions.

### 8.1.3 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 *2025 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
- Funding availability
- Continued compliance with the NFIP

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.

**High Priority**- mitigation actions determined to be the most cost effective and most compatible with the participating jurisdictions' unique needs.

**Moderate Priority**- mitigation actions determined to be feasible and compatible with the participating jurisdictions' unique needs; however, there may be challenges or difficulty that are expected to arise.

**Low Priority**- mitigation actions determined to be the least compatible with the participating jurisdictions' unique needs.

During the 2024 planning process, action prioritization was validated and updated as necessary. There were no changes to priorities in the plan since the last update.

## 8.2 MITIGATION GOALS AND OBJECTIVES

### 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. **Table 8.1** provides a listing of all of the existing mitigation goals from the eight plans that are being combined.

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 AND OBJECTIVES****Goal 1: Protect the health, safety, and welfare of residents and visitors.**

|                      |                                                                                                                                                                                          |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Objective 1.1</b> | Promote mitigation incentives to protect the residents health in safety before and during an event such as safe rooms, storm shelters, weather warning systems, emergency generators...  |
| <b>Objective 1.2</b> | Develop outreach strategies such as pamphlets with hazard and safety information for the vulnerable, underserved populations, and/or tourists.                                           |
| <b>Objective 1.3</b> | Review policies, procedures, facilities, infrastructure, etc. to seek ways to help mitigation natural hazards so as to reduce losses and negative impacts associated with hazard events. |
| <b>Objective 1.4</b> | Prioritize mitigation actions/activities for critical facilities, services, and infrastructure.                                                                                          |
| <b>Objective 1.5</b> | Seek and implement flood control and drainage improvements/measures in flood prone areas to reduce losses and impacts.                                                                   |
| <b>Objective 1.6</b> | Balance planning, natural resource management, and land use planning with natural hazard mitigation to protect life, property, and the environment.                                      |

**Goal 2: Protect existing and future buildings, critical facilities, and infrastructure.**

|                      |                                                                                                                                                                                                                                                                                      |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Objective 2.1</b> | Promote actions and mitigation initiatives for continuity of operations in a disaster for critical facilities and infrastructure.                                                                                                                                                    |
| <b>Objective 2.2</b> | Reduce/prevent potential damage to future buildings, critical facilities, and the infrastructure by improving hazard assessment information to make recommendations for encouraging higher standards for safer development in areas vulnerable to natural and technological hazards. |
| <b>Objective 2.3</b> | Review existing and future buildings and infrastructure as well as current policies and procedures.                                                                                                                                                                                  |
| <b>Objective 2.4</b> | Encourage the adoption, improvement, and enforcement of local codes, ordinances, and land use planning.                                                                                                                                                                              |
| <b>Objective 2.5</b> | Reduce the number of at-risk, repetitive loss, and SRL Properties.                                                                                                                                                                                                                   |

**Goal 3: Prevent the destruction of natural, historical, and cultural resources.**

|                      |                                                                                  |
|----------------------|----------------------------------------------------------------------------------|
| <b>Objective 3.1</b> | Reserve, restore, and/or create natural systems to serve as mitigation functions |
| <b>Objective 3.2</b> | Protect and preserve cultural and historic resources.                            |

**Goal 4: Reduce economic losses, including response and recovery costs and disruption of economic activity.**

|                      |                                                                                                                                                     |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Objective 4.1</b> | Enhance emergency services communications system via interoperability through the statewide MSWIN system.                                           |
| <b>Objective 4.2</b> | Identify needs and appropriate activities/projects from post disaster damage assessments.                                                           |
| <b>Objective 4.3</b> | Develop and maintain hazard-related research, modeling, data, and analysis to support programs and project implementation to reduce economic costs. |

**Goal 5: Understand the hazards that threaten the region and the techniques to minimize vulnerability to those hazards.**

|                      |                                                                                                                                                                                  |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Objective 5.1</b> | Develop and maintain hazard related data                                                                                                                                         |
| <b>Objective 5.2</b> | Improve the understanding of hazards and their potential risks through monitoring and assessment of possible mitigation projects at the local, county, and jurisdictional level. |
| <b>Objective 5.3</b> | Develop and implement education and outreach programs to increase public awareness of the risks associated with natural and technological hazards.                               |

**Goal 6: Foster cooperation among the public and private sectors to promote effective hazard mitigation planning and create disaster resistant communities.**

|                       |                                                                                                                                                                                                                                                                                                          |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Objective 6.1.</b> | Encourage local newspapers and media outlets to run articles and information pieces regarding the potential dangers of natural hazards and the positive impacts of various hazard mitigation actions. The articles and information pieces will address existing and future buildings and infrastructure. |
| <b>Objective 6.2</b>  | Promote the use of existing mitigation and hazard education programs from state, federal, and non-profits sources.                                                                                                                                                                                       |
| <b>Objective 6.3</b>  | Encourage leadership within the public and private sector organizations to prioritize and implement local, county, and region hazard mitigation activities.                                                                                                                                              |

**Goal 7: Increase public awareness of hazard mitigation and hazard risk.**

**Objective 7.1**

Improve the understanding of hazards and risks, and expand and enhance public education, awareness, and preparedness associated with natural and technological hazards.

**Objective 7.2**

Develop outreach strategies for the vulnerable, underserved populations, such as tourists, disabled persons, children, non-English speaking, low income, elderly, non-reading residents...

## 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

### 8.3.7 Historical Properties and Cultural Resources

**Historic preservation** is a field that allows communities to preserve a sense of place, a unique identity, and a link to the past. It is an important tool not only for educating residents and visitors about the history of a place, but it can also help maintain community pride and a sense of belonging. **Historic properties** and **cultural resources** are also valuable economic assets that increase property values and attract businesses and tourists. A **Historic Property** is any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (National Register) maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religions and cultural importance to an Indian Tribe or Native Hawaiian organization and that meet the National Register criteria. (Source: 36 CFR Part 800.16 [1].)

**Cultural Resources** are the non-living examples of objects acquired and preserved because of their potential value as examples, as reference material, or as objects of artistic, historic, scientific, educational, or social importance, either individually or as a collection. **Cultural resources** include “moveable heritage,” such as collections of artifacts, statuary, artwork, and important documents or repositories. Often housed in libraries, museums, archives, historical repositories, or historic properties, these resources range from three-dimensional examples such as sculptures, historic furnishings, family heirlooms, or textiles, to two-dimensional examples such as family records, written history or memorabilia, old photographs and maps, and other archival materials.

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:

- Elevate
- Replace historic windows with stronger glass; new window design will match historic design.
- Property and resource protection.
- Structural diversions.
- Public education and awareness.
- Natural resource protection for historic landscape features and archeological sites.
- Basic Property Improvements.
- Retrofitting.
- Upgrading mechanical and fire-protection systems.
- Relocation

## 8.4 SOURCES OF FUNDING

### 8.4.1 Sources of Grant Funding

Below is a list of the funding sources for mitigation projects, as well as program parameters and project eligibility.

- **Federal Hazard Mitigation Assistance Grants**—The Federal Emergency Management Agency (FEMA) provides funding for three Hazard Mitigation Assistance Grant Programs. These programs, described in detail in FEMA's Hazard Mitigation Assistance Unified Guidance. The program was updated on July 30, 2024, and are summarized for future reference when mitigation activities are implemented. The grant programs are administered within the State of Mississippi by the Mississippi Emergency Management Agency, Office of Mitigation. A brief description of each program is provided below, followed by a list of eligible program activities and examples in Table.
  - **Hazard Mitigation Grant Program (HMGP)** is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.
    - The **key purpose of HMGP** is to ensure critical mitigation measures that reduce loss of life and property from future disasters are not lost during the reconstruction process following a disaster. HMGP funds are available when authorized under a Presidential disaster declaration in the jurisdictions of the State requested by the Governor.
  - **Building Resilience in Communities Program (BRIC)**, the goal of which is, to reduce disaster risk, but will focus on projects with the potential for widespread community impact. In 2019 and 2020, FEMA secured widespread stakeholder input into the design of **BRIC program requirements**.
  - **Flood Mitigation Assistance (FMA)** is authorized by Section 1366 of the **National Flood Insurance Act of 1968 (NFIA)** with the goal of reducing or eliminating claims under the **National Flood Insurance Program (NFIP)** by making available funds for flood mitigation projects for structures covered by flood insurance policies.
    - The program focuses on retrofit of individual properties that ha
    - In the long run, increasing property resiliency will lead to reductions in NFIP property loss payouts.
    - The Repetitive Flood Claims Program (RFC) and Severe Repetitive Loss Program (SRL) have been integrated into the FMA Program.
    - As is the case with PDM, funding is announced annually and is subject to the level of funding appropriation.

### 8.4.2 Other Grant Sources

**FEMA Public Assistance (PA) 406 Mitigation Grant Program** is available for counties included in a FEMA presidential disaster declaration. If they are eligible to receive PA funding, the community must develop a valid and eligible Project Worksheet in a timely manner, and the FEMA PA group administering the disaster must agree with the community on the importance of the project. Project types include, but are not limited to, floodproofing, wind protection, road elevation, drainage upgrades/improvements. The FEMA web site with information about this program may be found here: <https://www.fema.gov/public-assistance-local-state-tribal-and-non-profit>.

**Department of Housing and Urban Development (HUD) Community Development Block Grant program Disaster Recovery (CDBG-DR) Program**: CDBG-DR funding is made available on a case-by-case basis by the U.S. Congress and is usually authorized after larger disaster events that have received a presidential disaster declaration. The program generally covers projects related to acquisition or elevation of residential structures, but funding can also be made available to small businesses, including the elevation of rental properties. Funding can be used to enhance community code enforcement. For more information about CDBG-DR, and for additional information on this program, visit <https://www.hudexchange.info/programs/cdbg-dr/>.

**Department of Housing and Urban Development (HUD) Community Development Block Grant program Disaster Recovery Program - Mitigation (CDBG-MIT)**: The U.S. Congress makes program funding available on a case-by-case basis. Funding is usually authorized after larger disaster events that already received a presidential disaster declaration. The program generally covers projects related to acquisition or elevation of residential structures, but funding can also be made available to small businesses, including the elevation of rental properties. Funding can be used to enhance community code enforcement. For more information about CDBG-MIT, visit the program web site at <https://www.hudexchange.info/programs/cdbbg-mit/>.

**US Army Corps of Engineers (USACE) Mitigation**: The USACE Flood Control (Structural & Nonstructural), Section 205 of the 1948 Flood Control Act, as amended, authorizes the U.S. Army Corps of Engineers to develop and construct small flood control projects. Each project is limited to a federal cost share of \$7,000,000.00 and must be economically justified, environmentally sound, and technically feasible. Section 14 of the 1946 Flood Control Act, as amended, authorizes the USACE to develop and construct streambank protection to protect public facilities and non-profit public facilities.

### 8.4.3 Examples of Eligible Mitigation Projects

**Property Acquisition and Structure Demolition**: Voluntary acquisition of an existing at-risk structure and conversion of the land to open space through demolition of the structure.

**Property Acquisition and Structure Relocation**: Voluntary physical relocation of an existing structure to an area outside of a hazard-prone area.

**Structure Elevation**: Physically raising an existing structure to the Base Flood Elevation (BFE) or higher, if required by FEMA or local ordinance.

**Mitigation Reconstruction**: Construction of an improved elevated building on the same site where an existing building and/or foundation has been partially or completely demolished or destroyed.

**Dry Floodproofing**: Techniques applied to keep structures dry by sealing the structure to keep floodwaters out.

**Dry Floodproofing of Historic Residential Structures**: Permissible only when other techniques that would mitigate to the BFE causing the structure to lose its status as a Historic Structure.

**Dry Floodproofing of Non-residential Structures**: Must be performed in accordance with NFIP Technical Bulletin (TB) 3-93, Non-Residential Floodproofing—Requirements and Certification, and the requirements pertaining to dry floodproofing of non-residential structures found in 44 CFR Sections 60.3(b)(5) and (c)(4).

**Minor Localized Flood Reduction Projects**: Projects to lessen the frequency or severity of flooding and decrease predicted flood damages, such as the installation or modification of culverts and storm water management activities like creating retention and detention basins.

**Structural Retrofitting of Existing Buildings**: Modifications to the structural elements of a building to reduce or eliminate the risk of future damage and to protect inhabitants. **Non-structural Retrofitting of Existing Buildings and Facilities**: Modifications to the non-structural elements of a building or facility to reduce or eliminate the risk of future damage and to protect inhabitants.

**Safe Room Construction**: Safe room construction projects are designed to provide immediate lifesafety protection from tornado and severe wind events, including hurricanes for people in public and private structures.

**Infrastructure Retrofit**: Measures to reduce risk to existing utility systems, roads, and bridges. **Soil Stabilization**: Projects to reduce risk to structures or infrastructure from erosion and landslides, including installing geo-textiles, stabilizing sod, installing vegetative buffer strips, preserving mature vegetation, decreasing slope angles, and stabilizing with rip rap and other means of slope anchoring.

**Wildfire Mitigation**: Projects to mitigate the vulnerability of at-risk structures and associated loss of life from the threat of future wildfire.

**Post-Disaster Code Enforcement:** Projects designed to support the post-disaster rebuilding effort by ensuring sufficient expertise is on hand ensuring appropriate codes and standards, including NFIP local ordinance requirements, are utilized and enforced.

**5% Initiative Projects:** Provide an opportunity to fund mitigation actions consistent with the goals and objectives of the State or Tribal (Standard or Enhanced), local mitigation plans and meets all HMGP program requirements, but may be difficult to conduct a standard benefit/cost analysis to prove cost effectiveness.

## Table Activities by Program

| Eligible Activities                                                | HMGP | PDM | FMA |
|--------------------------------------------------------------------|------|-----|-----|
| <b>1. Mitigation Projects</b>                                      | ✓    | ✓   | ✓   |
| ▪ Property Acquisition and Structure Demolition                    | ✓    | ✓   | ✓   |
| ▪ Property Acquisition and Structure Relocation                    | ✓    | ✓   | ✓   |
| ▪ Structure Elevation                                              | ✓    | ✓   | ✓   |
| ▪ Mitigation Reconstruction                                        | ✓    | ✓   | ✓   |
| ▪ Dry Floodproofing of Historic Residential Structures             | ✓    | ✓   | ✓   |
| ▪ Dry Floodproofing of Non-Residential Structures                  | ✓    | ✓   | ✓   |
| ▪ Generators                                                       | ✓    | ✓   |     |
| ▪ Localized Flood Risk Reduction Projects                          | ✓    | ✓   | ✓   |
| ▪ Non-Localized Flood Risk Reduction Projects                      | ✓    | ✓   |     |
| ▪ Structural Retrofitting of Existing Buildings                    | ✓    | ✓   | ✓   |
| ▪ Non-Structural Retrofitting of Existing Buildings and Facilities | ✓    | ✓   | ✓   |
| ▪ Safe Room Construction                                           | ✓    | ✓   |     |
| ▪ Wind Retrofit for One- and Two-Family Residences                 | ✓    | ✓   |     |
| ▪ Infrastructure Retrofit                                          | ✓    | ✓   | ✓   |
| ▪ Soil Stabilization                                               | ✓    | ✓   | ✓   |
| ▪ Wildfire Mitigation                                              | ✓    | ✓   | ✓   |
| ▪ Post-Disaster Code Enforcement                                   | ✓    |     |     |
| ▪ Advance Assistance                                               | ✓    |     |     |
| ▪ 5 Percent Initiative Projects*                                   | ✓    |     |     |
| ▪ Aquifer and Storage Recovery**                                   | ✓    | ✓   | ✓   |
| ▪ Flood Diversion and Storage**                                    | ✓    | ✓   | ✓   |
| ▪ Floodplain and Stream Restoration**                              | ✓    | ✓   | ✓   |
| ▪ Green Infrastructure**                                           | ✓    | ✓   | ✓   |
| ▪ Miscellaneous/Other**                                            | ✓    | ✓   | ✓   |
| <b>2. Hazard Mitigation Planning</b>                               | ✓    | ✓   | ✓   |
| <b>3. Technical Assistance</b>                                     |      | ✓   | ✓   |
| <b>4. Management Costs</b>                                         | ✓    | ✓   | ✓   |

\*FEMA allows increasing the 5 percent initiative amount up to 10 percent for a Presidential Major Disaster Declaration under HMGP. The additional 5 percent initiative funding can be used for activities that promote disaster-resistant codes for all hazards. As a condition of the award, either a disaster-resident building code must be adopted, or an improved Building Code Effectiveness Grading Schedule is required.

\*\*Indicates that any proposed action will be evaluated on its own merit against program requirements. Eligible projects will be approved provided funding is available.



## 8.5 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 2024 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 2025 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

### 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). Local community action plans are located in their prospective county annexes.

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.
- **2024 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                                      | Completion Date (Target) | Implementation Status   |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|---------------------------------------------------|----------------|--------------------------------------------------------|--------------------------|-------------------------|
| <b>Prevention</b>                  |                                                                                                                                                                                                                 |                     |                   |                                                   |                |                                                        |                          |                         |
| P-1                                | Identify high risk areas where hazards are most likely to occur.                                                                                                                                                | All                 | High              | N/A                                               | No cost        | County                                                 | Annual Plan Review       | Implemented and 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 & BOS                                       | Ongoing                  | Implemented and ongoing |
| P-3                                | Consider adoption of flood damage prevention ordinance in Covington County.                                                                                                                                     | FL                  | High              | Self-funded                                       | No cost        | County & Floodplain Admin.                             | Ongoing                  | Implemented and ongoing |
| 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 & 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                                                 | Ongoing                  | Deferred due to funds   |
| 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                                                 | Ongoing                  | Deferred due to funds   |
| P-8                                | Support the development of a shared geographic data system for land use and site planning.                                                                                                                      | All                 | Medium to high    | Self-funded                                       | No cost        | County                                                 | Ongoing                  | Deferred due to funds   |
| P-9                                | Develop a comprehensive development plan.                                                                                                                                                                       | All                 | High              | CDBG, MSDA                                        | Unknown        | County                                                 | Ongoing                  | Deferred due to funds   |
| P-10                               | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.                                                                                                                        | All                 | Medium            | N/A                                               | No cost        | County                                                 | Ongoing                  | Implemented and ongoing |
| <b>Property Protection</b>         |                                                                                                                                                                                                                 |                     |                   |                                                   |                |                                                        |                          |                         |
| 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 cost        | County                                                 | Ongoing                  | Implemented and ongoing |
| PP-2                               | Ensure that structures in floodplain areas are elevated.                                                                                                                                                        | FL                  | High              | Self-funded                                       | No 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 cost        | County                                                 | Ongoing                  | Deferred due to funds   |
| PP-4                               | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                                                                                               | All                 | High              | HMGP                                              | Unknown        | County                                                 | Ongoing                  | Deferred                |
| PP-5                               | Ensure secure operation of water wells, water tanks and wastewater treatment facilities.                                                                                                                        | All                 | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.    | Unknown        | County                                                 | Ongoing                  | Implemented and ongoing |
| <b>Natural Resource Protection</b> |                                                                                                                                                                                                                 |                     |                   |                                                   |                |                                                        |                          |                         |
| NRP-1                              | Preserve natural wetlands and riparian areas through acquisition of conversation easements.                                                                                                                     | HU, TS, FL          | Low to Medium     | Donation                                          | Low to no cost | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing                  | Deferred due to funding |
| <b>Emergency Services</b>          |                                                                                                                                                                                                                 |                     |                   |                                                   |                |                                                        |                          |                         |
| 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            | Grants, BRIC, HMGP, Self-funded                   | Low to no cost | County EMA                                             | Ongoing                  | Implemented and ongoing |

## SECTION 9: MITIGATION ACTION PLAN

|                                       |                                                                                                                                         |                    |                |                                         |                    |                        |                        |                                          |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|-----------------------------------------|--------------------|------------------------|------------------------|------------------------------------------|
| 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 and County EMA  | Ongoing                | Deferred due to funding                  |
| ES-4                                  | Explore potential sites for a new shelter and/or special needs shelter.                                                                 | TO, HU, S, FL      | High           | HMGP                                    | Unknown            | County and EMA         | Ongoing                | Deferred due to funding                  |
| ES-5                                  | Improve disaster communication systems within the County.                                                                               | All                | High           | Unknown                                 | Unknown            | County EMA             | Contingent on funding  | Ongoing                                  |
| ES-6                                  | Consider generators for local radio station service areas and /or other critical facilities.                                            | TO, HU, TS         | High           | HMGP                                    | Unknown            | County EMA             | Contingent on funding  | Deferred due to funding                  |
| ES-7                                  | Install warning sirens in the County.                                                                                                   | TO, HU             | High           | HMGP                                    | Unknown            | County EMA             | Contingent on funding  | Implemented and 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  | Implemented and ongoing                  |
| ES-9                                  | Explore upgrade/enhancement of 911 system in Covington County.                                                                          | All                | Medium         | HMGP                                    | Unknown            | County and/or EMA      | Contingent on funding  | Planning Upgrade                         |
| ES-10                                 | Explore potential to install Reverse 911 system.                                                                                        | All                | Low to Medium  | HMGP                                    | Unknown            | County and/or EMA      | Contingent on funding  | Deferred due to funding                  |
| 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, 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/ Ongoing                     |
| ES-13                                 | Ensure continuity of utility services for public buildings and other critical facilities.                                               | All                | High           | HMGP                                    | Unknown            | County                 | Ongoing                | Implemented/ Ongoing                     |
| ES-14                                 | Develop a government services continuity plan.                                                                                          | All                | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant | Unknown            | County                 | Ongoing/ Annual Review | Implemented/ Ongoing                     |
| ES-15                                 | Host a meeting to review Covington County Comprehensive Emergency Management Plan.                                                      | TT                 | Medium         | Self-funded                             | No additional cost | County                 | Ongoing                | Implemented/ Ongoing                     |
| 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, SAFER, COPS, FIRE                  | Unknown            | County                 | Ongoing                | Implemented as Funds become available    |
| ES-17                                 | Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.                  | Range              | Medium         | Self-funded, Grants, BRIC, HMGP         | Low cost           | County                 | Ongoing                | Implemented as Funds become available    |
| <b>Structural Projects</b>            |                                                                                                                                         |                    |                |                                         |                    |                        |                        |                                          |
| SP-1                                  | Acquisition / Demolition / Relocation or Elevation, Reconstruction of flood prone structures                                            | FL                 | Medium         | Grants, BRIC, HMGP,                     | Unknown            | County EMA             | Ongoing                | Ongoing                                  |
| SP-2                                  | Individual Saferooms                                                                                                                    | TS, T              | Medium         | Grants, BRIC, HMGP,                     | Unknown            | County EMA             | Ongoing                | Ongoing                                  |
| <b>Public Education and Awareness</b> |                                                                                                                                         |                    |                |                                         |                    |                        |                        |                                          |
| PEA-1                                 | Explore continuing education programs/ opportunities for staff and elected officials.                                                   | Range              | Medium         | Self-funded, MEMA                       | Low Cost           | County                 | Ongoing                | Implemented/ Ongoing                     |
| PEA-2                                 | Provide education and outreach materials to citizens and visitors.                                                                      | All                | High           | Self-funded                             | No Cost            | County EMA             | Ongoing                | Implemented/ Ongoing                     |
| PEA-3                                 | Encourage development of Family Disaster Plans.                                                                                         | All                | High           | Self-funded, COPS, FIRE                 | Low or no cost     | County EMA             | Ongoing                | Implemented/ Ongoing                     |

## SECTION 9: MITIGATION ACTION PLAN

|              |                                                                                                                                                                     |                      |        |                                                             |                    |                    |         |                         |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------|-------------------------------------------------------------|--------------------|--------------------|---------|-------------------------|
| <b>PEA-4</b> | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High   | Self-funded                                                 | No additional cost | County EMA/ County | Ongoing | Implemented/ Ongoing    |
| <b>PEA-5</b> | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High   | No Cost                                                     | No additional cost | County/ Town/ City | Ongoing | Implemented/ Ongoing    |
| <b>PEA-6</b> | Encourage participation in the Community Rating System of the NFIP.                                                                                                 | FL, HU, TS, TH, HW   | Medium | USDA Rural Dev. CDBG, Small Muni. Grant, Grants, BRIC, HMGP | Unknown            | County             | Ongoing | Deferred                |
| <b>PEA-7</b> | 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 and Ongoing |

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    P = Pandemic  
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                                                        | Completion Date (Target)            | Implementation Status           |
|-------------------|---------------------------------------------------------------------------------------------------------|--------------------------|-------------------|---------------------------------------------------|----------------|--------------------------------------------------------------------------|-------------------------------------|---------------------------------|
| <b>Prevention</b> |                                                                                                         |                          |                   |                                                   |                |                                                                          |                                     |                                 |
| P-1               | Identify high risk areas where hazards are most likely to occur.                                        | All                      | High              | N/A                                               | No cost        | County                                                                   | Annual Plan 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        | County, EMA District                                                     | Ongoing                             | Ongoing                         |
| P-3               | Strictly enforce the flood damage prevention ordinance.                                                 | FL                       | High              | Self-funded                                       | No cost        | County Floodplain Administer                                             | Ongoing                             | Implemented and ongoing         |
| P-4               | Consider adoption of subdivision regulations.                                                           | TH, FL, HU, TS           | Medium            | Self-funded                                       | No cost        | County                                                                   | Ongoing                             | Completed and ongoing as needed |
| P-5               | Continue to maintain and upgrade the County's drainage facilities.                                      | HU, TS, FL, BH           | High              | Self-funded                                       | Unknown        | County BOS & 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.    | Unknown        | County                                                                   | Ongoing                             | County is considering/ Ongoing  |
| 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                                                                   | Ongoing                             | County is considering/ Ongoing  |
| P-8               | Support the development of a shared geographic data system for land use and site planning.              | All                      | High              | Self-funded                                       | No cost        | County                                                                   | Ongoing                             | Ongoing                         |
| P-9               | Develop a comprehensive development plan.                                                               | All                      | Low               | CDBG, MSDA                                        | Unknown        | County                                                                   | Ongoing                             | County is considering           |
| P-10              | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.                | All                      | Medium            | CDBG, MCDA                                        | No cost        | County                                                                   | Concurrent with prep. of Comp. Plan | County is considering/ ongoing  |
| P-11              | Address the threat of unhealthy trees that are near critical facilities.                                | HW, WS, H                | Medium            | Local Funds, BRIC, HMGP, Grant Sources            | TBD            | City Urban Forestry, County Road Department Planning Dept., EMA District | Ongoing                             | Ongoing                         |
| P-12              | Address the local need of debris removal and related items after a storm.                               | HW, FL, Landslide, WS, H | High              | HMGP, BRIC, and other grant sources               | \$500,000      | County Road Dept., Planning Dept., and County, EMA District              | Ongoing                             | Ongoing                         |
| P-13              | Preserve classified, confidential and/or important governmental documents.                              | All Hazards              | High              | Local, Grant Sources, HMGP, BRIC                  | TBD            | County                                                                   | Ongoing                             | Ongoing                         |
| P-14              | Rehabilitating and/or removing high and significant hazard dams from service                            | Dam Failure              | High              | Local, Grant Sources, HMGP, BRIC                  | TBD            | County Planning and Zoning Dept.                                         | Ongoing                             | Ongoing                         |
| P-15              | Adopting and enforcing land use ordinances in dam inundation zones downstream of dams                   | Dam Failure              | High              | Local, Grant Sources, HMGP, BRIC                  | TBD            | County Planning and Zoning Dept.                                         | Ongoing                             | Ongoing                         |
| P-16              | Acquiring and/or elevating structures and/or acquiring easements in inundation zones downstream of dams | Dam Failure              | High              | Local, Grant Sources, HMGP, BRIC                  | TBD            | County Planning and Zoning Dept.                                         | Ongoing                             | Ongoing                         |
| P-17              | Flood protection, such as berms, floodwalls, or floodproofing, in inundation zones downstream of dams   | Dam Failure              | High              | Local, Grant Sources, HMGP, BRIC                  | TBD            | County Planning and Zoning Dept.                                         | Ongoing                             | Ongoing                         |

## Property Protection

## SECTION 9: MITIGATION ACTION PLAN

|                                    |                                                                                                                                                                                                                 |                    |               |                                                |                    |                                                        |                       |                                 |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|------------------------------------------------|--------------------|--------------------------------------------------------|-----------------------|---------------------------------|
| 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 cost            | County                                                 | Ongoing               | Implemented and ongoing         |
| PP-2                               | Ensure that structures in floodplain areas are elevated.                                                                                                                                                        | FL                 | High          | Self-funded                                    | No 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 cost            | County                                                 | Ongoing               | Ongoing                         |
| PP-4                               | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                                                                                               | All                | High          | HMGP                                           | Unknown            | County                                                 | Ongoing               | Ongoing as funds are available  |
| 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               | Ongoing pending available funds |
| PP-6                               | Actively pursue and buy those properties that are considered repetitive loss properties.                                                                                                                        | All                | High          | HMGP, PDM, FMA Self-funded                     | Unknown            | County                                                 | Ongoing               | Ongoing                         |
| <b>Natural Resource Protection</b> |                                                                                                                                                                                                                 |                    |               |                                                |                    |                                                        |                       |                                 |
| NRP-1                              | Preserve natural wetlands and riparian areas through acquisition of conversation easements.                                                                                                                     | HU, TS, FL         | Low to Medium | Donation                                       | Low to no cost     | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing               | Ongoing pending available funds |
| <b>Emergency Services</b>          |                                                                                                                                                                                                                 |                    |               |                                                |                    |                                                        |                       |                                 |
| 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, Grants, BRIC, HMGP,               | Low to no cost     | EMA District                                           | Ongoing               | Ongoing                         |
| ES-2                               | Establish a notification procedure for populations in high-risk areas.                                                                                                                                          | All                | Medium        | Self-funded                                    | No additional cost | County, EMA District                                   | Ongoing               | Ongoing                         |
| ES-3                               | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                                         | All                | High          | HMGP                                           | Unknown            | County, EMA District                                   | Ongoing               | Ongoing                         |
| ES-4                               | Explore potential sites for a new shelter and/or special needs shelter.                                                                                                                                         | TO, HU, TS, FL     | High          | HMGP                                           | Unknown            | County, EMA District                                   | Ongoing               | Ongoing                         |
| ES-5                               | Improve disaster communication systems within the County.                                                                                                                                                       | All                | High          | Grants, BRIC, HMGP, Local Funds                | Unknown            | County, EMA District                                   | Ongoing               | Ongoing                         |
| ES-6                               | Consider generators for local radio station service areas and /or other critical facilities.                                                                                                                    | TO, HU, TS         | High          | HMGP                                           | Unknown            | County, EMA District                                   | Contingent on funding | Ongoing pending available funds |
| ES-7                               | Install warning sirens in the County.                                                                                                                                                                           | TO, HU             | High          | HMGP                                           | Unknown            | County, EMA District                                   | Contingent on funding | Ongoing pending available funds |
| ES-8                               | Explore upgrade/enhancement of 911 system in Forrest County.                                                                                                                                                    | All                | Medium        | HMGP                                           | Unknown            | County, EMA District                                   | Contingent on funding | Ongoing pending available funds |
| ES-9                               | Explore potential to install Reverse 911 system.                                                                                                                                                                | All                | Low to Medium | HMGP                                           | Unknown            | County, EMA District                                   | 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, EMA District                               | Ongoing               | Ongoing                         |
| ES-11                              | Enhance identification of evacuation routes through the distribution of MDOT maps.                                                                                                                              | FL, HU, TS, Others | High          | Self-funded                                    | No additional cost | EMA District                                           | Ongoing               | Ongoing                         |

## SECTION 9: MITIGATION ACTION PLAN

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| ES-12                                                                                                                                                                                                                                                                                                                                                                                               | Ensure continuity of utility services for public buildings and other critical facilities.                                                                           | All                  | High           | HGMP                                                        | Unknown            | County               | Ongoing                | Ongoing pending available funds       |
| ES-13                                                                                                                                                                                                                                                                                                                                                                                               | Develop a government services continuity plan.                                                                                                                      | All                  | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant                     | Unknown            | County               | Ongoing/ Annual Review | Ongoing pending available funds       |
| ES-14                                                                                                                                                                                                                                                                                                                                                                                               | Host a meeting to review Forrest County Comprehensive Emergency Management Plan.                                                                                    | TT                   | Medium         | Self-funded                                                 | No additional cost | County, EMA District | Ongoing                | Completed and 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                | Implemented as Funds become available |
| ES-16                                                                                                                                                                                                                                                                                                                                                                                               | Adoption of building codes in Forrest County.                                                                                                                       | All Hazards          | Medium         | Local funds                                                 | TBD                | County               | Ongoing                | Deferred                              |
| <b>Structural Projects</b>                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                     |                      |                |                                                             |                    |                      |                        |                                       |
| 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 Cost            | County               | Ongoing                | Ongoing as needed                     |
| <b>Public Education and Awareness</b>                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                     |                      |                |                                                             |                    |                      |                        |                                       |
| PEA-1                                                                                                                                                                                                                                                                                                                                                                                               | Explore continuing education programs/ opportunities for staff and elected officials.                                                                               | FL, TH, HU, TS       | Medium         | Self-funded, Grants, BRIC, HMGP                             | Low Cost           | County               | Ongoing                | Ongoing pending available funds       |
| PEA-2                                                                                                                                                                                                                                                                                                                                                                                               | Provide education and outreach materials to citizens and visitors.                                                                                                  | All                  | High           | Self-funded                                                 | No Cost            | EMA District         | Ongoing                | Ongoing, if funds available           |
| PEA-3                                                                                                                                                                                                                                                                                                                                                                                               | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High           | Self-funded, COPS, FIRE                                     | Low or no cost     | EMA District         | Ongoing                | EMA District                          |
| PEA-4                                                                                                                                                                                                                                                                                                                                                                                               | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High           | Self-funded                                                 | No additional cost | County, EMA District | Upon Request           | Ongoing – contingent on funding       |
| PEA-5                                                                                                                                                                                                                                                                                                                                                                                               | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High           | N/A                                                         | No additional cost | County, EMA District | Ongoing                | Implemented/ 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. Grants, BRIC, HMGP, Grant | Unknown            | County               | Ongoing                | The County is considering joining CRS |
| PEA-7                                                                                                                                                                                                                                                                                                                                                                                               | Encourage businesses to develop business continuity or contingency operating plans.                                                                                 | CH                   | High           | DHS, SAFER, COPS, FIRE, Others                              | TBD                | County               | Ongoing                | Ongoing – contingent on funding       |
| PEA-8                                                                                                                                                                                                                                                                                                                                                                                               | Discourage development within the Special Flood Hazard Area and in the floodway.                                                                                    | FL                   | Medium         | HMGP                                                        | TBD                | County               | Ongoing                | Ongoing                               |
| FL = Flood    HU = Hurricane    TS = Tropical Storm    TO = Tornado    TH = Thunderstorm    BH = Biological Hazards    HW = High Winds<br>TT = Transportation/Technological Hazards    RH = Roadway Hazards    CH = Civil Hazards    P = Pandemic    WS = Winter Storm    H=Hail<br>EMA District = Forrest County Emergency Management District    County BOS = Forrest County Board of Supervisors |                                                                                                                                                                     |                      |                |                                                             |                    |                      |                        |                                       |

## Green County Mitigation Action Plan

### Goal 1: Strategies to reduce death, injury, property damage, infrastructure damage, response costs, and recovery costs.

| Action #                                                                                                            | Description                                                                                                                                                                                                   | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party   | Completion Date (Target) | Implementation Status |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-----------------|----------------|---------------------|--------------------------|-----------------------|
| <b>1a. Renovate existing public buildings to meet modern standards.</b>                                             |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1a.1                                                                                                                | The jurisdictions will work to make existing public buildings resistant to damage from manmade and natural disasters.                                                                                         | All Hazards         | Medium            | HMGP            | TBD            | County Engineer     | Ongoing                  | Ongoing               |
| <b>1b. Provide for redundancy in public and infrastructure operations.</b>                                          |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1b.1                                                                                                                | The jurisdictions will work to ensure that their public functions and infrastructure will have the capability to be operational in the event of manmade and natural disasters.                                | All Hazards         | High              | HMGP, Self-Fund | TBD            | EMA Director        | Annual Review            | Ongoing               |
| <b>1c. Develop strategies and plan to provide for minimization of damage and disturbance.</b>                       |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1c.1                                                                                                                | The jurisdictions will develop strategies, plans, and or ordinances to guide development toward low-risk areas.                                                                                               | All Hazards         | High              | Self-Fund       | TBD            | EMA Deputy Director | Annual Review            | Ongoing               |
| <b>1d. Purchase equipment that will lower response and recovery cost and accelerate response and recovery time.</b> |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1d.1                                                                                                                | The jurisdictions will prioritize and purchase equipment that will provide for an overall benefit to the community. (Important factors are increasing response and recovery time and lowering overall costs.) | HU, TS              | High              | Self-Fund       | Unknown        | County, Mayors      | Annual Review            | Ongoing               |
| <b>1e. Provide stock piles of essential items.</b>                                                                  |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1e.1                                                                                                                | Establish stockpiles of fuel (gasoline and diesel), N-95 masks, potassium iodine tablets and other commodities that are not readily available and needed during emergencies.                                  | All Hazards         | High              | Self-Fund       | TBD            | EMA Director        | Ongoing                  | Completed & Ongoing   |

### Goal 2: Enhance preparedness and effective response to technological or transportation hazards.

| Action #                                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                               | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party   | Completion Date (Target) | Implementation Status           |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-----------------|----------------|---------------------|--------------------------|---------------------------------|
| <b>2a. Support planning and coordination among agencies</b>                                              |                                                                                                                                                                                                                                                                                                                                                                                           |                     |                   |                 |                |                     |                          |                                 |
| 2a.1                                                                                                     | Host a meeting to review Greene County Comprehensive Emergency Management Plan with requirements of the National Incident Management System (NIMS).                                                                                                                                                                                                                                       | All Hazards         | Medium            | Self-Fund       | Low to no cost | EMA Deputy Director | Bi-Annual Review         | Complete & Ongoing              |
| 2a.2                                                                                                     | Host a meeting with representatives from each emergency response agency within the County to review Greene County's CEMP, and the individual areas of responsibility, as well as areas for enhanced coordinated response, particularly in areas related to technological/ transportation hazards.                                                                                         | All Hazards         | Medium            | Self-Fund       | Low to no cost | EMA Deputy Director | Bi-Annual Review         | Complete & Ongoing              |
| <b>2b. Provide cross-jurisdictional continuity for the development and maintenance of infrastructure</b> |                                                                                                                                                                                                                                                                                                                                                                                           |                     |                   |                 |                |                     |                          |                                 |
| 2b.1                                                                                                     | Address cross-jurisdictional issues related to response, recovery, and mitigation on key projects with overlapping boundaries by exploring opportunities to join with neighboring jurisdictions to resolve common infrastructure issues, particularly involving roadways and drainage systems. (There are several common roadways and waterways that could be addressed collaboratively.) | All Hazards         | Low to Medium     | Self-Fund       | Unknown        | County BOS          | Not completed            | Ongoing pending available funds |
| 2b.2                                                                                                     | Hazard Mitigation Committee should work together to address common infrastructure and/or natural hazard issues.                                                                                                                                                                                                                                                                           | All Hazards         | Low to Medium     | Self-Fund       | Unknown        | County BOS          | Not completed            | Ongoing pending available funds |

### 2c: Actively search for and identify funding sources for the enhancement of emergency response abilities of fire and sheriff's departments.

|      |                                                                                                                                                                                                                                                                         |             |                |                                      |         |                                          |         |                     |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|--------------------------------------|---------|------------------------------------------|---------|---------------------|
| 2c.1 | Pursue outside funding sources and opportunities for enhancement of firefighting activities and staff with certifications, equipment/trucks to enhance capabilities, hiring of additional personnel, and advanced training opportunities for police and fire personnel. | All Hazards | Medium to High | Self-Fund, DHS, SAFER Grants, Others | Unknown | County Fire Coordinator & County Sheriff | Ongoing | Completed & Ongoing |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|--------------------------------------|---------|------------------------------------------|---------|---------------------|

### Goal 3: Enhance and improve the ability to mitigate potential loss of revenue from civil hazards.

| Action # | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|

#### 3a: Provide outreach to businesses in Green County to mitigate loss of revenue.

|      |                                                                                                                                                                                                                                                    |             |      |           |         |                   |               |                                 |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|-----------|---------|-------------------|---------------|---------------------------------|
| 3a.1 | Encourage businesses to develop business continuity or contingency operating plans. The County can work with the Greene County Chamber of Commerce to develop annual workshops on business continuity planning for small businesses in the County. | All Hazards | High | Self-Fund | Unknown | County and Mayors | Not Completed | Ongoing pending available funds |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|-----------|---------|-------------------|---------------|---------------------------------|

### Goal 4: Invest in community facilities and infrastructure to ensure the safety of individuals, reduce damage to public buildings, and ensure continuity of emergency services.

| Action # | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|

#### 4a: Ensure the adequacy of emergency shelters

|      |                                                                                                                                                                                                                                                                                 |        |      |      |         |              |         |                     |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------|------|---------|--------------|---------|---------------------|
| 4a.1 | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters. In the event of disasters, adequate shelter space to ensure health and safety of citizens and visitors as well as a potential influx of coastal evacuees is imperative. | HU, TO | High | HMGP | Unknown | EMA Director | Ongoing | Completed & Ongoing |
| 4a.2 | The County will explore potential existing sites to use as a special needs shelter, and funding opportunities to appropriately equip and staff a special needs shelter.                                                                                                         | HU, TO | High | HMGP | Unknown | EMA Director | Ongoing | Completed & Ongoing |

#### 4b: Improve disaster communication systems within the County.

|      |                                                                              |             |      |                    |         |              |                       |         |
|------|------------------------------------------------------------------------------|-------------|------|--------------------|---------|--------------|-----------------------|---------|
| 4b.1 | The County has identified a need for improved disaster communication systems | All Hazards | High | HMGP and Self-Fund | Unknown | EMA Director | Ongoing               | Ongoing |
| 4b.2 | Consider generators for local radio station service areas.                   | All Hazards | High | HMGP and Self-Fund | Unknown | EMA Director | Contingent on funding | Ongoing |

#### 4c: Install warning sirens in the County.

|      |                                                                                                                                     |             |      |                      |         |                     |                       |                                 |
|------|-------------------------------------------------------------------------------------------------------------------------------------|-------------|------|----------------------|---------|---------------------|-----------------------|---------------------------------|
| 4c.1 | The County has identified a need for warning sirens to be placed in several sites to be determined countywide and in all townships. | All Hazards | High | HMGP and Self-Funded | Unknown | EMA Deputy Director | Contingent on funding | Ongoing if funding is available |
|------|-------------------------------------------------------------------------------------------------------------------------------------|-------------|------|----------------------|---------|---------------------|-----------------------|---------------------------------|

#### 4d: Ensure that structures are not built in the floodplain.

|      |                                                                                                                                                                                                                                                                          |    |      |                    |         |                    |                       |                                 |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|--------------------|---------|--------------------|-----------------------|---------------------------------|
| 4d.1 | Strictly enforce the flood damage prevention ordinances. The jurisdictions will continue to enforce the Flood Damage Prevention Ordinances/Flood Plain Ordinances, which provide direction and regulations for structures located in flood hazard areas or flood plains. | FL | High | HMGP & Self-Funded | Unknown | Floodplain Manager | Contingent on funding | Ongoing if funding is available |
| 4d.2 | Ensure that structures in floodplain areas are elevated                                                                                                                                                                                                                  | FL | High | HMGP & Self-Funded | Unknown | Floodplain Manager | Contingent on funding | Ongoing if funding is available |
| 4d.3 | Jurisdictions will revise the ordinances to include the elevation requirement for all new structures.                                                                                                                                                                    | FL | High | HMGP & Self-Funded | Unknown | Floodplain Manager | Contingent on funding | Ongoing if funding is available |



**4e: Consider adoption of subdivision regulations.**

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |        |             |         |            |                             |                                 |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|-------------|---------|------------|-----------------------------|---------------------------------|
| 4e.1 | Encourage jurisdictions to adopt Subdivision Ordinances as they enforce minimum standards governing streets, utilities and other required improvements. Relevant provisions include minimum specifications for drainage and runoff of storm water; sizes, capacities and design of drainage pipes and culverts; and coordination and approval of street names and numbers. None of the Jurisdictions in Greene County have Subdivision Ordinances. | All Hazards | Medium | Self-Funded | Unknown | County BOS | Not complete due to funding | Ongoing if funding is available |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|-------------|---------|------------|-----------------------------|---------------------------------|

**4f: Enhance evacuation through improved traffic flow on evacuation routes.**

|      |                                                                                                                                                                                                                                                                                          |             |        |             |         |              |         |                     |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|-------------|---------|--------------|---------|---------------------|
| 4f.1 | Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans. Collaborating with neighboring jurisdictions can result in improved evacuation options. The maps are made available to the general public at the Emergency Management Office and at each City Hall. | All Hazards | Medium | Self-Funded | Unknown | EMA Director | Ongoing | Completed & Ongoing |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|-------------|---------|--------------|---------|---------------------|

**4g: Enhance and maintain storm water controls.**

|      |                                                                                                                                                                                                                                                                                                                                                                                         |            |      |             |         |              |          |                     |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------|-------------|---------|--------------|----------|---------------------|
| 4g.1 | Maintain and upgrade the County's drainage facilities. The County annually maintains drainage canals, ditches, and culverts.                                                                                                                                                                                                                                                            | FL, HU, TS | High | Self-Funded | Unknown | Road Manager | Annually | Completed & Ongoing |
| 4g.2 | Map the easements and rights-of-way of roadways and drainage ways. Develop a map of all publicly owned easements, including maintenance easements along waterways and drainage-ways, and including all rights-of-way and easements along all roadways. This GIS layer will assist the County in planning future roadway expansion and help to prevent obstructions within the floodway. | FL, HU, TS | High | Self-Funded | Unknown | Road Manager | Annually | Completed & Ongoing |

**4h: Ensure continuity in services to critical facilities and infrastructure.**

|      |                                                                                                |             |      |      |         |                 |         |         |
|------|------------------------------------------------------------------------------------------------|-------------|------|------|---------|-----------------|---------|---------|
| 4h.1 | Ensure that new public buildings are designed and built to hurricane resistant building codes. | All Hazards | High | HMGP | Unknown | County Engineer | Ongoing | Ongoing |
|------|------------------------------------------------------------------------------------------------|-------------|------|------|---------|-----------------|---------|---------|

**4i: Ensure secure operation of water wells, water tanks and wastewater treatment facilities.**

|      |                                                                                                                                                                                                         |             |      |      |         |                 |               |                     |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|------|---------|-----------------|---------------|---------------------|
| 4i.1 | Elevation of storage tanks and water mains can provide an added level of security to a community's water supply. Security cameras can assist local officials in monitoring water wells and water tanks. | All Hazards | High | HMGP | Unknown | SW Greene Water | Annual Review | Completed & Ongoing |
| 4i.2 | Add Security Cameras to monitor water wells and water tanks. Security cameras can assist local officials in monitoring water wells and water tanks.                                                     | All Hazards | High | HMGP | Unknown | SW Greene Water | Annual Review | Completed & Ongoing |

**4j: Develop a government services continuity plan.**

|      |                                                                                                                                                                                                                                                             |             |                |      |         |                     |          |                     |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|------|---------|---------------------|----------|---------------------|
| 4j.1 | The County and municipal jurisdictions will explore the feasibility of developing an enhanced government continuity plan to ensure that emergency operations can function and that day-to-day operations can resume as soon as possible after an emergency. | All Hazards | Medium to High | CDBG | Unknown | EMA Deputy Director | Annually | Completed & Ongoing |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|------|---------|---------------------|----------|---------------------|

**4k: Encourage participation in the national flood insurance program.**

|      |                                                                                                                                                                                                |    |        |      |         |                    |                             |         |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------|------|---------|--------------------|-----------------------------|---------|
| 4k.1 | Greene County, Leakesville, McLain, and State Line participate in the National Flood Insurance Program, indicating that they meet minimum eligibility requirements established by the Program. | FL | Medium | CDBG | Unknown | Floodplain Manager | Not Complete due to funding | Ongoing |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------|------|---------|--------------------|-----------------------------|---------|

## SECTION 9: MITIGATION ACTION PLAN

| 4k.2                                                                                                                                                                                                                                                                                                                                                               | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                                                                   | FL                  | Medium            | CDBG            | Unknown        | Floodplain Manager   | Not Complete due to funding | Ongoing               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-----------------|----------------|----------------------|-----------------------------|-----------------------|
| 4k.3                                                                                                                                                                                                                                                                                                                                                               | Encourage participation in the Community Rating System of the NFIP.                                                                                                                                             | FL                  | Medium            | CDBG            | Unknown        | Floodplain Manager   | Not Complete due to funding | Ongoing               |
| <b>Goal 5: Provide Education about Potential Hazards and Risks; Expand Awareness of Protective Measures That Can Be Taken To Minimize the Potential of Loss of Life and Damage to Property.</b>                                                                                                                                                                    |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                             |                       |
| Action #                                                                                                                                                                                                                                                                                                                                                           | Description                                                                                                                                                                                                     | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party    | Completion Date (Target)    | Implementation Status |
| <b>5a: Enhance disaster preparedness of county staff and elected officials</b>                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                             |                       |
| 5a.1                                                                                                                                                                                                                                                                                                                                                               | Explore continuing education programs/opportunities for staff and elected officials.                                                                                                                            | All Hazards         | High              | Self-Funded     | Unknown        | EMA Director         | Ongoing                     | Completed & Ongoing   |
| 5a.2                                                                                                                                                                                                                                                                                                                                                               | 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 Hazards         | High              | Self-Funded     | Unknown        | EMA Director         | Ongoing                     | Completed & Ongoing   |
| <b>5b: Enhance disaster preparedness of citizens and visitors</b>                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                             |                       |
| 5b.1                                                                                                                                                                                                                                                                                                                                                               | Provide education and outreach materials to citizens and visitors.                                                                                                                                              | All Hazards         | High              | Self-Funded     | Unknown        | County and Red Cross | Annually                    | Completed & Ongoing   |
| 5b.2                                                                                                                                                                                                                                                                                                                                                               | Develop an outreach program on family disaster planning.                                                                                                                                                        | All Hazards         | High              | Self-Funded     | Unknown        | EMA Deputy Director  | Annually                    | Completed & Ongoing   |
| <b>5c: Provide education and outreach to a vulnerable and/or targeted population</b>                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                             |                       |
| 5c.1                                                                                                                                                                                                                                                                                                                                                               | Identify high risk areas where hazards are most likely to occur.                                                                                                                                                | All Hazards         | Medium            | Self-Funded     | Unknown        | Fire Council Pres.   | Not Complete due to funding | Ongoing               |
| 5c.2                                                                                                                                                                                                                                                                                                                                                               | Establish a notification procedure for populations in high-risk areas.                                                                                                                                          | All Hazards         | Medium            | Self-Funded     | Unknown        | Fire Council Pres.   | Not Complete due to funding | Ongoing               |
| <b>5d: Provide outreach programs on building requirements, technologies, materials for building more hazard-resistant structures.</b>                                                                                                                                                                                                                              |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                             |                       |
| 5d.1                                                                                                                                                                                                                                                                                                                                                               | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.                                             | All Hazards         | Medium            | EMA Director    | Unknown        | EMA Director         | Not Complete due to funding | Ongoing               |
| FL = Flood    HU = Hurricane    TS = Tropical Storm    TO = Tornado    TH = Thunderstorm    BH = Biological Hazards    HW = High Winds<br>TT = Transportation and Technological Hazards    RH = Roadway Hazards    CH = Civil Hazards    P = Pandemic<br>County EMA = Greene County Emergency Management Agency    County BOS = Greene County Board of Supervisors |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                             |                       |

## Jefferson Davis County Mitigation Action Plan

| Action #          | Description                                                                                | Hazard(s) Addressed | Relative Priority | Funding Sources                                   | Estimated Cost       | Responsible Party          | Completion Date (Target) | Implementation Status               |
|-------------------|--------------------------------------------------------------------------------------------|---------------------|-------------------|---------------------------------------------------|----------------------|----------------------------|--------------------------|-------------------------------------|
| <b>Prevention</b> |                                                                                            |                     |                   |                                                   |                      |                            |                          |                                     |
| P-1               | Identify high risk areas where hazards are most likely to occur.                           | All                 | High              | N/A                                               | No cost              | County                     | Annual Plan 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              | County, JDCEMA             | Annual Review            | Ongoing                             |
| P-3               | Strictly enforce the flood damage prevention ordinance.                                    | FL                  | High              | Self-funded                                       | No cost              | County & Floodplain Admin. | Ongoing                  | Ongoing                             |
| P-4               | Consider adoption of subdivision regulations.                                              | TH, FL, HU, TS      | High              | 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                                       | Annual County Budget | County BOS & 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                     | Ongoing                  | County is considering               |
| 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                     | Ongoing                  | County is considering               |
| P-8               | Support the development of a shared geographic data system for land use and site planning. | All                 | Medium to high    | Self-funded                                       | No cost              | County                     | Ongoing                  | Ongoing                             |
| P-9               | Develop a comprehensive development plan.                                                  | All                 | High              | CDBG, MSDA                                        | Unknown              | County                     | Ongoing                  | County is considering               |
| P-10              | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.   | All                 | Medium            | CDBG, MSDA                                        | No cost              | County                     | Ongoing                  | 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 cost                    | County | Ongoing | Implemented and ongoing |
| PP-2 | Ensure that structures in floodplain areas are elevated.                                                                                      | FL             | High   | Self-funded                                          | No 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 cost                    | County | Ongoing | Deferred due to funds   |
| PP-4 | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                             | All            | High   | HMGP                                                 | Unknown                    | County | Ongoing | Deferred                |
| PP-5 | Ensure secure operation of water wells, water tanks and wastewater treatment facilities.                                                      | All            | High   | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., HMGP | Unknown                    | County | Ongoing | Implemented and ongoing |
| PP-6 | Property Acquisitions and elevations of flood prone structures                                                                                | FL             | Medium | FEMA, HMGP, PDM                                      | N/A                        | County | Ongoing | Ongoing                 |
| 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 - \$10,000,000 | County | Ongoing | 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 to no cost | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing | Ongoing – contingent on funding |
|-------|---------------------------------------------------------------------------------------------|------------|---------------|----------|----------------|--------------------------------------------------------|---------|---------------------------------|

### Emergency Services

## SECTION 9: MITIGATION ACTION PLAN

|                                       |                                                                                                                                                                                                                 |                    |                |                                              |                       |                        |                        |                                          |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|----------------------------------------------|-----------------------|------------------------|------------------------|------------------------------------------|
| 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         | Grants, BRIC, HMGP, Self-funded              | Low to 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    | County, JDCEMA         | Ongoing                | Complemented and ongoing                 |
| ES-3                                  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                                         | All                | High           | HMGP                                         | 25% of the total cost | County and County EMA  | Ongoing                | Deferred due to funding                  |
| ES-4                                  | Explore potential sites for a new shelter and/or special needs shelter.                                                                                                                                         | TO, HU, TS, FL     | High           | HMGP                                         | 25% of the total cost | County and EMA         | Ongoing                | Deferred due to funding                  |
| ES-5                                  | Improve disaster communication systems within the County.                                                                                                                                                       | All                | High           | Grants, BRIC, HMGP, Self-funded              | 25% of the total cost | County EMA             | Contingent on funding  | Ongoing                                  |
| ES-6                                  | Consider generators for local radio station service areas and /or other critical facilities.                                                                                                                    | TO, HU, TS         | High           | HMGP                                         | 25% of the total cost | County EMA             | Contingent on funding  | Deferred due to funding                  |
| ES-7                                  | Install warning sirens in the County.                                                                                                                                                                           | TO, HU             | High           | HMGP                                         | 25% of the total cost | County EMA             | Contingent on funding  | Implemented and ongoing                  |
| ES-8                                  | Explore upgrade/enhancement of 911 system in Jefferson Davis County.                                                                                                                                            | All                | Medium         | HMGP                                         | 25% of the total cost | County and/or EMA      | Contingent on funding  | Planning Upgrade                         |
| ES-9                                  | Explore potential to install Reverse 911 system.                                                                                                                                                                | All                | Low to Medium  | HMGP                                         | 25% of the total cost | County and/or EMA      | Contingent on funding  | Deferred due to funding                  |
| ES-10                                 | Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.                                                                                                                            | FL, HU, TS, Others | Medium         | Self-funded                                  | Unknown               | County BOS, County EMA | Ongoing                | Implemented, maps available upon request |
| ES-11                                 | Enhance identification of evacuation routes through the distribution of MDOT maps.                                                                                                                              | FL, HU, TS, Others | High           | Self-funded                                  | Unknown               | County EMA             | Ongoing                | Implemented / Ongoing                    |
| ES-12                                 | Ensure continuity of utility services for public buildings and other critical facilities.                                                                                                                       | All                | High           | HGMP                                         | Unknown               | County                 | Ongoing                | Implemented / Ongoing                    |
| ES-13                                 | Develop a government services continuity plan.                                                                                                                                                                  | All                | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant      | Unknown               | County                 | Ongoing/ 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                       | Unknown               | County                 | Ongoing                | Ongoing – contingent on funding          |
| <b>Structural Projects</b>            |                                                                                                                                                                                                                 |                    |                |                                              |                       |                        |                        |                                          |
| 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 Cost               | County                 | Ongoing                | Ongoing as needed                        |
| <b>Public Education and Awareness</b> |                                                                                                                                                                                                                 |                    |                |                                              |                       |                        |                        |                                          |
| PEA-1                                 | Explore continuing education programs/ opportunities for staff and elected officials.                                                                                                                           | FL, TH, HU, TS     | Medium         | Self-funded, Grants, BRIC, HMGP, Self-funded | 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               | County EMA             | Ongoing                | Implemented / Ongoing                    |
| PEA-                                  | Encourage development of Family Disaster Plans.                                                                                                                                                                 | All                | High           | Self-funded, COPS, FIRE                      | Low or no cost        | County EMA             | Ongoing                | Implemented / Ongoing                    |

## SECTION 9: MITIGATION ACTION PLAN

|                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                     |                      |        |                                               |                    |                    |         |                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------|-----------------------------------------------|--------------------|--------------------|---------|-------------------------|
| <b>3</b>                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                     |                      |        |                                               |                    |                    |         |                         |
| <b>PEA-4</b>                                                                                                                                                                                                                                                                                                                                                                                 | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High   | Self-funded                                   | No additional cost | County EMA/ County | Ongoing | Implemented / Ongoing   |
| <b>PEA-5</b>                                                                                                                                                                                                                                                                                                                                                                                 | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High   | N/A                                           | No additional cost | County/ Town/ City | Ongoing | Implemented / Ongoing   |
| <b>PEA-6</b>                                                                                                                                                                                                                                                                                                                                                                                 | Encourage participation in the Community Rating System of the NFIP.                                                                                                 | FL, HU, TS, TH, HW   | Medium | USDA Rural Dev, CDBG, Small Muni. Grant, FEMA | Unknown            | County             | Ongoing | Deferred                |
| <b>PEA-7</b>                                                                                                                                                                                                                                                                                                                                                                                 | Encourage businesses to develop business continuity or contingency operating plans.                                                                                 | CH                   | High   | DHS, SAFER, COPS, FIRE, Others                | Low or no Cost     | County             | Ongoing | Implemented and Ongoing |
| <b>PEA-8</b>                                                                                                                                                                                                                                                                                                                                                                                 | Develop/encourage water conservation measures during times of shortage                                                                                              | Drought              | Medium | HMGP                                          | N/A                | County             | Ongoing | Ongoing                 |
| FL = Flood    HU = Hurricane    TS = Tropical Storm    TO = Tornado    TH = Thunderstorm    BH = Biological Hazards    HW = High Winds<br>TT = Transportation and Technological Hazards    RH = Roadway Hazards    CH = Civil Hazards    P = Pandemic<br>County EMA/ JDCEMA = Jefferson Davis County Emergency Management Agency<br>County BOS = Jefferson Davis County Board of Supervisors |                                                                                                                                                                     |                      |        |                                               |                    |                    |         |                         |



## Jones County Mitigation Action Plan

| Action #                              | Description                                                                                                                                                                                                                                                            | Hazard Addressed | Relative Priority | Funding Sources                       | Estimated Cost             | Responsible Party              | Completion Date (Target) | Implementation Status       |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|---------------------------------------|----------------------------|--------------------------------|--------------------------|-----------------------------|
| <b>Prevention</b>                     |                                                                                                                                                                                                                                                                        |                  |                   |                                       |                            |                                |                          |                             |
| P-1                                   | 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. | Multiple         | Moderate          | To be determined                      | No Cost                    | County                         | Ongoing                  | Completed & Ongoing         |
| P-2                                   | Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.                                                                                                                            | Multiple         | High              | Local Budget and FMA                  | To be determined           | County                         | Ongoing                  | Ongoing                     |
| P-3                                   | Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.                                                                                                                    | Multiple         | Moderate          | Local Budget and FMA                  | To be determined           | County Emergency Manag. Agency | Annual                   | Completed & Ongoing         |
| P-4                                   | Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.                                                                                                  | Multiple         | Moderate          | CDBD, Grants, BRIC, HMGP, Local Funds | \$150,000                  | County BOS                     | 3-5 years                | Ongoing                     |
| P-5                                   | 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                                                  | Multiple         | Moderate          | Local Funds                           | \$20,000                   | Municipalities                 | Ongoing                  | Ongoing                     |
| <b>Property Protection</b>            |                                                                                                                                                                                                                                                                        |                  |                   |                                       |                            |                                |                          |                             |
| 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           | County                         | Ongoing                  | Ongoing                     |
| <b>Natural Resource Protection</b>    |                                                                                                                                                                                                                                                                        |                  |                   |                                       |                            |                                |                          |                             |
| NRP-1                                 | Evaluate streams and identify potential projects to mitigate stream bank restoration.                                                                                                                                                                                  | FL               | Moderate          | To be determined                      | To be determined           | County                         | Ongoing                  | Completed & Ongoing         |
| <b>Emergency Services</b>             |                                                                                                                                                                                                                                                                        |                  |                   |                                       |                            |                                |                          |                             |
| ES-1                                  | Develop a drought council to implement an emergency response plan for the County                                                                                                                                                                                       | DR               | Moderate          | To be determined                      | To be determined           | County EMA                     | N/A                      | Deferred—No Drought Council |
| ES-2                                  | Identify and implement automated mass notification/warning system County wide                                                                                                                                                                                          | All Hazards      | High              | Grants, BRIC, HMGP                    | \$15,000-\$20,000 Annually | County & Municipalities        | Ongoing                  | Ongoing                     |
| <b>Structural Projects</b>            |                                                                                                                                                                                                                                                                        |                  |                   |                                       |                            |                                |                          |                             |
| SP-1                                  | Flood Elevations                                                                                                                                                                                                                                                       | FL               | Medium            | Grants, BRIC, HMGP                    | N/A                        | County                         | Ongoing                  | Ongoing                     |
| <b>Public Education and Awareness</b> |                                                                                                                                                                                                                                                                        |                  |                   |                                       |                            |                                |                          |                             |
| PEA-1                                 | Partner with various stakeholder groups to develop an all-hazard public outreach and education program.                                                                                                                                                                | Multiple         | High              | To be Determined                      | No Cost                    | County                         | Ongoing                  | Completed & Ongoing         |

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    P = Pandemic  
County EMA = Jones County Emergency Management Agency    County BOS = Jones County Board of Supervisors

## Marion County Mitigation Action Plan

| Action #          | Description                                                                                | Hazard(s) Addressed | Relative Priority | Funding Sources                                   | Estimated Cost     | Responsible Party             | Completion Date (Target)           | Implementation Status                                                                                                         |
|-------------------|--------------------------------------------------------------------------------------------|---------------------|-------------------|---------------------------------------------------|--------------------|-------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>Prevention</b> |                                                                                            |                     |                   |                                                   |                    |                               |                                    |                                                                                                                               |
| P-1               | Identify high risk areas where hazards are most likely to occur.                           | All                 | High              | N/A                                               | No 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                 | 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 Admin.      | Ongoing                            | Ongoing                                                                                                                       |
| P-4               | Strictly enforce subdivision regulations concerning developments in flood hazard areas.    | FL                  | High              | CDBG, HMGP, PDM, USDA Rural Dev., Self-Funding    | Unknown            | 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                        | Ongoing                            | 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                        | Ongoing                            | 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                        | Ongoing                            | Ongoing/ Pending staff availability and funding                                                                               |
| P-9               | Develop a comprehensive development plan.                                                  | All                 | High              | CDBG, MSDA                                        | Unknown            | County                        | Ongoing                            | 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 | Ongoing | Pending staff availability and funding          |
| PP-2 | Ensure that structures in floodplain areas are elevated.                                                                                      | FL             | High   | Self-funded                                    | TBD                | County | Ongoing | Ongoing for construction in the Floodplain      |
| PP-3 | Ensure that new public buildings are designed and built to hurricane resistant buildings codes.                                               | HU, TS, TO, HW | High   | Self-funded                                    | No cost            | County | Ongoing | 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 | Ongoing | Ongoing/ Pending staff availability and funding |
| PP-5 | Ensure secure operation of water wells and wastewater treatment facilities.                                                                   | All            | High   | HMGP, USDA Rural Dev., CDBG, Small Muni. Grant | Unknown            | County | Ongoing | Ongoing                                         |

### Natural Resource Protection

# SECTION 9: MITIGATION ACTION PLAN

|                            |                                                                                                                                                                                                                 |                    |                |                                               |                     |                                                        |                         |                                                 |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|-----------------------------------------------|---------------------|--------------------------------------------------------|-------------------------|-------------------------------------------------|
| <b>NRP-1</b>               | 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 | Ongoing                 | Ongoing/ Pending Funding availability           |
| <b>Emergency Services</b>  |                                                                                                                                                                                                                 |                    |                |                                               |                     |                                                        |                         |                                                 |
| <b>ES-1</b>                | 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         | Grants, BRIC, HMGP, Self-funded,              | Low or no Cost      | MCCEMA                                                 | Ongoing                 | Ongoing pending staff availability and funding  |
| <b>ES-2</b>                | Establish a notification procedure for populations in high-risk areas.                                                                                                                                          | All                | Medium         | Self-funded                                   | TBD                 | MCCEMA, County                                         | Ongoing                 | Ongoing/ Pending staff availability and funding |
| <b>ES-3</b>                | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                                         | All                | High           | HMGP                                          | TBD                 | MCCEMA, County                                         | Ongoing                 | Ongoing/ Pending staff availability and funding |
| <b>ES-4</b>                | Explore potential sites for a new special needs shelter.                                                                                                                                                        | TO, HU, TS, FL     | High           | HMGP                                          | TBD                 | MCCEMA, County                                         | Ongoing                 | Ongoing/ Pending staff availability and funding |
| <b>ES-5</b>                | Improve disaster communication systems within the county.                                                                                                                                                       | All                | High           | CDBG, HMGP, PSM, USDA Rural Dev., Self-funded | TBD                 | MCCEMA                                                 | Ongoing                 | Ongoing/ Pending staff availability and funding |
| <b>ES-6</b>                | Consider generators for local radio station service areas.                                                                                                                                                      | TO, HU, TS         | High           | HMGP                                          | TBD                 | MCCEMA                                                 | Contingent upon funding | Pending funding                                 |
| <b>ES-7</b>                | Install warning sirens.                                                                                                                                                                                         | TO, HU, TS         | High           | HMGP                                          | \$350,000-\$400,000 | MCCEMA                                                 | Contingent upon funding | Pending funding                                 |
| <b>ES-8</b>                | Enhance Central Dispatch.                                                                                                                                                                                       | All                | Medium         | HMGP                                          | Unknown             | MCCEMA, County                                         | Ongoing                 | Completed/ Ongoing                              |
| <b>ES-9</b>                | Explore potential to install Reverse 911 system.                                                                                                                                                                | All                | Low to Medium  | HMGP                                          | Unknown             | MCCEMA, County                                         | Contingent upon funding | Ongoing/ Pending staff availability and funding |
| <b>ES-10</b>               | Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.                                                                                                                            | FL, HU, TS, Others | Medium         | Self-funded                                   | TBD                 | County BOS, MCCEMA                                     | Annual Review           | Ongoing                                         |
| <b>ES-11</b>               | Enhance identification of evacuation routes through the distribution of MDOT maps.                                                                                                                              | FL, HU, TS, Others | High           | Self-funded                                   | Unknown             | County                                                 | Ongoing                 | Ongoing                                         |
| <b>ES-12</b>               | Ensure continuity of utility services for public buildings and other critical facilities.                                                                                                                       | All                | High           | HMGP                                          | Unknown             | County                                                 | Ongoing                 | Ongoing Pending funding                         |
| <b>ES-13</b>               | Develop a government services continuity plan.                                                                                                                                                                  | All                | Medium         | USDA Rural Dev., CDBG, Small Muni. Grant      | Unknown             | County                                                 | Annual Review           | Completed/ Ongoing                              |
| <b>ES-14</b>               | Host a meeting to review Marion County Comprehensive Emergency Management Plan                                                                                                                                  | TT                 | Medium         | N/A                                           | No Additional Cost  | County                                                 | Annual Review           | Ongoing                                         |
| <b>ES-15</b>               | 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 |
| <b>Structural Projects</b> |                                                                                                                                                                                                                 |                    |                |                                               |                     |                                                        |                         |                                                 |
| <b>SP-1</b>                | 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                                         |
|                            | Generators for all existing and future fire                                                                                                                                                                     |                    |                | CDBG, HMGP,                                   |                     |                                                        |                         |                                                 |

## SECTION 9: MITIGATION ACTION PLAN

|                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                     |                |                |                                               |                |               |               |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|-----------------------------------------------|----------------|---------------|---------------|-------------------------|
| <b>SP-2</b>                                                                                                                                                                                                                                                                                                                                                   | stations and 911 critical facilities including comm tower sites                                                                                                     | All            | High           | PDM, USDA Rural Dev., Self-funded             | TBD            | MCEMA, County | Ongoing       | Ongoing                 |
| <b>SP-3</b>                                                                                                                                                                                                                                                                                                                                                   | Elevation/Acquisition Rep Loss properties                                                                                                                           | FL             | Medium to High | HMGP, PDM                                     | TBD            | MCEMA, County | Ongoing       | Ongoing                 |
| <b>SP-4</b>                                                                                                                                                                                                                                                                                                                                                   | Harden existing structures to serve as safe rooms (schools, emergency shelters).                                                                                    | All            | High           | CDBG, HMGP, PDM, USDA Rural Dev., Self-funded | TBD            | MCEMA, County | Ongoing       | Ongoing                 |
| <b>SP-5</b>                                                                                                                                                                                                                                                                                                                                                   | Construct community multipurpose facilities/saferooms in vulnerable communities throughout the county.                                                              | All            | High           | CDBG, HMGP, PDM, USDA Rural Dev., Self-funded | TBD            | MCEMA, County | Ongoing       | Ongoing                 |
| <b>Public Education and Awareness</b>                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                     |                |                |                                               |                |               |               |                         |
| <b>PEA-1</b>                                                                                                                                                                                                                                                                                                                                                  | Explore continuing education programs/opportunities for staff and elected officials.                                                                                | FL, TH, HU, TS | Medium         | Self-funded, Grants, BRIC, HMGP               | Low Cost       | County        | Ongoing       | Ongoing pending funding |
| <b>PEA-2</b>                                                                                                                                                                                                                                                                                                                                                  | Provide education and outreach materials to citizens and visitors.                                                                                                  | All            | High           | Self-funded                                   | TBD            | MCEMA         | Annual Review | Ongoing                 |
| <b>PEA-3</b>                                                                                                                                                                                                                                                                                                                                                  | Encourage the development of Family Disaster Plans.                                                                                                                 | All            | High           | Self-funded, COPS, FIRE                       | Low or no cost | MCEMA         | Annually      | Ongoing                 |
| <b>PEA-4</b>                                                                                                                                                                                                                                                                                                                                                  | 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                 |
| <b>PEA-5</b>                                                                                                                                                                                                                                                                                                                                                  | Encourage businesses to develop business continuity or contingency operating plans.                                                                                 | CH             | High           | DHS, SAFER, COPS, FIRE, Others                | TBD            | County        | Annual Review | Ongoing                 |
| FL = Flood    HU = Hurricane    TS = Tropical Storm    TO = Tornado    TH = Thunderstorm    BH = Biological Hazards    HW = High Winds<br>TT = Transportation and Technological Hazards    RH = Roadway Hazards    CH = Civil Hazards    P = Pandemic<br>MCEMA = Marion County Emergency Management Agency    County BOS = Marion County Board of Supervisors |                                                                                                                                                                     |                |                |                                               |                |               |               |                         |

# Perry County Mitigation Action Plan

## SECTION 9: MITIGATION ACTION PLAN

| Action #                           | Description                                                                                                                                   | Hazard(s) Addressed | Relative Priority | Funding Sources                                             | Estimated Cost       | Responsible Party                                      | Completion Date (Target) | Implementation Status                                 |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-------------------------------------------------------------|----------------------|--------------------------------------------------------|--------------------------|-------------------------------------------------------|
| <b>Prevention</b>                  |                                                                                                                                               |                     |                   |                                                             |                      |                                                        |                          |                                                       |
| P-1                                | Identify high risk areas where hazards are most likely to occur.                                                                              | All                 | High              | N/A                                                         | No cost              | County                                                 | Annual Plan 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              | County, JDCEMA                                         | Annual Review            | Ongoing                                               |
| P-3                                | Consider adoption of subdivision regulations.                                                                                                 | TH, FL, HU, TS      | Medium            | Self-funded                                                 | No cost              | County                                                 | Ongoing                  | Deferred                                              |
| P-4                                | Continue to maintain and upgrade the County's drainage facilities.                                                                            | HU, TS, FL, BH      | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.              | Annual County Budget | County BOS & Road Crews                                | Annual Review            | Implemented & Ongoing                                 |
| P-5                                | Consider adoption of a comprehensive drainage plan.                                                                                           | FL, TS, HU          | Medium            | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.              | Unknown              | County                                                 | Ongoing                  | Deferred based on funding availability.               |
| P-6                                | 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                                                 | Ongoing                  | This action has been deferred due to lack of funding. |
| P-7                                | 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.              | TBD                  | County                                                 | Ongoing                  | Deferred based on funding availability.               |
| P-8                                | Develop a comprehensive development plan.                                                                                                     | All                 | High              | CDBG, MSDA                                                  | TBD                  | County                                                 | Ongoing                  | Deferred based on funding availability.               |
| P-9                                | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.                                                      | All                 | Medium            | CDBG, MSDA                                                  | TBD                  | County                                                 | Ongoing                  | Deferred based on funding availability.               |
| <b>Property Protection</b>         |                                                                                                                                               |                     |                   |                                                             |                      |                                                        |                          |                                                       |
| 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                                                 | Ongoing                  | Implemented & Ongoing                                 |
| PP-2                               | Ensure that structures in floodplain areas are elevated.                                                                                      | FL                  | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded | TBD                  | County                                                 | Ongoing                  | Implemented & 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                                                 | Ongoing                  | Implemented & Ongoing                                 |
| PP-4                               | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                             | All                 | High              | HMGP                                                        | TBD                  | County                                                 | Ongoing                  | Deferred due to funds                                 |
| PP-5                               | Ensure secure operation of water wells, water tanks, and wastewater treatment facilities.                                                     | All                 | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., HMGP        | TBD                  | County                                                 | Annual Review            | Implemented & Ongoing                                 |
| <b>Natural Resource Protection</b> |                                                                                                                                               |                     |                   |                                                             |                      |                                                        |                          |                                                       |
| NRP-1                              | Preserve natural wetlands and riparian areas through acquisition of conservation easements.                                                   | HU, TS, FL          | Low to Medium     | Donation                                                    | Low to no cost       | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing                  | Ongoing – contingent on funding (no action taken)     |
| <b>Emergency Services</b>          |                                                                                                                                               |                     |                   |                                                             |                      |                                                        |                          |                                                       |
|                                    | Encourage participation by staff and elected officials in voluntary or extracurricular activities related to                                  | All                 | Medium            | Self-funded Grants,                                         | Low to               | County                                                 | Annual                   | Implemented                                           |



## SECTION 9: MITIGATION ACTION PLAN

|                                       |                                                                                                                                                                                                       |                    |                |                                                                   |                    |                        |                               |                                 |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|-------------------------------------------------------------------|--------------------|------------------------|-------------------------------|---------------------------------|
| ES-1                                  | emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.                                                                                                    |                    |                | BRIC, HMGP,                                                       | no cost            | EMA                    | Review                        | & Ongoing                       |
| ES-2                                  | Establish a notification procedure for populations in high-risk areas.                                                                                                                                | All                | Medium         | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded       | Unknown            | County EMA, County BOS | Ongoing                       | Completed and ongoing           |
| ES-3                                  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                               | All                | High           | HGMP, CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded | Unknown            | County EMA             | Ongoing                       | Implemented & Ongoing           |
| ES-4                                  | Improve disaster communication systems within the County.                                                                                                                                             | All                | High           | Unknown                                                           | Unknown            | County EMA             | Contingent on funding         | Ongoing                         |
| ES-5                                  | Install warning sirens in the County.                                                                                                                                                                 | O, HU              | Medium         | HMGP                                                              | Unknown            | County EMA             | Contingent on funding         | Ongoing                         |
| ES-6                                  | Enhance Central Dispatch and other communications equipment                                                                                                                                           | All                | Medium         | HMGP                                                              | Unknown            | County EMA             | Contingent on funding         | Completed & Ongoing             |
| ES-7                                  | Explore Upgrade/enhancement of 911 in Perry County.                                                                                                                                                   | All                | Low to Medium  | HMGP, Self-funded                                                 | Unknown            | County EMA             | Contingent on funding         | Completed & Ongoing             |
| ES-8                                  | Explore potential to install Reverse 911 system.                                                                                                                                                      | All                | Low to Medium  | HMGP                                                              | Unknown            | County EMA, County     | Contingent on funding         | Completed & Ongoing             |
| ES-9                                  | 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                 | Implemented & Ongoing           |
| ES-10                                 | 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 & Ongoing           |
| ES-11                                 | 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           | HGMP                                                              | Unknown            | County                 | Ongoing                       | Implemented & Ongoing           |
| ES-12                                 | Develop a government services continuity plan.                                                                                                                                                        | All                | Medium         | USDA Rural Dev CDBG, Small Muni. Grant                            | Unknown            | County                 | Ongoing/ Annual Review        | Ongoing – contingent on funding |
| ES-13                                 | Host a meeting to review Perry County Comprehensive Emergency Management Plan.                                                                                                                        | All                | Medium         | Self-funded                                                       | No additional cost | County                 | Annual Meeting                | Implemented & Ongoing           |
| ES-14                                 | 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                       | Implemented & Ongoing           |
| ES-15                                 | Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.                                                                                | Range              | Medium         | Self-Funded, Grants, BRIC, HMGP                                   | Low Cost           | County                 | Ongoing                       | Implemented & Ongoing           |
| <b>Structural Projects</b>            |                                                                                                                                                                                                       |                    |                |                                                                   |                    |                        |                               |                                 |
| 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 Cost            | County                 | Ongoing Contingent on funding | Deferred due to funds           |
| SP-2                                  | Acquisitions of RL/SRL Properties                                                                                                                                                                     | FL                 | High           | Grants, BRIC, HMGP, EMI                                           | No Cost            | County                 | Ongoing                       | Implemented & Ongoing           |
| <b>Public Education and Awareness</b> |                                                                                                                                                                                                       |                    |                |                                                                   |                    |                        |                               |                                 |
| PEA-1                                 | Explore continuing education programs/ opportunities for staff and elected officials.                                                                                                                 | FL, TH, HU, TS     | Medium         | Grants, BRIC, HMGP, EMI                                           | Low to No Cost     | County                 | Ongoing                       | Implemented & Ongoing           |
| PEA-2                                 | Provide education and outreach materials to citizens and visitors.                                                                                                                                    | All                | High           | Self-funded                                                       | No Cost            | County EMA             | Ongoing                       | Implemented & Ongoing           |

## SECTION 9: MITIGATION ACTION PLAN

|       |                                                                                                                                                                     |                      |        |                                                       |                    |                    |         |                           |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------|-------------------------------------------------------|--------------------|--------------------|---------|---------------------------|
| PEA-3 | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High   | Self-funded, COPS, FIRE                               | Low or no cost     | County EMA         | Ongoing | Implemented & Ongoing     |
| PEA-4 | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High   | Self-funded                                           | No additional cost | County EMA/ County | Ongoing | Implemented & Ongoing     |
| PEA-5 | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High   | N/A                                                   | No additional cost | County/ Town/ City | Ongoing | Completed & 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             | Ongoing | Deferred, no action taken |

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    P = Pandemic  
County EMA = Perry County Emergency Management Agency    County BOS = Perry County Board of Supervisors

# Wayne County Mitigation Action Plan

## SECTION 9: MITIGATION ACTION PLAN

| Action #                   | Description                                                                                                                                   | Hazard(s) Addressed | Relative Priority | Funding Sources                                      | Estimated Cost        | Responsible Party          | Completion Date (Target) | Implementation Status                                                                                                    |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|------------------------------------------------------|-----------------------|----------------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Prevention</b>          |                                                                                                                                               |                     |                   |                                                      |                       |                            |                          |                                                                                                                          |
| P-1                        | Identify high risk areas where hazards are most likely to occur.                                                                              | All                 | High              | N/A                                                  | No cost               | County                     | Annual Plan 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               | County, JDCEMA             | Annual Review            | Ongoing                                                                                                                  |
| P-3                        | Consider adoption of the flood damage prevention ordinance in Wayne County.                                                                   | FL                  | High              | Self-funded                                          | No cost               | County & Floodplain Admin. | Ongoing                  | Implemented & Ongoing                                                                                                    |
| P-4                        | Consider adoption of subdivision regulations.                                                                                                 | TH, FL, HU, TS      | Medium            | Self-funded                                          | No cost               | County                     | Ongoing                  | Ongoing                                                                                                                  |
| P-5                        | Monitor flood level of local rivers.                                                                                                          | FL                  | High              | HMGP                                                 | Unknown               | County                     | Ongoing                  | Ongoing                                                                                                                  |
| P-6                        | Continue to maintain and upgrade the County's drainage facilities.                                                                            | HU, TS, FL, TS      | High              | Self-funded                                          | Unknown               | County                     | Annual Review            | Ongoing<br>(Some progress implemented- clean out ditches annually.)                                                      |
| P-7                        | Consider adoption of a comprehensive drainage plan.                                                                                           | FL, TS, HU          | Medium            | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.       | Unknown               | County                     | Ongoing                  | Deferred.<br>(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                     | Ongoing                  | Ongoing                                                                                                                  |
| P-9                        | Develop a government services continuity plan.                                                                                                | All                 | Medium            | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.       | Unknown               | County                     | Ongoing                  | Completed & Ongoing                                                                                                      |
| P-10                       | Support the development of a shared geographic data system for land use and site planning.                                                    | All                 | Medium to high    | Self-funded                                          | Unknown               | County                     | Ongoing                  | Ongoing                                                                                                                  |
| <b>Property Protection</b> |                                                                                                                                               |                     |                   |                                                      |                       |                            |                          |                                                                                                                          |
| 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 cost               | County                     | Ongoing                  | Implemented and ongoing                                                                                                  |
| PP-2                       | Ensure that structures in floodplain areas are elevated.                                                                                      | FL                  | High              | Self-funded                                          | No 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 cost               | County                     | Ongoing                  | Deferred due to funds                                                                                                    |
| PP-4                       | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                             | All                 | High              | HMGP                                                 | Unknown               | County                     | Ongoing                  | Deferred                                                                                                                 |
| PP-5                       | Ensure secure operation of water wells, water tanks, and wastewater treatment facilities.                                                     | All                 | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., HMGP | Unknown               | County                     | Ongoing                  | Implemented and ongoing                                                                                                  |
| PP-6                       | Property Acquisitions and elevations of flood prone structures                                                                                | FL                  | Medium            | FEMA, HMGP, PDM                                      | 25% of the total cost | County                     | Ongoing                  | Ongoing                                                                                                                  |
| PP-7                       | Generators and hook-ups for critical facilities                                                                                               | TH, HU, TS, TO      | Medium            | HMA Grants, BRIC, HMGP                               | 25% of the total cost | County                     | Ongoing                  | Ongoing                                                                                                                  |
| PP-8                       | Warning sirens throughout planning area                                                                                                       | TH, TO              | Medium            | HMA, Grants, BRIC, HMGP                              | 25% of the total cost | County                     | Ongoing                  | Ongoing                                                                                                                  |
| PP-9                       | Individual saferooms throughout planning area                                                                                                 | TO                  | Medium            | HMA, Grants, BRIC, HMGP                              | 25% of the total cost | County                     | Ongoing                  | Ongoing                                                                                                                  |
| PP-10                      | 361 Saferooms were needed- location is TBD                                                                                                    | TO                  | Medium            | HMA, Grants, BRIC, HMGP                              | 25% of the total cost | County                     | Ongoing                  | Ongoing                                                                                                                  |
| PP-11                      | Elevation of critical facilities, such as pumps, and equipment                                                                                | FL                  | Medium            | HMA, Grants, BRIC, HMGP                              | 25% of the total cost | County                     | Ongoing                  | Ongoing                                                                                                                  |
| PP-12                      | Floodproofing measures for critical facilities prone to flood                                                                                 | FL                  | Medium            | HMA, Grants, BRIC, HMGP                              | 25% of the total cost | County                     | Ongoing                  | Ongoing                                                                                                                  |

## Natural Resource Protection

|              |                                                                                             |            |               |          |                |                                                        |         |         |
|--------------|---------------------------------------------------------------------------------------------|------------|---------------|----------|----------------|--------------------------------------------------------|---------|---------|
| <b>NRP-1</b> | Preserve natural wetlands and riparian areas through acquisition of conversation easements. | HU, TS, FL | Low to Medium | Donation | Low to no cost | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing | Ongoing |
|--------------|---------------------------------------------------------------------------------------------|------------|---------------|----------|----------------|--------------------------------------------------------|---------|---------|

## Emergency Services

|              |                                                                                                                                                                                                                 |                    |                |                                    |                             |                        |                       |                                                               |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|------------------------------------|-----------------------------|------------------------|-----------------------|---------------------------------------------------------------|
| <b>ES-1</b>  | 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 and Grants, BRIC, HMGP | Low to no cost              | JDCEMA                 | Annual Review         | Ongoing                                                       |
| <b>ES-2</b>  | Establish a notification procedure for populations in high-risk areas.                                                                                                                                          | All                | Medium         | Self-funded                        | No additional cost          | County, JDCEMA         | Ongoing               | Completed and ongoing                                         |
| <b>ES-3</b>  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                                         | All                | High           | HMGP                               | Up to 25% of the total cost | County and County EMA  | Ongoing               | Deferred due to funding                                       |
| <b>ES-4</b>  | Explore potential sites for a new shelter and/or special needs shelter.                                                                                                                                         | TO, HU, TS, FL     | High           | HMGP                               | Up to 25% of the total cost | County and EMA         | Ongoing               | Deferred due to funding                                       |
| <b>ES-5</b>  | Improve disaster communication systems within the County.                                                                                                                                                       | All                | High           | Unknown                            | TBD                         | County EMA             | Contingent on funding | Ongoing (MSWINN at Fire Department and all use social media.) |
| <b>ES-7</b>  | Ensure that emergency sirens are in place county-wide.                                                                                                                                                          | All                | High           | HMGP                               | Up to 25% of the total cost | County EMA             | Contingent on funding | Ongoing                                                       |
| <b>ES-8</b>  | Install warning informers in buildings that house vulnerable populations.                                                                                                                                       | All                | High           | HMGP                               | Up to 25% of the total cost | County EMA             | Contingent on funding | Ongoing                                                       |
| <b>ES-9</b>  | Install Alert FM service at radio station.                                                                                                                                                                      | All                | High           | HMGP                               | Up to 25% of the total cost | County EMA             | Contingent on funding | Completed & Ongoing                                           |
| <b>ES-10</b> | Upgrade Emergency Broadcast System capabilities.                                                                                                                                                                | All                | High           | HMGP                               | Up to 25% of the total cost | County EMA             | Contingent on funding | Ongoing                                                       |
| <b>ES-11</b> | 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               | Ongoing                                                       |
| <b>ES-12</b> | 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 / Ongoing                                         |
| <b>ES-13</b> | Ensure continuity of utility services for public buildings and other critical facilities.                                                                                                                       | All                | High           | HMGP                               | Unknown                     | County                 | Ongoing               | Ongoing                                                       |
| <b>ES-14</b> | Host a meeting to review Wayne County Comprehensive Emergency Management Plan.                                                                                                                                  | TT                 | Medium         | Self-funded                        | No additional cost          | County                 | Annual Review         | Ongoing                                                       |
| <b>ES-15</b> | 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             | Unknown                     | County                 | Ongoing               | Ongoing                                                       |

## Structural Projects

|             |                                                                                                                               |                |               |             |         |        |         |         |
|-------------|-------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|-------------|---------|--------|---------|---------|
| <b>SP-1</b> | 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 Cost | County | Ongoing | Ongoing |
|-------------|-------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|-------------|---------|--------|---------|---------|

## Public Education and Awareness

|              |                                                                                      |                |        |                                 |          |        |         |         |
|--------------|--------------------------------------------------------------------------------------|----------------|--------|---------------------------------|----------|--------|---------|---------|
| <b>PEA-1</b> | Explore continuing education programs/opportunities for staff and elected officials. | FL, TH, HU, TS | Medium | Self-funded, Grants, BRIC, HMGP | Low Cost | County | Ongoing | Ongoing |
|--------------|--------------------------------------------------------------------------------------|----------------|--------|---------------------------------|----------|--------|---------|---------|

## SECTION 9: MITIGATION ACTION PLAN

|              |                                                                                                                                                                     |                      |        |                                |                    |            |              |                         |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------|--------------------------------|--------------------|------------|--------------|-------------------------|
| <b>PEA-2</b> | Provide education and outreach materials to citizens and visitors.                                                                                                  | All                  | High   | Self-funded                    | No Cost            | County EMA | Ongoing      | Implemented / Ongoing   |
| <b>PEA-3</b> | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High   | Self-funded, COPS, FIRE        | Low or no cost     | County EMA | Ongoing      | Implemented / Ongoing   |
| <b>PEA-4</b> | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High   | Self-funded                    | No additional cost | County EMA | Upon Request | Implemented / Ongoing   |
| <b>PEA-5</b> | Encourage businesses to develop business continuity or contingency operating plans.                                                                                 | CH                   | High   | DHS, SAFER, COPS, FIRE, Others | Low or no Cost     | County     | Ongoing      | Implemented and Ongoing |
| <b>PEA-6</b> | Education and outreach regarding drought and water conservation procedures                                                                                          | All                  | Medium | Self-funded                    | Low or no cost     | County     | Ongoing      | Ongoing                 |

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    P = Pandemic  
County EMA = Wayne County Emergency Management Agency    County BOS = Wayne County Board of Supervisors



# 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

### 44 CFR Requirement

**44 CFR Part 201.6(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. In lieu of an annual meeting, MEMA may send out a survey for each participating jurisdiction to complete, indicating mitigation action status updates and other relevant changes.

#### 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. It was a priority to represent the underserved communities in the Jurisdictions. Copies of the *Plan* and questionnaires were placed at public utilities for people to evaluate, fill out, and/or comment. 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 and Facebook pages* to advertise any maintenance and/or periodic review activities taking place; and
- ★ Keeping copies of the *Plan* in public libraries, public utilities, and/or community centers.

# 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 35°F to 90°F and is rarely below 25°F or above 96°F. The hot season lasts for 5 months, from May to September, with an average daily high temperature above 85°F. The hottest day of the year is July 22, with an average high of 90°F and low of 71°F. The cool season lasts for 3 months, from December to February, with an average daily high temperature below 60°F. The coldest day of the year is January 17, with an average low of 35°F and high of 58°F.

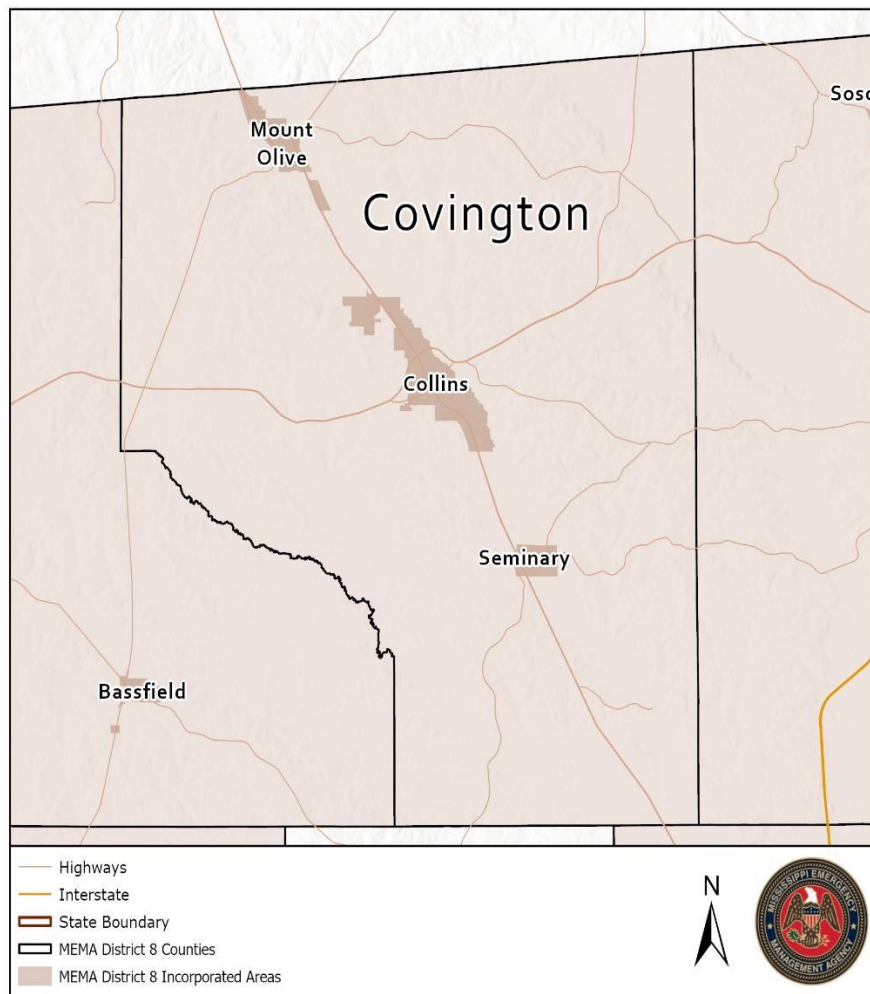
A wet day is one with at least 0.04 inches of liquid or liquid-equivalent precipitation. The chance of wet days in Covington County varies throughout the year. The wetter season lasts 5 months, from November to March, with a greater than 36% chance of a given day being a wet day. The chance of a wet day peaks at 51% on January 19. The drier season lasts 7 months, from April to October. 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 January 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.

|                  | Jan  | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|------------------|------|------|------|------|-----|------|------|------|-------|------|------|------|
| Average High     | 58   | 62   | 69   | 76   | 82  | 88   | 90   | 90   | 85    | 77   | 68   | 60   |
| Average Lows     | 35   | 38   | 45   | 53   | 61  | 68   | 71   | 71   | 65    | 53   | 45   | 37   |
| Average Rainfall | 5.69 | 5.50 | 5.84 | 4.84 | 5.1 | 4.49 | 4.83 | 4.61 | 3.9   | 3.86 | 5.05 | 5.25 |

**FIGURE A.1: COVINGTON COUNTY ORIENTATION MAP**





## A.1.2 Population and Demographics

According to the 2020 Census, Covington County has a population of 18,340 people. The county has seen a slight decline in population between 2010 and 2020, 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 2023, Covington County had a population of 18,059 which is a 1.5 percent decline. The household income is \$40,164 which grew 9.2 percent. Population counts from the US Census Bureau for 2010 and 2020 for the county and all of the participating jurisdictions are presented in **Table A.1**. Estimates for 2023 are also included.

**TABLE A.1: POPULATION COUNTS FOR COVINGTON COUNTY**

| Jurisdiction            | 2010 Census   | 2020 Census   | % of Change 2010 to 2020 | 2023 Estimate |
|-------------------------|---------------|---------------|--------------------------|---------------|
| <b>Covington County</b> | <b>19,568</b> | <b>18,340</b> | <b>-6.27%</b>            | <b>18,059</b> |
| <b>Collins</b>          | <b>2,586</b>  | <b>2,342</b>  | <b>-9.43</b>             | <b>2,323</b>  |
| <b>Mounty Olive</b>     | <b>982</b>    | <b>895</b>    | <b>-8.85</b>             | <b>879</b>    |
| <b>Seminary</b>         | <b>314</b>    | <b>305</b>    | <b>-2.86</b>             | <b>300</b>    |

Source: US Census Bureau

All of the jurisdictions in Covington County had a decrease in population which could lead to a slight decrease in vulnerability.



Based on the 2020 Census, the median age of residents of Covington County is 37.6 years and per the 2023 estimates, that has not changed. The racial characteristics of the county are presented in **Table A.2**. 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 61 percent of the population.

**TABLE A.2: DEMOGRAPHICS OF COVINGTON COUNTY**

| Jurisdiction            | White Persons<br>(% 2020) | Black Persons<br>(% 2020) | American Indian or<br>Alaska Native (% 2020) | Other Races<br>(% 2020) | Persons of Hispanic<br>Origin (% 2020) |
|-------------------------|---------------------------|---------------------------|----------------------------------------------|-------------------------|----------------------------------------|
| <b>Covington County</b> | <b>61%</b>                | <b>35%</b>                | <b>0.1%</b>                                  | <b>1%</b>               | <b>2%</b>                              |
| <i>Collins</i>          | 41%                       | 53%                       | 0.2%                                         | 1%                      | 5%                                     |
| <i>Mount Olive</i>      | 33%                       | 65%                       | 0%                                           | 1%                      | 1%                                     |
| <i>Seminary</i>         | 95%                       | 2%                        | 1%                                           | 0.1%                    | 2%                                     |

Source: US Census Bureau

**TABLE A.3: AVERAGE INCOME AND HEALTH IN COVINGTON COUNTY**

| Jurisdiction            | % of<br>Population<br>Disabled | % of Population<br>without Health<br>Insurance | Median<br>Household<br>Income | % of Population<br>Below the<br>Poverty Level |
|-------------------------|--------------------------------|------------------------------------------------|-------------------------------|-----------------------------------------------|
| <b>Covington County</b> | <b>18.2%</b>                   | <b>9.9%</b>                                    | <b>\$40,164</b>               | <b>23.6%</b>                                  |
| <i>Collins</i>          | 21.9%                          | 16%                                            | \$31,435                      | 39.3%                                         |
| <i>Mount Olive</i>      | 17.9%                          | 10.4%                                          | \$52,719                      | 24.1%                                         |
| <i>Seminary</i>         | 15.7%                          | 29.1%                                          | \$52,188                      | 18.3%                                         |

Source: US Census Bureau

## A.1.3 Housing

According to the 2020 US Census, there are 8,290 housing units in Covington County, the majority of which are single family homes or mobile homes. However, the median home value is \$76,700. There was a decrease in population, housing units, and overall median home value could reduce vulnerability, although jurisdictions were not aware of any change in vulnerability. Housing information for the county and three towns is presented in **Table A.4**.

**TABLE A.4: HOUSING CHARACTERISTICS OF COVINGTON COUNTY**

| Jurisdiction            | Housing<br>Units (2010) | Median Home<br>Value (2010) | Housing<br>Units (2020) | Median Home<br>Value (2020) |
|-------------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|
| <b>Covington County</b> | <b>8501</b>             | <b>\$78,900</b>             | <b>8,290</b>            | <b>\$76,700</b>             |
| <i>Collins</i>          | 1,026                   | \$93,300                    | 960                     | \$76,000                    |
| <i>Mount Olive</i>      | 458                     | \$76,500                    | 454                     | \$56,200                    |
| <i>Seminary</i>         | 148                     | \$104,200                   | 135                     | \$105,000                   |

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 6 fire stations, 5 police stations, and 9 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 2024, Covington County had an average annual employment of 5,350 workers and an average unemployment rate of 2.2 percent (compared to 6.0 percent for the state). In 2023, the Education Services and Health care industry employed 29.6 percent while the Manufacturing industry employed 19.3 percent of the County's workforce followed by Retail Trade (17.2%), and Construction (6.7%). The average annual wage in 2023 for Covington County was \$40,164 compared to \$52,985 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.

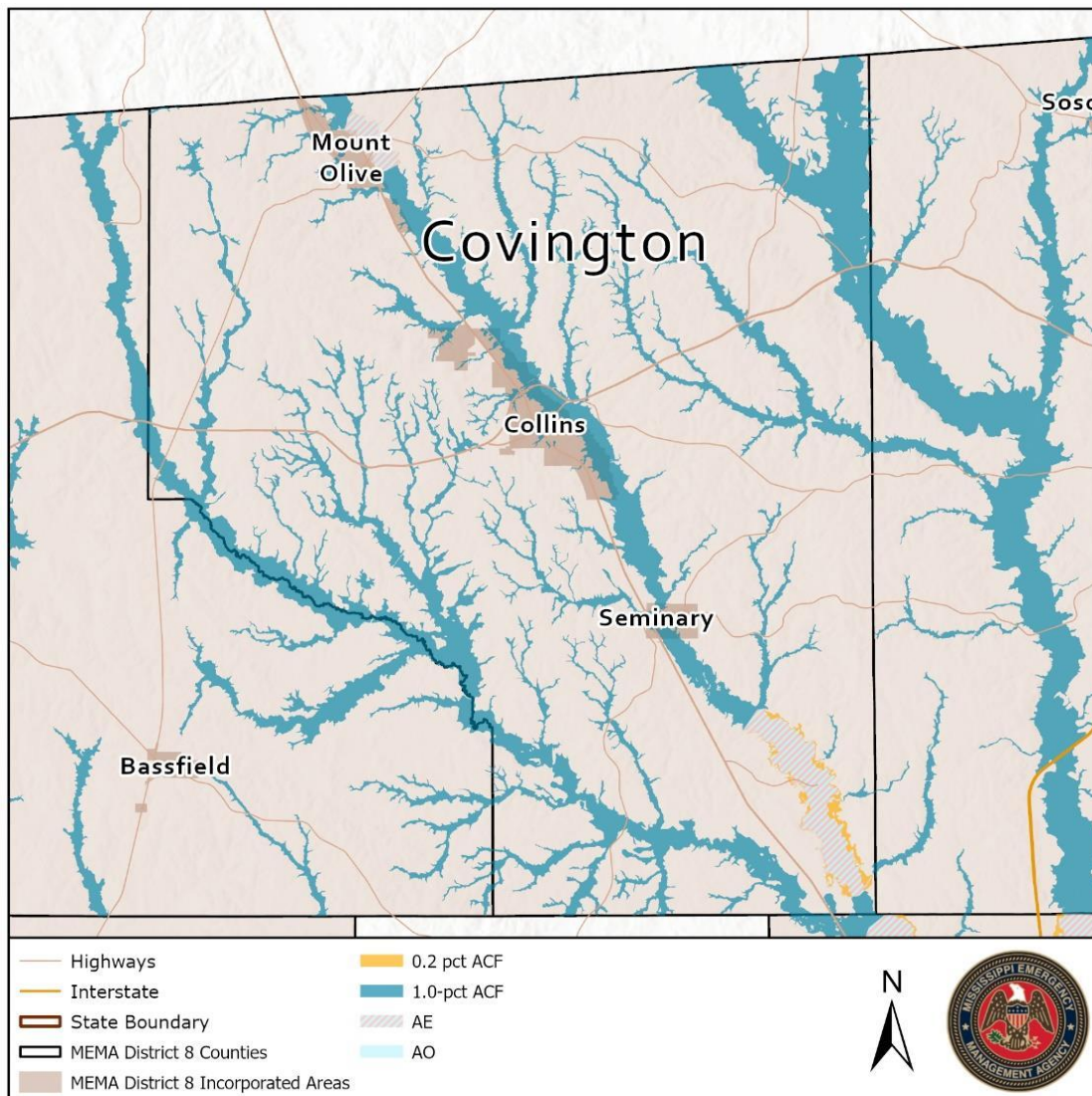
## A.2.1 Flood

### 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). 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.

**FIGURE A.2: SPECIAL FLOOD HAZARD AREAS IN COVINGTON COUNTY**



### HISTORICAL OCCURRENCES

Floods resulted in six disaster declarations in Covington County in 1974, 1983, 1990, 2016, 2018, and 2020. 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 65 events in Covington County since 2000. A summary of these events is presented in **Table A.5**. These events accounted for approximately \$3.2 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.6**.

**TABLE A.5: SUMMARY OF FLOOD OCCURRENCES IN COVINGTON COUNTY**

| LOCATION                       | Number of Occurrences | Deaths   | Injuries | Property Damage    | Crop Damage |
|--------------------------------|-----------------------|----------|----------|--------------------|-------------|
| <i>Collins</i>                 | 10                    | 0        | 0        | \$347,000          | \$0         |
| <i>Mount Olive</i>             | 3                     | 0        | 0        | \$250,000          | \$0         |
| <i>Seminary</i>                | 4                     | 0        | 0        | \$44,000           | \$0         |
| <i>Unincorporated Area</i>     | 29                    | 0        | 0        | \$2,536,000        | \$0         |
| <b>Covington County Total:</b> | <b>65</b>             | <b>0</b> | <b>0</b> | <b>\$3,177,000</b> | <b>\$0</b>  |

Source: NCED/NOAA

**TABLE A.6: HISTORICAL FLOOD EVENTS IN COVINGTON COUNTY**

| Location                                       | Date       | Type        | Deaths | Injuries | Property Damage |
|------------------------------------------------|------------|-------------|--------|----------|-----------------|
| <b>City of Collins</b>                         |            |             |        |          |                 |
| <i>Collins</i>                                 | 3/2/2001   | Flash Flood | 0      | 0        | \$0             |
| <i>Collins</i>                                 | 9/3/3001   | Flash Flood | 0      | 0        | \$25,000        |
| <i>Collins</i>                                 | 3/8/2011   | Flash Flood | 0      | 0        | \$45,000        |
| <i>Collins</i>                                 | 3/9/2011   | Flash Flood | 0      | 1        | \$50,000        |
| <i>Collins</i>                                 | 9/24/2013  | Flash Flood | 0      | 0        | \$50,000        |
| <i>Collins</i>                                 | 3/10/2016  | Flash Flood | 0      | 0        | \$20,000        |
| <i>Collins</i>                                 | 3/11/2016  | Flash Flood | 0      | 0        | \$150,000       |
| <i>Collins</i>                                 | 4/18/2019  | Flash Flood | 0      | 0        | \$3,000         |
| <i>Collins</i>                                 | 8/28/2020  | Flash Flood | 0      | 0        | \$3,000         |
| <i>Collins</i>                                 | 3/18/2022  | Flash Flood | 0      | 0        | \$1,000         |
| <b>Town of Mount Olive</b>                     |            |             |        |          |                 |
| <i>Mount Olive</i>                             | 3/21/2003  | Flash Flood | 0      | 0        | \$20,000        |
| <i>Mount Olive</i>                             | 4/12/2009  | Flash Flood | 0      | 0        | \$200,000       |
| <i>Mount Olive</i>                             | 3/10/2016  | Flash Flood | 0      | 0        | \$30,000        |
| <b>Town of Seminary</b>                        |            |             |        |          |                 |
| <i>Seminary</i>                                | 12/14/2009 | Flash Flood | 0      | 0        | \$5,000         |
| <i>Seminary</i>                                | 3/8/2011   | Flash Flood | 0      | 0        | \$4,000         |
| <i>Seminary</i>                                | 2/20/2014  | Flash Flood | 0      | 0        | \$25,000        |
| <i>Seminary</i>                                | 3/11/2016  | Flash Flood | 0      | 0        | \$10,000        |
| <b>Unincorporated Area in Covington County</b> |            |             |        |          |                 |
| <i>Countywide</i>                              | 3/1/2001   | Flash Flood | 0      | 0        | \$0             |



|                   |            |             |   |   |             |
|-------------------|------------|-------------|---|---|-------------|
| Countywide        | 3/2/2001   | Flash Flood | 0 | 0 | \$10,000    |
| Countywide        | 3/3/2001   | Flash Flood | 0 | 0 | \$10,000    |
| Countywide        | 2/5/2003   | Flash Flood | 0 | 0 | \$200,000   |
| South Portion     | 3/31/2005  | Flash Flood | 0 | 0 | \$250,000   |
| Southeast Portion | 4/1/2005   | Flash Flood | 0 | 0 | \$80,000    |
| Southeast Portion | 8/29/2005  | Flash Flood | 0 | 0 | \$300,000   |
| Williamsburg      | 12/15/2009 | Flash Flood | 0 | 0 | \$5,000     |
| Pickering         | 2/18/2012  | Flash Flood | 0 | 0 | \$10,000    |
| Pickering         | 2/20/2014  | Flash Flood | 0 | 0 | \$30,000    |
| Smith             | 1/3/2015   | Flash Flood | 0 | 0 | \$5,000     |
| Hot Coffee        | 3/10/2016  | Flash Flood | 0 | 0 | \$8,000     |
| Lux               | 3/11/2016  | Flash Flood | 0 | 0 | \$25,000    |
| Smith             | 3/11/2016  | Flash Flood | 0 | 0 | \$7,000     |
| Hot Coffee        | 3/11/2016  | Flash Flood | 0 | 0 | \$4,000     |
| Sanford           | 3/11/2016  | Flash Flood | 0 | 0 | \$10,000    |
| Sanford           | 6/6/2016   | Flash Flood | 0 | 0 | \$1,500,000 |
| Ora               | 4/13/2019  | Flash Flood | 0 | 0 | \$3,000     |
| Grandsi           | 7/21/2019  | Flash Flood | 0 | 0 | \$2,000     |
| Pickering         | 1/13/2020  | Flash Flood | 0 | 0 | \$15,000    |
| Grandsi           | 8/25/2020  | Flash Flood | 0 | 0 | \$2,000     |
| Williamsburg      | 8/25/2020  | Flash Flood | 0 | 0 | \$5,000     |
| Sanford           | 8/25/2020  | Flash Flood | 0 | 0 | \$2,000     |
| Hot Coffee        | 3/16/2021  | Flash Flood | 0 | 0 | \$2,000     |
| Williamsburg      | 6/6/2021   | Flash Flood | 0 | 0 | \$25,000    |
| Ora               | 8/30/2021  | Flash Flood | 0 | 0 | \$20,000    |
| Williamsburg      | 6/6/2021   | Flash Flood | 0 | 0 | \$2,000     |
| Arbo              | 8/24/2022  | Flash Flood | 0 | 0 | \$1,000     |
| Grandsi           | 8/24/2022  | Flash Flood | 0 | 0 | \$5,000     |

Source: NCED/NOAA

TABLE A.7: EXTENT: FLOOD EVENTS IN COVINGTON COUNTY SINCE THE LAST UPDATE

| Covington County: Total Loss \$91 Thousand |           |         |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                     |  |
|--------------------------------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Location                                   | Date      | Loss    | Cause                                                                                                                                                                                                                                            | Impact                                                                                                                                                                                                                                                              |  |
| Ora                                        | 4/13/2019 | \$3,000 | During the late afternoon of April 13 and into the evening and overnight, a strong spring storm system pushed across the Lower Mississippi Valley region and brought widespread severe weather, a regional tornado outbreak, and flash flooding. | <ul style="list-style-type: none"> <li>• Heavy rainfall was also impactful and multiple inches of rain quickly fell across some locations and caused flash flooding, some of it extensive.</li> <li>• Flooding occurred near Highway 49 and Sunset Road.</li> </ul> |  |
| Collins                                    | 4/18/2019 | \$3,000 | During the daytime hours of April 18th, a developing storm system helped generate a large line of thunderstorms which then moved across the region.                                                                                              | <ul style="list-style-type: none"> <li>• Three parts of Evergreen Church Road were under water.</li> </ul>                                                                                                                                                          |  |
| Gandsi                                     | 7/21/2019 | \$2,000 | Strong thunderstorms produced flash flooding.                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>• Water flowed across Hwy 49 between Collins and Seminary.</li> </ul>                                                                                                                                                        |  |
|                                            |           |         | A warm front was situated across southern Mississippi during the evening of January                                                                                                                                                              | <ul style="list-style-type: none"> <li>• Water was across part of Highway 49 near The Mooney Branch of Okatoma Creek.</li> </ul>                                                                                                                                    |  |



|                          |           |          |                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                            |
|--------------------------|-----------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Pickering</b>         | 1/13/2020 | \$15,000 | 13th. This, combined with a passing disturbance and anomalous moisture, supported numerous thunderstorms and heavy rainfall that produced widespread rainfall between 2 and 6 inches with the heavies corridor right across the central portion of the forecast area. | Part of Old Highway 49 was flooded south of Seminary near the Seminary Canoe Rental. Part of MS Highway 589 was flooded near Seminary.                                                                                                                                                                     |
| <b>County</b>            | 8/25/2020 | \$9,000  | Tropical moisture associated with Tropical Storm Marco helped to initiate showers across southeast Mississippi. Some of this rain brought flash flooding to the region.                                                                                               | Flooding occurred on Yates Road and on Mt. Horeb Road.                                                                                                                                                                                                                                                     |
| <b>Collins Airport</b>   | 8/28/2020 | \$3,000  | Hurricane Laura made landfall along the Louisiana coast near Lake Charles in the early morning hours of August 27.                                                                                                                                                    | <ul style="list-style-type: none"> <li>• Rainfall amounts up to four inches occurred along and west of the Mississippi River and this resulted in some minor flooding.</li> <li>• Minor street flooding occurred in Collins. Minor flooding also occurred on Knights Road southwest of Collins.</li> </ul> |
| <b>Hot Coffee</b>        | 3/16/2021 | \$2,000  | A stalled front, combined with a warm and moist airmass, led to the development of showers and thunderstorms across the region.                                                                                                                                       | Water was over Highway 37 in northern Covington County.                                                                                                                                                                                                                                                    |
| <b>Williamsburg</b>      | 6/6/2021  | \$25,000 | As an upper-level low pressure system moved over central parts of the country, a few storm systems moved across the state of Mississippi.                                                                                                                             | Over 200 homes were flooded in portions of Bolivar and Sunflower Counties. A few rounds of heavy rain caused flash flooding across numerous roads in various parts of Covington County. A video showed water flowing across a portion of McDonald Chapel Road south of Collins.                            |
| <b>Ora</b>               | 8/30/2021 | \$20,000 | Major hurricane Ida made landfall as a strong category four hurricane around 11:55am on August 29 near Grand Isle, LA. It then moved very slowly north through south central Louisiana and into Mississippi on August 30.                                             | Rainfall amounts of 4-8 inches occurred, which resulted in localized flooding. Heavy rainfall from Tropical Storm Ida resulted in flash flooding that washed out a culvert on Ora Williamson Road.                                                                                                         |
| <b>Collins</b>           | 3/18/2022 | \$1,000  | Showers and thunderstorms developed in the warm, moist airmass south of a warm front.                                                                                                                                                                                 | Flash flooding occurred as storms began to move over the same region. Kola Road was flooded near the bridge.                                                                                                                                                                                               |
| <b>Williamsburg</b>      | 7/22/2022 | \$2,000  | Slow moving thunderstorms on the afternoon of July 22nd resulted in flash flooding in Covington County near Collins.                                                                                                                                                  | Flash flooding occurred southwest of Collins near the Williamsburg community.                                                                                                                                                                                                                              |
| <b>Arbo &amp; Gandsi</b> | 8/24/2022 | \$6,000  | A low-pressure system spinning over northern Louisiana and southern Arkansas brought several rounds of showers and thunderstorms producing heavy rain to Mississippi August 24th through 25th.                                                                        | The result was widespread flooding of roads, homes, and businesses around the state. A few roads flooded in the southern part of the county including Williams Road near Highway 588 and Ed Mayfield Road.                                                                                                 |

On June 6, 2017, Flooding around the Lux Community caused a culvert washout along McConnel Foster Road, and several unoccupied campers had to be towed away from flooding along Okatoma River Road. Flood waters eroded the railroad embankment along a stretch of tracks near the Lux Community. Three train cars later derailed after passing over the weakened tracks. An estimated 3 to 6 inches of rain fell nearby. This caused flash flooding that caused around \$1.5 million in damage.

### **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 will 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 2023, 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.1**.

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.

## 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 2023, 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.8** presents detailed information on repetitive loss properties and NFIP claims and policies for Covington County. Currently, this remains the best available data.

**TABLE A.8: SUMMARY OF INSURED FLOOD LOSSES AND REPETITIVE LOSSES IN COVINGTON COUNTY**

| Location                       | Flood Losses | Claim Payments   | Repetitive Loss Properties | Number of Properties | Number of Losses | Total Payments   | Average Payments |
|--------------------------------|--------------|------------------|----------------------------|----------------------|------------------|------------------|------------------|
| <i>Collins</i>                 | 18           | \$124,503        |                            | 0                    | 0                | \$0              | \$0              |
| <i>Mount Olive</i>             | 3            | \$46,982         |                            | 0                    | 0                | \$0              | \$0              |
| <i>Seminary</i>                | 0            | \$0              |                            | 0                    | 0                | \$0              | \$0              |
| <i>Unincorporated Area</i>     | 27           | \$357,325        |                            | 8                    | 18               | \$291,033        | \$16,169         |
| <b>Covington County Total:</b> | <b>48</b>    | <b>\$528,810</b> |                            | <b>8</b>             | <b>18</b>        | <b>\$291,033</b> | <b>\$16,169</b>  |

\*These communities do not participate in the National Flood Insurance Program. Therefore, no values are reported.

Source: FEMA, NFIP

## 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.

As the climate continues to change, the chance of heavy rain leading to flash flooding could increase in frequency, intensity, and magnitude. With the increasing frequency and intensity, heavy rains and flash flooding can lead to cascading effects and can also lead to flooding in areas that do not usually flood.

## A.2.2 Erosion

## **LOCATION AND SPATIAL EXTENT**

Most 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).

If the climate continues to change as scientists predict, the higher intensity and magnitude of storms and the increasing drought and high heat days, can lead to erosion in areas that have not been impacted by erosion in the past. Also, the chance of heavy rain leading to flash flooding could also increase in frequency, intensity, and magnitude.

With the increasing frequency and intensity, heavy rains and flash flooding cascading effects are possible such as erosion of soil from the ground, under/ around trees, and under roads. This can lead to falling trees, power outages, and road damage.

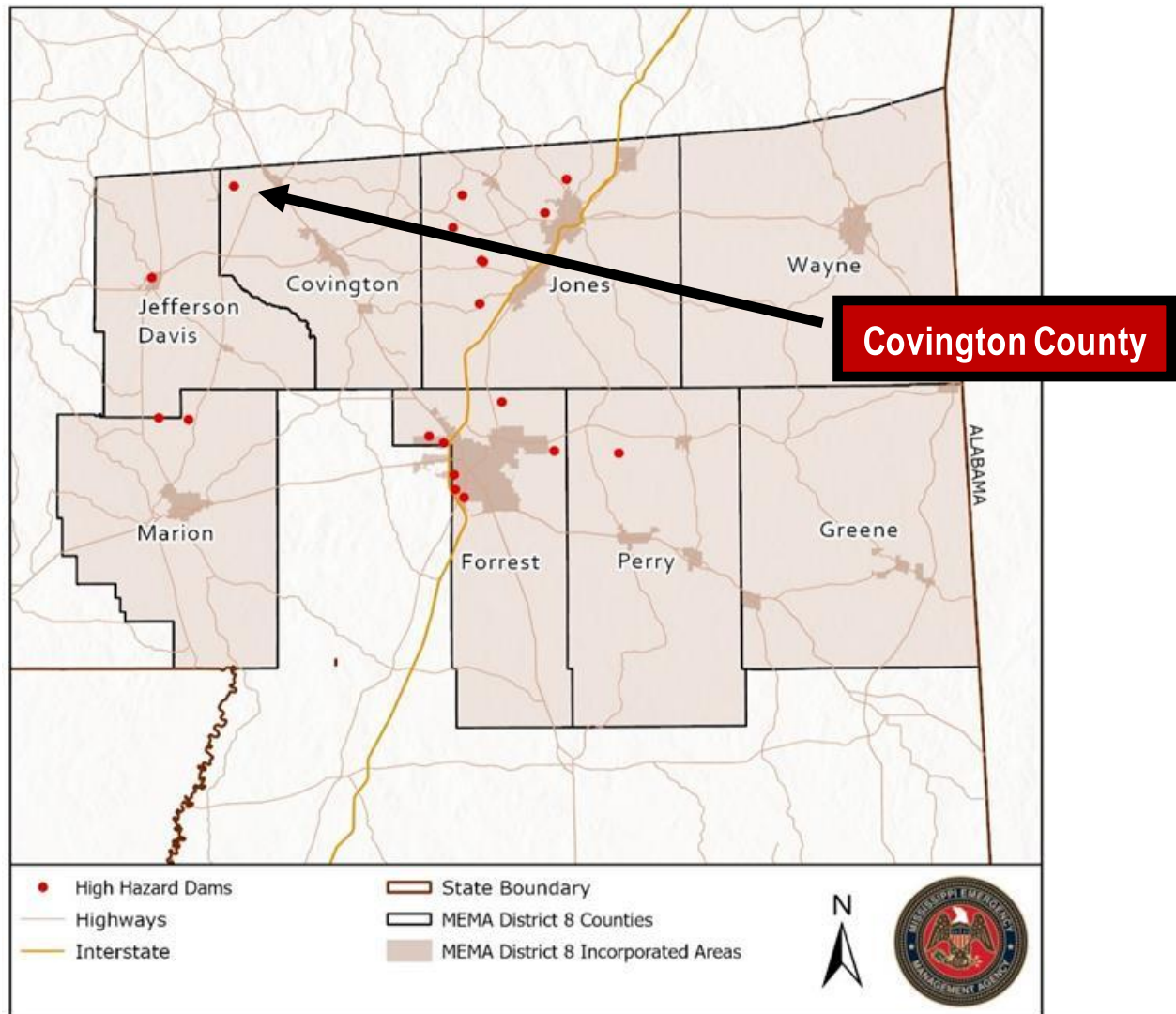
## **A.2.3 Dam Failure**

### **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.9**. 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.9: COVINGTON COUNTY HIGH HAZARD DAMS**

| Dam Name                            | Hazard Potential |
|-------------------------------------|------------------|
| Dry Creek Watershed Structure 3 Dam | HIGH             |

**FIGURE A.3: COVINGTON COUNTY HIGH HAZARD DAM LOCATIONS**

## 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 twelve recorded winter storm events in Covington County since 2000 and one Disaster Declaration in 2021. These events resulted in over \$2.1M in damages. Detailed information on the recorded winter storm events can be found in **Table A.10**.

**TABLE A.10: SUMMARY OF HISTORICAL WINTER STORM EVENTS IN COVINGTON COUNTY**

| Date          | Type            | Injuries | Deaths   | Property Damage    | Crop Damage |
|---------------|-----------------|----------|----------|--------------------|-------------|
| 1/19/2008     | Heavy Snow      | 0        | 0        | \$500,000          | \$0         |
| 12/11/2008    | Heavy Snow      | 0        | 0        | \$0                | \$0         |
| 12/4/2009     | Heavy Snow      | 0        | 0        | \$0                | \$0         |
| 1/1/2010      | Cold Wind Chill | 0        | 0        | \$300,000          | \$0         |
| 2/11/2010     | Heavy Snow      | 0        | 0        | \$700,000          | \$0         |
| 1/9/2011      | Ice Storm       | 0        | 0        | \$80,000           | \$0         |
| 2/3/2011      | Ice Storm       | 0        | 0        | \$400,000          | \$0         |
| 1/28/2014     | Heavy Snow      | 0        | 0        | \$0                | \$0         |
| 1/6/2017      | Winter Weather  | 0        | 0        | \$10,000           | \$0         |
| 12/7/2017     | Heavy Snow      | 0        | 0        | \$50,000           | \$0         |
| 1/16/2018     | Winter Weather  | 0        | 0        | \$0                | \$0         |
| 2/15/2021     | Ice Storm       | 0        | 0        | \$85,000           | \$0         |
| <b>Total:</b> | <b>12</b>       | <b>0</b> | <b>0</b> | <b>\$2,125,000</b> | <b>\$0</b>  |

Source: NCED/NOAA

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 to the weight of wet snow on limbs and lines. The heaviest snow fell in the areas around Covington, Jefferson Davis, and Jones Counties.

**January 2010**—A prolonged cold snap, caused by a couple of strong arctic air masses, affected the ArkLaMiss region during the first two weeks of January. This resulted in some record temperatures across the region. Daily highs during that period were in the 20s, 30s and 40s with lows in the teens and 20s. The first ten days of 2010 were the coldest first ten days of any year on record with an average temperature of around 29 degrees, which is around 14 to 16 degrees below normal. This outbreak will not be remembered for any bitterly cold temperatures, it will be remembered for the prolonged period of cold conditions and spans of time below freezing. Due to the duration of the cold, a great deal of damage occurred to the water line infrastructure around the region. The issues from the hard freeze were as follows: water line breaks, and frozen water pipes to homes, especially rural homes; wells freezing up; and water valves being stuck. Due to all the water line breaks, flooding of buildings and homes occurred.

**February 2010**—Up to 5 inches of snow fell across portions of Covington County, with 5 inches reported just north of Seminary.



**February 2011**—An ice storm developed across the area on February 3rd into the early morning hours of the 4th. While this icing event was not devastating, the impact to travel was a major issue across the region. A quarter inch of ice accumulated across the county with nearly all bridges iced over. Numerous accidents were reported.

**January 28, 2014**—Two to three inches of snow mixed with some sleet fell across the northeastern portion of the county.

**January 6, 2017**—Up to a quarter an inch of sleet and ice fell across the county. The highest amounts were near Seminary, where one quarter an inch accumulated on the Okatoma River Bridge.

**December 8, 2017**—Heavy snow fell across Covington County, with totals ranging from near 4 inches in Mt. Olive to 7 inches near Seminary. The snow resulted in several traffic accidents, downed tree limbs, and power outages across the county.

**January 16, 2018**—Light snow fell across the county, with accumulations of up to 1.5 inches.

**February 15, 2021**—Freezing rain fell across the county. Accumulations of one quarter of an inch occurred across the northwest part of the county. Some sleet also fell but accumulations were light. Ice accumulated on trees and power lines which resulted in power outages across the north.

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 catch fire or cause accumulation of toxic fumes.

### **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).

As you can see from the chart above winter weather events seem to be decreasing. Even though the events are decreasing as the climate warms due to Climate Change, it does not mean they will not occur, as there was a Disaster Declaration declared in 2021.

## **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 five of the last twenty-four years (2000-2024). **Table A.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 A. 11: HISTORICAL DROUGHT OCCURRENCES IN COVINGTON COUNTY**

| Abnormally Dry   | Moderate Drought | Severe Drought      | Extreme Drought    | Exceptional Drought |                    |
|------------------|------------------|---------------------|--------------------|---------------------|--------------------|
|                  |                  |                     |                    |                     |                    |
| Location         | Date             | Injuries/<br>Deaths | Property<br>Damage | Crop<br>Damage      | Event/<br>Severity |
| Covington County | 10/1/2006        | 0/0                 | \$0                | \$1,000,000         | D3                 |
| Covington County | 4/25/2007        | 0/0                 | \$0                | \$0                 | D2                 |
| Covington County | 5/1/2007         | 0/0                 | \$0                | \$700,000           | D2                 |
| Covington County | 6/1/2007         | 0/0                 | \$0                | \$900,000           | D3                 |
| Covington County | 7/1/2007         | 0/0                 | \$80,000           | \$0                 | D3                 |
| Covington County | 10/13/2015       | 0/0                 | \$0                | \$1,000             | D2                 |
| Covington County | 11/15/2016       | 0/0                 | \$0                | \$50,000            | D3                 |
| Covington County | 12/1/2016        | 0/0                 | \$0                | \$50,000            | D2                 |
| Covington County | 9/1/2023         | 0/0                 | \$0                | \$0                 | D3                 |
| Covington County | 10/1/2023        | 0/0                 | \$0                | \$0                 | D3                 |
| Covington County | 11/1/2023        | 0/0                 | \$0                | \$1,440,000         | D4                 |
| Total:           | 11               | 0/0                 | \$80,000           | \$4,141,000         |                    |

Source: NCED/NOAA

There have been several severe drought events in Covington County. The text below describes one of the major events and associated impacts on the county.

**October 2006**—During a four-and-a-half-month period, from June to the middle of October, abnormally dry conditions prevailed across most of the Jackson, MS County Warning Area (CWA). Widespread drought conditions were reported across the area during this time period. The U.S. Drought Monitor classified the drought as extreme (D3) over Southeast Mississippi. Drought conditions in the region peaked in intensity during early August over this area. This drought caused approximately \$1 million in crop damage.

**April–July 2007**—During these last few days of April, rainfall deficits were now running between 10 and 14 inches below normal. Again, areas across Eastern Mississippi remained the driest. Even as the drought conditions were classified as severe, area farmers were not suffering and were only experiencing small impacts of the dry weather.

During the month of May, the drought worsened and expanded a little as only a spattering of rain occurred across the area with the highest totals falling along and west of the Mississippi River. Through May, the entire area within the drought experienced

annual rainfall deficits between 12 and 16 inches, (15-25% of normal rainfall), with the driest conditions occurring across Eastern Mississippi. By the end of May, crops across the state were beginning to feel the impact of the very dry conditions. At that point, some damage to crops had occurred with only small losses to yields. Extended drought conditions made conditions worse with more substantial crop damage/losses throughout most of the summer.

During the month of June, the drought peaked across the region. It held firm across the same areas since May with no expansion. What did expand was the severity as by the end of June, most of Central and East-Central Mississippi was now in extreme drought (D3). The month of June did not offer much rain as most of the forecast area saw less than 40% of the normal 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 have been affected with yields forecast to be much less than normal by harvest time. The quality of the crops has been affected as well due to the dry conditions. Covington County suffered \$700 thousand in crop losses in May and another \$900 thousand in June.

**November 2023**—The combined effects of persistent above-normal temperatures and below-normal precipitation starting in early July 2023 resulted in mounting drought impacts across much of the state of Mississippi. D4 (Exceptional Drought) conditions persisted much of the central and southern portions of the state. Subsoil moisture values across the southern half of the state saw some improvement to between 15 to 30 percent below normal. These conditions placed a severe stress on pastures for livestock and cropland at the end of the growing season. Pine plantations and Christmas tree farms experienced severe losses especially among younger trees. In a study of over 13 million forested acres through western and central Mississippi surveyed by the Mississippi Forestry Commission, it was estimated that approximately 80,000 acres of pine trees were killed by drought stress. In the study area, this accounted for approximately 12.5 million pine trees lost. Stream flows on creeks and rivers were reduced. Drought conditions in Covington County intensified from D3 (Extreme Drought) to D4 (Exceptional Drought) as depicted on the U.S. Drought Monitor and suffered over \$1.4 million in crop damage.

## 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.

**August 2010**—A four day stretch of extreme temperatures occurred across the region to start off the month of August. High pressure was firmly entrenched across the southeast and allowed temperatures to soar into the triple digits across much of the region. Across the NWS Jackson, MS forecast area, 19 record highs were set between August 1st and 4th. On August 2nd, the 2nd warmest average temperature was recorded. The low was 78 and the high 105, this resulted in an average temperature of 91.5 degrees. Additionally, relatively high humidity levels made conditions even more oppressive, with heat index readings surpassing 110 degrees in many areas. This extreme heat resulted in 3 fatalities across the forecast area.

## 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. But, if the climate continues to warm, this could lead to more droughts with higher magnitude.

## **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.

If temperatures continue to rise as climate change occurs, it could increase the impacts, intensity, and duration of droughts and extreme temperatures. These increases could impact the effects on the counties' crops, economy, and population.

## **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 2010 to 2023, Covington County experiences an average of 25.2 wildfires annually which burn an average of 124.9 acres per year. The data indicates that most of these fires are small, averaging 5 acres per fire. **Table A.12** provides a summary of wildfire occurrences in Covington County since the last update, and **Table A.13** lists the number of reported wildfire occurrences in the county between the years 2010 and 2023.

TABLE A.12: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2019 -2023) \*

| Covington County                        |       |
|-----------------------------------------|-------|
| Average Number of Fires per year        | 23.4  |
| Average Number of Acres Burned per year | 209.4 |
| Average Number of Acres Burned per fire | 8.95  |

Source: MS Forestry Commission

TABLE A.13: HISTORICAL WILDFIRE OCCURRENCES IN COVINGTON COUNTY

| Covington County       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Year                   | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| Number of Fires        | 25   | 54   | 21   | 10   | 17   | 52   | 31   | 13   | 13   | 14   | 11   | 13   | 23   | 56   |
| Number of Acres Burned | 47   | 89   | 57   | 86   | 104  | 74   | 72   | 104  | 68   | 114  | 80   | 97   | 283  | 473  |

Source: MS Forestry Commission

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).

If temperatures continue to rise as climate change occurs, it could cause more droughts and extreme temperatures. The increase in of these could have a negative impact or wildfires. Extreme heat and drought can cause plants to become dry and brittle which makes the area more susceptible to wildfires.

If the predicted increase in heavy rains occur it can also cause flooding and erosion, which can also make the area more susceptible to wildfires.

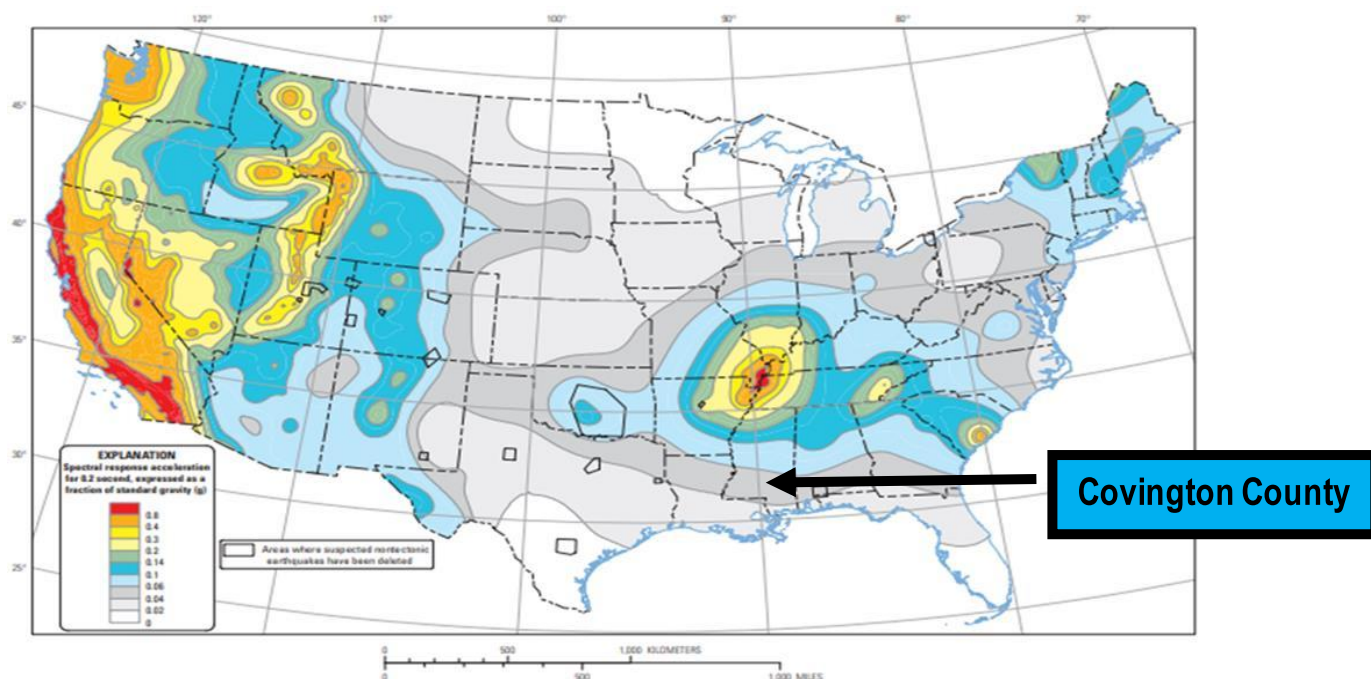
A.2.7 Earthquake

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.

**FIGURE A.4: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS**



Source: USGS

## HISTORICAL OCCURRENCES

One earthquake is known to have affected Covington County since 1638. It occurred in Collins on January 20, 2021, was a MMI of II (2.1), and was felt. **Table A.14** provides a summary of earthquake events reported by the National Geophysical Data Center between 1638 and 2024.

**TABLE A.14: SUMMARY OF SEISMIC ACTIVITY IN COVINGTON COUNTY**

| Location                | Date      | Number of Occurrences | Greatest MMI Reported | Richter Scale Equivalent |
|-------------------------|-----------|-----------------------|-----------------------|--------------------------|
| Collins                 | 1/20/2021 | 1                     | II                    | 2.1                      |
| Mount Olive             | --        | 0                     | --                    | --                       |
| Seminary                | --        | 0                     | --                    | --                       |
| Unincorporated Area     | --        | 0                     | --                    | --                       |
| Covington County Total: |           | 1                     | --                    | --                       |

## 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).

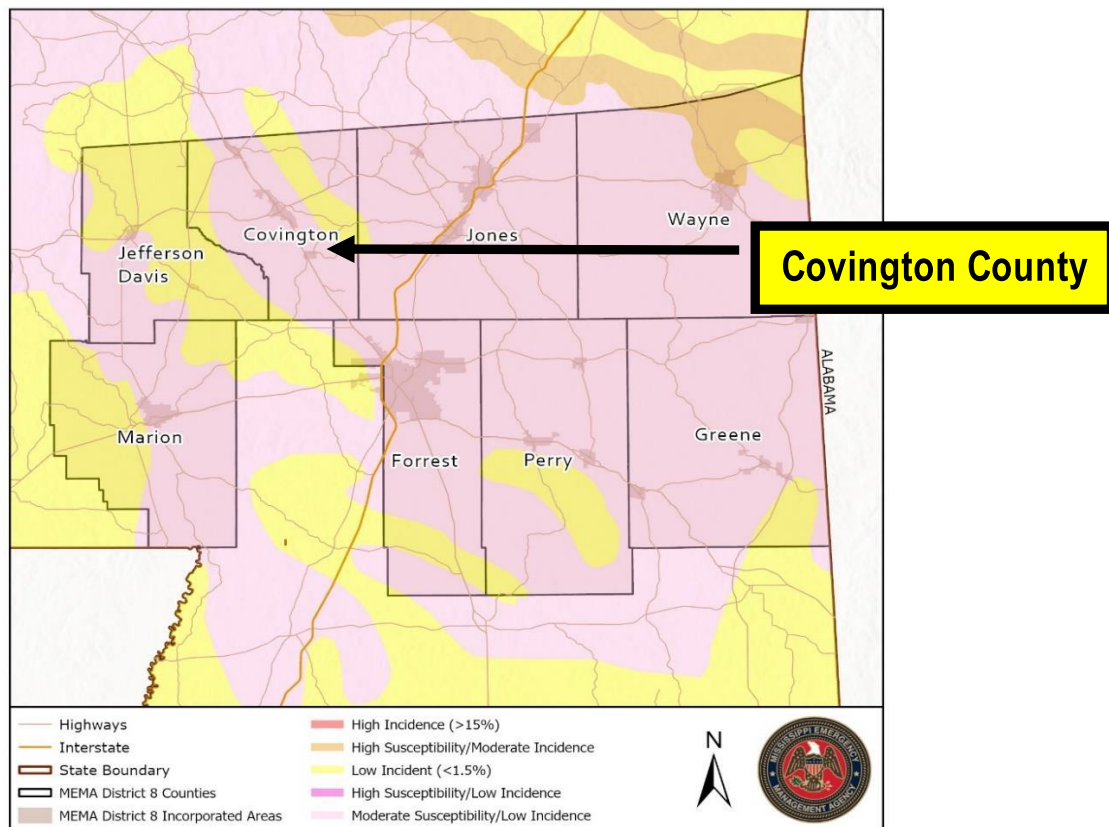
## A.2.8 Landslide

### 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. Landslides are possible throughout Covington County.

According to **Figure A.5** below, the entire county falls under a low incidence area (yellow) and moderate susceptibility (light pink). This indicates that less than 1.5 percent of the area is involved in land sliding. The areas in yellow are defined as low incidence and low susceptibility. The areas in light pink, however, indicate that a moderate susceptibility to land sliding 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**



## 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 all areas in Covington County have a low landslide incidence rate. However, some areas are reported as having moderate susceptibility to land sliding 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.

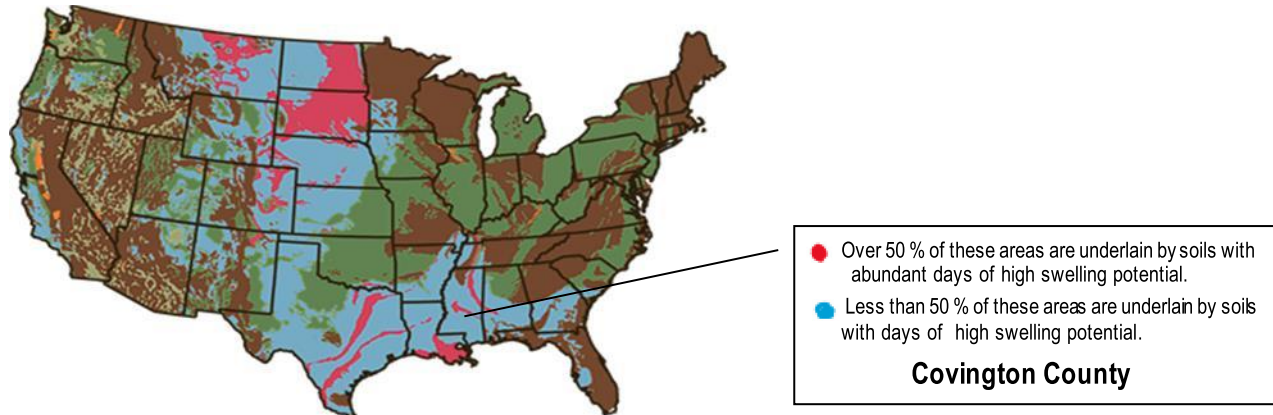
As the climate continues to change, scientists believe that the intensity, magnitude, and frequency of heavy rains will increase. This could cause cascading effects that could possibly lead to land sliding.

## 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**



### **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).

## **A.2.10 Hurricane and Tropical Storm**

### **LOCATION AND SPATIAL EXTENT**



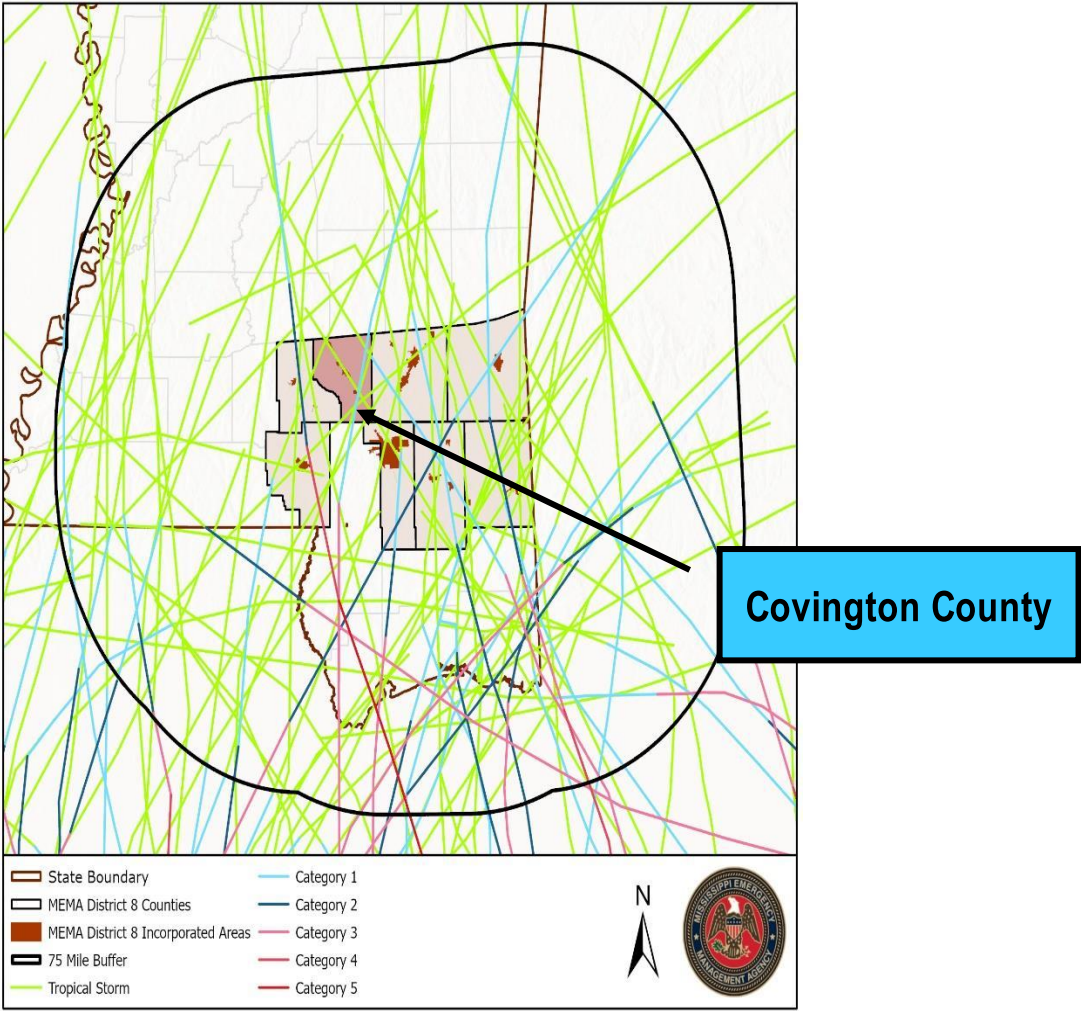
Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact Covington County. 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**.

Of the recorded storm events, a total of eight tracks passed directly through the county including Hurricanes Katrina (2005) and Ida (2023). All storms were tropical storms when they traversed the county except Hurricane Katrina, which passed through the county as category 1 hurricane. **Table A.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 D.8: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF JEFFERSON DAVIS COUNTY**



There has been 8 Disaster Declaration in Covington County due to hurricane damage: In 1969 Disaster Declaration 271 for Hurricane Camille, Declaration 599 in 1979 for damage due to Hurricane Frederic, Declaration 1251 in 1998 for Hurricane Georges, Declaration 1550 in 2004 for damage due to Hurricane Ivan, Declarations 1594 and 1604 in 2005 for Hurricanes Dennis and Katrina, Declaration 4081 in 2012 for Hurricane Isaac, and Declaration 4626 in 2021 for Hurricane Ida.

**TABLE A.15: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF COVINGTON COUNTY**

| Date of Occurrence | Storm Name | Maximum Wind Speed (mph) | Storm Category | Disaster Declaration | Property Damage | Crop Damage |
|--------------------|------------|--------------------------|----------------|----------------------|-----------------|-------------|
|--------------------|------------|--------------------------|----------------|----------------------|-----------------|-------------|

|               |                    |           |                |            |                      |                     |
|---------------|--------------------|-----------|----------------|------------|----------------------|---------------------|
| 9/8/1893      | Unknown            | 63        | Tropical Storm | --         | Unknown              | Unknown             |
| 6/13/1912     | Unknown            | 57        | Tropical Storm | --         | Unknown              | Unknown             |
| 9/30/1913     | Unknown            | 69        | Tropical Storm | --         | Unknown              | Unknown             |
| 7/6/1916      | Unknown            | 63        | Tropical Storm | --         | Unknown              | Unknown             |
| 7/27/1936     | Unknown            | 40        | Tropical Storm | --         | Unknown              | Unknown             |
| 9/4/1969      | Hurricane Camille  | 57        | Tropical Storm | Yes, #271  | Unknown              | Unknown             |
| 8/30/1979     | Hurricane Fredrick | Unknown   | Tropical Storm | Yes, # 599 | Unknown              | Unknown             |
| 9/1998        | Hurricane Georges  | Unknown   | Tropical Storm | Yes, #1251 | Unknown              | Unknown             |
| 10/3/2002     | Hurricane Lili     | 56        | Tropical Storm | No         | Unknown              | Unknown             |
| 6/30/2003     | Hurricane Bill     | 52        | Tropical Storm | No         | \$0                  | \$0                 |
| 9/16/2004     | Hurricane Ivan     | 45        | Tropical Storm | Yes, #1550 | \$93,750             | \$31,300            |
| 7/10/2005     | Hurricane Dennis   | 55        | Tropical Storm | Yes, 1594  | Unknown              | Unknown             |
| 8/29/2005     | Hurricane Katrina  | 92        | Category 1     | Yes, #1604 | \$200,000,000        | \$50,000,000        |
| 8/29/2012     | Hurricane Isaac    | 45        | Tropical Storm | Yes, 4081  | \$100,000            | \$0                 |
| 9/5/2018      | Hurricane Gordon   | 50        | Depression     | No         | \$15,000             | \$0                 |
| 8/30/2021     | Hurricane Ida      | 50        | Tropical Storm | Yes, #4626 | \$50,000             | \$0                 |
| 9/12/2024     | TS Francine        | 40        | Tropical Storm | No         | 15,000               | \$0                 |
| <b>Total:</b> | <b>17</b>          | <b>--</b> | <b>--</b>      |            | <b>\$200,273,750</b> | <b>\$50,031,300</b> |

Source: National Hurricane Center and NCED/NOAA

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 that area 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.

**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.

**August 30, 2021 – Hurricane Ida**—Major hurricane Ida made landfall as a strong category four hurricane around 11:55am on August 29 near Grand Isle, LA. It then moved very slowly north through south central Louisiana and into Mississippi on August 30. It then turned northeast and moved across the Jackson metro area as a tropical storm and into northeast Mississippi as a tropical depression through the early morning of August 31. Ida brought tropical storm force gusts to portions of Mississippi, which brought down trees and power lines. Rainfall amounts of 4-8 inches occurred, which resulted in localized flooding. Tropical storm force wind gusts resulted in several downed trees across the county.

**September 12, 2024**—Tropical Storm Francine produced strong wind damage as it weakened across central Mississippi. Winds blew down scattered trees and powerlines across 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.

Scientists predict that hurricanes could increase in frequency and strength in the near future due the effects of Climate Change. This can be seen in the 2023 season with 23 named storms, 11 hurricanes, and 5 major hurricanes. This prediction makes the season the third most active season on record, behind the 2005 season with 28, and the 2020 season with a total of 30. It is expected that an above-average season next season with up to 25 named storms and 4-7 major hurricanes.

## **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 eight disaster declarations in Covington County in 1974, 1983, 1990, 1992, 2016, 2018, twice in 2020, and 2023. According to NCEI, there have been 185 reported thunderstorm and high wind events since 1969 in Covington County. These events caused Almost \$5 million in damages. **Table A.16** summarizes this information. **Table A.17** presents detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event.

**TABLE A.16: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN COVINGTON COUNTY**

| Location                       | Number of Occurrences | Injuries | Deaths   | Property Damage    | Crop Damage |
|--------------------------------|-----------------------|----------|----------|--------------------|-------------|
| <i>Collins</i>                 | 55                    | 0        | 0        | \$886,600          | \$0         |
| <i>Mount Olive</i>             | 25                    | 0        | 0        | \$674,000          | \$0         |
| <i>Seminary</i>                | 20                    | 0        | 0        | \$2,202,000        | \$0         |
| <i>Unincorporated Area</i>     | 87                    | 0        | 0        | \$1,062,500        | \$0         |
| <b>Covington County Total:</b> | <b>187</b>            | <b>0</b> | <b>0</b> | <b>\$4,825,100</b> | <b>\$0</b>  |

**TABLE A.17: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN COVINGTON COUNTY**

| Location               | Date       | Type      | Magnitude      | Deaths | Injuries | Property Damage | Crop Damage |
|------------------------|------------|-----------|----------------|--------|----------|-----------------|-------------|
| <b>City of Collins</b> |            |           |                |        |          |                 |             |
| <i>Collins</i>         | 1/9/2000   | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$1,000         | \$0         |
| <i>Collins</i>         | 4/3/2000   | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$8,000         | \$0         |
| <i>Collins</i>         | 8/3/2000   | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$2,000         | \$0         |
| <i>Collins</i>         | 1/6/2000   | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$3,000         | \$0         |
| <i>Collins</i>         | 11/29/2001 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$1,000         | \$0         |
| <i>Collins</i>         | 5/17/2002  | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$5,000         | \$0         |
| <i>Collins</i>         | 7/7/2002   | TSTM Wind | 50 kts.        | 0      | 0        | \$1,000         | \$0         |
| <i>Collins</i>         | 7/8/2002   | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$1,000         | \$0         |
| <i>Collins</i>         | 8/3/2002   | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$2,000         | \$0         |
| <i>Collins</i>         | 8/25/2002  | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$2,000         | \$0         |
| <i>Collins</i>         | 5/17/2003  | TSTM Wind | 50 kts.        | 0      | 0        | \$5,000         | \$0         |
| <i>Collins</i>         | 7/17/2003  | TSTM Wind | 50 kts.        | 0      | 0        | \$2,000         | \$0         |

|                            |            |          |         |   |   |           |     |
|----------------------------|------------|----------|---------|---|---|-----------|-----|
| Collins                    | 8/3/2003   | TSTMWind | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| Collins                    | 11/18/2003 | TSTMWind | 52 kts. | 0 | 0 | \$1,000   | \$0 |
| Collins                    | 5/1/2004   | TSTMWind | 55 kts. | 0 | 0 | \$40,000  | \$0 |
| Collins                    | 6/1/2004   | TSTMWind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Collins                    | 6/3/2004   | TSTMWind | 52 kts. | 0 | 0 | \$3,000   | \$0 |
| Collins                    | 6/28/2004  | TSTMWind | 55 kts. | 0 | 0 | \$3,000   | \$0 |
| Collins                    | 7/16/2004  | TSTMWind | 53 kts. | 0 | 0 | \$0       | \$0 |
| Collins                    | 11/24/2004 | TSTMWind | 55 kts. | 0 | 0 | \$1,000   | \$0 |
| Collins                    | 1/7/2005   | TSTMWind | 66 kts. | 0 | 0 | \$500,000 | \$0 |
| Collins                    | 1/7/2005   | TSTMWind | 70 kts. | 0 | 0 | \$50,000  | \$0 |
| Collins                    | 1/13/2005  | TSTMWind | 58 kts. | 0 | 0 | \$10,000  | \$0 |
| Collins                    | 11/15/2005 | TSTMWind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Collins                    | 3/20/2006  | TSTMWind | 58 kts. | 0 | 0 | \$0       | \$0 |
| Collins                    | 6/23/2006  | TSTMWind | 50 kts. | 0 | 0 | \$10,000  | \$0 |
| Collins                    | 7/18/2006  | TSTMWind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Collins                    | 8/29/2006  | TSTMWind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Collins                    | 2/24/2007  | TSTMWind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Collins                    | 4/14/2007  | TSTMWind | 50 kts. | 0 | 0 | \$15,000  | \$0 |
| Collins                    | 6/19/2007  | TSTMWind | 60 kts. | 0 | 0 | \$25,000  | \$0 |
| Collins                    | 8/10/2007  | TSTMWind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Collins                    | 1/29/2008  | TSTMWind | 55 kts. | 0 | 0 | \$0       | \$0 |
| Collins                    | 5/3/2008   | TSTMWind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Collins                    | 6/15/2008  | TSTMWind | 52 kts. | 0 | 0 | \$20,000  | \$0 |
| Collins                    | 4/12/2009  | TSTMWind | 61 kts. | 0 | 0 | \$0       | \$0 |
| Collins                    | 5/12/2009  | TSTMWind | 50 kts. | 0 | 0 | \$1,600   | \$0 |
| Collins                    | 6/15/2010  | TSTMWind | 52 kts. | 0 | 0 | \$20,000  | \$0 |
| Collins                    | 6/17/2010  | TSTMWind | 58 kts. | 0 | 0 | \$25,000  | \$0 |
| Collins                    | 8/22/2010  | TSTMWind | 55 kts. | 0 | 0 | \$15,000  | \$0 |
| Collins                    | 6/13/2011  | TSTMWind | 50 kts. | 0 | 0 | \$20,000  | \$0 |
| Collins                    | 8/21/2011  | TSTMWind | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| Collins                    | 8/12/2013  | TSTMWind | 50 kts. | 0 | 0 | \$7,000   | \$0 |
| Collins                    | 2/15/2016  | TSTMWind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| Collins                    | 7/11/2016  | TSTMWind | 60 kts. | 0 | 0 | \$35,000  | \$0 |
| Collins                    | 11/28/2016 | TSTMWind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| Collins                    | 1/2/2017   | TSTMWind | 50 kts. | 0 | 0 | \$9,000   | \$0 |
| Collins                    | 4/18/2017  | TSTMWind | 50 kts. | 0 | 0 | \$4,000   | \$0 |
| Collins                    | 9/9/2019   | TSTMWind | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| Collins                    | 2/6/2020   | TSTMWind | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| Collins                    | 3/4/2020   | TSTMWind | 53 kts. | 0 | 0 | \$5,000   | \$0 |
| Collins                    | 3/31/2020  | TSTMWind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| Collins                    | 6/5/2020   | TSTMWind | 52 kts. | 0 | 0 | \$2,000   | \$0 |
| Collins                    | 6/25/2020  | TSTMWind | 50 kts. | 0 | 0 | \$7,000   | \$0 |
| Collins                    | 5/12/2022  | TSTMWind | 50 kts. | 0 | 0 | \$4,000   | \$0 |
| <b>Town of Mount Olive</b> |            |          |         |   |   |           |     |
| Mount Olive                | 3/10/2000  | TSTMWind | Unknown | 0 | 0 | \$2,000   | \$0 |
| Mount Olive                | 5/21/2001  | TSTMWind | Unknown | 0 | 0 | \$1,000   | \$0 |
| Mount Olive                | 5/17/2002  | TSTMWind | Unknown | 0 | 0 | \$2,000   | \$0 |

|                                                |            |          |         |   |   |             |     |
|------------------------------------------------|------------|----------|---------|---|---|-------------|-----|
| Mount Olive                                    | 6/2/2003   | TSTMWind | 53 kts. | 0 | 0 | \$10,000    | \$0 |
| Mount Olive                                    | 6/27/2004  | TSTMWind | 53 kts. | 0 | 0 | \$1,000     | \$0 |
| Mount Olive                                    | 4/30/2005  | TSTMWind | 55 kts. | 0 | 0 | \$4,000     | \$0 |
| Mount Olive                                    | 3/9/2006   | TSTMWind | 50 kts. | 0 | 0 | \$0         | \$0 |
| Mount Olive                                    | 5/10/2006  | TSTMWind | 52 kts. | 0 | 0 | \$0         | \$0 |
| Mount Olive                                    | 1/4/2007   | TSTMWind | 50 kts. | 0 | 0 | \$0         | \$0 |
| Mount Olive                                    | 8/27/2007  | TSTMWind | 50 kts. | 0 | 0 | \$0         | \$0 |
| Mount Olive                                    | 2/12/2008  | TSTMWind | 60 kts. | 0 | 0 | \$70,000    | \$0 |
| Mount Olive                                    | 5/3/2009   | TSTMWind | 65 kts. | 0 | 0 | \$200,000   | \$0 |
| Mount Olive                                    | 8/15/2010  | TSTMWind | 53 kts. | 0 | 0 | \$15,000    | \$0 |
| Mount Olive                                    | 5/31/2012  | TSTMWind | 50 kts. | 0 | 0 | \$15,000    | \$0 |
| Mount Olive                                    | 8/12/2013  | TSTMWind | 50 kts. | 0 | 0 | \$5,000     | \$0 |
| Mount Olive                                    | 9/2/2014   | TSTMWind | 43 kts. | 0 | 0 | \$1,000     | \$0 |
| Mount Olive                                    | 7/4/2015   | TSTMWind | 50 kts. | 0 | 0 | \$10,000    | \$0 |
| Mount Olive                                    | 1/2/2017   | TSTMWind | 50 kts. | 0 | 0 | \$5,000     | \$0 |
| Mount Olive                                    | 4/14/2018  | TSTMWind | 50 kts. | 0 | 0 | \$20,000    | \$0 |
| Mount Olive                                    | 5/9/2019   | TSTMWind | 50 kts. | 0 | 0 | \$5,000     | \$0 |
| Mount Olive                                    | 1/11/2020  | TSTMWind | 52 kts. | 0 | 0 | \$4,000     | \$0 |
| Mount Olive                                    | 3/4/2020   | TSTMWind | 60 kts. | 0 | 0 | \$120,000   | \$0 |
| Mount Olive                                    | 4/22/2020  | TSTMWind | 87 kts. | 0 | 0 | \$150,000   | \$0 |
| Mount Olive                                    | 4/13/2022  | TSTMWind | 65 kts. | 0 | 0 | \$30,000    | \$0 |
| Mount Olive                                    | 7/18/2024  | TSTMWind | 52 kts. | 0 | 0 | \$4,000     | \$0 |
| <b>Town of Seminary</b>                        |            |          |         |   |   |             |     |
| Seminary                                       | 8/31/2000  | TSTMWind | Unknown | 0 | 0 | \$17,000    | \$0 |
| Seminary                                       | 12/13/2000 | TSTMWind | 52 kts. | 0 | 0 | \$1,000     | \$0 |
| Seminary                                       | 3/12/2001  | TSTMWind | Unknown | 0 | 0 | \$5,000     | \$0 |
| Seminary                                       | 6/4/2001   | TSTMWind | Unknown | 0 | 0 | \$1,000     | \$0 |
| Seminary                                       | 11/24/2004 | TSTMWind | 55kts.  | 0 | 0 | \$1,000     | \$0 |
| Seminary                                       | 1/7/2005   | TSTMWind | 62 kts. | 0 | 0 | \$10,000    | \$0 |
| Seminary                                       | 2/13/2007  | TSTMWind | 50 kts. | 0 | 0 | \$0         | \$0 |
| Seminary                                       | 8/12/2013  | TSTMWind | 50 kts. | 0 | 0 | \$5,000     | \$0 |
| Seminary                                       | 6/13/2014  | TSTMWind | 50 kts. | 0 | 0 | \$0         | \$0 |
| Seminary                                       | 1/21/2017  | TSTMWind | 60 kts. | 0 | 0 | \$35,000    | \$0 |
| Seminary                                       | 6/16/2017  | TSTMWind | 60 kts. | 0 | 0 | \$5,000     | \$0 |
| Seminary                                       | 4/14/2018  | TSTMWind | 52 kts. | 0 | 0 | \$3,000     | \$0 |
| Seminary                                       | 8/7/2018   | TSTMWind | 50 kts. | 0 | 0 | \$20,000    | \$0 |
| Seminary                                       | 4/13/2019  | TSTMWind | 53 kts. | 0 | 0 | \$15,000    | \$0 |
| Seminary                                       | 6/5/2020   | TSTMWind | 50 kts. | 0 | 0 | \$1,000     | \$0 |
| Seminary                                       | 8/16/2020  | TSTMWind | 50 kts. | 0 | 0 | \$8,000     | \$0 |
| Seminary                                       | 5/5/2023   | TSTMWind | 87 kts. | 0 | 0 | \$2,000,000 | \$0 |
| Seminary                                       | 6/14/2023  | TSTMWind | 75 kts. | 0 | 0 | \$50,000    | \$0 |
| Seminary                                       | 6/16/2023  | TSTMWind | 65 kts. | 0 | 0 | \$20,000    | \$0 |
| Seminary                                       | 6/4/2024   | TSTMWind | 52 kts. | 0 | 0 | \$5,000     | \$0 |
| <b>Unincorporated Area in Covington County</b> |            |          |         |   |   |             |     |
| Williamsburg                                   | 1/13/2000  | TSTMWind | Unknown | 0 | 0 | \$2,000     | \$0 |
| Williamsburg                                   | 7/18/2000  | TSTMWind | Unknown | 0 | 0 | \$20,000    | \$0 |

|              |            |             |         |   |   |          |     |
|--------------|------------|-------------|---------|---|---|----------|-----|
| Countywide   | 7/22/2000  | TSTM Wind   | Unknown | 0 | 0 | \$5,000  | \$0 |
| Countywide   | 8/10/2000  | TSTM Wind   | Unknown | 0 | 0 | \$5,000  | \$0 |
| Sanford      | 1/19/2001  | TSTM Wind   | Unknown | 0 | 0 | \$1,000  | \$0 |
| Countywide   | 1/29/2001  | TSTM Wind   | Unknown | 0 | 0 | \$8,000  | \$0 |
| Sanford      | 2/16/2001  | TSTM Wind   | Unknown | 0 | 0 | \$1,000  | \$0 |
| Sanford      | 3/12/2001  | TSTM Wind   | Unknown | 0 | 0 | \$5,000  | \$0 |
| Hot Coffee   | 6/13/2001  | TSTM Wind   | Unknown | 0 | 0 | \$1,000  | \$0 |
| Countywide   | 10/13/2001 | TSTM Wind   | Unknown | 0 | 0 | \$1,000  | \$0 |
| Countywide   | 4/8/2002   | TSTM Wind   | Unknown | 0 | 0 | \$1,000  | \$0 |
| Countywide   | 10/3/2002  | TSTM Wind   | Unknown | 0 | 0 | \$3,000  | \$0 |
| Countywide   | 4/6/2003   | TSTM Wind   | 55 kts. | 0 | 0 | \$15,000 | \$0 |
| Countywide   | 11/27/2003 | TSTM Wind   | 50 kts. | 0 | 0 | \$10,000 | \$0 |
| Williamsburg | 11/24/2004 | TSTM Wind   | 55 kts. | 0 | 0 | \$1,000  | \$0 |
| Sanford      | 3/22/2005  | TSTM Wind   | 67 kts. | 0 | 0 | \$15,000 | \$0 |
| Sanford      | 7/21/2005  | TSTM Wind   | 53 kts. | 0 | 0 | \$0      | \$0 |
| Hot Coffee   | 7/30/2006  | TSTM Wind   | 50 kts. | 0 | 0 | \$0      | \$0 |
| Sanford      | 9/23/2006  | TSTM Wind   | 53 kts. | 0 | 0 | \$15,000 | \$0 |
| Sanford      | 11/15/2006 | TSTM Wind   | 57 kts. | 0 | 0 | \$0      | \$0 |
| Williamsburg | 1/29/2008  | TSTM Wind   | 55 kts. | 0 | 0 | \$0      | \$0 |
| Gandsi       | 2/12/2008  | TSTM Wind   | 70 kts. | 0 | 0 | \$75,000 | \$0 |
| Sanford      | 6/17/2008  | TSTM Wind   | 50 kts. | 0 | 0 | \$0      | \$0 |
| Hot Coffee   | 6/25/2008  | TSTM Wind   | 60 kts. | 0 | 0 | \$2,000  | \$0 |
| Arbo         | 8/2/2008   | TSTM Wind   | 60 kts. | 0 | 0 | \$0      | \$0 |
| Pickering    | 8/7/2008   | TSTM Wind   | 50 kts. | 0 | 0 | \$0      | \$0 |
| Smith        | 4/12/2009  | TSTM Wind   | 55 kts. | 0 | 0 | \$0      | \$0 |
| Williamsburg | 5/3/2009   | TSTM Wind   | 60 kts. | 0 | 0 | \$50,000 | \$0 |
| Lux          | 5/5/2009   | TSTM Wind   | 50 kts. | 0 | 0 | \$500    | \$0 |
| Pickering    | 12/9/2009  | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000  | \$0 |
| Gandsi       | 6/17/2010  | TSTM Wind   | 52 kts. | 0 | 0 | \$25,000 | \$0 |
| Hot Coffee   | 6/17/2010  | TSTM Wind   | 63 kts. | 0 | 0 | \$45,000 | \$0 |
| Smith        | 2/1/2011   | TSTM Wind   | 50 kts. | 0 | 0 | \$0      | \$0 |
| Gandsi       | 4/4/2011   | TSTM Wind   | 62 kts. | 0 | 0 | \$55,000 | \$0 |
| County       | 4/2/2012   | Strong Wind | 43 kts. | 0 | 0 | \$1,000  | \$0 |
| Hot Coffee   | 6/11/2012  | TSTM Wind   | 50 kts. | 0 | 0 | \$15,000 | \$0 |
| Pickering    | 8/9/2012   | TSTM Wind   | 50 kts. | 0 | 0 | \$0      | \$0 |
| Williamsburg | 8/15/2012  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000  | \$0 |
| Hot Coffee   | 12/20/2012 | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000  | \$0 |
| County       | 2/20/2014  | Strong Wind | 43 kts. | 0 | 0 | \$1,000  | \$0 |
| County       | 2/21/2014  | Strong Wind | 45 kts. | 0 | 0 | \$40,000 | \$0 |
| Hot Coffee   | 4/28/2014  | TSTM Wind   | 55 kts. | 0 | 0 | \$13,000 | \$0 |
| Hot Coffee   | 6/28/2014  | TSTM Wind   | 35 kts. | 0 | 0 | \$5,000  | \$0 |
| County       | 8/3/2014   | Strong Wind | 40 kts. | 0 | 0 | \$3,000  | \$0 |
| Gandsi       | 8/9/2014   | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000  | \$0 |
| Sanford      | 10/13/2014 | TSTM Wind   | 50 kts. | 0 | 0 | \$0      | \$0 |
| Smith        | 1/3/2015   | TSTM Wind   | 52 kts. | 0 | 0 | \$10,000 | \$0 |
| Williamsburg | 5/20/2015  | TSTM Wind   | 52 kts. | 0 | 0 | \$6,000  | \$0 |
| Gandsi       | 6/13/2015  | TSTM Wind   | 55 kts. | 0 | 0 | \$25,000 | \$0 |
| Arbo         | 6/24/2015  | TSTM Wind   | 50 kts. | 0 | 0 | \$10,000 | \$0 |



|                     |            |             |         |   |   |          |     |
|---------------------|------------|-------------|---------|---|---|----------|-----|
| <b>Williamsburg</b> | 6/24/2015  | TSTM Wind   | 50 kts. | 0 | 0 | \$6,000  | \$0 |
| <b>County</b>       | 11/17/2015 | Strong Wind | 42 kts. | 0 | 0 | \$10,000 | \$0 |
| <b>County</b>       | 2/2/2016   | Strong Wind | 35 kts. | 0 | 0 | \$3,000  | \$0 |
| <b>Gandsi</b>       | 2/15/2016  | TSTM Wind   | 50 kts. | 0 | 0 | \$7,000  | \$0 |
| <b>Pickering</b>    | 9/25/2016  | TSTM Wind   | 50 kts. | 0 | 0 | \$8,000  | \$0 |
| <b>County</b>       | 11/28/2016 | Strong Wind | 35 kts. | 0 | 0 | \$5,000  | \$0 |
| <b>Hot Coffee</b>   | 1/2/2017   | TSTM Wind   | 55 kts. | 0 | 0 | \$20,000 | \$0 |
| <b>Gandsi</b>       | 1/21/2017  | TSTM Wind   | 55 kts. | 0 | 0 | \$20,000 | \$0 |
| <b>Hot Coffee</b>   | 6/16/2017  | TSTM Wind   | 55 kts. | 0 | 0 | \$60,000 | \$0 |
| <b>Smith</b>        | 6/16/2017  | TSTM Wind   | 65 kts. | 0 | 0 | \$50,000 | \$0 |
| <b>County</b>       | 6/22/2017  | Strong Wind | 35 kts. | 0 | 0 | \$7,000  | \$0 |
| <b>Gandsi</b>       | 9/23/2017  | TSTM Wind   | 60 kts. | 0 | 0 | \$75,000 | \$0 |
| <b>Ora</b>          | 9/23/2017  | TSTM Wind   | 50 kts. | 0 | 0 | \$10,000 | \$0 |
| <b>Gandsi</b>       | 8/16/2018  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000  | \$0 |
| <b>Smith</b>        | 11/1/2018  | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000  | \$0 |
| <b>Williamsburg</b> | 4/13/2019  | TSTM Wind   | 50 kts. | 0 | 0 | \$15,000 | \$0 |
| <b>Gandsi</b>       | 4/13/2019  | TSTM Wind   | 50 kts. | 0 | 0 | \$20,000 | \$0 |
| <b>Grandsi</b>      | 4/18/2019  | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000  | \$0 |
| <b>Hot Coffee</b>   | 5/11/2019  | TSTM Wind   | 50 kts. | 0 | 0 | \$9,000  | \$0 |
| <b>Sanford</b>      | 6/7/2019   | TSTM Wind   | 52 kts. | 0 | 0 | \$7,000  | \$0 |
| <b>Ora</b>          | 10/26/2019 | TSTM Wind   | 55 kts. | 0 | 0 | \$25,000 | \$0 |
| <b>Ora</b>          | 1/11/2020  | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000  | \$0 |
| <b>Grandsi</b>      | 1/11/2020  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000  | \$0 |
| <b>Williamsburg</b> | 3/4/2020   | TSTM Wind   | 55 kts. | 0 | 0 | \$5,000  | \$0 |
| <b>County</b>       | 4/28/2020  | Strong Wind | 43 kts. | 0 | 0 | \$8,000  | \$0 |
| <b>Williamsburg</b> | 6/23/2020  | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000  | \$0 |
| <b>Williamsburg</b> | 8/16/2020  | TSTM Wind   | 50 kts. | 0 | 0 | \$8,000  | \$0 |
| <b>Arbo</b>         | 12/24/2020 | TSTM Wind   | 60 kts. | 0 | 0 | \$15,000 | \$0 |
| <b>Smith</b>        | 12/24/2020 | TSTM Wind   | 55 kts. | 0 | 0 | \$25,000 | \$0 |
| <b>Williamsburg</b> | 3/17/2021  | TSTM Wind   | 52 kts. | 0 | 0 | \$10,000 | \$0 |
| <b>Ora</b>          | 3/18/2022  | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000  | \$0 |
| <b>Hot Coffee</b>   | 4/13/2022  | TSTM Wind   | 78 kts. | 0 | 0 | \$2,000  | \$0 |
| <b>Hot Coffee</b>   | 5/12/2022  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000  | \$0 |
| <b>Williamsburg</b> | 5/5/2023   | TSTM Wind   | 70 kts. | 0 | 0 | \$80,000 | \$0 |
| <b>Sanford</b>      | 5/5/2023   | TSTM Wind   | 52 kts. | 0 | 0 | \$3,000  | \$0 |
| <b>Hot Coffee</b>   | 1/25/2024  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000  | \$0 |
| <b>Smith</b>        | 6/4/2024   | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000  | \$0 |
| <b>Jaycee ARPT</b>  | 8/16/2024  | TSTM Wind   | 62 kts. | 0 | 0 | \$25,000 | \$0 |

Source: NCED/NOAA

## Hailstorm

According to the National Centers for Environmental Information, 52 recorded hailstorm events have affected Covington County since 2000. **Table A.18** is a summary of the hail events in Covington County. **Table A.19** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over \$1.5M 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.

## 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.19**. 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.

**TABLE A.18: SUMMARY OF LIGHTNING AND HAIL OCCURRENCES IN COVINGTON COUNTY 2000-2024**

| Location                   | Number of Occurrences | Deaths   | Injuries | Property Damage    | Crop Damage |
|----------------------------|-----------------------|----------|----------|--------------------|-------------|
| <i>Collins</i>             | 10                    | 0        | 0        | \$536,000          | \$0         |
| <i>Mount Olive</i>         | 10                    | 0        | 0        | \$156,000          | \$0         |
| <i>Seminary</i>            | 13                    | 0        | 0        | \$792,000          | \$0         |
| <i>Unincorporated Area</i> | 20                    | 0        | 0        | \$77,000           | \$0         |
| <b>County Total:</b>       | <b>53</b>             | <b>0</b> | <b>0</b> | <b>\$1,561,000</b> | <b>\$0</b>  |

Source: NCED/NOAA

**TABLE A.19: HISTORICAL LIGHTNING AND HAIL OCCURRENCES IN COVINGTON COUNTY 2000-2024**

| Location                   | Date      | Type | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|----------------------------|-----------|------|-----------|--------|----------|-----------------|-------------|
| <b>City of Collins</b>     |           |      |           |        |          |                 |             |
| <i>Collins</i>             | 3/10/2000 | Hail | 1.75 in.  | 0      | 0        | \$10,000        | \$0         |
| <i>Collins</i>             | 3/10/2000 | Hail | 1 in.     | 0      | 0        | \$0             | \$0         |
| <i>Collins</i>             | 8/20/2003 | Hail | 0.75 in.  | 0      | 0        | \$1,000         | \$0         |
| <i>Collins</i>             | 3/30/2005 | Hail | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Collins</i>             | 12/4/2005 | Hail | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Collins</i>             | 6/7/2011  | Hail | 1 in.     | 0      | 0        | \$20,000        | \$0         |
| <i>Collins</i>             | 1/8/2012  | Hail | 1.25 in.  | 0      | 0        | \$5,000         | \$0         |
| <i>Collins</i>             | 7/11/2016 | Hail | 0.88 in.  | 0      | 0        | \$0             | \$0         |
| <i>Collins</i>             | 2/19/2019 | Hail | 0.88 in.  | 0      | 0        | \$0             | \$0         |
| <i>Collins</i>             | 6/14/2023 | Hail | 1.50 in.  | 0      | 0        | \$500,000       | \$0         |
| <b>Town of Mount Olive</b> |           |      |           |        |          |                 |             |
| <i>Mount Olive</i>         | 4/2/2000  | Hail | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Mount Olive</i>         | 4/25/2003 | Hail | 1.75 in.  | 0      | 0        | \$10,000        | \$0         |
| <i>Mount Olive</i>         | 6/15/2003 | Hail | 0.75 in.  | 0      | 0        | \$1,000         | \$0         |
| <i>Mount Olive</i>         | 4/6/2005  | Hail | 1 in.     | 0      | 0        | \$0             | \$0         |
| <i>Mount Olive</i>         | 4/6/2005  | Hail | 1.75 in.  | 0      | 0        | \$20,000        | \$0         |
| <i>Mount Olive</i>         | 2/3/2006  | Hail | 1 in.     | 0      | 0        | \$0             | \$0         |
| <i>Mount Olive</i>         | 5/10/2006 | Hail | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Mount Olive</i>         | 4/23/2010 | Hail | 1 in.     | 0      | 0        | \$0             | \$0         |
| <i>Mount Olive</i>         | 3/25/2021 | Hail | 2.75 in.  | 0      | 0        | \$25,000        | \$0         |
| <i>Mount Olive</i>         | 5/9/2024  | Hail | 1.00 in.  | 0      | 0        | \$100,000       | \$0         |

| Town of Seminary                        |            |           |          |   |   |           |     |
|-----------------------------------------|------------|-----------|----------|---|---|-----------|-----|
| <i>Seminary</i>                         | 5/3/2003   | Hail      | 1 in.    | 0 | 0 | \$1,000   | \$0 |
| <i>Seminary</i>                         | 5/17/2003  | Hail      | 0.75 in. | 0 | 0 | \$1,000   | \$0 |
| <i>Seminary</i>                         | 3/26/2005  | Hail      | 2.75 in. | 0 | 0 | \$200,000 | \$0 |
| <i>Seminary</i>                         | 2/3/2006   | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Seminary</i>                         | 5/8/2006   | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Seminary</i>                         | 1/10/2008  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Seminary</i>                         | 6/20/2008  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Seminary</i>                         | 1/3/2009   | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Seminary</i>                         | 1/20/2010  | Hail      | 1 in.    | 0 | 0 | \$25,000  | \$0 |
| <i>Seminary</i>                         | 3/18/2013  | Hail      | 2.50 in. | 0 | 0 | \$50,000  | \$0 |
| <i>Seminary</i>                         | 4/7/2014   | Lightning | --       | 0 | 0 | \$15,000  | \$0 |
| <i>Seminary</i>                         | 3/17/2016  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>Seminary</i>                         | 4/17/2022  | Hail      | 1.75 in. | 0 | 0 | \$500,000 | \$0 |
| Unincorporated Area in Covington County |            |           |          |   |   |           |     |
| <i>Hot Coffee</i>                       | 4/24/2003  | Hail      | 0.75 in. | 0 | 0 | \$1,000   | \$0 |
| <i>Hot Coffee</i>                       | 4/25/2003  | Hail      | 1.50 in. | 0 | 0 | \$5,000   | \$0 |
| <i>Sanford</i>                          | 5/3/2003   | Hail      | 1 in.    | 0 | 0 | \$1,000   | \$0 |
| <i>Hot Coffee</i>                       | 4/22/2005  | Hail      | 2.50 in. | 0 | 0 | \$50,000  | \$0 |
| <i>Sanford</i>                          | 4/22/2005  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>Hot Coffee</i>                       | 3/20/2006  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>Sanford</i>                          | 5/8/2006   | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Hot Coffee</i>                       | 7/19/2006  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Sanford</i>                          | 1/10/2008  | Hail      | 1.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Sanford</i>                          | 6/17/2008  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Hot Coffee</i>                       | 6/25/2008  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Williamsburg</i>                     | 12/9/2008  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Williamsburg</i>                     | 12/9/2008  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>Williamsburg</i>                     | 5/12/2009  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Sanford</i>                          | 2/22/2013  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Smith</i>                            | 8/3/2014   | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Hot Coffee</i>                       | 3/18/2015  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Arbo</i>                             | 6/24/2015  | Lightning | --       | 0 | 0 | \$5,000   | \$0 |
| <i>Gandsi</i>                           | 9/23/2017  | Lightning | --       | 0 | 0 | \$15,000  | \$0 |
| <i>Pickering</i>                        | 12/16/2019 | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |

Source: NCED/NOAA

## 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 Covington 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 Covington 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®), 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. 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.

Meteorologists predict that thunderstorms will continue to increase in frequency, magnitude, and intensity as climate change continues to effect weather. These increases could greatly impact the county in crop and property damage and life safety. If these storms intensify it could also affect the economy of 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 seven disaster declarations in Covington County in 1983, 1990, 1992, 2018, twice in 2020, and in 2023. According to the National Centers for Environmental Information, there have been a total of 33 recorded tornado events in Covington County since 2000 (**Table A.20**), resulting in over \$38 million in property damages. In addition, 17 injuries were reported. Additionally, there was a tornado on November 21, 1992, was one of the costliest tornadoes in the county. The tornado was a EF4, which left 100 citizens injured and almost \$45 million in damages. The magnitude of these tornadoes ranges from F0 to EF4 in intensity, although an F5 event is possible. Detailed information on historic tornado events can be found in **Table A.21**.

**TABLE A.20: SUMMARY OF TORNADO OCCURRENCES IN COVINGTON COUNTY**

| Location                       | Number of Occurrences | Deaths   | Injuries  | Property Damage     | Crop Damage        |
|--------------------------------|-----------------------|----------|-----------|---------------------|--------------------|
| <i>Collins</i>                 | 4                     | 0        | 0         | \$780,000           | \$0                |
| <i>Mount Olive</i>             | 5                     | 0        | 0         | \$240,000           | \$0                |
| <i>Seminary</i>                | 2                     | 0        | 0         | \$102,000           | \$0                |
| <i>Unincorporated Area</i>     | 22                    | 0        | 17        | \$37,418,000        | \$4,800,000        |
| <b>Covington County Total:</b> | <b>33</b>             | <b>0</b> | <b>17</b> | <b>\$38,540,000</b> | <b>\$4,800,000</b> |

Source: NCED/NOAA

**TABLE A.21: HISTORICAL TORNADO IMPACTS IN COVINGTON COUNTY**

| Location                                       | Date       | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|------------------------------------------------|------------|-----------|--------|----------|-----------------|-------------|
| <b>City of Collins</b>                         |            |           |        |          |                 |             |
| <i>Collins</i>                                 | 5/1/2004   | F1        | 0      | 0        | \$10,000        | \$0         |
| <i>Collins</i>                                 | 5/1/2004   | F1        | 0      | 0        | \$25,000        | \$0         |
| <i>Collins</i>                                 | 12/20/2007 | EF1       | 0      | 0        | \$700,000       | \$0         |
| <i>Collins</i>                                 | 4/26/2011  | EF1       | 0      | 0        | \$45,000        | \$0         |
| <b>Town of Mount Olive</b>                     |            |           |        |          |                 |             |
| <i>Mount Olive</i>                             | 4/6/2005   | F0        | 0      | 0        | \$10,000        | \$0         |
| <i>Mount Olive</i>                             | 5/3/2009   | EF1       | 0      | 0        | \$10,000        | \$0         |
| <i>Mount Olive</i>                             | 5/3/2009   | EF1       | 0      | 0        | \$120,000       | \$0         |
| <i>Mount Olive</i>                             | 4/6/2018   | EF1       | 0      | 0        | \$50,000        | \$0         |
| <i>Mount Olive</i>                             | 4/5/2022   | EF1       | 0      | 0        | \$50,000        | \$0         |
| <b>Town of Seminary</b>                        |            |           |        |          |                 |             |
| <i>Seminary</i>                                | 11/27/2003 | F0        | 0      | 0        | \$2,000         | \$0         |
| <i>Seminary</i>                                | 12/28/2016 | EF1       | 0      | 0        | \$100,000       | \$0         |
| <b>Unincorporated Area in Covington County</b> |            |           |        |          |                 |             |
| <i>Hot Coffee</i>                              | 4/30/2005  | F0        | 0      | 0        | \$50,000        | \$0         |
| <i>Hot Coffee</i>                              | 3/30/2006  | F0        | 0      | 0        | \$0             | \$0         |
| <i>Hot Coffee</i>                              | 12/20/2007 | EF1       | 0      | 0        | \$80,000        | \$0         |
| <i>Arbo</i>                                    | 2/12/2008  | EF1       | 0      | 0        | \$200,000       | \$0         |
| <i>Hot Coffee</i>                              | 9/2/2008   | EF1       | 0      | 0        | \$425,000       | \$0         |



|              |            |     |   |   |              |             |
|--------------|------------|-----|---|---|--------------|-------------|
| Williamsburg | 9/4/2011   | EF1 | 0 | 0 | \$25,000     | \$0         |
| Williamsburg | 2/21/2013  | EF0 | 0 | 0 | \$15,000     | \$0         |
| Williamsburg | 4/7/2014   | EF2 | 0 | 8 | \$2,000,000  | \$0         |
| Arbo         | 1/3/2015   | EF1 | 0 | 0 | \$20,000     | \$0         |
| Arbo         | 1/3/2015   | EF1 | 0 | 0 | \$40,000     | \$0         |
| Williamsburg | 8/17/2015  | EF0 | 0 | 0 | \$15,000     | \$0         |
| Arbo         | 1/2/2017   | EF2 | 0 | 0 | \$100,000    | \$0         |
| Hot Coffee   | 1/22/2018  | EF1 | 0 | 1 | \$30,000     | \$0         |
| Ora          | 4/6/2018   | EF1 | 0 | 0 | \$30,000     | \$0         |
| Smith        | 4/13/2019  | EF1 | 0 | 2 | \$50,000     | \$0         |
| Sanford      | 12/16/2019 | EF1 | 0 | 0 | \$10,000     | \$0         |
| Williamsburg | 3/4/2020   | EF0 | 0 | 0 | \$25,000     | \$0         |
| Williamsburg | 4/12/2020  | EF4 | 0 | 5 | \$25,900,000 | \$3,600,000 |
| Williamsburg | 4/12/2020  | EF3 | 0 | 1 | \$8,300,000  | \$1,200,000 |
| Smith        | 12/24/2020 | EF1 | 0 | 0 | \$18,000     | \$0         |
| Lux          | 3/30/2021  | EF0 | 0 | 0 | \$5,000      | \$0         |
| Arbo         | 4/5/2022   | EF1 | 0 | 0 | \$80,000     | \$0         |

Source: NCED/NOAA

Anecdotes are available from NCEI for the major storms that have impacted that area as found below:

**December 20, 2007**—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

**April 7, 2014**—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.

**April 12, 2020**—This violent, deadly tornado traveled 68 miles through parts of five counties including southeastern Jefferson Davis, central Covington, northwestern Jones, southeastern Jasper, and western Clarke counties. Locations impacted by this tornado include Bassfield, the areas between Collins and Seminary, Soso, Moss, Heidelberg, and Pachuta. This tornado is preliminarily rated EF4 with an estimated peak wind of 190 MPH east of Bassfield in southwestern Jefferson Davis County. Additional EF4 damage was noted near Soso in Jones County and at Moss in Jasper County. The maximum path width was 2.25 miles in the vicinity of Hughes Road west of Seminary in western Covington County. At this width, the tornado ranks 3rd widest in

the official NOAA United States tornado database behind the El Reno, OK tornado of 2013 (2.6 mi) and the Hallam, NE tornado of 2004 (2.5 mi).

This tornado now ranks as the widest on record in the state of Mississippi, surpassing the Yazoo City, MS tornado of 2010 (1.75 mi). Eight lives were lost in this tornado, and there was an undetermined number of additional injuries. Additional details on the damage path and area of most significant damage follow.

The worst damage occurred along MS Highway 28 where a convenience store was destroyed, and several other cinder block structures were heavily damaged when the storm intensified to low end EF-4. The tornado continued to mow down large swaths of trees and caused major uplift and loss of roofing to numerous homes as it moved northeast toward MS Highway 15. Along Mathews Road numerous mobile homes and several outbuildings were completely destroyed.

The tornado intensified to a low end EF4 as it moved into the Moss community, where winds near 175 mph resulted in widespread devastation. Nearly every structure in the community was damaged with the most significant damage occurring along or near MS Highway 537. About half of the First Baptist Church of Moss was completely leveled. Numerous homes were destroyed or had major roofing loss or uplifted. A small pick-up truck was thrown several hundred yards and completely destroyed. In addition, multiple mobile homes were completely demolished.

As the storm tracked toward I-59 a few miles west of Heidelberg, hundreds of trees were mowed down, outbuildings were destroyed. Several homes and mobile homes had metal roofing peeled back or decking exposed. Large swaths of trees were snapped for several miles including some along I-59 between the Heidelberg and Vossburg exits. Swaths of tree damage continued into the Barnett community. In the town of Pachuta there was scattered tree damage, and the metal roofing was peeled off of a church. About two miles north of Pachuta, the damage became sporadic, and the tornado lifted in a wooded area along County Road 130.

The total path length was 67.43 miles. The maximum estimated wind speed of the tornado was 190mph, while the maximum wind speed in Covington County was 170mph.

### **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).

It is predicted that tornadoes and the type of storms that create tornadoes will increase in intensity, frequency, and magnitude as the temperature rises with climate change. More frequent strong tornadoes could have a large economic impact on each community in the county. It could also increase injuries and/death counts if the tornadoes increase in magnitude.

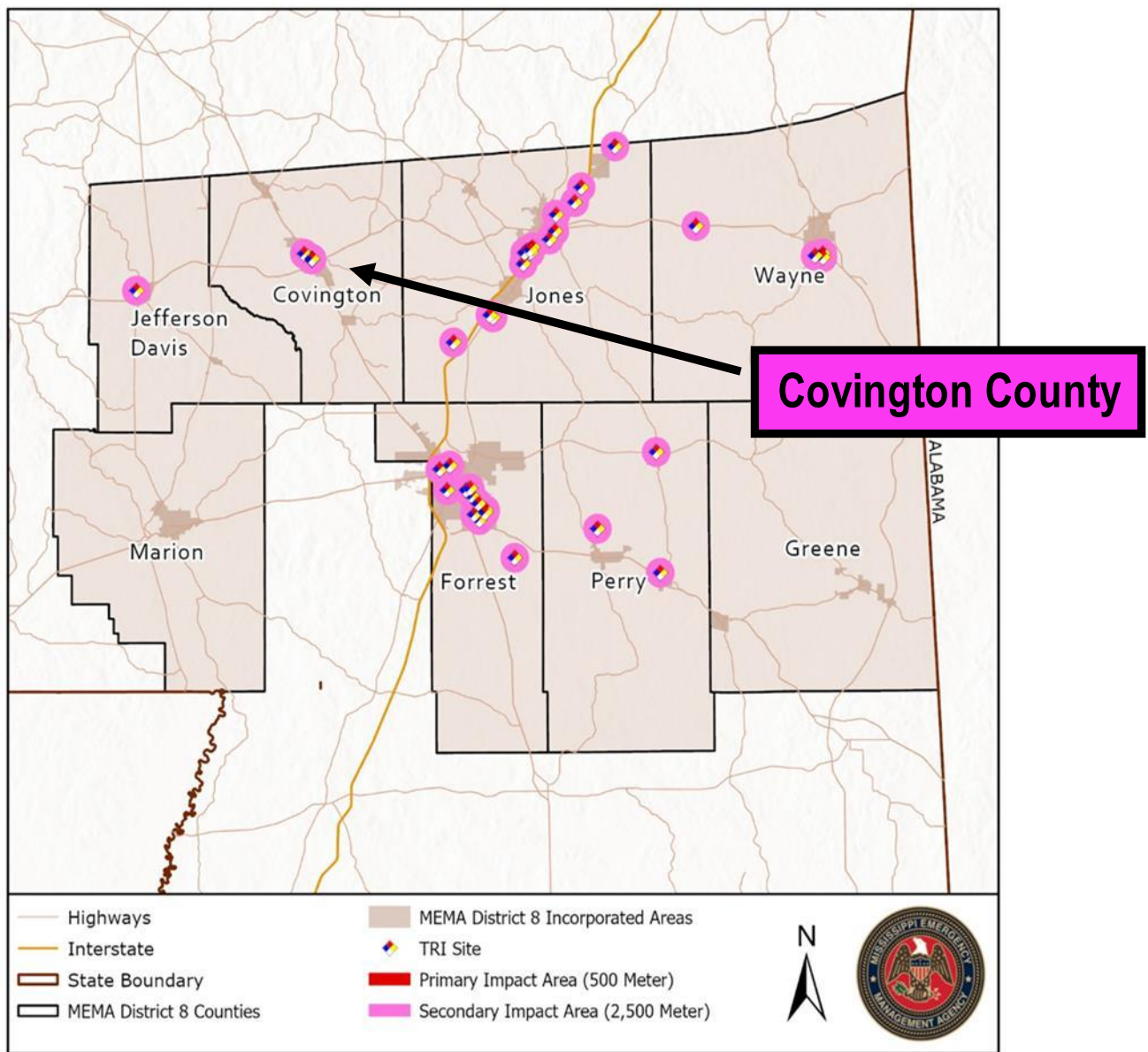
## **A.2.13 Hazardous Materials Incidents**

### **LOCATION AND SPATIAL EXTENT**

#### **Hazardous Materials**

Covington County has four TRI sites. These sites are shown in **Figure A.7**.

**FIGURE A.7: TOXIC RELEASE INVENTORY (TRI) SITES IN COVINGTON COUNTY**



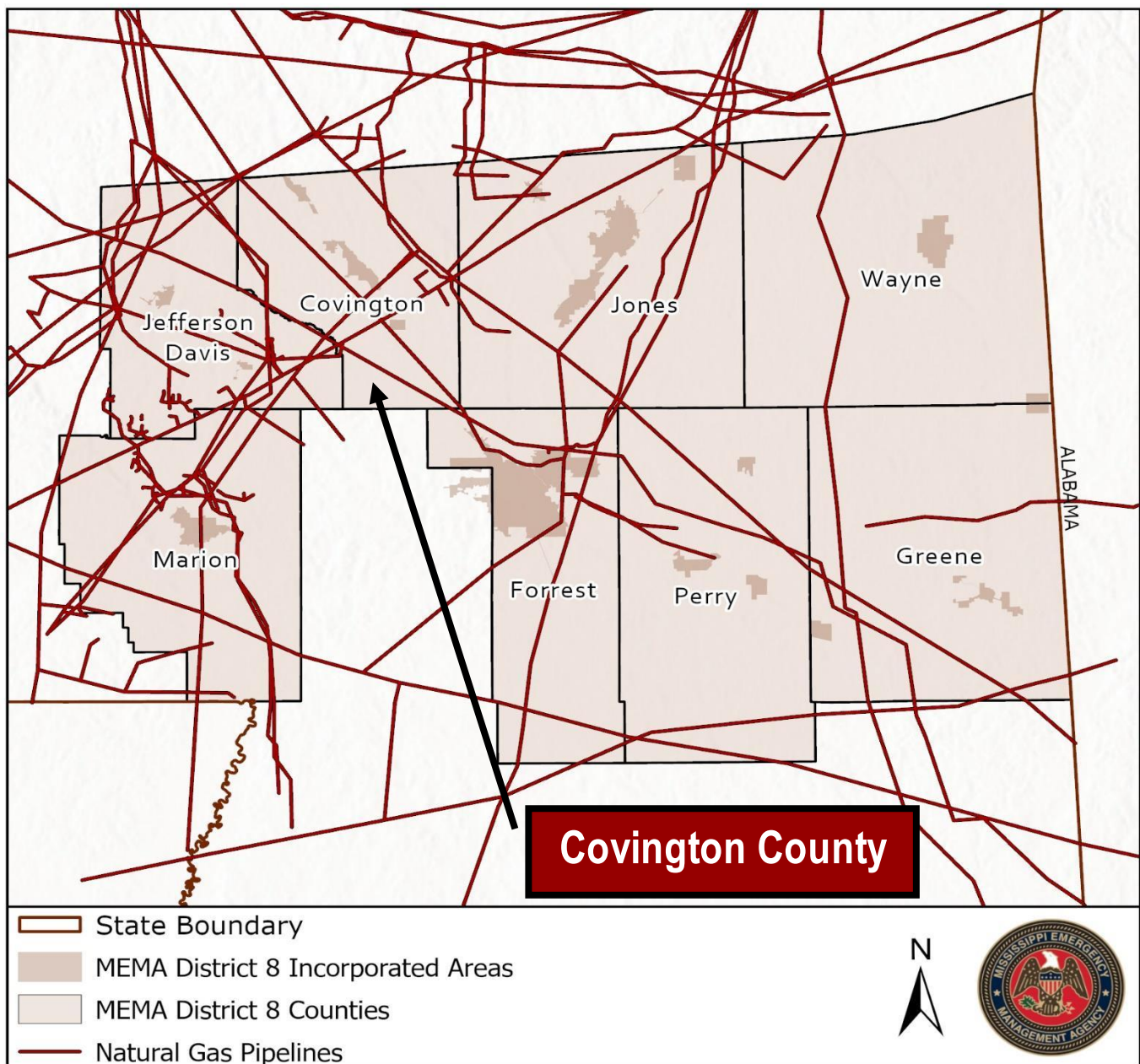
In addition to “fixed” hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially 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.8** shows the trunk lines for each of these material types but does not show the gathering or distribution pipelines. The natural gas lines are in red/maroon.

**FIGURE A.9: PIPELINES IN COVINGTON COUNTY**





## 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.22**), resulting in \$19,750 in property damages. In addition, one death was reported. **Table A.23** 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.22: SUMMARY OF HAZMAT INCIDENTS IN COVINGTON COUNTY**

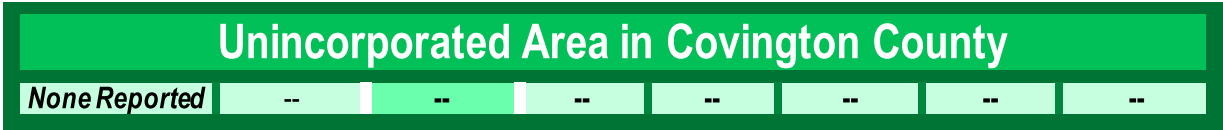
| Location                       | Number of Occurrences | Deaths/Injuries | Property Damage |
|--------------------------------|-----------------------|-----------------|-----------------|
| <i>Collins</i>                 | 21                    | 1/0             | \$9,650         |
| <i>Mount Olive</i>             | 3                     | 0/0             | \$10,100        |
| <i>Seminary</i>                | 0                     | 0/0             | \$0             |
| <i>Unincorporated Area</i>     | 0                     | 0/0             | \$0             |
| <b>Covington County Total:</b> | <b>24</b>             | <b>1/0</b>      | <b>\$19,750</b> |

Source: USDOT PHMSA

TABLE A.23: HAZMAT INCIDENTS IN COVINGTON COUNTY

| Report Number            | Date       | City             | Mode    | Serious Incident | Fatalities/Injuries | Damages  | Quantity Released |
|--------------------------|------------|------------------|---------|------------------|---------------------|----------|-------------------|
| <b>City of Collins</b>   |            |                  |         |                  |                     |          |                   |
| I-1972070013             | 6/24/1972  | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 0                 |
| I-1973020096             | 1/18/1973  | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 0                 |
| I-1973110156             | 10/16/1973 | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 0                 |
| I-1974010238             | 1/3/1974   | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 0                 |
| I-1974050260             | 4/26/1974  | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 0                 |
| I-1974070383             | 6/12/1974  | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 0                 |
| I-1975020457             | 12/20/1974 | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 0                 |
| I-1976030757             | 3/6/1976   | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 50 LGA            |
| I-1076081113             | 7/30/1976  | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 0                 |
| I-1976110129             | 9/30/1976  | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 111 LGA           |
| I-1976120500             | 11/26/1976 | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 66 LGA            |
| I-1977080146             | 7/19/1977  | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 58 LGA            |
| I-1978031024             | 3/11/1978  | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 38 LGA            |
| I-1978060526             | 5/22/1978  | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 25 LGA            |
| I-1986100193             | 9/30/1986  | <i>Collins</i>   | Highway | Yes              | 1/0                 | \$0      | 7,980 LGA         |
| I-1987050470             | 5/15/1987  | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 25 LGA            |
| I-1992070574             | 5/13/1992  | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 20 LGA            |
| I-1996020224             | 1/13/1996  | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 0.125 LGA         |
| I-2002090335             | 6/11/2002  | <i>Collins</i>   | Highway | No               | 0/0                 | \$0      | 1 LGA             |
| I-2009030553             | 3/3/2009   | <i>Collins</i>   | Highway | No               | 0/0                 | \$6,075  | 30 LGA            |
| I-2011100178             | 9/11/2011  | <i>Collins</i>   | Highway | No               | 0/0                 | \$3,575  | 20 LGA            |
| <b>Town of Mathiston</b> |            |                  |         |                  |                     |          |                   |
| I-1978050598             | 5/3/1978   | <i>Mathiston</i> | Highway | Yes              | 0/0                 | \$0      | 200 LGA           |
| I-1978080318             | 7/24/1978  | <i>Mathiston</i> | Highway | Yes              | 0/0                 | \$0      | 300 LGA           |
| I-2009030262             | 2/26/2009  | <i>Mathiston</i> | Highway | No               | 0/0                 | \$10,100 | 15 LGA            |
| <b>Town of Seminary</b>  |            |                  |         |                  |                     |          |                   |
| <b>None Reported</b>     | --         | --               | --      | --               | --                  | --       | --                |





Source: USDOT PHMSA

Pipelines

Between 2002 and 2023, 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 Pandemic

### LOCATION AND SPATIAL EXTENT

Pandemics are global in nature. However, they may start anywhere. Webster County chose to analyze this hazard given the large number of poultry farms in the area. Poultry has served as host for viruses that ultimately mutate to infect humans.

All populations should be considered at risk to pandemic. Buildings and infrastructure are not directly impacted by the virus but could be indirectly impacted if people are not able to operate and maintain them due to illness. Many buildings may be shut down, at least temporarily, as a result. Employers may initiate work from home procedures for non-essential workers in order to help stop infection. Commerce activities, and thus the economy, may suffer greatly during this time.

### HISTORICAL OCCURRENCES

Several pandemics have been reported throughout history. The first known pandemic dates back to 430 B.C. with the Plague of Athens. It reportedly killed a quarter of the population over four years due to typhoid fever. In 165-180 A.D., the Antonine Plague killed nearly 5 million people. Next, the Plague of Justinian (the first bubonic plague pandemic) occurred from 541 to 566. It killed 10,000 people a day at its peak and resulted in a 50 percent drop in Europe's population.

Since the 1500s, influenza pandemics have occurred about three times every century or roughly every 10-50 years. The Black Death devastated European populations in the 14th century. Nearly a third of the population (20-30 million) was killed over six years. From 1817 to present, seven Cholera Pandemics have impacted to the world and killed millions. Perhaps most severe, was the Third Cholera Pandemic (1852-1959) which started in China. Isolated cases can still be found in the Western U.S. today. There were three major pandemics in the 20th century (1918-1919, 1957-1958, and 1968-1969). The most infamous pandemic flu of the 20th century, however, was that of 1918-1919. Since the 1960s, there has only been one pandemic, the 2009 H1N1 influenza. The pandemics of the 20th and 21st centuries that impacted the United States are detailed below.

**1918 Spanish Flu:** This was the most devastating flu of the 20th century. This pandemic spread across the world in three waves between 1918 and 1919. It typically impacted areas for around twelve weeks and then would largely disappear. However, it would frequently reemerge several months later. Worldwide, approximately 50 million persons died and over a quarter of the population was infected. Nearly 675,000 people died in the United States. The illness came on suddenly and could cause death within a few hours. The virus impacted those aged 15 to 35 especially hard. The movement of troops during World War I is thought to have facilitated the spread of the virus.

In Mississippi, state officials noted that "epidemics have been reported from a number of places in the State," on October 4th, 1918. By the 18th, twenty-six localities reported 1,934 cases (the real number of cases was likely much higher). West Point, Mississippi was hit especially hard, and quarantine was established. Throughout the state, African Americans were impacted at a greater rate than white populations. This is thought to be partly caused from a shortage of caretakers. It is estimated that over 6,000 people died in Mississippi, though that number may be much higher as death records were not widely recorded.

**1957 Asian Flu:** It is estimated that the Asian Flu caused 2 million deaths worldwide. Approximately 70,000 deaths were in the U.S. However, the proportion of people impacted was substantially higher than that of the Spanish Flu. This flu was characterized as having much milder effects than the Spanish Flu and greater survivability. Similar to other pandemics, this pandemic has two waves. Elderly and infant populations were more likely to succumb to death. This flu is thought to have originated from a genetic mutation of a bird virus.

**1968 Hong Kong Flu:** The Hong Kong Flu is thought to have caused one million deaths worldwide. It was milder than both the Asian and Spanish influenza viruses. It was similar to the Asian Flu, which may have provided some immunity to the virus. It had the most severe impact on elderly populations.

**2009 H1N1 Influenza:** This flu was derived from human, swine, and avian virus strains. It was initially reported in Mexico in April 2009. On April 26, the U.S. government declared H1N1 a public health emergency. A vaccine was developed and over 80 million were vaccinated which helped minimize the impacts. The virus had mild impacts on most of the population but did cause death (usually from viral pneumonia) in high-risk populations such as pregnant women, obese persons, indigenous people, and those with chronic respiratory, cardiac, neurological, or immunity conditions.

Worldwide, it is estimated that 43 million to 89 million people contracted H1N1 between April 2009 and April 2010, and between 8,870 and 18,300 H1N1 cases resulted in death.

**COVID-19 (coronavirus disease 2019):** Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019 and changed the way people view Pandemics. Covington County had 8,790 cases of COVID and 124 deaths.

COVID-19 most often causes respiratory symptoms that can feel much like a cold, the flu, or pneumonia. COVID-19 may attack more than your lungs and respiratory system. Other parts of your body may also be affected by the disease. Most people with COVID-19 have mild symptoms, but some people become severely ill. Some people are more likely than others to get very sick if they get COVID-19. This includes people who are older, are immunocompromised, have certain disabilities, or have underlying health conditions.

In addition to the pandemics above, there have been several cases of pandemic threats, some of which reached epidemic levels. They were contained before spreading globally. Examples include Smallpox, Polio, Tuberculosis, Malaria, AIDS, SARS and Yellow Fever. Advances in medicine and technology have been instrumental in containing the spread of viruses in recent history.

There has been one Disaster Declaration for a pandemic, Disaster Declaration 4528, for COVID-19.

### **PROBABILITY OF FUTURE OCCURRENCES**

Based on historical occurrence information, it is assumed that Webster County has a probability level of unlikely (less than 1 percent annual probability) for future pandemics events. While pandemic can have devastating impacts, they are relatively rare.

The Mississippi State Department of Health maintains a state pandemic plan which can be found here: <http://www.msdh.state.ms.us/msdhsite/index.cfm/44,1136,122,154,pdf/SNSPlan.pdf>

## **A.2.16 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.24** 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.

**TABLE A.24: EXTENT OF COVINGTON COUNTY HAZARDS**

| HAZARD                                      | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tectonic Hazards</b>                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Earthquake</b>                           | 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.                                                                                                                                                                                                                                                                      |
| <b>Mass-Movements</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Landslide</b>                            | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Expansive Soils</b>                      | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Hydraulic Hazards</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Drought</b>                              | 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 twenty-four-year reporting period.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Floods</b>                               | 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.                                                                                                                                                                                                                                                          |
| <b>Dam Failure</b>                          | Dam failure extent is defined using Mississippi Division of Environmental Quality criteria. There is one high hazard dam in the county.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Meteorological Hazards</b>               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Hurricane and Tropical Storms</b>        | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Thunderstorms/ Hail/ Lightning/ Wind</b> | 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 May 5, 2023, at 87 knots (approximately 100 mph) and caused \$2,000,000 dollars in damage. It should be noted that future events may exceed these historical occurrences.<br>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, and again on March 25, 2021). It should be noted that future events may exceed this.<br>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. |
| <b>Winter Storms</b>                        | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Temperature Extremes/ Heat Wave</b>      | A four day stretch of extreme temperatures occurred across the region to start off the month of August. High pressure was firmly entrenched across the southeast and allowed temperatures to soar into the triple digits across much of the region. Across the NWS Jackson, MS forecast area, 19 record highs were set between August 1st and 4 <sup>th</sup> , 2010. On August 2nd, the 2nd warmest average temperature was recorded. The low was 78 and the high 105, this resulted in an average temperature of 91.5 degrees. Additionally, relatively high humidity levels made conditions even more oppressive, with heat index readings surpassing 110 degrees in many areas. This extreme heat resulted in 3 fatalities across the forecast area.                                                                                                                                                                        |
| <b>Tornado</b>                              | 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 EF4 (last reported on April 12, 2020).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Biological Hazards</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                             | The extent of a pandemic impacting the county is difficult to estimate. It could result in thousands of deaths and extreme disruption of commerce and everyday life.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |



|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Pandemic</b>                  | Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019 and changed the way people view Pandemics. Covington County had 8,790 cases of COVID and 124 deaths                                                                                                                                                                                                                                                                                                                 |
| <b>Other Natural Hazards</b>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Wildfire</b>                  | Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2010-2023. The greatest number of fires to occur in Covington County in any year was 56 in 2023. The greatest number of acres to burn in the county in a single year also occurred in 2023 when 473 acres were burned. Although this data lists the extent that has occurred, larger and more frequent wildfires are possible throughout the county.                                                                                                                                                                      |
| <b>Erosion</b>                   | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Climate Change</b>            | The extent Climate change will impact Covington County is hard to estimate. It could cause more intense, frequent, and/or magnitude of thunderstorms, tropical storms, winds, tornadoes, heavy rains, flash flooding... If the intensity and magnitude increase so will property damage and possible loss of life.                                                                                                                                                                                                                                                                                                                  |
| <b>Other Hazards</b>             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Cyber Attack</b>              | 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.                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Hazard Materials Incident</b> | <p>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.</p> <p>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.</p> <p>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.</p> |

## 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.25** 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.25: SUMMARY OF PRI RESULTS FOR COVINGTON COUNTY**

| Category/Degree of Risk |  |
|-------------------------|--|
|-------------------------|--|

| HAZARD                           | Probability   | Impact        | Spatial Extent | Warning Time       | Duration           | PRI Score |
|----------------------------------|---------------|---------------|----------------|--------------------|--------------------|-----------|
| <b>Tectonic Hazards</b>          |               |               |                |                    |                    |           |
| Earthquake                       | Unlikely      | Minor         | Moderate       | Less than 6 hours  | Less than 6 Hours  | 1.7       |
| <b>Mass-Movement Hazards</b>     |               |               |                |                    |                    |           |
| Landslide                        | Unlikely      | Minor         | Small          | Less than 6 hours  | Less than 6 hours  | 1.5       |
| Expansive Soil                   | Possible      | Minor         | Small          | Less than 6 hours  | Less than 6 hours  | 1.8       |
| <b>Hydrologic Hazards</b>        |               |               |                |                    |                    |           |
| Drought                          | Highly Likely | Minor         | Large          | More than 24 hours | More than 1 week   | 2.8       |
| Floods                           | Likely        | Limited       | Moderate       | 6 to 12 hours      | Less than 24 hours | 2.4       |
| Dam Failure                      | Unlikely      | Critical      | Moderate       | More than 24 hours | Less than 24 hours | 2.0       |
| <b>Meteorological Hazards</b>    |               |               |                |                    |                    |           |
| Hurricane/ Tropical Storms       | Likely        | Catastrophic  | Large          | More than 24 hours | Less than 24 hours | 3.2       |
| Thunderstorm/ 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       |
| Lightning                        | Highly Likely | Limited       | Negligible     | Less than 6 hours  | Less than 6 hours  | 2.5       |
| Winter Storms                    | Likely        | Limited       | Moderate       | More than 24 hours | Less than 24 hours | 2.3       |
| Temperature Extremes/ Heat Waves | Highly Likely | Likely        | Small          | More than 24 hours | More than 1 week   | 2.8       |
| Tornado                          | Likely        | Critical      | Small          | Less than 6 hours  | Less than 6 hours  | 2.7       |
| <b>Biological Hazards</b>        |               |               |                |                    |                    |           |
| Pandemic                         | Likely        | Limited—Major | Small—Large    | More than 24 hours | More than a week   | 2.8       |
| <b>Other Natural Hazards</b>     |               |               |                |                    |                    |           |
| Wildfire                         | Likely        | Minor         | Small          | Less than 6 hours  | Less than one week | 2.3       |
| Erosion                          | Possible      | Minor         | Small          | More than 24 hours | More than 1 week   | 1.8       |
| Climate Change                   | Possible      | Critical      | Large          | More than 1 week   | More than 1 week   | 2.6       |
| <b>Other Hazards</b>             |               |               |                |                    |                    |           |
| Cyber Attack                     | Unlikely      | Limited       | Small          | Less than 6 hours  | Less than 24 hours | 1.9       |
| Hazardous Materials Incident     | Unlikely      | Limited       | Small          | Less than 6 hours  | Less than 24 hours | 1.9       |
| Meth Lab Incident                | Possible      | Minor         | Small          | Less than 6 hours  | Less than 6 hours  | 1.8       |
| Pipeline Incident                | Possible      | Limited       | Small          | Less than 6 hours  | Less than 24 hours | 2.2       |

## 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.26). 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.26: CONCLUSIONS ON HAZARD RISK FOR COVINGTON COUNTY**

|                      |                                                                                                                                                |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High Risk</b>     | <i>Drought/Heat Wave<br/>Hurricane and Tropical Storm<br/>Thunderstorm/High Wind<br/>Tornado<br/>Flood<br/>Lightning<br/>Pandemic</i>          |
| <b>Moderate Risk</b> | <i>Climate Change<br/>Hail<br/>Pipeline Incident<br/>Hazardous Materials Incident<br/>Wildfire<br/>Dam Failure<br/>Winter Storm and Freeze</i> |
| <b>Low Risk</b>      | <i>Earthquake<br/>Expansive Soil<br/>Landslide<br/>Meth Lab Incident<br/>Pandemic<br/>Erosion<br/>Cyber Attack</i>                             |

## 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

number 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

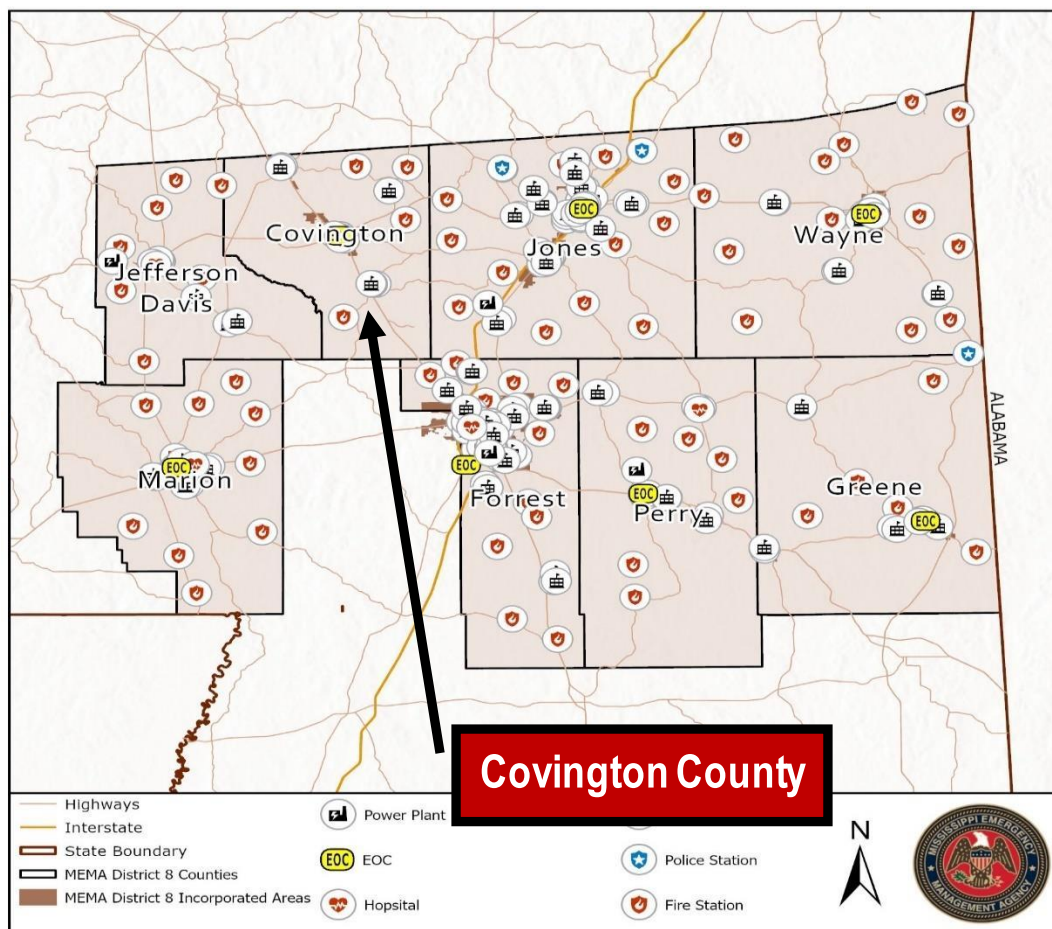
**Table A.27** lists the estimated number of improved properties and the total value of improvements for Covington County and its participating jurisdictions (study area of vulnerability assessment). This data was obtained from HAZUS.

**TABLE A.27: IMPROVED PROPERTY IN COVINGTON COUNTY**

| LOCATION         | Number of Improved Properties | Total Assessed Value of Improvements |
|------------------|-------------------------------|--------------------------------------|
| Covington County | 8,877                         | \$1,613,517,000                      |

**Table A.28** lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools and other critical facilities located in Covington County. HAZUS was used to obtain the critical facilities for the county and that data was modified to reflect more recent changes. In addition, **Figure A.8** shows the locations of essential facilities in Covington County. **Table A.29** 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.

**FIGURE A.8: CRITICAL FACILITY LOCATIONS IN COVINGTON COUNTY**



**TABLE A.28: CRITICAL FACILITY INVENTORY IN COVINGTON COUNTY**

| Location | Fire Station | Police Station | Medical Care Facility | EOC | Schools |
|----------|--------------|----------------|-----------------------|-----|---------|
| Collins  | 2            | 3              | 1                     | 0   | 3       |

|                         |   |   |   |   |   |
|-------------------------|---|---|---|---|---|
| Mount Olive             | 1 | 1 | 0 | 0 | 1 |
| Seminary                | 1 | 1 | 0 | 0 | 2 |
| Unincorporated Area     | 1 | 1 | 0 | 1 | 3 |
| Covington County Total: | 5 | 6 | 1 | 1 | 9 |

Source: HAZUS-MH 4.2 and Planning Committee

Table A.29 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”).

TABLE A.29: AT-RISK CRITICAL FACILITIES

|               |               | Other      |                        |                         | Atmospheric |                 |                           |         |                       | Geologic    |              | Hydrologic          |                 |                 |
|---------------|---------------|------------|------------------------|-------------------------|-------------|-----------------|---------------------------|---------|-----------------------|-------------|--------------|---------------------|-----------------|-----------------|
| Facility Name | Facility Type | WHP Hazard | Fixed HAZMAT 500-2500M | Mobile HAZMAT 500-2500M | Drought     | Thunder -storm, | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land - slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |



|                                      |                |              | Roads & Rails | Roads & Rails |   | Lightning, & Hail |   |   |   |   |  |  |   |  |
|--------------------------------------|----------------|--------------|---------------|---------------|---|-------------------|---|---|---|---|--|--|---|--|
| Covington County Critical Facilities |                |              |               |               |   |                   |   |   |   |   |  |  |   |  |
| City of Collins Fire Dept.           | Fire Dept.     | Non-burnable | X             | X             | X | X                 | X | X | X | X |  |  |   |  |
| Collins City Police Dept.            | Police Station | Non-burnable | X             | X             | X | X                 | X |   | X | X |  |  | X |  |
| Collins Elementary                   | School         | Non-burnable | X             | X             | X | X                 | X |   | X | X |  |  | X |  |
| Collins Middle School                | School         | Non-burnable | X             | X             | X | X                 | X |   | X | X |  |  |   |  |
| Collins High School                  | School         | Non-burnable | X             | X             | X | X                 | X |   | X | X |  |  |   |  |
| Collins Fire Dept.                   | Fire Dept.     | Non-burnable | X             | X             | X | X                 | X |   | X | X |  |  |   |  |
| Collins Police Station               | Police Station | Moderate     |               | X             | X | X                 | X |   | X | X |  |  |   |  |
| Collins Police Station               | Police Station | Moderate     |               | X             | X | X                 | X |   | X | X |  |  |   |  |
| Collins Maintenance Build.           | Gov.           | Non-burnable | X             | X             | X | X                 | X |   | X | X |  |  | X |  |
| Covington CO Vocational Tech.        | School         | Non-burnable | X             | X             | X | X                 | X |   | X | X |  |  |   |  |
| Covington CO Alt. School             | School         | Non-burnable | X             | X             | X | X                 | X |   | X | X |  |  |   |  |
| Covington County Sheriff             | Police Dept.   | Non-burnable | X             | X             | X | X                 | X | X | X | X |  |  |   |  |
| EOC                                  | EOC            | HIGH         | X             | X             | X | X                 | X | X | X | X |  |  | X |  |
| Hopewell Elem. School                | School         | Non-burnable |               |               | X | X                 | X |   | X | X |  |  |   |  |
| Lagoon                               | Utility        | Moderate     | X             | X             | X | X                 | X |   | X | X |  |  |   |  |
| Water Well 1                         | Utility        | Moderate     | X             | X             | X | X                 | X |   | X | X |  |  | X |  |
| Water Well 4                         | Utility        | Non-burnable | X             | X             | X | X                 | X |   | X | X |  |  |   |  |
| Mt. Olive Attend. Center             | School         | Non-burnable | X             | X             | X | X                 | X |   | X | X |  |  |   |  |
| CLEM VFD                             | Fire Dept.     | HIGH         |               |               | X | X                 | X |   | X | X |  |  |   |  |
| Hot Coffee VFD                       | Fire Station   | Non-burnable | X             | X             | X | X                 | X |   | X | X |  |  |   |  |
| Mt. Olive City Police Dept.          | Police Station | Non-burnable | X             | X             | X | X                 | X |   | X | X |  |  |   |  |
| East Covington VFD                   | Fire Dept.     | Moderate     |               |               | X | X                 | X |   | X | X |  |  |   |  |
| Seminary Attend. Center              | School         | Non-burnable |               | X             | X | X                 | X |   | X | X |  |  |   |  |
| Seminary Baptist Kinder.             | School         | Non-burnable |               | X             | X | X                 | X |   | X | X |  |  |   |  |
| Seminary Town Police Dept            | Police Station | Non-burnable |               | X             | X | X                 | X |   | X | X |  |  |   |  |
| Southwest Covington VFD              | Fire Station   | VERY HIGH    | X             | X             | X | X                 | X |   | X | X |  |  |   |  |
| Covington County Hospital            | Care Facility  | Moderate     | X             | X             | X | X                 | X |   | X | X |  |  |   |  |

## 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.30** lists the population by jurisdiction according to U.S. Census 2020 population estimates. The results are presented at the county-wide level. The total population in Covington County according to Census data is 18,340 persons. Based on the data below, all the municipalities have decreased in population. This could lead to a slight decrease in vulnerability. Additional population estimates are presented above in *Section A.1*.

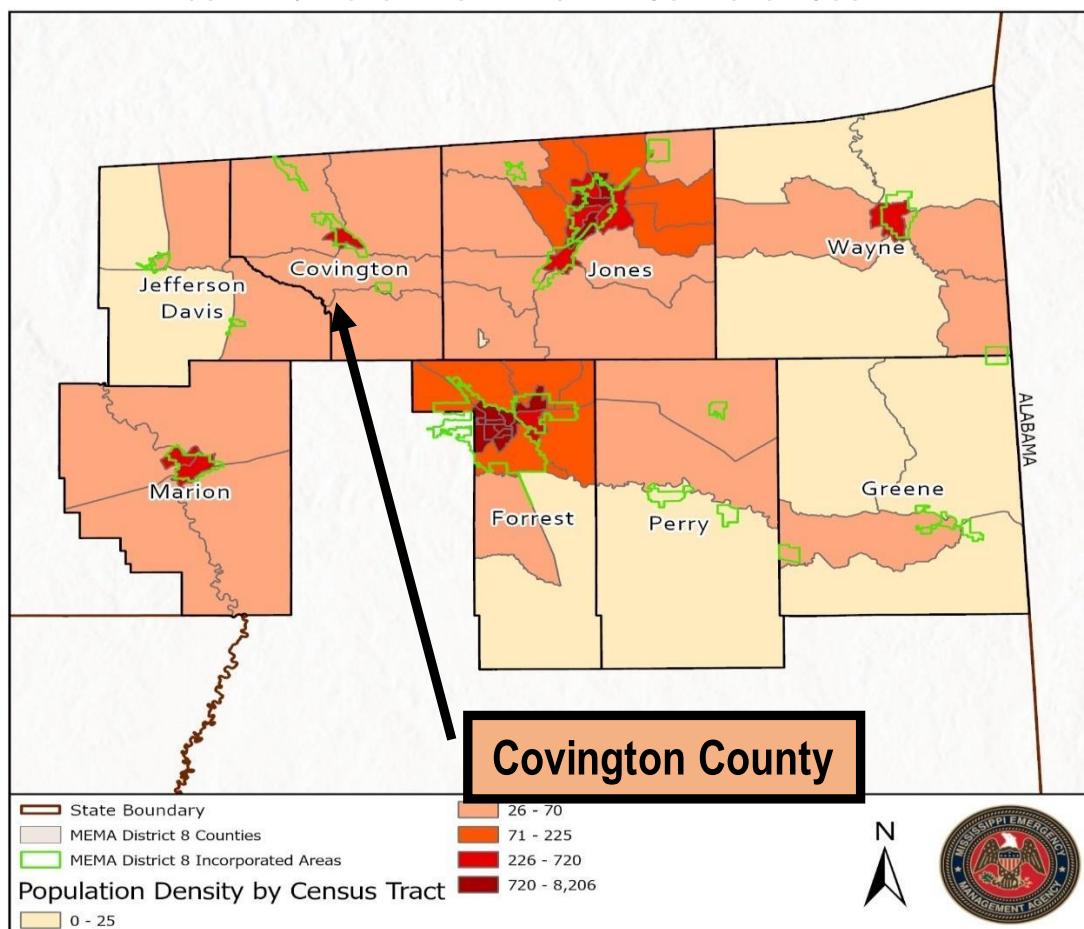
**TABLE A.30: TOTAL POPULATION IN COVINGTON COUNTY**

| Jurisdiction                   | 2010 Census   | 2020 Census   |
|--------------------------------|---------------|---------------|
| <b>Covington County Total:</b> | <b>19,568</b> | <b>18,340</b> |
| <i>Collins</i>                 | 2,586         | 2,342         |
| <i>Mount Olive</i>             | 982           | 895           |
| <i>Seminary</i>                | 314           | 305           |
| <i>Unincorporated Area</i>     | 15,686        | 14,798        |

Source: US Census Bureau

In addition, **Figure A.9** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2020. This information has not changed since the last plan update.

**FIGURE A.9: POPULATION DENSITY IN COVINGTON COUNTY**



### 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.25**.

Since the previous plan, the jurisdictions are not aware of any developments in hazard prone areas that have increased or decreased vulnerability.

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

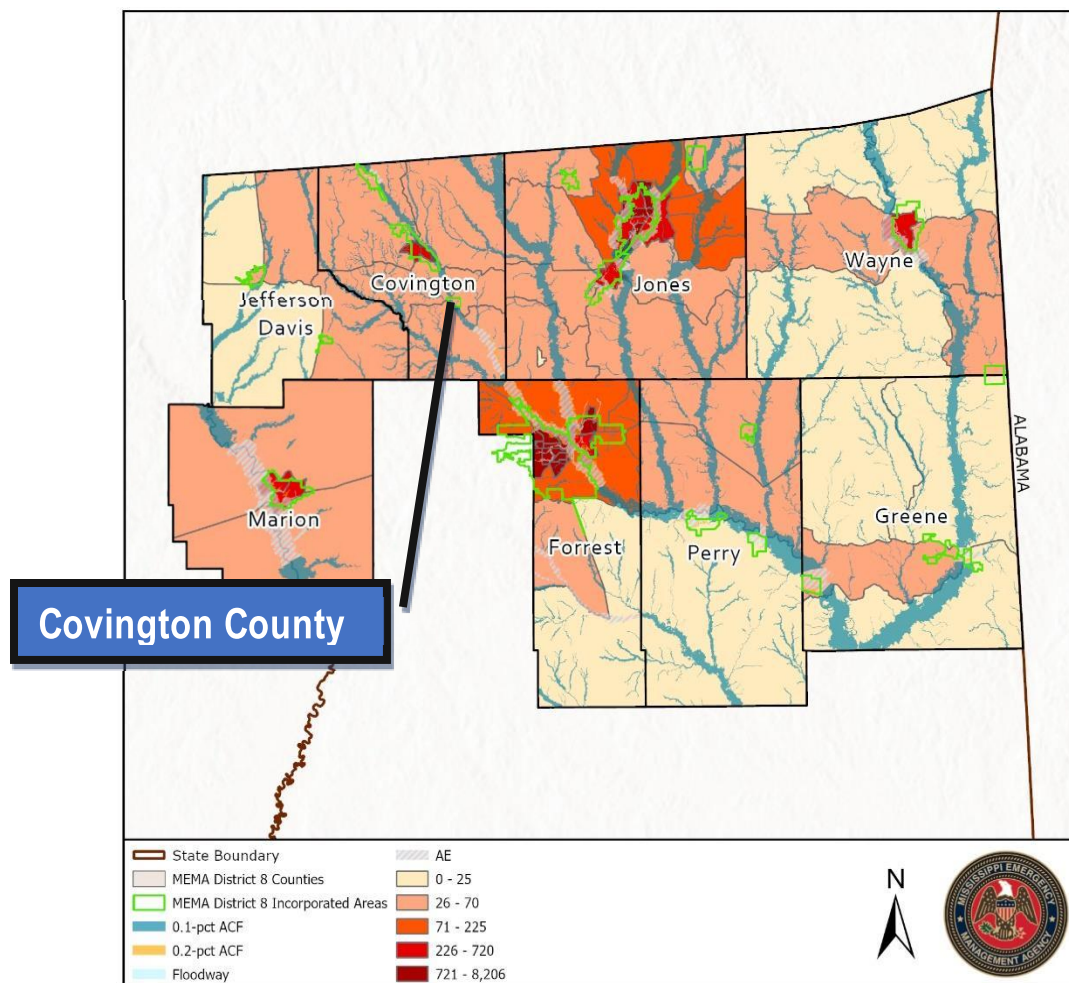
## FLOOD

Historical evidence indicates that Covington County is susceptible to flood events. A total of 65 flood events have been reported by the National Centers for Environmental Information resulting in \$3.177M in damages.

### Social Vulnerability

Since 2020 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.10** is presented to gain a better understanding of at-risk population.

**FIGURE A.10: POPULATION DENSITY NEAR FLOODPLAINS**



### Critical Facilities

The critical facility analysis revealed that there are six critical facilities located in the Covington County 1.0-percent annual chance floodplain valued at over \$5.9M based on FEMA DFIRM boundaries and GIS analysis. There are no critical facilities located in the 0.2 percent annual chance floodplain. A list of specific critical facilities and their associated risk can be found in **Table A.29**.



In conclusion, a flood has the potential to impact many existing and future buildings and populations in Covington 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.

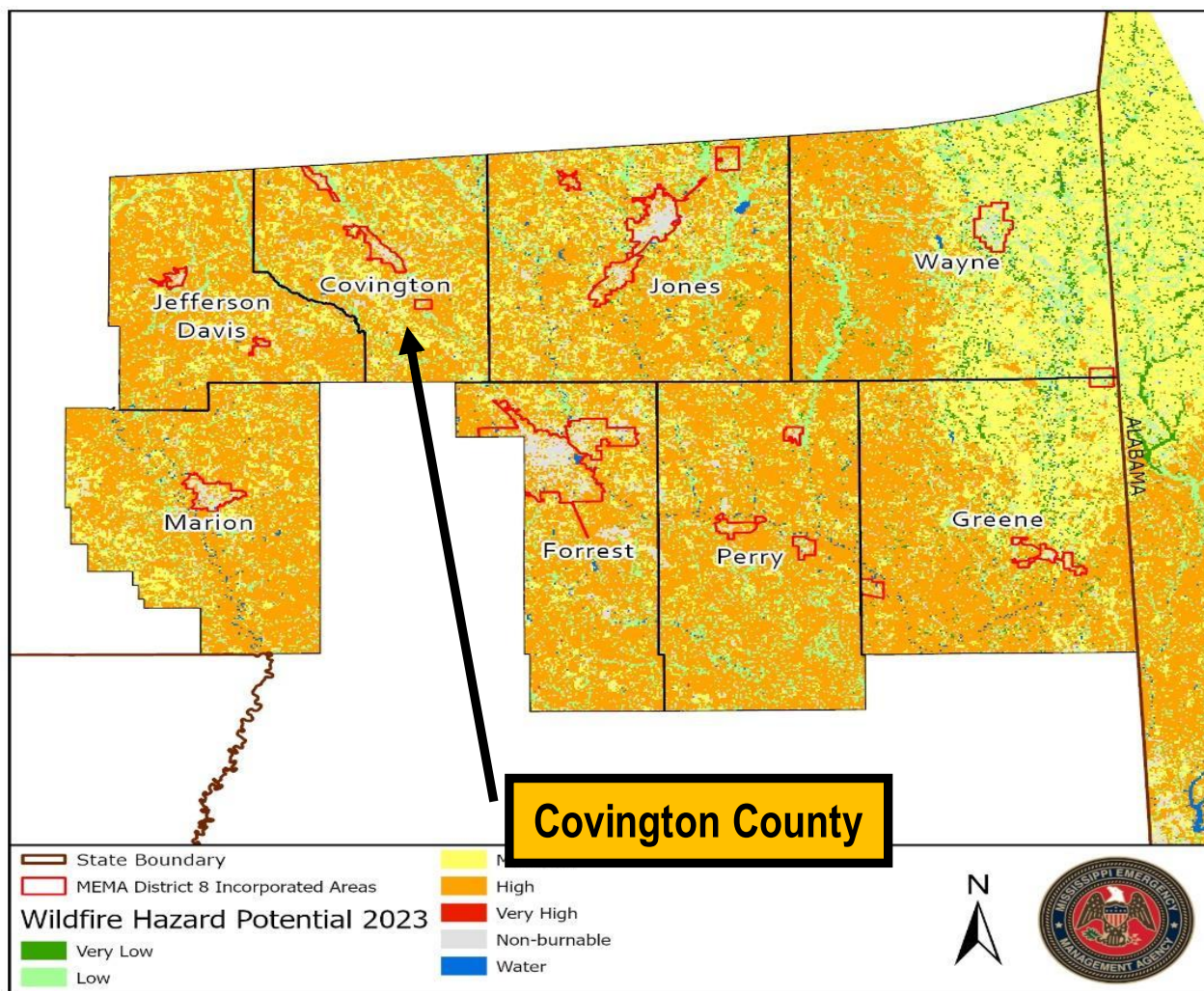
## WILDFIRE

Although historical evidence indicates that Covington County is susceptible to wildfire events, there are few reports of damage.

To estimate exposure to wildfire, the wildfire hazard potential (WHP) 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.11** shows the wildfire hazard potential for Covington County. Most of the planning areas falls within the low to high category.

**FIGURE A.11: WILDFIRE RISK AREAS IN COVINGTON COUNTY**



## 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.29**.

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 earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS 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 scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS 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 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.29**.

## **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 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 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 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 estimated economic losses for the scenario event. HAZUS 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 estimated the amounts 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 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.29**.

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.

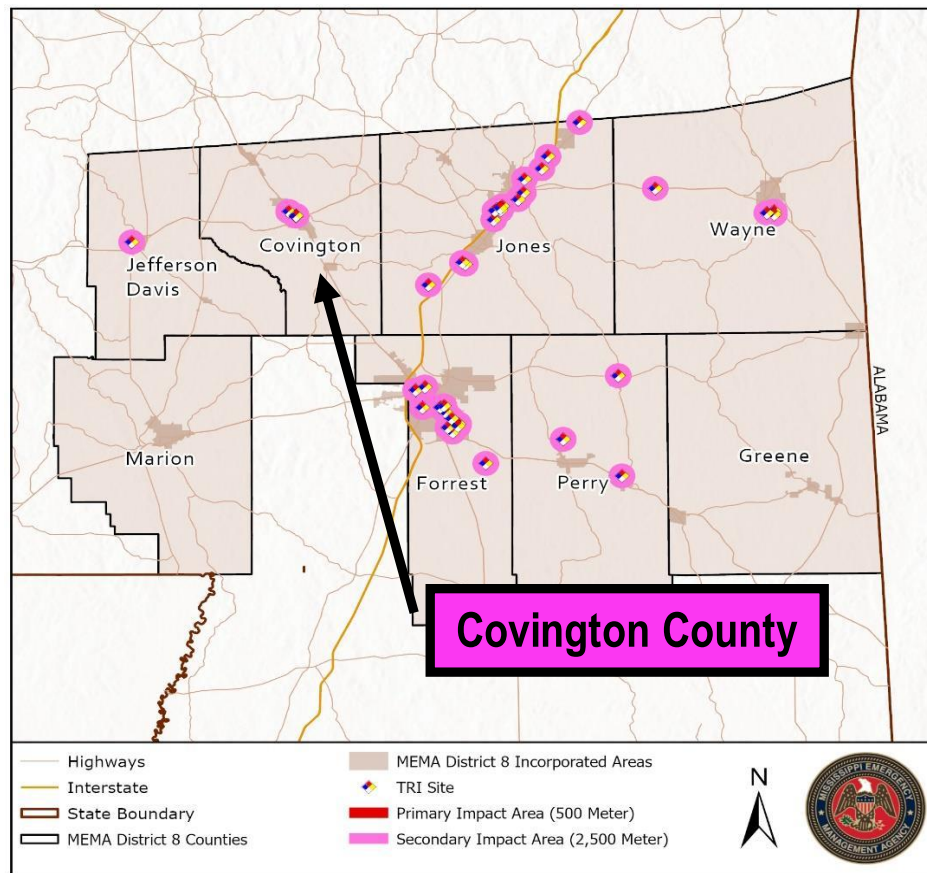
## **HAZARDOUS MATERIALS INCIDENT**

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.

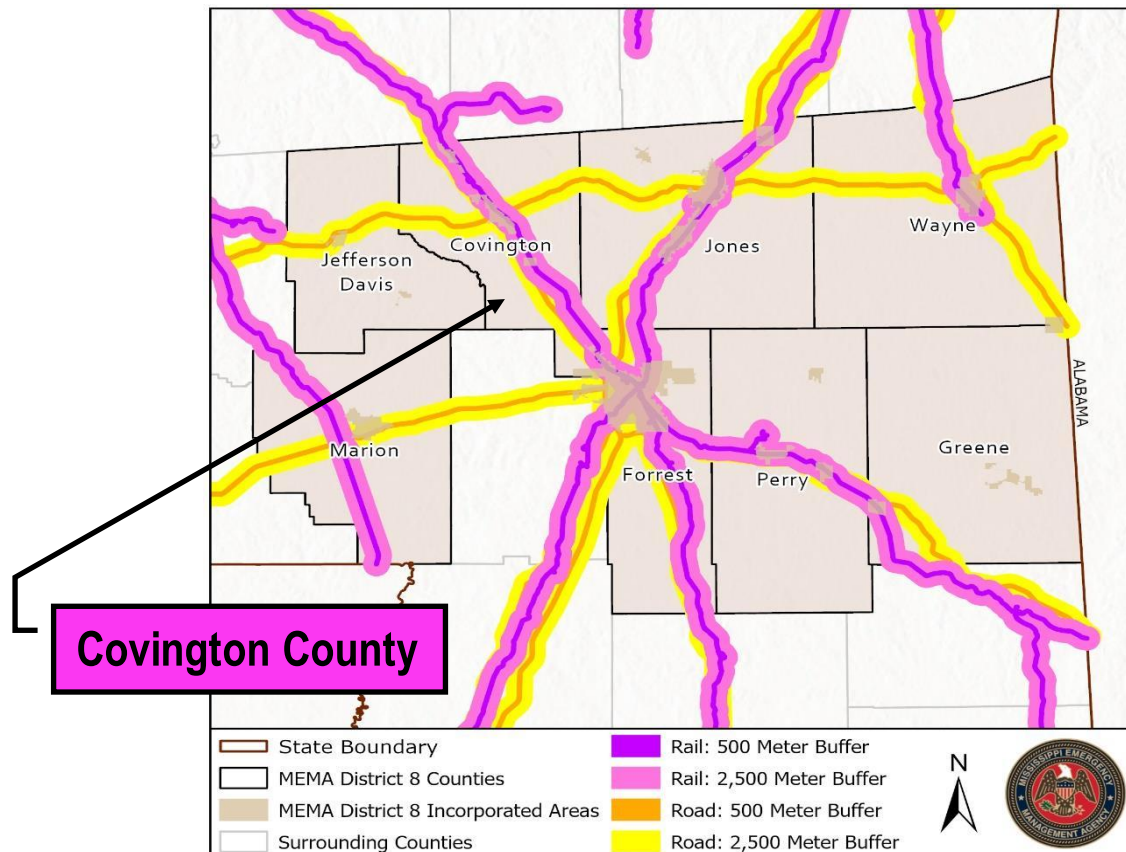
Most hazardous materials incidents that occur are contained and suppressed before destroying any property or threatening lives. However, they can have a significant negative impact. Such events can cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent 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.12**. 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.13** 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.12: TRI SITES WITH BUFFERS IN COVINGTON COUNTY**



**FIGURE A.13: 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.29**.

#### **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.29**.

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.

## **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.31** 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.31: RELEVANT PLANS, ORDINANCES, AND PROGRAMS**

| Planning/Regulatory Tool                | Covington County | Collins | Mount Olive | Seminary |
|-----------------------------------------|------------------|---------|-------------|----------|
| Hazard Mitigation Plan                  | ✓                | ✓       | ✓           | ✓        |
| Comprehensive Land Use Plan             |                  |         | ✓           |          |
| Floodplain Management Plan              |                  |         |             |          |
| Open Space Management Plan              |                  | ✓       | ✓           | ✓        |
| Stormwater Management Plan/Ordinance    |                  |         |             |          |
| National 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 Codes                          |                  | ✓       |             | ✓        |
| Fire Codes                              |                  | ✓       |             |          |
| National Flood Insurance Program (NFIP) | ✓                | ✓       | ✓           | ✓        |
| National Community Rating System        |                  |         |             |          |

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.32 provides NFIP policy and claim information for each participating jurisdiction in Covington County.

**TABLE A.32: NFIP POLICY AND CLAIM INFORMATION**

| Location          | Date Joined NFIP | Current Effective Map Date | NFIP Policies in Force | Insurance in Force | Closed Claims | Total Payments to Date |
|-------------------|------------------|----------------------------|------------------------|--------------------|---------------|------------------------|
| Covington County† | 12/15/1990       | 4/5/2010                   | 63                     | \$7,483,100        | 27            | \$357,325              |
| Collins           | 8/5/1985         | 4/5/2010(M)                | 16                     | \$3,121,600        | 18            | \$124,503              |
| Mount Olive       | 9/15/1989        | 4/5/2010                   | 1                      | \$54,200           | 3             | \$46,982               |
| Seminary          | 4/5/2010         | 4/5/2010(M)                | 0                      | \$0                | 0             | \$0                    |

†Includes unincorporated areas of county only

\*Community does not participate in the NFIP

### *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.33 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.33: RELEVANT STAFF / PERSONNEL RESOURCES**



| Staff/Personal Resource                                                                                 | Covington County | Collins | Mount Olive | Seminary |
|---------------------------------------------------------------------------------------------------------|------------------|---------|-------------|----------|
| Planners with knowledge of land development/ land management practices                                  |                  |         |             |          |
| Engineers of 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 HAZ-US                                                                  |                  |         |             |          |
| 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.

### A.4.3 Fiscal Capability

**Table A.34** 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.34: RELEVANT FISCAL RESOURCES**

| Fiscal Tool/Resource                                    | Covington County | Collins | Mount Olive | Seminary |
|---------------------------------------------------------|------------------|---------|-------------|----------|
| Capital Improvement Programing                          |                  | ✓       | ✓           |          |
| Community Development Block Grants (CDBG)               | ✓                | ✓       | ✓           | ✓        |
| Special Purchase 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 | ✓                | ✓       | ✓           | ✓        |

### 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 to become less vulnerable to its identified hazards. It is based on 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.35**.

TABLE A.35: MEMA DISTRICT 8 REGIONAL MITIGATION GOALS

| MITIGATION GOALS |                                                                                                                                              |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 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 |

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.

There are no new mitigation actions added to the plan at this time.

| Action #                           | Description                                                                                                                                                                                                     | Hazard(s) Addressed | Relative Priority | Funding Sources                                   | Estimated Cost        | Responsible Party                                      | Completion Date (Target) | Implementation Status   |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|---------------------------------------------------|-----------------------|--------------------------------------------------------|--------------------------|-------------------------|
| <b>Prevention</b>                  |                                                                                                                                                                                                                 |                     |                   |                                                   |                       |                                                        |                          |                         |
| P-1                                | Identify high risk areas where hazards are most likely to occur.                                                                                                                                                | All                 | High              | N/A                                               | No cost               | County                                                 | Annual Plan Review       | Implemented and 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 & BOS                                       | Ongoing                  | Implemented and ongoing |
| P-3                                | Consider adoption of flood damage prevention ordinance in Covington County.                                                                                                                                     | FL                  | High              | Self-funded                                       | No cost               | County & Floodplain Admin.                             | Ongoing                  | Implemented and ongoing |
| P-4                                | Consider adoption of subdivision regulations.                                                                                                                                                                   | TH, FL, HU, TS      | Medium            | Self-funded                                       | No cost               | County                                                 | Ongoing                  | Ongoing                 |
| P-5                                | Maintain and upgrade the County's drainage facilities.                                                                                                                                                          | HU, TS, FL, BH      | High              | Self-funded                                       | Unknown               | County BOS & Rd 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                                                 | Ongoing                  | Deferred due to funds   |
| 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                                                 | Ongoing                  | Deferred due to funds   |
| P-8                                | Support the development of a shared geographic data system for land use and site planning.                                                                                                                      | All                 | Medium to high    | Self-funded                                       | No cost               | County                                                 | Ongoing                  | Deferred due to funds   |
| P-9                                | Develop a comprehensive development plan.                                                                                                                                                                       | All                 | High              | CDBG, MSDA                                        | Unknown               | County                                                 | Ongoing                  | Deferred due to funds   |
| P-10                               | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.                                                                                                                        | All                 | Medium            | N/A                                               | No cost               | County                                                 | Ongoing                  | Implemented and ongoing |
| <b>Property Protection</b>         |                                                                                                                                                                                                                 |                     |                   |                                                   |                       |                                                        |                          |                         |
| 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 cost               | County                                                 | Ongoing                  | Implemented and ongoing |
| PP-2                               | Ensure that structures in floodplain areas are elevated.                                                                                                                                                        | FL                  | High              | Self-funded                                       | No 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 cost               | County                                                 | Ongoing                  | Deferred due to funds   |
| PP-4                               | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                                                                                               | All                 | High              | HMGP                                              | 25% of the total cost | County                                                 | Ongoing                  | Deferred                |
| PP-5                               | Ensure secure operation of water wells, water tanks and wastewater treatment facilities.                                                                                                                        | All                 | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.    | 25% of the total cost | County                                                 | Ongoing                  | Implemented and ongoing |
| <b>Natural Resource Protection</b> |                                                                                                                                                                                                                 |                     |                   |                                                   |                       |                                                        |                          |                         |
| NRP-1                              | Preserve natural wetlands and riparian areas through acquisition of conservation easements.                                                                                                                     | HU, TS, FL          | Low to Medium     | Donation                                          | Low to no cost        | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing                  | Deferred due to funding |
| <b>Emergency Services</b>          |                                                                                                                                                                                                                 |                     |                   |                                                   |                       |                                                        |                          |                         |
| 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 Grants, BRIC, HMGP                    | Low to 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 |

|              |                                                                                                                                         |                    |                |                                         |                       |                        |                        |                                          |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|-----------------------------------------|-----------------------|------------------------|------------------------|------------------------------------------|
| <b>ES-3</b>  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                 | All                | High           | HMGP                                    | 25% of the total cost | County and County EMA  | Ongoing                | Deferred due to funding                  |
| <b>ES-4</b>  | Explore potential sites for a new shelter and/or special needs shelter.                                                                 | TO, HU, TS, FL     | High           | HMGP                                    | 25% of the total cost | County and EMA         | Ongoing                | Deferred due to funding                  |
| <b>ES-5</b>  | Improve disaster communication systems within the County.                                                                               | All                | High           | Grants, BRIC, HMGP                      | 25% of the total cost | County EMA             | Contingent on funding  | Ongoing                                  |
| <b>ES-6</b>  | Consider generators for local radio station service areas and /or other critical facilities.                                            | TO, HU, TS         | High           | HMGP                                    | 25% of the total cost | County EMA             | Contingent on funding  | Deferred due to funding                  |
| <b>ES-7</b>  | Install warning sirens in the County.                                                                                                   | TO, HU             | High           | HMGP                                    | 25% of the total cost | County EMA             | Contingent on funding  | Implemented and ongoing                  |
| <b>ES-8</b>  | Enhance or upgrade emergency response communications or Central Dispatch and other communications equipment.                            | All                | High           | Unknown                                 | 25% of the total cost | County EMA             | Contingent on funding  | Implemented and ongoing                  |
| <b>ES-9</b>  | Explore upgrade/enhancement of 911 system in Covington County.                                                                          | All                | Medium         | HMGP                                    | 25% of the total cost | County and/or EMA      | Contingent on funding  | Planning Upgrade                         |
| <b>ES-10</b> | Explore potential to install Reverse 911 system.                                                                                        | All                | Low to Medium  | HMGP                                    | 25% of the total cost | County and/or EMA      | Contingent on funding  | Deferred due to funding                  |
| <b>ES-11</b> | 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, maps available upon request |
| <b>ES-12</b> | 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 / Ongoing                    |
| <b>ES-13</b> | Ensure continuity of utility services for public buildings and other critical facilities.                                               | All                | High           | HGMP                                    | 25% of the total cost | County                 | Ongoing                | Implemented / Ongoing                    |
| <b>ES-14</b> | Develop a government services continuity plan.                                                                                          | All                | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant | 25% of the total cost | County                 | Ongoing/ Annual Review | Implemented / Ongoing                    |
| <b>ES-15</b> | Host a meeting to review Covington County Comprehensive Emergency Management Plan.                                                      | TT                 | Medium         | Self-funded                             | No additional cost    | County                 | Ongoing                | Implemented / Ongoing                    |
| <b>ES-16</b> | 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                  | Unknown               | County                 | Ongoing                | Implemented as Funds become available    |
| <b>ES-17</b> | Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.                  | Range              | Medium         | Self-funded, MEMA                       | Low cost              | County                 | Ongoing                | Implemented as Funds become available    |

## Structural Projects

|             |                                                                                              |       |        |                    |         |            |         |         |
|-------------|----------------------------------------------------------------------------------------------|-------|--------|--------------------|---------|------------|---------|---------|
| <b>SP-1</b> | Acquisition / Demolition / Relocation or Elevation, Reconstruction of flood prone structures | FL    | Medium | Grants, BRIC, HMGP | Unknown | County EMA | Ongoing | Ongoing |
| <b>SP-2</b> | Individual Saferooms                                                                         | TS, T | Medium | Grants, BRIC, HMGP | Unknown | County EMA | Ongoing | Ongoing |

## Public Education and Awareness

|              |                                                                                                                       |       |        |                                 |                |            |         |                       |
|--------------|-----------------------------------------------------------------------------------------------------------------------|-------|--------|---------------------------------|----------------|------------|---------|-----------------------|
| <b>PEA-1</b> | Explore continuing education programs/ opportunities for staff and elected officials.                                 | Range | Medium | Self-funded, Grants, BRIC, HMGP | Low Cost       | County     | Ongoing | Implemented / Ongoing |
| <b>PEA-2</b> | Provide education and outreach materials to citizens and visitors.                                                    | All   | High   | Self-funded                     | No Cost        | County EMA | Ongoing | Implemented / Ongoing |
| <b>PEA-3</b> | Encourage development of Family Disaster Plans.                                                                       | All   | High   | Self-funded, COPS, FIRE         | Low or no cost | County EMA | Ongoing | Implemented / Ongoing |
|              | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community |       | High   | Self-funded                     | No additional  |            | Ongoing | Implemented / Ongoing |

## ANNEX A: COVINGTON COUNTY

|                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                               |                      |        |                                                             |                    |                    |         |                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------|--------|-------------------------------------------------------------|--------------------|--------------------|---------|-------------------------|
| <b>PEA-4</b>                                                                                                                                                                                                                                                                                                                                                                                 | workshops, brochures, and newspaper articles.                                                                 | FL, Multiple Hazards |        |                                                             | cost               | County EMA/ County |         |                         |
| <b>PEA-5</b>                                                                                                                                                                                                                                                                                                                                                                                 | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program. | FL                   | High   | N/A                                                         | No additional cost | County/ Town/ City | Ongoing | Implemented / Ongoing   |
| <b>PEA-6</b>                                                                                                                                                                                                                                                                                                                                                                                 | Encourage participation in the Community Rating System of the NFIP.                                           | FL, HU, TS, TH, HW   | Medium | USDA Rural Dev. CDBG, Small Muni. Grant, Grants, BRIC, HMGP | Unknown            | County             | Ongoing | Deferred                |
| <b>PEA-7</b>                                                                                                                                                                                                                                                                                                                                                                                 | 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 and Ongoing |
| FL = Flood      HU = Hurricane      TS = Tropical Storm      TO = Tornado      TH = Thunderstorm      BH = Biological Hazards<br>HW = High Winds      TT = Transportation and Technological Hazards      RH = Roadway Hazards      CH = Civil Hazards      P = Pandemic<br>County EMA = Covington County Emergency Management Agency      County BOS = Covington County Board of Supervisors |                                                                                                               |                      |        |                                                             |                    |                    |         |                         |

# Collins Mitigation Action Plan



| Action #                           | Description                                                                                                                                                                                                     | Hazard(s) Addressed | Relative Priority | Funding Sources                                   | Estimated Cost     | Responsible Party                                      | Completion Date (Target) | Implementation Status   |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|---------------------------------------------------|--------------------|--------------------------------------------------------|--------------------------|-------------------------|
| <b>Prevention</b>                  |                                                                                                                                                                                                                 |                     |                   |                                                   |                    |                                                        |                          |                         |
| P-1                                | Identify high risk areas where hazards are most likely to occur.                                                                                                                                                | All                 | High              | N/A                                               | No cost            | County                                                 | Annual Plan Review       | Implemented and 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 & BOS                                       | Ongoing                  | Implemented and ongoing |
| P-3                                | Consider adoption of flood damage prevention ordinance in Covington County.                                                                                                                                     | FL                  | High              | Self-funded                                       | No cost            | County & Floodplain Admin.                             | Ongoing                  | Implemented and ongoing |
| P-4                                | Consider adoption of subdivision regulations.                                                                                                                                                                   | TH, FL, HU, TS      | Medium            | Self-funded                                       | No cost            | County                                                 | Ongoing                  | Ongoing                 |
| P-5                                | Maintain and upgrade the County's drainage facilities.                                                                                                                                                          | HU, TS, FL, BH      | High              | Self-funded                                       | Unknown            | County BOS & Rd 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                                                 | Ongoing                  | Deferred due to funds   |
| 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                                                 | Ongoing                  | Deferred due to funds   |
| P-8                                | Support the development of a shared geographic data system for land use and site planning.                                                                                                                      | All                 | Medium to high    | Self-funded                                       | No cost            | County                                                 | Ongoing                  | Deferred due to funds   |
| P-9                                | Develop a comprehensive development plan.                                                                                                                                                                       | All                 | High              | CDBG, MSDA                                        | Unknown            | County                                                 | Ongoing                  | Deferred due to funds   |
| P-10                               | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.                                                                                                                        | All                 | Medium            | N/A                                               | No cost            | County                                                 | Ongoing                  | Implemented and ongoing |
| <b>Property Protection</b>         |                                                                                                                                                                                                                 |                     |                   |                                                   |                    |                                                        |                          |                         |
| 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 cost            | County                                                 | Ongoing                  | Implemented and ongoing |
| PP-2                               | Ensure that structures in floodplain areas are elevated.                                                                                                                                                        | FL                  | High              | Self-funded                                       | No 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 cost            | County                                                 | Ongoing                  | Deferred due to funds   |
| PP-4                               | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                                                                                               | All                 | High              | HMGP                                              | Unknown            | County                                                 | Ongoing                  | Deferred                |
| PP-5                               | Ensure secure operation of water wells, water tanks and wastewater treatment facilities.                                                                                                                        | All                 | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.    | Unknown            | County                                                 | Ongoing                  | Implemented and ongoing |
| <b>Natural Resource Protection</b> |                                                                                                                                                                                                                 |                     |                   |                                                   |                    |                                                        |                          |                         |
| NRP-1                              | Preserve natural wetlands and riparian areas through acquisition of conversation easements.                                                                                                                     | HU, TS, FL          | Low to Medium     | Donation                                          | Low to no cost     | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing                  | Deferred due to funding |
| <b>Emergency Services</b>          |                                                                                                                                                                                                                 |                     |                   |                                                   |                    |                                                        |                          |                         |
| 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 and MEMA                              | Low to 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 and County EMA  | Ongoing                | Deferred due to funding                  |
| ES-4                                  | Explore potential sites for a new shelter and/or special needs shelter.                                                                                             | TO, HU, TS, FL       | High           | HMGP                                    | Unknown            | County and EMA         | Ongoing                | Deferred due to funding                  |
| ES-5                                  | Improve disaster communication systems within the County.                                                                                                           | All                  | High           | Grants, BRIC, HMGP                      | Unknown            | County EMA             | Contingent on funding  | Ongoing                                  |
| ES-6                                  | Consider generators for local radio station service areas and /or other critical facilities.                                                                        | TO, HU, TS           | High           | HMGP                                    | Unknown            | County EMA             | Contingent on funding  | Deferred due to funding                  |
| ES-7                                  | Install warning sirens in the County.                                                                                                                               | TO, HU               | High           | HMGP                                    | Unknown            | County EMA             | Contingent on funding  | Implemented and ongoing                  |
| ES-8                                  | Enhance or upgrade emergency response communications or Central Dispatch and other communications equipment.                                                        | All                  | High           | Grants, BRIC, HMGP                      | Unknown            | County EMA             | Contingent on funding  | Implemented and ongoing                  |
| ES-9                                  | Explore upgrade/enhancement of 911 system in Covington County.                                                                                                      | All                  | Medium         | HMGP                                    | Unknown            | County and/or EMA      | Contingent on funding  | Planning Upgrade                         |
| ES-10                                 | Explore potential to install Reverse 911 system.                                                                                                                    | All                  | Low to Medium  | HMGP                                    | Unknown            | County and/or EMA      | Contingent on funding  | Deferred due to funding                  |
| 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, 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 / Ongoing                    |
| ES-13                                 | Ensure continuity of utility services for public buildings and other critical facilities.                                                                           | All                  | High           | HGMP                                    | Unknown            | County                 | Ongoing                | Implemented / Ongoing                    |
| ES-14                                 | Develop a government services continuity plan.                                                                                                                      | All                  | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant | Unknown            | County                 | Ongoing/ Annual Review | Implemented / Ongoing                    |
| ES-15                                 | Host a meeting to review Covington County Comprehensive Emergency Management Plan.                                                                                  | TT                   | Medium         | Self-funded                             | No additional cost | County                 | Ongoing                | Implemented / Ongoing                    |
| 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, SAFER, COPS, FIRE                  | Unknown            | County                 | Ongoing                | Implemented as 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                 | Ongoing                | Implemented as Funds become available    |
| <b>Structural Projects</b>            |                                                                                                                                                                     |                      |                |                                         |                    |                        |                        |                                          |
| SP-1                                  | Acquisition / Demolition / Relocation or Elevation, Reconstruction of flood prone structures                                                                        | FL                   | Medium         | Grants, BRIC, HMGP                      | Unknown            | County EMA             | Ongoing                | Ongoing                                  |
| SP-2                                  | Individual Saferooms                                                                                                                                                | TS, T                | Medium         | Grants, BRIC, HMGP                      | Unknown            | County EMA             | Ongoing                | Ongoing                                  |
| <b>Public Education and Awareness</b> |                                                                                                                                                                     |                      |                |                                         |                    |                        |                        |                                          |
| PEA-1                                 | Explore continuing education programs/ opportunities for staff and elected officials.                                                                               | Range                | Medium         | Self-funded, MEMA                       | Low Cost           | County                 | Ongoing                | Implemented / Ongoing                    |
| PEA-2                                 | Provide education and outreach materials to citizens and visitors.                                                                                                  | All                  | High           | Self-funded                             | No Cost            | County EMA             | Ongoing                | Implemented / Ongoing                    |
| PEA-3                                 | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High           | Self-funded, COPS, FIRE                 | Low or no cost     | County EMA             | Ongoing                | Implemented / Ongoing                    |
| PEA-4                                 | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High           | Self-funded                             | No additional cost | County EMA/ County     | Ongoing                | Implemented / Ongoing                    |

## ANNEX A: COVINGTON COUNTY

|              |                                                                                                               |                    |        |                                               |                    |                    |         |                         |
|--------------|---------------------------------------------------------------------------------------------------------------|--------------------|--------|-----------------------------------------------|--------------------|--------------------|---------|-------------------------|
| <b>PEA-5</b> | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program. | FL                 | High   | N/A                                           | No additional cost | County/ Town/ City | Ongoing | Implemented / Ongoing   |
| <b>PEA-6</b> | Encourage participation in the Community Rating System of the NFIP.                                           | FL, HU, TS, TH, HW | Medium | USDA Rural Dev. CDBG, Small Muni. Grant, FEMA | Unknown            | County             | Ongoing | Deferred                |
| <b>PEA-7</b> | 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 and Ongoing |

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

## Mount Olive Mitigation Action Plan

| Action # | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|

| Prevention                  |                                                                                                                                                                                                                 |                |                |                                                   |                    |                                                        |                    |                         |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|---------------------------------------------------|--------------------|--------------------------------------------------------|--------------------|-------------------------|
| P-1                         | Identify high risk areas where hazards are most likely to occur.                                                                                                                                                | All            | High           | N/A                                               | No cost            | County                                                 | Annual Plan Review | Implemented and 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 & BOS                                       | Ongoing            | Implemented and ongoing |
| P-3                         | Consider adoption of flood damage prevention ordinance in Covington County.                                                                                                                                     | FL             | High           | Self-funded                                       | No cost            | County & Floodplain Admin.                             | Ongoing            | Implemented and ongoing |
| P-4                         | Consider adoption of subdivision regulations.                                                                                                                                                                   | TH, FL, HU, TS | Medium         | Self-funded                                       | No cost            | County                                                 | Ongoing            | Ongoing                 |
| P-5                         | to maintain and upgrade the County's drainage facilities.                                                                                                                                                       | HU, TS, FL, BH | High           | Self-funded                                       | Unknown            | County BOS & Rd 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                                                 | Ongoing            | Deferred due to funds   |
| 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                                                 | Ongoing            | Deferred due to funds   |
| P-8                         | Support the development of a shared geographic data system for land use and site planning.                                                                                                                      | All            | Medium to high | Self-funded                                       | No cost            | County                                                 | Ongoing            | Deferred due to funds   |
| P-9                         | Develop a comprehensive development plan.                                                                                                                                                                       | All            | High           | CDBG, MSDA                                        | Unknown            | County                                                 | Ongoing            | Deferred due to funds   |
| P-10                        | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.                                                                                                                        | All            | Medium         | N/A                                               | No 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 cost            | County                                                 | Ongoing            | Implemented and ongoing |
| PP-2                        | Ensure that structures in floodplain areas are elevated.                                                                                                                                                        | FL             | High           | Self-funded                                       | No 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 cost            | County                                                 | Ongoing            | Deferred due to funds   |
| PP-4                        | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                                                                                               | All            | High           | HMGP                                              | Unknown            | County                                                 | Ongoing            | Deferred                |
| PP-5                        | Ensure secure operation of water wells, water tanks and wastewater treatment facilities.                                                                                                                        | All            | High           | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.    | 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 to no cost     | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing            | Deferred due to funding |
| 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 and MEMA                              | Low to 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 and County EMA                                  | Ongoing            | Deferred due to funding |

|                                       |                                                                                                                                                                     |                      |                |                                         |                    |                        |                        |                                          |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------|-----------------------------------------|--------------------|------------------------|------------------------|------------------------------------------|
| ES-4                                  | Explore potential sites for a new shelter and/or special needs shelter.                                                                                             | TO, HU, TS, FL       | High           | HMGP                                    | Unknown            | County and EMA         | Ongoing                | Deferred due to funding                  |
| ES-5                                  | Improve disaster communication systems within the County.                                                                                                           | All                  | High           | Grants, BRIC, HMGP                      | Unknown            | County EMA             | Contingent on funding  | Ongoing                                  |
| ES-6                                  | Consider generators for local radio station service areas and /or other critical facilities.                                                                        | TO, HU, TS           | High           | HMGP                                    | Unknown            | County EMA             | Contingent on funding  | Deferred due to funding                  |
| ES-7                                  | Install warning sirens in the County.                                                                                                                               | TO, HU               | High           | HMGP                                    | Unknown            | County EMA             | Contingent on funding  | Implemented and ongoing                  |
| ES-8                                  | Enhance or upgrade emergency response communications or Central Dispatch and other communications equipment.                                                        | All                  | High           | Grants, BRIC, HMGP                      | Unknown            | County EMA             | Contingent on funding  | Implemented and ongoing                  |
| ES-9                                  | Explore upgrade/enhancement of 911 system in Covington County.                                                                                                      | All                  | Medium         | HMGP                                    | Unknown            | County and/or EMA      | Contingent on funding  | Planning Upgrade                         |
| ES-10                                 | Explore potential to install Reverse 911 system.                                                                                                                    | All                  | Low to Medium  | HMGP                                    | Unknown            | County and/or EMA      | Contingent on funding  | Deferred due to funding                  |
| 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, 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 / Ongoing                    |
| ES-13                                 | Ensure continuity of utility services for public buildings and other critical facilities.                                                                           | All                  | High           | HMGP                                    | Unknown            | County                 | Ongoing                | Implemented / Ongoing                    |
| ES-14                                 | Develop a government services continuity plan.                                                                                                                      | All                  | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant | Unknown            | County                 | Ongoing/ Annual Review | Implemented / Ongoing                    |
| ES-15                                 | Host a meeting to review Covington County Comprehensive Emergency Management Plan.                                                                                  | TT                   | Medium         | Self-funded                             | No additional cost | County                 | Ongoing                | Implemented / Ongoing                    |
| 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, SAFER, COPS, FIRE                  | Unknown            | County                 | Ongoing                | Implemented as 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                 | Ongoing                | Implemented as Funds become available    |
| <b>Structural Projects</b>            |                                                                                                                                                                     |                      |                |                                         |                    |                        |                        |                                          |
| SP-1                                  | Acquisition / Demolition / Relocation or Elevation, Reconstruction of flood prone structures                                                                        | FL                   | Medium         | Grants, BRIC, HMGP                      | Unknown            | County EMA             | Ongoing                | Ongoing                                  |
| SP-2                                  | Individual Saferooms                                                                                                                                                | TS, T                | Medium         | Grants                                  | Unknown            | County EMA             | Ongoing                | Ongoing                                  |
| <b>Public Education and Awareness</b> |                                                                                                                                                                     |                      |                |                                         |                    |                        |                        |                                          |
| PEA-1                                 | Explore continuing education programs/ opportunities for staff and elected officials.                                                                               | Range                | Medium         | Self-funded, MEMA                       | Low Cost           | County                 | Ongoing                | Implemented / Ongoing                    |
| PEA-2                                 | Provide education and outreach materials to citizens and visitors.                                                                                                  | All                  | High           | Self-funded                             | No Cost            | County EMA             | Ongoing                | Implemented / Ongoing                    |
| PEA-3                                 | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High           | Self-funded, COPS, FIRE                 | Low or no cost     | County EMA             | Ongoing                | Implemented / Ongoing                    |
| PEA-4                                 | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High           | Self-funded                             | No additional cost | County EMA/ County     | Ongoing                | Implemented / Ongoing                    |



## ANNEX A: COVINGTON COUNTY

|              |                                                                                                               |                    |        |                                               |                    |                   |         |                         |
|--------------|---------------------------------------------------------------------------------------------------------------|--------------------|--------|-----------------------------------------------|--------------------|-------------------|---------|-------------------------|
| <b>PEA-5</b> | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program. | FL                 | High   | N/A                                           | No additional cost | County/Town/ City | Ongoing | Implemented / Ongoing   |
| <b>PEA-6</b> | Encourage participation in the Community Rating System of the NFIP.                                           | FL, HU, TS, TH, HW | Medium | USDA Rural Dev. CDBG, Small Muni. Grant, FEMA | Unknown            | County            | Ongoing | Deferred                |
| <b>PEA-7</b> | 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 and Ongoing |

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

## Seminary Mitigation Action Plan

| Action # | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|

| Prevention                  |                                                                                                                                                                                                                 |                |                |                                                   |                    |                                                        |                    |                         |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|---------------------------------------------------|--------------------|--------------------------------------------------------|--------------------|-------------------------|
| P-1                         | Identify high risk areas where hazards are most likely to occur.                                                                                                                                                | All            | High           | N/A                                               | No cost            | County                                                 | Annual Plan Review | Implemented and 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 & BOS                                       | Ongoing            | Implemented and ongoing |
| P-3                         | Consider adoption of flood damage prevention ordinance in Covington County.                                                                                                                                     | FL             | High           | Self-funded                                       | No cost            | County & Floodplain Admin.                             | Ongoing            | Implemented and ongoing |
| P-4                         | Consider adoption of subdivision regulations.                                                                                                                                                                   | TH, FL, HU, TS | Medium         | Self-funded                                       | No cost            | County                                                 | Ongoing            | Ongoing                 |
| P-5                         | To maintain and upgrade the County's drainage facilities.                                                                                                                                                       | HU, TS, FL, BH | High           | Self-funded                                       | Unknown            | County BOS & Rd 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                                                 | Ongoing            | Deferred due to funds   |
| 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                                                 | Ongoing            | Deferred due to funds   |
| P-8                         | Support the development of a shared geographic data system for land use and site planning.                                                                                                                      | All            | Medium to high | Self-funded                                       | No cost            | County                                                 | Ongoing            | Deferred due to funds   |
| P-9                         | Develop a comprehensive development plan.                                                                                                                                                                       | All            | High           | CDBG, MSDA                                        | Unknown            | County                                                 | Ongoing            | Deferred due to funds   |
| P-10                        | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.                                                                                                                        | All            | Medium         | N/A                                               | No 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 cost            | County                                                 | Ongoing            | Implemented and ongoing |
| PP-2                        | Ensure that structures in floodplain areas are elevated.                                                                                                                                                        | FL             | High           | Self-funded                                       | No 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 cost            | County                                                 | Ongoing            | Deferred due to funds   |
| PP-4                        | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                                                                                               | All            | High           | HMGP                                              | Unknown            | County                                                 | Ongoing            | Deferred                |
| PP-5                        | Ensure secure operation of water wells, water tanks and wastewater treatment facilities.                                                                                                                        | All            | High           | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.    | 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 to no cost     | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing            | Deferred due to funding |
| 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 and MEMA                              | Low to 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 and County EMA                                  | Ongoing            | Deferred due to funding |

|                                       |                                                                                                                                                                     |                      |                |                                         |                    |                        |                        |                                          |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------|-----------------------------------------|--------------------|------------------------|------------------------|------------------------------------------|
| ES-4                                  | Explore potential sites for a new shelter and/or special needs shelter.                                                                                             | TO, HU, TS, FL       | High           | HMGP                                    | Unknown            | County and EMA         | Ongoing                | Deferred due to funding                  |
| ES-5                                  | Improve disaster communication systems within the County.                                                                                                           | All                  | High           | Unknown                                 | Unknown            | County EMA             | Contingent on funding  | Ongoing                                  |
| ES-6                                  | Consider generators for local radio station service areas and /or other critical facilities.                                                                        | TO, HU, TS           | High           | HMGP                                    | Unknown            | County EMA             | Contingent on funding  | Deferred due to funding                  |
| ES-7                                  | Install warning sirens in the County.                                                                                                                               | TO, HU               | High           | HMGP                                    | Unknown            | County EMA             | Contingent on funding  | Implemented and 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  | Implemented and ongoing                  |
| ES-9                                  | Explore upgrade/enhancement of 911 system in Covington County.                                                                                                      | All                  | Medium         | HMGP                                    | Unknown            | County and/or EMA      | Contingent on funding  | Planning Upgrade                         |
| ES-10                                 | Explore potential to install Reverse 911 system.                                                                                                                    | All                  | Low to Medium  | HMGP                                    | Unknown            | County and/or EMA      | Contingent on funding  | Deferred due to funding                  |
| 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, 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 / Ongoing                    |
| ES-13                                 | Ensure continuity of utility services for public buildings and other critical facilities.                                                                           | All                  | High           | HMGP                                    | Unknown            | County                 | Ongoing                | Implemented / Ongoing                    |
| ES-14                                 | Develop a government services continuity plan.                                                                                                                      | All                  | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant | Unknown            | County                 | Ongoing/ Annual Review | Implemented / Ongoing                    |
| ES-15                                 | Host a meeting to review Covington County Comprehensive Emergency Management Plan.                                                                                  | TT                   | Medium         | Self-funded                             | No additional cost | County                 | Ongoing                | Implemented / Ongoing                    |
| 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, SAFER, COPS, FIRE                  | Unknown            | County                 | Ongoing                | Implemented as 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                 | Ongoing                | Implemented as Funds become available    |
| <b>Structural Projects</b>            |                                                                                                                                                                     |                      |                |                                         |                    |                        |                        |                                          |
| SP-1                                  | Acquisition / Demolition / Relocation or Elevation, Reconstruction of flood prone structures                                                                        | FL                   | Medium         | Grants, BRIC, HMGP                      | Unknown            | County EMA             | Ongoing                | Ongoing                                  |
| SP-2                                  | Individual Saferooms                                                                                                                                                | TS, T                | Medium         | Grants, BRIC, HMGP                      | Unknown            | County EMA             | Ongoing                | Ongoing                                  |
| <b>Public Education and Awareness</b> |                                                                                                                                                                     |                      |                |                                         |                    |                        |                        |                                          |
| PEA-1                                 | Explore continuing education programs/ opportunities for staff and elected officials.                                                                               | Range                | Medium         | Self-funded, MEMA                       | Low Cost           | County                 | Ongoing                | Implemented / Ongoing                    |
| PEA-2                                 | Provide education and outreach materials to citizens and visitors.                                                                                                  | All                  | High           | Self-funded                             | No Cost            | County EMA             | Ongoing                | Implemented / Ongoing                    |
| PEA-3                                 | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High           | Self-funded, COPS, FIRE                 | Low or no cost     | County EMA             | Ongoing                | Implemented / Ongoing                    |
| PEA-4                                 | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High           | Self-funded                             | No additional cost | County EMA/ County     | Ongoing                | Implemented / Ongoing                    |
| PEA-5                                 | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High           | N/A                                     | No additional cost | County/ Town/ City     | Ongoing                | Implemented / Ongoing                    |

## ANNEX A: COVINGTON COUNTY

|       |                                                                                     |                    |        |                                               |                |        |         |                         |
|-------|-------------------------------------------------------------------------------------|--------------------|--------|-----------------------------------------------|----------------|--------|---------|-------------------------|
| 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 | Unknown        | County | Ongoing | 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 and Ongoing |

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

# 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.

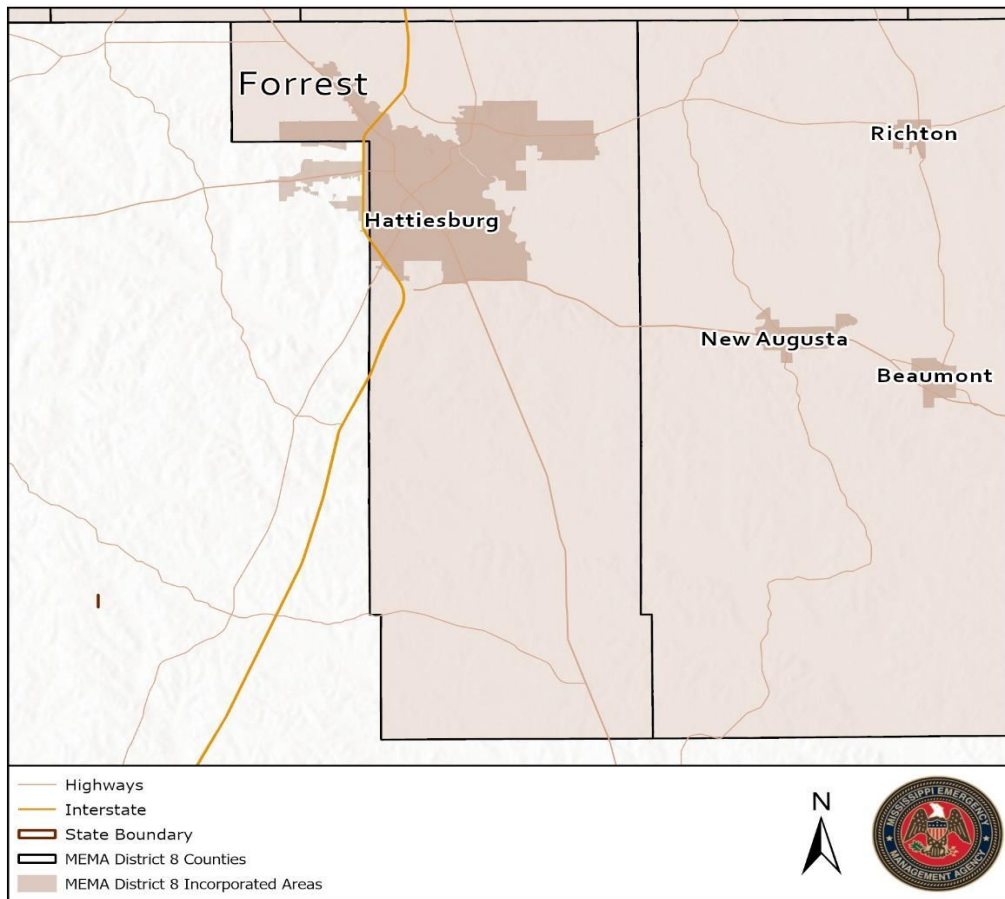
In Forrest County, the summers are long, hot, and oppressive; the winters are short and cold; and it is wet and partly cloudy year-round. Over the course of the year, the temperature typically varies from 31°F to 93°F and is rarely below 28°F or above 97°F.

The hot season lasts for 5 months, from May to September, with an average daily temperature of 90°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 38°F and high of 58°F.

The average daily rainfall for Forrest County is 0.17 inches with an average of 61.6" 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 2023, the most rain fell in January with a total of 6.31" and the least rain fell in October with a total of 3.61".

|                  | Jan  | Feb. | Mar. | Apr. | May  | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|------------------|------|------|------|------|------|------|------|------|-------|------|------|------|
| Average High     | 58   | 62   | 70   | 77   | 83   | 89   | 91   | 92   | 87    | 78   | 69   | 61   |
| Average Lows     | 38   | 41   | 48   | 55   | 63   | 70   | 72   | 72   | 67    | 56   | 47   | 40   |
| Average Rainfall | 6.31 | 5.81 | 5.35 | 4.95 | 4.45 | 4.85 | 5.68 | 5.71 | 4.48  | 3.61 | 4.92 | 5.48 |



**FIGURE B.1: FORREST COUNTY ORIENTATION MAP**

## B.1.2 Population and Demographics

According to the 2020 Census, Forrest County has a population of 78,158 people. The county has seen almost 4.2 percent population growth between 2010 and 2020, and the population density is 160 people per square mile. The population saw a slight increase which could lead to a slight increase in vulnerability. Per the Census Reports, in 2024, Forrest County had a population of 78,208, which is a .06 percent increase since 2020. The household income is \$49,304, which grew by 20 percent. Population counts from the US Census Bureau for 2010, and 2020 for the county and both of the participating jurisdictions are presented in **Table B.1**. Estimates for 2024 are also included.

**TABLE B.1: POPULATION COUNTS FOR FORREST COUNTY**

| <b>Jurisdiction</b>   | <b>2010 Census</b> | <b>2020 Census</b> | <b>% of Change 2010 to 2020</b> | <b>2024 Estimate</b> |
|-----------------------|--------------------|--------------------|---------------------------------|----------------------|
| <b>Forrest County</b> | <b>75,007</b>      | <b>78,158</b>      | <b>+4.2</b>                     | <b>78,208</b>        |
| <b>Hattiesburg</b>    | <b>45,798</b>      | <b>48,730</b>      | <b>+6.4</b>                     | <b>48,414</b>        |
| <b>Petal</b>          | <b>10,477</b>      | <b>11,010</b>      | <b>+5</b>                       | <b>11,230</b>        |

Source: US Census Bureau

Based on the 2020 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 2024 remained the same at 32 years. The population of black persons is 37 percent, and 3 percent is Hispanic or Latino. Whites make up the majority of the population in the county, accounting for 59 percent of the population.

**TABLE B.2: DEMOGRAPHICS OF FORREST COUNTY**

| Jurisdiction          | White Persons<br>(% 2020) | Black Persons<br>(% 2020) | American Indian or<br>Alaska Native (% 2020) | Other Races<br>(% 2020) | Persons of Hispanic<br>Origin (% 2020) |
|-----------------------|---------------------------|---------------------------|----------------------------------------------|-------------------------|----------------------------------------|
| <b>Forrest County</b> | <b>59%</b>                | <b>37%</b>                | <b>0.1%</b>                                  | <b>1%</b>               | <b>3%</b>                              |
| <i>Hattiesburg</i>    | <b>41%</b>                | <b>52%</b>                | <b>0.4%</b>                                  | <b>2%</b>               | <b>4%</b>                              |
| <i>Petal</i>          | <b>81%</b>                | <b>15%</b>                | <b>0%</b>                                    | <b>0%</b>               | <b>4%</b>                              |

Source: US Census Bureau

**TABLE B.3: AVERAGE INCOME AND HEALTH IN FORREST COUNTY**

| Jurisdiction          | % of Population<br>Disabled | % of Population<br>without Health<br>Insurance | Median<br>Household<br>Income | % of Population<br>Below The<br>Poverty Level |
|-----------------------|-----------------------------|------------------------------------------------|-------------------------------|-----------------------------------------------|
| <b>Forrest County</b> | <b>23%</b>                  | <b>8%</b>                                      | <b>\$52,157</b>               | <b>22%</b>                                    |
| <i>Hattiesburg</i>    | <b>15%</b>                  | <b>12%</b>                                     | <b>\$41,024</b>               | <b>32%</b>                                    |
| <i>Petal</i>          | <b>22%</b>                  | <b>10%</b>                                     | <b>\$61,957</b>               | <b>14%</b>                                    |

Source: US Census Bureau

## B.1.3 Housing

According to the 2020 US Census, there are 33,490 housing units in Forrest County, the majority of which are single family homes or mobile homes. Per 2024 estimates, the total number of houses increased by 11 percent. However, the median home value is \$187,700, which increased by at least 39 percent. The total population had an increase in population in the two cities and in the county. The development and median home value also increased. These increases could lead to an increase in overall vulnerability. Housing information for the county and two cities is presented in **Table B.4**.

**TABLE B.4: HOUSING CHARACTERISTICS OF FORREST COUNTY**

| Jurisdiction          | Housing<br>Units (2010) | Median Home<br>Value (2010) | Housing<br>Units (2023) | Median Home<br>Value (2023) |
|-----------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|
| <b>Forrest County</b> | <b>29,913</b>           | <b>\$114,000</b>            | <b>33,490</b>           | <b>\$187,700</b>            |
| <i>Hattiesburg</i>    | <b>20,029</b>           | <b>\$86,111</b>             | <b>22,830</b>           | <b>\$146,600</b>            |
| <i>Petal</i>          | <b>4,261</b>            | <b>\$111,650</b>            | <b>4,435</b>            | <b>\$147,800</b>            |

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 for the county while Highway 13 is in the southernmost 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-minute 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 11 fire stations, 6 police stations, and 33 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 2024, Forrest County had an average annual employment of 33,020 workers and an average unemployment rate of 2.4% percent. According to the MESC, in 2023, the Education Services and Health Care employed 25.2% percent of the workforce followed by Retail Trade (10.3%) and Art, Entertainment, and Food Service (13.4%). The average annual wage in Forrest County was \$49,340.

## B.2 FORREST COUNTY RISK ASSESSMENT

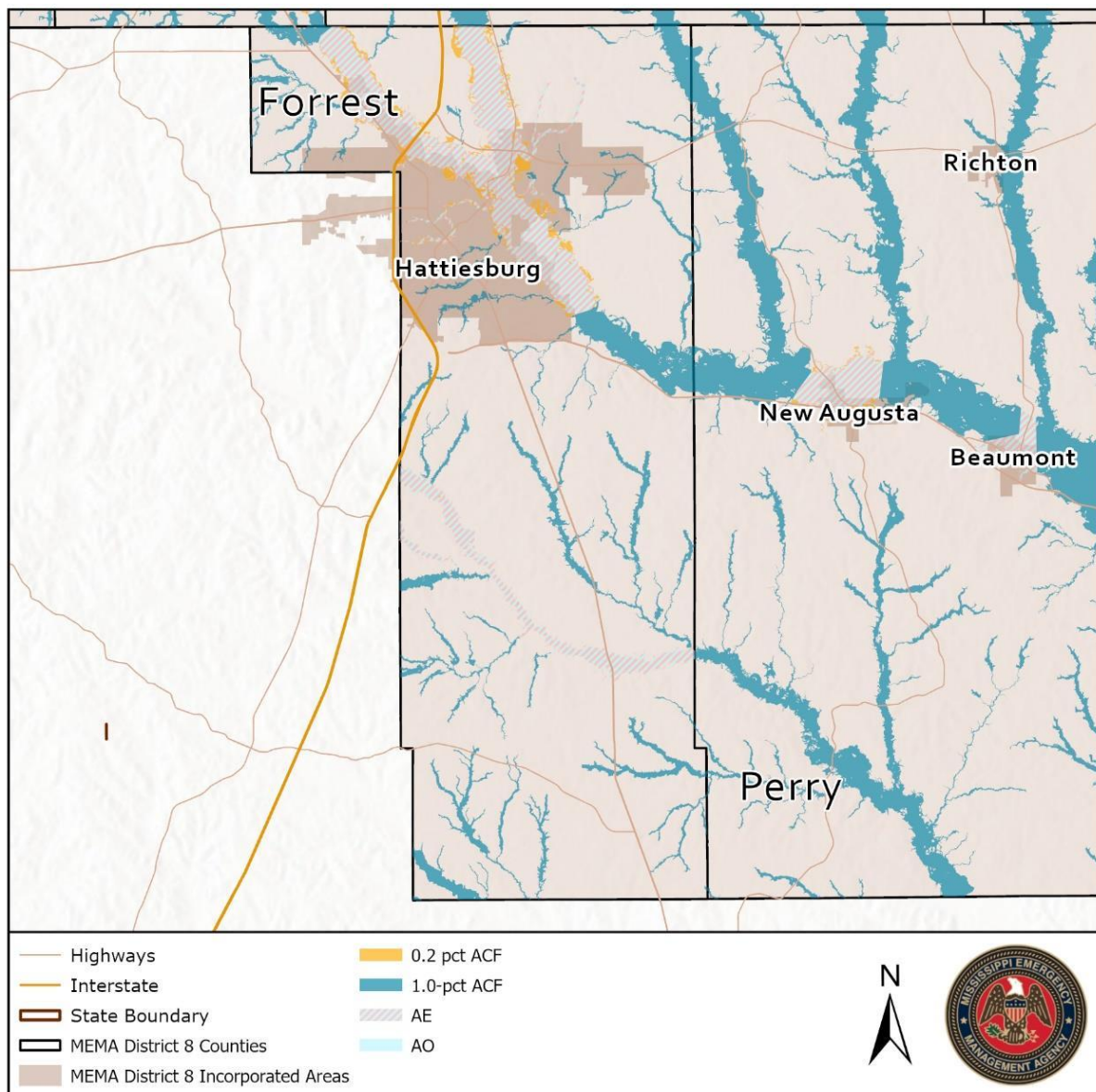
This subsection includes hazard profiles for each of the significant hazards identified in *Section 4: Hazard Identification* as they pertain to Forrest County. Each hazard profile includes a description of the hazard's location and extent, notable historical occurrences, and the probability of future 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). 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).

**FIGURE B.2: SPECIAL FLOOD HAZARD AREAS IN FORREST COUNTY**



#### HISTORICAL OCCURRENCES



Floods resulted in eight disaster declarations in Forrest County in 1970 and 2024. 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 107 events in Forrest County since 2000. A summary of these events is presented in **Table B.5**. These events accounted for over \$9.1 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.6**.

**TABLE B.5: SUMMARY OF FLOOD OCCURRENCES IN FORREST COUNTY**

| LOCATION                     | Number of Occurrences | Deaths   | Injuries | Property Damage    | Crop Damage |
|------------------------------|-----------------------|----------|----------|--------------------|-------------|
| <i>Hattiesburg</i>           | 42                    | 0        | 0        | \$2,668,000        | \$0         |
| <i>Petal</i>                 | 15                    | 0        | 0        | \$684,000          | \$0         |
| <i>Unincorporated Area</i>   | 50                    | 0        | 0        | \$5,790,000        | \$0         |
| <b>Forrest County Total:</b> | <b>107</b>            | <b>0</b> | <b>0</b> | <b>\$9,142,000</b> | <b>\$0</b>  |

Source: NCED/NOAA

**TABLE B.6: HISTORICAL FLOOD EVENTS IN FORREST COUNTY**

| Location                       | Date       | Type               | Deaths | Injuries | Property Damage |
|--------------------------------|------------|--------------------|--------|----------|-----------------|
| <b>The City of Hattiesburg</b> |            |                    |        |          |                 |
| <i>Hattiesburg</i>             | 3/2/2001   | <i>Flash Flood</i> | 0      | 0        | \$0             |
| <i>Hattiesburg</i>             | 9/4/2001   | <i>Flash Flood</i> | 0      | 0        | \$100,000       |
| <i>Hattiesburg</i>             | 12/13/2001 | <i>Flash Flood</i> | 0      | 0        | \$0             |
| <i>Hattiesburg</i>             | 6/21/2003  | <i>Flash Flood</i> | 0      | 0        | \$30,000        |
| <i>Hattiesburg</i>             | 6/27/2003  | <i>Flash Flood</i> | 0      | 0        | \$1,000         |
| <i>Hattiesburg</i>             | 6/30/2003  | <i>Flash Flood</i> | 0      | 0        | \$10,000        |
| <i>Hattiesburg</i>             | 8/20/2003  | <i>Flash Flood</i> | 0      | 0        | \$20,000        |
| <i>Hattiesburg</i>             | 2/23/2004  | <i>Flash Flood</i> | 0      | 0        | \$45,000        |
| <i>Hattiesburg</i>             | 6/1/2004   | <i>Flash Flood</i> | 0      | 0        | \$302,000       |
| <i>Hattiesburg</i>             | 7/6/2004   | <i>Flash Flood</i> | 0      | 0        | \$0             |
| <i>Hattiesburg</i>             | 4/14/2007  | <i>Flash Flood</i> | 0      | 0        | \$400,000       |
| <i>Hattiesburg</i>             | 7/29/2008  | <i>Flash Flood</i> | 0      | 0        | \$600,000       |
| <i>Hattiesburg</i>             | 5/16/2009  | <i>Flash Flood</i> | 0      | 0        | \$2,000         |
| <i>Hattiesburg</i>             | 1/24/2010  | <i>Flash Flood</i> | 0      | 0        | \$5,000         |
| <i>Hattiesburg</i>             | 3/5/2011   | <i>Flash Flood</i> | 0      | 0        | \$1,000         |
| <i>Hattiesburg</i>             | 7/24/2011  | <i>Flash Flood</i> | 0      | 0        | \$10,000        |
| <i>Hattiesburg ARP</i>         | 2/18/2012  | <i>Flash Flood</i> | 0      | 0        | \$0             |
| <i>Hattiesburg ARP</i>         | 3/21/2012  | <i>Flash Flood</i> | 0      | 0        | \$50,000        |
| <i>Hattiesburg</i>             | 7/18/2012  | <i>Flash Flood</i> | 0      | 0        | \$6,000         |
| <i>Hattiesburg</i>             | 8/29/2012  | <i>Flash Flood</i> | 0      | 0        | \$20,000        |
| <i>Hattiesburg</i>             | 6/6/2013   | <i>Flash Flood</i> | 0      | 0        | \$0             |
| <i>Hattiesburg</i>             | 8/13/2013  | <i>Flash Flood</i> | 0      | 0        | \$0             |
| <i>Hattiesburg</i>             | 2/4/2014   | <i>Flash Flood</i> | 0      | 0        | \$20,000        |
| <i>Hattiesburg</i>             | 2/20/2014  | <i>Flash Flood</i> | 0      | 0        | \$10,000        |
| <i>Hattiesburg</i>             | 12/24/2015 | <i>Flash Flood</i> | 0      | 0        | \$5,000         |
| <i>Hattiesburg</i>             | 3/10/2016  | <i>Flash Flood</i> | 0      | 0        | \$5,000         |
| <i>Hattiesburg</i>             | 3/31/2016  | <i>Flash Flood</i> | 0      | 0        | \$15,000        |



|                                              |            |                    |   |   |           |
|----------------------------------------------|------------|--------------------|---|---|-----------|
| <i>Hattiesburg</i>                           | 1/21/2017  | <i>Flash Flood</i> | 0 | 0 | \$15,000  |
| <i>Hattiesburg</i>                           | 8/9/2017   | <i>Flash Flood</i> | 0 | 0 | \$303,000 |
| <i>Hattiesburg</i>                           | 8/18/2018  | <i>Flash Flood</i> | 0 | 0 | \$5,000   |
| <i>Hattiesburg</i>                           | 11/1/2018  | <i>Flash Flood</i> | 0 | 0 | \$5,000   |
| <i>Hattiesburg</i>                           | 12/27/2018 | <i>Flash Flood</i> | 0 | 0 | \$100,000 |
| <i>Hattiesburg</i>                           | 1/23/2019  | <i>Flash Flood</i> | 0 | 0 | \$5,000   |
| <i>Hattiesburg ARP</i>                       | 1/23/2019  | <i>Flash Flood</i> | 0 | 0 | \$1,000   |
| <i>Hattiesburg</i>                           | 5/9/2019   | <i>Flash Flood</i> | 0 | 0 | \$3,000   |
| <i>Hattiesburg</i>                           | 2/10/2020  | <i>Flash Flood</i> | 0 | 0 | \$2,000   |
| <i>Hattiesburg</i>                           | 5/27/2020  | <i>Flash Flood</i> | 0 | 0 | \$2,000   |
| <i>Hattiesburg</i>                           | 6/24/2021  | <i>Flash Flood</i> | 0 | 0 | \$35,000  |
| <i>Hattiesburg</i>                           | 8/30/2021  | <i>Flash Flood</i> | 0 | 0 | \$5,000   |
| <i>Hattiesburg</i>                           | 6/10/2022  | <i>Flash Flood</i> | 0 | 0 | \$10,000  |
| <i>Hattiesburg</i>                           | 8/24/2022  | <i>Flash Flood</i> | 0 | 0 | \$220,000 |
| <i>Hattiesburg</i>                           | 12/14/2022 | <i>Flash Flood</i> | 0 | 0 | \$300,000 |
| <b>City of Petal</b>                         |            |                    |   |   |           |
| <i>Petal</i>                                 | 6/12/2001  | <i>Flash Flood</i> | 0 | 0 | \$25,000  |
| <i>Petal</i>                                 | 9/26/2002  | <i>Flash Flood</i> | 0 | 0 | \$1,000   |
| <i>Petal</i>                                 | 9/2/2008   | <i>Flash Flood</i> | 0 | 0 | \$130,000 |
| <i>Petal</i>                                 | 6/1/2010   | <i>Flash Flood</i> | 0 | 0 | \$25,000  |
| <i>Petal</i>                                 | 7/22/2014  | <i>Flash Flood</i> | 0 | 0 | \$5,000   |
| <i>Petal</i>                                 | 9/16/2014  | <i>Flash Flood</i> | 0 | 0 | \$3,000   |
| <i>Petal</i>                                 | 8/8/2017   | <i>Flash Flood</i> | 0 | 0 | \$2,000   |
| <i>Petal</i>                                 | 8/9/2017   | <i>Flash Flood</i> | 0 | 0 | \$200,000 |
| <i>Petal</i>                                 | 7/6/2018   | <i>Flash Flood</i> | 0 | 0 | \$30,000  |
| <i>Petal</i>                                 | 8/18/2018  | <i>Flash Flood</i> | 0 | 0 | \$10,000  |
| <i>Petal</i>                                 | 12/27/2018 | <i>Flash Flood</i> | 0 | 0 | \$10,000  |
| <i>Petal</i>                                 | 1/23/2019  | <i>Flash Flood</i> | 0 | 0 | \$2,000   |
| <i>Petal</i>                                 | 4/18/2019  | <i>Flash Flood</i> | 0 | 0 | \$10,000  |
| <i>Petal</i>                                 | 7/14/2019  | <i>Flash Flood</i> | 0 | 0 | \$1,000   |
| <i>Petal</i>                                 | 8/24/2022  | <i>Flash Flood</i> | 0 | 0 | \$230,000 |
| <b>Unincorporated Area in Forrest County</b> |            |                    |   |   |           |
| <i>Countywide</i>                            | 3/3/2001   | <i>Flash Flood</i> | 0 | 0 | \$0       |
| <i>Countywide</i>                            | 6/11/2001  | <i>Flash Flood</i> | 0 | 0 | \$7,000   |
| <i>Countywide</i>                            | 10/13/2001 | <i>Flash Flood</i> | 0 | 0 | \$0       |
| <i>Countywide</i>                            | 8/16/2003  | <i>Flash Flood</i> | 0 | 0 | \$10,000  |
| <i>Countywide</i>                            | 3/31/2005  | <i>Flash Flood</i> | 0 | 0 | \$40,000  |
| <i>North Portion</i>                         | 4/1/2005   | <i>Flash Flood</i> | 0 | 0 | \$100,000 |
| <i>Countywide</i>                            | 8/29/2005  | <i>Flash Flood</i> | 0 | 0 | \$300,000 |
| <i>Rock Hill</i>                             | 9/2/2008   | <i>Flash Flood</i> | 0 | 0 | \$20,000  |
| <i>Dixie Pine</i>                            | 3/25/2009  | <i>Flash Flood</i> | 0 | 0 | \$200,000 |
| <i>Rock Hill</i>                             | 3/27/2009  | <i>Flash Flood</i> | 0 | 0 | \$50,000  |
| <i>Macedonia</i>                             | 4/12/2009  | <i>Flash Flood</i> | 0 | 0 | \$400,000 |
| <i>Ragland</i>                               | 4/13/2009  | <i>Flash Flood</i> | 0 | 0 | \$200,000 |

|                       |                   |                    |          |          |                    |
|-----------------------|-------------------|--------------------|----------|----------|--------------------|
| <b>Bonhomie</b>       | <b>5/4/2009</b>   | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$15,000</b>    |
| <b>Rawls Springs</b>  | <b>9/16/2009</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>     |
| <b>Brooklyn</b>       | <b>12/14/2009</b> | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$25,000</b>    |
| <b>McLaurin</b>       | <b>3/8/2011</b>   | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$250,000</b>   |
| <b>Bonhomie</b>       | <b>3/9/2011</b>   | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$20,000</b>    |
| <b>Epps</b>           | <b>6/7/2011</b>   | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>     |
| <b>Riverside</b>      | <b>7/12/2011</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>     |
| <b>Carnes</b>         | <b>7/12/2011</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>     |
| <b>Riverside</b>      | <b>9/5/2011</b>   | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$50,000</b>    |
| <b>Maybank</b>        | <b>1/26/2012</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>     |
| <b>McLaurin</b>       | <b>3/22/2012</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$50,000</b>    |
| <b>Bonhomie</b>       | <b>4/14/2013</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$100,000</b>   |
| <b>Riverside</b>      | <b>4/28/2013</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$0</b>         |
| <b>Dixie Pine</b>     | <b>7/5/2015</b>   | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>     |
| <b>McCallum</b>       | <b>3/11/2016</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$8,000</b>     |
| <b>Rawls Springs</b>  | <b>3/11/2016</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$40,000</b>    |
| <b>Dixie Pine</b>     | <b>3/11/2016</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$50,000</b>    |
| <b>Glendale</b>       | <b>3/11/2016</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$30,000</b>    |
| <b>Dragon</b>         | <b>3/11/2016</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$300,000</b>   |
| <b>Rock Hill</b>      | <b>3/11/2016</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$20,000</b>    |
| <b>Carnes</b>         | <b>3/17/2016</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$10,000</b>    |
| <b>Dixie Pine</b>     | <b>3/31/2016</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$10,000</b>    |
| <b>Riverside</b>      | <b>4/14/2016</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$10,000</b>    |
| <b>Riverside</b>      | <b>12/13/2016</b> | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>     |
| <b>Riverside</b>      | <b>1/1/2017</b>   | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$3,000</b>     |
| <b>Fruitland Park</b> | <b>1/2/2017</b>   | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b>     |
| <b>Dixie Pine</b>     | <b>1/2/2017</b>   | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>     |
| <b>Bonhomie</b>       | <b>4/30/2017</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$15,000</b>    |
| <b>Maybank</b>        | <b>6/6/2017</b>   | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$700,000</b>   |
| <b>Macedonia</b>      | <b>6/16/2017</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$20,000</b>    |
| <b>County</b>         | <b>6/22/2017</b>  | <b>Flood</b>       | <b>0</b> | <b>0</b> | <b>\$20,000</b>    |
| <b>Carnes</b>         | <b>7/24/2017</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$19,000</b>    |
| <b>Dixie Pine</b>     | <b>8/10/2017</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$30,000</b>    |
| <b>Glendale</b>       | <b>8/16/2017</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$3,000</b>     |
| <b>Riverside</b>      | <b>12/27/2018</b> | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$75,000</b>    |
| <b>Dixie Pine</b>     | <b>12/27/2018</b> | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$150,000</b>   |
| <b>Maybank</b>        | <b>12/27/2018</b> | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$300,000</b>   |
| <b>Rawls Springs</b>  | <b>12/28/2018</b> | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$300,000</b>   |
| <b>Dixie Pine</b>     | <b>1/23/2019</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b>     |
| <b>Glendale</b>       | <b>4/18/2019</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b>     |
| <b>Brooklyn</b>       | <b>5/11/2019</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$1,705,000</b> |
| <b>Rock Hill</b>      | <b>5/11/2019</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$20,000</b>    |
| <b>Brooklyn</b>       | <b>4/24/2021</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>     |
| <b>Bonhomie</b>       | <b>4/24/2021</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b>     |
| <b>Carnes</b>         | <b>6/19/2021</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$10,000</b>    |
| <b>Bonhomie</b>       | <b>2/3/2022</b>   | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$4,000</b>     |
| <b>Macedonia</b>      | <b>3/18/2022</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>     |

|                  |                  |                    |          |          |                 |
|------------------|------------------|--------------------|----------|----------|-----------------|
| <i>Riverside</i> | <i>4/5/2022</i>  | <i>Flash Flood</i> | <i>0</i> | <i>0</i> | <i>\$15,000</i> |
| <i>Riverside</i> | <i>4/17/2022</i> | <i>Flash Flood</i> | <i>0</i> | <i>0</i> | <i>\$15,000</i> |
| <i>McCallum</i>  | <i>8/24/2022</i> | <i>Flash Flood</i> | <i>0</i> | <i>0</i> | <i>\$25,000</i> |

TABLE B.7: EXTENT: FLOOD EVENTS IN FORREST COUNTY SINCE THE LAST UPDATE

| Forrest County: \$2.632 Million |           |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|---------------------------------|-----------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Location                        | Date      | Loss        | Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
| Petal & County                  | 1/23/2019 | \$10,000    | A low-pressure system moved east across the region, bringing widespread rainfall and a few strong to severe thunderstorms. Training thunderstorms across the Pine Belt led to flash flooding.                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Streets were flooded in West Hattiesburg, and runoff from heavy rain flooded the area near the intersection of Woody Clark Road and Batson Road.</li> <li>Flash flooding occurred along McCall Street.</li> <li>Jackson Avenue was closed due to flash flooding in Petal.</li> </ul>                                                                                                                                                                                                                                                                                  |  |
| Hattiesburg                     | 4/18/2019 | \$12,000    | <ul style="list-style-type: none"> <li>During the daytime hours of April 18th, a developing storm system helped generate a large line of thunderstorms which then moved across the region.</li> <li>The combination of multiple environmental features, set the stage for 43 tornadoes to occur over the forecast area. This ranks as 4th most for a single event across the forecast area. In addition to the tornadoes, widespread wind damage occurred as well.</li> </ul> | The combination of multiple environmental features, set the stage for 43 tornadoes to occur over the forecast area. This ranks as 4th most for a single event across the forecast area. In addition to the tornadoes, widespread wind damage occurred as well. Roads were flooded across Hattiesburg and Petal.                                                                                                                                                                                                                                                                                              |  |
| Petal & Glendale                | 5/09/2019 | \$3,000     | A slow-moving low-pressure system moved northeast from the High Plains region toward the Great Lakes between May 8th and 9th.                                                                                                                                                                                                                                                                                                                                                 | Water covered the westbound lanes of West Fourth Street near the Century Park Residence Halls on the University of Southern Mississippi campus.                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| County                          | 5/11/2019 | \$1,735,000 | After a cold front stalled across the ArkLaMiss region the day before, the remnant stationary front served as a focus for the development of widespread showers and thunderstorms on May 11th.                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Several roads across southern Forrest County were flooded including portions of Old Highway 49 between Brooklyn and Maxie. A few roads were also washed out including Churchwell Rd., Tower Rd., Entrekin Road, Worth Nall Rd. and Bud Myers Rd.</li> <li>Rockhill Brooklyn Rd. and A B Simmons Rd. were closed due to water covering the roadways after an additional round of heavy rain moved through. Old Highway 49 was closed near Brooklyn due to flash flooding along several portions of it from near Bud Myers Rd. south to near Yeaton Spur Rd.</li> </ul> |  |
| Petal                           | 7/14/2019 | \$1,000     | Hurricane Barry made landfall in Louisiana and quickly weakened to a tropical storm as it moved inland across the region. The storm brought severe storms & flash flooding to the region on July 14th.                                                                                                                                                                                                                                                                        | Jackson Avenue was closed in the city of Petal due to about 2 feet of water on the street.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| Hattiesburg                     | 2/10/2020 | \$2,000     | Anomalous moisture was in place across the ArkLaMiss region as a stationary front was draped across the area.                                                                                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Some locations saw locally higher amounts of nine to ten inches. Around I-20, two to four inches of rain fell, while near an inch fell across the Highway 84 corridor.</li> <li>Flooding occurred along Highway 49 between Hardy Street and Old Highway 42.</li> </ul>                                                                                                                                                                                                                                                                                                |  |
| Hattiesburg                     | 5/27/2020 | \$2,000     | Afternoon showers and thunderstorms occurred across the region as a warm, moist and unstable airmass was in place.                                                                                                                                                                                                                                                                                                                                                            | Intermittent flooding occurred along Hardy Street between Highway 49 and 38th Avenue.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| Brooklyn                        | 4/24/2021 | \$7,000     | Showers and thunderstorms developed in association with a frontal system that moved through the region.                                                                                                                                                                                                                                                                                                                                                                       | Water covered a road and flowed over a bridge near Brooklyn.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |

|                                |            |           |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------|------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Carnes</b>                  | 6/19/2021  | \$10,000  | Heavy rainfall associated with Tropical Storm Claudette produced flash flooding in southeast Mississippi.                                                                                                                                                                                                                                                                                                                    | Heavy rain associated with Tropical Storm Claudette caused flash flooding in far southern portions of Forrest County. A culvert along Joe Lee Road washed out, several roads in Brooklyn including Main Street and 4th street were flooded, and John Morris Road near Carnes was flooded.                                                                                                                                                                                                                                                               |
| <b>Hattiesburg</b>             | 6/24/2021  | \$35,000  | Scattered thunderstorms in late June produced isolated damaging winds and flash flooding.                                                                                                                                                                                                                                                                                                                                    | Hardy Street from 31st Avenue to 38th Avenue was flooded, and three vehicles were stranded in floodwaters beneath the 4th Street bridge.                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Hattiesburg</b>             | 8/30/2021  | \$5,000   | Major hurricane Ida made landfall as a strong category four hurricane around 11:55am on August 29 near Grand Isle, LA. It then moved very slowly north through south central Louisiana and into Mississippi on August 30.                                                                                                                                                                                                    | Rainfall amounts of 4-8 inches occurred, which resulted in flash flooding. Water covered the roadway at the intersection of Highway 49 and West Pine Street as well as at North 28th Avenue and Sims Road.                                                                                                                                                                                                                                                                                                                                              |
| <b>County</b>                  | 2/3/2022   | \$4,000   | A warm and anomalously moist airmass was in place across Mississippi ahead of a cold front. This front moved through the region early on the 3rd, with arctic air spilling south behind it. Ahead of the front, showers and thunderstorms developed, with some being severe and producing damaging winds. Given the high moisture content present, locally heavy rainfall occurred and resulted in localized flash flooding. | <ul style="list-style-type: none"> <li>• Rainfall amounts of four to over 5 1/2 inches fell in portions of the Pine Belt.</li> <li>• Heavy rain fell across the Hattiesburg area. Storm totals around 4.7 to 5.7 inches fell across portions of the area. This resulted in instances of flash flooding across Hattiesburg. Flash flooding occurred on Annie Christie Ln. and Collins Str. in Hattiesburg, as well as on Chester Brown Rd. Flooding occurred on Highway 49 and W 7th Ave.</li> </ul>                                                     |
| <b>County</b>                  | 3/18/2022  | \$1,000   | Showers and thunderstorms developed in the warm, moist airmass south of a warm front.                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>• Flash flooding occurred as storms began to move over the same region.</li> <li>• Barrontown Road was flooded.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Riverside</b>               | 4/05/2022  | \$15,000  | A low-pressure system moving east along the Arkansas Louisiana border helped to organize a line of severe thunderstorms early in the morning of April 5th.                                                                                                                                                                                                                                                                   | After 2 to 3 inches of heavy rain fell over the Hattiesburg area, several streets in downtown mainly south of Gordons Creek were affected by flash flooding. Some roads were closed for several hours as waters pooled and then receded. This included areas near the intersection of Hardy Street and Williams Street, Bay Street, the intersection of Katie Avenue and Charles Street, the intersection of 25th Avenue and 7th Street, a portion of US Highway 49 near West Pine Street, and Short Bay Street.                                        |
| <b>Riverside</b>               | 4/17/2022  | \$15,000  | Several rounds of severe thunderstorms produced large hail, damaging wind gusts, and tornadoes through the day on April 17th.                                                                                                                                                                                                                                                                                                | US Highway 49 at the 4th Street overpass was closed due to flooding, and the intersection of 7th St. and 25th St. was closed due to flooding.                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Hattiesburg</b>             | 6/10/2022  | \$10,000  | Storms occurred on June 10 <sup>th</sup> which led to heavy rain and flash flooding.                                                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>• South 15th Avenue was closed due to Flash Flooding.</li> <li>• Barter street and South 17th Avenue were closed due to flash flooding. Vehicles were also stalled along South 17th Avenue.</li> </ul>                                                                                                                                                                                                                                                                                                           |
| <b>Hattiesburg &amp; Petal</b> | 8/24/2022  | \$475,000 | A low-pressure system spinning over northern Louisiana and southern Arkansas brought several rounds of showers and thunderstorms producing heavy rain to Mississippi August 24th through 25th.                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>• This resulted in widespread flooding of roads, homes, and businesses.</li> <li>• Flooding at Klondyke Str. and Hardy Str.</li> <li>• Flooding reported at the University of Southern Mississippi. Flooding on Hardy Street between 10th and 11th Streets and near 17th Str. in Hattiesburg.</li> <li>• A car flooded and high-water rescue on Highway 49 in Hattiesburg.</li> <li>• There was flooding at Sherry Lynn Drive and Oaklawn Drive and also on Robinson Drive and Leeville Road in Petal</li> </ul> |
|                                | 12/14/2022 | \$300,000 | Severe thunderstorms moved across Mississippi during the evening and overnight hours of the 13th into the 14th, with flash flooding across areas of the Delta and several tornadoes.                                                                                                                                                                                                                                         | Heavy rain with thunderstorms across Hattiesburg resulted in numerous reports of flash flooding, with homes and vehicles impacted by high water. Water rescues from stalled vehicles occurred along Hardy Street                                                                                                                                                                                                                                                                                                                                        |

|             |  |  |  |                                                                                                                                                                                                                   |
|-------------|--|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hattiesburg |  |  |  | with Mcleod Street and Main streets blocked due to high water, flooding along Mamie Street, with reports of flooding across numerous other roads across town including near Providence Street and Old highway 42. |
|-------------|--|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**HISTORICAL SUMMARY OF INSURED FLOOD LOSSES & REPETITIVE LOSS PROPERTIES**

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, unless the Jurisdiction requests the information and shares it with the committee. the decision was made to leave the existing information in the plan unless the Jurisdictions sent the requested information from FEMA to put in the plan.

Furthermore, since most of the flooding was from flash flooding which occurs quickly, it was difficult to find flood depth information. As of May 2024, there are no non-mitigated repetitive loss properties located in Forrest County. **Table B.9** presents detailed information on repetitive loss properties and NFIP claims and policies for Forrest County. This remains the best available data.

According to FEMA flood insurance policy records as of August 2024, 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.8**. 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.8: SUMMARY OF INSURED FLOOD LOSSES AND REPETITIVE LOSSES IN FORREST COUNTY**

| Location              | Flood Losses | Claim Payments | Repetitive Loss Properties | Number of Properties | Number of Losses | Total Payments | Average Payments |
|-----------------------|--------------|----------------|----------------------------|----------------------|------------------|----------------|------------------|
| Hattiesburg           | 23           | \$243,475      |                            | 29                   | 110              | \$2,285,849    | \$584,934        |
| Petal                 | 0            | \$0            |                            | 0                    | 0                | \$0            | \$0              |
| Unincorporated Area   | 0            | \$0            |                            | 0                    | 0                | \$0            | \$0              |
| Forrest County Total: | 23           | \$243,475      |                            | 29                   | 74               | \$1,379,010    | \$689,505        |

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

The information was requested from Forrest County, because a jurisdiction is the only one who can request and receive that information form FEMA. 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 even ts 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 area 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.



As the climate continues to change, the chance of heavy rain leading to flash flooding could increase in frequency, intensity, and magnitude. With the increasing frequency and intensity, heavy rains and flash flooding can lead to cascading effects and can also lead to flooding in areas that do not usually flood.

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).

If the climate continues to change as scientists predict, the higher intensity and magnitude of storms and the increasing drought and high heat days, can lead to erosion in areas that have not been impacted by erosion in the past. Also, the chance of heavy rain leading to flash flooding could also increase in frequency, intensity, and magnitude. With the increasing frequency and intensity, heavy rains and flash flooding cascading effects are possible such as erosion of soil from the ground, under/ around trees, and under roads. This can lead to falling trees, power outages, and road damage.

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. At least two dams, Lake B Dam and Lakeland Drive Lake Dam were initially rated 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 breach of dams in Forrest County. In 1983 however, a 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.

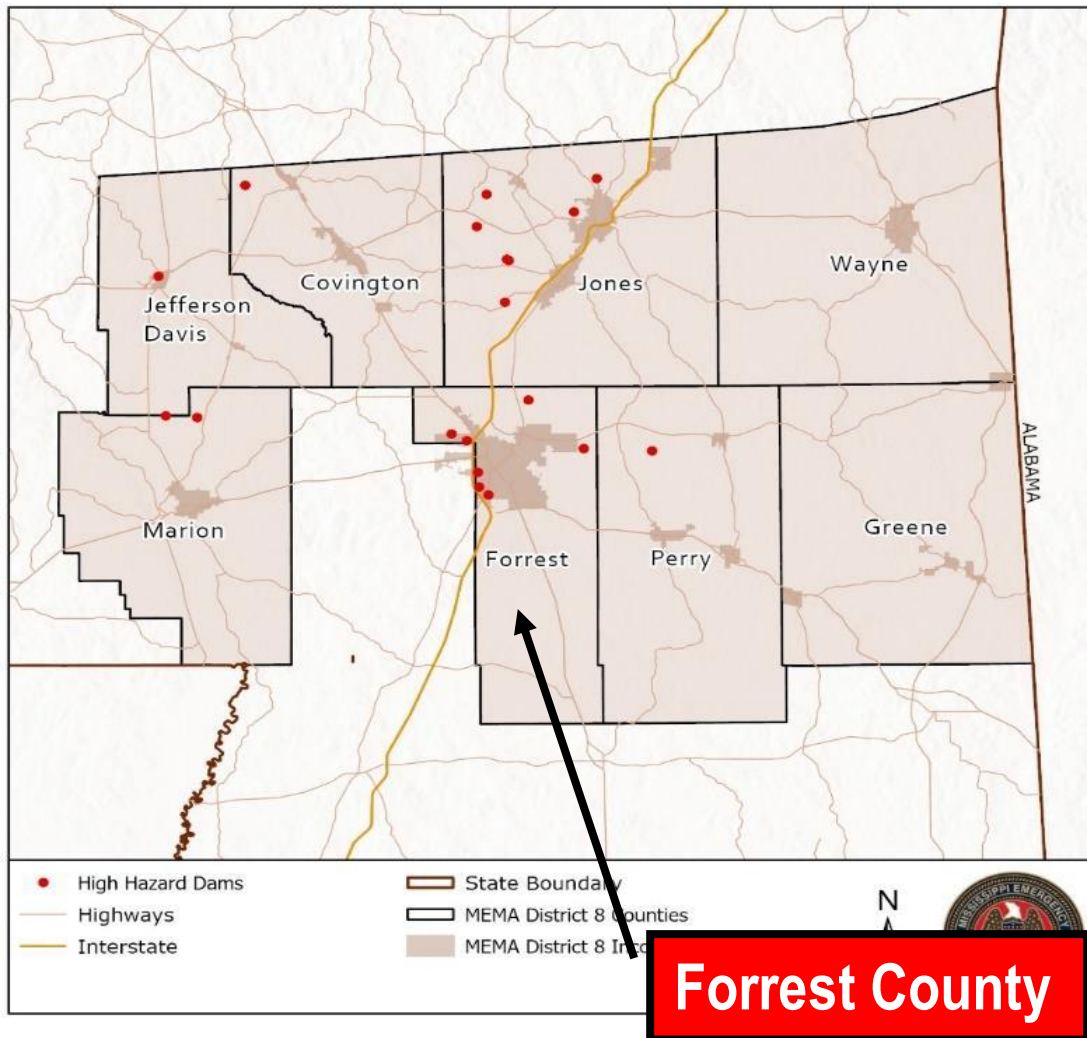
According to a consensus of local government officials and the Regional Hazard Mitigation Council, a majority of these dams would not pose a major threat in a breach or failure occurrence. See **Table B.9** and **Figure B.3**.

TABLE B.9: FORREST COUNTY HIGH HAZARD DAMS

| Dam Name               | Hazard Potential |
|------------------------|------------------|
| Lynn Cartlage Lake Dam | HIGH             |

|                                         |             |
|-----------------------------------------|-------------|
| <b>Country Club Lake</b>                | <b>HIGH</b> |
| <b>Lake Sehoj (USM Campus Lake) Dam</b> | <b>HIGH</b> |
| <b>Lake B Dam</b>                       | <b>HIGH</b> |
| <b>40<sup>th</sup> Place Dam</b>        | <b>HIGH</b> |
| <b>Pleasant Ridge Estates Dam</b>       | <b>HIGH</b> |
| <b>Lakeland Drive Lake Dam</b>          | <b>HIGH</b> |

Source: MDEQ

**FIGURE B.3: FORREST COUNTY HIGH HAZARD DAM LOCATIONS**

### **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 ten recorded winter storm events in Forrest County since 2002. These events resulted in almost \$620,000 in damages. Detailed information on the recorded winter storm events can be found in **Table B.10**.

**TABLE B.10: HISTORICAL WINTER STORM IMPACTS IN FORREST COUNTY**

| Date          | Type            | Injuries/<br>Deaths | Property<br>Damage |
|---------------|-----------------|---------------------|--------------------|
| 1/1/2002      | Heavy Snow      | 0/0                 | \$5,000            |
| 1/19/2008     | Heavy Snow      | 0/0                 | \$0                |
| 12/11/2008    | Winter Weather  | 0/0                 | \$0                |
| 12/4/2009     | Heavy Snow      | 0/0                 | \$0                |
| 1/1/2010      | Cold/wind Chill | 0/0                 | \$300,000          |
| 2/11/2010     | Heavy Snow      | 0/0                 | \$300,000          |
| 1/9/2011      | Winter Weather  | 0/0                 | \$0                |
| 12/8/2017     | Winter Storm    | 0/0                 | \$0                |
| 1/16/2018     | Winter Weather  | 0/0                 | \$0                |
| 2/15/2021     | Winter Weather  | 0/0                 | \$15,000           |
| <b>Total:</b> | <b>10</b>       | <b>0/0</b>          | <b>\$620,000</b>   |

Source: NCED/NOAA

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.

**February 11, 2010, Heavy Snow**—At the National Weather Service office, a total of 4.7 inches of snow fell during the event. This is the 2nd largest February snowfall event and the 10th overall largest snowfall event on record. This heavy snow event was not just a local event. Heavy snow spanned a large portion of the South with a substantial swath of 3 to 6 inches which fell from north-central Texas through north and central Louisiana, central and southern Mississippi, Alabama and Georgia. Up to 6 inches of snow fell across portions of Forrest County, with 6 inches reported in Petal.

**December 12, 2017**—A mix of sleet and snow began shortly after midnight in Forrest County, with a transition to all snow by 5 a.m. Snowfall totals were mostly near 5 to 6 inches across the county.

**January 16, 2018**—Light snow fell across the county, with accumulations of up to 1.8 inches.

**February 15, 2021**—Light freezing rain fell across the county. Accumulation up to one tenth of an inch occurred with light icing in the trees in the northern half of 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).

## **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 the last twenty-four years (2000-2024). **Table B.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 B. 11: HISTORICAL DROUGHT OCCURRENCES IN FORREST COUNTY

| Abnormally Dry | Moderate Drought | Severe Drought  | Extreme Drought | Exceptional Drought |                |
|----------------|------------------|-----------------|-----------------|---------------------|----------------|
| Location       | Date             | Injuries/Deaths | Property Damage | Crop Damage         | Event/Severity |
| Forrest County | 10/1/2006        | 0/0             | \$0             | \$600,000           | D3             |
| Forrest County | 5/1/2007         | 0/0             | \$0             | \$400,000           | D3             |
| Forrest County | 6/1/2007         | 0/0             | \$0             | \$400,000           | D3             |
| Forrest County | 7/1/2007         | 0/0             | \$60,000        | \$0                 | D3             |
| Forrest County | 10/1/2010        | 0/0             | \$0             | \$500,000           | D2             |
| Forrest County | 11/15/2016       | 0/0             | \$0             | \$50,000            | D3             |
| Forrest County | 12/1/2016        | 0/0             | \$0             | \$50,000            | D2             |
| Forrest County | 9/1/2023         | 0/0             | \$0             | \$0                 | D3             |
| Forrest County | 10/1/2023        | 0/0             | \$0             | \$0                 | D3             |
| Forrest County | 11/1/2023        | 0/0             | \$0             | \$558,000           | D4             |
| Total:         | 10               | 0/0             | \$60,000        | \$2,558,000         |                |

Source: NCED/NOAA

There have been several Drought events in Forrest County. The text below describes one of the major events and associated impacts on the county.

**October 2006**—During a four-and-a-half-month period, from June to the middle of October, abnormally dry conditions prevailed across most of the Jackson, MS County Warning Area (CWA). Widespread drought conditions were reported across the area during this time period. The U.S. Drought Monitor classified the drought as extreme (D3) over Southeast Mississippi. Drought conditions in the region peaked in intensity during early August over this area. This drought caused approximately \$600 thousand in crop damage.

**May—July 2007**—The area was defined by extreme drought (D3), which by the end of the month encompassed an area mainly along and east of Interstate 55 from Grenada to Jackson and along and north of Interstate 20 from Jackson to Meridian. Through May, the entire area within the drought experienced annual rainfall deficits between 12 and 16 inches, (15-25% of normal rainfall), with the driest conditions occurring across Eastern Mississippi. By the end of May, crops across the state were beginning to feel the impact of the very dry conditions. At that point, some damage to crops had occurred with only small losses to yields expected.

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 have been affected with yields forecast to be much less than normal by harvest time. The quality of the crops was affected as well due to the dry conditions.



The area saw a range to 6 to 11 inches of rain for the month July. Due to the lingering effects of the drought, there were still some agricultural losses during the first few days of July, albeit much less than what occurred during the peak of the drought which occurred during June.

**October 2010**—Very dry conditions continued across central Mississippi during most of October. There were some rains that came late in the month which provided some temporary relief. Rainfall amounts ranged from a half to two inches with locally higher amounts. Most locations were 1 to 3 inches below normal for the month. 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. The likely impact will be less crop yields for harvest time. 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.

**November – December**—Very dry conditions continued into November, which resulted in an area of severe drought (D2). This eventually turned into extreme (D3) drought across Forrest County by the end of the month. Crops were put under more stress from the dry and hot conditions. Dry conditions continued into December, which created continued stress on crops. Showers and storms in late November relieved some of the worst drought conditions. However, much of the state began the month in severe (D2) drought. Additional showers and storms through the month continued to lessen drought conditions.

**September – November 2023**—The combined effects of persistent above-normal temperatures and minimal precipitation starting in early July 2023 resulted in mounting drought impacts across portions of much of southern and central Mississippi. Drought conditions in Forrest County intensified from D2 (Severe Drought) to D3 (Extreme Drought) as depicted on the U.S. Drought Monitor. Drought conditions in Forrest County persisted at D3 in November (Extreme Drought) as depicted on the U.S. Drought Monitor. Observed precipitation ranged from around 30 to 70 percent of normal in December, but some locations in southern Mississippi did receive near-normal rain for the month. Soil moisture values continued to worsen in areas of northern Mississippi where drought conditions worsened - with subsoil moisture values 30 to 40 percent below normal through the Delta region by month's end. Subsoil moisture values across the southern half of the state saw some improvement to between 15 to 30 percent below normal. These conditions placed a severe stress on pastures for livestock and cropland at the end of the growing season. Pine plantations and Christmas tree farms experienced severe losses especially among younger trees. In a study of over 13 million forested acres through western and central Mississippi surveyed by the Mississippi Forestry Commission, it was estimated that approximately 80,000 acres of pine trees were killed by drought stress. In the study area, this accounted for approximately 12.5 million pine trees lost. Stream flows on creeks and rivers were reduced. Drought conditions in Forrest County intensified from D3 (Extreme Drought) to D4 (Exceptional Drought) as depicted on the U.S. Drought Monitor.

## **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.

**August 2010**—A four day stretch of extreme temperatures occurred across the region to start off the month of August. High pressure was firmly entrenched across the southeast and allowed temperatures to soar into the triple digits across much of the region. Across the NWS Jackson, MS forecast area, 19 record highs were set between August 1st and 4th. On August 2nd, the 2nd warmest average temperature was recorded. The low was 78 and the high 105, this resulted in an average temperature of 91.5 degrees. Additionally, relatively high humidity levels made conditions even more oppressive, with heat index readings surpassing 110 degrees in many areas. This extreme heat resulted in 3 fatalities across the forecast area.

## **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. But, if the climate continues to warm, this could lead to more droughts with higher magnitude.

### **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.

If temperatures continue to rise as climate change occurs, it could increase the impacts, intensity, and duration of droughts and extreme temperatures. These increases could impact the effects on the counties' crops, economy, and population.

## **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 2010 to 2023, Forrest County experiences an average of 19.6 wildfires annually which burn an average of 198.4 per year. The data indicates that most of these fires are small, averaging ten

acres per fire. **Table B.12** provides a summary of wildfire occurrences in Forrest County since the last update, and **Table B.13** lists the number of reported wildfire occurrences in the county between the years 2010 and 2023.

**TABLE B.12: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2019 -2023) \***

| Forrest County                          |       |
|-----------------------------------------|-------|
| Average Number of Fires per year        | 13.6  |
| Average Number of Acres Burned per year | 174.6 |
| Average Number of Acres Burned per fire | 12.84 |

Source: MS Forestry Commission

**TABLE B.13: HISTORICAL WILDFIRE OCCURRENCES IN FORREST COUNTY**

| Forrest County         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Year                   | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| Number of Fires        | 33   | 59   | 25   | 27   | 21   | 7    | 17   | 8    | 10   | 6    | 10   | 9    | 12   | 31   |
| Number of Acres Burned | 112  | 742  | 391  | 177  | 104  | 167  | 167  | 55   | 156  | 89   | 147  | 234  | 201  | 202  |

Source: MS 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).

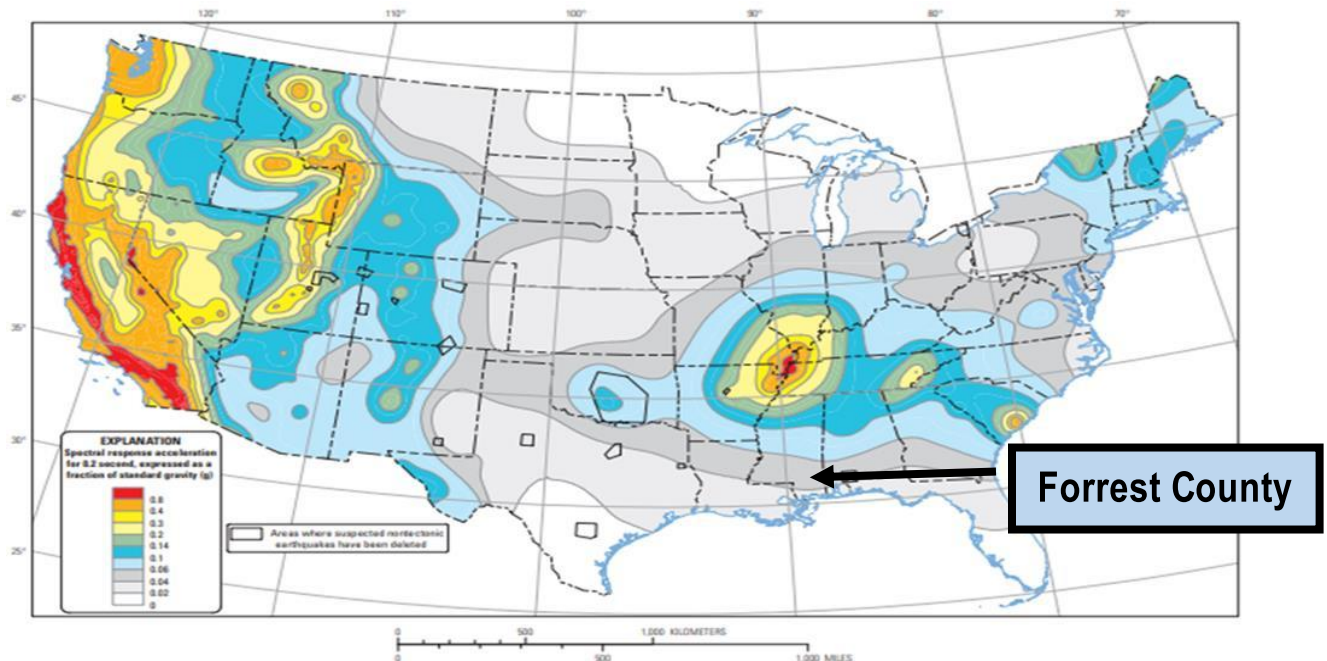
If temperatures continue to rise as climate change occurs, it could cause more droughts and extreme temperatures. The increase in of these could have a negative impact on wildfires. Extreme heat and drought can cause plants to become dry and brittle which makes the area more susceptible to wildfires.

If the predicted increase in heavy rains occur it can also cause flooding and erosion, which can also make the area more susceptible to wildfires.

## B.2.7 Earthquake

### LOCATION AND SPATIAL EXTENT

**Figure B.4** 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.

**FIGURE B.4: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS**

Source: USGS

## HISTORICAL OCCURRENCES

No earthquakes are known to have affected Forrest County since 1638. **Table B.14** provides a summary of earthquake events reported by the National Geophysical Data Center between 1638 and 2023.

**TABLE B.14: SUMMARY OF SEISMIC ACTIVITY IN FORREST COUNTY**

| Location                     | Date | Number of Occurrences | Greatest MMI Reported | Richter Scale Equivalent |
|------------------------------|------|-----------------------|-----------------------|--------------------------|
| <i>Hattiesburg</i>           | --   | 0                     | --                    | --                       |
| <i>Petal</i>                 | --   | 0                     | --                    | --                       |
| <i>Unincorporated Area</i>   | --   | 0                     | --                    | --                       |
| <b>Forrest County Total:</b> |      | <b>0</b>              | --                    | --                       |

## 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

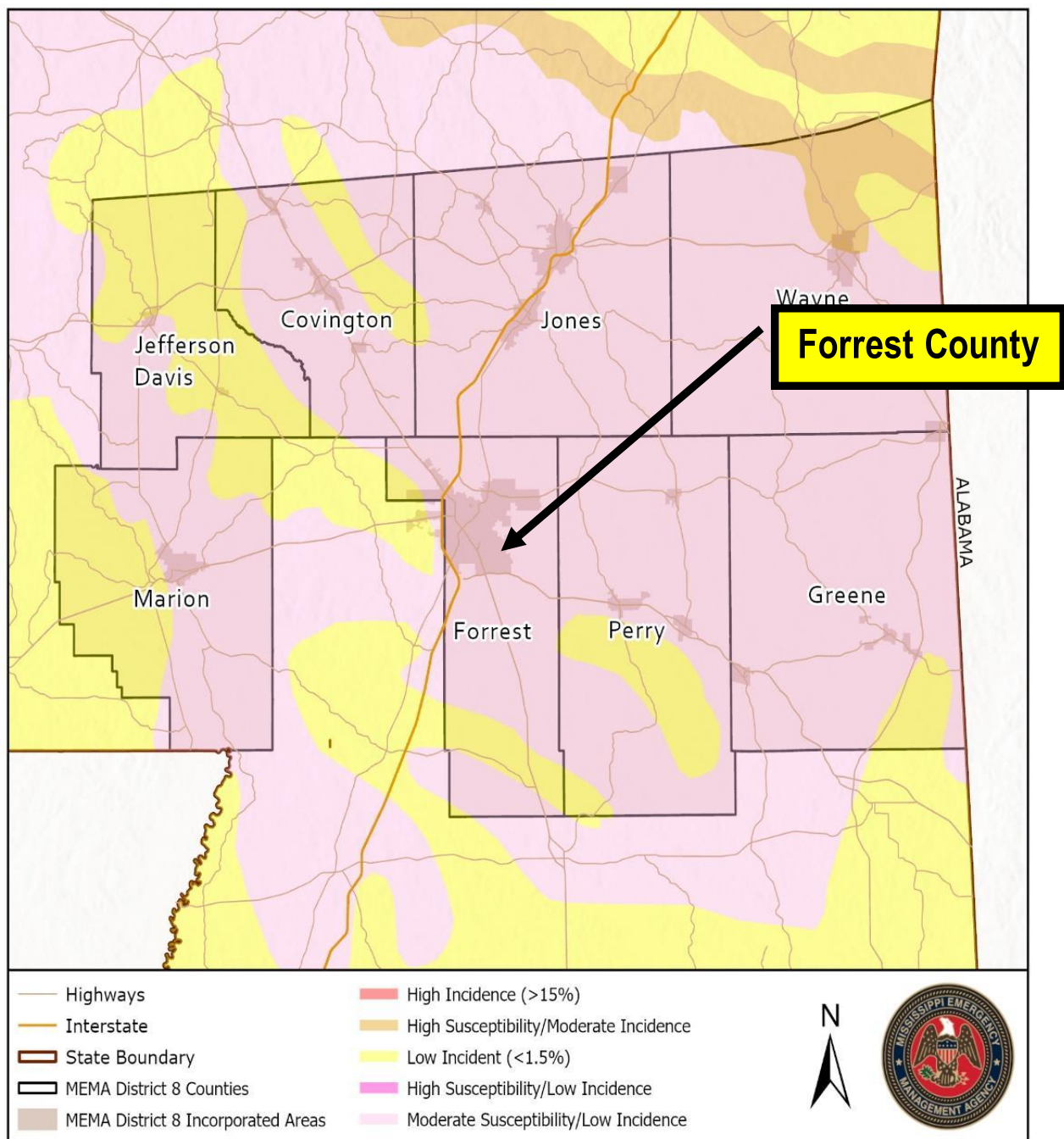
### LOCATION AND SPATIAL EXTENT

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. Landslides are possible throughout Forrest County.

According to **Figure B.5** below, the county falls under a moderate Susceptibility/low incidence area (light pink), and low incidence (Yellow).

**FIGURE B.5: LANDSLIDE SUSCEPTIBILITY AND INCIDENCE MAP OF FORREST COUNTY**





## 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 all areas in Forrest County have a low landslide incidence rate. However, some areas are reported as having moderate susceptibility to land sliding 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.

As the climate continues to change, scientists believe that the intensity, magnitude, and frequency of heavy rains will increase. This could cause cascading effects that could possibly lead to land sliding.

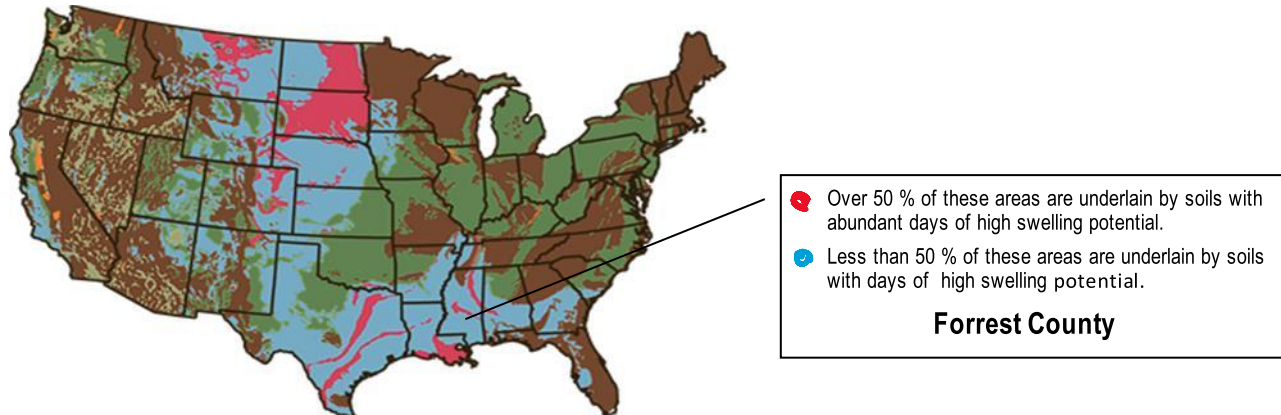


## B.2.9 Expansive Soils

### 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.6**. The areas in blue are underlain with generally less than 50 percent clay having high swelling potential.

**FIGURE B.6: 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).

## B.2.10 Hurricane and Tropical Storm

### LOCATION AND SPATIAL EXTENT

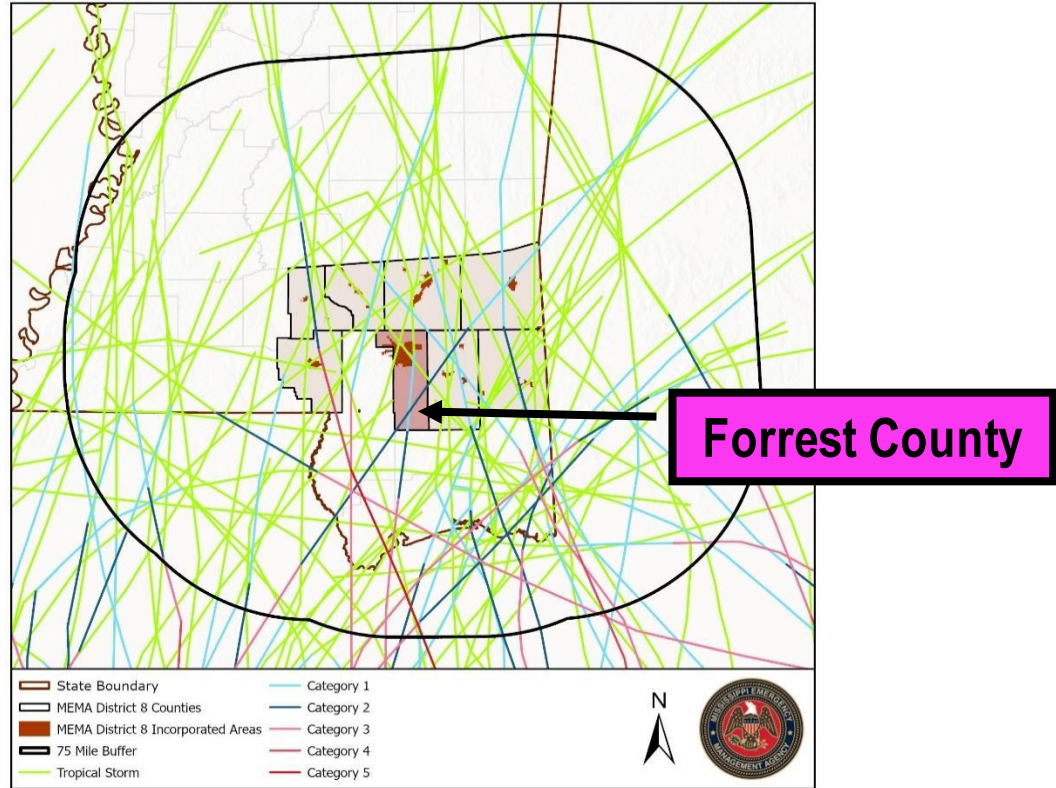
Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact Forrest County.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

### HISTORICAL OCCURRENCES

According to the National Hurricane Center's historical storm track records, a total of 54 hurricanes have passed within 75 miles of Greene 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.7**.

A total of five tracks passed directly through the county including Hurricanes Camille (1969), Edith (1971), and Isidore (2002). All storms were tropical storms when they traversed the county except Hurricane Camille and Hurricane Katrina, which passed through the county as category 3 hurricane. **Table B.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 B.7: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF FORREST COUNTY**



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), 2017 (Hurricane Nate), 2021 (Hurricane Ida). 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.

**TABLE B.15: HISTORICAL STORM TRACKS WITHIN 75 MILES OF FORREST COUNTY (1850–2023)**

| Date of Occurrence | Storm Name          | Maximum Wind Speed (mph) | Storm Category | Disaster Declaration | Property Damage | Crop Damage |
|--------------------|---------------------|--------------------------|----------------|----------------------|-----------------|-------------|
| 10/10/1905         | Unknown             | 40                       | Tropical Storm | --                   | Unknown         | Unknown     |
| 9/30/1915          | Unknown             | 69                       | Tropical Storm | --                   | Unknown         | Unknown     |
| 9/4/1969           | Hurricane Camille   | 115                      | Category 3     | Yes, #271            | Unknown         | Unknown     |
| 9/16/1971          | Hurricane Edith     | Unknown                  | Tropical Storm | No                   | Unknown         | Unknown     |
| 8/30/1979          | Hurricane Fredrick  | Unknown                  | Tropical Storm | Yes, #599            | Unknown         | Unknown     |
| 9/1998             | Hurricane Georges   | Unknown                  | Tropical Storm | Yes, #1251           | Unknown         | Unknown     |
| 9/26/2002          | Hurricane Isadore   | 63                       | Tropical Storm | No                   | \$0             | \$0         |
| 6/30/2003          | Tropical Storm Bill | Unknown                  | Tropical Storm | No                   | \$0             | \$0         |
| 7/1/2003           | Hurricane Claudette | Unknown                  | Tropical Storm | No                   | \$0             | \$0         |

|               |                             |           |                |            |                      |                     |
|---------------|-----------------------------|-----------|----------------|------------|----------------------|---------------------|
| 9/16/2004     | <i>Hurricane Ivan</i>       | 95        | Category 1     | Yes, #1550 | \$93,750             | \$31,300            |
| 7/6/2005      | <i>Tropical Storm Cindy</i> | 40        | Tropical Storm | No         | \$50,000             | \$0                 |
| 7/10/2005     | <i>Hurricane Dennis</i>     | 55        | Tropical Storm | Yes, 1594  | \$20,000             | \$150,000           |
| 8/29/2005     | <i>Hurricane Katrina</i>    | 130       | Category 3     | Yes, #1604 | \$750,000,000        | \$90,000,000        |
| 9/1/2008      | <i>Hurricane Gustav</i>     | 45        | Tropical Storm | No         | \$100,000            | \$0                 |
| 11/10/2009    | <i>Tropical Storm Ida</i>   | 40        | Tropical Storm | No         | \$1,000              | \$0                 |
| 8/29/2012     | <i>Hurricane Isaac</i>      | 45        | Tropical Storm | Yes, 4081  | \$200,000            | \$0                 |
| 9/4/2018      | <i>Hurricane Gordon</i>     | 50        | Depression     | No         | \$15,000             | \$0                 |
| 10/28/2020    | <i>Hurricane Zeda</i>       | 58        | Tropical Storm | No         | \$40,000             | \$0                 |
| 8/30/2021     | <i>Hurricane Ida</i>        | 50        | Tropical Storm | Yes, #4626 | \$50,000             | \$0                 |
| 9/12/2024     | <i>TS Francine</i>          | 40        | Tropical Storm | No         | \$10,000             | \$0                 |
| <b>Total:</b> | <b>20</b>                   | <b>--</b> | <b>--</b>      |            | <b>\$750,579,750</b> | <b>\$90,181,300</b> |

Source: National Hurricane Center and NCED/NOAA

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 Katrina caused over \$840 Million in property and crop damage in Forrest County. This was the costliest natural disaster to hit Forrest County.

**August 30, 2021 – Hurricane Ida**—Major hurricane Ida made landfall as a strong category four hurricane around 11:55am on August 29 near Grand Isle, LA. It then moved very slowly north through south central Louisiana and into Mississippi on August 30. It then turned northeast and moved across the Jackson metro area as a tropical storm and into northeast Mississippi as a tropical depression through the early morning of August 31. Ida brought tropical storm force gusts to portions of Mississippi, which brought down trees and power lines. Rainfall amounts of 4-8 inches occurred, which resulted in localized flooding. Tropical storm force wind gusts resulted in several downed trees across the county.

**September 12, 2024**—Tropical Storm Francine produced strong wind damage as it weakened across central Mississippi. Winds blew down scattered trees and powerlines across Forrest County.

### PROBABILITY OF FUTURE OCCURRENCES

Based on historical evidence, the probability level of future occurrence is likely (annual probability between 10 and 100 per cent). 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.

Scientists and meteorologists predict tropical cyclones to increase in frequency, magnitude, and intensity as the climate continues to change. These increases could be catastrophic to MS Coastal areas and the counties near the coast. Scientists also predict that hurricanes could increase in frequency and strength in the near future due the effects of Climate Change. This can be seen in the 2023 season with 23 named storms, 11 hurricanes, and 5 major hurricanes. This prediction makes the season the third most active season on record, behind the 2005 season with 28, and the 2020 season with a total of 30. It is expected that an above-average season next season with up to 25 named storms and 4-7 major hurricanes.

## 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. According to NCEI, there have been 234 reported thunderstorm and high wind events since 2000 in Forrest County. These events caused over \$3.7 million in damages. **Table B.16** summarizes this information. **Table B.17** presents detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event.

**TABLE B.16: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN FORREST COUNTY**

| Location                     | Number of Occurrences | Injuries | Deaths   | Property Damage    | Crop Damage    |
|------------------------------|-----------------------|----------|----------|--------------------|----------------|
| <i>Hattiesburg</i>           | 71                    | 0        | 0        | \$874,710          | \$0            |
| <i>Petal</i>                 | 32                    | 0        | 0        | \$670,000          | \$0            |
| <i>Unincorporated Area</i>   | 120                   | 2        | 2        | \$2,187,290        | \$3,000        |
| <b>Forrest County Total:</b> | <b>233</b>            | <b>2</b> | <b>2</b> | <b>\$3,731,000</b> | <b>\$3,000</b> |

**TABLE B.17: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN FORREST COUNTY**

| Location                   | Date      | Type      | Magnitude      | Deaths | Injuries | Property Damage | Crop Damage |
|----------------------------|-----------|-----------|----------------|--------|----------|-----------------|-------------|
| <b>City of Hattiesburg</b> |           |           |                |        |          |                 |             |
| <i>Hattiesburg</i>         | 3/27/2000 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$7,000         | \$0         |
| <i>Hattiesburg</i>         | 5/2/2000  | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$2,000         | \$0         |
| <i>Hattiesburg</i>         | 6/25/2000 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$1,000         | \$0         |
| <i>Hattiesburg</i>         | 6/26/2000 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$2,000         | \$0         |
| <i>Hattiesburg</i>         | 7/16/2000 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$20,000        | \$0         |
| <i>Hattiesburg</i>         | 8/25/2000 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$2,000         | \$0         |
| <i>Hattiesburg</i>         | 10/6/2000 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$3,000         | \$0         |
| <i>Hattiesburg</i>         | 11/9/2000 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$2,000         | \$0         |



|                  |            |           |         |   |   |           |     |
|------------------|------------|-----------|---------|---|---|-----------|-----|
| Hattiesburg      | 1/29/2001  | TSTM Wind | Unknown | 0 | 0 | \$3,000   | \$0 |
| Hattiesburg      | 3/12/2001  | TSTM Wind | Unknown | 0 | 0 | \$25,000  | \$0 |
| Hattiesburg      | 6/13/2001  | TSTM Wind | Unknown | 0 | 0 | \$20,000  | \$0 |
| Hattiesburg      | 8/17/2001  | TSTM Wind | Unknown | 0 | 0 | \$2,000   | \$0 |
| Hattiesburg      | 10/13/2001 | TSTM Wind | Unknown | 0 | 0 | \$2,000   | \$0 |
| Hattiesburg      | 12/13/2001 | TSTM Wind | Unknown | 0 | 0 | \$2,000   | \$0 |
| Hattiesburg      | 4/8/2002   | TSTM Wind | Unknown | 0 | 0 | \$1,000   | \$0 |
| Hattiesburg      | 7/28/2002  | TSTM Wind | Unknown | 0 | 0 | \$1,000   | \$0 |
| Hattiesburg      | 12/24/2002 | TSTM Wind | 60 kts. | 0 | 0 | \$17,000  | \$0 |
| Hattiesburg      | 12/31/2002 | TSTM Wind | 65 kts. | 0 | 0 | \$6,000   | \$0 |
| Hattiesburg      | 6/3/2003   | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| Hattiesburg      | 7/22/2003  | TSTM Wind | 53 kts. | 0 | 0 | \$20,000  | \$0 |
| Hattiesburg      | 6/27/2004  | TSTM Wind | 43 kts. | 0 | 0 | \$2,000   | \$0 |
| Hattiesburg      | 11/27/2004 | TSTM Wind | 61 kts. | 0 | 0 | \$15,000  | \$0 |
| Hattiesburg      | 1/7/2005   | TSTM Wind | 57 kts. | 0 | 0 | \$5,000   | \$0 |
| Hattiesburg      | 3/22/2005  | TSTM Wind | 56 kts. | 0 | 0 | \$5,000   | \$0 |
| Hattiesburg      | 4/30/2005  | TSTM Wind | 52 kts. | 0 | 0 | \$15,000  | \$0 |
| Hattiesburg      | 5/29/2005  | TSTM Wind | 55 kts. | 0 | 0 | \$30,000  | \$0 |
| Hattiesburg      | 7/9/2005   | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Hattiesburg      | 3/20/2006  | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Hattiesburg      | 5/8/2006   | TSTM Wind | 50 kts. | 0 | 0 | \$50,000  | \$0 |
| Hattiesburg      | 5/24/2006  | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Hattiesburg      | 6/23/2006  | TSTM Wind | 53 kts. | 0 | 0 | \$30,000  | \$0 |
| Hattiesburg      | 7/19/2006  | TSTM Wind | 52 kts. | 0 | 0 | \$1,000   | \$0 |
| Hattiesburg      | 8/15/2006  | TSTM Wind | 60 kts. | 0 | 0 | \$100,000 | \$0 |
| Hattiesburg      | 1/5/2007   | TSTM Wind | 53 kts. | 0 | 0 | \$0       | \$0 |
| Hattiesburg      | 1/5/2007   | TSTM Wind | 55 kts. | 0 | 0 | \$5,000   | \$0 |
| Hattiesburg      | 4/14/2007  | TSTM Wind | 50 kts. | 0 | 0 | \$29,000  | \$0 |
| Hattiesburg ARPT | 10/18/2007 | TSTM Wind | 50 kts. | 0 | 0 | \$12,000  | \$0 |
| Hattiesburg      | 7/13/2008  | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Hattiesburg      | 8/7/2008   | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Hattiesburg      | 12/10/2008 | TSTM Wind | 55 kts. | 0 | 0 | \$60,000  | \$0 |
| Hattiesburg      | 4/2/2009   | TSTM Wind | 58 kts. | 0 | 0 | \$2,500   | \$0 |
| Hattiesburg      | 7/4/2009   | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Hattiesburg      | 10/9/2009  | TSTM Wind | 55 kts. | 0 | 0 | \$3,000   | \$0 |
| Hattiesburg      | 6/5/2010   | TSTM Wind | 58 kts. | 0 | 0 | \$5,000   | \$0 |
| Hattiesburg      | 7/16/2010  | TSTM Wind | 52 kts. | 0 | 0 | \$0       | \$0 |
| Hattiesburg      | 8/4/2010   | TSTM Wind | 45 kts. | 0 | 0 | \$4,000   | \$0 |
| Hattiesburg      | 8/4/2010   | TSTM Wind | 45 kts. | 0 | 0 | \$15,000  | \$0 |
| Hattiesburg ARPT | 6/7/2011   | TSTM Wind | 50 kts. | 0 | 0 | \$32,000  | \$0 |
| Hattiesburg ARPT | 6/7/2011   | TSTM Wind | 54 kts. | 0 | 0 | \$0       | \$0 |
| Hattiesburg      | 7/4/2011   | TSTM Wind | 50 kts. | 0 | 0 | \$100,000 | \$0 |
| Hattiesburg      | 7/13/2011  | TSTM Wind | 50 kts. | 0 | 0 | \$30,000  | \$0 |
| Hattiesburg      | 8/23/2011  | TSTM Wind | 51 kts. | 0 | 0 | \$0       | \$0 |
| Hattiesburg      | 4/3/2012   | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| Hattiesburg      | 5/31/2012  | TSTM Wind | 50 kts. | 0 | 0 | \$20,000  | \$0 |
| Hattiesburg      | 12/20/2012 | TSTM Wind | 50 kts. | 0 | 0 | \$3,000   | \$0 |



|                         |            |           |                |   |   |          |     |
|-------------------------|------------|-----------|----------------|---|---|----------|-----|
| <i>Hattiesburg ARPT</i> | 7/30/2015  | TSTM Wind | 49 kts.        | 0 | 0 | \$10     | \$0 |
| <i>Hattiesburg</i>      | 8/8/2015   | TSTM Wind | 54 kts.        | 0 | 0 | \$10,000 | \$0 |
| <i>Hattiesburg</i>      | 2/15/2016  | TSTM Wind | 50 kts.        | 0 | 0 | \$20,000 | \$0 |
| <i>Hattiesburg</i>      | 7/6/2016   | TSTM Wind | 50 kts.        | 0 | 0 | \$15,000 | \$0 |
| <i>Hattiesburg ARPT</i> | 6/16/2017  | TSTM Wind | 55 kts.        | 0 | 0 | \$25,000 | \$0 |
| <i>Hattiesburg ARPT</i> | 7/31/2018  | TSTM Wind | 50 kts.        | 0 | 0 | \$4,000  | \$0 |
| <i>Hattiesburg</i>      | 8/18/2018  | TSTM Wind | 39 kts.        | 0 | 0 | \$2,000  | \$0 |
| <i>Hattiesburg</i>      | 6/27/2019  | TSTM Wind | 43 kts.        | 0 | 0 | \$200    | \$0 |
| <i>Hattiesburg</i>      | 4/19/2020  | TSTM Wind | 50 kts.        | 0 | 0 | \$20,000 | \$0 |
| <i>Hattiesburg ARPT</i> | 4/19/2020  | TSTM Wind | 54 kts.        | 0 | 0 | \$0      | \$0 |
| <i>Hattiesburg ARPT</i> | 5/24/2020  | TSTM Wind | 52 kts.        | 0 | 0 | \$0      | \$0 |
| <i>Hattiesburg</i>      | 3/17/2021  | TSTM Wind | 50 kts.        | 0 | 0 | \$25,000 | \$0 |
| <i>Hattiesburg</i>      | 4/10/2021  | TSTM Wind | 50 kts.        | 0 | 0 | \$2,000  | \$0 |
| <i>Hattiesburg</i>      | 6/10/2022  | TSTM Wind | 52 kts.        | 0 | 0 | \$10,000 | \$0 |
| <i>Hattiesburg ARPT</i> | 6/14/2023  | TSTM Wind | 55 kts.        | 0 | 0 | \$5,000  | \$0 |
| <i>Hattiesburg</i>      | 1/9/2024   | TSTM Wind | 45 kts.        | 0 | 0 | \$15,000 | \$0 |
| <b>City of Petal</b>    |            |           |                |   |   |          |     |
| <i>Petal</i>            | 4/3/2000   | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$2,000  | \$0 |
| <i>Petal</i>            | 8/10/2000  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$2,000  | \$0 |
| <i>Petal</i>            | 1/19/2002  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$1,000  | \$0 |
| <i>Petal</i>            | 5/17/2002  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$1,000  | \$0 |
| <i>Petal</i>            | 5/17/2003  | TSTM Wind | 50 kts.        | 0 | 0 | \$10,000 | \$0 |
| <i>Petal</i>            | 6/21/2004  | TSTM Wind | 53 kts.        | 0 | 0 | \$1,000  | \$0 |
| <i>Petal</i>            | 6/22/2004  | TSTM Wind | 35 kts.        | 0 | 0 | \$1,000  | \$0 |
| <i>Petal</i>            | 4/22/2005  | TSTM Wind | 50 kts.        | 0 | 0 | \$0      | \$0 |
| <i>Petal</i>            | 5/8/2006   | TSTM Wind | 60 kts.        | 0 | 0 | \$50,000 | \$0 |
| <i>Petal</i>            | 7/19/2006  | TSTM Wind | 60 kts.        | 0 | 0 | \$25,000 | \$0 |
| <i>Petal</i>            | 4/14/2007  | TSTM Wind | 61 kts.        | 0 | 0 | \$60,000 | \$0 |
| <i>Petal</i>            | 6/19/2007  | TSTM Wind | 55 kts.        | 0 | 0 | \$80,000 | \$0 |
| <i>Petal</i>            | 5/15/2008  | TSTM Wind | 50 kts.        | 0 | 0 | \$0      | \$0 |
| <i>Petal</i>            | 5/26/2008  | TSTM Wind | 50 kts.        | 0 | 0 | \$0      | \$0 |
| <i>Petal</i>            | 6/27/2008  | TSTM Wind | 50 kts.        | 0 | 0 | \$10,000 | \$0 |
| <i>Petal</i>            | 8/12/2008  | TSTM Wind | 50 kts.        | 0 | 0 | \$12,000 | \$0 |
| <i>Petal</i>            | 5/5/2009   | TSTM Wind | 50 kts.        | 0 | 0 | \$0      | \$0 |
| <i>Petal</i>            | 8/3/2010   | TSTM Wind | 52 kts.        | 0 | 0 | \$8,000  | \$0 |
| <i>Petal</i>            | 7/11/2011  | TSTM Wind | 50 kts.        | 0 | 0 | \$50,000 | \$0 |
| <i>Petal</i>            | 6/11/2012  | TSTM Wind | 55 kts.        | 0 | 0 | \$50,000 | \$0 |
| <i>Petal</i>            | 10/13/2014 | TSTM Wind | 53 kts.        | 0 | 0 | \$0      | \$0 |
| <i>Petal</i>            | 7/4/2015   | TSTM Wind | 63 kts.        | 0 | 0 | \$7,000  | \$0 |
| <i>Petal</i>            | 2/23/2016  | TSTM Wind | 55 kts.        | 0 | 0 | \$10,000 | \$0 |
| <i>Petal</i>            | 6/17/2016  | TSTM Wind | 50 kts.        | 0 | 0 | \$7,000  | \$0 |
| <i>Petal</i>            | 4/3/2017   | TSTM Wind | 50 kts.        | 0 | 0 | \$7,000  | \$0 |
| <i>Petal</i>            | 4/18/2019  | TSTM Wind | 53 kts.        | 0 | 0 | \$8,000  | \$0 |
| <i>Petal</i>            | 6/5/2020   | TSTM Wind | 50 kts.        | 0 | 0 | \$1,000  | \$0 |
| <i>Petal</i>            | 4/10/2021  | TSTM Wind | 50 kts.        | 0 | 0 | \$2,000  | \$0 |
| <i>Petal</i>            | 4/13/2022  | TSTM Wind | 55 kts.        | 0 | 0 | \$4,000  | \$0 |

|                                              |            |             |                |   |   |           |     |
|----------------------------------------------|------------|-------------|----------------|---|---|-----------|-----|
| <i>Petal</i>                                 | 6/10/2022  | TSTM Wind   | 52 kts.        | 0 | 0 | \$10,000  | \$0 |
| <i>Petal</i>                                 | 7/12/2023  | TSTM Wind   | 50 kts.        | 0 | 0 | \$1,000   | \$0 |
| <i>Petal</i>                                 | 5/13/2024  | TSTM Wind   | 70 kts.        | 0 | 0 | \$230,000 | \$0 |
| <i>Petal</i>                                 | 6/4/2024   | TSTM Wind   | 52 kts.        | 0 | 0 | \$20,000  | \$0 |
| <b>Unincorporated Area in Forrest County</b> |            |             |                |   |   |           |     |
| <i>Brooklyn</i>                              | 6/25/2000  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$2,000   | \$0 |
| <i>Countywide</i>                            | 7/22/2000  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$10,000  | \$0 |
| <i>McLaurin</i>                              | 8/10/2000  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$1,000   | \$0 |
| <i>Macedonia</i>                             | 8/25/2000  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$2,000   | \$0 |
| <i>Carnes</i>                                | 12/13/2000 | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$1,000   | \$0 |
| <i>County</i>                                | 12/13/2000 | High Wind   | <i>Unknown</i> | 0 | 0 | \$2,000   | \$0 |
| <i>Brooklyn</i>                              | 1/19/2001  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$15,000  | \$0 |
| <i>Carnes</i>                                | 3/12/2001  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$10,000  | \$0 |
| <i>Rock Hill</i>                             | 3/12/2001  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$1,000   | \$0 |
| <i>Countywide</i>                            | 6/11/2001  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$18,000  | \$0 |
| <i>Carnes</i>                                | 7/7/2002   | TSTM Wind   | 52 kts.        | 0 | 0 | \$5,000   | \$0 |
| <i>Countywide</i>                            | 9/26/2002  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$3,000   | \$0 |
| <i>Countywide</i>                            | 4/7/2003   | TSTM Wind   | 50 kts.        | 0 | 0 | \$10,000  | \$0 |
| <i>Central Portion of County</i>             | 6/14/2003  | TSTM Wind   | 50 kts.        | 0 | 0 | \$1,000   | \$0 |
| <i>Carnes</i>                                | 8/20/2003  | TSTM Wind   | 52 kts.        | 0 | 0 | \$3,000   | \$0 |
| <i>Brooklyn</i>                              | 10/26/2003 | TSTM Wind   | 50 kts.        | 0 | 0 | \$1,000   | \$0 |
| <i>Brooklyn</i>                              | 11/24/2004 | TSTM Wind   | 53 kts.        | 0 | 0 | \$0       | \$0 |
| <i>Brooklyn</i>                              | 7/2/2005   | TSTM Wind   | 55 kts.        | 0 | 0 | \$5,000   | \$0 |
| <i>County</i>                                | 3/9/2006   | Strong Wind | 39 kts.        | 0 | 0 | \$1,000   | \$0 |
| <i>County</i>                                | 7/30/2006  | Strong Wind | 38 kts.        | 0 | 0 | \$5,000   | \$0 |
| <i>Brooklyn</i>                              | 8/15/2006  | TSTM Wind   | 53 kts.        | 0 | 0 | \$30,000  | \$0 |
| <i>McLaurin</i>                              | 10/17/2006 | TSTM Wind   | 50 kts.        | 0 | 0 | \$0       | \$0 |
| <i>Brooklyn</i>                              | 10/27/2006 | TSTM Wind   | 53 kts.        | 0 | 0 | \$20,000  | \$0 |
| <i>McLaurin</i>                              | 11/15/2006 | TSTM Wind   | 50 kts.        | 0 | 0 | \$0       | \$0 |
| <i>County</i>                                | 6/24/2007  | TSTM Wind   | 43 kts.        | 0 | 0 | \$100     | \$0 |
| <i>McLaurin</i>                              | 8/31/2007  | TSTM Wind   | 50 kts.        | 0 | 0 | \$0       | \$0 |
| <i>Rawls Springs</i>                         | 10/18/2007 | TSTM Wind   | 50 kts.        | 0 | 0 | \$12,000  | \$0 |
| <i>County</i>                                | 12/15/2007 | Strong Wind | 39 kts.        | 0 | 0 | \$25,000  | \$0 |
| <i>Dixie Pine</i>                            | 1/10/2008  | TSTM Wind   | 70 kts.        | 0 | 0 | \$0       | \$0 |
| <i>County</i>                                | 1/29/2008  | Strong Wind | 39 kts.        | 0 | 0 | \$50,000  | \$0 |
| <i>Riverside</i>                             | 1/31/2008  | TSTM Wind   | 53 kts.        | 0 | 0 | \$60,000  | \$0 |
| <i>Carnes</i>                                | 2/12/2008  | TSTM Wind   | 60 kts.        | 0 | 0 | \$0       | \$0 |
| <i>McLaurin</i>                              | 3/3/2008   | TSTM Wind   | 66 kts.        | 0 | 0 | \$5,000   | \$0 |
| <i>Carnes</i>                                | 3/3/2008   | TSTM Wind   | 58 kts.        | 0 | 0 | \$10,000  | \$0 |
| <i>McCullum</i>                              | 4/18/2008  | TSTM Wind   | 50 kts.        | 0 | 0 | \$0       | \$0 |
| <i>Ragland</i>                               | 4/18/2008  | TSTM Wind   | 50 kts.        | 0 | 0 | \$5,000   | \$0 |
| <i>Bonhomie</i>                              | 5/3/2008   | TSTM Wind   | 68 kts.        | 0 | 0 | \$30,000  | \$0 |
| <i>McLaurin</i>                              | 6/20/2008  | TSTM Wind   | 50 kts.        | 0 | 0 | \$0       | \$0 |
| <i>McLaurin</i>                              | 6/21/2008  | TSTM Wind   | 50 kts.        | 0 | 0 | \$0       | \$0 |
| <i>Bonhomie</i>                              | 6/25/2008  | TSTM Wind   | 50 kts.        | 0 | 0 | \$0       | \$0 |
| <i>McLaurin</i>                              | 6/28/2008  | TSTM Wind   | 55 kts.        | 0 | 0 | \$2,000   | \$0 |

## ANNEX B: FORREST COUNTY

|                                 |            |             |         |   |   |           |     |
|---------------------------------|------------|-------------|---------|---|---|-----------|-----|
| <i>Dixie Pine</i>               | 7/29/2008  | TSTM Wind   | 61 kts. | 0 | 0 | \$75,000  | \$0 |
| <i>Glendale</i>                 | 8/2/2008   | TSTM Wind   | 53 kts. | 0 | 0 | \$0       | \$0 |
| <i>Macedonia</i>                | 3/27/2009  | TSTM Wind   | 61 kts. | 0 | 0 | \$0       | \$0 |
| <i>Rawls Springs</i>            | 4/2/2009   | TSTM Wind   | 53 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Glendale</i>                 | 4/12/2009  | TSTM Wind   | 60 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Rawls Springs</i>            | 5/3/2009   | TSTM Wind   | 53 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>Macedonia</i>                | 5/4/2009   | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>McCallum</i>                 | 7/4/2009   | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Brooklyn</i>                 | 8/1/2009   | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Glendale</i>                 | 1/29/2010  | TSTM Wind   | 55 kts. | 0 | 0 | \$35,000  | \$0 |
| <i>County</i>                   | 3/1/2010   | TSTM Wind   | 36 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>Canes</i>                    | 4/24/2010  | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Brooklyn</i>                 | 6/15/2010  | TSTM Wind   | 43 kts. | 0 | 0 | \$8,000   | \$0 |
| <i>Dixie Pine</i>               | 6/15/2010  | TSTM Wind   | 55 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>Brooklyn</i>                 | 8/15/2010  | TSTM Wind   | 53 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Rawls Springs</i>            | 8/15/2010  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>County</i>                   | 8/22/2010  | Strong Wind | 39 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>Eatonville</i>               | 4/4/2011   | TSTM Wind   | 60 kts. | 0 | 0 | \$200,000 | \$0 |
| <i>Macedonia</i>                | 5/13/2011  | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Palmers Crossing</i>         | 6/7/2011   | TSTM Wind   | 50 kts. | 0 | 0 | \$75,000  | \$0 |
| <i>Brooklyn</i>                 | 6/8/2011   | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Maxie</i>                    | 6/10/2011  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>Riverside</i>                | 6/13/2011  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>Bonhomie</i>                 | 6/21/2011  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Brooklyn</i>                 | 7/4/2011   | TSTM Wind   | 39 kts. | 0 | 0 | \$500     | \$0 |
| <i>Rock Hill</i>                | 8/24/2011  | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>County</i>                   | 9/4/2011   | Strong Wind | 35 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>County</i>                   | 9/5/2011   | Strong Wind | 39 kts. | 0 | 0 | \$4,000   | \$0 |
| <i>Macedonia</i>                | 4/2/2012   | TSTM Wind   | 50 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Eatonville</i>               | 7/18/2012  | TSTM Wind   | 43 kts. | 0 | 0 | \$100     | \$0 |
| <i>Eatonville</i>               | 8/6/2012   | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Epps</i>                     | 8/6/2012   | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Bonhomie</i>                 | 8/9/2012   | TSTM Wind   | 56 kts. | 0 | 0 | \$20,000  | \$0 |
| <i>Macedonia</i>                | 9/4/2012   | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Macedonia</i>                | 4/11/2012  | TSTM Wind   | 60 kts. | 0 | 0 | \$100,000 | \$0 |
| <i>Dixie Pine</i>               | 8/13/2013  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>County</i>                   | 2/20/2014  | Strong Wind | 35 kts. | 1 | 0 | \$50,000  | \$0 |
| <i>Dixie Pine</i>               | 3/28/2014  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>McLaurin</i>                 | 6/24/2014  | TSTM Wind   | 52 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>Rock Hill</i>                | 11/16/2014 | TSTM Wind   | 52 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Rock Hill</i>                | 4/15/2015  | TSTM Wind   | 55 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Bonhomie</i>                 | 7/5/2015   | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>Carnes</i>                   | 8/8/2015   | TSTM Wind   | 52 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Rock Hill &amp; McLaurin</i> | 3/17/2016  | TSTM Wind   | 52 kts. | 0 | 0 | \$25,000  | \$0 |
| <i>Carnes</i>                   | 3/17/2016  | TSTM Wind   | 50 kts. | 0 | 0 | \$6,000   | \$0 |
| <i>McCallum</i>                 | 5/19/2016  | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>Riverside</i>                | 6/17/2016  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |

## ANNEX B: FORREST COUNTY

|                                     |            |             |         |   |   |           |     |
|-------------------------------------|------------|-------------|---------|---|---|-----------|-----|
| <b>Rock Hill</b>                    | 6/17/2016  | TSTM Wind   | 55 kts. | 0 | 0 | \$20,000  | \$0 |
| <b>Glendale</b>                     | 9/25/2016  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>County</b>                       | 11/28/2016 | Strong Wind | 39 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Epps &amp; Ragland</b>           | 1/2/2017   | TSTM Wind   | 50 kts. | 0 | 0 | \$10,000  | \$0 |
| <b>Maxie</b>                        | 1/2/2017   | TSTM Wind   | 55 kts. | 0 | 0 | \$40,000  | \$0 |
| <b>Bonhomie</b>                     | 3/30/2017  | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| <b>Maybank</b>                      | 4/30/2017  | TSTM Wind   | 50 kts. | 0 | 0 | \$8,000   | \$0 |
| <b>Glendale</b>                     | 5/21/2017  | TSTM Wind   | 50 kts. | 0 | 0 | \$15,000  | \$0 |
| <b>County</b>                       | 6/16/2017  | TSTM Wind   | 55 kts. | 0 | 0 | \$23,000  | \$0 |
| <b>County</b>                       | 6/22/2017  | TSTM Wind   | 39 kts. | 0 | 1 | \$11,000  | \$0 |
| <b>Maxie</b>                        | 7/7/2017   | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Macedonia</b>                    | 9/19/2017  | TSTM Wind   | 48 kts. | 0 | 0 | \$2,000   | \$0 |
| <b>Bonhomie</b>                     | 4/14/2018  | TSTM Wind   | 56 kts. | 0 | 0 | \$30,000  | \$0 |
| <b>Macedonia</b>                    | 4/14/2018  | TSTM Wind   | 52 kts. | 0 | 0 | \$15,000  | \$0 |
| <b>Glendale</b>                     | 7/19/2018  | TSTM Wind   | 50 kts. | 0 | 0 | \$10,000  | \$0 |
| <b>Rawls Springs &amp; Bonhomie</b> | 11/1/2018  | TSTM Wind   | 50 kts. | 0 | 0 | \$13,000  | \$0 |
| <b>Epps</b>                         | 11/1/2018  | TSTM Wind   | 52 kts. | 0 | 0 | \$8,000   | \$0 |
| <b>McLaurin</b>                     | 4/13/2019  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Bonhomie</b>                     | 4/18/2019  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Rock Hill</b>                    | 5/9/2019   | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| <b>McLaurin &amp; McCallum</b>      | 6/25/2019  | TSTM Wind   | 50 kts. | 0 | 0 | \$20,000  | \$0 |
| <b>Macedonia</b>                    | 7/14/2019  | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| <b>Bonhomie &amp; Riverside</b>     | 1/11/2020  | TSTM Wind   | 52 kts. | 0 | 0 | \$20,000  | \$0 |
| <b>McLaurin</b>                     | 4/19/2020  | TSTM Wind   | 60 kts. | 0 | 0 | \$20,000  | \$0 |
| <b>Palmers Crossing</b>             | 4/19/2020  | TSTM Wind   | 50 kts. | 0 | 0 | \$17,000  | \$0 |
| <b>Riverside</b>                    | 5/24/2020  | TSTM Wind   | 53 kts. | 0 | 0 | \$35,000  | \$0 |
| <b>Mammoth Springs</b>              | 5/24/2020  | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| <b>County</b>                       | 8/16/2020  | TSTM Wind   | 50 kts. | 0 | 0 | \$11,000  | \$0 |
| <b>McLaurin</b>                     | 3/17/2021  | TSTM Wind   | 55 kts. | 0 | 0 | \$7,000   | \$0 |
| <b>Rock Hill</b>                    | 4/10/2021  | TSTM Wind   | 52 kts. | 0 | 0 | \$8,000   | \$0 |
| <b>Dragon</b>                       | 4/23/2021  | TSTM Wind   | 48 kts. | 0 | 0 | \$10,000  | \$0 |
| <b>Carnes</b>                       | 4/24/2021  | TSTM Wind   | 50 kts. | 0 | 1 | \$4,000   | \$0 |
| <b>Eatonville</b>                   | 6/13/2021  | TSTM Wind   | 60 kts. | 0 | 0 | \$50,000  | \$0 |
| <b>Macedonia</b>                    | 2/3/2022   | TSTM Wind   | 39 kts. | 0 | 0 | \$20,000  | \$0 |
| <b>Ragland</b>                      | 2/3/2022   | TSTM Wind   | 50 kts. | 0 | 0 | \$8,000   | \$0 |
| <b>County</b>                       | 3/30/2022  | Strong Wind | 38 kts. | 0 | 0 | \$10,000  | \$0 |
| <b>McCallum</b>                     | 3/30/2022  | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0 |
| <b>Macedonia</b>                    | 4/13/2022  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <b>Rawls Springs</b>                | 4/17/2022  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Brooklyn</b>                     | 4/17/2022  | TSTM Wind   | 55 kts. | 0 | 0 | \$3,000   | \$0 |
| <b>Dixie Pine</b>                   | 11/30/2022 | TSTM Wind   | 60 kts. | 0 | 0 | \$25,000  | \$0 |
| <b>Maybank</b>                      | 5/5/2023   | TSTM Wind   | 60 kts. | 0 | 0 | \$20,000  | \$0 |
| <b>Riverside</b>                    | 5/5/2023   | TSTM Wind   | 63 kts. | 0 | 0 | \$100,000 | \$0 |
| <b>Riverside</b>                    | 5/5/2023   | TSTM Wind   | 52 kts. | 0 | 0 | \$100,000 | \$0 |
| <b>Brooklyn</b>                     | 6/12/2023  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <b>Maybank</b>                      | 6/14/2023  | TSTM Wind   | 75 kts. | 0 | 0 | \$75,000  | \$0 |
| <b>Bonhomie</b>                     | 6/14/2023  | TSTM Wind   | 55 kts. | 0 | 0 | \$1,000   | \$0 |

|                                 |           |           |         |   |   |           |     |
|---------------------------------|-----------|-----------|---------|---|---|-----------|-----|
| <b>Dragon &amp; Bonhomie</b>    | 6/16/2023 | TSTM Wind | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| <b>Glendale</b>                 | 7/12/2023 | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Rawls Springs</b>            | 1/9/2024  | TSTM Wind | 45 kts. | 0 | 0 | \$15,000  | \$0 |
| <b>Rock Hill &amp; Brooklyn</b> | 1/25/2024 | TSTM Wind | 55 kts. | 0 | 0 | \$4,000   | \$0 |
| <b>Brooklyn &amp; Carnes</b>    | 5/10/2024 | TSTM Wind | 61 kts. | 0 | 0 | \$6,000   | \$0 |
| <b>Maybank</b>                  | 5/13/2024 | TSTM Wind | 60 kts. | 0 | 0 | \$6,000   | \$0 |
| <b>Dragon</b>                   | 5/13/2024 | TSTM Wind | 78 kts. | 0 | 0 | \$260,000 | \$0 |
| <b>Rawlings Springs</b>         | 5/13/2024 | TSTM Wind | 55 kts. | 0 | 0 | \$9,000   | \$0 |
| <b>Macedonia</b>                | 5/13/2024 | TSTM Wind | 52 kts. | 0 | 1 | \$50,000  | \$0 |
| <b>Carnes</b>                   | 6/4/2024  | TSTM Wind | 52 kts. | 0 | 0 | \$20,000  | \$0 |
| <b>Dragon</b>                   | 8/17/2024 | TSTM Wind | 55 kts. | 0 | 0 | \$10,000  | \$0 |

Source: NCED/NOAA

## Hailstorm

According to the National Centers for Environmental Information, 122 recorded hailstorm events have affected Forrest County since 2000. **Table B.18** is a summary of the hail events in Forrest County. **Table B.19** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over \$1.6 million 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. However, NCEI noted minimal monetary damages for this planning period.

## Lightning

According to the National Centers for Environmental Information, there have been 25 recorded lightning events in Forrest County since 2000. These events resulted in over \$1.2 million in damages as listed in summary **Table B.18**. 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.19**.

**TABLE B.18: SUMMARY OF HAIL AND LIGHTNING OCCURRENCES IN FORREST COUNTY (2000-2024)**

| Location                   | Number of Occurrences | Deaths   | Injuries | Property Damage    | Crop Damage    |
|----------------------------|-----------------------|----------|----------|--------------------|----------------|
| <b>Hattiesburg</b>         | 44                    | 0        | 0        | \$808,000          | \$0            |
| <b>Petal</b>               | 24                    | 1        | 0        | \$436,000          | \$0            |
| <b>Unincorporated Area</b> | 79                    | 0        | 2        | \$1,446,000        | \$0            |
| <b>County Total:</b>       | <b>147</b>            | <b>1</b> | <b>2</b> | <b>\$2,890,000</b> | <b>\$1,000</b> |

**TABLE B.19: HISTORICAL HAIL AND LIGHTNING OCCURRENCES IN FORREST COUNTY**

| Location                   | Date      | Type | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|----------------------------|-----------|------|-----------|--------|----------|-----------------|-------------|
| <b>City of Hattiesburg</b> |           |      |           |        |          |                 |             |
| <b>Hattiesburg</b>         | 4/23/2000 | Hail | 1 in.     | 0      | 0        | \$0             | \$0         |
| <b>Hattiesburg</b>         | 7/22/2000 | Hail | 1 in.     | 0      | 0        | \$3,000         | \$0         |
| <b>Hattiesburg</b>         | 8/25/2000 | Hail | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <b>Hattiesburg</b>         | 8/30/2000 | Hail | 0.75 in.  | 0      | 0        | \$0             | \$0         |



|                         |            |           |          |   |   |           |     |
|-------------------------|------------|-----------|----------|---|---|-----------|-----|
| <i>Hattiesburg</i>      | 8/31/2000  | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 8/31/2000  | Hail      | 1.75 In. | 0 | 0 | \$15,000  | \$0 |
| <i>Hattiesburg</i>      | 9/5/2000   | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 5/2/2001   | Hail      | 1.75 In. | 0 | 0 | \$8,000   | \$0 |
| <i>Hattiesburg</i>      | 5/2/2001   | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 3/12/2002  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 12/24/2002 | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 3/6/2003   | Hail      | 0.88 In. | 0 | 0 | \$1,000   | \$0 |
| <i>Hattiesburg</i>      | 3/6/2003   | Hail      | 1 In.    | 0 | 0 | \$5,000   | \$0 |
| <i>Hattiesburg</i>      | 4/25/2003  | Hail      | 1 In.    | 0 | 0 | \$1,000   | \$0 |
| <i>Hattiesburg</i>      | 4/25/2003  | Hail      | 1.75 In. | 0 | 0 | \$10,000  | \$0 |
| <i>Hattiesburg</i>      | 4/25/2003  | Hail      | 2.50 In. | 0 | 0 | \$300,000 | \$0 |
| <i>Hattiesburg</i>      | 4/25/2003  | Hail      | 0.75 In. | 0 | 0 | \$2,000   | \$0 |
| <i>Hattiesburg</i>      | 8/20/2003  | Hail      | 0.88 In. | 0 | 0 | \$1,000   | \$0 |
| <i>Hattiesburg</i>      | 5/11/2004  | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 3/22/2005  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 4/1/2005   | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 4/6/2005   | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 4/11/2005  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 4/22/2005  | Hail      | 1.75 In. | 0 | 0 | \$80,000  | \$0 |
| <i>Hattiesburg</i>      | 4/30/2005  | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 5/29/2005  | Hail      | 1.75 In. | 0 | 0 | \$100,000 | \$0 |
| <i>Hattiesburg</i>      | 7/21/2005  | Lightning | --       | 0 | 0 | \$200,000 | \$0 |
| <i>Hattiesburg</i>      | 5/24/2006  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 6/19/2007  | Lightning | --       | 0 | 0 | \$10,000  | \$0 |
| <i>Hattiesburg</i>      | 7/19/2006  | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 3/1/2007   | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 5/16/2009  | Lightning | --       | 0 | 0 | \$2,000   | \$0 |
| <i>Hattiesburg</i>      | 12/14/2009 | Lightning | --       | 0 | 0 | \$10,000  | \$0 |
| <i>Hattiesburg</i>      | 3/1/2010   | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 7/4/2011   | Hail      | 1.25 In. | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 7/25/2011  | Lightning | --       | 0 | 0 | \$30,000  | \$0 |
| <i>Hattiesburg</i>      | 3/18/2013  | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 4/30/2017  | Hail      | 1.75 In. | 0 | 0 | \$20,000  | \$0 |
| <i>Hattiesburg</i>      | 4/19/2020  | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg</i>      | 5/24/2020  | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <i>Hattiesburg ARPT</i> | 6/13/2021  | Lightning | --       | 0 | 0 | \$10,000  | \$0 |
| <i>Hattiesburg</i>      | 6/18/2022  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <b>City of Petal</b>    |            |           |          |   |   |           |     |
| <i>Petal</i>            | 4/26/2000  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Petal</i>            | 7/20/2000  | Hail      | 1 In.    | 0 | 0 | \$10,000  | \$0 |
| <i>Petal</i>            | 7/20/2000  | Lightning | --       | 1 | 0 | \$0       | \$0 |
| <i>Petal</i>            | 8/10/2000  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Petal</i>            | 8/31/2000  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Petal</i>            | 3/1/2001   | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |

|                                              |            |           |          |   |   |           |     |
|----------------------------------------------|------------|-----------|----------|---|---|-----------|-----|
| <i>Petal</i>                                 | 3/12/2002  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Petal</i>                                 | 3/7/2003   | Hail      | 0.75 In. | 0 | 0 | \$1,000   | \$0 |
| <i>Petal</i>                                 | 7/21/2005  | Lightning | --       | 0 | 0 | \$50,000  | \$0 |
| <i>Petal</i>                                 | 4/21/2006  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Petal</i>                                 | 5/8/2006   | Hail      | 1.25 In. | 0 | 0 | \$10,000  | \$0 |
| <i>Petal</i>                                 | 2/13/2007  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Petal</i>                                 | 7/29/2008  | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <i>Petal</i>                                 | 2/22/2010  | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <i>Petal</i>                                 | 8/3/2010   | Lightning | --       | 0 | 0 | \$25,000  | \$0 |
| <i>Petal</i>                                 | 3/8/2011   | Lightning | --       | 0 | 0 | \$15,000  | \$0 |
| <i>Petal</i>                                 | 4/2/2012   | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <i>Petal</i>                                 | 6/29/2013  | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <i>Petal</i>                                 | 8/20/2015  | Lightning | --       | 0 | 0 | \$75,000  | \$0 |
| <i>Petal</i>                                 | 9/11/2016  | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Petal</i>                                 | 4/30/2017  | Lightning | --       | 0 | 0 | \$150,000 | \$0 |
| <i>Petal</i>                                 | 7/6/2018   | Lightning | --       | 0 | 0 | \$100,000 | \$0 |
| <i>Petal</i>                                 | 3/18/2022  | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <i>Petal</i>                                 | 5/21/2022  | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <b>Unincorporated Area in Forrest County</b> |            |           |          |   |   |           |     |
| <i>Brooklyn</i>                              | 7/27/2000  | Hail      | 1.75 In. | 0 | 0 | \$5,000   | \$0 |
| <i>McLaurin</i>                              | 7/31/2000  | Hail      | 1 In.    | 0 | 0 | \$15,000  | \$0 |
| <i>Glendale</i>                              | 8/26/2000  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Carnes</i>                                | 8/30/2000  | Hail      | 1 In.    | 0 | 0 | \$6,000   | \$0 |
| <i>McCallum</i>                              | 3/12/2002  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Brooklyn</i>                              | 3/12/2002  | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Carnes</i>                                | 7/7/2002   | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Bonhomie</i>                              | 12/23/2002 | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>McLaurin</i>                              | 12/23/2002 | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <i>McCallum</i>                              | 3/6/2003   | Hail      | 0.88 In. | 0 | 0 | \$1,000   | \$0 |
| <i>McCallum</i>                              | 3/6/2003   | Hail      | 0.75 In. | 0 | 0 | \$1,000   | \$0 |
| <i>McLaurin</i>                              | 4/25/2003  | Hail      | 1 In.    | 0 | 0 | \$1,000   | \$0 |
| <i>McLaurin</i>                              | 5/3/2003   | Hail      | 1 In.    | 0 | 0 | \$1,000   | \$0 |
| <i>McLaurin</i>                              | 2/23/2004  | Hail      | 0.88 In. | 0 | 0 | \$1,000   | \$0 |
| <i>Carnes</i>                                | 3/30/2005  | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <i>Rock Hill</i>                             | 3/31/2005  | Hail      | 1.75 In. | 0 | 0 | \$15,000  | \$0 |
| <i>McCullum</i>                              | 4/1/2005   | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Carnes</i>                                | 4/1/2005   | Lightning | --       | 0 | 0 | \$150,000 | \$0 |
| <i>Rock Hill</i>                             | 4/6/2005   | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <i>Rawls Springs</i>                         | 5/8/2006   | Hail      | 1.75 In. | 0 | 0 | \$50,000  | \$0 |
| <i>Brooklyn</i>                              | 5/24/2006  | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Carnes</i>                                | 7/19/2006  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0 |
| <i>Bonhomie</i>                              | 1/10/2008  | Hail      | 1.75 In. | 0 | 0 | \$100,000 | \$0 |
| <i>McCallum</i>                              | 2/12/2008  | Hail      | 1 In.    | 0 | 0 | \$0       | \$0 |
| <i>Carnes</i>                                | 2/12/2008  | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Rock Hill</i>                             | 2/17/2008  | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0 |
| <i>Eatonville</i>                            | 5/26/2008  | Lightning | --       | 0 | 0 | \$10,000  | \$0 |

|                         |           |           |          |   |   |           |         |
|-------------------------|-----------|-----------|----------|---|---|-----------|---------|
| <b>McLaurin</b>         | 6/9/2008  | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0     |
| <b>McLaurin</b>         | 6/9/2008  | Lightning | --       | 0 | 0 | \$15,000  | \$0     |
| <b>Palmers Crossing</b> | 6/9/2008  | Lightning | --       | 0 | 0 | \$250,000 | \$0     |
| <b>Brooklyn</b>         | 6/14/2008 | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0     |
| <b>McLaurin</b>         | 6/20/2008 | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0     |
| <b>Carnes</b>           | 6/20/2008 | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0     |
| <b>Maxie</b>            | 6/25/2008 | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0     |
| <b>Rawls Springs</b>    | 1/3/2009  | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0     |
| <b>Bonhomie</b>         | 3/27/2009 | Hail      | 1.75 In. | 0 | 0 | \$3,000   | \$0     |
| <b>Rock Hill</b>        | 3/31/2009 | Hail      | 1.75 In. | 0 | 0 | \$20,000  | \$0     |
| <b>Rawls Springs</b>    | 4/13/2009 | Hail      | 1 In.    | 0 | 0 | \$0       | \$0     |
| <b>Carnes</b>           | 5/12/2009 | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0     |
| <b>Brooklyn</b>         | 5/14/2009 | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0     |
| <b>Carnes</b>           | 7/16/2009 | Lightning | --       | 0 | 1 | \$0       | \$0     |
| <b>Bonhomie</b>         | 7/30/2009 | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0     |
| <b>Brooklyn</b>         | 8/4/2009  | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0     |
| <b>Mammoth Springs</b>  | 2/21/2010 | Hail      | 1 In.    | 0 | 0 | \$0       | \$0     |
| <b>Rock Hill</b>        | 4/24/2010 | Hail      | 1.50 In. | 0 | 0 | \$0       | \$0     |
| <b>Bonhomie</b>         | 8/4/2010  | Lightning | --       | 0 | 0 | \$10,000  | \$0     |
| <b>Rock Hill</b>        | 3/8/2011  | Hail      | 1 In.    | 0 | 0 | \$0       | \$0     |
| <b>McLaurin</b>         | 3/8/2011  | Hail      | 0.75 In. | 0 | 0 | \$0       | \$0     |
| <b>Brooklyn</b>         | 4/15/2011 | Hail      | 1 In.    | 0 | 0 | \$0       | \$0     |
| <b>Rock Hill</b>        | 5/26/2011 | Hail      | 2 In.    | 0 | 0 | \$50,000  | \$0     |
| <b>McLaurin</b>         | 5/26/2011 | Hail      | 1 In.    | 0 | 0 | \$20,000  | \$0     |
| <b>Brooklyn</b>         | 6/6/2011  | Hail      | 1 In.    | 0 | 0 | \$15,000  | \$0     |
| <b>Brooklyn</b>         | 6/6/2011  | Hail      | 0.75 In. | 0 | 0 | \$5,000   | \$0     |
| <b>McLaurin</b>         | 6/7/2011  | Hail      | 1.75 In. | 0 | 0 | \$30,000  | \$0     |
| <b>Brooklyn</b>         | 6/8/2011  | Hail      | 1 In.    | 0 | 0 | \$20,000  | \$0     |
| <b>Ragland</b>          | 6/8/2011  | Lightning | --       | 0 | 0 | \$3,000   | \$0     |
| <b>Brooklyn</b>         | 6/10/2011 | Hail      | 0.88 In. | 0 | 0 | \$10,000  | \$0     |
| <b>Riverside</b>        | 9/28/2011 | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0     |
| <b>Epps</b>             | 2/24/2012 | Hail      | 1 In.    | 0 | 0 | \$0       | \$0     |
| <b>Rock Hill</b>        | 4/15/2015 | Hail      | 1.75 In. | 0 | 0 | \$6,000   | \$0     |
| <b>McLaurin</b>         | 4/15/2015 | Hail      | 1 In.    | 0 | 0 | \$0       | \$0     |
| <b>McLaurin</b>         | 3/17/2016 | Hail      | 1 In.    | 0 | 0 | \$0       | \$0     |
| <b>McCallum</b>         | 6/17/2016 | Hail      | 1.75 In. | 0 | 0 | \$3,000   | \$0     |
| <b>Macedonia</b>        | 8/5/2016  | Lightning | --       | 0 | 0 | \$30,000  | \$0     |
| <b>Rock Hill</b>        | 1/21/2017 | Hail      | 1 In.    | 0 | 0 | \$0       | \$0     |
| <b>McLaurin</b>         | 1/21/2017 | Hail      | 1 In.    | 0 | 0 | \$0       | \$0     |
| <b>Macedonia</b>        | 7/12/2017 | Lightning | --       | 0 | 1 | \$30,000  | \$0     |
| <b>Dragon</b>           | 5/11/2019 | Lightning | --       | 0 | 0 | \$50,000  | \$0     |
| <b>Ragland</b>          | 9/9/2019  | Lightning | --       | 0 | 0 | \$2,000   | \$0     |
| <b>Dragon</b>           | 9/9/2019  | Lightning | --       | 0 | 0 | \$3,000   | \$1,000 |
| <b>Bonhomie</b>         | 4/19/2020 | Hail      | 1 In.    | 0 | 0 | \$0       | \$0     |
| <b>Mammoth Springs</b>  | 4/29/2020 | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0     |
| <b>Bonhomie</b>         | 4/29/2020 | Hail      | 0.88 In. | 0 | 0 | \$0       | \$0     |
| <b>Carnes</b>           | 5/27/2020 | Hail      | 1.50 In. | 0 | 0 | \$5,000   | \$0     |

|                        |                  |             |                 |          |          |                  |            |
|------------------------|------------------|-------------|-----------------|----------|----------|------------------|------------|
| <b>Glendale</b>        | <b>4/15/2022</b> | <b>Hail</b> | <b>1 in.</b>    | <b>0</b> | <b>0</b> | <b>\$500,000</b> | <b>\$0</b> |
| <b>Macedonia</b>       | <b>4/17/2022</b> | <b>Hail</b> | <b>1 in.</b>    | <b>0</b> | <b>0</b> | <b>\$10,000</b>  | <b>\$0</b> |
| <b>Mammoth Springs</b> | <b>6/10/2022</b> | <b>Hail</b> | <b>1 in.</b>    | <b>0</b> | <b>0</b> | <b>\$0</b>       | <b>\$0</b> |
| <b>Bonhomie</b>        | <b>5/11/2023</b> | <b>Hail</b> | <b>0.88 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>       | <b>\$0</b> |
| <b>Brooklyn</b>        | <b>1/8/2024</b>  | <b>Hail</b> | <b>1.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$200,000</b> | <b>\$0</b> |

Source: NCED/NOAA

## 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. 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.

Meteorologists predict that thunderstorms will continue to increase in frequency, magnitude, and intensity as climate change continues to effect weather. These increases could greatly impact the county in crop and property damage and life safety. If these storms intensify it could also affect the economy of 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 eight disaster declarations in Forrest County in 1980, 1983, 1990, 1992, 2001, 2013, 2017, and 2018. According to the National Centers for Environmental Information, there have been a total of 27 recorded tornado events in Forrest County since 2000 (**Table B.20**), resulting in over \$44 million in property damages. In addition, 134 injuries and 4 deaths were reported. The magnitude of these tornadoes ranges from F0 to EF3 in intensity, although an F5 event is possible. Detailed information on historic tornado events can be found in **Table B.21**.

**TABLE B.20: SUMMARY OF TORNADO OCCURRENCES IN FORREST COUNTY**

| <b>Location</b>    | <b>Number of Occurrences</b> | <b>Deaths</b> | <b>Injuries</b> | <b>Property Damage</b> | <b>Crop Damage</b> |
|--------------------|------------------------------|---------------|-----------------|------------------------|--------------------|
| <b>Hattiesburg</b> | <b>4</b>                     | <b>0</b>      | <b>68</b>       | <b>\$31,127,000</b>    | <b>\$0</b>         |
| <b>Petal</b>       | <b>2</b>                     | <b>0</b>      | <b>0</b>        | <b>\$400,000</b>       | <b>\$0</b>         |

|                              |           |          |            |                     |                  |
|------------------------------|-----------|----------|------------|---------------------|------------------|
| <b>Unincorporated Area</b>   | <b>21</b> | <b>4</b> | <b>71</b>  | <b>\$12,184,500</b> | <b>\$549,500</b> |
| <b>Forrest County Total:</b> | <b>27</b> | <b>4</b> | <b>134</b> | <b>\$43,711,500</b> | <b>\$549,500</b> |

Source: NCED/NOAA

TABLE B.21 HISTORICAL TORNADO IMPACTS IN FORREST COUNTY

| Location                                     | Date       | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|----------------------------------------------|------------|-----------|--------|----------|-----------------|-------------|
| <b>The City of Hattiesburg</b>               |            |           |        |          |                 |             |
| <i>Hattiesburg</i>                           | 3/12/2001  | F1        | 0      | 5        | \$6,000,000     | \$0         |
| <i>Hattiesburg</i>                           | 1/7/2005   | F1        | 0      | 0        | \$125,000       | \$0         |
| <i>Hattiesburg</i>                           | 8/29/2005  | F1        | 0      | 0        | \$2,000         | \$0         |
| <i>Hattiesburg</i>                           | 2/10/2023  | EF3       | 0      | 63       | \$25,000,000    | \$0         |
| <b>The Town of Petal</b>                     |            |           |        |          |                 |             |
| <i>Petal</i>                                 | 4/14/2007  | EF1       | 0      | 0        | \$200,000       | \$0         |
| <i>Petal</i>                                 | 8/30/2017  | EF1       | 0      | 0        | \$200,000       | \$0         |
| <b>Unincorporated Area in Forrest County</b> |            |           |        |          |                 |             |
| <i>Rawls Springs</i>                         | 11/15/2006 | F1        | 0      | 0        | \$2,000         | \$0         |
| <i>Mammoth Springs</i>                       | 10/17/2007 | EF1       | 0      | 1        | \$100,000       | \$0         |
| <i>McLaurin</i>                              | 3/3/2008   | EF1       | 0      | 14       | \$1,500,000     | \$0         |
| <i>Rock Hill</i>                             | 5/15/2008  | EF1       | 0      | 0        | \$700,000       | \$500,000   |
| <i>McLaurin</i>                              | 5/15/2008  | EF1       | 0      | 0        | \$80,000        | \$0         |
| <i>Maxie</i>                                 | 9/1/2008   | EF0       | 0      | 0        | \$2,000         | \$0         |
| <i>McLaurin</i>                              | 9/4/2011   | EF0       | 0      | 0        | \$500           | \$0         |
| <i>Bonhomie</i>                              | 3/2/2012   | EF1       | 0      | 0        | \$15,000        | \$0         |
| <i>Dragon</i>                                | 3/21/2012  | EF0       | 0      | 0        | \$20,000        | \$0         |
| <i>Fruitland Park</i>                        | 12/25/2012 | EF2       | 0      | 4        | \$200,000       | \$0         |
| <i>Bonhomie</i>                              | 10/31/2015 | EF0       | 0      | 0        | \$17,000        | \$0         |
| <i>Carnes</i>                                | 2/23/2016  | EF0       | 0      | 0        | \$15,000        | \$0         |
| <i>Rock Hill</i>                             | 1/2/2017   | EF1       | 0      | 0        | \$30,000        | \$0         |
| <i>Bonhomie</i>                              | 1/21/2017  | EF3       | 4      | 56       | \$9,000,000     | \$49,500    |
| <i>Macedonia</i>                             | 7/14/2019  | EF0       | 0      | 0        | \$3,000         | \$0         |
| <i>Bonhomie</i>                              | 4/19/2020  | EF1       | 0      | 1        | \$100,000       | \$0         |
| <i>Bonhomie</i>                              | 3/30/2022  | EF0       | 0      | 0        | \$10,000        | \$0         |
| <i>Carnes</i>                                | 3/30/2022  | EF2       | 0      | 0        | \$250,000       | \$0         |
| <i>Macedonia</i>                             | 12/14/2022 | EF0       | 0      | 0        | \$40,000        | \$0         |
| <i>Macedonia</i>                             | 12/14/2022 | EF2       | 0      | 0        | \$100,000       | \$0         |
| <i>Carnes</i>                                | 12/14/2022 | EF1       | 0      | 0        | \$40,000        | \$0         |

Source: NCED/NOAA

Anecdotes are available from NCEI for the major storms that have impacted that area as found below:

**March 12, 2001**—This was an F1 tornado from a supercell thunderstorm that went through several counties. 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.

**March 3, 2008**—his 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. This caused 1.5 million in damages and caused 14 injuries.

**May 15, 2008**—This tornado began on the east side of Purvis, here it downed some limbs and small trees. The tornado intensified and widened as 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 miles.

**February 10, 2013**—The tornado started along Highway 589, where some limbs and small trees were blown down. It became intense rather quickly, producing significant damage as it moved through the West Lake Serene area. The tornado reached its maximum intensity in the area around and just southwest of Oak Grove High School where maximum winds were estimated at 170 mph, which is EF-4 strength. There was a brick home in a subdivision southwest of the high school, just west of old Highway 11, that was completely leveled with all interior and exterior walls down, and a fair amount of large debris was blown downstream. Additionally, very high-end timber damage occurred in this location with a number of trees showing debarking and denuding. Several other homes in this subdivision also sustained EF-2 to EF-3 damage.

As the tornado crossed old Highway 11, it produced extensive damage on the campus of Oak Grove High School. The field house adjoining the football stadium was destroyed, the baseball stadium and a large metal building adjoining the stadium were essentially destroyed, and several large steel/concrete light standards were snapped at both the baseball and football stadiums. A vehicle was thrown from the parking lot adjoining the baseball stadium, up a small hill and was deposited near the pitching mound in the middle of the baseball field. The main building of the high school also suffered roof damage.

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 high-end EF-3 damage. Dozens of power poles were snapped, and extensive tree damage occurred. Video evidence and ground survey damage appeared to indicate that the tornado was multi-vortex in nature during its Lamar County portion.

Just before crossing Interstate 59, it caused significant roof damage to a number of apartment buildings just west of the interstate. In total in Lamar County, emergency management indicated that 51 homes were destroyed and 170 suffered major damage.

The tornado then moved into Forrest County just to the south of Hardy Street damaging numerous homes with the damage in the EF-2 and EF-3 category. It then crossed Hardy Street impacting the southeast corner of the University of Southern Mississippi campus. Numerous buildings were damaged in this area including several campus buildings and a large church.

Numerous power poles were blown down in this area and several metal traffic lights were bent or torn off their bases. Damage in this area was also EF-2 and EF-3.

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.

The tornado began to weaken as it crossed the Evelyn Gandy Parkway to the northeast of Petal. Damage in this area was mainly EF-1 and EF-2 and consisted of roof damage and snapped trees. The tornado strengthened one last time as it moved through a neighborhood just off Twin Lakes Road. Numerous well built homes experienced EF-2 damage to the roofs in this neighborhood. The tornado weakened as it approached the Perry County line and dissipated a couple of miles into Perry County. Damage at the end of the track was in the EF-0 to EF-1 range.

In Forrest County, emergency management indicated that 133 homes were destroyed and 207 suffered major damage. There were 63 reported injuries. This is the second violent tornado to impact Lamar and Forrest Counties in recorded history. The other violent tornado was the infamous Purvis tornado on April 24, 1908, that was on the ground for 155 miles and impacted many counties across Mississippi. In total, 143 people were killed by this tornado, including 60 in Lamar County and 4 in Forrest County.

**January 21, 2017**— his tornado began along Purvis-Oloh Road, about 5 miles west northwest of Purvis. It tracked northeast across portions of Lamar County causing mainly tree damage, uprooting and snapping softwood and hardwood trees. It caused some minor to moderate structural damage as well. The tornado crossed Old Highway 11, continuing to cause mainly tree damage, although at least a few structures were also damaged. The tornado began to gain strength as it reached Slade Road, where some homes received roof damage. As the tornado crossed Sullivan Kilrain Road, additional homes received significant roof and structural damage, especially on Carter Circle and Tatum Camp Road. Comprehensive assessments from Lamar County emergency management officials count 26 homes in the county being destroyed or with major damage and 52 homes receiving minor damage. The tornado continued to gain strength as it crossed into Forrest County. There it struck a subdivision along Nellwood Drive, Lakeland Drive and Crestwood Drive and caused significant damage to many homes. Several homes received significant roof and structural damage. One home sustained significant damage and also was the site of one of the fatalities. As the tornado continued to track northeast, it caused extensive tree damage and powerline damage.

It struck a church along Helveston Road, which suffered damage to the top floor. As the tornado approached William Carey College, it intensified to EF3 strength, causing damage to numerous buildings on campus. The tornado then affected a mobile home park, downing trees and causing damage to mobile homes. Here, two more fatalities occurred. It then caused structural damage to several homes, churches and businesses on James Street and Alcorn Road. Another fatality occurred on Alcorn Road when a tree fell on a home.

The tornado continued to track northeast, crossing the Leaf River and headed into Petal. Here the tornado got very wide and continued to cause EF2 type damage to businesses along Main Street and into the neighborhoods on the southern side of the city. Extensive tree damage occurred, and countless homes had minor to major roof damage in the neighborhood south of Hillcrest Loop. As the tornado reached Sun Circle, it intensified to EF3 strength again and caused significant damage to a few homes as well as moderate damage to many homes in the neighborhood.

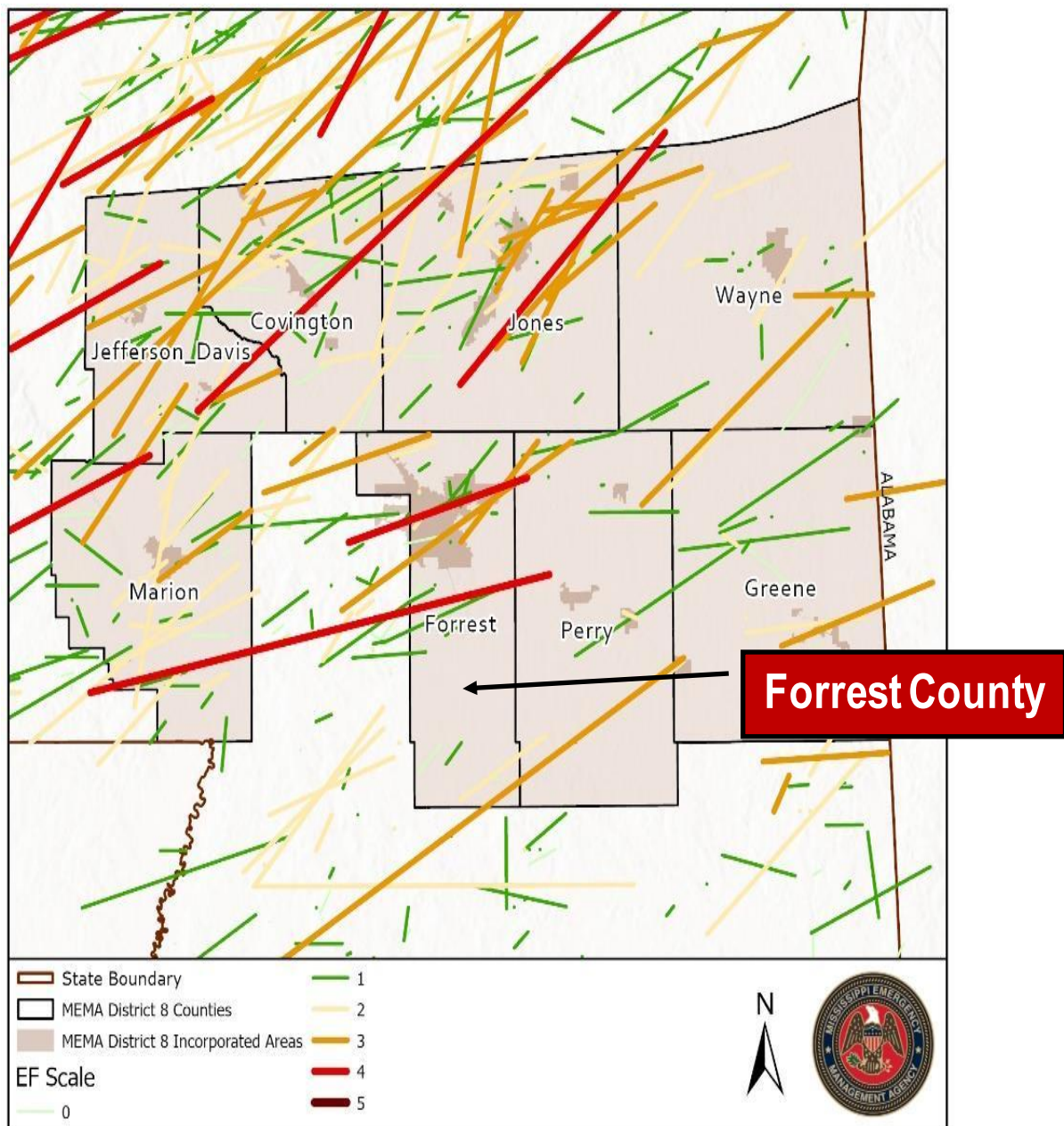
Beyond the subdivision along Sun Circle, the tornado caused tree damage again before reaching Evelyn Gandy Parkway. It caused structural damage to an AT&T store by lifting the roof of the strip mall. It caused additional roof damage to several homes and a church along the Parkway as well as along Springridge Road and Corinth Road. As the tornado tore across Shawnee Trail, it caused impressive tree damage, which included snapping and uprooting hardwood and softwood trees. As the tornado tracked just south of HDR Lane, it took down two metal electrical transmission lines. The tornado then destroyed a

house along Macedonia Road, as well as causing additional roof to other homes and taking down numerous trees. Additional impressive tree damage occurred along Old Richton Road and Tyroby Lane.

The tornado continued to down trees as it tracked across Old Richton Road into Perry County. Comprehensive assessments from Forrest County emergency management officials count 499 homes in the county being destroyed or with major damage and 632 homes receiving minor damage.

The tornado path length in just Lamar and Forrest counties was 24.2 miles, although the entire path of the tornado in total was 31.3 miles. Along the entire tornado path the total number of homes destroyed or receiving major damage is estimated to be 531 with the number of homes having minor damage estimated at 689. Maximum estimated winds were 145 mph. The maximum path width was 900 yards, which occurred in the Petal area of Forrest County. This tornado affected a large number of forested areas. Approximately 1570 forested acres were damaged, with 1453 acres being privately owned. In total, 4320 acres were damaged from this tornado. The total economic impact was \$410,784 in Lamar, Forrest and Perry counties. 777 total acres were damaged in Lamar County, and 400 in Forrest.

### **FIGURE B.7: HISTORICAL TORNADO TRACKS IN FORREST COUNTY**



### 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).

It is predicted that tornadoes and the type of storms that create tornadoes will increase in intensity, frequency, and magnitude as the temperature rises with climate change. More frequent strong tornadoes could have a large economic impact on each community in the county. It could also increase injuries and/death counts if the tornadoes increase in magnitude.

## B.2.13 Hazardous Materials Incidents

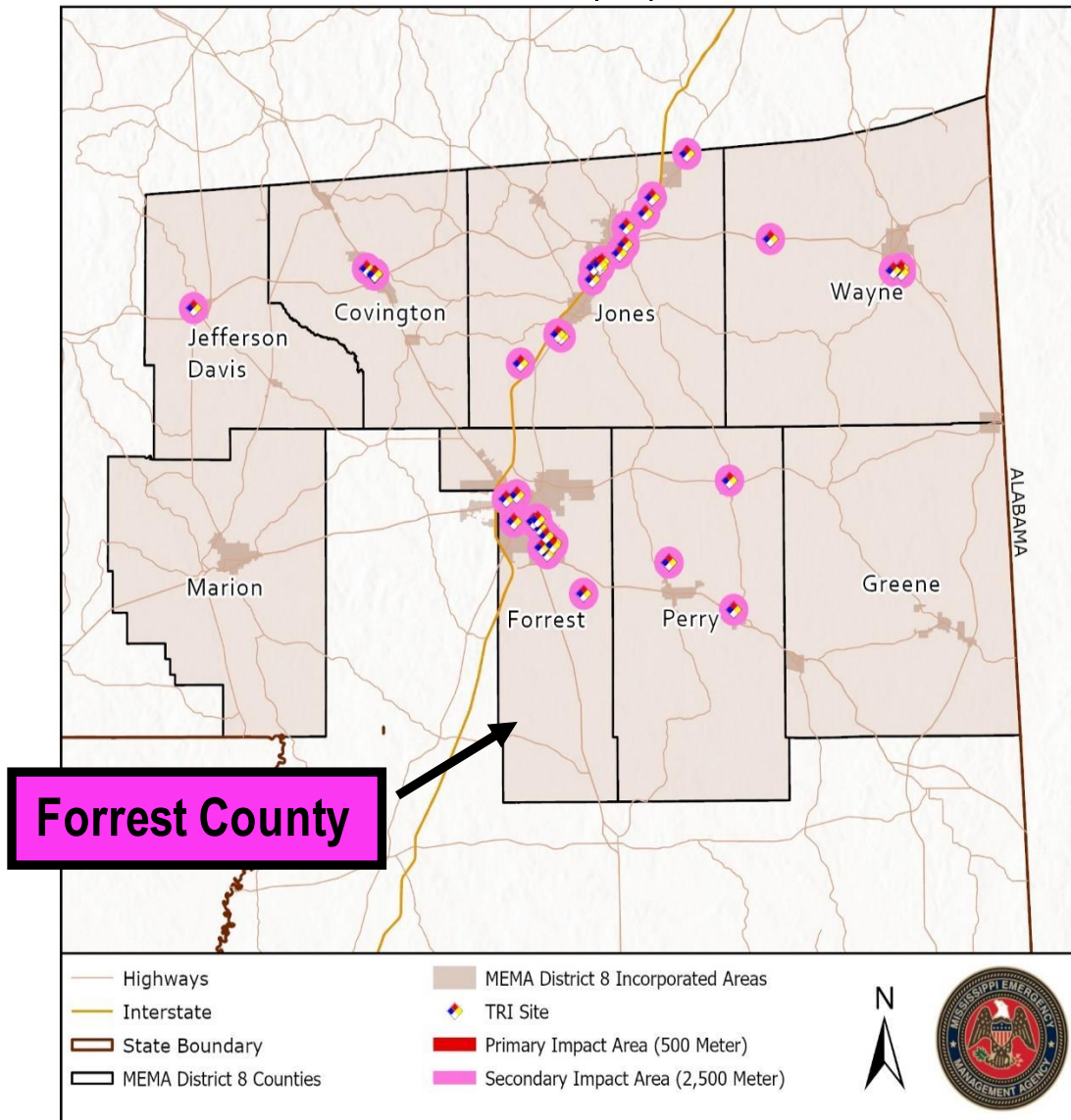


## LOCATION AND SPATIAL EXTENT

### Hazardous Materials

Forrest County has numerous TRI sites as shown in Figure B.8.

**FIGURE B.8: TOXIC RELEASE INVENTORY (TRI) SITES IN FORREST COUNTY**



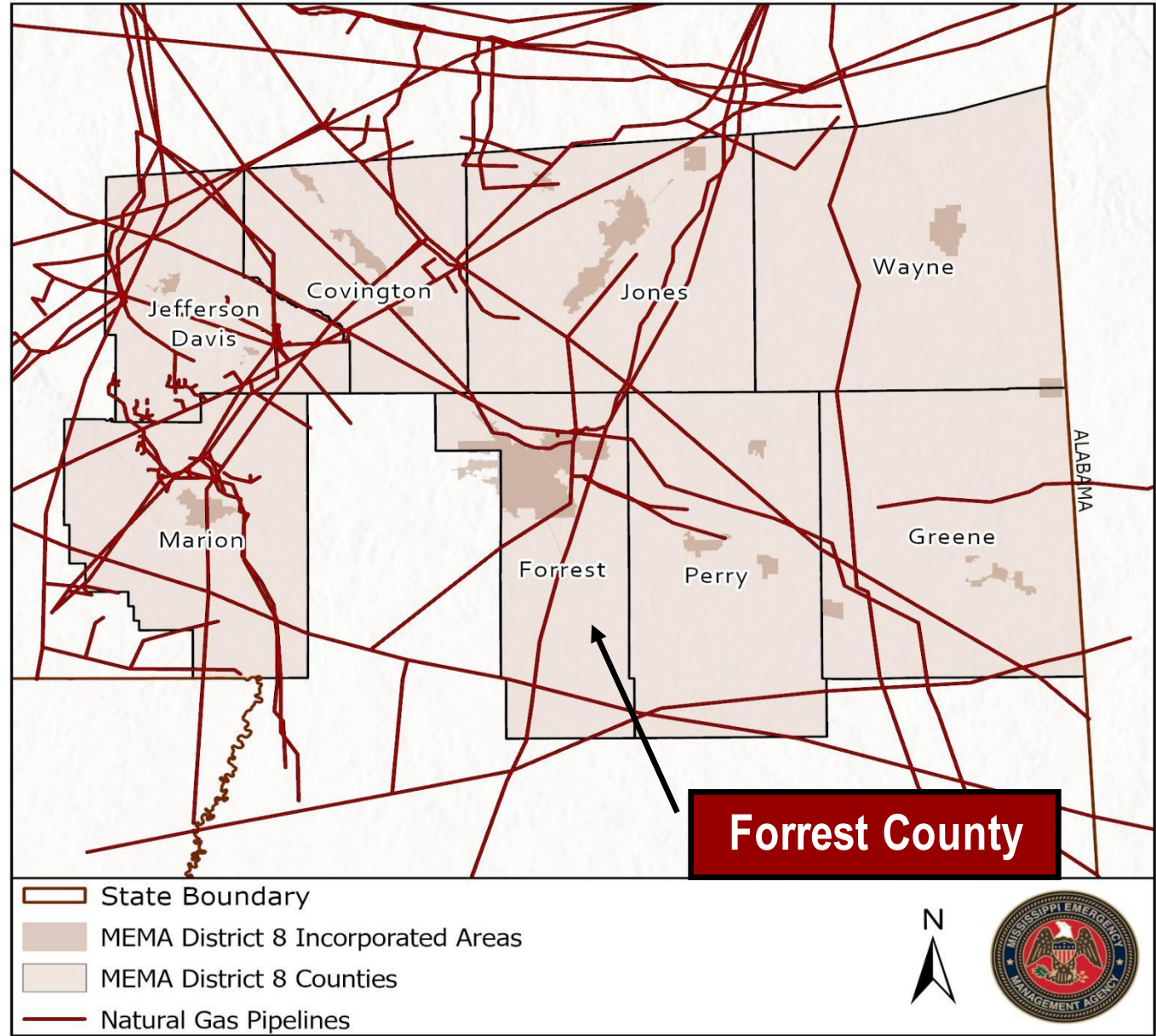
In addition to “fixed” hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially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

### Pipelines

The pipelines in Forrest County 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.



FIGURE B.9: PIPELINES 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.

**HISTORICAL OCCURRENCES**

**Hazardous Materials**

There has been a total of one hundred recorded HAZMAT incident in Forrest County since 2003, resulting in \$336,370 in property damages. **Table B.21** 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.21: SUMMARY OF HAZMAT INCIDENTS IN FORREST COUNTY

| Location                       | Date       | Report Number | Mode    | Serious Incident | Facilities/ Injuries | Damages | Quantity Released |
|--------------------------------|------------|---------------|---------|------------------|----------------------|---------|-------------------|
| <b>The City of Hattiesburg</b> |            |               |         |                  |                      |         |                   |
| Hattiesburg                    | 3/1/2005   | I-2005030356  | Highway | No               | 0/0                  | \$0     | 2 LGA             |
| Hattiesburg                    | 3/2/2005   | I-2005030348  | Highway | No               | 0/0                  | \$0     | 0.5 LGA           |
| Hattiesburg                    | 6/15/2005  | I-2005060875  | Highway | No               | 0/0                  | \$0     | 0.023438 LGA      |
| Hattiesburg                    | 10/4/2005  | I-2005100406  | Highway | No               | 0/0                  | \$0     | 0.03125 LGA       |
| Hattiesburg                    | 10/4/2005  | I-2005100407  | Highway | No               | 0/0                  | \$0     | 0.0625 LGA        |
| Hattiesburg                    | 10/4/2005  | I-2005100714  | Highway | No               | 0/0                  | \$0     | 0.0625 LGA        |
| Hattiesburg                    | 1/12/2006  | I-2006010786  | Highway | No               | 0/0                  | \$0     | 2 LGA             |
| Hattiesburg                    | 4/7/2006   | I-2006040391  | Highway | No               | 0/0                  | \$0     | 2 LGA             |
| Hattiesburg                    | 6/6/2006   | I-2006061283  | Highway | No               | 0/0                  | \$0     | 2 LGA             |
| Hattiesburg                    | 7/12/2006  | E-2006070114  | Highway | YES              | 0/0                  | \$0     | 421.575 LGA       |
| Hattiesburg                    | 9/18/2006  | I-2006090852  | Highway | No               | 0/0                  | \$0     | 0.11875 LGA       |
| Hattiesburg                    | 9/28/2006  | I-2006101325  | Rail    | No               | 0/0                  | \$600   | 2 LGA             |
| Hattiesburg                    | 10/4/2006  | E-2006070114  | Highway | No               | 0/0                  | \$0     | 0.03125 LGA       |
| Hattiesburg                    | 10/12/2006 | I-2006110328  | Rail    | No               | 0/0                  | \$0     | 1 LGA             |
| Hattiesburg                    | 2/8/2007   | I-2007020828  | Highway | No               | 0/0                  | \$0     | 1 LGA             |
| Hattiesburg                    | 8/9/2007   | I-2007080320  | Highway | No               | 0/0                  | \$0     | 0.007812 LGA      |
| Hattiesburg                    | 1/4/2008   | X-2008010156  | Rail    | No               | 0/0                  | \$750   | 0.017 LGA         |
| Hattiesburg                    | 1/16/2008  | X-2008020062  | Rail    | No               | 0/0                  | \$600   | 0.01671 LGA       |
| Hattiesburg                    | 3/6/2008   | X-2008030156  | Rail    | No               | 0/0                  | \$700   | 5 SLB             |
| Hattiesburg                    | 4/15/2008  | X-1008040311  | Rail    | No               | 0/0                  | \$700   | 0.01671 GCF       |
| Hattiesburg                    | 6/13/2008  | X-2008060200  | Rail    | No               | 0/0                  | \$2015  | 3 LGA             |
| Hattiesburg                    | 8/19/2008  | X-2008080369  | Rail    | No               | 0/0                  | \$800   | 2 LGA             |
| Hattiesburg                    | 9/29/2008  | X-2008100119  | Highway | No               | 0/0                  | \$0     | 2 LGA             |
| Hattiesburg                    | 10/6/2008  | X-2008100174  | Rail    | No               | 0/0                  | \$5,105 | 7 LGA             |
| Hattiesburg                    | 10/14/2008 | X-2008110123  | Rail    | No               | 0/0                  | \$0     | 0.125 GCF         |
| Hattiesburg                    | 10/31/2008 | E-2008110384  | Highway | No               | 0/0                  | \$0     | 0.15625 LGA       |
| Hattiesburg                    | 12/12/2008 | X-2008120145  | Rail    | No               | 0/0                  | \$600   | 0.125 GCF         |
| Hattiesburg                    | 1/8/2009   | I-2009020013  | Highway | No               | 0/0                  | \$0     | 0.001 LGA         |
| Hattiesburg                    | 1/26/2009  | X-200903007   | Highway | No               | 0/0                  | \$0     | 3 LGA             |
| Hattiesburg                    | 2/6/2009   | X-2009030107  | Rail    | No               | 0/0                  | \$600   | 0.01671 GCF       |
| Hattiesburg                    | 2/27/2009  | E-2009030241  | Highway | No               | 0/0                  | \$0     | 0.3125 LGA        |
| Hattiesburg                    | 8/6/2009   | E-2009090061  | Highway | No               | 0/0                  | \$0     | 0.1875 LGA        |
| Hattiesburg                    | 8/21/2009  | E-2009090273  | Highway | No               | 0/0                  | \$0     | 0.1875 LGA        |
| Hattiesburg                    | 4/14/2010  | E-2010050011  | Highway | No               | 0/0                  | \$5,200 | 0.125 LGA         |
| Hattiesburg                    | 7/16/2010  | E-2010080266  | Highway | No               | 0/0                  | \$0     | 0.5 LGA           |
| Hattiesburg                    | 7/22/2010  | E-2010070411  | Highway | No               | 0/0                  | \$0     | 0.078 LGA         |
| Hattiesburg                    | 8/2/2010   | I-2010080637  | Highway | No               | 0/0                  | \$0     | 10 LGA            |
| Hattiesburg                    | 8/25/2010  | X-2010090202  | Highway | No               | 0/0                  | \$0     | 14.8 LGA          |
| Hattiesburg                    | 9/1/2010   | E-2010090033  | Highway | No               | 0/0                  | \$0     | 2 LGA             |
| Hattiesburg                    | 10/1/2010  | X-2010100194  | Highway | No               | 0/0                  | \$0     | 1 LGA             |

|             |            |              |         |     |     |          |              |
|-------------|------------|--------------|---------|-----|-----|----------|--------------|
| Hattiesburg | 11/30/2010 | X-2010120130 | Rail    | No  | 0/0 | \$0      | 0.01671 GCF  |
| Hattiesburg | 6/2/2011   | E-2011060039 | Highway | No  | 0/0 | \$0      | 0.23438 LGA  |
| Hattiesburg | 6/6/2011   | E-2011060589 | Highway | No  | 0/0 | \$0      | 0.125 LGA    |
| Hattiesburg | 7/18/2011  | I-2011070639 | Highway | No  | 0/0 | \$0      | 0.132085 LGA |
| Hattiesburg | 7/22/2011  | X-2011070521 | Rail    | No  | 0/0 | \$0      | 2 LGA        |
| Hattiesburg | 8/15/2011  | X-2001090154 | Highway | No  | 0/0 | \$0      | 1 LGA        |
| Hattiesburg | 8/26/2011  | X-2011090333 | Rail    | No  | 0/0 | \$600    | 0.25 LGA     |
| Hattiesburg | 5/19/2012  | E-2012050505 | Highway | No  | 0/0 | \$0      | 0.125 LGA    |
| Hattiesburg | 6/21/2012  | E-2012060537 | Highway | No  | 0/0 | \$65,025 | 2 LGA        |
| Hattiesburg | 8/1/2012   | X-2012080290 | Rail    | No  | 0/0 | \$0      | 0.0625 LGA   |
| Hattiesburg | 8/14/2012  | X-2012080316 | Highway | No  | 0/0 | \$0      | 0.125 LGA    |
| Hattiesburg | 10/29/2012 | E-2012100490 | Highway | No  | 0/0 | \$0      | 1 LGA        |
| Hattiesburg | 12/4/2012  | E-2012120226 | Highway | No  | 0/0 | \$0      | 1 LGA        |
| Hattiesburg | 2/26/2013  | E-2013020476 | Highway | No  | 0/0 | \$0      | 0.0625 LGA   |
| Hattiesburg | 3/7/2013   | X-2013040023 | Highway | No  | 0/0 | \$0      | 0.5 LGA      |
| Hattiesburg | 4/24/2013  | X-2013050099 | Rail    | No  | 0/0 | \$0      | 1 LGA        |
| Hattiesburg | 4/26/2013  | E-2013050165 | Highway | No  | 0/0 | \$0      | 0.25 LGA     |
| Hattiesburg | 6/18/2013  | E-2013060470 | Highway | No  | 0/0 | \$0      | 0.046875 LGA |
| Hattiesburg | 3/11/2014  | I-2014050331 | Highway | No  | 0/0 | \$46,500 | 82 LGA       |
| Hattiesburg | 3/14/2014  | E-2014030347 | Highway | No  | 0/0 | \$0      | 5 LGA        |
| Hattiesburg | 5/13/2014  | I-2014060141 | Highway | YES | 0/0 | \$0      | 540 LGA      |
| Hattiesburg | 6/10/2014  | E-2014090717 | Highway | No  | 0/0 | \$0      | 1 LGA        |
| Hattiesburg | 6/16/2014  | E-2014060323 | Highway | No  | 0/0 | \$0      | 0.015625 LGA |
| Hattiesburg | 6/17/2014  | E-2014060439 | Highway | No  | 0/0 | \$0      | 0.0625 LGA   |
| Hattiesburg | 7/3/2014   | E-2014070154 | Highway | No  | 0/0 | \$0      | 0.0625 LGA   |
| Hattiesburg | 8/4/2014   | E-2014090157 | Highway | No  | 0/0 | \$5,000  | 1.9 LGA      |
| Hattiesburg | 10/3/2014  | E-2014100212 | Highway | No  | 0/0 | \$0      | 0.75 LGA     |
| Hattiesburg | 11/3/2014  | E-2014110023 | Highway | No  | 0/0 | \$0      | 16 LGA       |
| Hattiesburg | 11/15/2014 | E-2014120399 | Highway | No  | 0/0 | \$0      | 15 LGA       |
| Hattiesburg | 11/23/2014 | E-2014120179 | Rail    | No  | 0/0 | \$0      | 0.03125 LGA  |
| Hattiesburg | 12/9/2014  | E-2014120181 | Rail    | No  | 0/0 | \$0      | 0.03125 LGA  |
| Hattiesburg | 4/14/2015  | E-2015070308 | Highway | No  | 0/0 | \$0      | 4 LGA        |
| Hattiesburg | 4/24/2015  | E-2015040428 | Highway | No  | 0/0 | \$1,200  | 4 LGA        |
| Hattiesburg | 5/4/2015   | E-2015050031 | Highway | No  | 0/0 | \$0      | 2.5 LGA      |
| Hattiesburg | 7/22/2015  | E-2015080439 | Highway | No  | 0/0 | \$0      | 0.023 LGA    |
| Hattiesburg | 10/16/2016 | E-2016101399 | Highway | No  | 0/0 | \$6,500  | 15 LGA       |
| Hattiesburg | 11/10/2016 | E2016110283  | Highway | No  | 0/0 | \$0      | 1 LGA        |
| Hattiesburg | 3/6/2017   | E-2017030277 | Highway | No  | 0/0 | \$0      | 2 LGA        |
| Hattiesburg | 4/27/2017  | E-2017040543 | Highway | No  | 0/0 | \$0      | 1 LGA        |
| Hattiesburg | 6/20/2017  | E-2017090334 | Highway | No  | 0/0 | \$0      | 4 LGA        |
| Hattiesburg | 7/17/2017  | E-2017080179 | Rail    | No  | 0/0 | \$10,000 | 5 LGA        |
| Hattiesburg | 7/25/2017  | E-2017080079 | Highway | No  | 0/0 | \$0      | 3.43 LGA     |
| Hattiesburg | 10/25/2017 | E-2017100617 | Highway | No  | 0/0 | \$0      | 1 LGA        |
| Hattiesburg | 3/27/2018  | E-2018040138 | Highway | No  | 0/0 | \$0      | 30 LGA       |
| Hattiesburg | 6/15/2018  | E-2018080771 | Highway | No  | 0/0 | \$0      | 3 LGA        |

|                                              |            |              |         |     |     |          |            |
|----------------------------------------------|------------|--------------|---------|-----|-----|----------|------------|
| Hattiesburg                                  | 8/18/2018  | E-2018090031 | Rail    | No  | 0/0 | \$0      | 1 LGA      |
| Hattiesburg                                  | 10/3/2018  | E-2018120447 | Highway | No  | 0/0 | \$0      | 20 LGA     |
| Hattiesburg                                  | 1/26/2019  | E-2019020330 | Highway | No  | 0/0 | \$6,000  | 1 LGA      |
| Hattiesburg                                  | 2/12/2019  | E-2019030369 | Highway | No  | 0/0 | \$0      | 5 LGA      |
| Hattiesburg                                  | 6/22/2020  | E-2020070173 | Highway | No  | 0/0 | \$0      | 0.25 LGA   |
| Hattiesburg                                  | 6/22/2020  | E2020070174  | Highway | No  | 0/0 | \$0      | 3 LGA      |
| Hattiesburg                                  | 10/5/2020  | E-2020100468 | Highway | No  | 0/0 | \$0      | 0.0625 LGA |
| Hattiesburg                                  | 7/20/2021  | E-2021080833 | Highway | No  | 0/0 | \$5,150  | 50 LGA     |
| Hattiesburg                                  | 8/4/2021   | E-2021080579 | Highway | No  | 0/0 | \$0      | 3.75 LGA   |
| Hattiesburg                                  | 3/30/2022  | I-2022070549 | Highway | YES | 0/0 | \$72,725 | 200 LGA    |
| Hattiesburg                                  | 2/13/2024  | E-2024030035 | Highway | No  | 0/0 | \$0      | 3 LGA      |
| Hattiesburg                                  | 6/5/2024   | E-2024070334 | Highway | No  | 0/0 | \$0      | 0.125 SLB  |
| Hattiesburg                                  | 7/11/2024  | I-2024080049 | Highway | YES | 0/0 | \$45,000 | 150 LGA    |
| Hattiesburg                                  | 10/14/2024 | E-2024100502 | Highway | No  | 0/0 | \$0      | 0.047 LGA  |
| <b>City of Petal</b>                         |            |              |         |     |     |          |            |
| Petal                                        | 4/22/2003  | I-2003120943 | Highway | YES | 0/0 | \$55,000 | 200 LGA    |
| <b>Unincorporated Area in Forrest County</b> |            |              |         |     |     |          |            |
| N/A                                          | --         | --           | --      | --  | --  | --       | --         |

Source: USDOT PHMSA

## Pipelines

There have been one pipeline incidents in Forrest County. The incident occurred in Petal and caused \$55,300 in damage.

## 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 has only been one pipeline incident, 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 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 Pandemic**



## LOCATION AND SPATIAL EXTENT

Pandemics are global in nature. However, they may start anywhere. Forrest County chose to analyze this hazard given the large number of deaths and economic hardships COVID 19 caused. Also, it is known that viruses can ultimately mutate and reinfect humans multiple times and/or created a new strain of the virus can occur.

All populations should be considered at risk to pandemic. Buildings and infrastructure are not directly impacted by the virus but could be indirectly impacted if people are not able to operate and maintain them due to illness. Many buildings may be shutdown, at least temporarily, as a result. Employers may initiate work from home procedures for non-essential workers in order to help stop infection. Commerce activities, and thus the economy, may suffer greatly during this time.

## HISTORICAL OCCURRENCES

Several pandemics have been reported throughout history. The first known pandemic dates back to 430 B.C. with the Plague of Athens. It reportedly killed a quarter of the population over four years due to typhoid fever. In 165-180 A.D., the Antonine Plague killed nearly 5 million people. Next, the Plague of Justinian (the first bubonic plague pandemic) occurred from 541 to 566. It killed 10,000 people a day at its peak and resulted in a 50 percent drop in Europe's population.

Since the 1500s, influenza pandemics have occurred about three times every century or roughly every 10-50 years. The Black Death devastated European populations in the 14th century. Nearly a third of the population (20-30 million) was killed over six years. From 1817 to present, seven Cholera Pandemics have impacted to the world and killed millions. Perhaps most severe, was the Third Cholera Pandemic (1852-1959) which started in China. Isolated cases can still be found in the Western U.S. today. There were three major pandemics in the 20th century (1918-1919, 1957-1958, and 1968-1969). The most infamous pandemic flu of the 20th century, however, was that of 1918-1919. Since the 1960s, there has only been one pandemic, the 2009 H1N1 influenza. The pandemics of the 20th and 21st centuries that impacted the United States are detailed below.

**1918 Spanish Flu:** This was the most devastating flu of the 20th century. This pandemic spread across the world in three waves between 1918 and 1919. It typically impacted areas for around twelve weeks and then would largely disappear. However, it would frequently reemerge several months later. Worldwide, approximately 50 million persons died and over a quarter of the population was infected. Nearly 675,000 people died in the United States. The illness came on suddenly and could cause death within a few hours. The virus impacted those aged 15 to 35 especially hard. The movement of troops during World War I is thought to have facilitated the spread of the virus.

In Mississippi, state officials noted that "epidemics have been reported from a number of places in the State," on October 4th, 1918. By the 18th, twenty-six localities reported 1,934 cases (the real number of cases was likely much higher). West Point, Mississippi was hit especially hard, and quarantine was established. Throughout the state, African Americans were impacted at a greater rate than white populations. This is thought to be partly caused from a shortage of caretakers. It is estimated that over 6,000 people died in Mississippi, though that number may be much higher as death records were not widely recorded.

**1957 Asian Flu:** It is estimated that the Asian Flu caused 2 million deaths worldwide. Approximately 70,000 deaths were in the U.S. However, the proportion of people impacted was substantially higher than that of the Spanish Flu. This flu was characterized as having much milder effects than the Spanish Flu and greater survivability. Similar to other pandemics, this pandemic has two waves. Elderly and infant populations were more likely to succumb to death. This flu is thought to have originated from a genetic mutation of a bird virus.

**1968 Hong Kong Flu:** The Hong Kong Flu is thought to have caused one million deaths worldwide. It was milder than both the Asian and Spanish influenza viruses. It was similar to the Asian Flu, which may have provided some immunity to the virus. It had the most severe impact on elderly populations.

**2009 H1N1 Influenza:** This flu was derived from human, swine, and avian virus strains. It was initially reported in Mexico in April 2009. On April 26, the U.S. government declared H1N1 a public health emergency. A vaccine was developed and over 80 million were vaccinated which helped minimize the impacts. The virus had mild impacts on most of the population but did cause death (usually from viral pneumonia) in high-risk populations such as pregnant women, obese persons, indigenous people, and

those with chronic respiratory, cardiac, neurological, or immunity conditions. Worldwide, it is estimated that 43 million to 89 million people contracted H1N1 between April 2009 and April 2010, and between 8,870 and 18,300 H1N1 cases resulted in death.

**COVID-19 (coronavirus disease 2019):** Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019 and changed the way people view Pandemics. Forrest County had 27,776 cases of COVID and 331 deaths.

COVID-19 most often causes respiratory symptoms that can feel much like a cold, the flu, or pneumonia. COVID-19 may attack more than your lungs and respiratory system. Other parts of your body may also be affected by the disease. Most people with COVID-19 have mild symptoms, but some people become severely ill. Some people are more likely than others to get very sick if they get COVID-19. This includes people who are older, are immunocompromised, have certain disabilities, or have underlying health conditions.

In addition to the pandemics above, there have been several cases of pandemic threats, some of which reached epidemic levels. They were contained before spreading globally. Examples include Smallpox, Polio, Tuberculosis, Malaria, AIDS, SARS and Yellow Fever. Advances in medicine and technology have been instrumental in containing the spread of viruses in recent history.

### **PROBABILITY OF FUTURE OCCURRENCES**

Based on historical occurrence information, it is assumed that Forrest County has a probability level of unlikely (less than 1 percent annual probability) for future pandemics events. While pandemic can have devastating impacts, they are relatively rare.

The Mississippi State Department of Health maintains a state pandemic plan which can be found here: <http://www.msdh.state.ms.us/msdhsite/index.cfm/44,1136,122,154,pdf/SNSPlan.pdf>

## **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.22** 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.

**TABLE B.22: EXTENT OF FORREST COUNTY HAZARDS**

| HAZARD                                      | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tectonic Hazards</b>                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Earthquake</b>                           | 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.                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Mass-Movements</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Landslide</b>                            | 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.                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Expansive Soils</b>                      | 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.                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Hydraulic Hazards</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Drought</b>                              | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Floods</b>                               | 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.<br>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.                                                                                                                                                                                               |
| <b>Dam Failure</b>                          | Dam Failure extent is defined using the Mississippi Division of Environmental Quality criteria. Seven dams are classified as high hazard.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Meteorological Hazards</b>               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Hurricane and Tropical Storms</b>        | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Thunderstorms/ Hail/ Lightning/ Wind</b> | 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 May 15, 2024, at 78 knots (approximately 90 mph). It should be noted that future events may exceed these historical occurrences.<br>Hail extent can be defined by the size of the hail stone. The largest hail stone reported in Forrest County was 2.5 inches (last reported on April 25, 2003). It should be noted that future events may exceed this.<br>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. |
| <b>Winter Storms</b>                        | 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 Forrest 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Temperature Extremes/ Heat</b>           | A four day stretch of extreme temperatures occurred across the region to start off the month of August. High pressure was firmly entrenched across the southeast and allowed temperatures to soar into the triple digits across much of the region. Across the NWS Jackson, MS forecast area, 19 record highs were set between August 1st and 4 <sup>th</sup> , 2010. On August 2nd, the 2nd warmest average temperature was recorded. The low was 78 and the high 105, this resulted in an average temperature of 91.5 degrees.                                                                                                                                                                                                                                                                                                                                 |

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wave</b>                      | Additionally, relatively high humidity levels made conditions even more oppressive, with heat index readings surpassing 110 degrees in many areas. This extreme heat resulted in 3 fatalities across the forecast area.                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Tornado</b>                   | 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).                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Biological Hazards</b>        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Pandemic</b>                  | <p>The extent of a pandemic impacting the county is difficult to estimate. It could result in thousands of deaths and extreme disruption of commerce and everyday life.</p> <p>Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019 and changed the way people view Pandemics. Forrest County had 27,776 cases of COVID and 331 deaths</p>                                                                                                                           |
| <b>Other Natural Hazards</b>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Wildfire</b>                  | Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2010-2023. 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.                                                                                                                                                                         |
| <b>Erosion</b>                   | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Climate Change</b>            | The extent Climate change will impact Forrest County is hard to estimate. It could cause more intense, frequent, and/or magnitude of thunderstorms, tropical storms, winds, tornadoes, heavy rains, flash flooding... If the intensity and magnitude increase so will property damage and possible loss of life.                                                                                                                                                                                                                                                                                                                |
| <b>Other Hazards</b>             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Cyber Attack</b>              | 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.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Hazard Materials Incident</b> | <p>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.</p> <p>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.</p> <p>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.</p> |

## 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.23** 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.23: SUMMARY OF PRI RESULTS FOR FORREST COUNTY**

| <b>HAZARD</b> | <b>Category/Degree of Risk</b> |               |                |                |  | <b>PRI</b> |
|---------------|--------------------------------|---------------|----------------|----------------|--|------------|
|               | <b>Probability</b>             | <b>Impact</b> | <b>Spatial</b> | <b>Warning</b> |  |            |

|                                  |               |               | Extent      | Time               | Duration           | Score |
|----------------------------------|---------------|---------------|-------------|--------------------|--------------------|-------|
| <b>Tectonic Hazards</b>          |               |               |             |                    |                    |       |
| Earthquake                       | Unlikely      | Minor         | Moderate    | Less than 6 hours  | Less than 6 Hours  | 1.7   |
| <b>Mass-Movement Hazards</b>     |               |               |             |                    |                    |       |
| Landslide                        | Unlikely      | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | 1.5   |
| Expansive Soil                   | Possible      | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | 1.8   |
| <b>Hydrologic Hazards</b>        |               |               |             |                    |                    |       |
| Drought                          | Highly Likely | Minor         | Large       | More than 24 hours | More than 1 week   | 2.8   |
| Floods                           | Likely        | Limited       | Moderate    | 6 to 12 hours      | Less than 24 hours | 2.4   |
| Dam Failure                      | Unlikely      | Critical      | Moderate    | More than 24 hours | Less than 24 hours | 2.0   |
| <b>Meteorological Hazards</b>    |               |               |             |                    |                    |       |
| Hurricane/ Tropical Storms       | Likely        | Catastrophic  | Large       | More than 24 hours | Less than 24 hours | 3.2   |
| Thunderstorm/ 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   |
| Lightning                        | Highly Likely | Limited       | Negligible  | Less than 6 hours  | Less than 6 hours  | 2.5   |
| Winter Storms                    | Likely        | Limited       | Moderate    | More than 24 hours | Less than 24 hours | 2.3   |
| Temperature Extremes/ Heat Waves | Highly Likely | Likely        | Small       | More than 24 hours | More than 1 week   | 2.8   |
| Tornado                          | Likely        | Critical      | Small       | Less than 6 hours  | Less than 6 hours  | 2.7   |
| <b>Biological Hazards</b>        |               |               |             |                    |                    |       |
| Pandemic                         | Likely        | Limited—Major | Small—Large | More than 24 hours | More than a week   | 2.8   |
| <b>Other Natural Hazards</b>     |               |               |             |                    |                    |       |
| Wildfire                         | Likely        | Minor         | Small       | Less than 6 hours  | Less than one week | 2.3   |
| Erosion                          | Possible      | Minor         | Small       | More than 24 hours | More than 1 week   | 1.8   |
| Climate Change                   | Possible      | Critical      | Large       | More than 1 week   | More than 1 week   | 2.6   |
| <b>Other Hazards</b>             |               |               |             |                    |                    |       |
| Cyber Attack                     | Unlikely      | Limited       | Small       | Less than 6 hours  | Less than 24 hours | 1.9   |
| Hazardous Materials Incident     | Unlikely      | Limited       | Small       | Less than 6 hours  | Less than 24 hours | 1.9   |
| Meth Lab Incident                | Possible      | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | 1.8   |
| Pipeline Incident                | Possible      | Limited       | Small       | Less than 6 hours  | Less than 24 hours | 2.2   |

## 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.24). 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.24: CONCLUSIONS ON HAZARD RISK FOR FORREST COUNTY**

|                      |                                                                                                                                                                               |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High Risk</b>     | <i>Hurricane and Tropical Storm</i><br><i>Thunderstorm/ High Wind</i><br><i>Tornado</i><br><i>Drought/ Heat Wave</i><br><i>Pandemic</i><br><i>Lightning</i><br><i>Flood</i>   |
| <b>Moderate Risk</b> | <i>Dam Failure</i><br><i>Hailstorm</i><br><i>Pipeline Incident</i><br><i>Hazardous Material</i><br><i>Wildfire</i><br><i>Winter Weather Event</i><br><i>Climate Change</i>    |
| <b>Low Risk</b>      | <i>Expansive Soils</i><br><i>Erosion</i><br><i>Earthquake</i><br><i>Landslide</i><br><i>Hazardous Material Incident</i><br><i>Meth Lab Incident</i><br><i>Cyber Terrorism</i> |

## 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.25** 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 since digital parcel data was not available in this county.

**TABLE B.25: IMPROVED PROPERTY IN FORREST COUNTY**

| LOCATION       | Number of Improved Properties | Total Assessed Value of Improvements |
|----------------|-------------------------------|--------------------------------------|
| Forrest County | 28,780                        | \$7,621,195,000                      |

**Table B.26** lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools and other critical facilities located in Forrest County. HAZUS was used to obtain the critical facilities for the county and this data was modified to reflect recent changes. In addition, **Figure B.9** shows the locations of essential facilities in Forrest County. **Table B.27** 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.26: CRITICAL FACILITY INVENTORY IN FORREST COUNTY**

| Location                     | Fire Station | Police Station | Medical Care Facility | EOC      | Schools   |
|------------------------------|--------------|----------------|-----------------------|----------|-----------|
| Hattiesburg                  | 8            | 3              | 1                     | 1        | 15        |
| Petal                        | 4            | 2              | 0                     | 0        | 7         |
| Unincorporated Area          | 17           | 1              | 0                     | 0        | 11        |
| <b>Forrest County Total:</b> | <b>29</b>    | <b>6</b>       | <b>1</b>              | <b>1</b> | <b>33</b> |

Source: HAZUS-MH 6.1 and Planning Committee

**Table B.27** 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”).

| Facility Name | Facility Type | Other      |                                      |                                       | Atmospheric |                                  |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
|---------------|---------------|------------|--------------------------------------|---------------------------------------|-------------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
|               |               | WHP Hazard | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder-storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |

| Forrest County Critical Facilities      |                  |              |                                      |                                       |             |                                  |                          |         |                       |             |            |                     |                |                |
|-----------------------------------------|------------------|--------------|--------------------------------------|---------------------------------------|-------------|----------------------------------|--------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
| Brooklyn Utility Association            | Utility          | VERY HIGH    |                                      | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Brooklyn VFD                            | Fire Station     | Non-burnable |                                      | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Forrest CO Ag. HS/ library/ Safe Room   | School           | Non-burnable |                                      | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Forrest CO Dist. 5 Barn                 | Service/ Repair  | Non-burnable |                                      | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Janice VFD                              | Fire Station     | HIGH         |                                      |                                       | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| South Forrest Attend. Center/ Safe Room | School           | Non-burnable |                                      | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| 9 <sup>th</sup> Grade Academy- HHS      | School           | Non-burnable |                                      | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| AAA Ambulance Service                   | Medical          | Non-burnable | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Alpha Christian Sch.                    | School           | Non-burnable | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Bedford Care Center                     | Care Facility    | Non-burnable | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Blair Center Hattiesburg High           | School           | Non-burnable | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Bobby L. Chain Airport                  | Airport          | Non-burnable | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Burney Elem. School                     | School           | Non-burnable | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Camp Shelby                             | Military         | Non-burnable | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Central Baptist School                  | School           | Non-burnable | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| City of Hattiesburg                     | Utility (water)  | Non-burnable | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                | X              |
| City of Hattiesburg                     | Govt.            | Non-burnable | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| City of Hattiesburg- Clean Earth        | Utility (energy) | Non-burnable | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                | X              |
|                                         | HAZ-MAT          | HIGH         |                                      | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Department of Human Services            | Govt.            | Non-burnable | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Dixie Attend. Center Safe Room          | School           | HIGH         |                                      | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Dixie Comm. Utility Assos.              | Utility (water)  | Non-burnable |                                      | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Dixie VFD                               | Fire Station     | Non-burnable |                                      | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Earl Travillion Attend. Center          | School           | HIGH         | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Earl Travillion Elementary              | School           | HIGH         | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
| Entex Gas Pipeline Sta.                 | Energy Facility  | Non-burnable | X                                    | X                                     | X           | X                                | X                        |         | X                     | X           |            |                     |                |                |
|                                         |                  | Other        |                                      |                                       | Atmospheric |                                  |                          |         |                       | Geologic    |            | Hydrologic          |                |                |
| Facility Name                           | Facility Type    | WHP Hazard   | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder-storm, Lightning, & Hail | Hurricane/Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |

# ANNEX B: FORREST COUNTY

|                                     |                          |              |                                      |                                       |             |                                   |                           |         |                       |             |            |                     |                |                |
|-------------------------------------|--------------------------|--------------|--------------------------------------|---------------------------------------|-------------|-----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
| FEMA Comm. Shelter                  | Educ.                    | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO Circuit Court            | Govt./ Court             | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO Circuit Courthouse       | Govt./ Court             | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO Coroner's Off.           | Emerg. Service           | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO District 1 Barn          | Service/ Repair          | HIGH         |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO District 2 Barn          | Service/ Repair          | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO District 2 Central Shop  | Service/ Repair          | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO Eval. Center             | Govt. EMS                | Low          |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO Health Dept.             | Care Facility            | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO Juvenile Deten. Center   | Police Detent. Center    | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     | X              |                |
| Forrest CO Justice Court            | Govt./ Court             | Non-Burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO Multi-Purpose Center     | Govt. Facility           | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO Schools                  | Admin Offices            | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO Sheriff                  | Police Station           | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO Sheriff's Dept.          | Police Station           | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO Sheriff's Service Center | Repair/ Service (Police) | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest General Hospital            | Care Facility            | HIGH         | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Forrest CO District 4 Barn          | Service/ Repair          | Non-burnable |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Glendale Utility District           | Utility (Water)          | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Grace Christian Elem. School        | School                   | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Hattiesburg Clinic                  | Care Facility            | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Hattiesburg Convalescent Center     | Care Facility            | Non-burnable | X                                    | X                                     | X           | X                                 | X                         | X       | X                     | X           |            |                     |                |                |
| Hattiesburg Fire Dept.              | Fire Station             | Moderate     | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Hattiesburg Fire Dept. #1           | Fire Station             | Moderate     | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Hattiesburg Fire Dept. #3           | Fire Station             | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Hattiesburg Fire Dept. #4           | Fire Station             | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     | X              |                |
| Hattiesburg Fire Dept. #5           | Fire Station             | Moderate     | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
|                                     |                          | Other        |                                      |                                       | Atmospheric |                                   |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
| Facility Name                       | Facility Type            | WHP Hazard   | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder -storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |

**ANNEX B: FORREST COUNTY**

|                                       |                      |              |                                      |                                       |             |                                   |                           |         |                       |             |            |                     |                 |                 |
|---------------------------------------|----------------------|--------------|--------------------------------------|---------------------------------------|-------------|-----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| Hattiesburg Fire Dep #6               | Fire Station         | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Hattiesburg Fire Dep#7                | Fire Station         | Low          | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Hattiesburg Fire Dep #8               | Fire Station         | Non-burnable |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Hattiesburg High School               | School               | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Hattiesburg Med. Supply               | EMS center           | Non-burnable |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Hattiesburg Police Chief              | Police               | Non-burnable |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Hattiesburg Police Dept.              | Police Station       | Non-burnable | X                                    | X                                     | X           | X                                 | X                         | X       | X                     | X           |            |                     | X               |                 |
| Hawkins Elem. School                  | School               | Moderate     | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     | X               |                 |
| Jessie L. Brown Tax Services          | Emer. Service Center | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Lillie Burney Elementary              | School               | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Loyalton of Hattiesburg               | Nursing Home         | Non-burnable |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Mary Bethune Alternative              | School               | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| McLaurin VFD                          | Fire Station         | Non-burnable |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| McLaurin/ Dantzler VFD Station #2     | Fire Station         | HIGH         |                                      |                                       | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Merit Health Medical Group            | Care Facility        | Non-burnable |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Mississippi Power                     | Utility/ Energy      | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Mississippi Power CO                  | Utility/ Energy      | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Monroe Hall, LLC- Bedford Care Center | Nursing Home         | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Montessori Children's House           | School               | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| N R Burger Middle School              | School               | HIGH         | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| North Forest Attend. Center           | School               | Moderate     |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| North Forrest Elementary & Safe Room  | School               | Moderate     |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| North Forrest High School & Safe Room | School               | Moderate     |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| North Forest VFD                      | Fire Station         | HIGH         | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| North Forrest VFD Station 1           | Fire Station         | HIGH         | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| North Forrest VFD Station #2          | Fire Station         | HIGH         |                                      | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
| Old Federal Building                  | City Court           | Non-burnable | X                                    | X                                     | X           | X                                 | X                         |         | X                     | X           |            |                     |                 |                 |
|                                       |                      | Other        |                                      |                                       | Atmospheric |                                   |                           |         |                       | Geologic    |            | Hydrologic          |                 |                 |
| Facility Name                         | Facility Type        | WHP Hazard   | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder -storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |



**ANNEX B: FORREST COUNTY**

|                                            |                              |              |                                      |                                       |             |                                  |                           |         |                       |             |            |                     |                |                |
|--------------------------------------------|------------------------------|--------------|--------------------------------------|---------------------------------------|-------------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
| Paul B. Johnson State Park                 | Other critical facility      | HIGH         |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Presbyterian Christian Sch.                | School                       | Low          |                                      | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                |                |
| Rawls Springs Attend. Center               | School                       | HIGH         | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                | X              |
| Rawls Springs Utility District             | Waste Water                  | Low          | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     | X              |                |
| Rawls Springs VFD                          | Fire Station                 | Moderate     |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Resinall MS Inc.                           | HAZ-MAT                      | Moderate     | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Rowan Elem. School                         | School                       | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Sacred Heart Sch. & Library                | School                       | Non-burnable | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Sam's Club #6503                           | Retail                       | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| South MS Chapter of the American Red Cross | Emerg. Service in a Disaster | Non-burnable | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| South MS Electric Power Association        | Utility/Power                | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Southeast MS Rural Health Initiative, Inc. | Care Facility                | HIGH         | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Southern Bone & Joint Specialists          | Care Facility                | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Spire Energy                               | Utility/Energy               | Non-burnable | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Thames Elem. School                        | School                       | HIGH         | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| The Emerg. Manag. District                 | EMS Center                   | Moderate     |                                      | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                |                |
| U.S. Postal Service                        | Govt.                        | HIGH         | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| U.S. Postal Service                        | Govt.                        | Non-burnable | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| University of Southern MS                  | College                      | Non-burnable | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| University of Southern MS Public Safety    | College Police Station       | Non-burnable | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| USM Physical Plant                         | Critical Facility            | Non-burnable | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Walmart Supercenter #2717                  | Retail                       | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Walmart Supercenter #916                   | Retail                       | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Woodley Elem. School                       | School                       | Non-burnable | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Carnes VFD                                 | Fire Dept                    | Low          |                                      |                                       | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Carnes VFD Rescue                          | Fire Dept.                   | Low          |                                      |                                       | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
|                                            |                              | Other        |                                      |                                       | Atmospheric |                                  |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
| Facility Name                              | Facility Type                | WHP Hazard   | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder-storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |

**ANNEX B: FORREST COUNTY**

| Barrontown Utility District           | Utility (Water)  | Low          |                                |                                 | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
|---------------------------------------|------------------|--------------|--------------------------------|---------------------------------|-------------|-----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
| Bedford Care Center of Petal          | Nursing Home     | HIGH         | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     |                | X              |
| Diversified CPC                       | Utility/ Energy  | Non-burnable | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Dixie Electric Power Assoc.           | Energy/ Utility  | Moderate     |                                |                                 | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Dixie Pipeline Company                | Transport        | Non-burnable | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     |                | X              |
| Eastabuchie Utility Assoc.            | Utility (Water)  | Non-burnable |                                | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Enterprise Products Operating LP      | HAZ-MAT Facility | Non-burnable | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     | X              |                |
| Forrest County District 3 Barn        | Service/ Repair  | Low          |                                |                                 | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Lone Star NGL                         | HAZ-MAT          | Non-burnable | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     | X              |                |
| Macedonia VFD                         | Fire Station     | Low          |                                |                                 | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Macedonia VFD Station #2              | Fire Station     | HIGH         |                                |                                 | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Macedonia VFD Station #3              | Fire Station     | Non-burnable |                                | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Mid Coast Energy (Enbridge Petroleum) | Utility/ Energy  | Non-burnable | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Petal City Hall                       | City Hall        | Non-burnable | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Petal City Police Dept                | Police Station   | Non-burnable | X                              | X                               | X           | X                                 | X                         | X       | X                     | X           |            |                     |                |                |
| Petal City Public Works Dept.         | Govt.            | Moderate     | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     | X              |                |
| Petal Civic Center                    | Emerg. Shelter   | Non-burnable | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Petal Elem. School                    | School           | Non-burnable |                                |                                 | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Petal Fire Department                 | Fire Station     | Moderate     | X                              | X                               | X           | X                                 | X                         | X       | X                     | X           |            |                     |                |                |
| Petal Fire Station #1                 | Fire Station     | Moderate     | X                              | X                               | X           | X                                 | X                         | X       | X                     | X           |            |                     |                |                |
| Petal Fire Station #2                 | Fire Station     | Non-burnable | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Petal Fire Station #3                 | Fire Station     | Non-burnable |                                |                                 | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Petal Gas Storage                     | Utility Care     | Non-burnable | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Petal High School & Safe Room         | School           | Non-burnable |                                |                                 | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station                    | Waste-water      | HIGH         | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     | X              |                |
| Petal Lift Station                    | Waste-water      | HIGH         | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     | X              |                |
| Petal Lift Station                    | Waste-water      | HIGH         | X                              | X                               | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station                    | Waste-water      | HIGH         | X                              |                                 | X           | X                                 | X                         |         | X                     | X           |            |                     |                |                |
|                                       |                  | Other        |                                |                                 | Atmospheric |                                   |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
| Facility Name                         | Facility Type    | WHP Hazard   | Fixed HAZMAT 500-2500M Roads & | Mobile HAZMAT 500-2500M Roads & | Drought     | Thunder -storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |

## ANNEX B: FORREST COUNTY

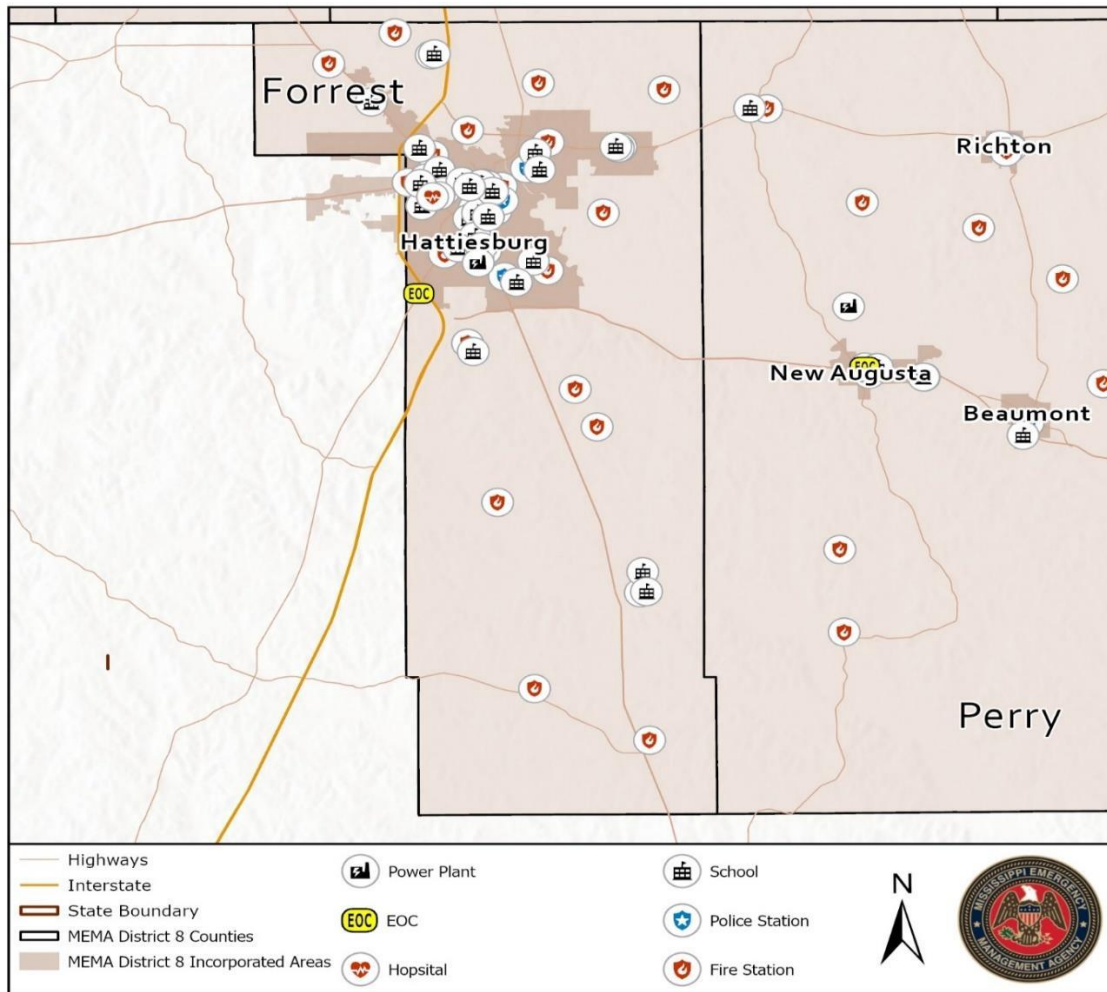
|                    |               |              | Rails                          | Rails                           |             |                            |                           |         |                       |             |            |                     |                |                |
|--------------------|---------------|--------------|--------------------------------|---------------------------------|-------------|----------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
| Petal Lift Station | Waste-water   | HIGH         | X                              | X                               | X           | X                          | X                         | X       | X                     | X           |            |                     |                | X              |
| Petal Lift Station | Waste-water   | HIGH         | X                              | X                               | X           | X                          | X                         | X       | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         | X                              |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | Low          | X                              | X                               | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | Low          | X                              |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | Moderate     | X                              | X                               | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | Moderate     | X                              | X                               | X           | X                          | X                         |         | X                     | X           |            |                     | X              |                |
| Petal Lift Station | Waste-water   | Non-burnable | X                              |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | Non-burnable | X                              | X                               | X           | X                          | X                         |         | X                     | X           |            |                     |                | X              |
| Petal Lift Station | Waste-water   | Non-burnable | X                              | X                               | X           | X                          | X                         |         | X                     | X           |            |                     | X              |                |
| Petal Lift Station | Waste-water   | Non-burnable | X                              | X                               | X           | X                          | X                         |         | X                     | X           |            |                     | X              |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
| Petal Lift Station | Waste-water   | HIGH         |                                |                                 | X           | X                          | X                         |         | X                     | X           |            |                     |                |                |
|                    |               | Other        |                                |                                 | Atmospheric |                            |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
| Facility Name      | Facility Type | WHP Hazard   | Fixed HAZMAT 500-2500M Roads & | Mobile HAZMAT 500-2500M Roads & | Drought     | Thunder -storm, Lightning, | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |

# ANNEX B: FORREST COUNTY

|                                  |                |              | Rails        | Rails         |             | & Hail          |                     |         |                |          |       |             |           |           |
|----------------------------------|----------------|--------------|--------------|---------------|-------------|-----------------|---------------------|---------|----------------|----------|-------|-------------|-----------|-----------|
| Petal Lift Station               | Waste-water    | Moderate     |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | HIGH         |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | HIGH         |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | HIGH         |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | HIGH         |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | HIGH         |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Moderate     |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Moderate     |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Moderate     |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Moderate     |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Moderate     |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Non-burnable |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Non-burnable |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Moderate     |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Moderate     |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Non-burnable |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Non-burnable |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Non-burnable |              | X             | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Non-burnable |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Non-burnable |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Lift Station               | Waste-water    | Non-burnable |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Middle School & Safe Room  | School         | Non-burnable | X            | X             | X           | X               | X                   | X       | X              | X        |       |             |           |           |
| Petal Plant A-Water Well         | Utility        | HIGH         | X            | X             | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Plant B-Water Well         | Utility        | Non-burnable | X            | X             | X           | X               | X                   | X       | X              | X        |       |             |           |           |
| Petal Plant C-Water Well & Tank  | Utility        | Moderate     |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
| Petal Police Department          | Police Station | Non-burnable | X            | X             | X           | X               | X                   | X       | X              | X        |       |             |           |           |
| Petal Post Office                | Govt.          | Non-burnable | X            | X             | X           | X               | X                   | X       | X              | X        |       |             |           |           |
| Petal Primary School & Safe Room | School         | Low          |              |               | X           | X               | X                   |         | X              | X        |       |             |           |           |
|                                  |                | Other        |              |               | Atmospheric |                 |                     |         |                | Geologic |       | Hydrologic  |           |           |
| Facility                         | Facility       | WHP          | Fixed HAZMAT | Mobile HAZMAT | Drought     | Thunder -storm, | Hurricane /Tropical | Tornado | Winter Storm & | Earth-   | Land- | Dam & Levee | 100- Year | 500- Year |

| Name                                       | Type            | Hazard           | 500-2500M<br>Roads &<br>Rails | 500-2500M<br>Roads &<br>Rails |   | Lightning,<br>& Hail | Storm |  | Freeze | quake | slide | Failure | Flood | Flood |
|--------------------------------------------|-----------------|------------------|-------------------------------|-------------------------------|---|----------------------|-------|--|--------|-------|-------|---------|-------|-------|
| Petal St. Pipe<br>(Plants A & B)           | Utility         | HIGH             | X                             | X                             | X | X                    | X     |  | X      | X     |       |         |       |       |
| Petal Upper<br>Elem. School<br>& Safe Room | School          | Moderate         |                               |                               | X | X                    | X     |  | X      | X     |       |         |       |       |
| Runnelstown<br>Elem. School                | School          | HIGH             |                               | X                             | X | X                    | X     |  | X      | X     |       |         |       |       |
| Sunrise Utility                            | Utility         | Non-<br>burnable |                               |                               | X | X                    | X     |  | X      | X     |       |         |       |       |
| Sunrise VFD                                | Fire<br>Station | Non-<br>burnable |                               |                               | X | X                    | X     |  | X      | X     |       |         |       |       |
| Sunrise VFD<br>Station #2                  | Fire<br>Station | HIGH             |                               |                               | X | X                    | X     |  | X      | X     |       |         |       |       |
| Targa                                      | HAZ-<br>MAT     | Non-<br>burnable | X                             | X                             | X | X                    | X     |  | X      | X     |       |         | X     |       |
| W L Smith                                  | School          | Moderate         | X                             | X                             | X | X                    | X     |  | X      | X     |       |         |       |       |
| Walmart<br>Supercenter<br>#887             | Retail          | Non-<br>burnable |                               |                               | X | X                    | X     |  | X      | X     |       |         | X     |       |

FIGURE B.9: CRITICAL FACILITY LOCATIONS IN FORREST COUNTY



## 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.28** lists the population by jurisdiction according to U.S. Census 2010 and 2020 population. The results are presented as county-wide and city estimates. The total estimated population in Forrest County according to the 2023 Census data is 78,208 persons. If the increase in population continues the population increase could increase population vulnerability. Additional population estimates are presented above in B.1.

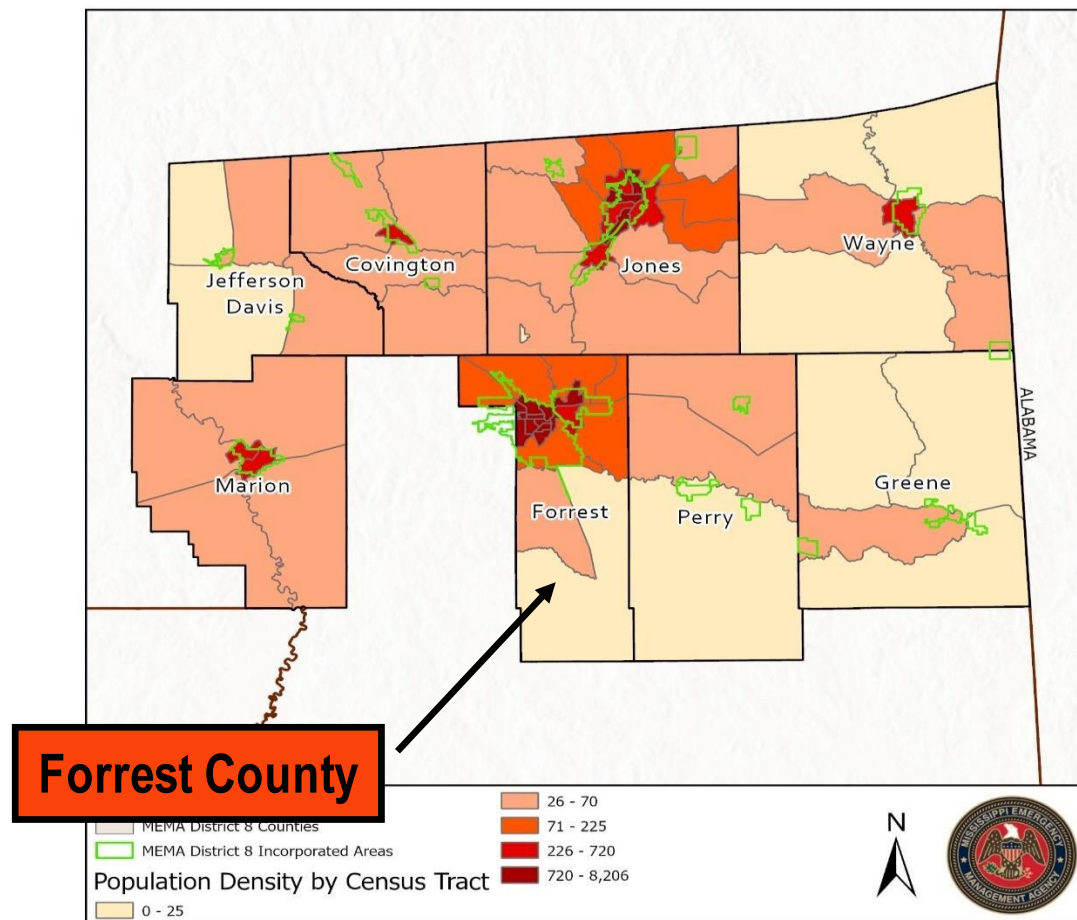
**TABLE B.28 TOTAL POPULATION IN FORREST COUNTY**

| Jurisdiction                 | 2010 Census   | 2020 Census   |
|------------------------------|---------------|---------------|
| <b>Forrest County Total:</b> | <b>75,007</b> | <b>78,158</b> |
| <i>Hattiesburg</i>           | 45,798        | 48,731        |
| <i>Petal</i>                 | 10,477        | 11,010        |
| <i>Unincorporated Area</i>   | 18,732        | 18,990        |

Source: US Census Bureau

In addition, **Figure B.10** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2020. This information has not changed since the last plan update.

**FIGURE B.10: POPULATION DENSITY IN FORREST COUNTY**



### 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.24**.

Since the previous plan, the jurisdictions are not aware of any developments in hazard prone areas that have increased or decreased vulnerability.

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

## FLOOD

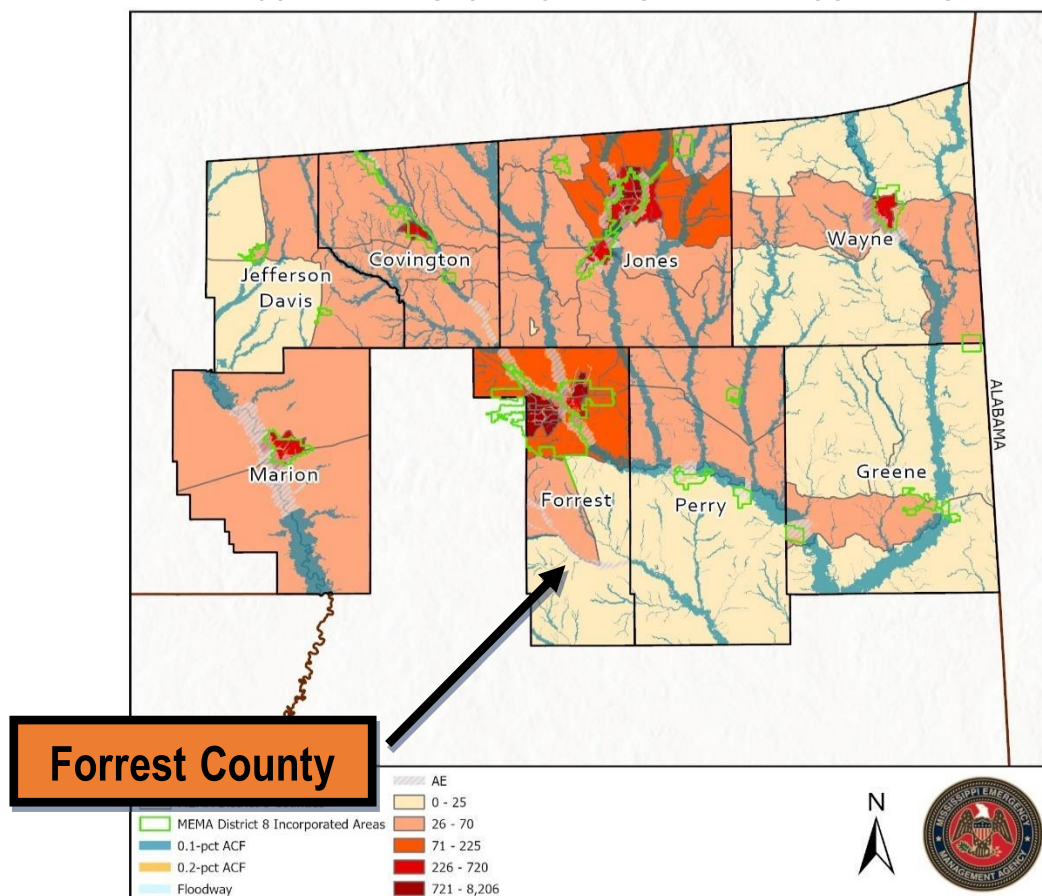
Historical evidence indicates that Forrest County is susceptible to flood events. A total of 107 flood events have been reported by the National Centers for Environmental Information resulting in \$9.142 Million in damages.

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 would have been inaccurate and the results would not have been useful.

### Social Vulnerability

Since 2020 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 B.11: POPULATION DENSITY NEAR FLOODPLAINS**



### 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.26**.

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.

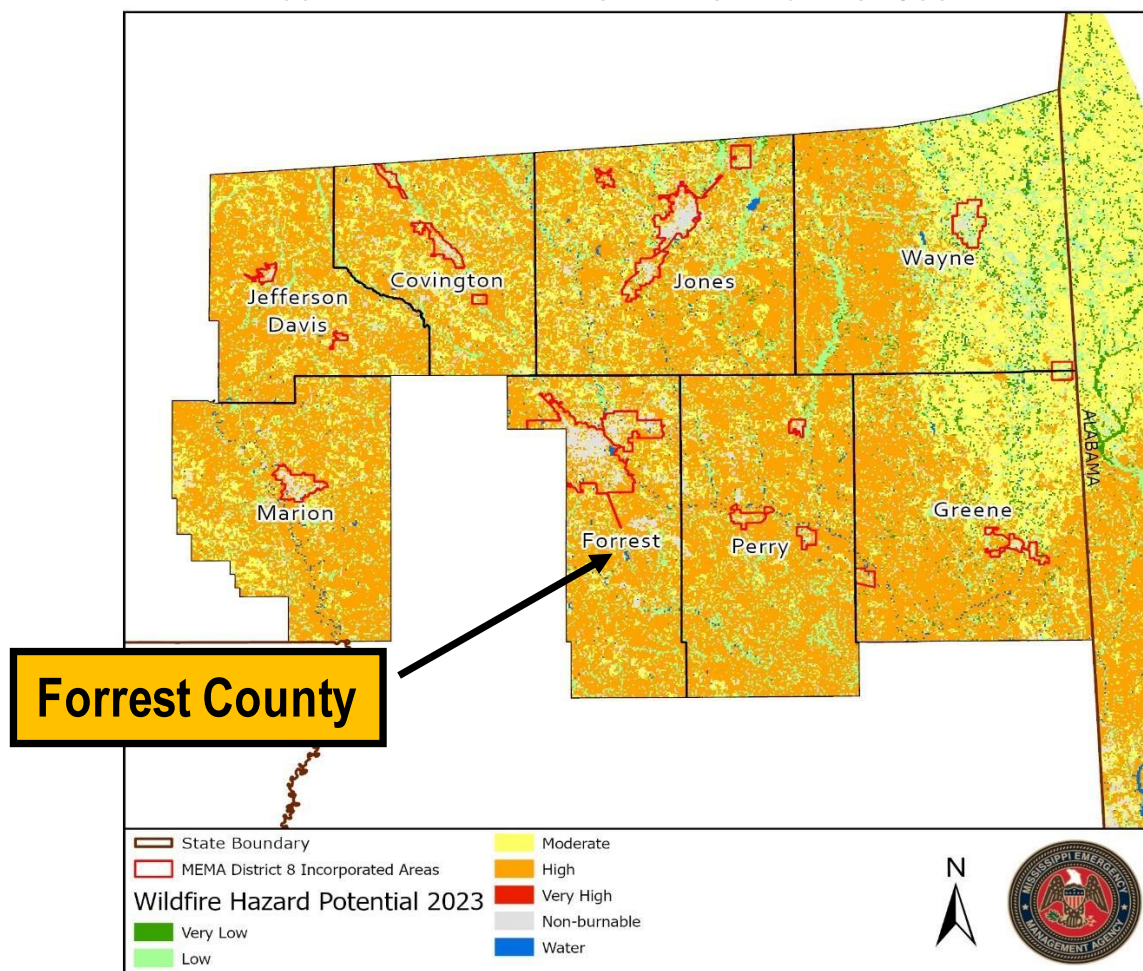
## WILDFIRE

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 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.12** shows the wildfire hazard potential for Forrest County. Most of the planning areas falls within the low to high category.

**FIGURE B.12: WILDFIRE RISK AREAS IN FORREST COUNTY**



## 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 B.26**.

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 earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS 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 scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS 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 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 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.26**.

## **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 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 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 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 estimated economic losses for the scenario event. HAZUS 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 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 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 B.26**.

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**

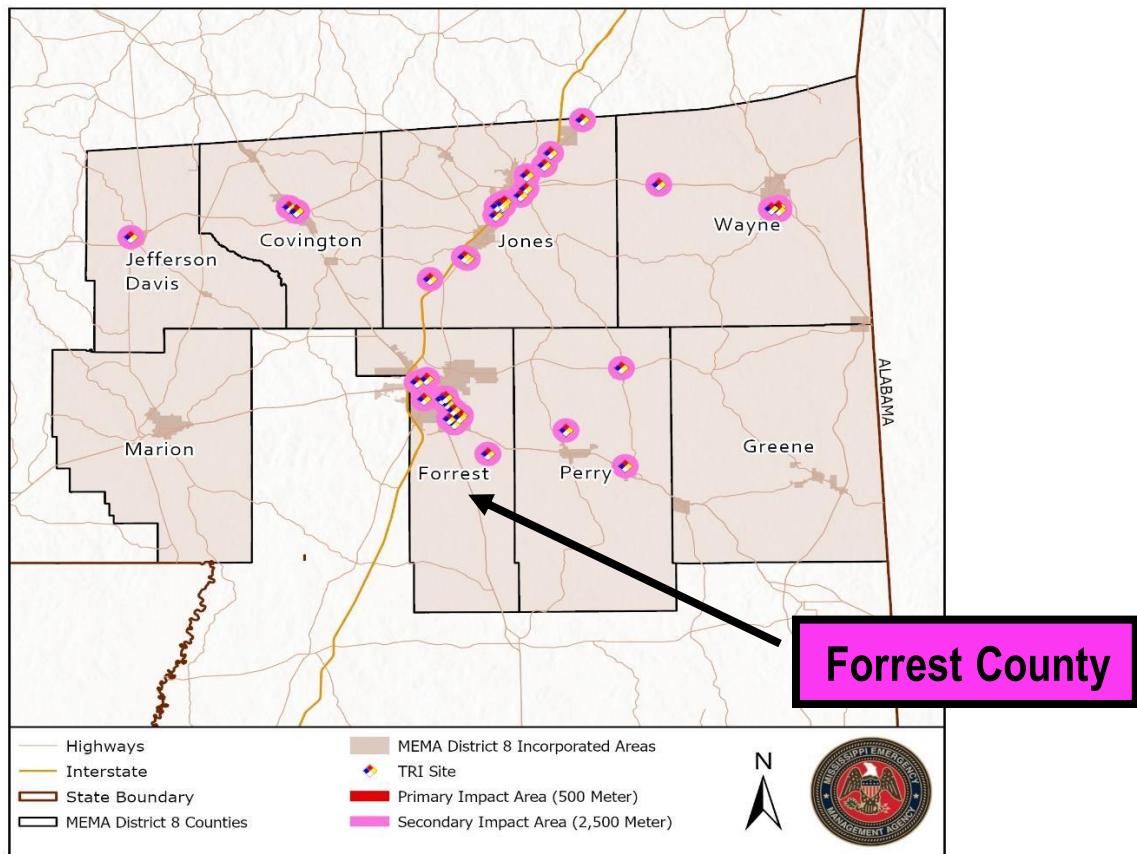
Although historical evidence and existing Toxic Release Inventory sites indicate that Forrest County is susceptible to hazardous materials events, there are few reports of damage.

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.

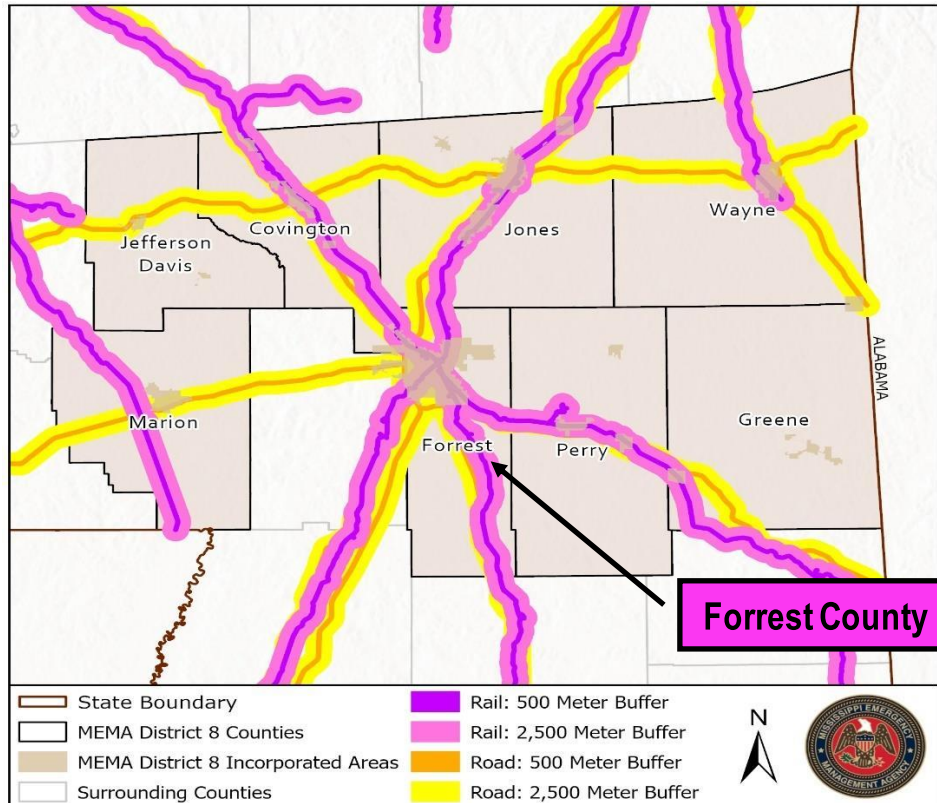
In order to conduct the vulnerability assessment for this hazard, GIS intersection analysis was used for fixed and mobile areas and parcels. In both scenarios, two sizes of buffers—500 and 2,500 meters—were used. These areas are assumed to respect the different levels of effect: immediate (primary) and 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 as shown in **Figure B.13**. 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, see **Figure B.14**.

**FIGURE B.13 : TRI SITES WITH BUFFERS IN FORREST COUNTY**





**FIGURE B.14: MOBILE HAZMAT BUFFERS IN FORREST 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 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 B.26**.

### **Mobile Analysis:**

The critical facility analysis for transportation corridors in Forrest County revealed that there are 15 critical 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 areas that are vulnerable, valued at over \$319M. A list of specific critical facilities and their associated risk can be found in **Table B.26**.

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.

## **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.29** 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.29: RELEVANT PLANS, ORDINANCES, AND PROGRAMS**

| Planning/Regulatory Tool                | Forrest County | Hattiesburg | Petal |
|-----------------------------------------|----------------|-------------|-------|
| Hazard Mitigation Plan                  | ✓              | ✓           | ✓     |
| Comprehensive Land Use Plan             |                | ✓           | ✓     |
| Floodplain Management Plan              |                | ✓           |       |
| Open Space Management Plan              | ✓              | ✓           | ✓     |
| Stormwater Management Plan/Ordinance    | ✓              | ✓           | ✓     |
| National 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 Codes                          |                | ✓           | ✓     |
| Fire Codes                              |                | ✓           | ✓     |
| National Flood Insurance Program (NFIP) | ✓              | ✓           | ✓     |
| National Community Rating System        |                | ✓           |       |

## EMERGENCY MANAGEMENT

### *Hazard Mitigation Plan*

Forrest County has previously adopted a hazard mitigation plan. The City 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 City 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 City 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 City 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 City 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 City of Hattiesburg and the Town of Petal have both adopted building codes.

## **FLOODPLAIN MANAGEMENT**

Table B.30 provides NFIP policy and claim information for each participating jurisdiction in Forrest County.

**TABLE B.30: NFIP POLICY AND CLAIM INFORMATION**

| <b>Location</b>        | <b>Date Joined NFIP</b> | <b>Current Effective Date</b> | <b>NFIP Policies in Force</b> | <b>Insurance in Force</b> | <b>Closed Claims</b> | <b>Total Payments to Date</b> |
|------------------------|-------------------------|-------------------------------|-------------------------------|---------------------------|----------------------|-------------------------------|
| <b>Forrest County†</b> | <b>12/17/2010</b>       | <b>11/19/2021</b>             | <b>7</b>                      | <b>\$762,600</b>          | <b>0</b>             | <b>\$762,600</b>              |
| <b>Hattiesburg</b>     | <b>4/3/1970</b>         | <b>11/19/2021</b>             | <b>410</b>                    | <b>\$500,296</b>          | <b>1,092</b>         | <b>\$5,285,448</b>            |
| <b>Petal</b>           | <b>12/17/2010</b>       | <b>11/19/2021</b>             | <b>0</b>                      | <b>\$0</b>                | <b>2</b>             | <b>\$4,613</b>                |

†Includes unincorporated areas of county only  
(M) – No Elevation Determined, All Zone A, C and X

### **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 City 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.31 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.31: RELEVANT STAFF / PERSONNEL RESOURCES**

| <b>Staff/Personal Resource</b>                                                                          | <b>Forrest County</b> | <b>Hattiesburg</b> | <b>Petal</b> |
|---------------------------------------------------------------------------------------------------------|-----------------------|--------------------|--------------|
| 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 HAZ-US                                                                  | ✓                     | ✓                  |              |
| 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.

### **B.4.3 Fiscal Capability**

**Table B.32** 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.32: RELEVANT FISCAL RESOURCES

| Fiscal Tool/Resource                                    | Forrest County | Hattiesburg | Petal |
|---------------------------------------------------------|----------------|-------------|-------|
| Capital Improvement Programing                          | ✓              | ✓           | ✓     |
| Community Development Block Grants (CDBG)               | ✓              | ✓           | ✓     |
| Special Purchase 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 | ✓              | ✓           | ✓     |

### 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.33**.

TABLE B.33: 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 #4 | Utilize technology to protect and develop records and data.                                           |

B.5.2 Mitigation Action Plan

The mitigation actions proposed by Forrest County, the City 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 | Completion Date (Target) | Implementation Status |

| Prevention          |                                                                                                                                               |                          |               |                                                   |           |                                                                          |                                     |                                 |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------------------------------------|-----------|--------------------------------------------------------------------------|-------------------------------------|---------------------------------|
| P-1                 | Identify high risk areas where hazards are most likely to occur.                                                                              | All                      | High          | N/A                                               | No cost   | County                                                                   | Annual Plan 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   | County, EMA District                                                     | Ongoing                             | Ongoing                         |
| P-3                 | Strictly enforce the flood damage prevention ordinance.                                                                                       | FL                       | High          | Self-funded                                       | No cost   | County Floodplain Administer                                             | Ongoing                             | Implemented and ongoing         |
| P-4                 | Consider adoption of subdivision regulations.                                                                                                 | TH, FL, HU, TS           | Medium        | Self-funded                                       | No cost   | County                                                                   | Ongoing                             | Completed and ongoing as needed |
| P-5                 | Continue to maintain and upgrade the County's drainage facilities.                                                                            | HU, TS, FL, BH           | High          | Self-funded                                       | Unknown   | County BOS & 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.    | Unknown   | County                                                                   | Ongoing                             | County is considering/ Ongoing  |
| 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                                                                   | Ongoing                             | County is considering/ Ongoing  |
| P-8                 | Support the development of a shared geographic data system for land use and site planning.                                                    | All                      | High          | Self-funded                                       | No cost   | County                                                                   | Ongoing                             | Ongoing                         |
| P-9                 | Develop a comprehensive development plan.                                                                                                     | All                      | Low           | CDBG, MSDA                                        | Unknown   | County                                                                   | Ongoing                             | County is considering           |
| P-10                | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.                                                      | All                      | Medium        | CDBG, MCDA                                        | No cost   | County                                                                   | Concurrent with prep. of Comp. Plan | County is considering/ ongoing  |
| P-11                | Address the threat of unhealthy trees that are near critical facilities.                                                                      | HW, WS, H                | Medium        | Local Funds and Grant Sources                     | TBD       | City Urban Forestry, County Road Department Planning Dept., EMA District | Ongoing                             | Ongoing                         |
| P-12                | Address the local need of debris removal and related items after a storm.                                                                     | HW, FL, Landslide, WS, H | High          | HMGP and other grant Sources                      | \$500,000 | County Road Dept., Planning Dept., and County, EMA District              | Ongoing                             | Ongoing                         |
| P-13                | Preserve classified, confidential and/or important governmental documents.                                                                    | All Hazards              | High          | Local and Grant Sources                           | TBD       | County                                                                   | Ongoing                             | Ongoing                         |
| P-14                | Rehabilitating and/or removing high and significant hazard dams from service                                                                  | Dam Failure              | High          | Local and Grant Sources                           | TBD       | County Planning and Zoning Dept.                                         | Ongoing                             | Ongoing                         |
| P-15                | Adopting and enforcing land use ordinances in dam inundation zones downstream of dams                                                         | Dam Failure              | High          | Local and Grant Sources                           | TBD       | County Planning and Zoning Dept.                                         | Ongoing                             | Ongoing                         |
| P-16                | Acquiring and/or elevating structures and/or acquiring easements in inundation zones downstream of dams                                       | Dam Failure              | High          | Local and Grant Sources                           | TBD       | County Planning and Zoning Dept.                                         | Ongoing                             | Ongoing                         |
| P-17                | Flood protection, such as berms, floodwalls, or floodproofing, in inundation zones downstream of dams                                         | Dam Failure              | High          | Local and Grant Sources                           | TBD       | County Planning and Zoning Dept.                                         | 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 cost   | County                                                                   | Ongoing                             | Implemented and ongoing         |
| PP-2                | Ensure that structures in floodplain areas are elevated.                                                                                      | FL                       | High          | Self-funded                                       | No 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 cost   | County                                                                   | Ongoing                             | Ongoing                         |
| PP-4                | Continue to retrofit public buildings and other critical facilities to                                                                        | All                      | High          | HMGP                                              | Unknown   | County                                                                   | Ongoing                             | Ongoing as funds are            |

|                                    |                                                                                                                                                                                                                 |                    |                |                                                |                    |                                                          |                        |                                       |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|------------------------------------------------|--------------------|----------------------------------------------------------|------------------------|---------------------------------------|
|                                    | withstand natural hazards.                                                                                                                                                                                      |                    |                |                                                |                    |                                                          |                        | available                             |
| 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                | Ongoing pending available funds       |
| PP-6                               | Actively pursue and buy those properties that are considered repetitive loss properties.                                                                                                                        | All                | High           | HMGP, PDM, FMA Self-funded                     | Unknown            | County                                                   | Ongoing                | Ongoing                               |
| <b>Natural Resource Protection</b> |                                                                                                                                                                                                                 |                    |                |                                                |                    |                                                          |                        |                                       |
| NRP-1                              | Preserve natural wetlands and riparian areas through acquisition of conversation easements.                                                                                                                     | HU, TS, FL         | Low to Medium  | Donation                                       | Low to no cost     | MS Land Trust, Land Trust for MS Coastal Plain, & County | Ongoing                | Ongoing pending available funds       |
| <b>Emergency Services</b>          |                                                                                                                                                                                                                 |                    |                |                                                |                    |                                                          |                        |                                       |
| 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 and MEMA                           | Low to no cost     | EMA District                                             | Ongoing                | Ongoing                               |
| ES-2                               | Establish a notification procedure for populations in high-risk areas.                                                                                                                                          | All                | Medium         | Self-funded                                    | No additional cost | County, EMA District                                     | Ongoing                | Ongoing                               |
| ES-3                               | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                                         | All                | High           | HMGP                                           | Unknown            | County, EMA District                                     | Ongoing                | Ongoing                               |
| ES-4                               | Explore potential sites for a new shelter and/or special needs shelter.                                                                                                                                         | TO, HU, TS, FL     | High           | HMGP                                           | Unknown            | County, EMA District                                     | Ongoing                | Ongoing                               |
| ES-5                               | Improve disaster communication systems within the County.                                                                                                                                                       | All                | High           | Grants, BRIC, HMGP Local Funds                 | Unknown            | County, EMA District                                     |                        | Ongoing                               |
| ES-6                               | Consider generators for local radio station service areas and /or other critical facilities.                                                                                                                    | TO, HU, TS         | High           | HMGP                                           | Unknown            | County, EMA District                                     | Contingent on funding  | Ongoing pending available funds       |
| ES-7                               | Install warning sirens in the County.                                                                                                                                                                           | TO, HU             | High           | HMGP                                           | Unknown            | County, EMA District                                     | Contingent on funding  | Ongoing pending available funds       |
| ES-8                               | Explore upgrade/enhancement of 911 system in Forrest County.                                                                                                                                                    | All                | Medium         | HMGP                                           | Unknown            | County, EMA District                                     | Contingent on funding  | Ongoing pending available funds       |
| ES-9                               | Explore potential to install Reverse 911 system.                                                                                                                                                                | All                | Low to Medium  | HMGP                                           | Unknown            | County, EMA District                                     | 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, EMA District                                 | Ongoing                | Ongoing                               |
| ES-11                              | Enhance identification of evacuation routes through the distribution of MDOT maps.                                                                                                                              | FL, HU, TS, Others | High           | Self-funded                                    | No additional cost | EMA District                                             | Ongoing                | Ongoing                               |
| ES-12                              | Ensure continuity of utility services for public buildings and other critical facilities.                                                                                                                       | All                | High           | HGMP                                           | Unknown            | County                                                   | Ongoing                | Ongoing pending available funds       |
| ES-13                              | Develop a government services continuity plan.                                                                                                                                                                  | All                | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant        | Unknown            | County                                                   | Ongoing/ Annual Review | Ongoing pending available funds       |
| ES-14                              | Host a meeting to review Forrest County Comprehensive Emergency Management Plan.                                                                                                                                | TT                 | Medium         | Self-funded                                    | No additional cost | County, EMA District                                     | Ongoing                | Completed and Ongoing                 |
| ES-15                              | Actively search for and identify funding sources for the enhancement of emergency response abilities of the Fire and Sheriff's Departments.                                                                     | TT                 | Medium to High | DHS, SAFER, COPS, FIRE, others                 | Unknown            | County                                                   | Ongoing                | Implemented as Funds become available |

|                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                     |                      |               |                                               |                    |                      |              |                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------|-----------------------------------------------|--------------------|----------------------|--------------|---------------------------------------|
| ES-16                                                                                                                                                                                                                                                                                                                                                                                               | Adoption of building codes in Forrest County.                                                                                                                       | All Hazards          | Medium        | Local                                         | TBD                | County               | Ongoing      | Deferred                              |
| <b>Structural Projects</b>                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                     |                      |               |                                               |                    |                      |              |                                       |
| 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 Cost            | County               | Ongoing      | Ongoing as needed                     |
| <b>Public Education and Awareness</b>                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                     |                      |               |                                               |                    |                      |              |                                       |
| 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 available funds       |
| PEA-2                                                                                                                                                                                                                                                                                                                                                                                               | Provide education and outreach materials to citizens and visitors.                                                                                                  | All                  | High          | Self-funded                                   | No Cost            | EMA District         | Ongoing      | Ongoing, if funds available           |
| PEA-3                                                                                                                                                                                                                                                                                                                                                                                               | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High          | Self-funded, COPS, FIRE                       | Low or no cost     | EMA District         | Ongoing      | 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 Hazards | High          | Self-funded                                   | No additional cost | County, EMA District | Upon Request | Ongoing – contingent on funding       |
| PEA-5                                                                                                                                                                                                                                                                                                                                                                                               | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High          | N/A                                           | No additional cost | County, EMA District | Ongoing      | Implemented/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 | Unknown            | County               | Ongoing      | The County is considering joining CRS |
| PEA-7                                                                                                                                                                                                                                                                                                                                                                                               | Encourage businesses to develop business continuity or contingency operating plans.                                                                                 | CH                   | High          | DHS, SAFER, COPS, FIRE, Others                | TBD                | County               | Ongoing      | Ongoing – contingent on funding       |
| PEA-8                                                                                                                                                                                                                                                                                                                                                                                               | Discourage development within the Special Flood Hazard Area and in the floodway.                                                                                    | FL                   | Medium        | HMGP                                          | TBD                | County               | Ongoing      | Ongoing                               |
| FL = Flood    HU = Hurricane    TS = Tropical Storm    TO = Tornado    TH = Thunderstorm    BH = Biological Hazards<br>HW = High Winds    TT = Transportation/Technological Hazards    RH = Roadway Hazards    CH = Civil Hazards<br>P = Pandemic    WS = Winter Storm    H=Hail<br>EMA District = Forrest County Emergency Management District    County BOS = Forrest County Board of Supervisors |                                                                                                                                                                     |                      |               |                                               |                    |                      |              |                                       |

## City of Hattiesburg Mitigation Action Plan

| Action #          | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|-------------------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
| <b>Prevention</b> |             |                     |                   |                 |                |                   |                          |                       |



**ANNEX B: FORREST COUNTY**

|                            |                                                                                                                                               |                          |               |                                                   |           |                                                                         |                                     |                                                                                                                                                                                                                             |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------------------------------------|-----------|-------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>P-1</b>                 | Identify high risk areas where hazards are most likely to occur.                                                                              | All                      | High          | N/A                                               | No cost   | County                                                                  | Annual Plan Review                  | Ongoing                                                                                                                                                                                                                     |
| <b>P-2</b>                 | Site-locate vulnerable population on a County-wide map.                                                                                       | Multiple                 | High          | Area Agency on Aging, USDA Rural Dev., Cops, FIRE | Unknown   | County, EMA District                                                    | Ongoing                             | Ongoing                                                                                                                                                                                                                     |
| <b>P-3</b>                 | Strictly enforce the flood damage prevention ordinance.                                                                                       | FL                       | High          | Self-funded                                       | No cost   | County Floodplain Administer                                            | Ongoing                             | Ongoing                                                                                                                                                                                                                     |
| <b>P-4</b>                 | Strictly enforce of subdivision regulations concerning developments in flood hazard areas.                                                    | TH, FL, HU, TS           | Medium        | Self-funded                                       | No cost   | County                                                                  | Ongoing                             | Completed and ongoing as needed                                                                                                                                                                                             |
| <b>P-5</b>                 | Continue to maintain and upgrade the County's drainage facilities.                                                                            | HU, TS, FL, BH           | High          | Self-funded                                       | Unknown   | County BOS & Road Crews                                                 | Annual Review                       | Ongoing as funding is available                                                                                                                                                                                             |
| <b>P-6</b>                 | Consider adoption of a comprehensive drainage plan.                                                                                           | FL, TS, HU               | Medium        | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.    | Unknown   | County                                                                  | Ongoing                             | The City is considering/ Ongoing                                                                                                                                                                                            |
| <b>P-7</b>                 | 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                                                                  | Ongoing                             | The City is considering/ Ongoing                                                                                                                                                                                            |
| <b>P-8</b>                 | Support the development of a shared geographic data system for land use and site planning.                                                    | All                      | High          | Self-funded                                       | No cost   | County                                                                  | Ongoing                             | Ongoing                                                                                                                                                                                                                     |
| <b>P-9</b>                 | Develop a comprehensive development plan.                                                                                                     | All                      | Low           | CDBG, MSDA                                        | Unknown   | County                                                                  | Ongoing                             | Process will begin in 2025                                                                                                                                                                                                  |
| <b>P-10</b>                | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.                                                      | All                      | Medium        | CDBG, MCDA                                        | No cost   | County                                                                  | Concurrent with prep. of Comp. Plan | Completed & ongoing                                                                                                                                                                                                         |
| <b>P-11</b>                | Address the threat of unhealthy trees that are near critical facilities.                                                                      | HW, WS, H                | Medium        | Local Funds and Grant Sources                     | TBD       | City Urban Forestry, County Rd. Department Planning Dept., EMA District | Ongoing                             | Ongoing                                                                                                                                                                                                                     |
| <b>P-12</b>                | Address the local need of debris removal and related items after a storm.                                                                     | HW, FL, Landslide, WS, H | High          | HMGP and other grant Sources                      | \$500,000 | County Road Dept., Planning Dept., and County EMA District              | Ongoing                             | Ongoing                                                                                                                                                                                                                     |
| <b>P-13</b>                | Preserve classified, confidential and/or important governmental documents.                                                                    | All Hazards              | High          | Local and Grant Sources                           | TBD       | County                                                                  | Ongoing                             | Ongoing                                                                                                                                                                                                                     |
| <b>Property Protection</b> |                                                                                                                                               |                          |               |                                                   |           |                                                                         |                                     |                                                                                                                                                                                                                             |
| <b>PP-1</b>                | 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 cost   | County                                                                  | Ongoing                             | Implemented and ongoing                                                                                                                                                                                                     |
| <b>PP-2</b>                | Ensure that structures in floodplain areas are elevated.                                                                                      | FL                       | High          | Self-funded                                       | No cost   | County                                                                  | 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. |
| <b>PP-3</b>                | Ensure that new public buildings are designed and built to hurricane resistant building codes.                                                | HU, TS, TO, HW           | High          | Self-funded                                       | No cost   | County                                                                  | Ongoing                             | Ongoing                                                                                                                                                                                                                     |
| <b>PP-4</b>                | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                             | All                      | High          | HMGP                                              | Unknown   | County                                                                  | Ongoing                             | Ongoing as funds are available                                                                                                                                                                                              |
|                            | Ensure secure operation of water                                                                                                              |                          |               | HMGP, USDA Rural Dev.,                            | Unknown   |                                                                         |                                     | Ongoing pending                                                                                                                                                                                                             |

|                                    |                                                                                                                                                                                                                 |                    |               |                                         |                    |                                                     |                        |                                               |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|-----------------------------------------|--------------------|-----------------------------------------------------|------------------------|-----------------------------------------------|
| PP-5                               | wells, water tanks and wastewater treatment facilities.                                                                                                                                                         | All                | High          | CDBG, Small Muni. Grant                 |                    | County                                              | Ongoing                | available funds                               |
| PP-6                               | Actively pursue and buy those properties that are considered repetitive loss properties.                                                                                                                        | All                | High          | HMGP, PDM, FMA Self-funded              | Unknown            | County                                              | Ongoing                | Ongoing                                       |
| <b>Natural Resource Protection</b> |                                                                                                                                                                                                                 |                    |               |                                         |                    |                                                     |                        |                                               |
| NRP-1                              | Preserve natural wetlands and riparian areas through acquisition of conversation easements.                                                                                                                     | HU, TS, FL         | Low to Medium | Donation                                | Low to no cost     | MS Land Trust, Land Trust for MS Coastal Plain, Co. | Ongoing                | Ongoing pending available funds               |
| <b>Emergency Services</b>          |                                                                                                                                                                                                                 |                    |               |                                         |                    |                                                     |                        |                                               |
| 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 and MEMA                    | Low to no cost     | EMA District                                        | Ongoing                | Ongoing                                       |
| ES-2                               | Establish a notification procedure for populations in high-risk areas.                                                                                                                                          | All                | Medium        | Self-funded                             | No additional cost | County, EMA District                                | Ongoing                | Ongoing                                       |
| ES-3                               | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                                         | All                | High          | HMGP                                    | Unknown            | County, EMA District                                | Ongoing                | Ongoing                                       |
| ES-4                               | Explore potential sites for a new shelter and/or special needs shelter.                                                                                                                                         | TO, HU, TS, FL     | High          | HMGP                                    | Unknown            | County, EMA District                                | Ongoing                | Ongoing                                       |
| ES-5                               | Improve disaster communication systems within the County.                                                                                                                                                       | All                | High          | Grants, BRIC, HMGP Local Funds          | Unknown            | County, EMA District                                |                        | Ongoing                                       |
| ES-6                               | Consider generators for local radio station service areas and /or other critical facilities.                                                                                                                    | TO, HU, TS         | High          | HMGP                                    | Unknown            | County, EMA District                                | Contingent on funding  | Ongoing pending available funds               |
| ES-7                               | Install warning sirens in the County.                                                                                                                                                                           | TO, HU             | High          | HMGP                                    | Unknown            | County, EMA District                                | Contingent on funding  | Implemented & Ongoing pending available funds |
| ES-8                               | Explore upgrade/enhancement of 911 system in Forrest County.                                                                                                                                                    | All                | Medium        | HMGP                                    | Unknown            | County, EMA District                                | Contingent on funding  | Ongoing pending available funds               |
| ES-9                               | Explore potential to install Reverse 911 system.                                                                                                                                                                | All                | Low to Medium | HMGP                                    | Unknown            | County, EMA District                                | 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, EMA District                            | Ongoing                | Ongoing                                       |
| ES-11                              | Enhance identification of evacuation routes through the distribution of MDOT maps.                                                                                                                              | FL, HU, TS, Others | High          | Self-funded                             | No additional cost | EMA District                                        | Ongoing                | Ongoing                                       |
| ES-12                              | Ensure continuity of utility services for public buildings and other critical facilities.                                                                                                                       | All                | High          | HMGP                                    | Unknown            | County                                              | Ongoing                | Ongoing pending available funds               |
| ES-13                              | Develop a government services continuity plan.                                                                                                                                                                  | All                | Medium        | USDA Rural Dev. CDBG, Small Muni. Grant | Unknown            | County                                              | Ongoing/ Annual Review | Ongoing pending available funds               |
| ES-14                              | Host a meeting to review Forrest County Comprehensive Emergency Management Plan.                                                                                                                                | TT                 | Medium        | Self-funded                             | No additional cost | County, EMA District                                | Ongoing                | Completed and 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      | Implemented as Funds become available               |
| ES-16                                                                                                                                                                                                                                                                                                                                                                                               | Adoption of building codes in Forrest County.                                                                                                                       | All Hazards          | Medium         | Local                                         | TBD                | County               | Ongoing      | Deferred                                            |
| <b>Structural Projects</b>                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                     |                      |                |                                               |                    |                      |              |                                                     |
| 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 Cost            | County               | Ongoing      | Ongoing as needed                                   |
| <b>Public Education and Awareness</b>                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                     |                      |                |                                               |                    |                      |              |                                                     |
| 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 available funds                     |
| PEA-2                                                                                                                                                                                                                                                                                                                                                                                               | Provide education and outreach materials to citizens and visitors.                                                                                                  | All                  | High           | Self-funded                                   | No Cost            | EMA District         | Ongoing      | Ongoing, if funds available                         |
| PEA-3                                                                                                                                                                                                                                                                                                                                                                                               | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High           | Self-funded, COPS, FIRE                       | Low or no cost     | EMA District         | Ongoing      | Ongoing, if funds available.                        |
| PEA-4                                                                                                                                                                                                                                                                                                                                                                                               | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High           | Self-funded                                   | No additional cost | County, EMA District | Upon Request | Ongoing – contingent on funding                     |
| PEA-5                                                                                                                                                                                                                                                                                                                                                                                               | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High           | N/A                                           | No additional cost | County, EMA District | Ongoing      | Implemented/ 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 | Unknown            | County               | Ongoing      | A CRS Community (Class 8), pursuing a better rating |
| PEA-7                                                                                                                                                                                                                                                                                                                                                                                               | Encourage businesses to develop business continuity or contingency operating plans.                                                                                 | CH                   | High           | DHS, SAFER, COPS, FIRE, Others                | TBD                | County               | Ongoing      | Ongoing – contingent on funding                     |
| PEA-8                                                                                                                                                                                                                                                                                                                                                                                               | Discourage development within the Special Flood Hazard Area and in the floodway.                                                                                    | FL                   | Medium         | HMGP                                          | TBD                | County               | Ongoing      | Ongoing                                             |
| FL = Flood    HU = Hurricane    TS = Tropical Storm    TO = Tornado    TH = Thunderstorm    BH = Biological Hazards<br>HW = High Winds    TT = Transportation/Technological Hazards    RH = Roadway Hazards    CH = Civil Hazards<br>P = Pandemic    WS = Winter Storm    H=Hail<br>EMA District = Forrest County Emergency Management District    County BOS = Forrest County Board of Supervisors |                                                                                                                                                                     |                      |                |                                               |                    |                      |              |                                                     |

## City of Petal Mitigation Action Plan

| Action # | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|

| Prevention          |                                                                                                                                               |                          |               |                                                   |           |                                                                         |                                     |                                                                                                                                                                                                                             |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------------------------------------|-----------|-------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P-1                 | Identify high risk areas where hazards are most likely to occur.                                                                              | All                      | High          | N/A                                               | No cost   | County                                                                  | Annual Plan 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   | County, EMA District                                                    | Ongoing                             | Ongoing                                                                                                                                                                                                                     |
| P-3                 | Strictly enforce the flood damage prevention ordinance.                                                                                       | FL                       | High          | Self-funded                                       | No cost   | County Floodplain Administer                                            | Ongoing                             | Ongoing                                                                                                                                                                                                                     |
| P-4                 | Strictly enforce of subdivision regulations concerning developments in flood hazard areas.                                                    | TH, FL, HU, TS           | Medium        | Self-funded                                       | No cost   | County                                                                  | Ongoing                             | Completed & ongoing as needed                                                                                                                                                                                               |
| P-5                 | Continue to maintain and upgrade the County's drainage facilities.                                                                            | HU, TS, FL, BH           | High          | Self-funded                                       | Unknown   | County BOS & 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.    | Unknown   | County                                                                  | Ongoing                             | The City is considering/ Ongoing                                                                                                                                                                                            |
| 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                                                                  | Ongoing                             | The City is considering/ Ongoing                                                                                                                                                                                            |
| P-8                 | Support the development of a shared geographic data system for land use and site planning.                                                    | All                      | High          | Self-funded                                       | No cost   | County                                                                  | Ongoing                             | Ongoing                                                                                                                                                                                                                     |
| P-9                 | Develop a comprehensive development plan.                                                                                                     | All                      | Low           | CDBG, MSDA                                        | Unknown   | County                                                                  | Ongoing                             | The City is considering                                                                                                                                                                                                     |
| P-10                | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.                                                      | All                      | Medium        | CDBG, MCDA                                        | No cost   | County                                                                  | Concurrent with prep. of Comp. Plan | The City is considering                                                                                                                                                                                                     |
| P-11                | Address the threat of unhealthy trees that are near critical facilities.                                                                      | HW, WS, H                | Medium        | Local Funds and Grant Sources                     | TBD       | City Urban Forestry, County Rd. Department Planning Dept., EMA District | Ongoing                             | Ongoing                                                                                                                                                                                                                     |
| P-12                | Address the local need of debris removal and related items after a storm.                                                                     | HW, FL, Landslide, WS, H | High          | HMGP and other grant Sources                      | \$500,000 | County Road Dept., Planning Dept., and County, EMA District             | Ongoing                             | Ongoing                                                                                                                                                                                                                     |
| P-13                | Preserve classified, confidential and/or important governmental documents.                                                                    | 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           | Medium        | Self-funded                                       | No cost   | County                                                                  | Ongoing                             | Implemented and ongoing                                                                                                                                                                                                     |
| PP-2                | Ensure that structures in floodplain areas are elevated.                                                                                      | FL                       | High          | Self-funded                                       | No cost   | County                                                                  | 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 cost   | County                                                                  | Ongoing                             | Ongoing                                                                                                                                                                                                                     |
| PP-4                | Continue to retrofit public buildings and other critical facilities to                                                                        | All                      | High          | HMGP                                              | Unknown   | County                                                                  | Ongoing                             | Ongoing as funds are                                                                                                                                                                                                        |

|                                    |                                                                                                                                                                                                                 |                    |               |                                                |                    |                                                     |                        |                                               |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|------------------------------------------------|--------------------|-----------------------------------------------------|------------------------|-----------------------------------------------|
|                                    | withstand natural hazards.                                                                                                                                                                                      |                    |               |                                                |                    |                                                     |                        | available                                     |
| 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                | Ongoing pending available funds               |
| PP-6                               | Actively pursue and buy those properties that are considered repetitive loss properties.                                                                                                                        | All                | High          | HMGP, PDM, FMA Self-funded                     | Unknown            | County                                              | Ongoing                | Ongoing                                       |
| <b>Natural Resource Protection</b> |                                                                                                                                                                                                                 |                    |               |                                                |                    |                                                     |                        |                                               |
| NRP-1                              | Preserve natural wetlands and riparian areas through acquisition of conservation easements.                                                                                                                     | HU, TS, FL         | Low to Medium | Donation                                       | Low to no cost     | MS Land Trust, Land Trust for MS Coastal Plain, Co. | Ongoing                | Ongoing pending available funds               |
| <b>Emergency Services</b>          |                                                                                                                                                                                                                 |                    |               |                                                |                    |                                                     |                        |                                               |
| 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 and MEMA                           | Low to no cost     | EMA District                                        | Ongoing                | Ongoing                                       |
| ES-2                               | Establish a notification procedure for populations in high-risk areas.                                                                                                                                          | All                | Medium        | Self-funded                                    | No additional cost | County, EMA District                                | Ongoing                | Ongoing                                       |
| ES-3                               | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                                         | All                | High          | HMGP                                           | Unknown            | County, EMA District                                | Ongoing                | Ongoing                                       |
| ES-4                               | Explore potential sites for a new shelter and/or special needs shelter.                                                                                                                                         | TO, HU, TS, FL     | High          | HMGP                                           | Unknown            | County, EMA District                                | Ongoing                | Ongoing                                       |
| ES-5                               | Improve disaster communication systems within the County.                                                                                                                                                       | All                | High          | Grants, BRIC, HMGP, Local Funds                | Unknown            | County, EMA District                                |                        | Ongoing                                       |
| ES-6                               | Consider generators for local radio station service areas and /or other critical facilities.                                                                                                                    | TO, HU, TS         | High          | HMGP                                           | Unknown            | County, EMA District                                | Contingent on funding  | Ongoing pending available funds               |
| ES-7                               | Install warning sirens in the County.                                                                                                                                                                           | TO, HU             | High          | HMGP                                           | Unknown            | County, EMA District                                | Contingent on funding  | Implemented & Ongoing pending available funds |
| ES-8                               | Explore upgrade/enhancement of 911 system in Forrest County.                                                                                                                                                    | All                | Medium        | HMGP                                           | Unknown            | County, EMA District                                | Contingent on funding  | Ongoing pending available funds               |
| ES-9                               | Explore potential to install Reverse 911 system.                                                                                                                                                                | All                | Low to Medium | HMGP                                           | Unknown            | County, EMA District                                | 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, EMA District                            | Ongoing                | Ongoing                                       |
| ES-11                              | Enhance identification of evacuation routes through the distribution of MDOT maps.                                                                                                                              | FL, HU, TS, Others | High          | Self-funded                                    | No additional cost | EMA District                                        | Ongoing                | Ongoing                                       |
| ES-12                              | Ensure continuity of utility services for public buildings and other critical facilities.                                                                                                                       | All                | High          | HMGP                                           | Unknown            | County                                              | Ongoing                | Ongoing pending available funds               |
| ES-13                              | Develop a government services continuity plan.                                                                                                                                                                  | All                | Medium        | USDA Rural Dev. CDBG, Small Muni. Grant        | Unknown            | County                                              | Ongoing/ Annual Review | Ongoing pending available funds               |
|                                    | Host a meeting to review Forrest County                                                                                                                                                                         |                    |               |                                                | No                 | County, EMA                                         |                        | Completed                                     |



|                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                     |                      |                |                                               |                    |                      |              |                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------|-----------------------------------------------|--------------------|----------------------|--------------|---------------------------------------|
| ES-14                                                                                                                                                                                                                                                                                                                                                                                               | Comprehensive Emergency Management Plan.                                                                                                                            | TT                   | Medium         | Self-funded                                   | additional cost    | District             | Ongoing      | and 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      | Implemented as Funds become available |
| ES-16                                                                                                                                                                                                                                                                                                                                                                                               | Adoption of building codes in Forrest County.                                                                                                                       | All Hazards          | Medium         | Local                                         | TBD                | County               | Ongoing      | Deferred                              |
| <b>Structural Projects</b>                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                     |                      |                |                                               |                    |                      |              |                                       |
| 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 Cost            | County               | Ongoing      | Ongoing as needed                     |
| <b>Public Education and Awareness</b>                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                     |                      |                |                                               |                    |                      |              |                                       |
| 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 available funds       |
| PEA-2                                                                                                                                                                                                                                                                                                                                                                                               | Provide education and outreach materials to citizens and visitors.                                                                                                  | All                  | High           | Self-funded                                   | No Cost            | EMA District         | Ongoing      | Ongoing, if funds available           |
| PEA-3                                                                                                                                                                                                                                                                                                                                                                                               | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High           | Self-funded, COPS, FIRE                       | Low or no cost     | EMA District         | Ongoing      | Ongoing, if funds available.          |
| PEA-4                                                                                                                                                                                                                                                                                                                                                                                               | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High           | Self-funded                                   | No additional cost | County, EMA District | Upon Request | Ongoing – contingent on funding       |
| PEA-5                                                                                                                                                                                                                                                                                                                                                                                               | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High           | N/A                                           | No additional cost | County, EMA District | Ongoing      | Implemented/ 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 | Unknown            | County               | Ongoing      | The City is considering joining CRS   |
| PEA-7                                                                                                                                                                                                                                                                                                                                                                                               | Encourage businesses to develop business continuity or contingency operating plans.                                                                                 | CH                   | High           | DHS, SAFER, COPS, FIRE, Others                | TBD                | County               | Ongoing      | Ongoing – contingent on funding       |
| PEA-8                                                                                                                                                                                                                                                                                                                                                                                               | Discourage development within the Special Flood Hazard Area and in the floodway.                                                                                    | FL                   | Medium         | HMGP                                          | TBD                | County               | Ongoing      | Ongoing – contingent on funding       |
| FL = Flood    HU = Hurricane    TS = Tropical Storm    TO = Tornado    TH = Thunderstorm    BH = Biological Hazards<br>HW = High Winds    TT = Transportation/Technological Hazards    RH = Roadway Hazards    CH = Civil Hazards<br>P = Pandemic    WS = Winter Storm    H=Hail<br>EMA District = Forrest County Emergency Management District    County BOS = Forrest County Board of Supervisors |                                                                                                                                                                     |                      |                |                                               |                    |                      |              |                                       |

# Annex C

## Greene County

This annex includes jurisdiction-specific information for Greene County and its participating municipalities. It consists of the following five subsections:

- ★ C.1 Greene County Community Profile
- ★ C.2 Greene County Risk Assessment
- ★ C.3 Greene County Vulnerability Assessment
- ★ C.4 Greene County Capability Assessment
- ★ C.5 Greene County Mitigation Strategy

### C.1 GREENE COUNTY COMMUNITY PROFILE

#### C.1.1 Geography and the Environment

Greene County is located in the southeastern part of the State of Mississippi; the county is almost a perfect rectangle. The county contains 713 square miles, or 465,920 acres, and 16<sup>th</sup> largest county in Mississippi. The boundaries are as follows: On the north by Wayne County; on the east by Washington County and Mobile County Alabama; on the south by George County and on the west by Perry County. There are three municipalities, The Town of McLain, The Town of State Line, Town of Leakesville in Greene County. The remaining population resides in unincorporated communities and unincorporated rural areas. Leakesville, the county seat, is located approximately 144 miles south of Jackson, Mississippi and approximately 56 miles northwest of Mobile, Alabama.

Greene County lies within the Gulf Coastal plain province and in the Long Leaf Pine region in Mississippi, locally called the “Piney Woods” country. The upland soils of the county are derived from two main classes of coastal plain materials: beds of sandy clay and beds of heavy clay. The two major water sources in Greene County are the Leaf River and the Chickasawhay River. Desoto National Forest also spans into Greene County.

The climate of Greene County is mild with mean annual temperatures in the upper 60’s. Average winter temperatures range from 50 to 60 degrees Fahrenheit with summer temperatures ranging from 85 to 95 degrees Fahrenheit. Rainfall averages approximately 62 inches annually with the majority of the accumulation in July through September. Wind speeds are generally less than 10 miles per hour, but often increase during storms. Thunderstorms occur frequently and are sometimes accompanied by strong to severe winds, including tornadoes.

The most pleasant months of the year for Greene County are April, October and May. In Greene County, there are 5 comfortable months with high temperatures in the range of 70-85°. July is the hottest month for Greene County with an average high temperature of 91°, which ranks it as warmer than most places in Mississippi. December is the snowiest month in Greene County with 0.1 inches of snow, and no months of the year have significant snowfall. The most uncomfortably humid months are June, July, and August.

|                         | Jan | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|-------------------------|-----|------|------|------|-----|------|------|------|-------|------|------|------|
| Average <b>High</b>     | 59  | 64   | 71   | 78   | 85  | 90   | 91   | 91   | 88    | 80   | 69   | 63   |
| Average <b>Lows</b>     | 42  | 46   | 52   | 58   | 65  | 72   | 74   | 74   | 70    | 60   | 49   | 46   |
| Average <b>Rainfall</b> | 4.9 | 6.0  | 5.5  | 4.9  | 5.6 | 6.2  | 7.0  | 5.71 | 5.6   | 3.6  | 3.8  | 5.8  |

**FIGURE C.1: GREENE COUNTY ORIENTATION MAP**

## C.1.2 Purpose

The purpose of the Greene County Hazard Mitigation Plan is to improve the County's level of disaster preparedness and resilience to natural and manmade disasters. To identify hazards and analyze the risks associated with each hazard. To significantly reduce the risk of loss of life, injuries, economic cost, and destruction of natural and cultural resources that result from natural hazards. To assess the community's vulnerability to the identified hazards and develop community goals for an achievable mitigation strategy. To substantially increase public awareness of natural hazards risks. To encourage the adoption of ordinances that help mitigate risks, such as Comprehensive Zoning Ordinances, Subdivision Regulations, Comprehensive Land Use Plans, Flood Zone Ordinances, and Building and Fire Prevention Codes.

## C.1.3 History

Greene County, the first of two counties established by an act of December 9, 1811, was created from the southeastern part of Wayne County. The name was spelled Greene in the establishing act but was spelled Green in many other early acts. Greene County was once part of the Choctaw Indian Nation and through a series of treaties became part of the Mississippi Territory and was opened for settlement in the early 1800's. Greene County was named after General Nathaniel Greene, a Revolutionary War hero. Leakesville, as recited in the act of January 26, 1826, was named "in honor of the memory of the late Governor Walter Leake. Leakesville is the county seat of Greene County. Located in the Pine Belt in the Southeastern portion of Mississippi, Leakesville was established circa 1826 as the new county seat of Greene County by the legislature. The town was named in honor of Walter Leake the first territorial governor of Mississippi.

The site of Leakesville was chosen due to its location along the Chickasawhay River and the Paulding Road, one of the first Federal Roads to traverse the Piney Woods. During its early days the river served as the primary highway for commerce, with small steamboats trading at Leakesville, and ascending farther north. The principal industry during the early years was lumbering, farming, stock-raising, and turpentine. In 1903 the first railroad connection was established, when the Vinegar Bend Lumber Company extended their line to Leakesville, which was subsequently, connected to a line running to Pascagoula. The railroad caused an expansion of the already burgeoning timber industry causing the population to grow and calls for incorporation. Leakesville was incorporated as a Town in 1906 with J.E. Alderman, as the first mayor. Since incorporation the city has grown from 123 residents to approximately 3,836. The town is poised for future growth due to the presence of a new four-lane highway and expanding health care and education opportunities, as well as outdoor recreational activities. Other towns include McLain and State Line. Still other small communities include Leaf, Neely, Sand Hill, Vernal, Knobtown, Buffalo, Jonathan, Avera, and Old Avera.

### C.1.4 Population and Demographics

Greene County currently has a population of close to 13,530 people, of which approximately 2000 can be attributed to the prisoner population at South Mississippi Correctional Institute. It is one of Mississippi's smallest counties by population, but one of the largest counties by land mass. The county has seen almost 6% percent decrease between 2010 and 2020, and the population density is 19 people per square mile. The Town of Leakesville had a large increase in population between 2010 and 2020 due to the annexation of the South Mississippi Correctional Institution. This increase could greatly increase the vulnerability of the community of Leakesville, while decreasing the vulnerability in the rest of the county with their declining population. Per the Census Reports, in 2023, Greene County had a population of 13,601, which is a .522 percent increase since 2020. The household income is \$50,000, which grew by 25.2 percent. Population counts from the US Census Bureau for 2010, and 2020 for the county and both of the participating jurisdictions are presented in **Table C.1**. Estimates for 2023 are also included.

**TABLE C.1: POPULATION COUNTS FOR GREENE COUNTY**

| Jurisdiction         | 2010 Census   | 2020 Census   | % of Change 2010 to 2020 | 2023 Estimate |
|----------------------|---------------|---------------|--------------------------|---------------|
| <b>Greene County</b> | <b>14,400</b> | <b>13,530</b> | <b>-6%</b>               | <b>13,601</b> |
| <i>Leakesville</i>   | 898           | 3,775         | 320%                     | 3,767         |
| <i>McLaurin</i>      | 441           | 313           | -29%                     | 343           |
| <i>State Line</i>    | 565           | 452           | -20%                     | 439           |

Source: US Census Bureau

Based on the 2020 Census, the median age of residents of Greene County is 40.0 years. The racial characteristics of the county are presented in **Table C.2**. However, according to the estimates provided by the Census Reports, the median age in 2023 remained the same at 40 years. The population of black persons is 26 percent, and 2 percent is Hispanic or Latino. Whites make up the majority of the population in the county, accounting for 71 percent of the population. According to Greene County School District, the county serves 1,659 students, with a minority population of 20%. Also 71% of the students classify as economically disadvantaged.

**TABLE C.2: DEMOGRAPHICS OF GREENE COUNTY**

| Jurisdiction         | White Persons (% 2020) | Black Persons (% 2020) | American Indian or Alaska Native (% 2020) | Other Races (% 2020) | Persons of Hispanic Origin (% 2020) |
|----------------------|------------------------|------------------------|-------------------------------------------|----------------------|-------------------------------------|
| <b>Greene County</b> | <b>71%</b>             | <b>26%</b>             | <b>0.4 %</b>                              | <b>1%</b>            | <b>2%</b>                           |
| <i>Leakesville</i>   | 45%                    | 53%                    | 0.2%                                      | 1%                   | 1%                                  |
| <i>McLain</i>        | 62%                    | 34%                    | 1%                                        | 1%                   | 2%                                  |
| <i>State Line</i>    | 42%                    | 55%                    | 0.4%                                      | 1%                   | 2%                                  |

Source: US Census Bureau

**TABLE C.3: AVERAGE INCOME AND HEALTH IN GREENE COUNTY**

| <b>Jurisdiction</b>  | <b>% of Population Disabled</b> | <b>% of Population without Health Insurance</b> | <b>Median Household Income</b> | <b>% of Population Below The Poverty Level</b> |
|----------------------|---------------------------------|-------------------------------------------------|--------------------------------|------------------------------------------------|
| <b>Greene County</b> | <b>25%</b>                      | <b>14%</b>                                      | <b>\$50,000</b>                | <b>18%</b>                                     |
| <i>Leakesville</i>   | 25%                             | 10%                                             | \$49,250                       | 26%                                            |
| <i>McLain</i>        | 25%                             | 15%                                             | \$30,938                       | 8%                                             |
| <i>State Line</i>    | 27%                             | 38%                                             | \$52,719                       | 40%                                            |

Source: US Census Bureau

## C.1.5 Housing

According to the 2020 US Census, there are 5,104 housing units in Greene County, the majority of which are single family homes or mobile homes. Per 2023 estimates, the total number of houses decreased by 0.5 percent although Leakesville's population increased. However, the median home value is \$115,800. Housing information for the county and three towns is presented in **Table C.4**.

**TABLE C.4: HOUSING CHARACTERISTICS OF GREENE COUNTY**

| <b>Jurisdiction</b>  | <b>Housing Units (2010)</b> | <b>Housing Units (2020)</b> | <b>Median Home Value (2020)</b> |
|----------------------|-----------------------------|-----------------------------|---------------------------------|
| <b>Greene County</b> | <b>5,123</b>                | <b>5,190</b>                | <b>\$115,800</b>                |
| <i>Leakesville</i>   | 424                         | 588                         | \$134,700                       |
| <i>McLain</i>        | 220                         | 190                         | \$85,000                        |
| <i>State Line</i>    | 255                         | 211                         | \$129,700                       |

Source: US Census Bureau

## C.1.6 Infrastructure

### TRANSPORTATION

Greene County is located near the center of the southeast portion of Mississippi. The Town of Leakesville is the county seat. The County is well served with a transportation network that includes five U.S. highways. Highway 98 runs through the county in the and runs in a northeasterly direction through McLain into Perry County to the northeast. U.S. Highway 29 bisects Greene County from the southeast corner of the County to the northwest corner. U.S. Highway 45 is also a north-south route. State Highway 42 is an east-west route. Highway 42 is in the northern most portion for the county. Highway 63, is a primary evacuation route from the Southeast portion of the Mississippi Coast, runs just south of the Town of Leakesville. When storms have threatened southeastern Louisiana in the past, and large numbers of refugees have arrived in Greene County, seeking emergency services such as sheltering, food, and fuel.

The City of Hattiesburg maintains the closest airport, 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-minute 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.

### UTILITIES

The Mississippi Power Company and Singing River EPA furnish electric power to Greene County. Natural gas is available in the county's three municipalities and propane gas is widely distributed by several dealers. AT & T and TDS furnish telephone communications system; additionally, several other companies provide cellular telephone service to the county. Because of their importance in maintaining communications during an emergency, cellular phone towers are considered critical facilities in Greene County.



The public utility companies have mutual aid pacts with other providers to furnish assistance when major damage occurs to their transmission systems. Both also have disaster response plans in place and are responsible for their distribution systems and facilities, ensuring that the service is restored as quickly as possible after a disaster occurs.

Several flammable storage facilities are also located in the county. Additionally, several industrial interests manufacture or use flammable, toxic, explosive, or water-reactive materials in their manufacturing process. Most have disaster response plans in place and are responsible for their facilities.

### **COMMUNITY FACILITIES**

There are a number of buildings and community facilities located throughout Greene County. According to the data collected for the vulnerability assessment (Section 6.4.1), there are 10 fire stations, 3 police stations, and 6 public schools located within the county.

There is one hospital located in Greene County. Greene County Hospital is a county-owned, not-for-profit healthcare facility. The campus includes a hospital with an ER, a nursing home, and Greene County Family Medical Clinic.

Greene County lies within the Gulf Coastal plain province and in the Long Leaf Pine region in Mississippi, locally called the “Piney Woods” country. The upland soils of the county are derived from two main classes of coastal plain materials: beds of sandy clay and beds of heavy clay. The two major water sources in Greene County are the Leaf River and the Chickasawhay River. Desoto National Forest also spans into Greene County.

## **C.1.7 Land Use**

Many areas of Greene 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.1.8 Employment and Industry**

According to the Mississippi Employment Security Commission (MESC), in 2024, Greene County had an average annual employment of 4,220 workers and an average unemployment rate of 2.7% percent. According to the MESC, in 2023, the Education Services and Health Care employed 23% percent of the workforce followed by Construction (18.5%) and Manufacturing (10.3%). The average annual wage in Greene County was \$50,000.

Greene County’s main employers are in the sectors of government, public education, and wholesale/retail trade. The farming industry in Greene County is relatively stable. The total number of farms in the area decreased by .5% between 2007-2012; however, the average farm size increased 8% during the same period and the total number of acres farmed also increased by 4%. The Comprehensive Economic Development Strategy (CEDS) for Greene County identified two key issues as threats to the economic environment of the County. These were lack of health care facilities and lack of nearby air transportation services. Community assets greatly enhance the economic potential of any area. Since 2010, Greene County has funded a hospital and also has air support services in the area. An opportunity identified in the CEDS was consumer spending. A significant number of Greene County residents commute to jobs outside of the County and shop for goods and services in the areas of their workplaces. Increasing local options for obtaining goods and services within the County will increase tax revenue and also increase the number of prospective residents in Greene County. This will directly affect the makeup of the labor force and possibly bring new and better jobs to the County.

## **C.2 GREENE COUNTY RISK ASSESSMENT**

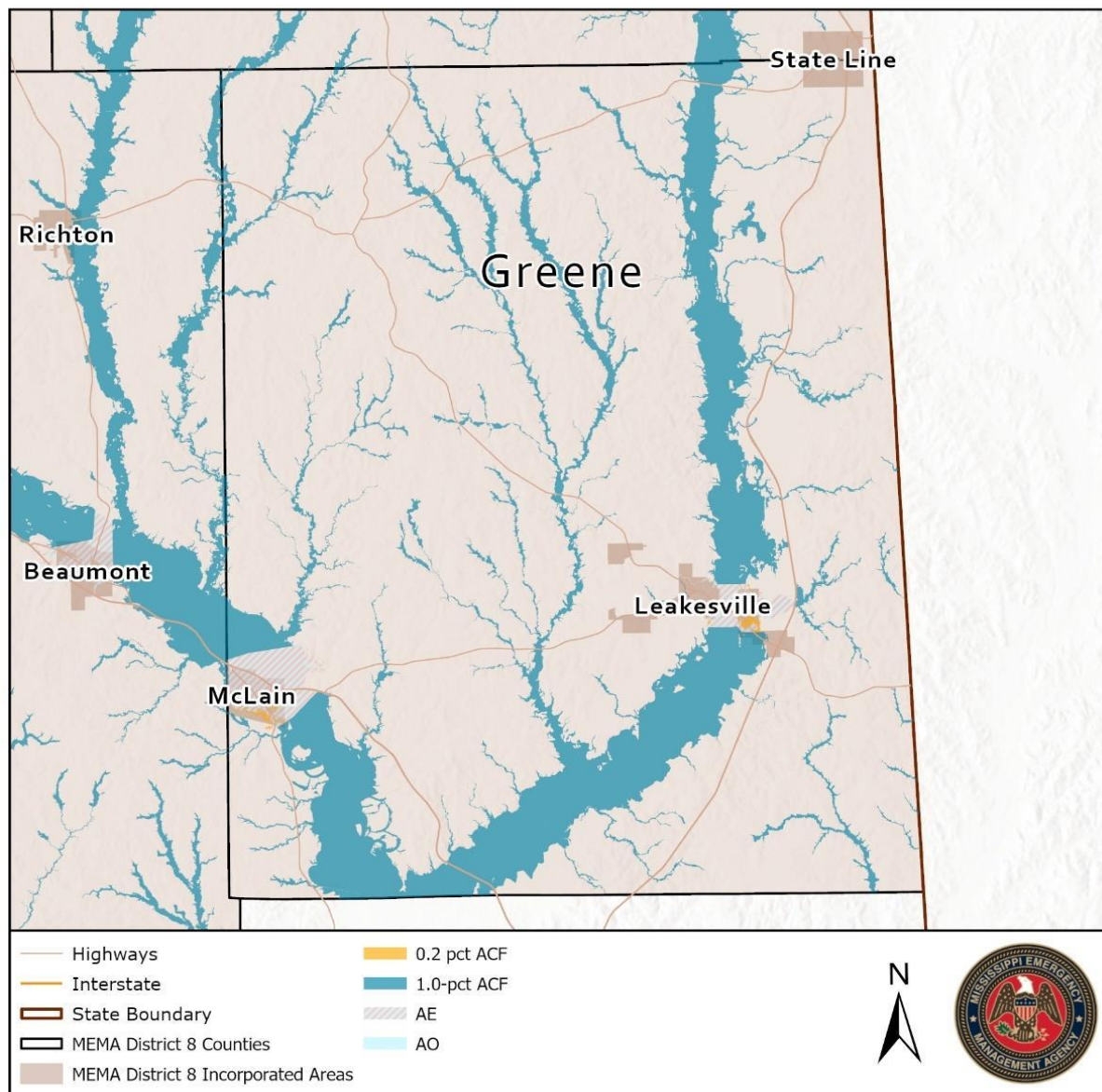
This subsection includes hazard profiles for each of the significant hazards identified in *Section 4: Hazard Identification* as they pertain to Greene County. Each hazard profile includes a description of the hazard's location and extent, notable historical occurrences, and the probability of future occurrences. Additional information can be found in *Section 5: Hazard Profiles*.

## C.2.1 Flood

### LOCATION AND SPATIAL EXTENT

There are areas in Greene 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). 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).

**FIGURE C.2: SPECIAL FLOOD HAZARD AREAS IN GREENE COUNTY**



Floods resulted in eight disaster declarations in Greene County in 1970 and 2024. Information from the National Centers for Environmental Information was used to ascertain historical flood events.

### HISTORICAL SUMMARY FLOOD LOSSES

In 2010, the **town of Leakesville, town of McLain and town of State Line** entered into an inter-local agreement with the Greene County Board of Supervisors allowing the County Floodplain Manager to administer their Flood Damage Prevention Ordinances, keeping them in compliance with the NFIP. This process is done by sending all of their constituents to the County office for their flood permits for review and compliance purposes. The permit is then forwarded to the correct jurisdiction for final signatures by the Mayor/Clerk. The recorded inter-local agreements can be found at the Greene County Chancery Clerk's office.

The **Town of Leakesville** is more likely to flood due to the low area that the town is built in. Critical infrastructure such as City Hall and the Police Department are housed in the same building that is usually affected by floodwater resulting from drainage issues. Local records show that the extent of damage, thus far, has been minor and has affected only a few commercial structures and a few residences. All of these structures are located out of the Special Flood Hazard Area (SFHA), therefore; they are *not considered repetitive loss properties*. When the Chickasawhay River reaches moderate flood stage 28 feet, we have 2 to 3 feet of backwater flooding local roads and water under low-lying structures.

The **Town of McLain** has a flood prone area as well, but very rarely has any structures been affected. *All of the structures* surrounding this area are *outside of the SFHA*. This area is located along the part of Leaf River and Chickasawhay River that runs through the Town of Leakesville. McLain has *no structures* placed inside a **SFHA** within the city limits. When the Leaf River reaches moderate flood stage 24 feet, we have 1 to 4 feet of backwater flooding street and local roadways and water under low lying structures.

The **Town of State Line** has rarely seen any flood problems. There are no structures located in the SFHA.

The **Unincorporated Greene County** has areas that are susceptible to flooding. The area of particular concern is in the northeast portion of the county along Leaf River and Chickasawhay River. These rivers are highly susceptible to flooding due to heavy rainfall. Local reports suggest that 1 to 2 feet of rain in a one-hour period usually causes all four jurisdictions to flood with 1 to 4 feet of water depending on moderate River stage (Chickasawhay River 28 feet, Leaf River 24 feet) at the time the flooding occurs. Since 2000 through 2024, Greene County and the Towns of Leakesville, McLain and State Line were affected by Several instances of countywide flooding/flash flooding. The Summery of this twenty-four-year history is shown in **Table C.5**. Most of these flood events were caused by hurricanes and tropical storms, although flooding can also occur as a result of heavy rainfall not necessarily associated with hurricanes or tropical storms. This type of inland flooding typically occurs as a result of flash flooding from heavy rainfall 8 to 10 inches over short period of time. These storms have caused total property damage of \$667,000 in Greene County. Specific information on flood events, including date, type of flooding, and deaths and injuries, can be found in **Table C.6**.

TABLE C.5: SUMMARY OF FLOOD OCCURRENCES IN GREENE COUNTY

| LOCATION                    | Number of Occurrences | Deaths   | Injuries | Property Damage  | Crop Damage |
|-----------------------------|-----------------------|----------|----------|------------------|-------------|
| <i>Leakesville</i>          | 6                     | 0        | 0        | \$50,000         | \$0         |
| <i>McLain</i>               | 0                     | 0        | 0        | \$0              | \$0         |
| <i>State Line</i>           | 0                     | 0        | 0        | \$0              | \$0         |
| <i>Unincorporated Area</i>  | 20                    | 0        | 0        | \$617,000        | \$0         |
| <b>Greene County Total:</b> | <b>26</b>             | <b>0</b> | <b>0</b> | <b>\$667,000</b> | <b>\$0</b>  |

Source: NCED/NOAA

TABLE C.6: HISTORICAL FLOOD EVENTS IN GREENE COUNTY

| Location                                                    | Date       | Type        | Deaths | Injuries | Property Damage |
|-------------------------------------------------------------|------------|-------------|--------|----------|-----------------|
| <b>The Town of Leakesville</b>                              |            |             |        |          |                 |
| <i>Leakesville</i>                                          | 4/5/2008   | Flash Flood | 0      | 0        | \$0             |
| <i>Leakesville</i>                                          | 3/27/2009  | Flash Flood | 0      | 0        | \$0             |
| <i>Leakesville</i>                                          | 5/4/2009   | Flash Flood | 0      | 0        | \$0             |
| <i>Leakesville</i>                                          | 2/4/2010   | Flash Flood | 0      | 0        | \$0             |
| <i>Leakesville</i>                                          | 8/29/2012  | Flash Flood | 0      | 0        | \$50,000        |
| <i>Leakesville</i>                                          | 4/14/2018  | Flash Flood | 0      | 0        | \$0             |
| <b>Town of McLain</b>                                       |            |             |        |          |                 |
| <i>McLain</i>                                               | --         | --          | --     | --       | --              |
| <b>Town of State Line</b>                                   |            |             |        |          |                 |
| <i>State Line</i>                                           | --         | --          | --     | --       | --              |
| <b>County Wide and Unincorporated Area in Greene County</b> |            |             |        |          |                 |
| <i>Sand Hill</i>                                            | 6/28/2000  | Flash Flood | 0      | 0        | \$0             |
| <i>County Wide</i>                                          | 3/3/2001   | Flash Flood | 0      | 0        | \$40,000        |
| <i>Southern Greene County</i>                               | 10/28/2002 | Flash Flood | 0      | 0        | \$0             |
| <i>Southcentral Greene County</i>                           | 10/28/2002 | Flash Flood | 0      | 0        | \$0             |
| <i>County Wide</i>                                          | 5/17/2003  | Flash Flood | 0      | 0        | \$0             |
| <i>County Wide</i>                                          | 7/1/2003   | Flash Flood | 0      | 0        | \$0             |
| <i>County Wide</i>                                          | 3/31/2005  | Flash Flood | 0      | 0        | \$0             |
| <i>East portion of Greene County</i>                        | 7/6/2005   | Flash Flood | 0      | 0        | \$0             |
| <i>County Wide</i>                                          | 8/29/2005  | Flash Flood | 0      | 0        | \$0             |
| <i>Sand Hill</i>                                            | 10/22/2007 | Flash Flood | 0      | 0        | \$0             |
| <i>Piave</i>                                                | 4/18/2008  | Flash Flood | 0      | 0        | \$0             |
| <i>Pisgah</i>                                               | 9/1/2008   | Flash Flood | 0      | 0        | \$2,000         |
| <i>Neely</i>                                                | 2/4/2010   | Flash Flood | 0      | 0        | \$0             |
| <i>Piave</i>                                                | 7/4/2013   | Flash Flood | 0      | 0        | \$65,000        |
| <i>County Line</i>                                          | 2/23/2016  | Flood       | 0      | 0        | \$0             |
| <i>Jonathan</i>                                             | 2/23/2016  | Flood       | 0      | 0        | \$0             |
| <i>Sand Hill</i>                                            | 12/27/2018 | Flash Flood | 0      | 0        | \$500,000       |
| <i>Royce</i>                                                | 1/23/2019  | Flash Flood | 0      | 0        | \$0             |
| <i>Neely</i>                                                | 1/23/2019  | Flash Flood | 0      | 0        | \$0             |
| <i>Avera</i>                                                | 8/25/2022  | Flash Flood | 0      | 0        | \$0             |

Source: NCED/NOAA

**TABLE C.7: EXTENT: FLOOD EVENTS IN GREEN COUNTY SINCE THE LAST UPDATE**



## Greene County: \$0

| Location      | Date      | Loss | Cause                                                                                                                                                       | Impact                                                                                                                                                                 |
|---------------|-----------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Royce & Neely | 1/23/2019 | \$0  | Slow moving thunderstorms produced heavy rain which caused flooding in southeast Mississippi.                                                               | <ul style="list-style-type: none"> <li>• Heavy rain caused flooding on Highway 57 south of McLain.</li> <li>• Water over Highway 57 just north of Neely Rd.</li> </ul> |
| Avera         | 8/25/2022 | \$0  | A wet pattern continued across the Gulf Coast as additional heavy rain led to numerous flooding reports across southwest Alabama and southeast Mississippi. | Water over the roadway near Indian Hill Road.                                                                                                                          |

### ***HISTORICAL SUMMARY OF INSURED FLOOD LOSSES & REPETITIVE LOSS PROPERTIES***

Recently, FEMA issued a directive that prevents FEMA sharing NFIP information such as rep loss or severe rep loss data with state planners. The local Jurisdictions must request the information from FEMA and provide the information to the planners. This information was requested from the local jurisdictions on several occasions. As a result, for continuity of information so that the reader will 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 for the jurisdictions that did not provide the information to state planners and to include the information from jurisdictions that provided the requested information to the state planners. As of this update, there are no structures in special flood hazard areas.

Furthermore, since most of the flooding was from flash flooding which occurs quickly, it was difficult to find flood depth information. This remains the best available data.

According to FEMA flood insurance policy records as of March 2016, there have been \$243,475 flood losses reported in Greene County through the National Flood Insurance Program (NFIP). 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 Greene County were either uninsured, denied claims payment, or not reported.

By definition, a repetitive loss area is an area containing one or more properties for which two or more National Flood Insurance Program losses of at least \$1,000 each have been paid within any ten-year period since 1978. Greene County has no repetitive loss properties within the jurisdiction and no structures within the flood-prone areas of town. Flooding will continue to affect roadways and bridges in Greene County. Adoption of this Hazard Mitigation Plan will assist the County in mitigating flooding from hurricanes and tropical storms through the adoption of additional standards and other measures specifically designed for this Plan. The County Permitting Official is very conscientious about enforcement of their flood plain management ordinances when it comes to permitting new construction.

The high incidence of flood losses reported for pre-flood insured properties indicates that owners of repetitively flooded properties have relied primarily upon the NFIP or public assistance to cover their repetitive flood losses. Properties located in or near an identified flood hazard area are most likely to flood. The NFIP requires retrofitting to reduce flood damage when cumulative losses exceed 50% of the property's value. This is a difficult rule to enforce because after a major flood or natural disaster, building officials often waive issuing permits in order to assist owners with recovery. Additionally, when flood damage does not include structural damage or damage to electrical or gas services requiring inspection before being restored, owners simply proceed with repairs without contacting local Building Permit Office. The 50% rule is an essential tool in reducing flood losses and while difficult to track, should be a priority issue for the Flood plain Manager after a flood or natural disaster. It is strongly recommended that all jurisdictions require issuance of permits in order to track these cases. Funding is available to local government through the Hazard Mitigation Grant Program to retrofit or acquire repetitively flooded properties. The Community Development Block Grant (CDBG) and Home Investment Partnership Act (HOME) programs also offer grant funding to local jurisdictions on a competitive basis.



The previous Greene County Hazard Mitigation Plan did not contain information on insured flood losses or repetitive loss and severe repetitive loss structures. The information was requested from Greene County, because a jurisdiction is the only one who can request and receive that information from FEMA. At the time of the plan update, this is the only information we have.

### **PROBABILITY OF FUTURE OCCURRENCES**

Due to the unpredictable nature of this hazard, flood events will remain a threat in Greene County, and the probability of future occurrences will remain likely. Historically, most flood losses in Greene County have resulted from storm water flooding. Due to past history, the probability of flooding in Greene County and surrounding jurisdictions is 40% – 50% per year. 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 area near floodplain could have a higher risk of flooding than areas that are not near a floodplain. 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.

As the climate continues to change, the chance of heavy rain leading to flash flooding could increase in frequency, intensity, and magnitude. With the increasing frequency and intensity, heavy rains and flash flooding can lead to cascading effects and can also lead to flooding in areas that do not usually flood.

## **C.2.2 Erosion**

### **LOCATION AND SPATIAL EXTENT**

Erosion in Greene County is typically caused by flash flooding events. Unlike coastal areas, areas of concern for erosion in Greene 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 Greene County. This includes searching local newspapers, interviewing local officials, and reviewing previous hazard mitigation plans. No historical erosion occurrences were found in these sources. Greene 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 Greene County, and it will continue to occur. The annual probability level assigned for erosion is possible (between 1 and 10 percent annually).

It can be inferred from the floodplain location maps, previous occurrences, and repetitive loss properties that risk varies throughout the region. For example, the area 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.

As the climate continues to change, the chance of heavy rain leading to flash flooding could increase in frequency, intensity, and magnitude. With the increasing frequency and intensity, heavy rains and flash flooding can lead to cascading effects and can also lead to flooding in areas that do not usually flood.

## **C.2.3 Dam Failure**

### **LOCATION AND SPATIAL EXTENT**

According to the Mississippi Division of Environmental Quality, there are no high hazard dams in Greene County. There are no recorded incidents of dam failure or breach of dams in Greene County. 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, none of the dams pose a major threat in a breach or failure occurrence.

### **HISTORICAL OCCURRENCES**

There is no record of dam breaches in Greene County, nor are there any high hazard dams. However, several breach scenarios in the county or from cascading effects could cause catastrophic damage.

### **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. Greene 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 Greene County since 2002. These events resulted in almost \$0 in damages. Detailed information on the recorded winter storm events can be found in **Table C.9**.

**TABLE C.9: HISTORICAL WINTER STORM IMPACTS IN GREENE COUNTY**

| Date          | Type           | Injuries/<br>Deaths | Property<br>Damage |
|---------------|----------------|---------------------|--------------------|
| 1/27/2000     | Sleet          | 0/0                 | \$0                |
| 1/1/2001      | Winter Storm   | 0/0                 | \$0                |
| 1/1/2002      | Winter Storm   | 0/0                 | \$0                |
| 12/11/2008    | Winter Weather | 0/0                 | \$0                |
| 2/12/2010     | Winter Storm   | 0/0                 | \$0                |
| 1/28/2014     | Sleet          | 0/0                 | \$0                |
| 12/8/2017     | Heavy Snow     | 0/0                 | \$0                |
| 1/16/2018     | Winter Storm   | 0/0                 | \$0                |
| <b>Total:</b> | <b>8</b>       | <b>0/0</b>          | <b>\$0</b>         |

There have been a couple of severe winter weather events in Greene 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 1, 2001**—A winter storm produced one-half to one inch snowfall accumulations across portions of Southeast Mississippi, generally along and north of a New Augusta to Leakesville line. No injuries or significant impacts to travel were reported.

**January 1, 2002**—The Leakesville area received 1 to 2 inches of snow. Although several secondary roads and bridges had to be closed and sanded, very little property damage was reported.

**December 11, 2008**—A strong upper-level low pressure system moved across the southeast and caused snow showers to develop across southeastern Mississippi. Most areas across northwest Wayne and Perry counties received a dusting of snow. The heaviest snow fell around Lucedale in George County where a half inch to one inch of snow cover was recorded.

**February 12, 2010**—Snowfall accumulations ranged from a dusting to as much as 4 inches across interior southeast Mississippi. The Sheriff's office reported 3.5 inches of snow in Leakesville.

**January 28, 2014**—Greene County EMA reports one half to one inch of sleet. Sleet was still falling at 620 pm.

**December 8, 2017**—Storm total snow amounts of 6 inches in Sand Hill and 2 to 3 inches in Leakesville.

**January 16, 2018**—Storm total snow amounts of 2 to 2.5 inches in Sand Hill, 2 inches in Neely and 1 to 1.5 inches in Leakesville.

### **PROBABILITY OF FUTURE OCCURRENCES**

Winter storm events will continue to occur in Greene County. According to historical information, the annual probability is possible (between 1 and 10 percent).

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 Greene 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, Greene County had drought levels (including abnormally dry) in the last twenty-four years (2000-2024). **Table C.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 C. 10: HISTORICAL DROUGHT OCCURRENCES IN GREENE COUNTY |                  |                 |                 |                     |                |
|--------------------------------------------------------------|------------------|-----------------|-----------------|---------------------|----------------|
| Abnormally Dry                                               | Moderate Drought | Severe Drought  | Extreme Drought | Exceptional Drought |                |
|                                                              |                  |                 |                 |                     |                |
| Location                                                     | Date             | Injuries/Deaths | Property Damage | Crop Damage         | Event/Severity |
| Greene County                                                | 11/1/2016        | 0/0             | \$0             | \$0                 | D3             |
| Greene County                                                | 12/1/2016        | 0/0             | \$0             | \$0                 | D3             |
| Greene County Total:                                         | 2                | 0/0             | \$0             | \$0                 |                |

Source: NCED/NOAA

**November to December 2016**—A prolonged period of dry weather resulted in worsening drought conditions across southeast Mississippi. By the end of November, the entire region was under Extreme (D3) Drought. The entire area saw rain totals less than 50% of normal for the month, with many areas receiving less than 10% of normal. This lack of rain came on the heels of one of the driest Octobers on record. A prolonged period of dry weather continued through much of December resulting in continued drought conditions across southeast Mississippi. Severe (D2) and Extreme (D3) drought conditions were found across much of the region. A couple of rain events late in the month helped to improve conditions.

Heat Wave

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

**July 2000**—July was a hot and dry month in Southeast Mississippi. 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. In Wiggins the temperature was 100 degrees or higher nine days during the month with 105 degrees being the hottest. In addition to being hot was also a dry month across the area. Most stations ended up with below normal rainfall totals for the month.

**July 2008**—Heat advisories were issued for a combination of high temperatures and high humidities. Heat index vales were between 110 and 115 degrees. Several public buildings and churches allowed people to come in and cool off during the heat of the day.

PROBABILITY OF FUTURE OCCURRENCES

Drought

Based on historical occurrence information, it is assumed that all of Greene 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. But, if the climate continues to warm, this could lead to more droughts with higher magnitude.

### **Heat Wave**

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

If temperatures continue to rise as climate change occurs, it could increase the impacts, intensity, and duration of droughts and extreme temperatures. These increases could impact the effects on the counties' crops, economy, and population.

## **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 2010 to 2023, Greene County experiences an average of 34.1 wildfires annually which burn an average of 445.9 acres per year. The data indicates that most of these fires are small, averaging thirteen acres per fire. **Table C.11** provides a summary of wildfire occurrences in Greene County since the last update, and **Table C.12** lists the number of reported wildfire occurrences in the county between the years 2010 and 2023.

**TABLE C.11: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2019 -2023) \***

| Greene County                           |       |
|-----------------------------------------|-------|
| Average Number of Fires per year        | 13.8  |
| Average Number of Acres Burned per year | 191.2 |
| Average Number of Acres Burned per fire | 13.9  |

**TABLE C.12: HISTORICAL WILDFIRE OCCURRENCES IN GREENE COUNTY**

| Greene County          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| Year                   | 2010 | 2011  | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| Number of Fires        | 10   | 81    | 52   | 41   | 58   | 32   | 62   | 51   | 22   | 7    | 8    | 13   | 15   | 26   |
| Number of Acres Burned | 39   | 1,183 | 983  | 542  | 678  | 441  | 711  | 531  | 179  | 121  | 81   | 158  | 195  | 401  |

Source: MS Forestry Commission

**PROBABILITY OF FUTURE OCCURRENCES**

Greene County is not usually prone to property damaging wildfires. However, drought-like conditions prompted fire service official to issue frequent bans against burning and become more concerned about encroachment of urban development into forest lands, creating the potential for property damaging wildfires. On occasion wildfires have destroyed structures, usually ly out buildings, but for the most part the fires are contained causing only damage to timber. Of the four jurisdictions, the Unincorporated Greene County is the most prone to damage from wildfires. Greene County has a large amount of timber that creates fuel for wildfires which can endanger residential, commercial buildings and infrastructure. Natural barriers such as streams and drainage basins help to reduce this risk, but about 74% of the land in Greene County is use classified as commercial forestland, creating enhanced risk wildfires to the County. Arson is the most common cause (25%) of wildfires in Greene County. Woodlands fires are controlled by rural volunteer fire departments and/or forestry service personnel. The Cities have less danger of property damaging wildfires. The way the property is landscaped reduces the effects wildfires have on these jurisdictions. Throughout the past years, due to the weather conditions in Greene County have not had any major wildfires. All of the reported fires have been small in nature and are either grass or timber burns that did not result in loss of life or property, burning less than 5 to 10 acres per reported incident. Although the numbers were minor in the area, this is always subject to change with the conditions of the weather. There is a 45% chance of occurrence in any given year.

If temperatures continue to rise as climate change occurs, it could cause more droughts and extreme temperatures. The increase in of these could have a negative impact or wildfires. Extreme heat and drought can cause plants to become dry and brittle which makes the area more susceptible to wildfires.

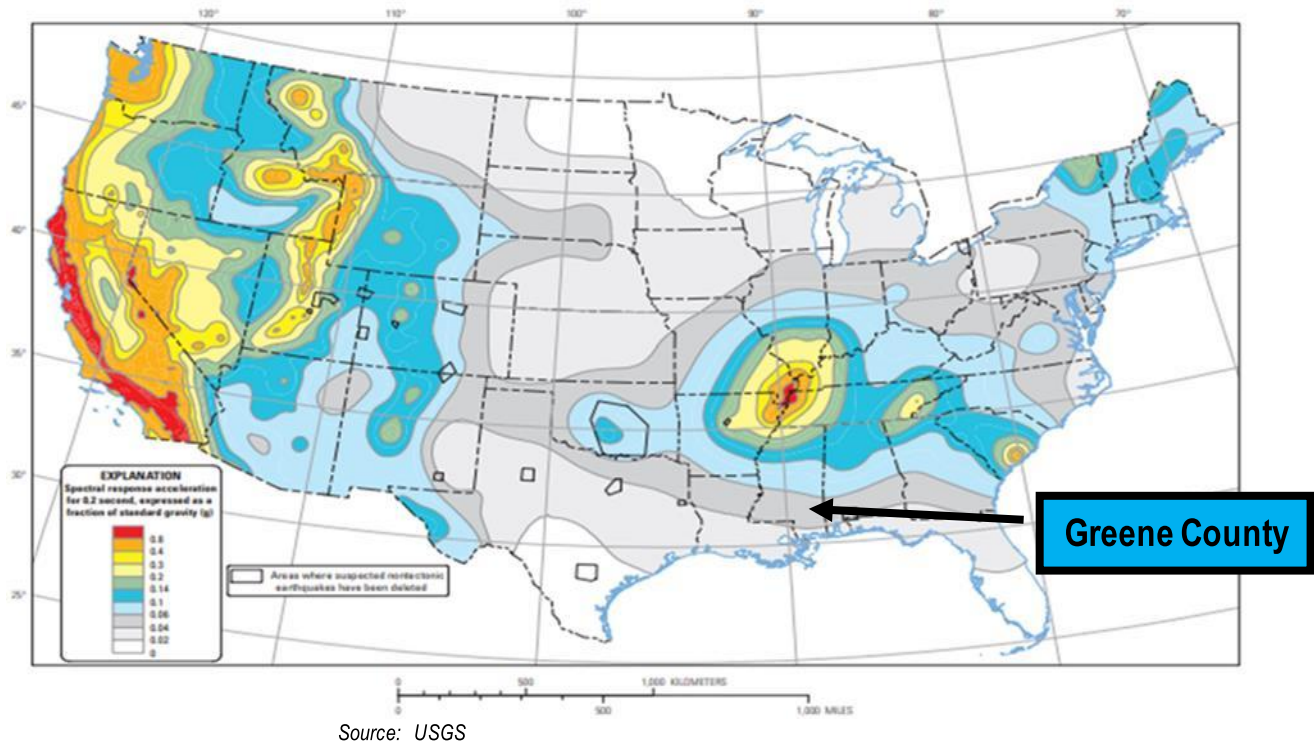
If the predicted increase in heavy rains occur it can also cause flooding and erosion, which can also make the area more susceptible to wildfires

**C.2.7 Earthquake**

**LOCATION AND SPATIAL EXTENT**

**Figure C.3** shows the intensity level associated with Greene 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, Greene County lies within an approximate zone of level .04 ground acceleration. This indicates that the county exists within an area of moderate seismic risk.

**FIGURE C.3: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS**



### **HISTORICAL OCCURRENCES**

No earthquakes are known to have affected Greene County since 1638.

### **PROBABILITY OF FUTURE OCCURRENCES**

The probability of significant, damaging earthquake events affecting Greene 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).

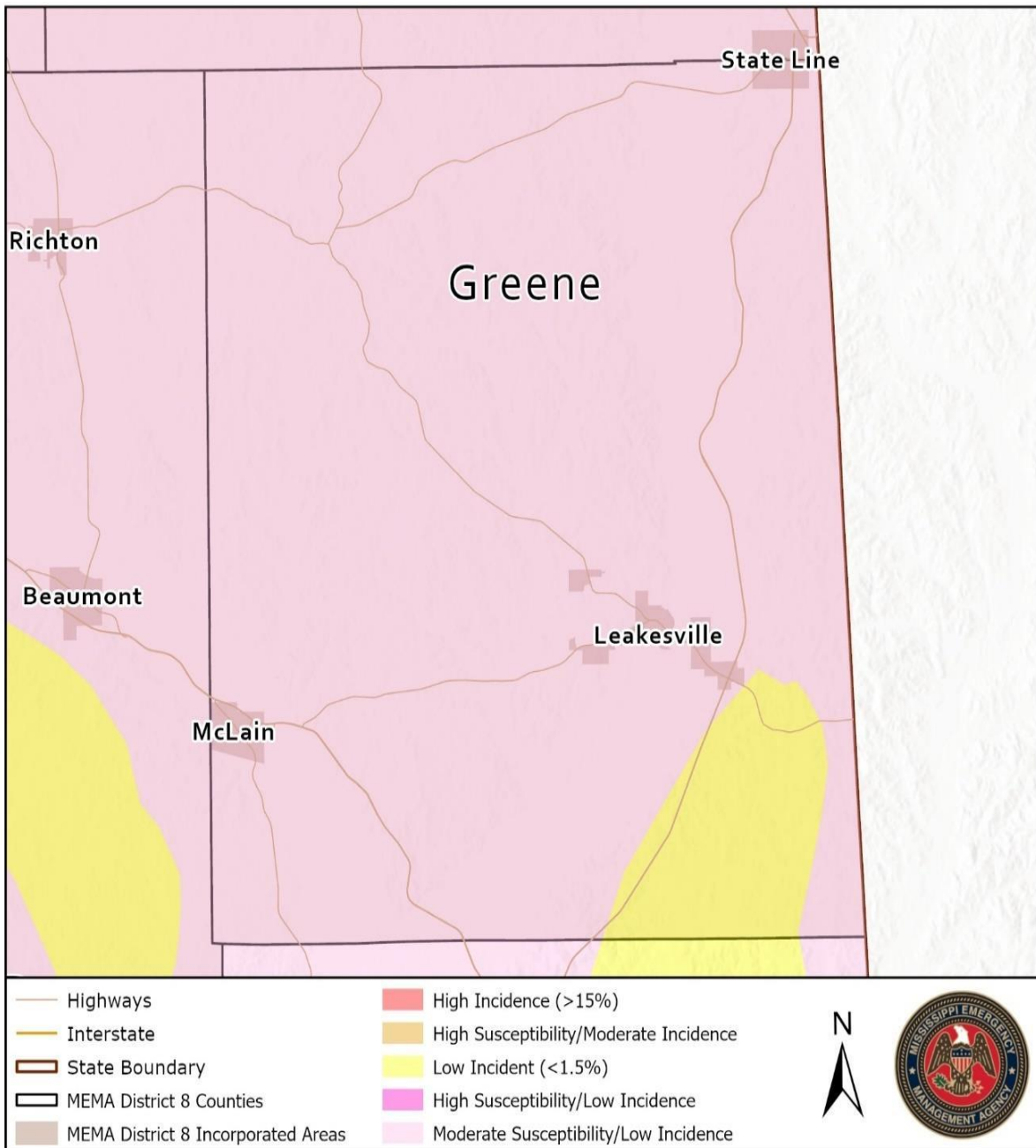
## **C.2.8 Landslide**

### **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. Landslides are possible throughout Greene County.

According to **Figure C.4** below, the most of county falls under a moderate susceptibility & low incidence area (light pink), and the rest is low incident (yellow).

**FIGURE C.4: LANDSLIDE SUSCEPTIBILITY AND INCIDENCE MAP OF GREENE COUNTY**



### **HISTORICAL OCCURRENCES**

There is no extensive history of landslides in Greene 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 all areas in Greene County have a low landslide incidence rate (yellow).

However, some areas are reported as having moderate susceptibility (pink) to land sliding 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 Greene County have greater risk than others given factors such as steepness on slope and modification of slopes.

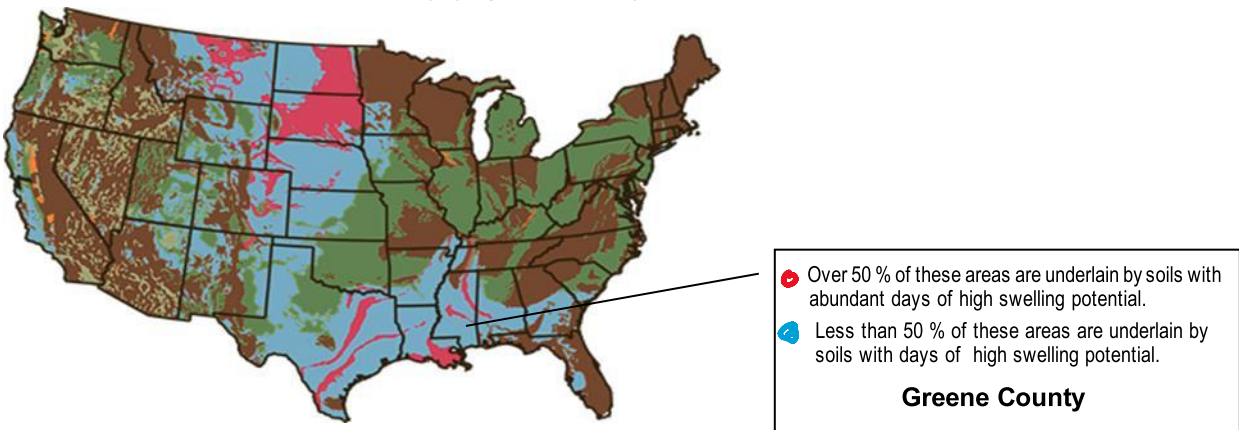
As the climate continues to change, scientists believe that the intensity, magnitude, and frequency of heavy rains will increase. This could cause cascading effects that could possibly lead to land sliding.

## C.2.9 Expansive Soils

### LOCATION AND SPATIAL EXTENT

Due to the amount of clay minerals present in Greene County, expansive soils present a threat to the county. Areas underlain by soils with swelling potential are shown in **Figure C.5**. The areas in blue are underlain with generally less than 50 percent clay having high swelling potential.

**FIGURE C.5: SWELLING CLAYS IN MISSISSIPPI**



Source: USGS

### HISTORICAL OCCURRENCES

There is no historical record of significant expansive soil events in Greene 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).

## C.2.10 Hurricane and Tropical Storm

### LOCATION AND SPATIAL EXTENT

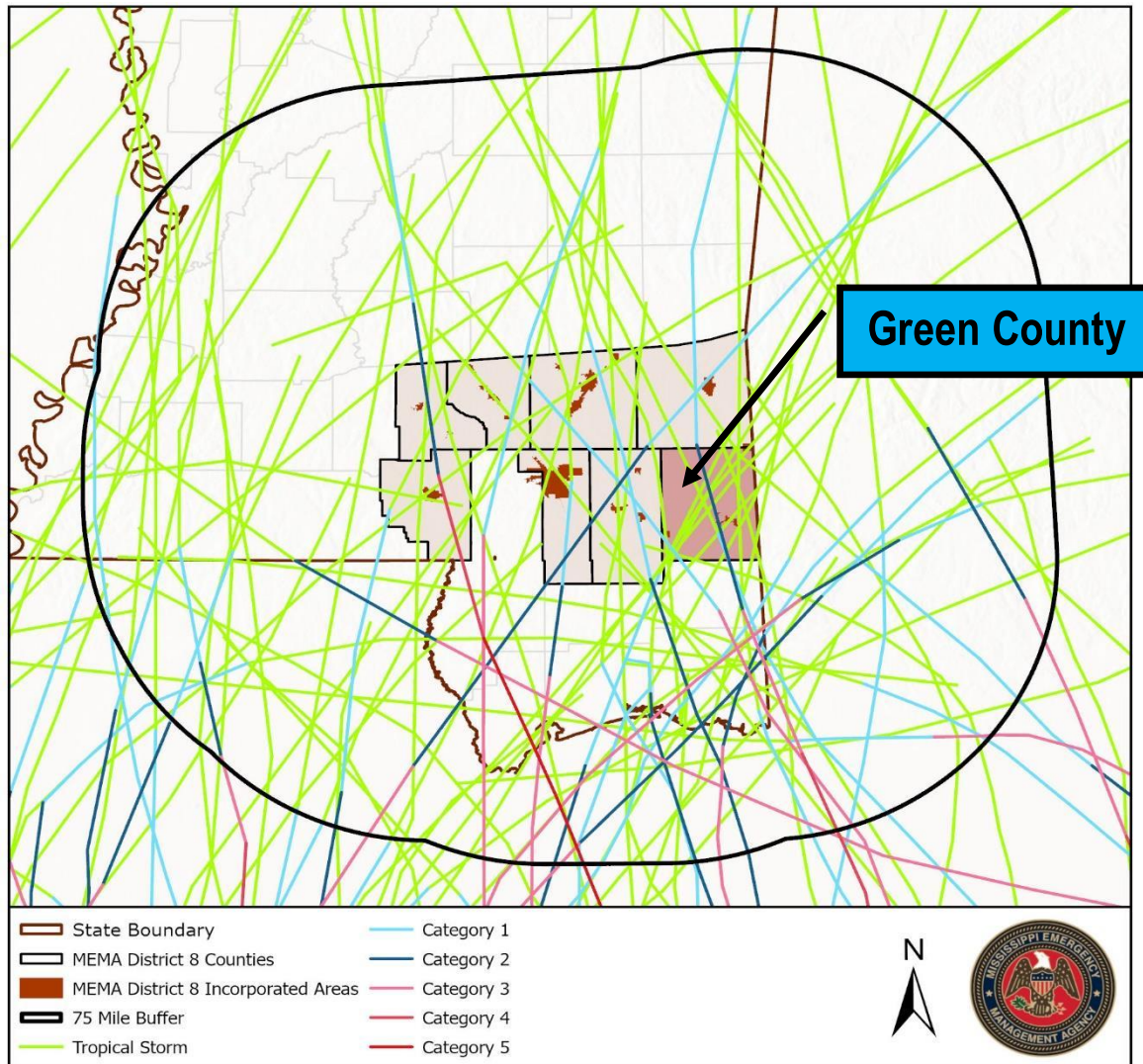


Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact Greene County.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

### HISTORICAL OCCURRENCES

The National Centers for Environmental Information has reported two new hurricane hazards affecting the area during this planning period.

**FIGURE C.6: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF GREENE COUNTY**



Greene County and its Municipalities, due to their location and proximity to the Mississippi Gulf Coast, are susceptible to Tropical Storms and Hurricanes. Greene County may not feel the full effects of the Hurricane, however: depending on the strength and landfall location the county could expect to receive strong winds and heavy rains, flooding and wind damage.

Research from the National Hurricane Center says that eighteen (20) Tropical Storms or Hurricanes have affected the Mississippi Gulf Coast since 1954. Local records, since 1998, show that ten (10) storms have affected Greene County with wind damage and/or flooding. Hurricane damage affects all areas of each jurisdiction and is consistent throughout each jurisdiction. NCDC Tropical Storm and Hurricane information is listed below.

Federal records indicate that disaster declarations were made in 1969 (Hurricane Camille), 1979 (Hurricane Fredric), 1998 (Hurricane Georges), 2004 (Hurricane Ivan), 2005 (Hurricane Dennis), 2005 (Hurricane Katrina), 2012 (Hurricane Isaac), 2017 (Hurricane Nate), 2020 (Hurricane Zeta), and 2021 (Hurricane Ida). 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.

**TABLE C.13: HISTORICAL STORM TRACKS WITHIN 75 MILES OF GREENE COUNTY (1850–2023)**

| Date of Occurrence | Storm Name                  | Maximum Wind Speed (mph) | Storm Category | Disaster Declaration | Property Damage     | Crop Damage |
|--------------------|-----------------------------|--------------------------|----------------|----------------------|---------------------|-------------|
| 9/4/1969           | <i>Hurricane Camille</i>    | 115                      | Category 2     | Yes, #271            | Unknown             | Unknown     |
| 8/30/1979          | <i>Hurricane Fredrick</i>   | Unknown                  | Tropical Storm | Yes, #599            | Unknown             | Unknown     |
| 8/20/1995          | <i>Hurricane Erin</i>       | Unknown                  | Tropical Storm | No                   | \$100,000           | Unknown     |
| 9/25/1998          | <i>Hurricane Georges</i>    | Unknown                  | Tropical Storm | Yes, #1251           | \$15,000,000        | Unknown     |
| 9/16/2004          | <i>Hurricane Ivan</i>       | 95                       | Category 1     | Yes, #1550           | Unknown             | \$0         |
| 7/5/2005           | <i>Tropical Storm Cindy</i> | 40                       | Tropical Storm | No                   | \$50,000            | \$0         |
| 7/10/2005          | <i>Hurricane Dennis</i>     | 55                       | Tropical Storm | Yes, #1594           | \$50,000            | \$0         |
| 8/29/2005          | <i>Hurricane Katrina</i>    | 80                       | Category 1     | Yes, #1604           | \$30,000,000        | \$0         |
| 9/1/2008           | <i>Hurricane Gustav</i>     | 25                       | Depression     | No                   | \$1,000             | \$0         |
| 8/29/2012          | <i>Hurricane Isaac</i>      | 45                       | Tropical Storm | Yes, #4081           | \$650,000           | \$0         |
| 10/7/2017          | <i>Hurricane Nate</i>       | 70                       | Tropical Storm | Yes, #4350           | \$25,000            | \$0         |
| 9/4/2018           | <i>Hurricane Gordon</i>     | 50                       | Tropical Storm | No                   | \$0                 | \$0         |
| 10/28/2020         | <i>Hurricane Zeda</i>       | 58                       | Tropical Storm | Yes, #4576           | \$0                 | \$0         |
| 8/30/2021          | <i>Hurricane Ida</i>        | 50                       | Tropical Storm | Yes, #4626           | \$50,000            | \$0         |
| 9/12/2024          | <i>Hurricane Francine</i>   | 40                       | Tropical Storm | No                   | \$0                 | \$0         |
| <b>Total:</b>      | <b>15</b>                   | <b>--</b>                | <b>--</b>      | <b>--</b>            | <b>\$45,926,000</b> | <b>\$0</b>  |

Source: National Hurricane Center and NCED/NOAA

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 Ivan – September 14, 2024**—Hurricane force winds, primarily in gusts, occurred over most interior portions of southeast Mississippi during the late evening hours of September 15th, and the very early morning hours of September 16th. Duration of the winds producing hurricane force gusts was around two hours. These strong winds downed some trees across the region, some of which fell onto structures which were damaged as a result. Although Ivan did produce wind damage across southeast Mississippi, this damage was neither as widespread nor as severe as was the wind damage over much of southwest Alabama and the western Florida panhandle.

**Tropical Storm Cindy – July 5, 2005**—TS Cindy moved across Stone and Greene counties on Wednesday morning July 6. Most of the damage across southeast Mississippi was from fallen trees and from heavy rains that caused street flooding. For the complete narrative on Cindy look under Alabama, Southwest, July 5-6, in this publication.

**Hurricane Katrina – August 29, 2005**—High winds from the eyewall of Hurricane Katrina blew down numerous trees in Perry and Greene counties as the eye of Katrina moved north. Wind gusts of 70-90 mph were estimated across Perry county and 60-80 mph across Greene county. Several of the trees fell on structures and damaged them.

**Hurricane Nate – October 7, 2017**—The remnant eastern eyewall of Nate moved across George and Greene Counties between midnight and 3am. Tropical storm force winds, with maximum gusts estimated at 60 to 70 mph, resulted in numerous downed trees and power lines in George County. Several homes reported minor roof and shingle damage. One mobile was destroyed due to a tree falling on it. A total of 7,000 power outages were reported. Further north in Greene and Wayne Counties, scattered downed trees and power lines were reported. The fast movement of Nate resulted in limited, if any, impacts from flooding. 2 to 5 inches of rain was reported across inland southeast Mississippi. One EF-0 tornado was reported in Wayne County.

**Tropical Storm Gordon – September 4, 2018**—TS Gordon made landfall just west of the Alabama-Mississippi at 10:15 PM CDT on September 4, 2018, with estimated maximum sustained winds of 70 mph. Gordon then tracked northwest into portions of inland southeast Mississippi late on the night of September 4th into the early morning of September 5th. Gordon produced sustained tropical storm force winds Greene and George counties in Mississippi, coastal Alabama, as well as Escambia County in Florida.

**Hurricane Zeta – October 28, 2020**—The county experienced sustained tropical storm force winds with frequent gusts of 80-100 MPH which resulted in widespread tree and power line damage throughout the county. Power outages were near or at 100%. Numerous homes suffered damage, mainly to roofs. Approximately 30 homes had major damage with 7 destroyed, due primarily to downed trees.

**Hurricane Francine – September 12, 2024**—Hurricane Francine impacted much of the south-central gulf coast states, making landfall in Louisiana. Tropical storm force winds and gusts extended eastward into Mississippi and Alabama, resulting in some minor damage across the area. Coastal flooding additionally impacted much of Mobile and Baldwin Counties.

In Greene County trees fell on powerlines nearly a mile in the woods off Corbit Road. Photos were relayed on social media.

### ***PROBABILITY OF FUTURE OCCURRENCES***

Based on historical evidence, the probability level of future occurrence is likely. According to the Atlantic Oceanographic and Meteorological Laboratory's Tropical Cyclone Climatology Page, all jurisdictions have a 30 to 40 percent chance to experience the effects of a Tropical Storm or Hurricane in any given year. 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.

Scientists and meteorologists predict tropical cyclones to increase in frequency, magnitude, and intensity as the climate continues to change. These increases could be catastrophic to MS Coastal areas and the counties near the coast. Scientists also predict that hurricanes could increase in frequency and strength in the near future due to the effects of Climate Change. This can be seen in the 2023 season with 23 named storms, 11 hurricanes, and 5 major hurricanes. This prediction makes the season the third most active season on record, behind the 2005 season with 28, and the 2020 season with a total of 30. It is expected that an above-average season next season with up to 25 named storms and 4-7 major hurricanes.

## **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, Greene County typically experiences several straight-line wind events each year. These wind events can and have caused significant damage. It is assumed that Greene 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 Greene 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 Greene County is uniformly exposed to lightning.

## HISTORICAL OCCURRENCES

### Thunderstorm / High Wind

Severe storms resulted in nine disaster declarations in Greene County in 1974, 1983, 1990, 2009, 2011, 2013, 2016, 2018, and 2023. According to NCEI, there have been 55 reported thunderstorm and high wind events since 2000 in Greene County. These events caused almost \$600 thousand in damages. **Table C.14** summarizes this information. **Table C.15** presents detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event.

**TABLE C.14 SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN GREENE COUNTY**

| Location                    | Number of Occurrences | Injuries | Deaths   | Property Damage  | Crop Damage |
|-----------------------------|-----------------------|----------|----------|------------------|-------------|
| <i>Leakesville</i>          | 13                    | 0        | 0        | \$60,000         | \$0         |
| <i>McLain</i>               | 1                     | 0        | 0        | \$100,000        | \$0         |
| <i>State Line</i>           | 0                     | 0        | 0        | \$0              | \$0         |
| <i>Unincorporated Area</i>  | 42                    | 2        | 0        | \$437,000        | \$0         |
| <b>Greene County Total:</b> | <b>56</b>             | <b>2</b> | <b>0</b> | <b>\$597,000</b> | <b>\$0</b>  |

Source: NCED/NOAA

**TABLE C.15: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN GREEN COUNTY**

| Location                   | Date       | Type      | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|----------------------------|------------|-----------|-----------|--------|----------|-----------------|-------------|
| <b>Town of Leakesville</b> |            |           |           |        |          |                 |             |
| <i>Leakesville</i>         | 1/4/2000   | TSTM Wind | 50 kts.   | 0      | 0        | \$4,000         | \$0         |
| <i>Leakesville</i>         | 1/19/2002  | TSTM Wind | 55 kts.   | 0      | 0        | \$5,000         | \$0         |
| <i>Leakesville</i>         | 12/24/2002 | TSTM Wind | 50 kts.   | 0      | 0        | \$8,000         | \$0         |
| <i>Leakesville</i>         | 6/3/2003   | TSTM Wind | 50 kts.   | 0      | 0        | \$5,000         | \$0         |
| <i>Leakesville</i>         | 10/27/2006 | TSTM Wind | 50 kts.   | 0      | 0        | \$10,000        | \$0         |
| <i>Leakesville</i>         | 6/19/2007  | TSTM Wind | 50 kts.   | 0      | 0        | \$8,000         | \$0         |
| <i>Leakesville</i>         | 7/24/2015  | TSTM Wind | 52 kts.   | 0      | 0        | \$5,000         | \$0         |
| <i>Leakesville</i>         | 1/2/2017   | TSTM Wind | 52 kts.   | 0      | 0        | \$5,000         | \$0         |
| <i>Leakesville</i>         | 4/3/2017   | TSTM Wind | 52 kts.   | 0      | 0        | \$5,000         | \$0         |
| <i>Leakesville</i>         | 11/1/2018  | TSTM Wind | 61 kts.   | 0      | 0        | \$5,000         | \$0         |

|                                             |            |            |         |    |    |           |     |
|---------------------------------------------|------------|------------|---------|----|----|-----------|-----|
| <i>Leakesville</i>                          | 6/7/2019   | TSTM Wind  | 52 kts. | 0  | 0  | \$0       | \$0 |
| <i>Leakesville</i>                          | 4/17/2022  | TSTM Wind  | 60 kts. | 0  | 0  | \$0       | \$0 |
| <i>Leakesville</i>                          | 4/17/2022  | TSTM Wind  | 61 kts. | 0  | 0  | \$0       | \$0 |
| <b>Town of McLain</b>                       |            |            |         |    |    |           |     |
| <i>McLain</i>                               | 4/8/2002   | TSTM Wind  | 65 kts  | 0  | 0  | \$100,000 | \$0 |
| <b>Town of State Line</b>                   |            |            |         |    |    |           |     |
| <i>State Line</i>                           | --         | --         | --      | -- | -- | --        | --  |
| <b>Unincorporated Area in Greene County</b> |            |            |         |    |    |           |     |
| <i>Kittrell</i>                             | 7/16/2000  | TSTM Wind  | 55 kts. | 0  | 0  | \$5,000   | \$0 |
| <i>Neely</i>                                | 7/22/2000  | TSTM Wind  | 55 kts. | 0  | 0  | \$5,000   | \$0 |
| <i>Rounsaville</i>                          | 3/12/2001  | TSTM Wind  | 70 kts. | 0  | 2  | \$50,000  | \$0 |
| <i>Sand Hill</i>                            | 7/7/2002   | TSTM Wind  | 50 kts. | 0  | 0  | \$8,000   | \$0 |
| <i>Sand Hill</i>                            | 7/21/2002  | TSTM Wind  | 50 kts. | 0  | 0  | \$10,000  | \$0 |
| <i>Kittrell</i>                             | 12/19/2002 | TSTM Wind  | 50 kts. | 0  | 0  | \$5,000   | \$0 |
| <i>Sand Hill</i>                            | 2/21/2003  | TSTM Wind  | 50 kts. | 0  | 0  | \$8,000   | \$0 |
| <i>Vernal</i>                               | 6/30/2003  | TSTM Wind  | 50 kts. | 0  | 0  | \$5,000   | \$0 |
| <i>Pisgah</i>                               | 6/30/2003  | TSTM Wind  | 50 kts. | 0  | 0  | \$5,000   | \$0 |
| <i>Sand Hill</i>                            | 7/6/2004   | TSTM Wind  | 50 kts. | 0  | 0  | \$8,000   | \$0 |
| <i>Bothwell</i>                             | 10/27/2006 | TSTM Wind  | 50 kts. | 0  | 0  | \$10,000  | \$0 |
| <i>Piave</i>                                | 4/14/2007  | TSTM Wind  | 50 kts. | 0  | 0  | \$25,000  | \$0 |
| <i>Avera</i>                                | 12/20/2007 | TSTM Wind  | 50 kts. | 0  | 0  | \$10,000  | \$0 |
| <i>Neely</i>                                | 1/31/2008  | TSTM Wind  | 50 kts. | 0  | 0  | \$60,000  | \$0 |
| <i>Sand Hill</i>                            | 2/12/2008  | TSTM Wind  | 50 kts. | 0  | 0  | \$12,000  | \$0 |
| <i>Sand Hill</i>                            | 5/3/2009   | TSTM Wind  | 52 kts. | 0  | 0  | \$10,000  | \$0 |
| <i>Neely</i>                                | 5/21/2010  | TSTM Wind  | 52 kts. | 0  | 0  | \$10,000  | \$0 |
| <i>Pisgah</i>                               | 3/9/2011   | TSTM Wind  | 70 kts. | 0  | 0  | \$20,000  | \$0 |
| <i>Jonathan</i>                             | 4/4/2011   | TSTM Wind  | 50 kts. | 0  | 0  | \$1,000   | \$0 |
| <i>Jonathan</i>                             | 6/11/2011  | TSTM Wind  | 60 kts. | 0  | 0  | \$2,000   | \$0 |
| <i>Avera</i>                                | 2/24/2012  | TSTM Wind  | 70 kts. | 0  | 0  | \$10,000  | \$0 |
| <i>Sand Hill</i>                            | 4/28/2014  | TSTM Wind  | 52 kts. | 0  | 0  | \$10,000  | \$0 |
| <i>Jonathan</i>                             | 4/25/2015  | TSTM Wind  | 52 kts. | 0  | 0  | \$10,000  | \$0 |
| <i>Vernal</i>                               | 5/20/2015  | TSTM Wind  | 52 kts. | 0  | 0  | \$1,000   | \$0 |
| <i>Sand Hill</i>                            | 6/21/2015  | TSTM Wind  | 52 kts. | 0  | 0  | \$2,000   | \$0 |
| <i>Avera</i>                                | 12/28/2015 | TSTM Wind  | 52 kts. | 0  | 0  | \$5,000   | \$0 |
| <i>Avera</i>                                | 2/15/2016  | TSTM Wind  | 52 kts. | 0  | 0  | \$3,000   | \$0 |
| <i>Sand Hill</i>                            | 2/23/2016  | TSTM Wind  | 52 kts. | 0  | 0  | \$40,000  | \$0 |
| <i>County Line</i>                          | 2/23/2016  | TSTM Wind  | 83 kts. | 0  | 0  | \$75,000  | \$0 |
| <i>Neely</i>                                | 4/3/2017   | TSTM Wind  | 61 kts. | 0  | 0  | \$10,000  | \$0 |
| <i>Pisgah</i>                               | 4/14/2018  | Heavy Rain | --      | 0  | 0  | \$0       | \$0 |
| <i>Sand Hill</i>                            | 4/18/2019  | TSTM Wind  | 52 kts. | 0  | 0  | \$2,000   | \$0 |
| <i>Jonathan</i>                             | 6/27/2019  | TSTM Wind  | 52 kts. | 0  | 0  | \$0       | \$0 |
| <i>Bothwell</i>                             | 4/19/2020  | TSTM Wind  | 52 kts. | 0  | 0  | \$0       | \$0 |
| <i>Jonathan</i>                             | 4/24/2021  | TSTM Wind  | 52 kts. | 0  | 0  | \$0       | \$0 |
| <i>County Line</i>                          | 2/3/2022   | TSTM Wind  | 52 kts. | 0  | 0  | \$0       | \$0 |
| <i>Jonathan</i>                             | 4/17/2022  | TSTM Wind  | 61 kts. | 0  | 0  | \$0       | \$0 |

|               |                  |                  |                |          |          |            |            |
|---------------|------------------|------------------|----------------|----------|----------|------------|------------|
| <b>Avera</b>  | <b>4/17/2022</b> | <b>TSTM Wind</b> | <b>70 kts.</b> | <b>0</b> | <b>0</b> | <b>\$0</b> | <b>\$0</b> |
| <b>County</b> | <b>6/14/2023</b> | <b>TSTM Wind</b> | <b>50 kts.</b> | <b>0</b> | <b>0</b> | <b>\$0</b> | <b>\$0</b> |
| <b>Pisgah</b> | <b>8/19/2024</b> | <b>TSTM Wind</b> | <b>54 kts.</b> | <b>0</b> | <b>0</b> | <b>\$0</b> | <b>\$0</b> |

Source: NCED/NOAA

## Hailstorm

According to the National Centers for Environmental Information, 32 recorded hailstorm events have affected Greene County since 2000. **Table C.16** is a summary of the hail events in Greene County. **Table C.17** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over \$3,000 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.

## Lightning

According to the National Centers for Environmental Information, there have been 2 recorded lightning events in Greene County since 2000. These events resulted in over \$70 Thousand in damages as listed in summary **Table C.16**. 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.17**.

**TABLE C.16: SUMMARY OF HAIL AND LIGHTNING OCCURRENCES IN GREENE COUNTY**

| <b>Location</b>             | <b>Number of Occurrences</b> | <b>Injuries</b> | <b>Deaths</b> | <b>Property Damage</b> | <b>Crop Damage</b> |
|-----------------------------|------------------------------|-----------------|---------------|------------------------|--------------------|
| <b>Leakesville</b>          | <b>13</b>                    | <b>0</b>        | <b>0</b>      | <b>\$50,000</b>        | <b>\$0</b>         |
| <b>McLain</b>               | <b>2</b>                     | <b>0</b>        | <b>0</b>      | <b>\$0</b>             | <b>\$0</b>         |
| <b>State Line</b>           | <b>0</b>                     | <b>0</b>        | <b>0</b>      | <b>\$0</b>             | <b>\$0</b>         |
| <b>Unincorporated Area</b>  | <b>19</b>                    | <b>0</b>        | <b>0</b>      | <b>\$23,000</b>        | <b>\$0</b>         |
| <b>Greene County Total:</b> | <b>34</b>                    | <b>0</b>        | <b>0</b>      | <b>\$73,000</b>        | <b>\$0</b>         |

Source: NCED/NOAA

**TABLE C.17: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN GREENE COUNTY**

| <b>Location</b>            | <b>Date</b>      | <b>Type</b>      | <b>Magnitude</b> | <b>Deaths</b> | <b>Injuries</b> | <b>Property Damage</b> | <b>Crop Damage</b> |
|----------------------------|------------------|------------------|------------------|---------------|-----------------|------------------------|--------------------|
| <b>Town of Leakesville</b> |                  |                  |                  |               |                 |                        |                    |
| <b>Leakesville</b>         | <b>3/3/2000</b>  | <b>Hail</b>      | <b>1 In.</b>     | <b>0</b>      | <b>0</b>        | <b>\$0</b>             | <b>\$0</b>         |
| <b>Leakesville</b>         | <b>4/26/2000</b> | <b>Hail</b>      | <b>0.75 In.</b>  | <b>0</b>      | <b>0</b>        | <b>\$0</b>             | <b>\$0</b>         |
| <b>Leakesville</b>         | <b>4/25/2003</b> | <b>Hail</b>      | <b>1 In.</b>     | <b>0</b>      | <b>0</b>        | <b>\$0</b>             | <b>\$0</b>         |
| <b>Leakesville</b>         | <b>8/23/2004</b> | <b>Lightning</b> | <b>--</b>        | <b>0</b>      | <b>0</b>        | <b>\$50,000</b>        | <b>\$0</b>         |
| <b>Leakesville</b>         | <b>4/25/2006</b> | <b>Hail</b>      | <b>0.88 In.</b>  | <b>0</b>      | <b>0</b>        | <b>\$0</b>             | <b>\$0</b>         |
| <b>Leakesville</b>         | <b>2/13/2007</b> | <b>Hail</b>      | <b>0.75 In.</b>  | <b>0</b>      | <b>0</b>        | <b>\$0</b>             | <b>\$0</b>         |
| <b>Leakesville</b>         | <b>2/18/2009</b> | <b>Hail</b>      | <b>0.88 In.</b>  | <b>0</b>      | <b>0</b>        | <b>\$0</b>             | <b>\$0</b>         |
| <b>Leakesville</b>         | <b>5/21/2010</b> | <b>Hail</b>      | <b>1.75 In.</b>  | <b>0</b>      | <b>0</b>        | <b>\$0</b>             | <b>\$0</b>         |
| <b>Leakesville</b>         | <b>7/4/2011</b>  | <b>Hail</b>      | <b>1.25 In.</b>  | <b>0</b>      | <b>0</b>        | <b>\$0</b>             | <b>\$0</b>         |
| <b>Leakesville</b>         | <b>1/22/2017</b> | <b>Hail</b>      | <b>1 In.</b>     | <b>0</b>      | <b>0</b>        | <b>\$0</b>             | <b>\$0</b>         |
| <b>Leakesville</b>         | <b>6/7/2019</b>  | <b>Hail</b>      | <b>1 In.</b>     | <b>0</b>      | <b>0</b>        | <b>\$0</b>             | <b>\$0</b>         |
| <b>Leakesville</b>         | <b>6/7/2019</b>  | <b>Hail</b>      | <b>1.50 In.</b>  | <b>0</b>      | <b>0</b>        | <b>\$0</b>             | <b>\$0</b>         |
| <b>Leakesville</b>         | <b>6/17/2023</b> | <b>Hail</b>      | <b>1.25 In.</b>  | <b>0</b>      | <b>0</b>        | <b>\$0</b>             | <b>\$0</b>         |



| Town of McLain                       |            |           |          |    |    |          |     |
|--------------------------------------|------------|-----------|----------|----|----|----------|-----|
| <i>McLain</i>                        | 3/17/2016  | Hail      | 1 In.    | 0  | 0  | \$0      | \$0 |
| <i>McLain</i>                        | 6/16/2023  | Hail      | 1 In.    | 0  | 0  | \$0      | \$0 |
| Town of State Line                   |            |           |          |    |    |          |     |
| <i>State Line</i>                    | --         | --        | --       | -- | -- | --       | --  |
| Unincorporated Area in Greene County |            |           |          |    |    |          |     |
| <i>Neely</i>                         | 7/7/2002   | Lightning | --       | 0  | 0  | \$20,000 | \$0 |
| <i>Kittrell</i>                      | 12/19/2002 | Hail      | 0.75 In. | 0  | 0  | \$0      | \$0 |
| <i>Leaf</i>                          | 3/9/2003   | Hail      | 0.75 In. | 0  | 0  | \$0      | \$0 |
| <i>Sand Hill</i>                     | 3/13/2003  | Hail      | 0.75 In. | 0  | 0  | \$0      | \$0 |
| <i>Kittrell &amp; Leaf</i>           | 4/25/2003  | Hail      | 0.75 In. | 0  | 0  | \$0      | \$0 |
| <i>Sand Hill</i>                     | 5/3/2003   | Hail      | 0.88 In. | 0  | 0  | \$0      | \$0 |
| <i>Leaf</i>                          | 5/3/2003   | Hail      | 1 In.    | 0  | 0  | \$0      | \$0 |
| <i>Jonathan</i>                      | 3/22/2005  | Hail      | 1.75 In. | 0  | 0  | \$3,000  | \$0 |
| <i>Bothwell</i>                      | 4/22/2005  | Hail      | 0.75 In. | 0  | 0  | \$0      | \$0 |
| <i>Piave</i>                         | 4/4/2008   | Hail      | 1 In.    | 0  | 0  | \$0      | \$0 |
| <i>Avera</i>                         | 3/8/2011   | Hail      | 1 In.    | 0  | 0  | \$0      | \$0 |
| <i>Avera</i>                         | 2/15/2016  | Hail      | 1 In.    | 0  | 0  | \$0      | \$0 |
| <i>Sand Hill</i>                     | 3/17/2016  | Hail      | 2 In.    | 0  | 0  | \$0      | \$0 |
| <i>Piave</i>                         | 4/15/2021  | Hail      | 1.75 In. | 0  | 0  | \$0      | \$0 |
| <i>Smithtown</i>                     | 4/16/2022  | Hail      | 1.75 In. | 0  | 0  | \$0      | \$0 |
| <i>Piave</i>                         | 6/17/2023  | Hail      | 1 In.    | 0  | 0  | \$0      | \$0 |
| <i>Jonathan</i>                      | 6/17/2023  | Hail      | 2.75 In. | 0  | 0  | \$0      | \$0 |
| <i>Jonathan</i>                      | 6/17/2023  | Hail      | 2 In.    | 0  | 0  | \$0      | \$0 |
| <i>Jonathan</i>                      | 6/17/2023  | Hail      | 1.75 In. | 0  | 0  | \$0      | \$0 |

Source: NCED/NOAA

## 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 Greene 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 Greene County via NCED 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®), Greene County is located in an area of the country that experienced an average of 6 to 8 lightning flashes per square kilometer per year.

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.

Due to Greene County's and the Municipalities' location in the Gulf Coast Region, thunderstorms are frequent to the area. Thunderstorms often cause damaging wind, heavy rain, and severe lighting. The thunderstorms can also produce tornadoes and hailstorms. There is 100% chance that thunderstorms will continue to occur in the coming years. Local records indicate numerous thunderstorms in Unincorporated Greene County and its jurisdictions since the Greene County Emergency Agency was formed. Typical damage during a windstorm/thunderstorm is down trees on power lines. All jurisdictions have aerial power lines that supply all residences electrical services. Power outages usually last 4-6 hours and poses more of an inconvenience than anything. It is not unusual for there to be structure damage with these types of storms, the damage usually consists of roof damage from the winds and from trees falling onto the homes. This damage is usually attributed to the squall lines associated fronts that move across the area. This type of damage can affect each of the jurisdictions equally and typically does. Greene County and the surround towns average 60 to 70 thunderstorms per year, which is above the national average. Due to the geographical location of Greene County, they will continue to have 60 to 70 thunderstorms in the coming years.

Meteorologists predict that thunderstorms will continue to increase in frequency, magnitude, and intensity as climate change continues to effect weather. These increases could greatly impact the county in crop and property damage and life safety. If these storms intensify it could also affect the economy of the county.

## C.2.12 Tornado

### **LOCATION AND SPATIAL EXTENT**

Tornadoes occur throughout the state of Mississippi, and thus in Greene 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 Greene County is uniformly exposed to this hazard. A tornado can strike at any time. In Mississippi, tornadoes occur most frequently during the months of February, April and November and in the afternoon hours between 3:00 pm and 7:00 pm. Tornadoes are commonly spawned by hurricanes, tropical storms, and thunderstorms; thus, there is a concurrent risk. Wind speeds in tornadoes range from values below that of hurricane speeds to more than 300 miles per hour. Maximum winds in tornadoes are often confined to extremely small areas, and vary tremendously over very short distances, even within the funnel cloud. During the fifty-eight-year period from January 14, 1950 through November 2024, twenty-four tornadoes were reported in Greene County and were Fujita-Scale-rated by the National Weather Service. The Fujita Tornado Scale (see **Table 8 in Section 5**), which classifies tornadoes into six intensity categories, has become the definitive measurement for estimating wind speeds within tornadoes based upon the damage done to structures. It is used extensively by the National Weather Service in investigating tornadoes and by engineers in correlating damage to building structures and techniques with different wind speeds caused by tornadoes. More advanced technology has made it possible to better inform citizens of approaching storms and to issue advisories that offer as much advance warning as possible. Because Greene County has had little history of tornadoes, and the media has become much more sophisticated in reporting impending events, Greene County's hazard risk from tornadoes is judged to be relatively nominal.

### HISTORICAL OCCURRENCES

Tornadoes resulted in eight disaster declarations in Greene County in 1983, 1990, 2009, 2011, 2013, 2017, and 2018. According to the National Centers for Environmental Information, there have been a total of 17 recorded tornado events in Greene County since 2000 (**Table C.18**), resulting in over \$12.6 million in property damages. In addition, 26 injuries and 1 death were reported. The magnitude of these tornadoes ranges from F0 to EF3 in intensity, although an F5 event is possible. Detailed information on historic tornado events can be found in **Table C.19**.

**TABLE C.18: SUMMARY OF TORNADO OCCURRENCES IN GREENE COUNTY**

| Location                    | Number of Occurrences | Deaths   | Injuries  | Property Damage     | Crop Damage |
|-----------------------------|-----------------------|----------|-----------|---------------------|-------------|
| <i>Leakesville</i>          | 1                     | 1        | 25        | \$11,100,000        | \$0         |
| <i>McLain</i>               | 2                     | 0        | 0         | \$0                 | \$0         |
| <i>State Line</i>           | 0                     | 0        | 0         | \$0                 | \$0         |
| <i>Unincorporated Area</i>  | 14                    | 0        | 1         | \$1,540,000         | \$0         |
| <b>Greene County Total:</b> | <b>17</b>             | <b>1</b> | <b>26</b> | <b>\$12,640,000</b> | <b>\$0</b>  |

Source: NCED/NOAA

**TABLE C.19: HISTORICAL TORNADO IMPACTS IN GREENE COUNTY**

| Location                                    | Date       | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|---------------------------------------------|------------|-----------|--------|----------|-----------------|-------------|
| <b>The Town of Leakesville</b>              |            |           |        |          |                 |             |
| <i>Leakesville</i>                          | 4/15/2011  | EF3       | 1      | 25       | \$11,100,000    | \$0         |
| <b>The Town of McLain</b>                   |            |           |        |          |                 |             |
| <i>McLain</i>                               | 12/25/2012 | EF1       | 0      | 0        | \$0             | \$0         |
| <i>McLain</i>                               | 3/30/2022  | EF2       | 0      | 0        | \$0             | \$0         |
| <b>The Town of State Line</b>               |            |           |        |          |                 |             |
| <i>State Line</i>                           | --         | --        | --     | --       | --              | --          |
| <b>Unincorporated Area in Greene County</b> |            |           |        |          |                 |             |
| <i>Avera</i>                                | 3/3//2000  | F0        | 0      | 0        | \$12,000        | \$0         |
| <i>Rounsaville</i>                          | 12/19/2002 | F0        | 0      | 0        | \$8,000         | \$0         |
| <i>Avera</i>                                | 12/23/2002 | F0        | 0      | 0        | \$8,000         | \$0         |

|                    |                   |            |          |          |                  |            |
|--------------------|-------------------|------------|----------|----------|------------------|------------|
| <b>Neely</b>       | <b>4/24/2003</b>  | <b>F0</b>  | <b>0</b> | <b>0</b> | <b>\$5,000</b>   | <b>\$0</b> |
| <b>Avera</b>       | <b>11/24/2004</b> | <b>F0</b>  | <b>0</b> | <b>0</b> | <b>\$5,000</b>   | <b>\$0</b> |
| <b>Rounsaville</b> | <b>4/22/2005</b>  | <b>F0</b>  | <b>0</b> | <b>0</b> | <b>\$25,000</b>  | <b>\$0</b> |
| <b>Avera</b>       | <b>11/15/2006</b> | <b>F1</b>  | <b>0</b> | <b>0</b> | <b>\$750,000</b> | <b>\$0</b> |
| <b>Avera</b>       | <b>4/4/2011</b>   | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$500,000</b> | <b>\$0</b> |
| <b>Kittrell</b>    | <b>4/15/2011</b>  | <b>EF0</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b>   | <b>\$0</b> |
| <b>Avera</b>       | <b>2/23/2016</b>  | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$125,000</b> | <b>\$0</b> |
| <b>Kittrell</b>    | <b>2/23/2016</b>  | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$100,000</b> | <b>\$0</b> |
| <b>Piave</b>       | <b>2/10/2020</b>  | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$0</b>       | <b>\$0</b> |
| <b>Avera</b>       | <b>4/17/2022</b>  | <b>EF2</b> | <b>0</b> | <b>1</b> | <b>\$0</b>       | <b>\$0</b> |
| <b>County Line</b> | <b>11/30/2022</b> | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$0</b>       | <b>\$0</b> |

Source: NCED/NOAA

**November 15, 2006**—The tornado first touched down near Avera Baptist Church on Pleasant Valley Road. This was where most of the damage was observed. The front part of the church roof was torn off. The tornado then moved east northeast damaging trees and causing roof damage along Pleasant Valley Road. The tornado crossed State Highway 63 causing roof damage to a few homes. The tornado continued east northeast over open countryside downing trees along its path. The tornado lifted back into the clouds near Indian Hill Road.

**April 4, 2011**—The tornado damage was found to be along a path extending from approximately 9 miles northwest of Neely, Mississippi to approximately 13 miles south-southwest of State Line Mississippi. The tornado primarily snapped or uprooted thousands of pine trees along a 100-yard-wide path, producing minor to moderate damage to the roofs of several homes and a church. One metal barn was destroyed near Avera as the tornado moved through.

**April 15, 2011**—The National Weather Service aerial survey revealed a continuous long track tornado from just west of Leakesville, Mississippi to Deer Park, Alabama. The tornado touched down west of Leakesville south of Highway 57. It crossed the highway, strengthened to EF-3 intensity, and then turned east toward the city of Leakesville paralleling Highway 57. The tornado damaged 98 homes: 47 with minor damage, 28 with major damage, and 23 homes completely destroyed. 14 businesses were completely destroyed. One fatality occurred in a destroyed mobile home. There were also 25 injuries in Greene County. In Mississippi, the tornado did an estimated 11.1 million dollars' worth of property damage to homes and businesses. The tornado continued east northeast into extreme southwest Washington County, Alabama.

**February 23, 2016**—The tornado initially touched down along MS-63 southeast of the community of Avera. A homestead was affected as it moved northeast. At the homestead...Metal roofing material from a barn was lofted into an adjacent tree. A trailer was also overturned...with a motor vehicle moved from its initial position. Some minor structural damage to the barn was also noted. Numerous (mostly) pine trees were either blown down or snapped as the storm headed into a less populated area of the county. The tornado lifted just east-southeast of Avera.

A second brief tornado touchdown was found in vicinity of Shady Hollow Road in northern Greene County. A couple of trees with large branches were sheared in a forested area several dozen yards to the west of the road. The tornado quickly moved across the road...EF1 damage was noted as many pine trees were either uprooted or snapped. Damage in this area coincides with an operator-defined tornado vortex signature.

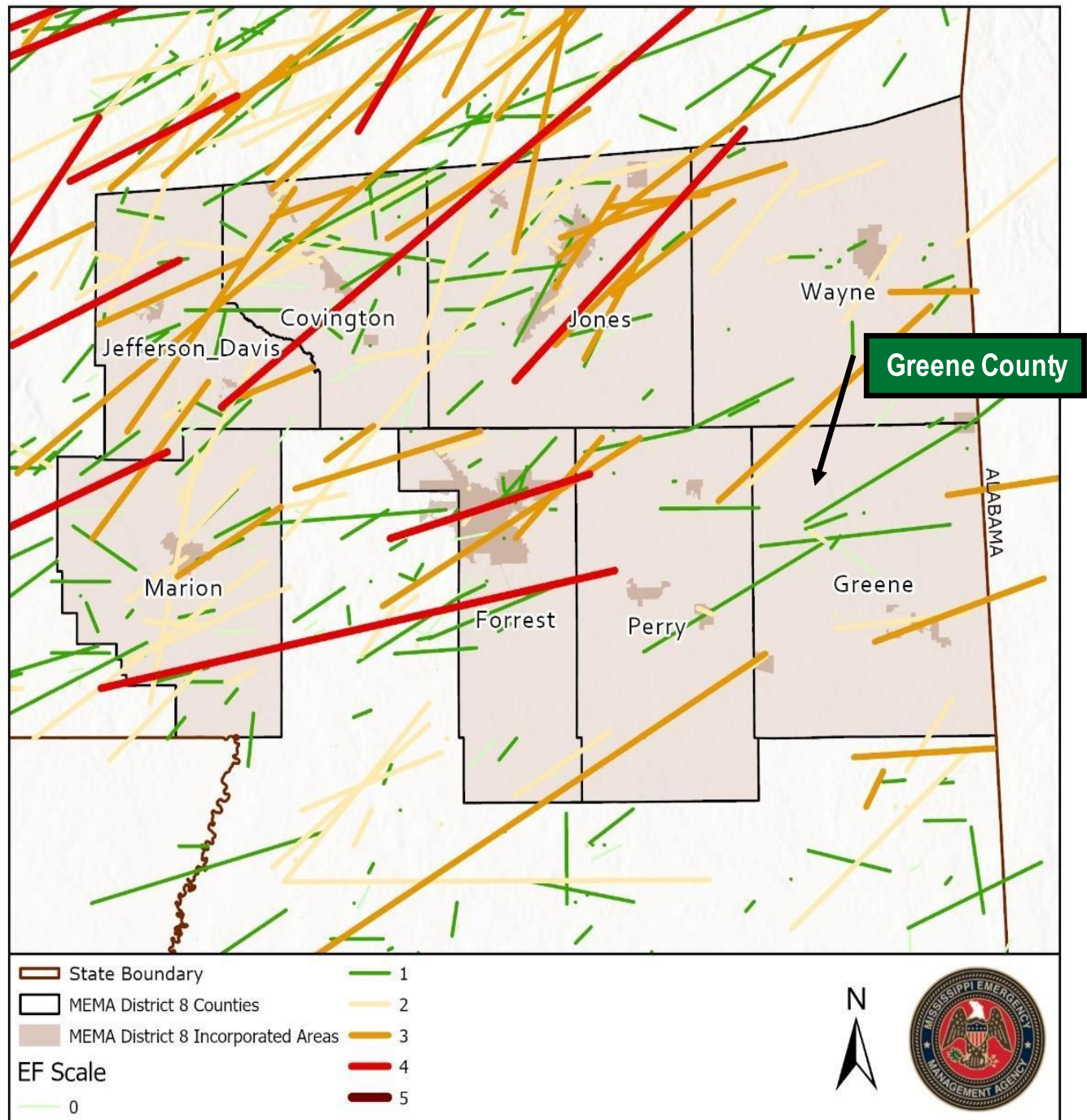
The storm survey team found a third tornado touchdown in a heavily wooded area near the Greene/Wayne county line. Numerous large diameter (greater than 2 feet) hardwood and pine trees were either snapped near the base of the trunk or uprooted. Significant damage occurred to a log cabin built in 1909 just inside the Wayne County line...with windowpanes blown out and large portions of the roof destroyed. A detached outbuilding...built roughly at the same time...was destroyed by a large tree falling on its north side. The tornado continued affecting mostly wooded areas before lifting just to the northeast of Woulard Bend River Road.

**April 17, 2022**—A QLCS produced a tornado off of Highway 63 and Lovewell Road south of the town of Avera, initially snapping and uprooting trees. One of the trees fell onto a vehicle near a manufactured home. As the tornado moved southeast it strengthened into an EF-2, snapping and decimating many large hardwood oak trees. The degree of damage to these trees were enough to support a higher end intensity estimate. A large tree limb from one of these oak trees was turned into a projectile and injured a woman when it pierced the side of the aforementioned manufactured home. The tornado proceeded southeast, continuing to destroy hardwood trees in its wake. It passed through an open field before coming upon more trees and



a small, manufactured home. It snapped and uprooted many of these trees (both soft and hardwood), with two falling onto the manufactured home. The tornado then likely weakened to an EF-1 and continued southeastward, almost parallel to Highway 63. It lifted and dissipated just before it reached Avera Road, but not before tossing a large grain holder and tearing off metal portions of a nearby barn roof. Debris from this roofing was seen strewn out over the field.

**FIGURE C.6: MAP OF TORNADOS IN GREENE COUNTY**



### **PROBABILITY OF FUTURE OCCURRENCES**

According to historical information, tornado events pose a significant threat to Greene County. The probability of future tornado occurrences affecting Greene County is likely (10 – 100 percent annual probability).

It is predicted that tornadoes and the type of storms that create tornadoes will increase in intensity, frequency, and magnitude as the temperature rises with climate change. More frequent strong tornadoes could have a large economic impact on each



community in the county. It could also increase injuries and/death counts if the tornadoes increase in magnitude. Debris and other objects picked up by the wind could create missiles that are moved with enough force to damage and even penetrate windows, doors, walls, and other parts of buildings. In general, the stronger the wind, the larger and heavier the missiles it can carry and the greater the risk of severe damage. Even small stones, branches and other lighter missiles can easily break doors and windows. Tornadoes are unpredictable and difficult to predict the amount of damage each one could inflict.

It is predicted that tornadoes and the type of storms that create tornadoes will increase in intensity, frequency, and magnitude as the temperature rises with climate change. More frequent strong tornadoes could have a large economic impact on each community in the county. It could also increase injuries and/death counts if the tornadoes increase in magnitude.

Since tornadoes are hard to predict, the mitigation efforts have focused on programs to educate the public on early warning, proper sheltering techniques, and both individual and community storm shelters. In the educational programs, the importance of NOAA weather radios and other early warning devices are one of the main topics. Due to the terrain, timber, and separation of residences in Unincorporated Greene County, the uses of sirens as early warning devices are cost prohibitive. Other means of early warning, such as reverse 911, are being investigated to determine the effectiveness and the feasibility.

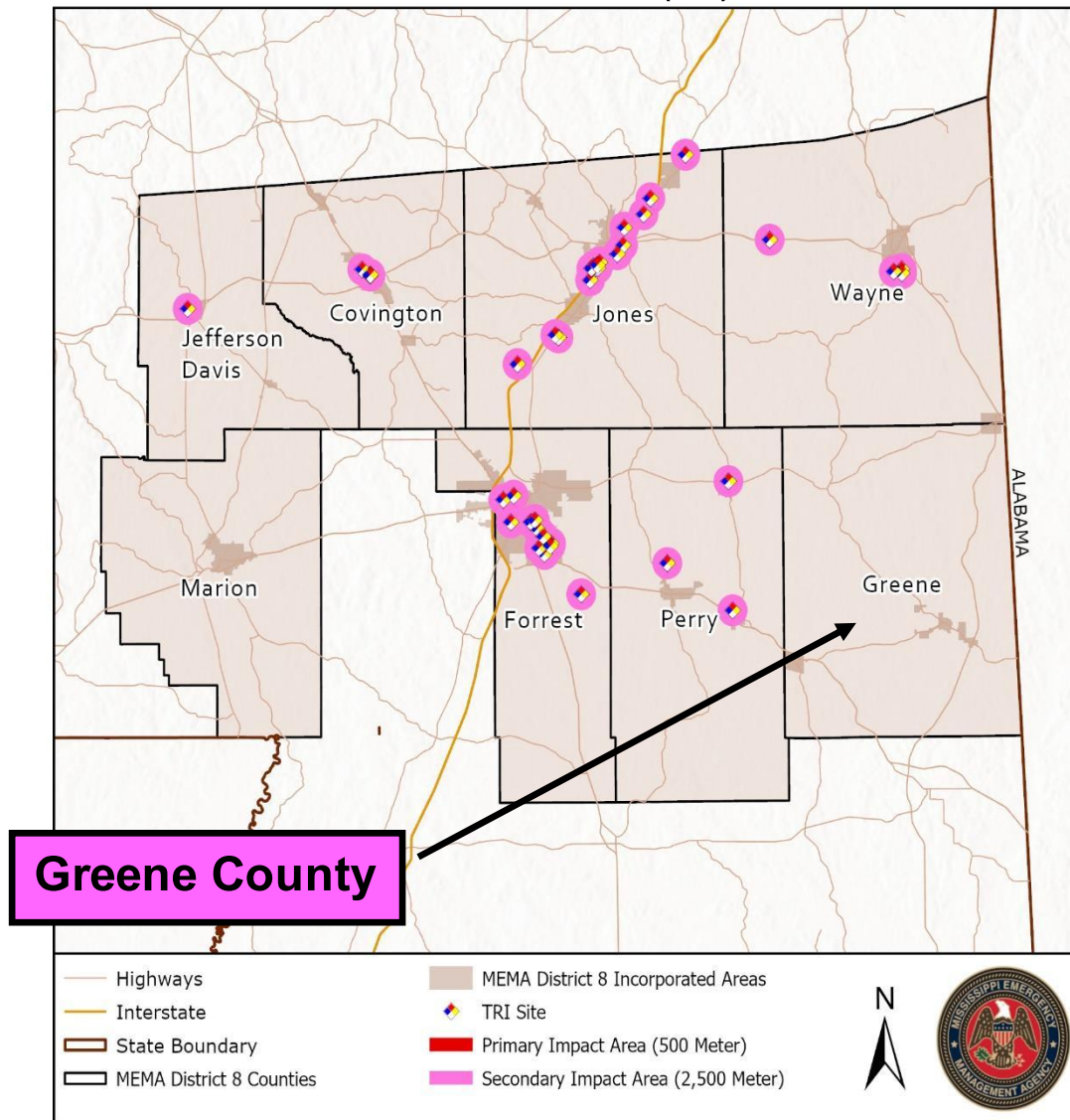
It is predicted that tornadoes and the type of storms that create tornadoes will increase in intensity, frequency, and magnitude as the temperature rises with climate change. More frequent strong tornadoes could have a large economic impact on each community in the county. It could also increase injuries and/death counts if the tornadoes increase in magnitude.

## C.2.13 Hazardous Materials Incidents

### *LOCATION AND SPATIAL EXTENT*

#### **Hazardous Materials**

Greene County has no TRI sites as shown in **Figure C.7**.

**FIGURE C.7: TOXIC RELEASE INVENTORY (TRI) SITES IN GREENE COUNTY**

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 C.8** shows the pipelines in Greene County.

### Meth Labs

Meth lab incidents have occurred at various times throughout Greene 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**

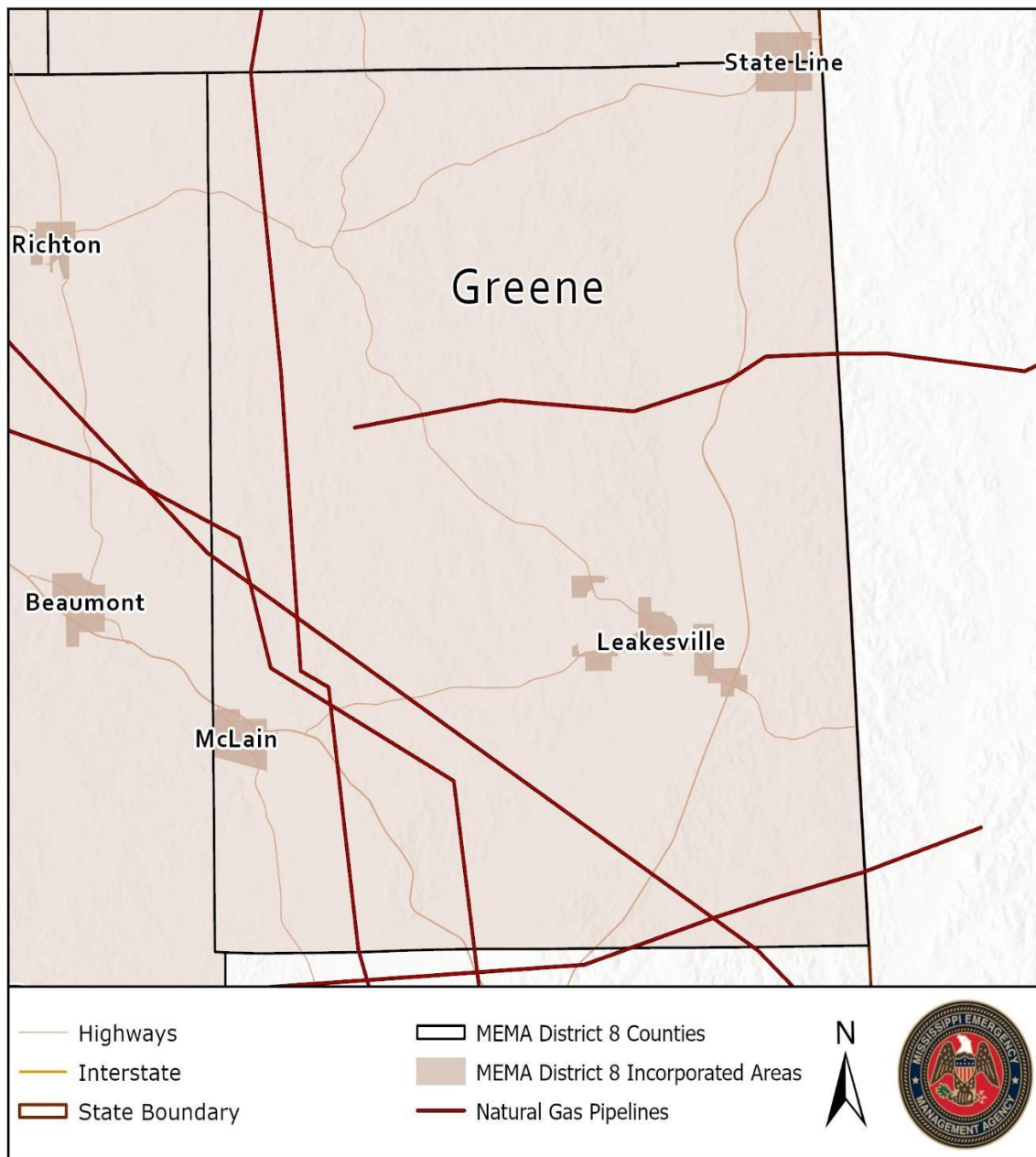
### Hazardous Materials

There has been a total of one recorded HAZMAT incident in Greene County since 2003, resulting in \$0 in property damages. **Table C.20** presents detailed information on historic HAZMAT incidents in Greene County as reported by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA).

## Pipelines

There have been no pipeline incidents in Greene County.

**FIGURE C.8: PIPELINES RUNNING THROUGH GREENE COUNTY**



## Meth Labs

Meth lab incidents have occurred at various times throughout Greene 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 Greene 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.

### Meth Labs

Meth lab incidents will likely continue to occur throughout Greene 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 Greene 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 Greene County to date.

### **PROBABILITY OF FUTURE OCCURRENCES**

As is the case for any governmental organization, there will always be the potential for impact for Greene 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. Greene 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 Pandemic**

### **LOCATION AND SPATIAL EXTENT**

Pandemics are global in nature. However, they may start anywhere. Greene County chose to analyze this hazard given the devastating effects of the COVID 19 Virus. Viruses can mutate to reinfect humans, and new viruses can occur that can have huge socioeconomic effects.



All populations should be considered at risk to pandemic. Buildings and infrastructure are not directly impacted by the virus but could be indirectly impacted if people are not able to operate and maintain them due to illness. Many buildings may be shutdown, at least temporarily, as a result. Employers may initiate work from home procedures for non-essential workers in order to help stop infection. Commerce activities, and thus the economy, may suffer greatly during this time.

## **HISTORICAL OCCURRENCES**

Several pandemics have been reported throughout history. The first known pandemic dates back to 430 B.C. with the Plague of Athens. It reportedly killed a quarter of the population over four years due to typhoid fever. In 165-180 A.D., the Antonine Plague killed nearly 5 million people. Next, the Plague of Justinian (the first bubonic plague pandemic) occurred from 541 to 566. It killed 10,000 people a day at its peak and resulted in a 50 percent drop in Europe's population.

Since the 1500s, influenza pandemics have occurred about three times every century or roughly every 10-50 years. The Black Death devastated European populations in the 14th century. Nearly a third of the population (20-30 million) was killed over six years. From 1817 to present, seven Cholera Pandemics have impacted to the world and killed millions. Perhaps most severe, was the Third Cholera Pandemic (1852-1959) which started in China. Isolated cases can still be found in the Western U.S. today. There were three major pandemics in the 20th century (1918-1919, 1957-1958, and 1968-1969). The most infamous pandemic flu of the 20th century, however, was that of 1918-1919. Since the 1960s, there has only been one pandemic, the 2009 H1N1 influenza. The pandemics of the 20th and 21st centuries that impacted the United States are detailed below.

**1918 Spanish Flu:** This was the most devastating flu of the 20th century. This pandemic spread across the world in three waves between 1918 and 1919. It typically impacted areas for around twelve weeks and then would largely disappear. However, it would frequently reemerge several months later. Worldwide, approximately 50 million persons died and over a quarter of the population was infected. Nearly 675,000 people died in the United States. The illness came on suddenly and could cause death within a few hours. The virus impacted those aged 15 to 35 especially hard. The movement of troops during World War I is thought to have facilitated the spread of the virus.

In Mississippi, state officials noted that "epidemics have been reported from a number of places in the State," on October 4th, 1918. By the 18th, twenty-six localities reported 1,934 cases (the real number of cases was likely much higher). West Point, Mississippi was hit especially hard, and quarantine was established. Throughout the state, African Americans were impacted at a greater rate than white populations. This is thought to be partly caused from a shortage of caretakers. It is estimated that over 6,000 people died in Mississippi, though that number may be much higher as death records were not widely recorded.

**1957 Asian Flu:** It is estimated that the Asian Flu caused 2 million deaths worldwide. Approximately 70,000 deaths were in the U.S. However, the proportion of people impacted was substantially higher than that of the Spanish Flu. This flu was characterized as having much milder effects than the Spanish Flu and greater survivability. Similar to other pandemics, this pandemic has two waves. Elderly and infant populations were more likely to succumb to death. This flu is thought to have originated from a genetic mutation of a bird virus.

**1968 Hong Kong Flu:** The Hong Kong Flu is thought to have caused one million deaths worldwide. It was milder than both the Asian and Spanish influenza viruses. It was similar to the Asian Flu, which may have provided some immunity to the virus. It had the most severe impact on elderly populations.

**2009 H1N1 Influenza:** This flu was derived from human, swine, and avian virus strains. It was initially reported in Mexico in April 2009. On April 26, the U.S. government declared H1N1 a public health emergency. A vaccine was developed and over 80 million were vaccinated which helped minimize the impacts. The virus had mild impacts on most of the population but did cause death (usually from viral pneumonia) in high-risk populations such as pregnant women, obese persons, indigenous people, and those with chronic respiratory, cardiac, neurological, or immunity conditions. Worldwide, it is estimated that 43 million to 89 million people contracted H1N1 between April 2009 and April 2010, and between 8,870 and 18,300 H1N1 cases resulted in death.

**COVID-19 (coronavirus disease 2019):** Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019 and changed the way people view Pandemics. Greene County had 3,927 cases of COVID and 61 deaths.

COVID-19 most often causes respiratory symptoms that can feel much like a cold, the flu, or pneumonia. COVID-19 may attack more than your lungs and respiratory system. Other parts of your body may also be affected by the disease. Most people with COVID-19 have mild symptoms, but some people become severely ill. Some people are more likely than others to get very sick

if they get COVID-19. This includes people who are older, are immunocompromised, have certain disabilities, or have underlying health conditions.

In addition to the pandemics above, there have been several cases of pandemic threats, some of which reached epidemic levels. They were contained before spreading globally. Examples include Smallpox, Polio, Tuberculosis, Malaria, AIDS, SARS and Yellow Fever. Advances in medicine and technology have been instrumental in containing the spread of viruses in recent history.

### **PROBABILITY OF FUTURE OCCURRENCES**

Based on historical occurrence information, it is assumed that Greene County has a probability level of unlikely (less than 1 percent annual probability) for future pandemics events. While pandemic can have devastating impacts, they are relatively rare.

The Mississippi State Department of Health maintains a state pandemic plan which can be found here: <http://www.msdh.state.ms.us/msdhsite/index.cfm/44,1136,122,154,pdf/SNSPlan.pdf>

## **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.21** describes the extent of each natural hazard identified for Greene County. The extent of a hazard is defined as its severity or magnitude, as it relates to the planning area.

**TABLE C.21: EXTENT OF GREENE COUNTY HAZARDS**

# HAZARD DESCRIPTION

## Tectonic 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 Greene County. According to data provided by the National Geophysical Data Center, no recorded earthquakes have been located in the county. However, USGS data shows Greene County lies within an approximate zone of level .04 ground acceleration. This indicates that the county exists within an area of moderate seismic risk.

## Mass-Movements

### Landslide

As noted above in the landslide profile, there is no extensive history of landslides in Greene 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 Greene 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 Greene County.

## Hydraulic Hazards

### Drought

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. Greene County has not received this ranking over the eighteen-year reporting period.

### Floods

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 Greene 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.

### Dam Failure

Dam Failure extent is defined using the Mississippi Division of Environmental Quality criteria. There are no dams classified as high hazard.

## Meteorological Hazards

### Hurricane and Tropical Storms

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 Greene County was a Category 2 storm (Hurricane Camille in 1969) which carried tropical force winds of 115 miles per hour upon arrival in the county.

### Thunderstorms/ Hail/ Lightning/ Wind

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 Greene County was last reported on February 23, 2016, at 83 knots (approximately 96 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 Greene County was 2.75 inches (last reported on June 17, 2023). It should be noted that future events may exceed this. According to the Vaisala's flash density map, Greene 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.

### Winter Storms

The extent of winter storms can be measured by the amount of snowfall received (in inches). February 12, 2010, Snowfall accumulations ranged from a dusting to as much as 4 inches across interior southeast Mississippi. The Sheriff's office reported 3.5 inches of snow in Leakesville. 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.

### Temperature Extremes/ Heat Wave

July 2000—July was a hot and dry month in Southeast Mississippi. 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. In Wiggins the temperature was 100 degrees or higher nine days during the month with 105 degrees being the hottest. In addition to being hot was also a dry month across the area. Most stations ended up with below normal rainfall totals for the month.

July 2008—Heat advisories were issued for a combination of high temperatures and high humidities. Heat index values were between 110 and 115 degrees. Several public buildings and churches allowed people to come in and cool off during the heat of the day.

### 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 Greene County was an EF3 (reported on April 15, 2011).

## Biological Hazards

### Pandemic

The extent of a pandemic impacting the county is difficult to estimate. It could result in thousands of deaths and extreme disruption of commerce and everyday life. Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019 and changed the way people view Pandemics. Greene County had 3,927 cases of COVID and 61 deaths.

## Other Natural Hazards

### Wildfire

Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2010-2023. The greatest number of fires to occur in Greene County in any year was 81 in 2011. The greatest number of acres to burn in the county in a single year occurred in 2011 when 1,183 acres were burned. Although this data lists the extent that has occurred, larger and more frequent wildfires are possible throughout the county.

### Erosion

The extent of erosion can be defined by the measurable rate of erosion that occurs. There are no erosion rate records located in Greene County.

### Climate Change

The extent climate change will impact Greene County is hard to estimate. It could cause more intense, frequent, and/or magnitude of thunderstorms, tropical storms, winds, tornadoes, heavy rains, flash flooding... If the intensity and magnitude increase so will property damage and possible loss of life.

## Other Hazards

### 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 depend on the demands of the cyberterrorist.

### Hazard Materials Incident

According to USDOT PHMSA, the largest hazardous materials incident reported in the county occurred in 2003, released on the highway. It should be noted that large 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.

## PRIORITY RISK INDEX RESULTS

In order to draw some meaningful planning conclusions on hazard risk for Greene 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.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 C.22: SUMMARY OF PRI RESULTS FOR GREENE COUNTY**

| HAZARD | Category/Degree of Risk |        |         |              |          |     |
|--------|-------------------------|--------|---------|--------------|----------|-----|
|        | Probability             | Impact | Spatial | Warning Time | Duration | PRI |

|                                             |               |               | Extent      |                    |                    | Score      |
|---------------------------------------------|---------------|---------------|-------------|--------------------|--------------------|------------|
| <b>Tectonic Hazards</b>                     |               |               |             |                    |                    |            |
| <b>Earthquake</b>                           | Unlikely      | Minor         | Moderate    | Less than 6 hours  | Less than 6 Hours  | <b>1.7</b> |
| <b>Mass-Movement Hazards</b>                |               |               |             |                    |                    |            |
| <b>Landslide</b>                            | Unlikely      | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | <b>1.5</b> |
| <b>Expansive Soil</b>                       | Possible      | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | <b>1.8</b> |
| <b>Hydrologic Hazards</b>                   |               |               |             |                    |                    |            |
| <b>Drought</b>                              | Highly Likely | Minor         | Large       | More than 24 hours | More than 1 week   | <b>2.8</b> |
| <b>Floods</b>                               | Likely        | Limited       | Moderate    | 6 to 12 hours      | Less than 24 hours | <b>2.4</b> |
| <b>Dam Failure</b>                          | Unlikely      | Critical      | Moderate    | More than 24 hours | Less than 24 hours | <b>2.0</b> |
| <b>Meteorological Hazards</b>               |               |               |             |                    |                    |            |
| <b>Hurricane/Tropical Storms</b>            | Likely        | Catastrophic  | Large       | More than 24 hours | Less than 24 hours | <b>3.2</b> |
| <b>Thunderstorm/High Wind</b>               | Highly Likely | Limited       | Moderate    | Less than 6 hours  | Less than 6 hours  | <b>2.9</b> |
| <b>Hailstorm</b>                            | Likely        | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | <b>2.1</b> |
| <b>Lightning</b>                            | Highly Likely | Limited       | Negligible  | Less than 6 hours  | Less than 6 hours  | <b>2.5</b> |
| <b>Winter Storms</b>                        | Likely        | Limited       | Moderate    | More than 24 hours | Less than 24 hours | <b>2.3</b> |
| <b>Temperature Extremes/<br/>Heat Waves</b> | Highly Likely | Likely        | Small       | More than 24 hours | More than 1 week   | <b>2.8</b> |
| <b>Tornado</b>                              | Likely        | Critical      | Small       | Less than 6 hours  | Less than 6 hours  | <b>2.7</b> |
| <b>Biological Hazards</b>                   |               |               |             |                    |                    |            |
| <b>Pandemic</b>                             | Likely        | Limited—Major | Small—Large | More than 24 hours | More than a week   | <b>2.8</b> |
| <b>Other Natural Hazards</b>                |               |               |             |                    |                    |            |
| <b>Wildfire</b>                             | Likely        | Minor         | Small       | Less than 6 hours  | Less than one week | <b>2.3</b> |
| <b>Erosion</b>                              | Possible      | Minor         | Small       | More than 24 hours | More than 1 week   | <b>1.8</b> |
| <b>Climate Change</b>                       | Possible      | Critical      | Large       | More than 1 week   | More than 1 week   | <b>2.6</b> |
| <b>Other Hazards</b>                        |               |               |             |                    |                    |            |
| <b>Cyber Attack</b>                         | Unlikely      | Limited       | Small       | Less than 6 hours  | Less than 24 hours | <b>1.9</b> |
| <b>Hazardous Materials<br/>Incident</b>     | Unlikely      | Limited       | Small       | Less than 6 hours  | Less than 24 hours | <b>1.9</b> |
| <b>Meth Lab Incident</b>                    | Possible      | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | <b>1.8</b> |
| <b>Pipeline Incident</b>                    | Possible      | Limited       | Small       | Less than 6 hours  | Less than 24 hours | <b>2.2</b> |

## C.2.16 Final Determinations on Hazard Risk

The conclusions drawn from the hazard profiling process for Greene 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.23). 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 Greene 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 C.23: CONCLUSIONS ON HAZARD RISK FOR GREENE COUNTY**

|                      |                                                                                                                                                                                    |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High Risk</b>     | <i>Drought/Heat Wave</i><br><i>Hurricane and Tropical Storm</i><br><i>Thunderstorm/ High Wind</i><br><i>Tornado</i><br><i>Flood</i><br><i>Lightning</i><br><i>Pandemic</i>         |
| <b>Moderate Risk</b> | <i>Climate Change</i><br><i>Hail</i><br><i>Pipeline Incident</i><br><i>Hazardous Materials Incident</i><br><i>Wildfire</i><br><i>Dam Failure</i><br><i>Winter Storm and Freeze</i> |
| <b>Low Risk</b>      | <i>Expansive Soil</i><br><i>Landslide</i><br><i>Meth Lab Incident</i><br><i>Pandemic</i><br><i>Erosion</i><br><i>Cyber Attack</i>                                                  |

## C.3 GREENE COUNTY VULNERABILITY ASSESSMENT

This subsection identifies and quantifies the vulnerability of Greene 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 amounts 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.24** lists the estimated number of improved properties and the total value of improvements for Greene County and its participating jurisdictions (study area of vulnerability assessment). This data was obtained from HAZUS since digital parcel data was not available in this county.

**TABLE C.24: IMPROVED PROPERTY IN GREENE COUNTY**

| LOCATION      | Number of Improved Properties | Total Assessed Value of Improvements |
|---------------|-------------------------------|--------------------------------------|
| Greene County |                               |                                      |

**Table C.25** lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools and other critical facilities located in Greene County. HAZUS was used to obtain the critical facilities for the county and this data was modified to reflect recent changes. In addition, **Figure C.8** shows the locations of essential facilities in Greene County. **Table C.26**, 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.25: CRITICAL FACILITY INVENTORY IN GREENE COUNTY**

| Location                    | Fire Station | Police Station | Medical Care Facility | EOC      | Schools  |
|-----------------------------|--------------|----------------|-----------------------|----------|----------|
| <i>Leakesville</i>          | 1            | 2              | 1                     | 1        | 2        |
| <i>McLain</i>               | 1            | 1              | 0                     | 0        | 1        |
| <i>State Line</i>           | 1            | 1              | 0                     | 0        | 0        |
| <i>Unincorporated Area</i>  | 7            | 0              | 0                     | 0        | 4        |
| <b>Greene County Total:</b> | <b>10</b>    | <b>3</b>       | <b>1</b>              | <b>1</b> | <b>6</b> |

Source: HAZUS-MH 4.2 and Planning Committee

**Table C.26** 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").

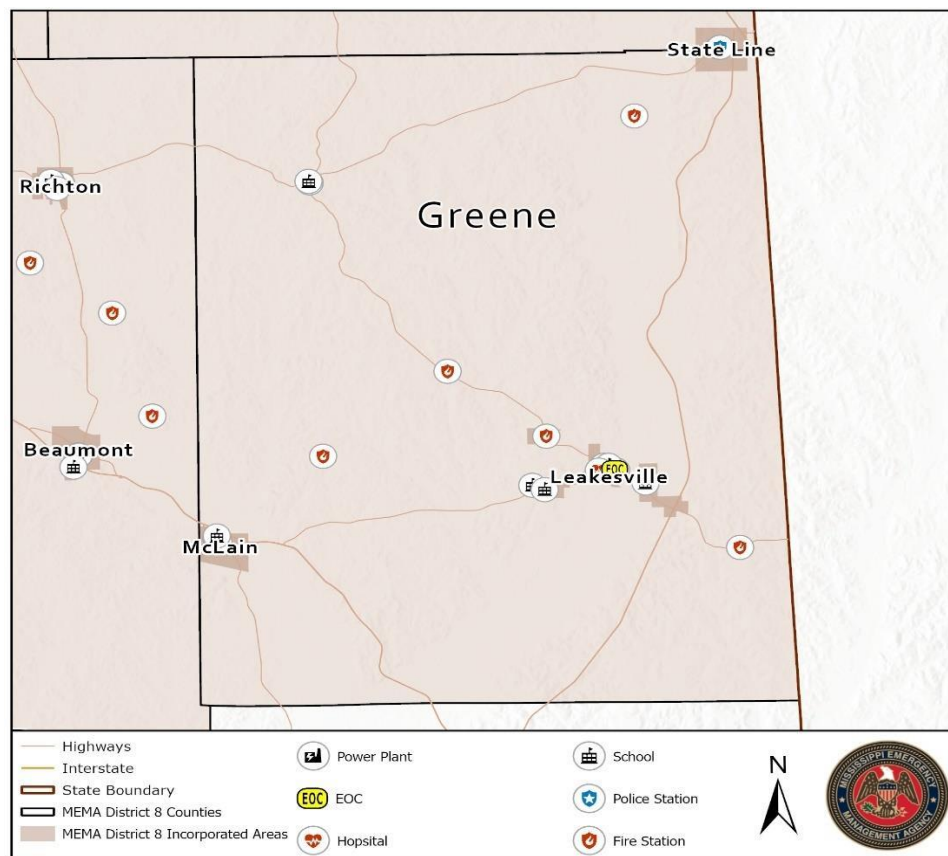
|          |          | Other |                        |                         | Atmospheric |                |                     |         |                | Geologic |            | Hydrologic  |          |          |
|----------|----------|-------|------------------------|-------------------------|-------------|----------------|---------------------|---------|----------------|----------|------------|-------------|----------|----------|
| Facility | Facility | WHP   | Fixed HAZMAT 500-2500M | Mobile HAZMAT 500-2500M | Drought     | Thunder-storm, | Hurricane /Tropical | Tornado | Winter Storm & | Earth-   | Land-slide | Dam & Levee | 100-Year | 500-Year |

| Name                              | Type            | Hazard | Roads & Rails          | Roads & Rails           |             | Lightning, & Hail | Storm               |         | Freeze         | quake    |            | Failure     | Flood     | Flood     |
|-----------------------------------|-----------------|--------|------------------------|-------------------------|-------------|-------------------|---------------------|---------|----------------|----------|------------|-------------|-----------|-----------|
| Greene County Critical Facilities |                 |        |                        |                         |             |                   |                     |         |                |          |            |             |           |           |
| Greene CO Circuit Court           | Govt.           |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Greene CO Chancery Court          | Govt.           |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Green CO Sheriff's Dept.          | Police Station  |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Greene CO Correctional Facility   | Police Facility |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Greene CO Emerg. Manag.           | EOC             |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Greene CO Beat IV VFD             | Fire Station    |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Greene CO Justice Court           | Govt.           |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Greene CO Courthouse              | Govt.           |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Greene CO Rural Health            | Nursing Home    |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Greene CO BOS                     | Govt.           |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Greene CO Hospital                | Care Facility   |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Greene Co. High School            | School          |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Greene Co. Career & Tech.         | School          |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Leakesville City Hall             | Govt.           |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Leakesville Police Dept.          | Police Station  |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Leakesville VFD                   | Fire Station    |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Leakesville Rehab & Nursing Home  | Care Facility   |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Leakesville Public Works          | Public Works    |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Leakesville Comm. Center          | Govt.           |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Leakesville Elem. School          | School          |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Leakesville Middle School         | School          |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Family Medical Clinic             | Care Facility   |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Leakesville Medical               | Care Facility   |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| Wesley Medical                    | Care Facility   |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| McLain City Hall                  | Govt.           |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| McLain Police Dept.               | Police Station  |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| McLain Public Works               | Public Works    |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| McLain VFD                        | Fire Station    |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
| McLain JR. HS Shelter             | School/ Shelter |        |                        |                         |             | X                 | X                   | X       | X              | X        | X          |             |           |           |
|                                   |                 | Other  |                        |                         | Atmospheric |                   |                     |         |                | Geologic |            | Hydrologic  |           |           |
| Facility                          | Facility        | WHP    | Fixed HAZMAT 500-2500M | Mobile HAZMAT 500-2500M | Drought     | Thunder -storm,   | Hurricane /Tropical | Tornado | Winter Storm & | Earth-   | Land-slide | Dam & Levee | 100- Year | 500- Year |

| Name                                        | Type          | Hazard     | Roads & Rails                   | Roads & Rails                    |             | Lightning, & Hail                | Storm                     |         | Freeze                | quake       |            | Failure             | Flood          | Flood          |
|---------------------------------------------|---------------|------------|---------------------------------|----------------------------------|-------------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
| Greene County Critical Facilities Continued |               |            |                                 |                                  |             |                                  |                           |         |                       |             |            |                     |                |                |
| State Line City Hall                        | Govt.         |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Knobtown VFD                                | Fire Station  |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Turner – Duvall Assisted Living             | Care Facility |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Sandhill VFD                                | Fire Station  |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Sandhill VFD #2                             | Fire Station  |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Sandhill Jr. High School                    | School        |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Beat 3 County Barn                          | Govt.         |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Beat 4 County Barn                          | Govt.         |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Brookwood Manor                             | Nursing Home  |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Bellsouth Main Switch                       | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Cellular South Tower                        | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Communication Tower                         | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Communication Tower                         | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Natural Gas Pumping Station                 | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| 911 Communication Tower                     | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Green Co. Beat 3 Water System               | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| SREPA Substation                            | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| SREPA Substation                            | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| SREPA Substation                            | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Singing River Substation                    | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| SE Greene Co. Water Well                    | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| SE Greene Col Water Authority               | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| SE Supply Pipeline                          | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| SE Supply Pipeline Header                   | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Southern Pine Energy                        | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| TDS Substation                              | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Water Pump                                  | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
| Water Tank                                  | Utility       |            |                                 |                                  |             | X                                | X                         | X       | X                     | X           | X          |                     |                |                |
|                                             |               | Other      |                                 |                                  | Atmospheric |                                  |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
| Facility Name                               | Facility Type | WHP Hazard | Fixed HAZ MAT 500-2500M Roads & | Mobile HAZ MAT 500-2500M Roads & | Drought     | Thunder-storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |

|                                             |                |  |  | Rails | Rails |   |   |   |   |   |   |  |  |  |
|---------------------------------------------|----------------|--|--|-------|-------|---|---|---|---|---|---|--|--|--|
| Greene County Critical Facilities Continued |                |  |  |       |       |   |   |   |   |   |   |  |  |  |
| Water Tank & Building                       | Utility        |  |  |       |       | X | X | X | X | X | X |  |  |  |
| Water Tank with chlorinators                | Utility        |  |  |       |       | X | X | X | X | X | X |  |  |  |
| Water Tower                                 | Utility        |  |  |       |       | X | X | X | X | X | X |  |  |  |
| Water Tower with Building                   | Utility        |  |  |       |       | X | X | X | X | X | X |  |  |  |
| Jonathan VFD                                | Fire Station   |  |  |       |       | X | X | X | X | X | X |  |  |  |
| Neely VFD                                   | Fire Station   |  |  |       |       | X | X | X | X | X | X |  |  |  |
| Mt. Pisgah VFD                              | Fire Station   |  |  |       |       | X | X | X | X | X | X |  |  |  |
| Pine Belt Mental Health                     | Care Facility  |  |  |       |       | X | X | X | X | X | X |  |  |  |
| State Line Police Dept.                     | Police Station |  |  |       |       | X | X | X | X | X | X |  |  |  |
| State Line Public Works                     | Public Works   |  |  |       |       | X | X | X | X | X | X |  |  |  |
| State Line VFD                              | Fire Station   |  |  |       |       | X | X | X | X | X | X |  |  |  |
| State Line Medical                          | Care Facility  |  |  |       |       | X | X | X | X | X | X |  |  |  |

FIGURE C.8: CRITICAL FACILITY LOCATIONS IN JEFFERSON DAVIS COUNTY



### 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 Greene County that are potentially at risk to these hazards.



**Table C.27** lists the population by jurisdiction according to U.S. Census 2010 and 2020 population. The results are presented as county-wide and city estimates. The total estimated population in Greene County according to the 2023 Census data is 13,601 persons. Due to the overall decrease in population, there is a chance the population vulnerability could decrease with the exception of Leakesville. Leakesville had a significant increase of 320% which will likely cause an increase in population vulnerability. Additional population estimates are presented above in C.1.

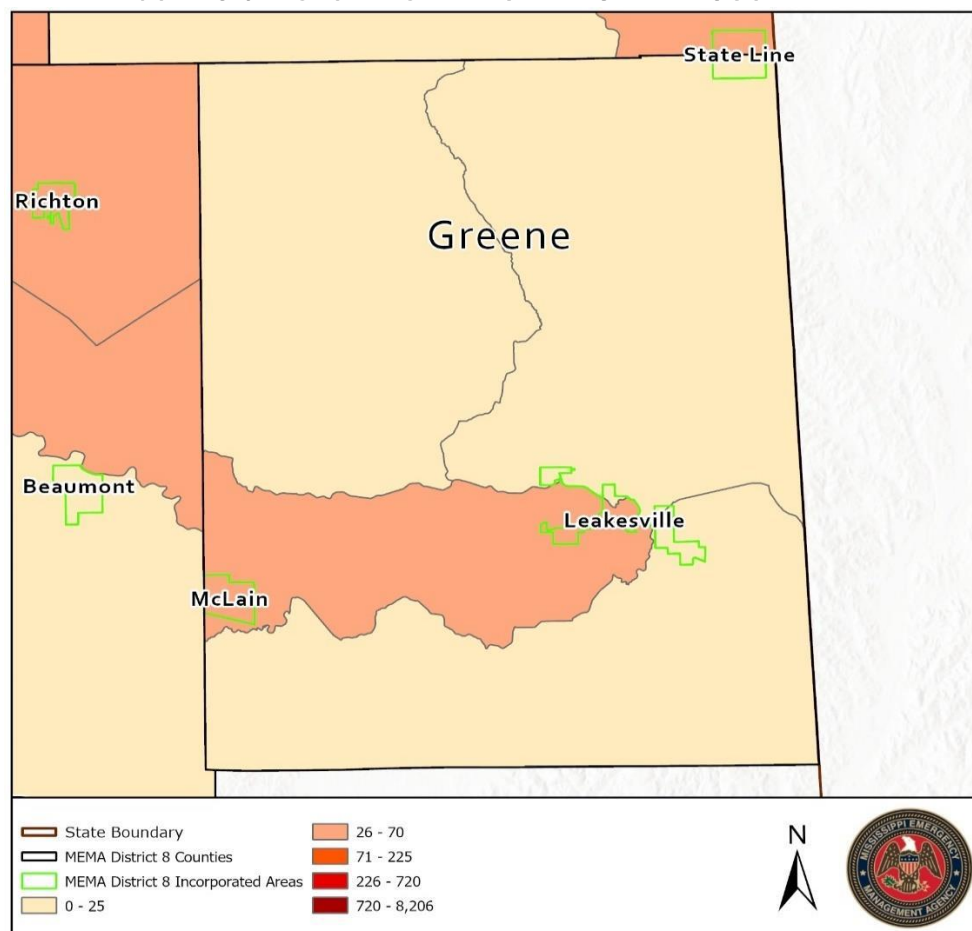
**TABLE C.27 TOTAL POPULATION IN GREENE COUNTY**

| Jurisdiction                | 2010 Census   | 2020 Census   |
|-----------------------------|---------------|---------------|
| <b>Greene County Total:</b> | <b>14,400</b> | <b>13,530</b> |
| <i>Leakesville</i>          | 898           | 3,775         |
| <i>McLain</i>               | 441           | 313           |
| <i>State Line</i>           | 565           | 452           |
| <i>Unincorporated Area</i>  | 12,496        | 8,990         |

Source: US Census Bureau

In addition, **Figure C.9** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2020. This information has not changed since the last plan update.

**FIGURE C.9: POPULATION DENSITY IN GREENE COUNTY**



### 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 Greene 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.22**.

Since the previous plan, the jurisdictions are not aware of any developments in hazard prone areas that have increased or decreased vulnerability.

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 Greene County is susceptible to flood events. A total of 26 flood events have been reported by the National Centers for Environmental Information resulting in \$667 thousand 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 would have been inaccurate and the results would not have been useful.

### *Social Vulnerability*

Since 2020 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 Greene County 1.0-percent annual chance floodplain, valued at over \$10.8M. There are seven critical facilities located in the Greene 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 C.26**.

In conclusion, a flood has the potential to impact many existing and future buildings and populations in Greene 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.

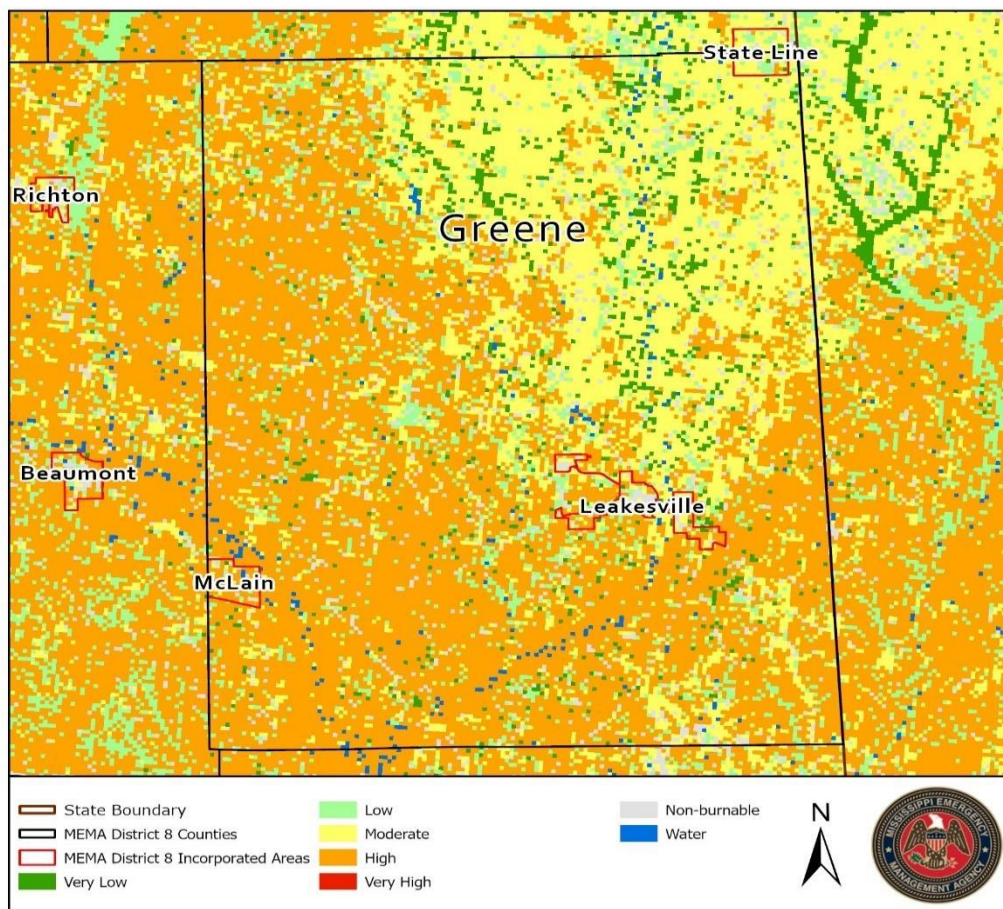
## WILDFIRE

Although historical evidence indicates that Greene County is susceptible to wildfire events, there are few reports of damage.

To estimate exposure to wildfire, the wildfire hazard potential (WHP) 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 C.10** shows the wildfire hazard potential for Greene County. Most of the planning areas falls within the low to high category.

**FIGURE C.10: WILDFIRE RISK AREAS IN GREENE COUNTY**



### 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 C.26**.

In conclusion, a wildfire event has the potential to impact many existing and future buildings, critical facilities, and populations in Greene County.

## EARTHQUAKE

The HAZUS earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS 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 scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS 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 arbitrary scenario.

### **Critical Facilities**

There are 32 critical facilities identified for Greene 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 Greene County. The HAZUS scenario indicates that minimal damage is expected from an earthquake occurrence. While Greene 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 C.26**.

## **HURRICANE AND TROPICAL STORM**

Historical evidence indicates that Greene 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 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 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 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 estimated economic losses for the scenario event. HAZUS 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 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 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 Greene 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 Greene 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 C.26** 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 Greene County. Hurricane events can cause substantial damage in their wake including fatalities, extensive debris clean-up, and extended power outages.

## **HAZARDOUS MATERIALS INCIDENT**

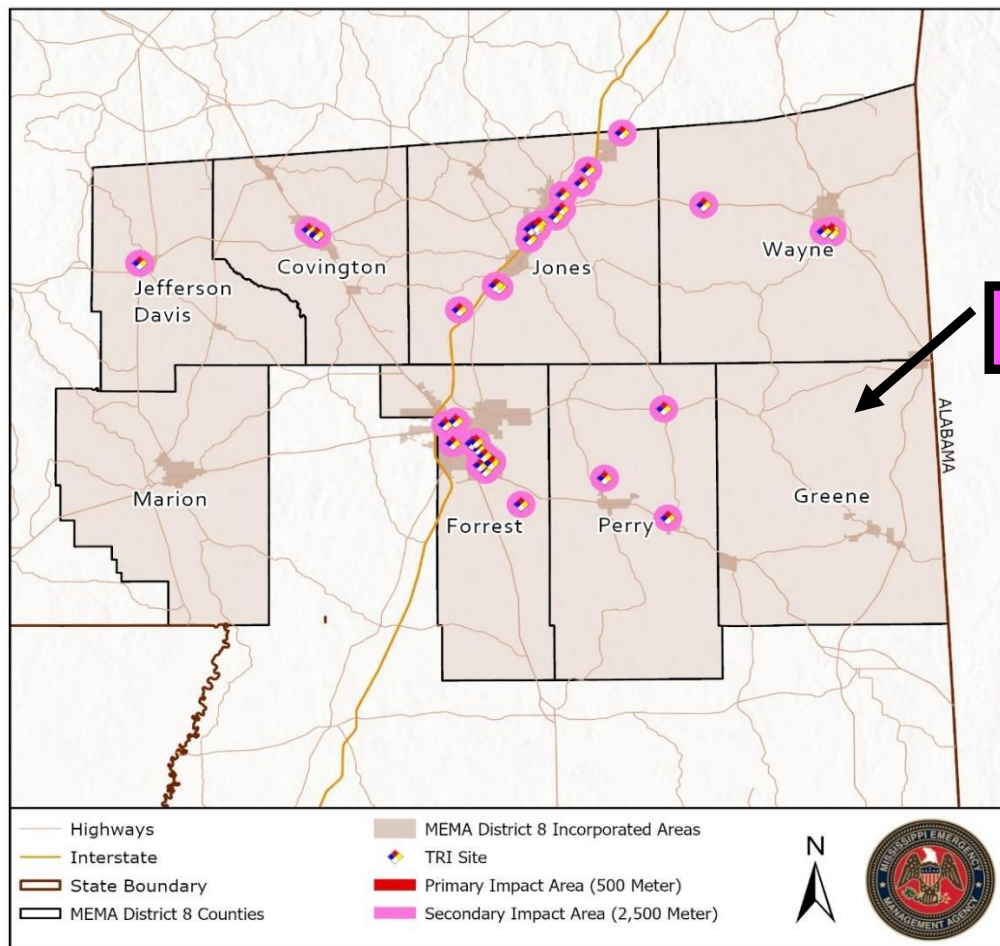


Although there are no existing Toxic Release Inventory sites in Greene County, it is susceptible to hazardous materials events due to highways, railroads, and/or pipelines. Although there are few reports of damage, but there is a possibility they can happen.

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.

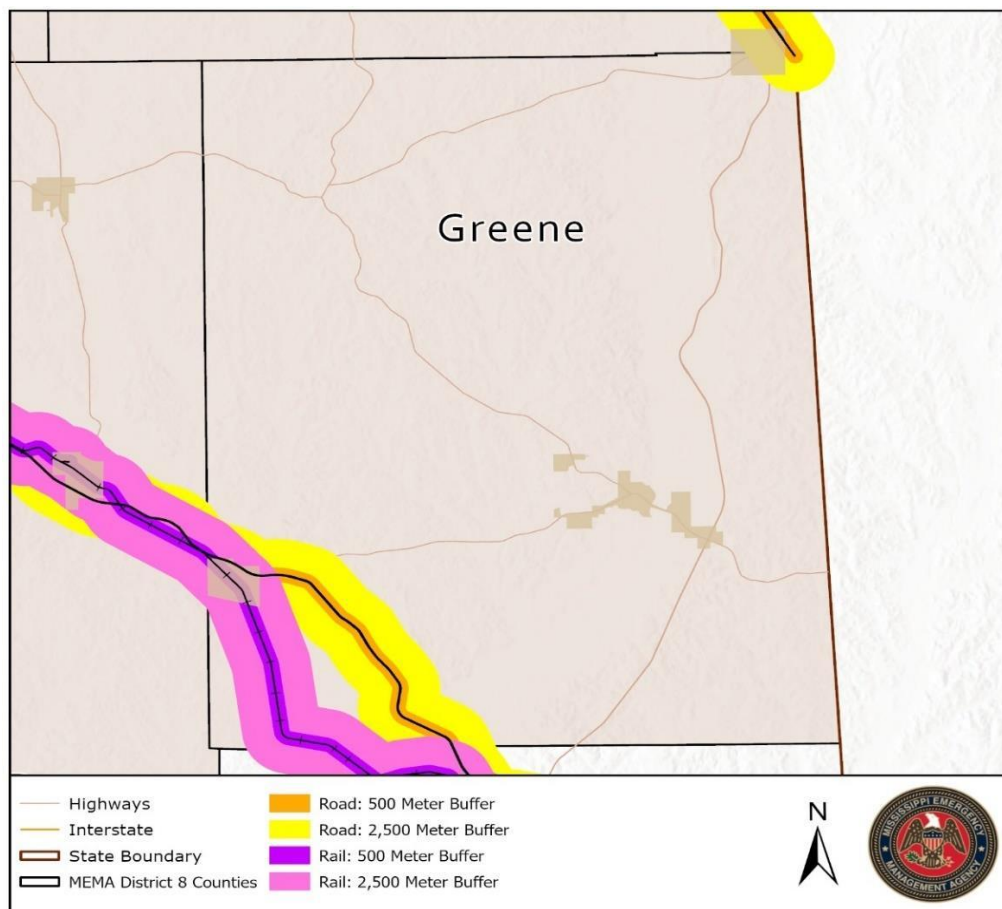
In order to conduct the vulnerability assessment for this hazard, GIS intersection analysis was used for fixed and mobile are as and parcels. In both scenarios, two sizes of buffers—500 and 2,500 meters—were used. These areas are assumed to respect the different levels of effect: immediate (primary) 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 Greene County, along with buffers, were used for analysis as shown in **Figure C.11**. There are No TRI sites located in Greene 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, see **Figure C.12**.

**FIGURE C.11: TRI SITES WITH BUFFERS IN GREENE COUNTY**



**FIGURE C.12: MOBILE HAZMAT BUFFERS IN GREENE 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 18 critical facilities that would be impacted by only the 500M HAZMAT risk zone, which are valued at over \$59.2M. There are 30 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 C.26**.

#### Mobile Analysis:

The critical facility analysis for transportation corridors in Greene County revealed that there are 15 critical 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 32 critical facilities located in the highway mobile HAZMAT buffer areas are vulnerable, valued at over \$330M. There are 31 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 C.26**.

In conclusion, a hazardous material incident has the potential to impact many existing and future buildings, critical facilities, and populations in Greene 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.

## C.4 GREENE COUNTY CAPABILITY ASSESSMENT

This subsection discusses the capability of Greene 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.28** provides a summary of the relevant local plans, ordinances, and programs already in place or under development for Greene 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.28: RELEVANT PLANS, ORDINANCES, AND PROGRAMS**

| Planning/Regulatory Tool                | Greene County | Leakesville | McLain | State Line |
|-----------------------------------------|---------------|-------------|--------|------------|
| Hazard Mitigation Plan                  | ✓             | ✓           | ✓      | ✓          |
| Comprehensive Land Use Plan             |               |             |        |            |
| Floodplain Management Plan              |               |             |        |            |
| Open Space Management Plan              |               |             |        |            |
| Stormwater Management Plan/Ordinance    |               |             |        |            |
| National 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 Codes                          |               | ✓           | ✓      | ✓          |
| Fire Codes                              |               |             |        |            |
| National Flood Insurance Program (NFIP) |               |             |        |            |
| National Community Rating System        |               |             |        |            |

## EMERGENCY MANAGEMENT

### *Hazard Mitigation Plan*

Greene County has previously adopted a hazard mitigation plan. The Town of Leakesville, Town of McLain, and the Town of State Line were also included in this plan.

### *Emergency Operations Plan*

Greene County maintains an emergency operations plan through its Emergency Management Agency. The Town of Leakesville, Town of McLain, and the Town of State Line are each covered by this plan.

## GENERAL PLANNING

### *Comprehensive Land Use Plan*

Greene County has not adopted a county comprehensive land use plan.

### *Zoning Ordinance*

Greene County does not have a zoning ordinance in place. However, the Town of Leakesville, Town of McLain, and Town of State Line have zoning ordinances that were adopted in 1972 and 1973, respectively.

### *Subdivision Ordinance*

Greene County does not have a subdivision ordinance in place.

### *Building Codes, Permitting, and Inspections*

Greene County has not adopted a building code.

## FLOODPLAIN MANAGEMENT

**Table C.29** provides NFIP policy and claim information for each participating jurisdiction in Greene County.

**TABLE C.29: NFIP POLICY AND CLAIM INFORMATION**

| Location       | Date Joined NFIP | Current Effective Map Date | NFIP Policies in Force | Insurance in Force | Closed Claims | Total Payments to Date |
|----------------|------------------|----------------------------|------------------------|--------------------|---------------|------------------------|
| Greene County† | --               | --                         | --                     | --                 | --            | --                     |
| Leakesville    | --               | --                         | --                     | --                 | --            | --                     |
| McLain         | --               | --                         | --                     | --                 | --            | --                     |
| State Line     | --               | --                         | --                     | --                 | --            | --                     |

†Includes unincorporated areas of county only  
(M) – No Elevation Determined, All Zone A, C and X

### *Flood Damage Prevention Ordinance*

All communities participating in the NFIP are required to adopt a local flood damage prevention ordinance. Greene County, Town of Leakesville, Town of McLain, and Town of State Line all participate in the NFIP and have adopted flood damage prevention ordinances.

### *Open Space Management Plan*

Greene County, the Town of Leakesville, Town of McLain and the Town of State Line 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.30** provides a summary of the capability assessment results for Greene 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.30: RELEVANT STAFF / PERSONNEL RESOURCES**

| <b>Staff/Personal Resource</b>                                                                          | <b>Greene County</b> | <b>Leakesville</b> | <b>McLain</b> | <b>State Line</b> |
|---------------------------------------------------------------------------------------------------------|----------------------|--------------------|---------------|-------------------|
| Planners with knowledge of land development/ land management practices                                  |                      |                    |               |                   |
| Engineers of 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 HAZ-US                                                                  |                      |                    |               |                   |
| 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.

### C.4.3 Fiscal Capability

**Table C.31** provides a summary of the results for Greene 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.31: RELEVANT FISCAL RESOURCES**

| <b>Fiscal Tool/Resource</b>                             | <b>Greene County</b> | <b>Leakesville</b> | <b>McLain</b> | <b>State Line</b> |
|---------------------------------------------------------|----------------------|--------------------|---------------|-------------------|
| Capital Improvement Programing                          |                      |                    |               |                   |
| Community Development Block Grants (CDBG)               |                      |                    |               |                   |
| Special Purchase 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 |                      |                    |               |                   |

### C.4.4 Political Capability

During the months immediately following a disaster, local public opinion in Greene County is more likely to shift in support of hazard mitigation efforts.

## C.5 GREENE COUNTY MITIGATION STRATEGY

This subsection provides the blueprint for Greene 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

Greene 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.32**.

**TABLE C.32: MEMA DISTRICT 8 REGIONAL MITIGATION GOALS**

| Goal            |                                                                                                                                                                                  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Goal #1</b>  | Strategies to reduce death, injury, property damage, infrastructure damage, response costs, and recovery costs.                                                                  |
| <b>Goal #2</b>  | Enhance preparedness and effective response to technological or transportation hazards.                                                                                          |
| <b>Goal #3</b>  | Enhance and improve the ability to mitigate potential loss of revenue from civil hazards.                                                                                        |
| <b>Goal #4</b>  | Invest in community facilities and infrastructure to ensure the safety of individuals, reduce damage to public buildings, and ensure continuity of emergency services.           |
| <b>Goal # 5</b> | Provide Education about Potential Hazards and Risks; Expand Awareness of Protective Measures That Can Be Taken To Minimize the Potential of Loss of Life and Damage to Property. |

### C.5.2 Mitigation Action Plan

The mitigation actions proposed by Greene County, the Town of Leakesville, the Town of McLain, and the Town of State Line are listed in the following individual Mitigation Action Plans.

## Greene County Mitigation Action Plan



## Goal 1: Strategies to reduce death, injury, property damage, infrastructure damage, response costs, and recovery costs.

| Action #                                                                                                            | Description                                                                                                                                                                                                   | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party   | Completion Date (Target) | Implementation Status |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-----------------|----------------|---------------------|--------------------------|-----------------------|
| <b>1a. Renovate existing public buildings to meet modern standards.</b>                                             |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1a.1                                                                                                                | The jurisdictions will work to make existing public buildings resistant to damage from manmade and natural disasters.                                                                                         | All Hazards         | Medium            | HMGP            | TBD            | County Engineer     | Ongoing                  | Ongoing               |
| <b>1b. Provide for redundancy in public and infrastructure operations.</b>                                          |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1b.1                                                                                                                | The jurisdictions will work to ensure that their public functions and infrastructure will have the capability to be operational in the event of manmade and natural disasters.                                | All Hazards         | High              | HMGP, Self-Fund | TBD            | EMA Director        | Annual Review            | Ongoing               |
| <b>1c. Develop strategies and plan to provide for minimization of damage and disturbance.</b>                       |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1c.1                                                                                                                | The jurisdictions will develop strategies, plans, and or ordinances to guide development toward low-risk areas.                                                                                               | All Hazards         | High              | Self-Fund       | TBD            | EMA Deputy Director | Annual Review            | Ongoing               |
| <b>1d. Purchase equipment that will lower response and recovery cost and accelerate response and recovery time.</b> |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1d.1                                                                                                                | The jurisdictions will prioritize and purchase equipment that will provide for an overall benefit to the community. (Important factors are increasing response and recovery time and lowering overall costs.) | HU, TS              | High              | Self-Fund       | Unknown        | County, Mayors      | Annual Review            | Ongoing               |
| <b>1e. Provide stockpiles of essential items.</b>                                                                   |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1e.1                                                                                                                | Establish stockpiles of fuel (gasoline and diesel), N-95 masks, potassium iodine tablets and other commodities that are not readily available and needed during emergencies.                                  | All Hazards         | High              | Self-Fund       | TBD            | EMA Director        | Ongoing                  | Completed & Ongoing   |

## Goal 2: Enhance preparedness and effective response to technological or transportation hazards.

| Action #                                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                               | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party   | Completion Date (Target) | Implementation Status           |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-----------------|----------------|---------------------|--------------------------|---------------------------------|
| <b>2a. Support planning and coordination among agencies</b>                                              |                                                                                                                                                                                                                                                                                                                                                                                           |                     |                   |                 |                |                     |                          |                                 |
| 2a.1                                                                                                     | Host a meeting to review Greene County Comprehensive Emergency Management Plan with requirements of the National Incident Management System (NIMS).                                                                                                                                                                                                                                       | All Hazards         | Medium            | Self-Fund       | Low to no cost | EMA Deputy Director | Bi-Annual Review         | Complete & Ongoing              |
| 2a.2                                                                                                     | Host a meeting with representatives from each emergency response agency within the County to review Greene County's CEMP, and the individual areas of responsibility, as well as areas for enhanced coordinated response, particularly in areas related to technological/ transportation hazards.                                                                                         | All Hazards         | Medium            | Self-Fund       | Low to no cost | EMA Deputy Director | Bi-Annual Review         | Complete & Ongoing              |
| <b>2b: Provide cross-jurisdictional continuity for the development and maintenance of infrastructure</b> |                                                                                                                                                                                                                                                                                                                                                                                           |                     |                   |                 |                |                     |                          |                                 |
| 2b.1                                                                                                     | Address cross-jurisdictional issues related to response, recovery, and mitigation on key projects with overlapping boundaries by exploring opportunities to join with neighboring jurisdictions to resolve common infrastructure issues, particularly involving roadways and drainage systems. (There are several common roadways and waterways that could be addressed collaboratively.) | All Hazards         | Low to Medium     | Self-Fund       | Unknown        | County BOS          | Not completed            | Ongoing pending available funds |
| 2b.2                                                                                                     | Hazard Mitigation Committee should work together to address common infrastructure and/or natural hazard issues.                                                                                                                                                                                                                                                                           | All Hazards         | Low to Medium     | Self-Fund       | Unknown        | County BOS          | Not completed            | Ongoing pending available       |

|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          | funds                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|--------------------------------------|----------------|------------------------------------------|--------------------------|---------------------------------|
| <b>2c: Actively search for and identify funding sources for the enhancement of emergency response abilities of fire and sheriff's departments.</b>                                    |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 2c.1                                                                                                                                                                                  | Pursue outside funding sources and opportunities for enhancement of firefighting activities and staff with certifications, equipment/trucks to enhance capabilities, hiring of additional personnel, and advanced training opportunities for police and fire personnel.         | All Hazards         | Medium to High    | Self-Fund, DHS, SAFER Grants, Others | Unknown        | County Fire Coordinator & County Sheriff | Ongoing                  | Completed & Ongoing             |
| <b>Goal 3: Enhance and improve the ability to mitigate potential loss of revenue from civil hazards.</b>                                                                              |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| Action #                                                                                                                                                                              | Description                                                                                                                                                                                                                                                                     | Hazard(s) Addressed | Relative Priority | Funding Sources                      | Estimated Cost | Responsible Party                        | Completion Date (Target) | Implementation Status           |
| <b>3a: Provide outreach to businesses in Green County to mitigate loss of revenue.</b>                                                                                                |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 3a.1                                                                                                                                                                                  | Encourage businesses to develop business continuity or contingency operating plans. The County can work with the Greene County Chamber of Commerce to develop annual workshops on business continuity planning for small businesses in the County.                              | All Hazards         | High              | Self-Fund                            | Unknown        | County and Mayors                        | Not Completed            | Ongoing pending available funds |
| <b>Goal 4: Invest in community facilities and infrastructure to ensure the safety of individuals, reduce damage to public buildings, and ensure continuity of emergency services.</b> |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| Action #                                                                                                                                                                              | Description                                                                                                                                                                                                                                                                     | Hazard(s) Addressed | Relative Priority | Funding Sources                      | Estimated Cost | Responsible Party                        | Completion Date (Target) | Implementation Status           |
| <b>4a: Ensure the adequacy of emergency shelters</b>                                                                                                                                  |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4a.1                                                                                                                                                                                  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters. In the event of disasters, adequate shelter space to ensure health and safety of citizens and visitors as well as a potential influx of coastal evacuees is imperative. | HU, TO              | High              | HMGP                                 | Unknown        | EMA Director                             | Ongoing                  | Completed & Ongoing             |
| 4a.2                                                                                                                                                                                  | The County will explore potential existing sites to use as a special needs shelter, and funding opportunities to appropriately equip and staff a special needs shelter.                                                                                                         | HU, TO              | High              | HMGP                                 | Unknown        | EMA Director                             | Ongoing                  | Completed & Ongoing             |
| <b>4b: Improve disaster communication systems within the County.</b>                                                                                                                  |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4b.1                                                                                                                                                                                  | The County has identified a need for improved disaster communication systems                                                                                                                                                                                                    | All Hazards         | High              | HMGP and Self-Fund                   | Unknown        | EMA Director                             | Ongoing                  | Ongoing                         |
| 4b.2                                                                                                                                                                                  | Consider generators for local radio station service areas.                                                                                                                                                                                                                      | All Hazards         | High              | HMGP and Self-Fund                   | Unknown        | EMA Director                             | Contingent on funding    | Ongoing                         |
| <b>4c: Install warning sirens in the County.</b>                                                                                                                                      |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4c.1                                                                                                                                                                                  | The County has identified a need for warning sirens to be placed in several sites to be determined countywide and in all townships.                                                                                                                                             | All Hazards         | High              | HMGP and Self-Funded                 | Unknown        | EMA Deputy Director                      | Contingent on funding    | Ongoing if funding is available |
| <b>4d: Ensure that structures are not built in the floodplain.</b>                                                                                                                    |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4d.1                                                                                                                                                                                  | Strictly enforce the flood damage prevention ordinances. The jurisdictions will continue to enforce the Flood Damage Prevention Ordinances/Flood Plain Ordinances, which provide direction and regulations for structures located in flood hazard areas or flood plains.        | FL                  | High              | HMGP & Self-Funded                   | Unknown        | Floodplain Manager                       | Contingent on funding    | Ongoing if funding is available |
| 4d.2                                                                                                                                                                                  | Ensure that structures in floodplain areas are elevated                                                                                                                                                                                                                         | FL                  | High              | HMGP & Self-Funded                   | Unknown        | Floodplain Manager                       | Contingent on funding    | Ongoing if funding is available |
|                                                                                                                                                                                       | Jurisdictions will revise the ordinances to                                                                                                                                                                                                                                     |                     |                   | HMGP & Self-                         |                | Floodplain                               | Contingent               | Ongoing if                      |

|                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |             |         |                     |                             |                                 |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|-------------|---------|---------------------|-----------------------------|---------------------------------|
| 4d.3                                                                                                | include the elevation requirement for all new structures.                                                                                                                                                                                                                                                                                                                                                                                          | FL          | High           | Funded      | Unknown | Manager             | on funding                  | funding is available            |
| <b>4e: Consider adoption of subdivision regulations.</b>                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |             |         |                     |                             |                                 |
| 4e.1                                                                                                | Encourage jurisdictions to adopt Subdivision Ordinances as they enforce minimum standards governing streets, utilities and other required improvements. Relevant provisions include minimum specifications for drainage and runoff of storm water; sizes, capacities and design of drainage pipes and culverts; and coordination and approval of street names and numbers. None of the Jurisdictions in Greene County have Subdivision Ordinances. | All Hazards | Medium         | Self-Funded | Unknown | County BOS          | Not complete due to funding | Ongoing if funding is available |
| <b>4f: Enhance evacuation through improved traffic flow on evacuation routes.</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |             |         |                     |                             |                                 |
| 4f.1                                                                                                | Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans. Collaborating with neighboring jurisdictions can result in improved evacuation options. The maps are made available to the general public at the Emergency Management Office and at each City Hall.                                                                                                                                                           | All Hazards | Medium         | Self-Funded | Unknown | EMA Director        | Ongoing                     | Completed & Ongoing             |
| <b>4g: Enhance and maintain storm water controls.</b>                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |             |         |                     |                             |                                 |
| 4g.1                                                                                                | Maintain and upgrade the County's drainage facilities. The County annually maintains drainage canals, ditches, and culverts.                                                                                                                                                                                                                                                                                                                       | FL, HU, TS  | High           | Self-Funded | Unknown | Road Manager        | Annually                    | Completed & Ongoing             |
| 4g.2                                                                                                | Map the easements and rights-of-way of roadways and drainage ways. Develop a map of all publicly owned easements, including maintenance easements along waterways and drainage-ways, and including all rights-of-way and easements along all roadways. This GIS layer will assist the County in planning future roadway expansion and help to prevent obstructions within the floodway.                                                            | FL, HU, TS  | High           | Self-Funded | Unknown | Road Manager        | Annually                    | Completed & Ongoing             |
| <b>4h: Ensure continuity in services to critical facilities and infrastructure.</b>                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |             |         |                     |                             |                                 |
| 4h.1                                                                                                | Ensure that new public buildings are designed and built to hurricane resistant building codes.                                                                                                                                                                                                                                                                                                                                                     | All Hazards | High           | HMGP        | Unknown | County Engineer     | Ongoing                     | Ongoing                         |
| <b>4i: Ensure secure operation of water wells, water tanks and wastewater treatment facilities.</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |             |         |                     |                             |                                 |
| 4i.1                                                                                                | Elevation of storage tanks and water mains can provide an added level of security to a community's water supply. Security cameras can assist local officials in monitoring water wells and water tanks.                                                                                                                                                                                                                                            | All Hazards | High           | HMGP        | Unknown | SW Greene Water     | Annual Review               | Completed & Ongoing             |
| 4i.2                                                                                                | Add Security Cameras to monitor water wells and water tanks. Security cameras can assist local officials in monitoring water wells and water tanks.                                                                                                                                                                                                                                                                                                | All Hazards | High           | HMGP        | Unknown | SW Greene Water     | Annual Review               | Completed & Ongoing             |
| <b>4j: Develop a government services continuity plan.</b>                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |             |         |                     |                             |                                 |
| 4j.1                                                                                                | The County and municipal jurisdictions will explore the feasibility of developing an enhanced government continuity plan to ensure that emergency operations can function and that day-today operations can resume as soon as possible after an emergency.                                                                                                                                                                                         | All Hazards | Medium to High | CDBG        | Unknown | EMA Deputy Director | Annually                    | Completed & Ongoing             |
| <b>4k: Encourage participation in the national flood insurance program.</b>                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |             |         |                     |                             |                                 |
|                                                                                                     | Greene County, Leakesville, McLain, and State Line participate in the National Flood                                                                                                                                                                                                                                                                                                                                                               | FL          | Medium         |             |         | Floodplain          | Not Complete                | Ongoing                         |

| 4k.1                                                                                                                                                                                                                                                                                                                                                                                 | Insurance Program, indicating that they meet minimum eligibility requirements established by the Program.                                                                                                       |                     |                   | CDBG            | Unknown        | Manager              | due to funding               |                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-----------------|----------------|----------------------|------------------------------|-----------------------|
| 4k.2                                                                                                                                                                                                                                                                                                                                                                                 | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                                                                   | FL                  | Medium            | CDBG            | Unknown        | Floodplain Manager   | Not Complete due to funding  | Ongoing               |
| 4k.3                                                                                                                                                                                                                                                                                                                                                                                 | Encourage participation in the Community Rating System of the NFIP.                                                                                                                                             | FL                  | Medium            | CDBG            | Unknown        | Floodplain Manager   | Not Complete due to funding  | Ongoing               |
| <b>Goal 5: Provide Education about Potential Hazards and Risks; Expand Awareness of Protective Measures That Can Be Taken To Minimize the Potential of Loss of Life and Damage to Property.</b>                                                                                                                                                                                      |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                              |                       |
| Action #                                                                                                                                                                                                                                                                                                                                                                             | Description                                                                                                                                                                                                     | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party    | Completion Date (Target)     | Implementation Status |
| <b>5a: Enhance disaster preparedness of county staff and elected officials</b>                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                              |                       |
| 5a.1                                                                                                                                                                                                                                                                                                                                                                                 | Explore continuing education programs/opportunities for staff and elected officials.                                                                                                                            | All Hazards         | High              | Self-Funded     | Unknown        | EMA Director         | Ongoing                      | Completed & Ongoing   |
| 5a.2                                                                                                                                                                                                                                                                                                                                                                                 | 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 Hazards         | High              | Self-Funded     | Unknown        | EMA Director         | Ongoing                      | Completed & Ongoing   |
| <b>5b: Enhance disaster preparedness of citizens and visitors</b>                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                              |                       |
| 5b.1                                                                                                                                                                                                                                                                                                                                                                                 | Provide education and outreach materials to citizens and visitors.                                                                                                                                              | All Hazards         | High              | Self-Funded     | Unknown        | County and Red Cross | Annually                     | Completed & Ongoing   |
| 5b.2                                                                                                                                                                                                                                                                                                                                                                                 | Develop an outreach program on family disaster planning.                                                                                                                                                        | All Hazards         | High              | Self-Funded     | Unknown        | EMA Deputy Director  | Annually                     | Completed & Ongoing   |
| <b>5c: Provide education and outreach to a vulnerable and/or targeted population</b>                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                              |                       |
| 5c.1                                                                                                                                                                                                                                                                                                                                                                                 | Identify high risk areas where hazards are most likely to occur.                                                                                                                                                | All Hazards         | Medium            | Self-Funded     | Unknown        | Fire Council Pres.   | Not Complete. Due to Funding | Ongoing               |
| 5c.2                                                                                                                                                                                                                                                                                                                                                                                 | Establish a notification procedure for populations in high-risk areas.                                                                                                                                          | All Hazards         | Medium            | Self-Funded     | Unknown        | Fire Council Pres.   | Not Complete due to funding  | Ongoing               |
| <b>5d: Provide outreach programs on building requirements, technologies, materials for building more hazard-resistant structures.</b>                                                                                                                                                                                                                                                |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                              |                       |
| 5d.1                                                                                                                                                                                                                                                                                                                                                                                 | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.                                             | All Hazards         | Medium            | EMA Director    | Unknown        | EMA Director         | Not Complete due to funding  | Ongoing               |
| FL = Flood      HU = Hurricane      TS = Tropical Storm      TO = Tornado      TH = Thunderstorm<br>BH = Biological Hazards      HW = High Winds      TT = Transportation and Technological Hazards<br>RH = Roadway Hazards      CH = Civil Hazards      P = Pandemic<br>County EMA = Greene County Emergency Management Agency      County BOS = Greene County Board of Supervisors |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                              |                       |

## Town of Leakesville Mitigation Action Plan

## Goal 1: Strategies to reduce death, injury, property damage, infrastructure damage, response costs, and recovery costs.

| Action #                                                                                                            | Description                                                                                                                                                                                                   | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party   | Completion Date (Target) | Implementation Status |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-----------------|----------------|---------------------|--------------------------|-----------------------|
| <b>1a. Renovate existing public buildings to meet modern standards.</b>                                             |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1a.1                                                                                                                | The jurisdictions will work to make existing public buildings resistant to damage from manmade and natural disasters.                                                                                         | All Hazards         | Medium            | HMGP            | TBD            | County Engineer     | Ongoing                  | Ongoing               |
| <b>1b. Provide for redundancy in public and infrastructure operations.</b>                                          |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1b.1                                                                                                                | The jurisdictions will work to ensure that their public functions and infrastructure will have the capability to be operational in the event of manmade and natural disasters.                                | All Hazards         | High              | HMGP, Self-Fund | TBD            | EMA Director        | Annual Review            | Ongoing               |
| <b>1c. Develop strategies and plan to provide for minimization of damage and disturbance.</b>                       |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1c.1                                                                                                                | The jurisdictions will develop strategies, plans, and or ordinances to guide development toward low-risk areas.                                                                                               | All Hazards         | High              | Self-Fund       | TBD            | EMA Deputy Director | Annual Review            | Ongoing               |
| <b>1d. Purchase equipment that will lower response and recovery cost and accelerate response and recovery time.</b> |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1d.1                                                                                                                | The jurisdictions will prioritize and purchase equipment that will provide for an overall benefit to the community. (Important factors are increasing response and recovery time and lowering overall costs.) | HU, TS              | High              | Self-Fund       | Unknown        | County, Mayors      | Annual Review            | Ongoing               |
| <b>1e. Provide stockpiles of essential items.</b>                                                                   |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1e.1                                                                                                                | Establish stockpiles of fuel (gasoline and diesel), N-95 masks, potassium iodine tablets and other commodities that are not readily available and needed during emergencies.                                  | All Hazards         | High              | Self-Fund       | TBD            | EMA Director        | Ongoing                  | Completed & Ongoing   |

## Goal 2: Enhance preparedness and effective response to technological or transportation hazards.

| Action #                                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                               | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party   | Completion Date (Target) | Implementation Status           |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-----------------|----------------|---------------------|--------------------------|---------------------------------|
| <b>2a. Support planning and coordination among agencies</b>                                              |                                                                                                                                                                                                                                                                                                                                                                                           |                     |                   |                 |                |                     |                          |                                 |
| 2a.1                                                                                                     | Host a meeting to review Greene County Comprehensive Emergency Management Plan with requirements of the National Incident Management System (NIMS).                                                                                                                                                                                                                                       | All Hazards         | Medium            | Self-Fund       | Low to no cost | EMA Deputy Director | Bi-Annual Review         | Complete & Ongoing              |
| 2a.2                                                                                                     | Host a meeting with representatives from each emergency response agency within the County to review Greene County's CEMP, and the individual areas of responsibility, as well as areas for enhanced coordinated response, particularly in areas related to technological/ transportation hazards.                                                                                         | All Hazards         | Medium            | Self-Fund       | Low to no cost | EMA Deputy Director | Bi-Annual Review         | Complete & Ongoing              |
| <b>2b. Provide cross-jurisdictional continuity for the development and maintenance of infrastructure</b> |                                                                                                                                                                                                                                                                                                                                                                                           |                     |                   |                 |                |                     |                          |                                 |
| 2b.1                                                                                                     | Address cross-jurisdictional issues related to response, recovery, and mitigation on key projects with overlapping boundaries by exploring opportunities to join with neighboring jurisdictions to resolve common infrastructure issues, particularly involving roadways and drainage systems. (There are several common roadways and waterways that could be addressed collaboratively.) | All Hazards         | Low to Medium     | Self-Fund       | Unknown        | County BOS          | Not completed            | Ongoing pending available funds |
| 2b.2                                                                                                     | Hazard Mitigation Committee should work together to address common infrastructure                                                                                                                                                                                                                                                                                                         | All Hazards         | Low to Medium     | Self-Fund       | Unknown        | County BOS          | Not completed            | Ongoing pending                 |



|                                                                                                                                                                                       | and/or natural hazard issues.                                                                                                                                                                                                                                                   |                     |                   |                                      |                |                                          |                          | available funds                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|--------------------------------------|----------------|------------------------------------------|--------------------------|---------------------------------|
| <b>2c: Actively search for and identify funding sources for the enhancement of emergency response abilities of fire and sheriff's departments.</b>                                    |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 2c.1                                                                                                                                                                                  | Pursue outside funding sources and opportunities for enhancement of firefighting activities and staff with certifications, equipment/trucks to enhance capabilities, hiring of additional personnel, and advanced training opportunities for police and fire personnel.         | All Hazards         | Medium to High    | Self-Fund, DHS, SAFER Grants, Others | Unknown        | County Fire Coordinator & County Sheriff | Ongoing                  | Completed & Ongoing             |
| <b>Goal 3: Enhance and improve the ability to mitigate potential loss of revenue from civil hazards.</b>                                                                              |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| Action #                                                                                                                                                                              | Description                                                                                                                                                                                                                                                                     | Hazard(s) Addressed | Relative Priority | Funding Sources                      | Estimated Cost | Responsible Party                        | Completion Date (Target) | Implementation Status           |
| <b>3a: Provide outreach to businesses in Green County to mitigate loss of revenue.</b>                                                                                                |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 3a.1                                                                                                                                                                                  | Encourage businesses to develop business continuity or contingency operating plans. The County can work with the Greene County Chamber of Commerce to develop annual workshops on business continuity planning for small businesses in the County.                              | All Hazards         | High              | Self-Fund                            | Unknown        | County and Mayors                        | Not Completed            | Ongoing pending available funds |
| <b>Goal 4: Invest in community facilities and infrastructure to ensure the safety of individuals, reduce damage to public buildings, and ensure continuity of emergency services.</b> |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| Action #                                                                                                                                                                              | Description                                                                                                                                                                                                                                                                     | Hazard(s) Addressed | Relative Priority | Funding Sources                      | Estimated Cost | Responsible Party                        | Completion Date (Target) | Implementation Status           |
| <b>4a: Ensure the adequacy of emergency shelters</b>                                                                                                                                  |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4a.1                                                                                                                                                                                  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters. In the event of disasters, adequate shelter space to ensure health and safety of citizens and visitors as well as a potential influx of coastal evacuees is imperative. | HU, TO              | High              | HMGP                                 | Unknown        | EMA Director                             | Ongoing                  | Completed & Ongoing             |
| 4a.2                                                                                                                                                                                  | The County will explore potential existing sites to use as a special needs shelter, and funding opportunities to appropriately equip and staff a special needs shelter,                                                                                                         | HU, TO              | High              | HMGP                                 | Unknown        | EMA Director                             | Ongoing                  | Completed & Ongoing             |
| <b>4b: Improve disaster communication systems within the County.</b>                                                                                                                  |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4b.1                                                                                                                                                                                  | The County has identified a need for improved disaster communication systems                                                                                                                                                                                                    | All Hazards         | High              | HMGP and Self-Fund                   | Unknown        | EMA Director                             | Ongoing                  | Ongoing                         |
| 4b.2                                                                                                                                                                                  | Consider generators for local radio station service areas.                                                                                                                                                                                                                      | All Hazards         | High              | HMGP and Self-Fund                   | Unknown        | EMA Director                             | Contingent on funding    | Ongoing                         |
| <b>4c: Install warning sirens in the County.</b>                                                                                                                                      |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4c.1                                                                                                                                                                                  | The County has identified a need for warning sirens to be placed in several sites to be determined countywide and in all townships.                                                                                                                                             | All Hazards         | High              | HMGP and Self-Funded                 | Unknown        | EMA Deputy Director                      | Contingent on funding    | Ongoing if funding is available |
| <b>4d: Ensure that structures are not built in the floodplain.</b>                                                                                                                    |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4d.1                                                                                                                                                                                  | Strictly enforce the flood damage prevention ordinances. The jurisdictions will continue to enforce the Flood Damage Prevention Ordinances/Flood Plain Ordinances, which provide direction and regulations for structures located in flood hazard areas or flood plains.        | FL                  | High              | HMGP & Self-Funded                   | Unknown        | Floodplain Manager                       | Contingent on funding    | Ongoing if funding is available |
| 4d.2                                                                                                                                                                                  | Ensure that structures in floodplain areas are elevated                                                                                                                                                                                                                         | FL                  | High              | HMGP & Self-                         | Unknown        | Floodplain                               | Contingent on funding    | Ongoing if funding              |

|                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                | Funded             |         | Manager             |                             | available                       |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|--------------------|---------|---------------------|-----------------------------|---------------------------------|
| 4d.3                                                                                                | Jurisdictions will revise the ordinances to include the elevation requirement for all new structures.                                                                                                                                                                                                                                                                                                                                              | FL          | High           | HMGP & Self-Funded | Unknown | Floodplain Manager  | Contingent on funding       | Ongoing if funding is available |
| <b>4e: Consider adoption of subdivision regulations.</b>                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |
| 4e.1                                                                                                | Encourage jurisdictions to adopt Subdivision Ordinances as they enforce minimum standards governing streets, utilities and other required improvements. Relevant provisions include minimum specifications for drainage and runoff of storm water; sizes, capacities and design of drainage pipes and culverts; and coordination and approval of street names and numbers. None of the Jurisdictions in Greene County have Subdivision Ordinances. | All Hazards | Medium         | Self-Funded        | Unknown | County BOS          | Not complete due to funding | Ongoing if funding is available |
| <b>4f: Enhance evacuation through improved traffic flow on evacuation routes.</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |
| 4f.1                                                                                                | Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans. Collaborating with neighboring jurisdictions can result in improved evacuation options. The maps are made available to the general public at the Emergency Management Office and at each City Hall.                                                                                                                                                           | All Hazards | Medium         | Self-Funded        | Unknown | EMA Director        | Ongoing                     | Completed & Ongoing             |
| <b>4g: Enhance and maintain storm water controls.</b>                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |
| 4g.1                                                                                                | Maintain and upgrade the County's drainage facilities. The County annually maintains drainage canals, ditches, and culverts.                                                                                                                                                                                                                                                                                                                       | FL, HU, TS  | High           | Self-Funded        | Unknown | Road Manager        | Annually                    | Completed & Ongoing             |
| 4g.2                                                                                                | Map the easements and rights-of-way of roadways and drainage ways. Develop a map of all publicly owned easements, including maintenance easements along waterways and drainage-ways, and including all rights-of-way and easements along all roadways. This GIS layer will assist the County in planning future roadway expansion and help to prevent obstructions within the floodway.                                                            | FL, HU, TS  | High           | Self-Funded        | Unknown | Road Manager        | Annually                    | Completed & Ongoing             |
| <b>4h: Ensure continuity in services to critical facilities and infrastructure.</b>                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |
| 4h.1                                                                                                | Ensure that new public buildings are designed and built to hurricane resistant building codes.                                                                                                                                                                                                                                                                                                                                                     | All Hazards | High           | HMGP               | Unknown | County Engineer     | Ongoing                     | Ongoing                         |
| <b>4i: Ensure secure operation of water wells, water tanks and wastewater treatment facilities.</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |
| 4i.1                                                                                                | Elevation of storage tanks and water mains can provide an added level of security to a community's water supply. Security cameras can assist local officials in monitoring water wells and water tanks.                                                                                                                                                                                                                                            | All Hazards | High           | HMGP               | Unknown | SW Greene Water     | Annual Review               | Completed & Ongoing             |
| 4i.2                                                                                                | Add Security Cameras to monitor water wells and water tanks. Security cameras can assist local officials in monitoring water wells and water tanks.                                                                                                                                                                                                                                                                                                | All Hazards | High           | HMGP               | Unknown | SW Greene Water     | Annual Review               | Completed & Ongoing             |
| <b>4j: Develop a government services continuity plan.</b>                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |
| 4j.1                                                                                                | The County and municipal jurisdictions will explore the feasibility of developing an enhanced government continuity plan to ensure that emergency operations can function and that day-to-day operations can resume as soon as possible after an emergency.                                                                                                                                                                                        | All Hazards | Medium to High | CDBG               | Unknown | EMA Deputy Director | Annually                    | Completed & Ongoing             |
| <b>4k: Encourage participation in the national flood insurance program.</b>                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |

|      |                                                                                                                                                                                                |    |        |      |         |                    |                             |         |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------|------|---------|--------------------|-----------------------------|---------|
| 4k.1 | Greene County, Leakesville, McLain, and State Line participate in the National Flood Insurance Program, indicating that they meet minimum eligibility requirements established by the Program. | FL | Medium | CDBG | Unknown | Floodplain Manager | Not Complete due to funding | Ongoing |
| 4k.2 | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                                                  | FL | Medium | CDBG | Unknown | Floodplain Manager | Not Complete due to funding | Ongoing |
| 4k.3 | Encourage participation in the Community Rating System of the NFIP.                                                                                                                            | FL | Medium | CDBG | Unknown | Floodplain Manager | Not Complete due to funding | Ongoing |

### **Goal 5: Provide Education about Potential Hazards and Risks; Expand Awareness of Protective Measures That Can Be Taken to Minimize the Potential of Loss of Life and Damage to Property.**

| Action #                                                                                                                              | Description                                                                                                                                                                                                     | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party    | Completion Date (Target)    | Implementation Status |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-----------------|----------------|----------------------|-----------------------------|-----------------------|
| <b>5a: Enhance disaster preparedness of county staff and elected officials</b>                                                        |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                             |                       |
| 5a.1                                                                                                                                  | Explore continuing education programs/opportunities for staff and elected officials.                                                                                                                            | All Hazards         | High              | Self-Funded     | Unknown        | EMA Director         | Ongoing                     | Completed & Ongoing   |
| 5a.2                                                                                                                                  | 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 Hazards         | High              | Self-Funded     | Unknown        | EMA Director         | Ongoing                     | Completed & Ongoing   |
| <b>5b: Enhance disaster preparedness of citizens and visitors</b>                                                                     |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                             |                       |
| 5b.1                                                                                                                                  | Provide education and outreach materials to citizens and visitors.                                                                                                                                              | All Hazards         | High              | Self-Funded     | Unknown        | County and Red Cross | Annually                    | Completed & Ongoing   |
| 5b.2                                                                                                                                  | Develop an outreach program on family disaster planning.                                                                                                                                                        | All Hazards         | High              | Self-Funded     | Unknown        | EMA Deputy Director  | Annually                    | Completed & Ongoing   |
| <b>5c: Provide education and outreach to a vulnerable and/or targeted population</b>                                                  |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                             |                       |
| 5c.1                                                                                                                                  | Identify high risk areas where hazards are most likely to occur.                                                                                                                                                | All Hazards         | Medium            | Self-Funded     | Unknown        | Fire Council Pres.   | Not Complete Due to Funding | Ongoing               |
| 5c.2                                                                                                                                  | Establish a notification procedure for populations in high-risk areas.                                                                                                                                          | All Hazards         | Medium            | Self-Funded     | Unknown        | Fire Council Pres.   | Not Complete due to funding | Ongoing               |
| <b>5d: Provide outreach programs on building requirements, technologies, materials for building more hazard-resistant structures.</b> |                                                                                                                                                                                                                 |                     |                   |                 |                |                      |                             |                       |
| 5d.1                                                                                                                                  | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles.                                             | All Hazards         | Medium            | EMA Director    | Unknown        | EMA Director         | Not Complete due to funding | Ongoing               |

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

P = Pandemic

County EMA = Greene County Emergency Management Agency

County BOS = Greene County Board of Supervisors

## Town of McLain Mitigation Action Plan

**Goal 1:** Strategies to reduce death, injury, property damage, infrastructure damage, response costs, and recovery costs.

| Action # | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|

### 1a. Renovate existing public buildings to meet modern standards.

|      |                                                                                                                       |             |        |      |     |                 |         |         |
|------|-----------------------------------------------------------------------------------------------------------------------|-------------|--------|------|-----|-----------------|---------|---------|
| 1a.1 | The jurisdictions will work to make existing public buildings resistant to damage from manmade and natural disasters. | All Hazards | Medium | HMGP | TBD | County Engineer | Ongoing | Ongoing |
|------|-----------------------------------------------------------------------------------------------------------------------|-------------|--------|------|-----|-----------------|---------|---------|

### 1b. Provide for redundancy in public and infrastructure operations.

|      |                                                                                                                                                                                |             |      |                 |     |              |               |         |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|-----------------|-----|--------------|---------------|---------|
| 1b.1 | The jurisdictions will work to ensure that their public functions and infrastructure will have the capability to be operational in the event of manmade and natural disasters. | All Hazards | High | HMGP, Self-Fund | TBD | EMA Director | Annual Review | Ongoing |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|-----------------|-----|--------------|---------------|---------|

### 1c. Develop strategies and plan to provide for minimization of damage and disturbance.

|      |                                                                                                                 |             |      |           |     |                     |               |         |
|------|-----------------------------------------------------------------------------------------------------------------|-------------|------|-----------|-----|---------------------|---------------|---------|
| 1c.1 | The jurisdictions will develop strategies, plans, and or ordinances to guide development toward low-risk areas. | All Hazards | High | Self-Fund | TBD | EMA Deputy Director | Annual Review | Ongoing |
|------|-----------------------------------------------------------------------------------------------------------------|-------------|------|-----------|-----|---------------------|---------------|---------|

### 1d. Purchase equipment that will lower response and recovery cost and accelerate response and recovery time.

|      |                                                                                                                                                                                                               |        |      |           |         |                |               |         |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------|-----------|---------|----------------|---------------|---------|
| 1d.1 | The jurisdictions will prioritize and purchase equipment that will provide for an overall benefit to the community. (Important factors are increasing response and recovery time and lowering overall costs.) | HU, TS | High | Self-Fund | Unknown | County, Mayors | Annual Review | Ongoing |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------|-----------|---------|----------------|---------------|---------|

### 1e. Provide stockpiles of essential items.

|      |                                                                                                                                                                              |             |      |           |     |              |         |                     |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|-----------|-----|--------------|---------|---------------------|
| 1e.1 | Establish stockpiles of fuel (gasoline and diesel), N-95 masks, potassium iodine tablets and other commodities that are not readily available and needed during emergencies. | All Hazards | High | Self-Fund | TBD | EMA Director | Ongoing | Completed & Ongoing |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|-----------|-----|--------------|---------|---------------------|

**Goal 2:** Enhance preparedness and effective response to technological or transportation hazards.

| Action # | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|

### 2a. Support planning and coordination among agencies

|      |                                                                                                                                                                                                                                                                                                  |             |        |           |                |                     |                  |                    |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|-----------|----------------|---------------------|------------------|--------------------|
| 2a.1 | Host a meeting to review Greene County Comprehensive Emergency Management Plan with requirements of the National Incident Management System (NIMS).                                                                                                                                              | All Hazards | Medium | Self-Fund | Low to no cost | EMA Deputy Director | Bi-Annual Review | Complete & Ongoing |
| 2a.2 | Host a meeting with representatives from each emergency response agency within the County to review Greene County's CEMP, and the individual areas of responsibility, as well as areas for enhanced coordinated response, particularly in areas related to technological/transportation hazards. | All Hazards | Medium | Self-Fund | Low to no cost | EMA Deputy Director | Bi-Annual Review | Complete & Ongoing |

### 2b. Provide cross-jurisdictional continuity for the development and maintenance of infrastructure

|      |                                                                                                                                                                                                                                                                                                                                                                                           |             |               |           |         |            |               |                                 |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------|-----------|---------|------------|---------------|---------------------------------|
| 2b.1 | Address cross-jurisdictional issues related to response, recovery, and mitigation on key projects with overlapping boundaries by exploring opportunities to join with neighboring jurisdictions to resolve common infrastructure issues, particularly involving roadways and drainage systems. (There are several common roadways and waterways that could be addressed collaboratively.) | All Hazards | Low to Medium | Self-Fund | Unknown | County BOS | Not completed | Ongoing pending available funds |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------|-----------|---------|------------|---------------|---------------------------------|

| 2b.2                                                                                                                                                                                  | Hazard Mitigation Committee should work together to address common infrastructure and/or natural hazard issues.                                                                                                                                                                 | All Hazards         | Low to Medium     | Self-Fund                            | Unknown        | County BOS                               | Not completed            | Ongoing pending available funds |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|--------------------------------------|----------------|------------------------------------------|--------------------------|---------------------------------|
| <b>2c: Actively search for and identify funding sources for the enhancement of emergency response abilities of fire and sheriff's departments.</b>                                    |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 2c.1                                                                                                                                                                                  | Pursue outside funding sources and opportunities for enhancement of firefighting activities and staff with certifications, equipment/trucks to enhance capabilities, hiring of additional personnel, and advanced training opportunities for police and fire personnel.         | All Hazards         | Medium to High    | Self-Fund, DHS, SAFER Grants, Others | Unknown        | County Fire Coordinator & County Sheriff | Ongoing                  | Completed & Ongoing             |
| <b>Goal 3: Enhance and improve the ability to mitigate potential loss of revenue from civil hazards.</b>                                                                              |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| Action #                                                                                                                                                                              | Description                                                                                                                                                                                                                                                                     | Hazard(s) Addressed | Relative Priority | Funding Sources                      | Estimated Cost | Responsible Party                        | Completion Date (Target) | Implementation Status           |
| <b>3a: Provide outreach to businesses in Green County to mitigate loss of revenue.</b>                                                                                                |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 3a.1                                                                                                                                                                                  | Encourage businesses to develop business continuity or contingency operating plans. The County can work with the Greene County Chamber of Commerce to develop annual workshops on business continuity planning for small businesses in the County.                              | All Hazards         | High              | Self-Fund                            | Unknown        | County and Mayors                        | Not Completed            | Ongoing pending available funds |
| <b>Goal 4: Invest in community facilities and infrastructure to ensure the safety of individuals, reduce damage to public buildings, and ensure continuity of emergency services.</b> |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| Action #                                                                                                                                                                              | Description                                                                                                                                                                                                                                                                     | Hazard(s) Addressed | Relative Priority | Funding Sources                      | Estimated Cost | Responsible Party                        | Completion Date (Target) | Implementation Status           |
| <b>4a: Ensure the adequacy of emergency shelters</b>                                                                                                                                  |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4a.1                                                                                                                                                                                  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters. In the event of disasters, adequate shelter space to ensure health and safety of citizens and visitors as well as a potential influx of coastal evacuees is imperative. | HU, TO              | High              | HMGP                                 | Unknown        | EMA Director                             | Ongoing                  | Completed & Ongoing             |
| 4a.2                                                                                                                                                                                  | The County will explore potential existing sites to use as a special needs shelter, and funding opportunities to appropriately equip and staff a special needs shelter,                                                                                                         | HU, TO              | High              | HMGP                                 | Unknown        | EMA Director                             | Ongoing                  | Completed & Ongoing             |
| <b>4b: Improve disaster communication systems within the County.</b>                                                                                                                  |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4b.1                                                                                                                                                                                  | The County has identified a need for improved disaster communication systems                                                                                                                                                                                                    | All Hazards         | High              | HMGP and Self-Fund                   | Unknown        | EMA Director                             | Ongoing                  | Ongoing                         |
| 4b.2                                                                                                                                                                                  | Consider generators for local radio station service areas.                                                                                                                                                                                                                      | All Hazards         | High              | HMGP and Self-Fund                   | Unknown        | EMA Director                             | Contingent on funding    | Ongoing                         |
| <b>4c: Install warning sirens in the County.</b>                                                                                                                                      |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4c.1                                                                                                                                                                                  | The County has identified a need for warning sirens to be placed in several sites to be determined countywide and in all townships.                                                                                                                                             | All Hazards         | High              | HMGP and Self-Funded                 | Unknown        | EMA Deputy Director                      | Contingent on funding    | Ongoing if funding is available |
| <b>4d: Ensure that structures are not built in the floodplain.</b>                                                                                                                    |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4d.1                                                                                                                                                                                  | Strictly enforce the flood damage prevention ordinances. The jurisdictions will continue to enforce the Flood Damage Prevention Ordinances/Flood Plain Ordinances, which provide direction and regulations for structures located in flood hazard areas or flood plains.        | FL                  | High              | HMGP & Self-Funded                   | Unknown        | Floodplain Manager                       | Contingent on funding    | Ongoing if funding is available |



|                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|--------------------|---------|---------------------|-----------------------------|---------------------------------|
| 4d.2                                                                                                | Ensure that structures in floodplain areas are elevated                                                                                                                                                                                                                                                                                                                                                                                            | FL          | High           | HMGP & Self-Funded | Unknown | Floodplain Manager  | Contingent on funding       | Ongoing if funding available    |
| 4d.3                                                                                                | Jurisdictions will revise the ordinances to include the elevation requirement for all new structures.                                                                                                                                                                                                                                                                                                                                              | FL          | High           | HMGP & Self-Funded | Unknown | Floodplain Manager  | Contingent on funding       | Ongoing if funding is available |
| <b>4e: Consider adoption of subdivision regulations.</b>                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |
| 4e.1                                                                                                | Encourage jurisdictions to adopt Subdivision Ordinances as they enforce minimum standards governing streets, utilities and other required improvements. Relevant provisions include minimum specifications for drainage and runoff of storm water; sizes, capacities and design of drainage pipes and culverts; and coordination and approval of street names and numbers. None of the Jurisdictions in Greene County have Subdivision Ordinances. | All Hazards | Medium         | Self-Funded        | Unknown | County BOS          | Not complete due to funding | Ongoing if funding is available |
| <b>4f: Enhance evacuation through improved traffic flow on evacuation routes.</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |
| 4f.1                                                                                                | Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans. Collaborating with neighboring jurisdictions can result in improved evacuation options. The maps are made available to the general public at the Emergency Management Office and at each City Hall.                                                                                                                                                           | All Hazards | Medium         | Self-Funded        | Unknown | EMA Director        | Ongoing                     | Completed & Ongoing             |
| <b>4g: Enhance and maintain storm water controls.</b>                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |
| 4g.1                                                                                                | Maintain and upgrade the County's drainage facilities. The County annually maintains drainage canals, ditches, and culverts.                                                                                                                                                                                                                                                                                                                       | FL, HU, TS  | High           | Self-Funded        | Unknown | Road Manager        | Annually                    | Completed & Ongoing             |
| 4g.2                                                                                                | Map the easements and rights-of-way of roadways and drainage ways. Develop a map of all publicly owned easements, including maintenance easements along waterways and drainage-ways, and including all rights-of-way and easements along all roadways. This GIS layer will assist the County in planning future roadway expansion and help to prevent obstructions within the floodway.                                                            | FL, HU, TS  | High           | Self-Funded        | Unknown | Road Manager        | Annually                    | Completed & Ongoing             |
| <b>4h: Ensure continuity in services to critical facilities and infrastructure.</b>                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |
| 4h.1                                                                                                | Ensure that new public buildings are designed and built to hurricane resistant building codes.                                                                                                                                                                                                                                                                                                                                                     | All Hazards | High           | HMGP               | Unknown | County Engineer     | Ongoing                     | Ongoing                         |
| <b>4i: Ensure secure operation of water wells, water tanks and wastewater treatment facilities.</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |
| 4i.1                                                                                                | Elevation of storage tanks and water mains can provide an added level of security to a community's water supply. Security cameras can assist local officials in monitoring water wells and water tanks.                                                                                                                                                                                                                                            | All Hazards | High           | HMGP               | Unknown | SW Greene Water     | Annual Review               | Completed & Ongoing             |
| 4i.2                                                                                                | Add Security Cameras to monitor water wells and water tanks. Security cameras can assist local officials in monitoring water wells and water tanks.                                                                                                                                                                                                                                                                                                | All Hazards | High           | HMGP               | Unknown | SW Greene Water     | Annual Review               | Completed & Ongoing             |
| <b>4j: Develop a government services continuity plan.</b>                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                |                    |         |                     |                             |                                 |
| 4j.1                                                                                                | The County and municipal jurisdictions will explore the feasibility of developing an enhanced government continuity plan to ensure that emergency operations can function and that day-to-day operations can resume as soon as possible after an emergency.                                                                                                                                                                                        | All Hazards | Medium to High | CDBG               | Unknown | EMA Deputy Director | Annually                    | Completed & Ongoing             |

**4k: Encourage participation in the national flood insurance program.**

|      |                                                                                                                                                                                                |    |        |      |         |                    |                             |         |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------|------|---------|--------------------|-----------------------------|---------|
| 4k.1 | Greene County, Leakesville, McLain, and State Line participate in the National Flood Insurance Program, indicating that they meet minimum eligibility requirements established by the Program. | FL | Medium | CDBG | Unknown | Floodplain Manager | Not Complete due to funding | Ongoing |
| 4k.2 | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                                                  | FL | Medium | CDBG | Unknown | Floodplain Manager | Not Complete due to funding | Ongoing |
| 4k.3 | Encourage participation in the Community Rating System of the NFIP.                                                                                                                            | FL | Medium | CDBG | Unknown | Floodplain Manager | Not Complete due to funding | Ongoing |

**Goal 5: Provide Education about Potential Hazards and Risks; Expand Awareness of Protective Measures That Can Be Taken to Minimize the Potential of Loss of Life and Damage to Property.**

| Action # | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|

**5a: Enhance disaster preparedness of county staff and elected officials**

|      |                                                                                                                                                                                                                 |             |      |             |         |              |         |                     |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|-------------|---------|--------------|---------|---------------------|
| 5a.1 | Explore continuing education programs/opportunities for staff and elected officials.                                                                                                                            | All Hazards | High | Self-Funded | Unknown | EMA Director | Ongoing | Completed & Ongoing |
| 5a.2 | 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 Hazards | High | Self-Funded | Unknown | EMA Director | Ongoing | Completed & Ongoing |

**5b: Enhance disaster preparedness of citizens and visitors**

|      |                                                                    |             |      |             |         |                      |          |                     |
|------|--------------------------------------------------------------------|-------------|------|-------------|---------|----------------------|----------|---------------------|
| 5b.1 | Provide education and outreach materials to citizens and visitors. | All Hazards | High | Self-Funded | Unknown | County and Red Cross | Annually | Completed & Ongoing |
| 5b.2 | Develop an outreach program on family disaster planning.           | All Hazards | High | Self-Funded | Unknown | EMA Deputy Director  | Annually | Completed & Ongoing |

**5c: Provide education and outreach to a vulnerable and/or targeted population**

|      |                                                                        |             |        |             |         |                    |                             |         |
|------|------------------------------------------------------------------------|-------------|--------|-------------|---------|--------------------|-----------------------------|---------|
| 5c.1 | Identify high risk areas where hazards are most likely to occur.       | All Hazards | Medium | Self-Funded | Unknown | Fire Council Pres. | Not Complete Due to Funding | Ongoing |
| 5c.2 | Establish a notification procedure for populations in high-risk areas. | All Hazards | Medium | Self-Funded | Unknown | Fire Council Pres. | Not Complete due to funding | Ongoing |

**5d: Provide outreach programs on building requirements, technologies, materials for building more hazard-resistant structures.**

|      |                                                                                                                                                                     |             |        |              |         |              |                             |         |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|--------------|---------|--------------|-----------------------------|---------|
| 5d.1 | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | All Hazards | Medium | EMA Director | Unknown | EMA Director | Not Complete due to funding | Ongoing |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|--------------|---------|--------------|-----------------------------|---------|

FL = Flood                      HU = Hurricane                      TS = Tropical Storm  
 BH = Biological Hazards                      HW = High Winds  
 RH = Roadway Hazards                      CH = Civil Hazards

County EMA = Greene County Emergency Management Agency

TO = Tornado                      TH = Thunderstorm  
 TT = Transportation and Technological Hazards  
 P = Pandemic  
 County BOS = Greene County Board of Supervisors

## Town of State Line Mitigation Action Plan

**Goal 1:** Strategies to reduce death, injury, property damage, infrastructure damage, response costs, and recovery costs.

| Action #                                                                                                            | Description                                                                                                                                                                                                   | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party   | Completion Date (Target) | Implementation Status |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-----------------|----------------|---------------------|--------------------------|-----------------------|
| <b>1a. Renovate existing public buildings to meet modern standards.</b>                                             |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1a.1                                                                                                                | The jurisdictions will work to make existing public buildings resistant to damage from manmade and natural disasters.                                                                                         | All Hazards         | Medium            | HMGP            | TBD            | County Engineer     | Ongoing                  | Ongoing               |
| <b>1b. Provide for redundancy in public and infrastructure operations.</b>                                          |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1b.1                                                                                                                | The jurisdictions will work to ensure that their public functions and infrastructure will have the capability to be operational in the event of manmade and natural disasters.                                | All Hazards         | High              | HMGP, Self-Fund | TBD            | EMA Director        | Annual Review            | Ongoing               |
| <b>1c. Develop strategies and plan to provide for minimization of damage and disturbance.</b>                       |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1c.1                                                                                                                | The jurisdictions will develop strategies, plans, and or ordinances to guide development toward low-risk areas.                                                                                               | All Hazards         | High              | Self-Fund       | TBD            | EMA Deputy Director | Annual Review            | Ongoing               |
| <b>1d. Purchase equipment that will lower response and recovery cost and accelerate response and recovery time.</b> |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1d.1                                                                                                                | The jurisdictions will prioritize and purchase equipment that will provide for an overall benefit to the community. (Important factors are increasing response and recovery time and lowering overall costs.) | HU, TS              | High              | Self-Fund       | Unknown        | County, Mayors      | Annual Review            | Ongoing               |
| <b>1e. Provide stockpiles of essential items.</b>                                                                   |                                                                                                                                                                                                               |                     |                   |                 |                |                     |                          |                       |
| 1e.1                                                                                                                | Establish stockpiles of fuel (gasoline and diesel), N-95 masks, potassium iodine tablets and other commodities that are not readily available and needed during emergencies.                                  | All Hazards         | High              | Self-Fund       | TBD            | EMA Director        | Ongoing                  | Completed & Ongoing   |

**Goal 2:** Enhance preparedness and effective response to technological or transportation hazards.

| Action #                                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                               | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party   | Completion Date (Target) | Implementation Status           |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-----------------|----------------|---------------------|--------------------------|---------------------------------|
| <b>2a. Support planning and coordination among agencies</b>                                              |                                                                                                                                                                                                                                                                                                                                                                                           |                     |                   |                 |                |                     |                          |                                 |
| 2a.1                                                                                                     | Host a meeting to review Greene County Comprehensive Emergency Management Plan with requirements of the National Incident Management System (NIMS).                                                                                                                                                                                                                                       | All Hazards         | Medium            | Self-Fund       | Low to no cost | EMA Deputy Director | Bi-Annual Review         | Complete & Ongoing              |
| 2a.2                                                                                                     | Host a meeting with representatives from each emergency response agency within the County to review Greene County's CEMP, and the individual areas of responsibility, as well as areas for enhanced coordinated response, particularly in areas related to technological/ transportation hazards.                                                                                         | All Hazards         | Medium            | Self-Fund       | Low to no cost | EMA Deputy Director | Bi-Annual Review         | Complete & Ongoing              |
| <b>2b. Provide cross-jurisdictional continuity for the development and maintenance of infrastructure</b> |                                                                                                                                                                                                                                                                                                                                                                                           |                     |                   |                 |                |                     |                          |                                 |
| 2b.1                                                                                                     | Address cross-jurisdictional issues related to response, recovery, and mitigation on key projects with overlapping boundaries by exploring opportunities to join with neighboring jurisdictions to resolve common infrastructure issues, particularly involving roadways and drainage systems. (There are several common roadways and waterways that could be addressed collaboratively.) | All Hazards         | Low to Medium     | Self-Fund       | Unknown        | County BOS          | Not completed            | Ongoing pending available funds |

| 2b.2                                                                                                                                                                                  | Hazard Mitigation Committee should work together to address common infrastructure and/or natural hazard issues.                                                                                                                                                                 | All Hazards         | Low to Medium     | Self-Fund                            | Unknown        | County BOS                               | Not completed            | Ongoing pending available funds |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|--------------------------------------|----------------|------------------------------------------|--------------------------|---------------------------------|
| <b>2c: Actively search for and identify funding sources for the enhancement of emergency response abilities of fire and sheriff's departments.</b>                                    |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 2c.1                                                                                                                                                                                  | Pursue outside funding sources and opportunities for enhancement of firefighting activities and staff with certifications, equipment/trucks to enhance capabilities, hiring of additional personnel, and advanced training opportunities for police and fire personnel.         | All Hazards         | Medium to High    | Self-Fund, DHS, SAFER Grants, Others | Unknown        | County Fire Coordinator & County Sheriff | Ongoing                  | Completed & Ongoing             |
| <b>Goal 3: Enhance and improve the ability to mitigate potential loss of revenue from civil hazards.</b>                                                                              |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| Action #                                                                                                                                                                              | Description                                                                                                                                                                                                                                                                     | Hazard(s) Addressed | Relative Priority | Funding Sources                      | Estimated Cost | Responsible Party                        | Completion Date (Target) | Implementation Status           |
| <b>3a: Provide outreach to businesses in Green County to mitigate loss of revenue.</b>                                                                                                |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 3a.1                                                                                                                                                                                  | Encourage businesses to develop business continuity or contingency operating plans. The County can work with the Greene County Chamber of Commerce to develop annual workshops on business continuity planning for small businesses in the County.                              | All Hazards         | High              | Self-Fund                            | Unknown        | County and Mayors                        | Not Completed            | Ongoing pending available funds |
| <b>Goal 4: Invest in community facilities and infrastructure to ensure the safety of individuals, reduce damage to public buildings, and ensure continuity of emergency services.</b> |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| Action #                                                                                                                                                                              | Description                                                                                                                                                                                                                                                                     | Hazard(s) Addressed | Relative Priority | Funding Sources                      | Estimated Cost | Responsible Party                        | Completion Date (Target) | Implementation Status           |
| <b>4a: Ensure the adequacy of emergency shelters</b>                                                                                                                                  |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4a.1                                                                                                                                                                                  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters. In the event of disasters, adequate shelter space to ensure health and safety of citizens and visitors as well as a potential influx of coastal evacuees is imperative. | HU, TO              | High              | HMGP                                 | Unknown        | EMA Director                             | Ongoing                  | Completed & Ongoing             |
| 4a.2                                                                                                                                                                                  | The County will explore potential existing sites to use as a special needs shelter, and funding opportunities to appropriately equip and staff a special needs shelter,                                                                                                         | HU, TO              | High              | HMGP                                 | Unknown        | EMA Director                             | Ongoing                  | Completed & Ongoing             |
| <b>4b: Improve disaster communication systems within the County.</b>                                                                                                                  |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4b.1                                                                                                                                                                                  | The County has identified a need for improved disaster communication systems                                                                                                                                                                                                    | All Hazards         | High              | HMGP and Self-Fund                   | Unknown        | EMA Director                             | Ongoing                  | Ongoing                         |
| 4b.2                                                                                                                                                                                  | Consider generators for local radio station service areas.                                                                                                                                                                                                                      | All Hazards         | High              | HMGP and Self-Fund                   | Unknown        | EMA Director                             | Contingent on funding    | Ongoing                         |
| <b>4c: Install warning sirens in the County.</b>                                                                                                                                      |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4c.1                                                                                                                                                                                  | The County has identified a need for warning sirens to be placed in several sites to be determined countywide and in all townships.                                                                                                                                             | All Hazards         | High              | HMGP and Self-Funded                 | Unknown        | EMA Deputy Director                      | Contingent on funding    | Ongoing if funding is available |
| <b>4d: Ensure that structures are not built in the floodplain.</b>                                                                                                                    |                                                                                                                                                                                                                                                                                 |                     |                   |                                      |                |                                          |                          |                                 |
| 4d.1                                                                                                                                                                                  | Strictly enforce the flood damage prevention ordinances. The jurisdictions will continue to enforce the Flood Damage Prevention Ordinances/Flood Plain Ordinances, which provide direction and regulations for structures located in flood hazard areas or flood plains.        | FL                  | High              | HMGP & Self-Funded                   | Unknown        | Floodplain Manager                       | Contingent on funding    | Ongoing if funding is available |

|                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                |                    |         |                     |                             |                                 |
|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|--------------------|---------|---------------------|-----------------------------|---------------------------------|
| 4d.2                                                                                                | Ensure that structures in floodplain areas are elevated                                                                                                                                                                                                                                                                                                                                                                                          | FL          | High           | HMGP & Self-Funded | Unknown | Floodplain Manager  | Contingent on funding       | Ongoing if funding available    |
| 4d.3                                                                                                | Jurisdictions will revise the ordinances to include the elevation requirement for all new structures.                                                                                                                                                                                                                                                                                                                                            | FL          | High           | HMGP & Self-Funded | Unknown | Floodplain Manager  | Contingent on funding       | Ongoing if funding is available |
| <b>4e: Consider adoption of subdivision regulations.</b>                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                |                    |         |                     |                             |                                 |
| 4e.1                                                                                                | Encourage jurisdictions to adopt Subdivision Ordinances, and enforce minimum standards governing streets, utilities and other required improvements. Relevant provisions include minimum specifications for drainage and runoff of storm water; sizes, capacities, and design of drainage pipes and culverts; and coordination and approval of street names and numbers. None of the Jurisdictions in Greene County have Subdivision Ordinances. | All Hazards | Medium         | Self-Funded        | Unknown | County BOS          | Not complete due to funding | Ongoing if funding is available |
| <b>4f: Enhance evacuation through improved traffic flow on evacuation routes.</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                |                    |         |                     |                             |                                 |
| 4f.1                                                                                                | Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans. Collaborating with neighboring jurisdictions can result in improved evacuation options. The maps are made available to the general public at the Emergency Management Office and at each City Hall.                                                                                                                                                         | All Hazards | Medium         | Self-Funded        | Unknown | EMA Director        | Ongoing                     | Completed & Ongoing             |
| <b>4g: Enhance and maintain storm water controls.</b>                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                |                    |         |                     |                             |                                 |
| 4g.1                                                                                                | Maintain and upgrade the County's drainage facilities. The County annually maintains drainage canals, ditches, and culverts.                                                                                                                                                                                                                                                                                                                     | FL, HU, TS  | High           | Self-Funded        | Unknown | Road Manager        | Annually                    | Completed & Ongoing             |
| 4g.2                                                                                                | Map the easements and rights-of-way of roadways and drainage ways. Develop a map of all publicly owned easements, including maintenance easements along waterways and drainage-ways, and including all rights-of-way and easements along all roadways. This GIS layer will assist the County in planning future roadway expansion and help to prevent obstructions within the floodway.                                                          | FL, HU, TS  | High           | Self-Funded        | Unknown | Road Manager        | Annually                    | Completed & Ongoing             |
| <b>4h: Ensure continuity in services to critical facilities and infrastructure.</b>                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                |                    |         |                     |                             |                                 |
| 4h.1                                                                                                | Ensure that new public buildings are designed and built to hurricane resistant building codes.                                                                                                                                                                                                                                                                                                                                                   | All Hazards | High           | HMGP               | Unknown | County Engineer     | Ongoing                     | Ongoing                         |
| <b>4i: Ensure secure operation of water wells, water tanks and wastewater treatment facilities.</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                |                    |         |                     |                             |                                 |
| 4i.1                                                                                                | Elevation of storage tanks and water mains can provide an added level of security to a community's water supply. Security cameras can assist local officials in monitoring water wells and water tanks.                                                                                                                                                                                                                                          | All Hazards | High           | HMGP               | Unknown | SW Greene Water     | Annual Review               | Completed & Ongoing             |
| 4i.2                                                                                                | Add Security Cameras to monitor water wells and water tanks. Security cameras can assist local officials in monitoring water wells and water tanks.                                                                                                                                                                                                                                                                                              | All Hazards | High           | HMGP               | Unknown | SW Greene Water     | Annual Review               | Completed & Ongoing             |
| <b>4j: Develop a government services continuity plan.</b>                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                |                    |         |                     |                             |                                 |
| 4j.1                                                                                                | The County and municipal jurisdictions will explore the feasibility of developing an enhanced government continuity plan to ensure that emergency operations can function and that day-to-day operations can resume as soon as possible after an emergency.                                                                                                                                                                                      | All Hazards | Medium to High | CDBG               | Unknown | EMA Deputy Director | Annually                    | Completed & Ongoing             |



**4k: Encourage participation in the national flood insurance program.**

|      |                                                                                                                                                                                                |    |        |      |         |                    |                             |         |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------|------|---------|--------------------|-----------------------------|---------|
| 4k.1 | Greene County, Leakesville, McLain, and State Line participate in the National Flood Insurance Program, indicating that they meet minimum eligibility requirements established by the Program. | FL | Medium | CDBG | Unknown | Floodplain Manager | Not Complete due to funding | Ongoing |
| 4k.2 | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                                                  | FL | Medium | CDBG | Unknown | Floodplain Manager | Not Complete due to funding | Ongoing |
| 4k.3 | Encourage participation in the Community Rating System of the NFIP.                                                                                                                            | FL | Medium | CDBG | Unknown | Floodplain Manager | Not Complete due to funding | Ongoing |

**Goal 5: Provide Education about Potential Hazards and Risks; Expand Awareness of Protective Measures That Can Be Taken to Minimize the Potential of Loss of Life and Damage to Property.**

| Action # | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|

**5a: Enhance disaster preparedness of county staff and elected officials**

|      |                                                                                                                                                                                                                 |             |      |             |         |              |         |                     |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|-------------|---------|--------------|---------|---------------------|
| 5a.1 | Explore continuing education programs/opportunities for staff and elected officials.                                                                                                                            | All Hazards | High | Self-Funded | Unknown | EMA Director | Ongoing | Completed & Ongoing |
| 5a.2 | 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 Hazards | High | Self-Funded | Unknown | EMA Director | Ongoing | Completed & Ongoing |

**5b: Enhance disaster preparedness of citizens and visitors**

|      |                                                                    |             |      |             |         |                      |          |                     |
|------|--------------------------------------------------------------------|-------------|------|-------------|---------|----------------------|----------|---------------------|
| 5b.1 | Provide education and outreach materials to citizens and visitors. | All Hazards | High | Self-Funded | Unknown | County and Red Cross | Annually | Completed & Ongoing |
| 5b.2 | Develop an outreach program on family disaster planning.           | All Hazards | High | Self-Funded | Unknown | EMA Deputy Director  | Annually | Completed & Ongoing |

**5c: Provide education and outreach to a vulnerable and/or targeted population**

|      |                                                                        |             |        |             |         |                    |                             |         |
|------|------------------------------------------------------------------------|-------------|--------|-------------|---------|--------------------|-----------------------------|---------|
| 5c.1 | Identify high risk areas where hazards are most likely to occur.       | All Hazards | Medium | Self-Funded | Unknown | Fire Council Pres. | Not Complete due to funding | Ongoing |
| 5c.2 | Establish a notification procedure for populations in high-risk areas. | All Hazards | Medium | Self-Funded | Unknown | Fire Council Pres. | Not Complete due to funding | Ongoing |

**5d: Provide outreach programs on building requirements, technologies, materials for building more hazard-resistant structures.**

|      |                                                                                                                                                                     |             |        |              |         |              |                             |         |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|--------------|---------|--------------|-----------------------------|---------|
| 5d.1 | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | All Hazards | Medium | EMA Director | Unknown | EMA Director | Not Complete due to funding | Ongoing |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|--------------|---------|--------------|-----------------------------|---------|

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

P = Pandemic

County EMA = Greene County Emergency Management Agency

County BOS = Greene County Board of Supervisors

# Annex D

## Jefferson Davis County

This annex includes jurisdiction-specific information for Jefferson Davis County and its participating municipalities. It consists of the following five subsections:

- ★ D.1 Jefferson Davis County Community Profile
- ★ D.2 Jefferson Davis County Risk Assessment
- ★ D.3 Jefferson Davis County Vulnerability Assessment
- ★ D.4 Jefferson Davis County Capability Assessment
- ★ D.5 Jefferson Davis County Mitigation Strategy

### D.1 JEFFERSON DAVIS COUNTY COMMUNITY PROFILE

#### D.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 D.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°F and is rarely below 25°F or above 96°F.

The hot season lasts for 4.5 months, from May to September, with an average daily high temperature above 85°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 4 months, from November to February, with an average daily high temperature below 62°F. The coldest day of the year is January 17, with an average low of 36°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 4 months, from May to August, 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 8 months, from August to May. 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.

|              | Jan | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|--------------|-----|------|------|------|-----|------|------|------|-------|------|------|------|
| Average High | 59  | 63   | 71   | 77   | 83  | 89   | 91   | 91   | 87    | 78   | 69   | 61   |
| Average Lows | 36  | 39   | 46   | 53   | 61  | 68   | 71   | 70   | 65    | 53   | 44   | 39   |

**FIGURE D.1: JEFFERSON DAVIS COUNTY ORIENTATION MAP**

## D.1.2 Population and Demographics

According to the 2020 Census, Jefferson Davis County has a population of 11,321 people. The county has seen almost -9.3% decline between 2010 and 2020, and the population density is 31 people per square mile. The decline continues. Per the Census Reports, in 2023, Jefferson Davis County had a population of 10,969, which is a 3% decrease since 2020. This decrease could lower the vulnerability of the population. The household income is \$36,473, which grew 27 percent. Population counts from the US Census Bureau for 2010 and 2020 for the county and both of the participating jurisdictions are presented in **Table D.1**. Estimates for 2023 are also included.

**TABLE D.1: POPULATION COUNTS FOR JEFFERSON DAVIS COUNTY**

| Jurisdiction                  | 2010 Census   | 2020 Census   | % of Change 2010 to 2020 | 2023 Estimate  |
|-------------------------------|---------------|---------------|--------------------------|----------------|
| <b>Jefferson Davis County</b> | <b>12,487</b> | <b>11,321</b> | <b>-9.3%</b>             | <b>10,969</b>  |
| <b>Bassfield</b>              | <b>254</b>    | <b>192</b>    | <b>-24.4%</b>            | <b>197</b>     |
| <b>Prentiss</b>               | <b>1081</b>   | <b>976</b>    | <b>-9.7%</b>             | <b>Unknown</b> |

Source: US Census Bureau

Based on the 2020 Census, the median age of residents of Jefferson Davis County is 41 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. However, according to the estimates provided by the Census Reports, the median age in 2023 was 42. Due to the population decrease, the racial characteristics differ slightly. The population of white persons is 39 percent, and 2 percent is Hispanic or Latino. Blacks make up the majority of the population in the county, accounting for 59 percent of the population.

**TABLE D.2: DEMOGRAPHICS OF JEFFERSON DAVIS COUNTY**

| <b>Jurisdiction</b>           | <b>White Persons<br/>(% 2020)</b> | <b>Black Persons<br/>(% 2020)</b> | <b>American Indian or<br/>Alaska Native<br/>(% 2020)</b> | <b>Other<br/>Races<br/>(% 2020)</b> | <b>Persons of<br/>Hispanic Origin<br/>(% 2020)</b> |
|-------------------------------|-----------------------------------|-----------------------------------|----------------------------------------------------------|-------------------------------------|----------------------------------------------------|
| <b>Jefferson Davis County</b> | <b>39%</b>                        | <b>59%</b>                        | <b>0.3%</b>                                              | <b>0%</b>                           | <b>2%</b>                                          |
| <b>Bassfield</b>              | <b>48%</b>                        | <b>49%</b>                        | <b>0%</b>                                                | <b>0%</b>                           | <b>3%</b>                                          |
| <b>Prentiss</b>               | <b>48%</b>                        | <b>50%</b>                        | <b>0%</b>                                                | <b>1%</b>                           | <b>1%</b>                                          |

Source: US Census Bureau

**TABLE D.3: AVERAGE INCOME AND HEALTH IN JEFFERSON DAVIS COUNTY**

| <b>Jurisdiction</b>           | <b>% of<br/>Population<br/>Disabled</b> | <b>% of Population<br/>without Health<br/>Insurance</b> | <b>Median<br/>Household<br/>Income</b> | <b>% of Population<br/>Below The<br/>Poverty Level</b> |
|-------------------------------|-----------------------------------------|---------------------------------------------------------|----------------------------------------|--------------------------------------------------------|
| <b>Jefferson Davis County</b> | <b>21%</b>                              | <b>13%</b>                                              | <b>\$36,473</b>                        | <b>23%</b>                                             |
| <b>Bassfield</b>              | <b>20%</b>                              | <b>11%</b>                                              | <b>\$37,708</b>                        | <b>36%</b>                                             |
| <b>Prentiss</b>               | <b>31%</b>                              | <b>12%</b>                                              | <b>\$25,859</b>                        | <b>34%</b>                                             |

Source: US Census Bureau

### D.1.3 Housing

According to the 2020 US Census, there are 5,641 housing units in Jefferson Davis County, the majority of which are single family homes or mobile homes. Per 2020, the total number of houses decreased by 4 percent since 2010. However, the median home value is \$87,800, which increased by at least 21 percent. The total population and housing units both show a decline which could lead to a decrease in overall vulnerability-based development. Although the increase of property values could balance out the vulnerability. Housing information for the county and two towns is presented in **Table D.4**.

**TABLE D.4: HOUSING CHARACTERISTICS OF JEFFERSON DAVIS COUNTY**

| <b>Jurisdiction</b>           | <b>Housing<br/>Units<br/>(2010)</b> | <b>Median<br/>Home Value<br/>(2010)</b> | <b>Housing<br/>Units<br/>(2020)</b> | <b>Median<br/>Home Value<br/>(2020)</b> |
|-------------------------------|-------------------------------------|-----------------------------------------|-------------------------------------|-----------------------------------------|
| <b>Jefferson Davis County</b> | <b>5,876</b>                        | <b>\$69,500</b>                         | <b>5,641</b>                        | <b>\$87,800</b>                         |
| <b>Bassfield</b>              | <b>144</b>                          | <b>\$80,200</b>                         | <b>103</b>                          | <b>\$101,600</b>                        |
| <b>Prentiss</b>               | <b>498</b>                          | <b>\$69,500</b>                         | <b>451</b>                          | <b>\$76,700</b>                         |

Source: US Census Bureau

### D.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 11 fire stations, 3 police station, and 12 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.

### D.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.

### D.1.6 Employment and Industry

According to the Mississippi Employment Security Commission, in 2024, Jefferson Davis County had an average annual employment of 3,830 workers and an average unemployment rate of 3.5 percent. According to the MESC, in 2023, the Health Services and Health Care employed 29.1 percent of the workforce followed by Manufacturing (13.9%) then Retail Trade (13.8%) and Transportation, Warehousing, and Utilities (11.3%). The average annual wage in Jefferson Davis County was \$36,473.



## D.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*.

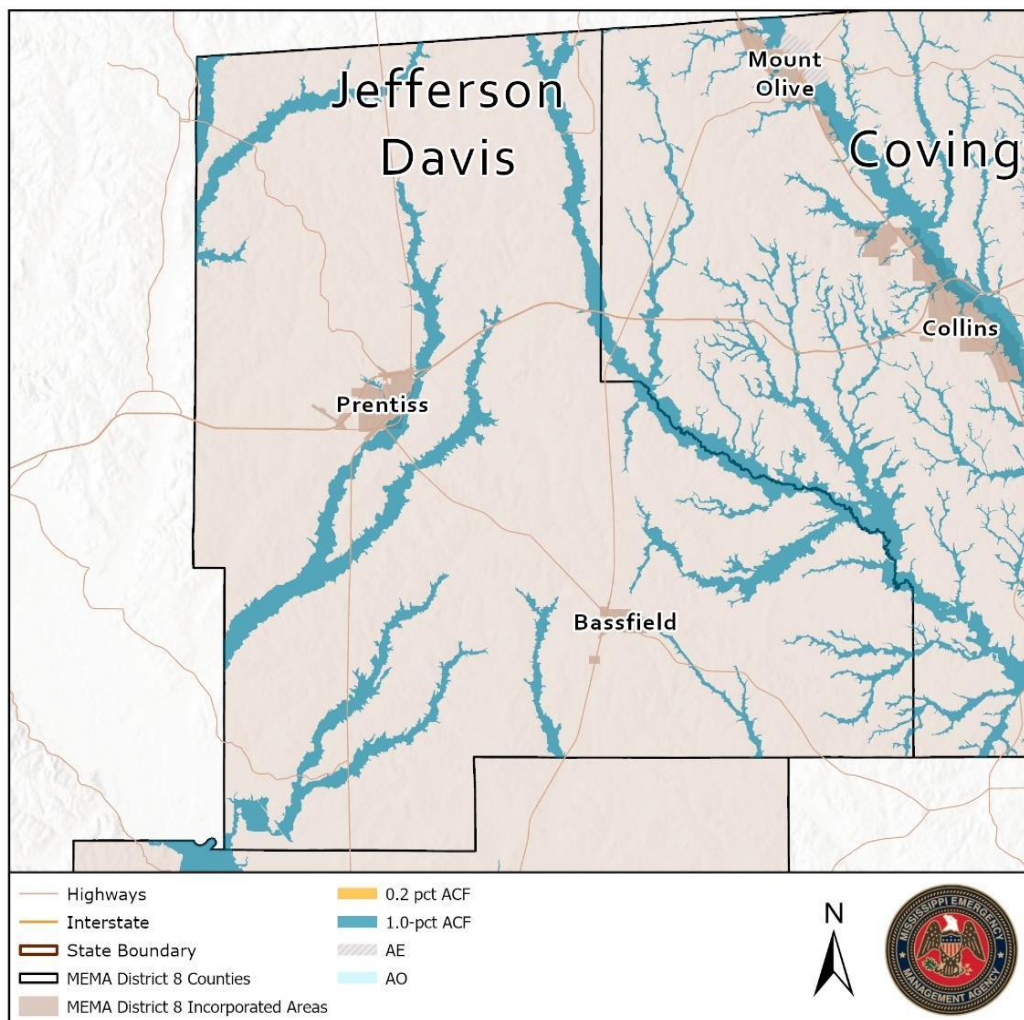
### D.2.1 Flood

#### 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). 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.

**FIGURE D.2: SPECIAL FLOOD HAZARD AREAS IN JEFFERSON DAVIS COUNTY**



## HISTORICAL OCCURRENCES

Floods resulted in seven disaster declarations in Jefferson Davis County in 1974, 2003, 2009, 2013, 2016, and twice in 2020. 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 32 events in Jefferson Davis County since 2000. A summary of these events is presented in **Table D.5**. These events accounted for over \$1.38 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.6** and **D.7**.

**TABLE D.5: SUMMARY OF FLOOD OCCURRENCES IN JEFFERSON DAVIS COUNTY**

| LOCATION                             | Number of Occurrences | Deaths   | Injuries | Property Damage    | Crop Damage |
|--------------------------------------|-----------------------|----------|----------|--------------------|-------------|
| <i>Bassfield</i>                     | 8                     | 0        | 0        | \$90,000           | \$0         |
| <i>Prentiss</i>                      | 10                    | 0        | 0        | \$589,000          | \$0         |
| <i>Unincorporated Area</i>           | 14                    | 0        | 0        | \$705,000          | \$0         |
| <b>Jefferson Davis County Total:</b> | <b>32</b>             | <b>0</b> | <b>0</b> | <b>\$1,384,000</b> | <b>\$0</b>  |

**TABLE D.6: HISTORICAL FLOOD EVENTS IN JEFFERSON DAVIS COUNTY**

| Location                                             | Date      | Type        | Deaths | Injuries | Property Damage |
|------------------------------------------------------|-----------|-------------|--------|----------|-----------------|
| <b>The Town of Bassfield</b>                         |           |             |        |          |                 |
| <i>Bassfield</i>                                     | 3/27/2009 | Flash Flood | 0      | 0        | \$40,000        |
| <i>Bassfield</i>                                     | 1/20/2010 | Flash Flood | 0      | 0        | \$3,000         |
| <i>Bassfield</i>                                     | 3/9/2011  | Flash Flood | 0      | 0        | \$15,000        |
| <i>Bassfield</i>                                     | 8/30/2012 | Flash Flood | 0      | 0        | \$10,000        |
| <i>Bassfield</i>                                     | 2/21/2013 | Flash Flood | 0      | 0        | \$0             |
| <i>Bassfield</i>                                     | 1/3/2015  | Flash Flood | 0      | 0        | \$10,000        |
| <i>Bassfield</i>                                     | 3/10/2016 | Flash Flood | 0      | 0        | \$5,000         |
| <i>Bassfield</i>                                     | 8/16/2018 | Flash Flood | 0      | 0        | \$7,000         |
| <b>The Town of Prentiss</b>                          |           |             |        |          |                 |
| <i>Prentiss</i>                                      | 3/2/2001  | Flash Flood | 0      | 0        | \$0             |
| <i>Prentiss</i>                                      | 2/21/2003 | Flash Flood | 0      | 0        | \$1,000         |
| <i>Prentiss</i>                                      | 2/5/2004  | Flash Flood | 0      | 0        | \$150,000       |
| <i>Prentiss</i>                                      | 3/20/2006 | Flash Flood | 0      | 0        | \$0             |
| <i>Prentiss</i>                                      | 4/12/2009 | Flash Flood | 0      | 0        | \$100,000       |
| <i>Prentiss</i>                                      | 8/13/2010 | Flash Flood | 0      | 0        | \$200,000       |
| <i>Prentiss</i>                                      | 2/10/2013 | Flash Flood | 0      | 0        | \$0             |
| <i>Prentiss ARPT</i>                                 | 8/25/2020 | Flash Flood | 0      | 0        | \$5,000         |
| <i>Prentiss</i>                                      | 8/25/2020 | Flash Flood | 0      | 0        | \$3,000         |
| <i>Prentiss</i>                                      | 4/17/2022 | Flash Flood | 0      | 0        | \$10,000        |
| <i>Prentiss</i>                                      | 8/24/2022 | Flash Flood | 0      | 0        | \$120,000       |
| <b>Unincorporated Area in Jefferson Davis County</b> |           |             |        |          |                 |
| <i>County Wide</i>                                   | 3/3/2001  | Flash Flood | 0      | 0        | \$10,000        |
| <i>County Wide</i>                                   | 9/3/2001  | Flash Flood | 0      | 0        | \$80,000        |
| <i>Gwinville</i>                                     | 2/21/2003 | Flash Flood | 0      | 0        | \$1,000         |

|                                |           |             |   |   |           |
|--------------------------------|-----------|-------------|---|---|-----------|
| <i>County (Southern)</i>       | 3/31/2005 | Flash Flood | 0 | 0 | \$200,000 |
| <i>County (Southern)</i>       | 4/1/2005  | Flash Flood | 0 | 0 | \$80,000  |
| <i>Southeast Portion</i>       | 8/29/2005 | Flash Flood | 0 | 0 | \$100,000 |
| <i>Hebron</i>                  | 3/9/2011  | Flash Flood | 0 | 0 | \$20,000  |
| <i>Carson</i>                  | 9/5/2011  | Flash Flood | 0 | 0 | \$5,000   |
| <i>Terrell</i>                 | 1/3/2015  | Flash Flood | 0 | 0 | \$7,000   |
| <i>Hathorn &amp; Hebron</i>    | 7/25/2017 | Flash Flood | 0 | 0 | \$55,000  |
| <i>Terrell &amp; MT Carmel</i> | 8/25/2020 | Flash Flood | 0 | 0 | \$82,000  |
| <i>Gwinville</i>               | 8/25/2020 | Flash Flood | 0 | 0 | \$20,000  |
| <i>Gwinville</i>               | 3/25/2021 | Flash Flood | 0 | 0 | \$15,000  |
| <i>Hathorn</i>                 | 6/6/2021  | Flash Flood | 0 | 0 | \$25,000  |
| <i>Carson</i>                  | 4/17/2022 | Flash Flood | 0 | 0 | \$5,000   |

Source: NCED/NOAA

TABLE D:7: EXTENT: FLOOD EVENTS IN JEFFERSON DAVIS COUNTY SINCE THE LAST UPDATE

| Jefferson Davis County: \$285,000 |           |           |                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|-----------------------------------|-----------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Location                          | Date      | Loss      | Cause                                                                                                                                                                                                                                        | Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| <b>Prentiss &amp; County</b>      | 8/25/2020 | \$110,000 | Tropical moisture associated with Tropical Storm Marco helped to initiate showers across southeast Mississippi. Some of this rain brought flash flooding to the region.                                                                      | <ul style="list-style-type: none"> <li>In the County water damage occurred to a home on White Rogers Road. Four homes received some water damage on Ponderosa Road, and water was over Sumrall Road. Water was over Clem School Road and culverts were washed away.</li> <li>In Prentiss water overflowed the banks of White Sands Creek and covered Dykes Road and South Pleasant Hill Road. Water also covered Granby Road and Mt. Zion Road.</li> </ul> |  |
| <b>Gwinville</b>                  | 3/25/2021 | \$15,000  | Vigorous wind shear as well as ample instability would combine to generate thunderstorms that had the potential for violent severe weather. Storms developed during the afternoon, bringing damaging winds and flash flooding to the region. | A culvert along Williamson Mill Road was washed out.                                                                                                                                                                                                                                                                                                                                                                                                       |  |
| <b>Hathorn</b>                    | 6/6/2021  | \$25,000  | As an upper-level low pressure system moved over central parts of the country. These brought rounds of severe thunderstorms and heavy rain to the region.                                                                                    | <ul style="list-style-type: none"> <li>Over 200 homes were flooded in portions of Bolivar and Sunflower Counties.</li> <li>Raynes Road was completely covered in water, and a portion was washed out by floodwaters.</li> </ul>                                                                                                                                                                                                                            |  |
| <b>Prentiss &amp; Carson</b>      | 4/17/2022 | \$15,000  | Several rounds of severe thunderstorms produced large hail, damaging wind gusts, and tornadoes through the day on April 17th.                                                                                                                | <ul style="list-style-type: none"> <li>A portion of Choctaw Road was flooded.</li> <li>In Prentiss the intersection area of MS Highway 42 and MS Highway 13 was flooded.</li> </ul>                                                                                                                                                                                                                                                                        |  |
| <b>Prentiss</b>                   | 8/24/2022 | \$120,000 | A low-pressure system spinning over northern Louisiana and southern Arkansas brought several rounds of showers and thunderstorms producing heavy rain to Mississippi August 24th through 25th.                                               | <ul style="list-style-type: none"> <li>This resulted in widespread flooding of roads, homes, and businesses around the state.</li> <li>Two businesses in Prentiss flooded.</li> </ul>                                                                                                                                                                                                                                                                      |  |

### 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 of the historical occurrences along with the corresponding damage amounts are unknown, unless the Jurisdiction requests the information directly from FEMA and shares it with the committee. The decision was made to leave the existing information in the plan if the Jurisdiction did not provide the requested information.

According to FEMA flood insurance policy records as of March 2023, there have been 32 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 D.8**. 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.

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 2023, there are no non-mitigated repetitive loss properties located in Jefferson Davis County. **Table D.8** presents detailed information on repetitive loss properties and NFIP claims and policies for Jefferson Davis County. This remains the best available data.

TABLE D.8: SUMMARY OF INSURED FLOOD LOSSES AND REPETITIVE LOSSES IN JEFFERSON DAVIS COUNTY

| Location                      | Flood Losses | Claim Payments | Repetitive Loss Properties | Number of Properties | Number of Losses | Total Payments | Average Payments |
|-------------------------------|--------------|----------------|----------------------------|----------------------|------------------|----------------|------------------|
| Bassfield*                    | --           | --             |                            | --                   | --               | --             | --               |
| Prentiss                      | 2            | \$4,613        |                            | 0                    | 0                | \$0            | \$0              |
| Unincorporated Area           | 0            | \$0            |                            | 0                    | 0                | \$0            | \$0              |
| Jefferson Davis County Total: | 2            | \$4,613        |                            | 0                    | 0                | \$0            | \$0              |

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

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 area 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.

As the climate continues to change, the chance of heavy rain leading to flash flooding could increase in frequency, intensity, and magnitude. With the increasing frequency and intensity, heavy rains and flash flooding can lead to cascading effects and can also lead to flooding in areas that do not usually flood.

## **D.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).

If the climate continues to change as scientists predict, the higher intensity and magnitude of storms, increasing droughts, and high heat days, can lead to erosion in areas that have not been impacted by erosion in the past. Also, the chance of heavy rain could lead to flash flooding, which could also increase in frequency, intensity, and magnitude. With the increasing frequency and intensity of heavy rains and flash flooding could have cascading effects such as erosion of soil from the ground, under/around trees, and under roads. This can lead to falling trees, power outages, and road damage.

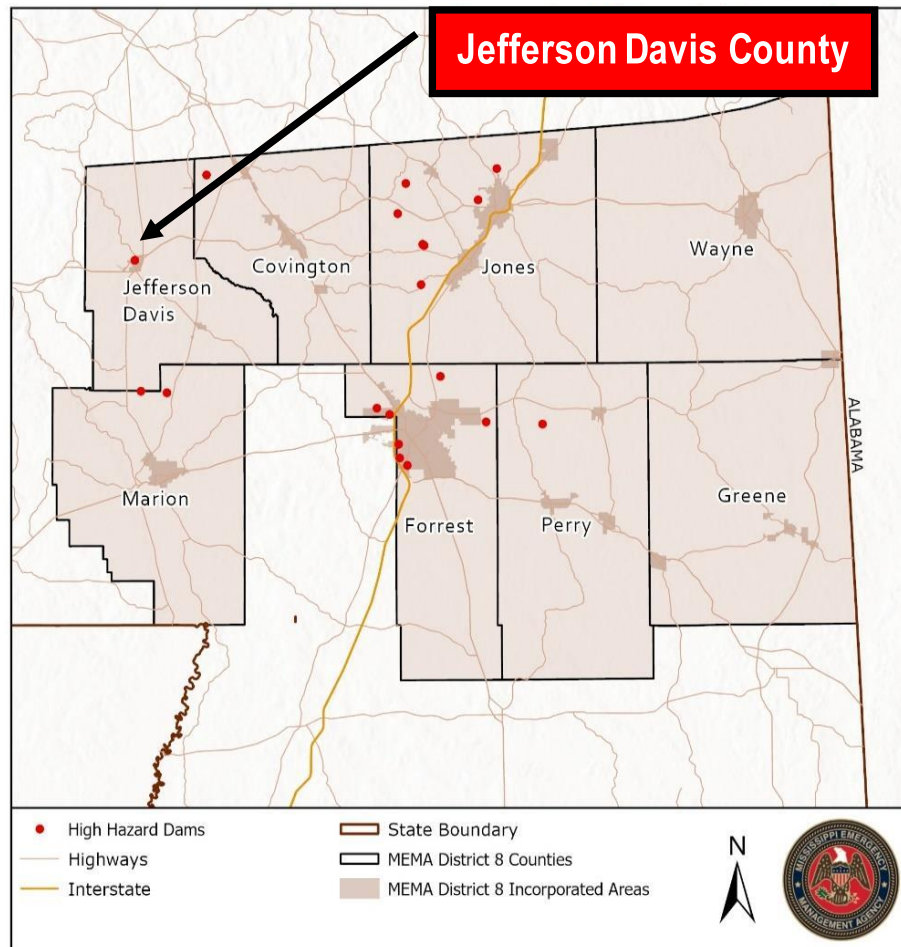


## D.2.3 Dam Failure

### LOCATION AND SPATIAL EXTENT

According to the Mississippi Division of Environmental Quality, there are two high hazard dams in Jefferson Davis County. **Figure D.3** shows the location of each of these high hazard dams and **Table D.9** 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 D.3: JEFFERSON DAVIS COUNTY HIGH HAZARD DAM LOCATIONS**



**TABLE D.9: JEFFERSON DAVIS COUNTY HIGH HAZARD DAMS**

| Hazard Potential | Dam Name                                         |
|------------------|--------------------------------------------------|
| High             | <i>Lake Jefferson Davis Dam</i>                  |
| High             | <i>White Sand – Green’s Creek Street 11E Dam</i> |

### 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.

## 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. 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 fourteen recorded winter storm events in Jefferson Davis County since 2000. These events resulted in almost \$1.960 million in damages. Detailed information on the recorded winter storm events can be found in **Table D.10**.

**TABLE D.10: HISTORICAL WINTER STORM EVENTS IN JEFFERSON DAVIS COUNTY**

| Date          | Type            | Injuries/<br>Deaths | Property<br>Damage |
|---------------|-----------------|---------------------|--------------------|
| 1/19/2008     | Heavy Snow      | 0/0                 | \$350,000          |
| 12/11/2008    | Heavy Snow      | 0/0                 | \$10,000           |
| 12/4/2009     | Heavy Snow      | 0/0                 | \$0                |
| 1/1/2010      | Cold/Wind Chill | 0/0                 | \$200,000          |
| 2/11/2010     | Heavy Snow      | 0/0                 | \$600,000          |
| 1/9/2011      | Ice Storm       | 0/0                 | \$30,000           |
| 2/3/2011      | Ice Storm       | 0/1                 | \$400,000          |
| 1/16/2013     | Heavy Snow      | 0/0                 | \$0                |
| 1/28/2014     | Heavy Snow      | 0/0                 | \$0                |
| 1/6/2017      | Sleet           | 1/0                 | \$20,000           |
| 12/7/2017     | Heavy Snow      | 0/0                 | \$75,000           |
| 1/16/2018     | Heavy Snow      | 0/0                 | \$20,000           |
| 2/15/2021     | Ice Storm       | 0/0                 | \$250,000          |
| 2/17/2021     | Winter Weather  | 0/0                 | \$5,000            |
| <b>Total:</b> | <b>14</b>       | <b>1/1</b>          | <b>\$1,960,000</b> |

Source: NCED/NOAA

There have been a couple of severe winter weather events in Jefferson Davis County. The text below describes seven of the major events and associated impacts on the county. Similar impacts can be expected with severe winter weather.

**January 19, 2008**—The heaviest snow appears to have fallen in the areas around Covington, Jefferson Davis, and western Jones Counties, where isolated amounts of 4 to 5 inches occurred. At the height of the snow, temperatures were able to fall 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 the wet snow on limbs and lines. However, most folks in the area enjoyed the rare snowfall and took full advantage of the opportunity to make snowmen and snow angels, or to go sledding on the nearest hill. Three inches of snow fell across Jefferson Davis County. Some heavier amounts, around four inches, may have fallen across other portions of the county

**January 1, 2010**—A prolonged cold snap, caused by a couple of strong arctic air masses, affected the ArkLaMiss region during the first two weeks of January. This resulted in some record temperatures across the region. Daily highs during that period were in the 20s, 30s and 40s with lows in the teens and 20s. The first ten days of 2010 were the coldest first ten days of any year on record with an average temperature of around 29 degrees, which is around 14 to 16 degrees below normal.

This outbreak will not be remembered for any bitterly cold temperatures, it will be remembered for the prolonged period of cold conditions and spans of time below freezing. Due to the duration of the cold, a great deal of damage occurred to the water line infrastructure around the region.

The issues from the hard freeze were as follows: water line breaks, and frozen water pipes to homes, especially rural homes; wells freezing up; and water valves being stuck. Due to all the water line breaks, flooding of buildings and homes occurred. The water association in Jefferson Davis County reported that a broken water line affected residents in the western portion of the county during the period.

**February 11 & 12 2010**—The National Weather Service office reported, a total of 4.7 inches of snow fell during the event. This is the 2nd largest February snowfall event and the 10th overall largest snowfall event on record. This heavy snow event was not just a local event. Heavy snow spanned a large portion of the South with a substantial swath of 3 to 6 inches which fell from north-central Texas through north and central Louisiana, central and southern Mississippi, Alabama and Georgia. Up to 6 inches of snow fell across portions of Jefferson Davis County, with 6 inches reported just northeast of Oak Vale.

**February 3, 2011**—A quarter inch of ice accumulated across the county with nearly all bridges iced over. Numerous accidents were reported. One indirect fatality occurred due to a vehicle accident.

**January 16, 2013**—Up to 2 inches of snow accumulation was reported across western portions of the county.

**January 28, 2014**—Two to three inches of snow mixed with some sleet fell across the northern portion of the county.

**February 15, 2021**—Freezing rain fell across the county. Accumulations of three tenths to one half of an inch occurred. Sleet accumulations up to four tenths of an inch also occurred. Ice accumulated on power lines, trees and roads. Numerous limbs were brought down onto power lines along with some trees down. This resulted in widespread power outages across the county.

**January 6, 2017**—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.

**January 16, 2018**—Heavy snow fell across the county with up to 2 inches of accumulations.

**February 15, 2021**—Freezing rain fell across the county. Accumulations of three tenths to one half of an inch occurred. Sleet accumulations up to four tenths of an inch also occurred. Ice accumulated on power lines, trees and roads. Numerous limbs were brought down onto power lines along with some trees down. This resulted in widespread power outages across the county.

**February 17, 2021**—A light icing of up to around 0.15 inches accumulated on trees in the northern half of the county due to rounds of freezing rain through the afternoon and evening.

## **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).





Again, areas across Eastern Mississippi remained the driest. Even as the drought conditions were classified as severe, area farmers were not suffering and were only experiencing small impacts of the dry weather. This is mainly due to the fact that the soil still had a little moisture left from the winter rains and during the second half of April, a few days did receive some small amounts of rain, which at least introduced some moisture to the very top of the soil.

By the end of May, crops across the state were beginning to feel the impact of the very dry conditions. At that point, some damage to crops had occurred with only small losses to yields expected. Extended drought conditions would make conditions worse with more substantial crop damage/losses if no rain occurred into the month of June.

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 have been affected with yields forecast to be much less than normal by harvest time. The quality of the crops has been affected as well due to the dry conditions.

The extreme to exceptional drought, which had gripped a large portion of the region since May, finally was reduced during the first and middle portion of July.

**October 2015**—Very dry conditions occurred over Central Mississippi during the summer months with severe to extreme drought conditions developing over the area by September and continuing into October.

**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.

**September to November 2023**—The combined effects of persistent above-normal temperatures and minimal precipitation starting in early July 2023 resulted in mounting drought impacts across portions of much of southern and central Mississippi. Drought conditions in Jefferson Davis County intensified from D2 (Severe Drought) to D4 (Exceptional Drought) as depicted on the U.S. Drought Monitor.

Drought conditions in Jefferson Davis County persisted at D4 (Exceptional Drought) as depicted on the U.S. Drought Monitor.

Subsoil moisture values across the southern half of the state saw some improvement to between 15 to 30 percent below normal. These conditions placed a severe stress on pastures for livestock and cropland at the end of the growing season. Pine plantations and Christmas tree farms experienced severe losses especially among younger trees. In a study of over 13 million forested acres through western and central Mississippi surveyed by the Mississippi Forestry Commission, it was estimated that approximately 80,000 acres of pine trees were killed by drought stress. In the study area, this accounted for approximately 12.5 million pine trees lost. Stream flows on creeks and rivers were reduced. Drought conditions in Jefferson Davis County remained at D4 (Exceptional Drought) as depicted on the U.S. Drought Monitor.

## 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.



**August 2010**—A four day stretch of extreme temperatures occurred across the region to start off the month of August. High pressure was firmly entrenched across the southeast and allowed temperatures to soar into the triple digits across much of the region. Across the NWS Jackson, MS forecast area, 19 record highs were set between August 1st and 4th. On August 2nd, the 2nd warmest average temperature was recorded.

The low was 78 and the high 105, this resulted in an average temperature of 91.5 degrees. Additionally, relatively high humidity levels made conditions even more oppressive, with heat index readings surpassing 110 degrees in many areas. This extreme heat resulted in 3 fatalities across the forecast area.

## **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. But, if the climate continues to warm, this could lead to more droughts with higher magnitude.

### **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.

If temperatures continue to rise as climate change occurs, it could increase the impacts, intensity, and duration of droughts and extreme temperatures. These increases could impact the effects on the counties' crops, economy, and population.

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 2010 to 2023 Jefferson Davis County experiences an average of 57.7 wildfires annually which burn an average of 573.4 acres per year. The data indicates that most of these fires are small, averaging 9.9 acres per fire. **Table D.12** provides a summary of wildfire occurrences in Jefferson Davis County since the last update, and **Table D.13** lists the number of reported wildfire occurrences in the county between the years 2010 and 2023.

TABLE D.12: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2019 -2023) \*

| Jefferson Davis County                  |       |
|-----------------------------------------|-------|
| Average Number of Fires per year        | 45.4  |
| Average Number of Acres Burned per year | 664.8 |
| Average Number of Acres Burned per fire | 14.64 |

Source: MS Forestry Commission

TABLE D.13: HISTORICAL WILDFIRE OCCURRENCES IN JEFFERSON DAVIS COUNTY

| Jefferson Davis County |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Year                   | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| Number of Fires        | 64   | 135  | 58   | 46   | 69   | 65   | 64   | 46   | 34   | 38   | 22   | 39   | 48   | 80   |
| Number of Acres Burned | 277  | 953  | 385  | 251  | 728  | 783  | 487  | 443  | 447  | 622  | 182  | 502  | 1021 | 997  |

Source: US 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).

If temperatures continue to rise as climate change occurs, it could cause more droughts and extreme temperatures. The increase in of these could have a negative impact or wildfires. Extreme heat and drought can cause plants to become dry and brittle which makes the area more susceptible to wildfires.

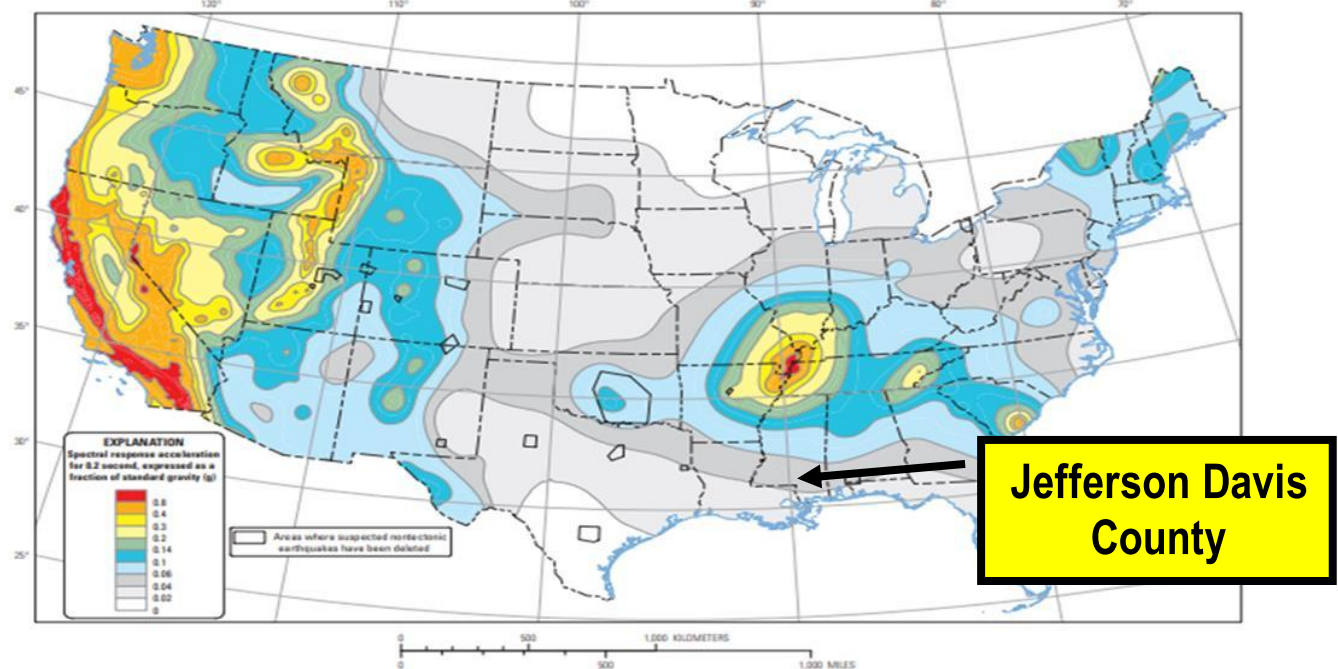
If the predicted increase in heavy rains occur it can also cause flooding and erosion, which can also make the area more susceptible to wildfires.

## D.2.7 Earthquake

### LOCATION AND SPATIAL EXTENT

**Figure D.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.

**FIGURE D.5: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS**



Source: USGS

### HISTORICAL OCCURRENCES

No earthquakes are known to have affected Jefferson Davis County since 1638. **Table D.14** provides a summary of earthquake events reported by the National Geophysical Data Center between 1638 and 2023.

**TABLE D.14: SUMMARY OF SEISMIC ACTIVITY IN JEFFERSON DAVIS COUNTY**

| Location                      | Date | Number of Occurrences | Greatest MMI Reported | Richter Scale Equivalent |
|-------------------------------|------|-----------------------|-----------------------|--------------------------|
| <i>Bassfield</i>              | --   | 0                     | --                    | --                       |
| <i>Prentiss</i>               | --   | 0                     | --                    | --                       |
| <i>Unincorporated Area</i>    | --   | 0                     | --                    | --                       |
| Jefferson Davis County Total: |      | 0                     | --                    | --                       |

### 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).

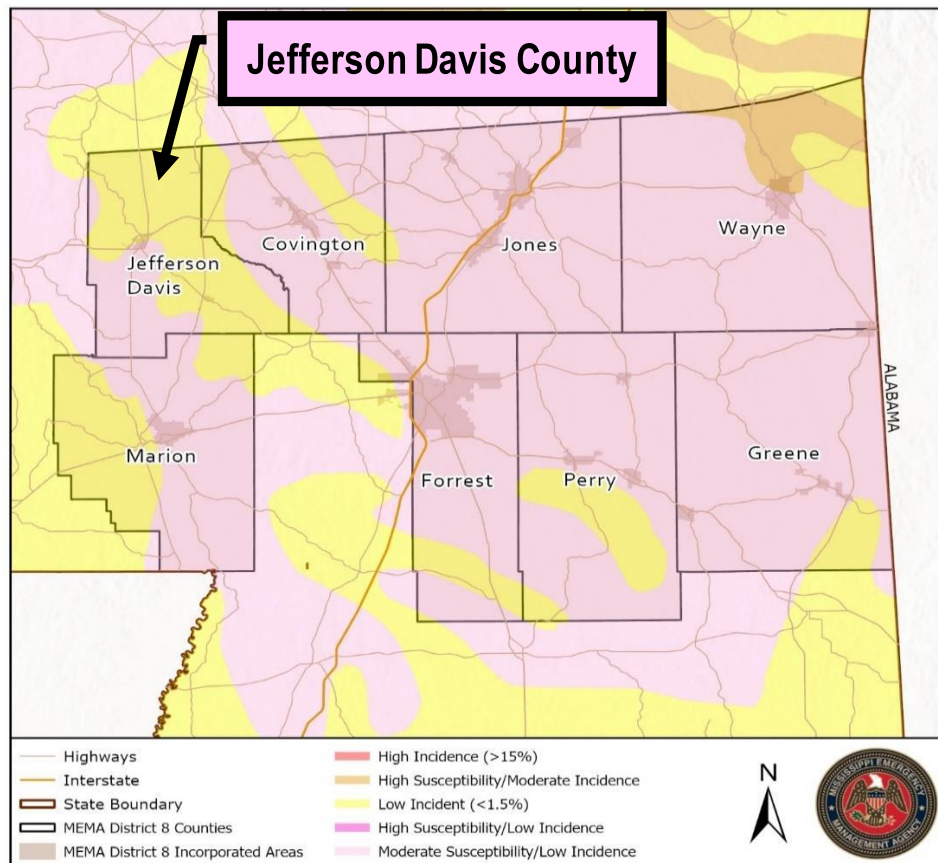
## D.2.8 Landslide

### 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. Landslides are possible throughout Jefferson Davis County.

According to **Figure D.6** below, the entire county falls under a low incidence area (yellow and light pink). This indicates that less than 1.5 percent of the area is involved in land sliding. The areas in yellow are defined as low incidence and low susceptibility. The areas in light pink, however, indicate that a moderate susceptibility to land sliding activity is present. There are no changes with susceptibility to the landslide hazard since the last plan update.

**FIGURE D.6: LANDSLIDE SUSCEPTIBILITY AND INCIDENCE MAP OF JEFFERSON DAVIS COUNTY**



### 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 all areas in Jefferson Davis County have a low landslide incidence rate. However, some areas are reported as having moderate susceptibility to land sliding 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.

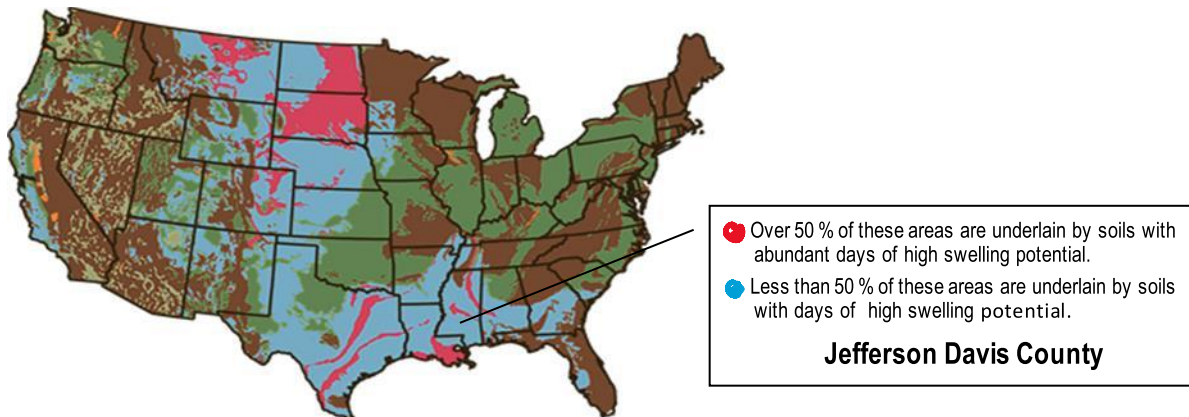
As the climate continues to change, scientists believe that the intensity, magnitude, and frequency of heavy rains will increase. This could cause cascading effects that could possibly lead to land sliding.

## D.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 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**



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).



## 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 Jefferson Davis County. All areas in Jefferson Davis County are equally susceptible to hurricane and tropical storms.

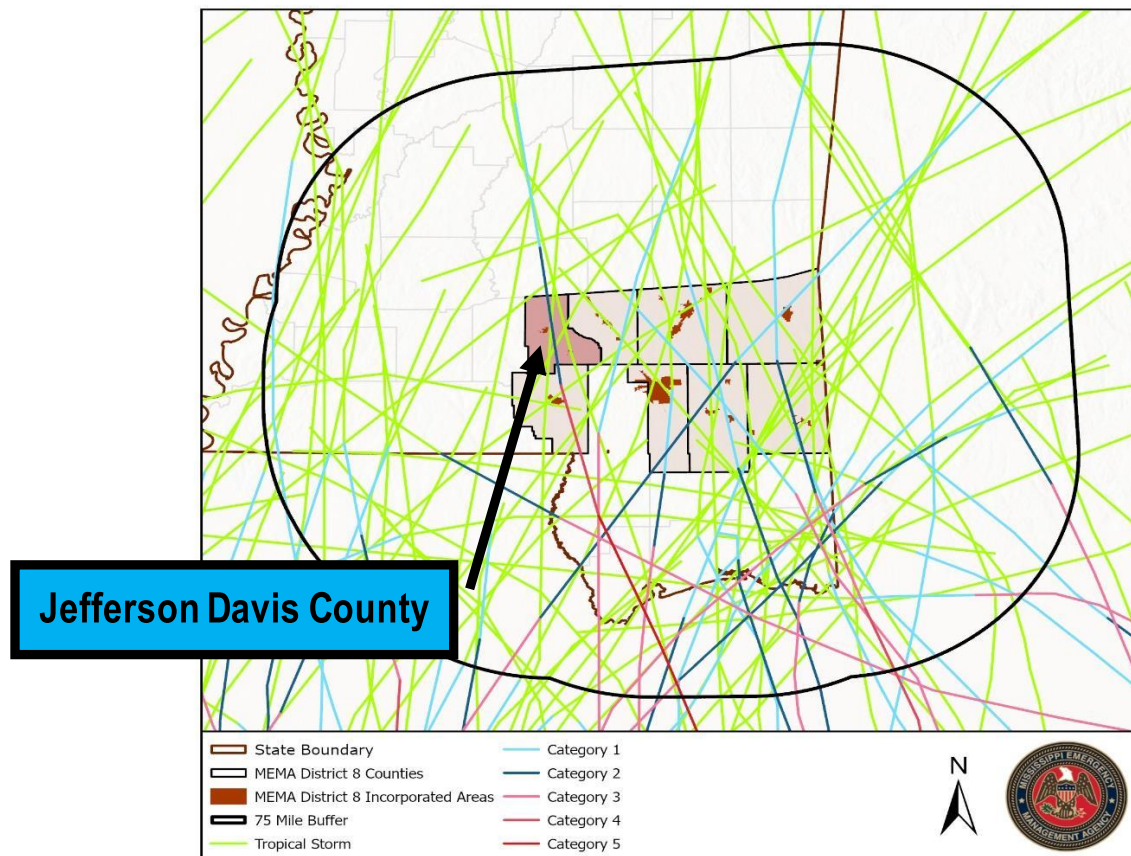
### HISTORICAL OCCURRENCES

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 D.8**.

A total of five tracks passed directly through the county including Hurricanes Camille (1969), Edith (1971), and Isidore (2002). All storms were tropical storms when they traversed the county except Hurricane Camille, which passed through the county as category 3 hurricane. **Table D.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 D.8: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF JEFFERSON DAVIS COUNTY**



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), 2012 (Hurricane Isaac), and 2021 (Hurricane Ida). Hurricane and tropical storm events can cause substantial damage in the area due to high winds and flooding.

**TABLE D.14: HISTORICAL STORM TRACKS WITHIN 75 MILES OF JEFFERSON DAVIS COUNTY (1850–2024)**

| Date of Occurrence | Storm Name          | Maximum Wind Speed (mph) | Storm Category | Disaster Declaration | Property Damage      | Crop Damage         |
|--------------------|---------------------|--------------------------|----------------|----------------------|----------------------|---------------------|
| 10/10/1905         | Unknown             | 40                       | Tropical Storm | --                   | Unknown              | Unknown             |
| 9/30/1915          | Unknown             | 69                       | Tropical Storm | --                   | Unknown              | Unknown             |
| 9/4/1969           | Hurricane Camille   | 115                      | Category 3     | Yes, #271            | Unknown              | Unknown             |
| 9/16/1971          | Hurricane Edith     | Unknown                  | Tropical Storm | No                   | Unknown              | Unknown             |
| 9/1998             | Hurricane Georges   | Unknown                  | Tropical Storm | Yes, #1251           | Unknown              | Unknown             |
| 9/26/2002          | Hurricane Isadore   | 63                       | Tropical Storm | No                   | \$0                  | \$0                 |
| 6/30/2003          | Tropical Storm Bill | Unknown                  | Tropical Storm | No                   | \$0                  | \$0                 |
| 7/1/2003           | Hurricane Claudette | Unknown                  | Tropical Storm | No                   | \$0                  | \$0                 |
| 9/16/2004          | Hurricane Ivan      | 95                       | Category 1     | Yes, #1550           | Unknown              | Unknown             |
| 7/10/2005          | Hurricane Dennis    | 55                       | Tropical Storm | Yes, #1594           | Unknown              | Unknown             |
| 8/29/2005          | Hurricane Katrina   | 130                      | Category 3     | Yes, #1604           | \$150,000,000        | \$50,000,000        |
| 9/24/2005          | Hurricane Rita      | 45                       | Tropical Storm | No                   | \$10,000             | \$20,000            |
| 9/1/2008           | Hurricane Gustav    | 50                       | Tropical Storm | No                   | \$200,000            | \$0                 |
| 8/29/2012          | Hurricane Isaac     | 45                       | Tropical Storm | Yes, 4081            | \$500,000            | \$0                 |
| 9/4/2018           | Hurricane Gordon    | 50                       | Depression     | No                   | \$15,000             | \$0                 |
| 8/30/2021          | Hurricane Ida       | 50                       | Tropical Storm | Yes, #4626           | \$75,000             | \$0                 |
| 9/12/2024          | Hurricane Francine  | 40                       | Tropical Storm | No                   | \$15,000             | \$0                 |
| <b>Total:</b>      | <b>17</b>           | <b>--</b>                | <b>--</b>      | <b>--</b>            | <b>\$150,815,000</b> | <b>\$50,020,000</b> |

Source: National Hurricane Center and NCED/NOAA

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:

**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. This hurricane has changed life as we know it across the Gulf Coast region which will take many years to return to normal.

Hurricane Katrina was a very large and powerful storm which set several unfortunate records. The sustained winds were 145 mph, and the central pressure was 918 mb or 27.11 inches of mercury. This ranks Katrina as having the 3rd lowest pressure at landfall behind Camille (2nd) and the Labor Day Hurricane (1st). Millions of trees were uprooted, snapped or severely damaged. It was the fallen trees that caused just about all of the structural damage and downed power lines across this region. Hundreds of trees fell onto homes causing minor to major damage.

Additionally, significant and extensive damage occurred to the Agriculture and Forestry industries of this region. The most devastating damage occurred across Southeast Mississippi, especially south and east of a Columbia to Collins to Laurel line. This region received sustained winds between 60 and 80 mph with gusts ranging from 80 to 120 mph. Wind damage to structures was widespread as many roofs were blown off or partially peeled off. Hundreds of signs were shredded or blown down. Many businesses sustained structural damage as windows were broken, roofs were blown off and walls were collapsed. Millions of trees were uprooted and snapped. Power poles and lines were snapped and taken down from wind and trees. It was the thousands of downed trees which caused the most significant structural damage as these trees fell onto homes and businesses. Ten fatalities were caused by trees falling on homes or on people in Jones county. This region received an enormous blow to the timber industry as a large percentage of trees were blown down or severely damaged. This timber damage will affect this region for decades. Additionally, the combination of the winds and loss of power caused significant losses to the poultry industry and other agricultural industries across this region.

Hurricane Katrina was responsible for 15 direct fatalities across inland Mississippi and 19 indirect. All the direct deaths, in some way, were attributed to fallen trees. Trees either fell on homes, on vehicles, or on the actual person. The indirect fatalities varied and ranged from heart attacks to heat stress during the days after without power.

Damage costs associated with this hurricane will be the highest for any natural disaster in United States history. Preliminary amounts, across the NWS Jackson County Warning Area (CWA), show property damage estimates around 5.9 Billion dollars. Agricultural damage across the region was also extremely high with estimates around 1.5 Billion dollars. The total estimated damage is approximately 7.4 Billion dollars. All of these estimates are extremely preliminary and will likely be adjusted over the coming months.

**September 1, 2008**—Hurricane Gustav was the 2nd major hurricane of the 2008 Atlantic Hurricane Season. Tropical storm force winds occurred across Jefferson Davis County as the outer edges of Hurricane Gustav moved across southern Louisiana. Scattered trees and power lines were blown down, especially across the southern portion of the county. Wind gusts peaked between 45 and 55 mph for a few hours.

**August 29, 2012**—Isaac moved very slowly to the north and northwest over the course of August 29th, which made for prolonged impacts. Forward motion of about 5 mph led to tremendous flooding issues for both Louisiana and portions of Mississippi south of I-20. Around noon on August 29th, Isaac was downgraded to a Tropical Storm, but this was not much relief to the many residents who were being inundated with rain and wind. Storm total rainfall across portions of Marion County indicated at least 10 to 15 inches fell. Numerous homes and buildings were flooded, and some water rescues occurred in Lamar, Marion and Clarke counties. In Jefferson Davis County, by late afternoon of the 29th several large limbs and trees were blown down across the county. By mid-evening power outages were occurring near Bassfield and in the northwest part of the county. Additional trees and power lines were blown overnight due to the strong winds. By noon on the 30th, widespread trees and power lines were blown down across the county causing widespread power outages.

**August 29, 2021**—Ida brought tropical storm force gusts to portions of Mississippi, which brought down trees and power lines. Rainfall amounts of 4-8 inches occurred, which resulted in localized flooding.

**September 12, 2024**—Tropical Storm Francine produced strong wind damage as it weakened across central Mississippi. Winds blew down scattered trees and powerlines across Jefferson Davis 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.

Scientists and meteorologists predict tropical cyclones to increase in frequency, magnitude, and intensity as the climate continues to change. These increases could be catastrophic to MS Coastal areas and the counties near the coast.

## 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, 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.

#### 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 seven disaster declarations in Jefferson Davis County in 1992, 2011, 2017, 2019, twice in 2020, and 2023. According to NCEI, there have been 153 reported thunderstorm and high wind events since 2000 in Jefferson Davis County. These events caused approximately \$2.9 million in damages. **Table D.15** summarizes this information. **Table D.16** presents detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event.

**TABLE D.15: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN JEFFERSON DAVIS COUNTY**

| Location                             | Number of Occurrences | Injuries | Deaths   | Property Damage    | Crop Damage     |
|--------------------------------------|-----------------------|----------|----------|--------------------|-----------------|
| <i>Bassfield</i>                     | 30                    | 0        | 0        | \$359,000          | \$0             |
| <i>Prentiss</i>                      | 52                    | 0        | 0        | \$647,500          | \$0             |
| <i>Unincorporated Area</i>           | 71                    | 0        | 0        | \$1,912,000        | \$60,000        |
| <b>Jefferson Davis County Total:</b> | <b>153</b>            | <b>0</b> | <b>0</b> | <b>\$2,888,500</b> | <b>\$60,000</b> |

Source: NCED/NOAA

**TABLE D.16: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN JEFFERSON DAVIS COUNTY**

| Location                 | Date       | Type      | Magnitude      | Deaths | Injuries | Property Damage | Crop Damage |
|--------------------------|------------|-----------|----------------|--------|----------|-----------------|-------------|
| <b>Town of Bassfield</b> |            |           |                |        |          |                 |             |
| <i>Bassfield</i>         | 4/3/2000   | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$3,000         | \$0         |
| <i>Bassfield</i>         | 4/8/2002   | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$5,000         | \$0         |
| <i>Bassfield</i>         | 5/17/2002  | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$1,000         | \$0         |
| <i>Bassfield</i>         | 7/17/2003  | TSTM Wind | 50 kts.        | 0      | 0        | \$1,000         | \$0         |
| <i>Bassfield</i>         | 8/6/2003   | TSTM Wind | 55 kts.        | 0      | 0        | \$10,000        | \$0         |
| <i>Bassfield</i>         | 11/24/2004 | TSTM Wind | 75 kts.        | 0      | 0        | \$60,000        | \$0         |
| <i>Bassfield</i>         | 3/20/2006  | TSTM Wind | 55 kts.        | 0      | 0        | \$15,000        | \$0         |



|                         |            |           |         |   |   |           |     |
|-------------------------|------------|-----------|---------|---|---|-----------|-----|
| <i>Bassfield</i>        | 5/10/2006  | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Bassfield</i>        | 2/13/2007  | TSTM Wind | 55 kts. | 0 | 0 | \$15,000  | \$0 |
| <i>Bassfield</i>        | 12/20/2007 | TSTM Wind | 60 kts. | 0 | 0 | \$0       | \$0 |
| <i>Bassfield</i>        | 2/12/2008  | TSTM Wind | 65 kts. | 0 | 0 | \$15,000  | \$0 |
| <i>Bassfield</i>        | 2/17/2008  | TSTM Wind | 50 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Bassfield</i>        | 12/9/2008  | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Bassfield</i>        | 3/27/2009  | TSTM Wind | 55 kts. | 0 | 0 | \$6,000   | \$0 |
| <i>Bassfield</i>        | 4/24/2010  | TSTM Wind | 60 kts. | 0 | 0 | \$15,000  | \$0 |
| <i>Bassfield</i>        | 5/25/2010  | TSTM Wind | 52 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Bassfield</i>        | 6/15/2010  | TSTM Wind | 43 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>Bassfield</i>        | 8/22/2010  | TSTM Wind | 50 kts. | 0 | 0 | \$8,000   | \$0 |
| <i>Bassfield</i>        | 6/5/2013   | TSTM Wind | 53 kts. | 0 | 0 | \$0       | \$0 |
| <i>Bassfield</i>        | 8/3/2014   | TSTM Wind | 50 kts. | 0 | 0 | \$4,000   | \$0 |
| <i>Bassfield</i>        | 3/17/2016  | TSTM Wind | 55 kts. | 0 | 0 | \$20,000  | \$0 |
| <i>Bassfield</i>        | 7/22/2016  | TSTM Wind | 50 kts. | 0 | 0 | \$15,000  | \$0 |
| <i>Bassfield</i>        | 6/29/2017  | TSTM Wind | 48 kts. | 0 | 0 | \$25,000  | \$0 |
| <i>Bassfield</i>        | 4/18/2019  | TSTM Wind | 53 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Bassfield</i>        | 10/4/2019  | TSTM Wind | 55 kts. | 0 | 0 | \$30,000  | \$0 |
| <i>Bassfield</i>        | 10/26/2019 | TSTM Wind | 50 kts. | 0 | 0 | \$50,000  | \$0 |
| <i>Bassfield</i>        | 2/5/2020   | TSTM Wind | 52 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Bassfield</i>        | 1/12/2023  | TSTM Wind | 52 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>Bassfield</i>        | 6/14/2023  | TSTM Wind | 55 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Bassfield</i>        | 5/13/2024  | TSTM Wind | 60 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Town of Prentiss</b> |            |           |         |   |   |           |     |
| <i>Prentiss</i>         | 3/10/2000  | TSTM Wind | Unknown | 0 | 0 | \$1,000   | \$0 |
| <i>Prentiss</i>         | 4/12/2000  | TSTM Wind | Unknown | 0 | 0 | \$15,000  | \$0 |
| <i>Prentiss</i>         | 6/24/2000  | TSTM Wind | Unknown | 0 | 0 | \$15,000  | \$0 |
| <i>Prentiss</i>         | 12/13/2000 | TSTM Wind | Unknown | 0 | 0 | \$2,000   | \$0 |
| <i>Prentiss</i>         | 10/13/2001 | TSTM Wind | Unknown | 0 | 0 | \$5,000   | \$0 |
| <i>Prentiss</i>         | 5/17/2002  | TSTM Wind | Unknown | 0 | 0 | \$2,000   | \$0 |
| <i>Prentiss</i>         | 5/29/2002  | TSTM Wind | Unknown | 0 | 0 | \$1,000   | \$0 |
| <i>Prentiss</i>         | 7/8/2002   | TSTM Wind | Unknown | 0 | 0 | \$2,500   | \$0 |
| <i>Prentiss</i>         | 12/24/2002 | TSTM Wind | 60 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Prentiss</i>         | 12/31/2002 | TSTM Wind | 60 kts. | 0 | 0 | \$15,000  | \$0 |
| <i>Prentiss</i>         | 4/6/2003   | TSTM Wind | 50 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Prentiss</i>         | 6/2/2003   | TSTM Wind | 55 kts. | 0 | 0 | \$25,000  | \$0 |
| <i>Prentiss</i>         | 5/1/2004   | TSTM Wind | 55 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Prentiss</i>         | 3/22/2005  | TSTM Wind | 70 kts. | 0 | 0 | \$30,000  | \$0 |
| <i>Prentiss</i>         | 4/6/2005   | TSTM Wind | 58 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Prentiss</i>         | 4/30/2005  | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>         | 5/29/2005  | TSTM Wind | 60 kts. | 0 | 0 | \$80,000  | \$0 |
| <i>Prentiss</i>         | 7/2/2005   | TSTM Wind | 52 kts. | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>         | 3/9/2006   | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>         | 3/20/2006  | TSTM Wind | 65 kts. | 0 | 0 | \$100,000 | \$0 |
| <i>Prentiss</i>         | 1/4/2007   | TSTM Wind | 53 kts. | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>         | 7/12/2007  | TSTM Wind | 52 kts. | 0 | 0 | \$5,000   | \$0 |



|                                                      |            |           |                |   |   |           |          |
|------------------------------------------------------|------------|-----------|----------------|---|---|-----------|----------|
| <i>Prentiss</i>                                      | 2/12/2008  | TSTM Wind | 58 kts.        | 0 | 0 | \$15,000  | \$0      |
| <i>Prentiss</i>                                      | 7/29/2008  | TSTM Wind | 60 kts.        | 0 | 0 | \$15,000  | \$0      |
| <i>Prentiss</i>                                      | 8/7/2008   | TSTM Wind | 50 kts.        | 0 | 0 | \$0       | \$0      |
| <i>Prentiss</i>                                      | 3/26/2009  | TSTM Wind | 58 kts.        | 0 | 0 | \$8,000   | \$0      |
| <i>Prentiss</i>                                      | 4/12/2009  | TSTM Wind | 60 kts.        | 0 | 0 | \$3,000   | \$0      |
| <i>Prentiss</i>                                      | 5/12/2009  | TSTM Wind | 50 kts.        | 0 | 0 | \$4,000   | \$0      |
| <i>Prentiss</i>                                      | 8/15/2010  | TSTM Wind | 50 kts.        | 0 | 0 | \$0       | \$0      |
| <i>Prentiss</i>                                      | 2/1/2011   | TSTM Wind | 50 kts.        | 0 | 0 | \$0       | \$0      |
| <i>Prentiss</i>                                      | 3/8/2011   | TSTM Wind | 52 kts.        | 0 | 0 | \$0       | \$0      |
| <i>Prentiss</i>                                      | 6/13/2011  | TSTM Wind | 50 kts.        | 0 | 0 | \$1,000   | \$0      |
| <i>Prentiss</i>                                      | 4/3/2012   | TSTM Wind | 50 kts.        | 0 | 0 | \$2,000   | \$0      |
| <i>Prentiss</i>                                      | 8/9/2012   | TSTM Wind | 50 kts.        | 0 | 0 | \$4,000   | \$0      |
| <i>Prentiss</i>                                      | 4/7/2014   | TSTM Wind | 54 kts.        | 0 | 0 | \$10,000  | \$0      |
| <i>Prentiss</i>                                      | 10/13/2014 | TSTM Wind | 50 kts.        | 0 | 0 | \$0       | \$0      |
| <i>Prentiss</i>                                      | 6/24/2015  | TSTM Wind | 50 kts.        | 0 | 0 | \$10,000  | \$0      |
| <i>Prentiss</i>                                      | 8/8/2015   | TSTM Wind | 56 kts.        | 0 | 0 | \$30,000  | \$0      |
| <i>Prentiss</i>                                      | 11/18/2015 | TSTM Wind | 55 kts.        | 0 | 0 | \$10,000  | \$0      |
| <i>Prentiss</i>                                      | 2/15/2016  | TSTM Wind | 53 kts.        | 0 | 0 | \$10,000  | \$0      |
| <i>Prentiss</i>                                      | 3/17/2016  | TSTM Wind | 50 kts.        | 0 | 0 | \$1,000   | \$0      |
| <i>Prentiss</i>                                      | 7/11/2016  | TSTM Wind | 50 kts.        | 0 | 0 | \$10,000  | \$0      |
| <i>Prentiss</i>                                      | 4/14/2018  | TSTM Wind | 56 kts.        | 0 | 0 | \$12,000  | \$0      |
| <i>Prentiss</i>                                      | 11/1/2018  | TSTM Wind | 50 kts.        | 0 | 0 | \$2,000   | \$0      |
| <i>Prentiss</i>                                      | 6/24/2019  | TSTM Wind | 50 kts.        | 0 | 0 | \$2,000   | \$0      |
| <i>Prentiss</i>                                      | 9/9/2019   | TSTM Wind | 50 kts.        | 0 | 0 | \$3,000   | \$0      |
| <i>Prentiss</i>                                      | 10/26/2019 | TSTM Wind | 55 kts.        | 0 | 0 | \$100,000 | \$0      |
| <i>Prentiss</i>                                      | 1/11/2020  | TSTM Wind | 50 kts.        | 0 | 0 | \$4,000   | \$0      |
| <i>Prentiss</i>                                      | 3/31/2020  | TSTM Wind | 50 kts.        | 0 | 0 | \$1,000   | \$0      |
| <i>Prentiss</i>                                      | 7/2/2020   | TSTM Wind | 50 kts.        | 0 | 0 | \$15,000  | \$0      |
| <i>Prentiss</i>                                      | 4/10/2024  | TSTM Wind | 55 kts.        | 0 | 0 | \$5,000   | \$0      |
| <i>Prentiss</i>                                      | 6/4/2024   | TSTM Wind | 55 kts.        | 0 | 0 | \$25,000  | \$0      |
| <b>Unincorporated Area in Jefferson Davis County</b> |            |           |                |   |   |           |          |
| <i>County Wide</i>                                   | 1/29/2001  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$2,000   | \$0      |
| <i>County Wide</i>                                   | 7/7/2002   | TSTM Wind | 55 kts.        | 0 | 0 | \$3,000   | \$0      |
| <i>County Wide</i>                                   | 7/22/2003  | TSTM Wind | 50 kts.        | 0 | 0 | \$2,000   | \$0      |
| <i>County Wide</i>                                   | 8/20/2003  | TSTM Wind | 50 kts.        | 0 | 0 | \$3,000   | \$0      |
| <i>County Wide</i>                                   | 6/1/2004   | TSTM Wind | 50 kts.        | 0 | 0 | \$3,000   | \$0      |
| <i>Mt. Carmel</i>                                    | 6/28/2004  | TSTM Wind | 55 kts.        | 0 | 0 | \$1,000   | \$0      |
| <i>Oak Vale</i>                                      | 8/12/2005  | TSTM Wind | 55 kts.        | 0 | 0 | \$20,000  | \$30,000 |
| <i>Oak Vale</i>                                      | 8/21/2005  | TSTM Wind | 55 kts.        | 0 | 0 | \$30,000  | \$10,000 |
| <i>Oak Vale</i>                                      | 5/8/2006   | TSTM Wind | 50 kts.        | 0 | 0 | \$0       | \$0      |
| <i>Carson</i>                                        | 7/19/2006  | TSTM Wind | 50 kts.        | 0 | 0 | \$0       | \$0      |
| <i>Oak Vale</i>                                      | 1/4/2007   | TSTM Wind | 55 kts.        | 0 | 0 | \$0       | \$0      |
| <i>Carson</i>                                        | 6/19/2007  | TSTM Wind | 52 kts.        | 0 | 0 | \$0       | \$0      |
| <i>Carson</i>                                        | 7/10/2007  | TSTM Wind | 50 kts.        | 0 | 0 | \$20,000  | \$0      |
| <i>Hathorn</i>                                       | 7/13/2007  | TSTM Wind | 53 kts.        | 0 | 0 | \$10,000  | \$0      |
| <i>Hebron</i>                                        | 2/17/2008  | TSTM Wind | 50 kts.        | 0 | 0 | \$10,000  | \$0      |

|                                   |            |             |         |   |   |           |          |
|-----------------------------------|------------|-------------|---------|---|---|-----------|----------|
| <i>Gwinville</i>                  | 2/21/2008  | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0      |
| <i>Oak Vale &amp; Gwinville</i>   | 3/3/2008   | TSTM Wind   | 55 kts. | 0 | 0 | \$12,000  | \$0      |
| <i>Terrell</i>                    | 7/29/2008  | TSTM Wind   | 60 kts. | 0 | 0 | \$7,000   | \$0      |
| <i>Lucus</i>                      | 8/2/2008   | TSTM Wind   | 55 kts. | 0 | 0 | \$0       | \$0      |
| <i>Hebron</i>                     | 3/26/2009  | TSTM Wind   | 75 kts. | 0 | 0 | \$75,000  | \$0      |
| <i>Lucus</i>                      | 5/3/2009   | TSTM Wind   | 70 kts. | 0 | 0 | \$180,000 | \$0      |
| <i>Gwinville</i>                  | 5/10/2009  | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0      |
| <i>Oak Vale</i>                   | 5/12/2009  | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0      |
| <i>Gwinville</i>                  | 5/15/2009  | TSTM Wind   | 57 kts. | 0 | 0 | \$0       | \$0      |
| <i>Gwinville</i>                  | 5/20/2009  | TSTM Wind   | 46 kts. | 0 | 0 | \$0       | \$0      |
| <i>County Wide</i>                | 7/28/2009  | Strong Wind | 43 kts. | 0 | 0 | \$1,500   | \$0      |
| <i>Carson</i>                     | 5/25/2010  | TSTM Wind   | 52 kts. | 0 | 0 | \$5,000   | \$20,000 |
| <i>Hebron</i>                     | 6/1/2010   | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0      |
| <i>Mt. Carmel &amp; Carson</i>    | 8/3/2010   | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0      |
| <i>Mt. Carmel</i>                 | 8/4/2010   | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0      |
| <i>Carson</i>                     | 8/15/2010  | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0      |
| <i>Mt. Carmel</i>                 | 3/9/2011   | TSTM Wind   | 57 kts. | 0 | 0 | \$5,000   | \$0      |
| <i>Oak Vale</i>                   | 4/4/2011   | TSTM Wind   | 60 kts. | 0 | 0 | \$50,000  | \$0      |
| <i>Hebron</i>                     | 6/13/2011  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0      |
| <i>Hathorn</i>                    | 7/4/2011   | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000   | \$0      |
| <i>Oak Vale</i>                   | 8/18/2011  | TSTM Wind   | 52 kts. | 0 | 0 | \$10,000  | \$0      |
| <i>County Wide</i>                | 9/4/2011   | Strong Wind | 40 kts. | 0 | 0 | \$35,000  | \$0      |
| <i>Carson &amp; Hathorn</i>       | 8/18/2012  | TSTM Wind   | 52 kts. | 0 | 0 | \$10,000  | \$0      |
| <i>Oak Vale</i>                   | 12/20/2012 | TSTM Wind   | 50 kts. | 0 | 0 | \$8,000   | \$0      |
| <i>Hebron</i>                     | 10/31/2013 | TSTM Wind   | 50 kts. | 0 | 0 | \$150,000 | \$0      |
| <i>Melba</i>                      | 2/20/2014  | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000   | \$0      |
| <i>Hebron</i>                     | 4/15/2015  | TSTM Wind   | 60 kts. | 0 | 0 | \$200,000 | \$0      |
| <i>Hebron</i>                     | 5/30/2015  | TSTM Wind   | 50 kts. | 0 | 0 | \$6,000   | \$0      |
| <i>Mt. Carmel</i>                 | 6/24/2015  | TSTM Wind   | 55 kts. | 0 | 0 | \$30,000  | \$0      |
| <i>County Wide</i>                | 11/17/2015 | Strong Wind | 42 kts. | 0 | 0 | \$7,000   | \$0      |
| <i>Hebron &amp; Carson</i>        | 2/15/2016  | TSTM Wind   | 60 kts. | 0 | 0 | \$10,000  | \$0      |
| <i>Carson</i>                     | 3/17/2016  | TSTM Wind   | 55 kts. | 0 | 0 | \$1,000   | \$0      |
| <i>Carson</i>                     | 1/21/2017  | TSTM Wind   | 50 kts. | 0 | 0 | \$10,000  | \$0      |
| <i>Lucus</i>                      | 3/9/2017   | TSTM Wind   | 55 kts. | 0 | 0 | \$30,000  | \$0      |
| <i>Mt. Carmel</i>                 | 4/3/2017   | TSTM Wind   | 50 kts. | 0 | 0 | \$4,000   | \$0      |
| <i>Carson</i>                     | 4/26/2017  | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000   | \$0      |
| <i>Hebron</i>                     | 6/16/2017  | TSTM Wind   | 60 kts. | 0 | 0 | \$50,000  | \$0      |
| <i>Hebron</i>                     | 7/25/2017  | TSTM Wind   | 35 kts. | 0 | 0 | \$2,000   | \$0      |
| <i>Carson</i>                     | 3/29/2018  | TSTM Wind   | 56 kts. | 0 | 0 | \$60,000  | \$0      |
| <i>Terrell</i>                    | 8/16/2018  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0      |
| <i>Hebron &amp; Mt. Carmel</i>    | 11/1/2018  | TSTM Wind   | 52 kts. | 0 | 0 | \$45,000  | \$0      |
| <i>Oak Vale &amp; Mt. Carmel</i>  | 4/13/2019  | TSTM Wind   | 55 kts. | 0 | 0 | \$30,000  | \$0      |
| <i>Gwinville &amp; Carson</i>     | 1/11/2020  | TSTM Wind   | 52 kts. | 0 | 0 | \$18,000  | \$0      |
| <i>Hebron</i>                     | 4/22/2020  | TSTM Wind   | 87 kts. | 0 | 0 | \$100,000 | \$0      |
| <i>Carson</i>                     | 5/27/2020  | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000   | \$0      |
| <i>Mt. Carmel</i>                 | 6/5/2020   | TSTM Wind   | 52 kts. | 0 | 0 | \$9,000   | \$0      |
| <i>Gwinville &amp; Mt. Carmel</i> | 8/16/2020  | TSTM Wind   | 52 kts. | 0 | 0 | \$10,000  | \$0      |

|                                |           |           |         |   |   |           |     |
|--------------------------------|-----------|-----------|---------|---|---|-----------|-----|
| <b>Lucas</b>                   | 3/17/2021 | TSTM Wind | 60 kts. | 0 | 0 | \$30,000  | \$0 |
| <b>Gwinville</b>               | 4/24/2021 | TSTM Wind | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| <b>Hebron</b>                  | 4/13/2022 | TSTM Wind | 65 kts. | 0 | 0 | \$50,000  | \$0 |
| <b>Hebron &amp; Lucas</b>      | 5/5/2023  | TSTM Wind | 67 kts. | 0 | 0 | \$218,000 | \$0 |
| <b>Hebron &amp; Mt. Carmel</b> | 6/14/2023 | TSTM Wind | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <b>Hebron</b>                  | 6/18/2023 | TSTM Wind | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <b>Melba</b>                   | 1/25/2024 | TSTM Wind | 55 kts. | 0 | 0 | \$3,000   | \$0 |
| <b>Lucas and Melba</b>         | 4/10/2024 | TSTM Wind | 55 kts. | 0 | 0 | \$7,000   | \$0 |
| <b>Oak Vale</b>                | 5/13/2024 | TSTM Wind | 96 kts. | 0 | 0 | \$250,000 | \$0 |

Source: NCED/NOAA

## Hailstorm

According to the National Centers for Environmental Information, 57 recorded hailstorm events have affected Jefferson Davis County since 2000. **Table D.17** is a summary of the hail events in Jefferson Davis County. **Table D.18** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over \$519,000 in property damages. Hail ranged in diameter from 0.75 inches to 2.50 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.

## Lightning

According to the National Centers for Environmental Information, there have been five recorded lightning events in Jefferson Davis County since 2000. These events resulted in almost \$351,000 in damages as listed in summary **Table D.17**. 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.18**.

**TABLE D.17: SUMMARY OF HAIL AND LIGHTNING OCCURRENCES IN JEFFERSON DAVIS COUNTY**

| Location                   | Number of Occurrences | Deaths | Injuries | Property Damage | Crop Damage |
|----------------------------|-----------------------|--------|----------|-----------------|-------------|
| <b>Bassfield</b>           | 15                    | 0      | 0        | \$352,000       | \$0         |
| <b>Prentiss</b>            | 20                    | 0      | 0        | \$342,000       | \$0         |
| <b>Unincorporated Area</b> | 26                    | 0      | 1        | \$176,000       | \$0         |
| <b>County Total:</b>       | 62                    | 0      | 1        | \$870,000       | \$0         |

Source: NCED/NOAA

**TABLE D.18: HISTORICAL HAIL AND LIGHTNING OCCURRENCES IN JEFFERSON DAVIS COUNTY**

| Location                 | Date       | Type | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|--------------------------|------------|------|-----------|--------|----------|-----------------|-------------|
| <b>Town of Bassfield</b> |            |      |           |        |          |                 |             |
| <b>Bassfield</b>         | 3/1/2001   | Hail | 0.88 in.  | 0      | 0        | \$0             | \$0         |
| <b>Bassfield</b>         | 10/11/2001 | Hail | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <b>Bassfield</b>         | 3/15/2002  | Hail | 0.88 in.  | 0      | 0        | \$0             | \$0         |
| <b>Bassfield</b>         | 11/15/2002 | Hail | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <b>Bassfield</b>         | 4/24/2003  | Hail | 0.88 in.  | 0      | 0        | \$1,000         | \$0         |
| <b>Bassfield</b>         | 5/17/2003  | Hail | 0.88 in.  | 0      | 0        | \$1,000         | \$0         |
| <b>Bassfield</b>         | 3/26/2005  | Hail | 1.50 in.  | 0      | 0        | \$0             | \$0         |

|                                                      |            |           |          |   |   |           |     |
|------------------------------------------------------|------------|-----------|----------|---|---|-----------|-----|
| <i>Bassfield</i>                                     | 3/30/2005  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Bassfield</i>                                     | 4/22/2005  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>Bassfield</i>                                     | 8/12/2005  | Lightning | --       | 0 | 0 | \$300,000 | \$0 |
| <i>Bassfield</i>                                     | 2/12/2008  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Bassfield</i>                                     | 4/26/2008  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Bassfield</i>                                     | 5/12/2009  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Bassfield</i>                                     | 1/21/2017  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Bassfield</i>                                     | 11/29/2022 | Hail      | 1.75 in. | 0 | 0 | \$50,000  | \$0 |
| <b>Town of Prentiss</b>                              |            |           |          |   |   |           |     |
| <i>Prentiss</i>                                      | 7/7/2002   | Hail      | 1.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>                                      | 8/20/2003  | Hail      | 0.88 in. | 0 | 0 | \$1,000   | \$0 |
| <i>Prentiss</i>                                      | 5/1/2004   | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>                                      | 4/6/2005   | Hail      | 1.75 in. | 0 | 0 | \$65,000  | \$0 |
| <i>Prentiss</i>                                      | 12/4/2005  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>                                      | 2/6/2006   | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>                                      | 5/8/2006   | Hail      | 1.75 in. | 0 | 0 | \$50,000  | \$0 |
| <i>Prentiss</i>                                      | 4/26/2008  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>                                      | 5/24/2009  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Prentiss ARPT</i>                                 | 6/7/2011   | Hail      | 1 in.    | 0 | 0 | \$20,000  | \$0 |
| <i>Prentiss</i>                                      | 7/4/2011   | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>                                      | 7/4/2011   | Lightning | --       | 0 | 0 | \$6,000   | \$0 |
| <i>Prentiss</i>                                      | 4/2/2012   | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>Prentiss ARPT</i>                                 | 4/2/2012   | Hail      | 1.75 in. | 0 | 0 | \$25,000  | \$0 |
| <i>Prentiss APRT</i>                                 | 6/8/2013   | Hail      | 1.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>                                      | 12/23/2014 | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>                                      | 1/3/2015   | Lightning | --       | 0 | 0 | \$10,000  | \$0 |
| <i>Prentiss</i>                                      | 3/17/2016  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>                                      | 3/25/2021  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Prentiss</i>                                      | 3/26/2023  | Hail      | 2.50 in. | 0 | 0 | \$150,000 | \$0 |
| <i>Prentiss ARPT</i>                                 | 6/14/2023  | Hail      | 1.25 in. | 0 | 0 | \$15,000  | \$0 |
| <b>Unincorporated Area in Jefferson Davis County</b> |            |           |          |   |   |           |     |
| <i>Carson</i>                                        | 3/10/2000  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Hebron</i>                                        | 3/26/2005  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Hebron</i>                                        | 4/6/2005   | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Hathorn</i>                                       | 4/6/2005   | Hail      | 1.75 in. | 0 | 0 | \$0       | \$0 |
| <i>MT Carmel</i>                                     | 2/3/2006   | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Hebron</i>                                        | 5/8/2006   | Hail      | 1.50 in. | 0 | 0 | \$0       | \$0 |
| <i>Oak Vale</i>                                      | 5/8/2006   | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>Hebron</i>                                        | 5/9/2006   | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>Oak Vale</i>                                      | 7/19/2006  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Oak Vale</i>                                      | 1/10/2008  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>Hebron</i>                                        | 2/21/2008  | Hail      | 1.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Gwinville</i>                                     | 7/29/2008  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Terrell</i>                                       | 12/9/2008  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Carson</i>                                        | 3/27/2008  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>Hathorn</i>                                       | 4/2/2009   | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |

|           |            |           |          |   |   |          |     |
|-----------|------------|-----------|----------|---|---|----------|-----|
| Lucas     | 5/5/2009   | Hail      | 0.88 in. | 0 | 0 | \$0      | \$0 |
| Lucas     | 5/12/2009  | Hail      | 0.88 in. | 0 | 0 | \$0      | \$0 |
| Gwinville | 8/15/2012  | Hail      | 1 in.    | 0 | 0 | \$0      | \$0 |
| Hathorn   | 2/10/2013  | Hail      | 1 in.    | 0 | 0 | \$0      | \$0 |
| Hebron    | 3/18/2013  | Hail      | 1.75 in. | 0 | 0 | \$5,000  | \$0 |
| MT Carmel | 3/18/2013  | Hail      | 1 in.    | 0 | 0 | \$1,000  | \$0 |
| MT Carmel | 1/3/2015   | Lightning | --       | 0 | 0 | \$10,000 | \$0 |
| Gwinville | 3/3/2016   | Hail      | 0.75 in. | 0 | 0 | \$0      | \$0 |
| Lucas     | 3/9/2017   | Hail      | 1 in.    | 0 | 0 | \$0      | \$0 |
| Terrell   | 4/30/2017  | Lightning | --       | 0 | 1 | \$25,000 | \$0 |
| Gwinville | 4/22/2020  | Hail      | 1 in.    | 0 | 0 | \$0      | \$0 |
| Carson    | 5/27/2020  | Hail      | 1.75 in. | 0 | 0 | \$10,000 | \$0 |
| Carson    | 4/17/2022  | Hail      | 1.25 in. | 0 | 0 | \$25,000 | \$0 |
| Carson    | 11/29/2022 | Hail      | 1.75 in. | 0 | 0 | \$50,000 | \$0 |
| Terrell   | 11/29/2022 | Hail      | 1 in.    | 0 | 0 | \$0      | \$0 |
| Oak Vale  | 5/11/2023  | Hail      | 1 in.    | 0 | 0 | \$50,000 | \$0 |

Source: NCED/NOAA

## 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 Jefferson Davis 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 Jefferson Davis 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®), 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. 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.

Meteorologists predict that thunderstorms will continue to increase in frequency, magnitude, and intensity as climate change continues to effect weather. These increases could greatly impact the county in crop and property damage and life safety. If these storms intensify it could also affect the economy of the county.

## D.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 seven disaster declarations in Jefferson Davis County in 1992, 2003, 2009, 2013, twice in 2020, and 2023. According to the National Centers for Environmental Information, there have been a total of 30 recorded tornado events in Jefferson Davis County since 2000 (**Table D.19**), resulting in over \$32.6 million in property and crop damages. In addition, 6 injuries 4 deaths 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.20**.

**TABLE D.19: SUMMARY OF TORNADO OCCURRENCES IN JEFFERSON DAVIS COUNTY**

| Location                   | Number of Occurrences | Deaths   | Injuries | Property Damage     | Crop Damage        |
|----------------------------|-----------------------|----------|----------|---------------------|--------------------|
| <i>Bassfield</i>           | 9                     | 4        | 4        | \$18,224,000        | \$2,500,000        |
| <i>Prentiss</i>            | 4                     | 0        | 0        | \$235,000           | \$0                |
| <i>Unincorporated Area</i> | 17                    | 0        | 0        | \$9,199,000         | \$2,500,000        |
| <b>County Total:</b>       | <b>30</b>             | <b>4</b> | <b>6</b> | <b>\$27,658,000</b> | <b>\$5,000,000</b> |

**TABLE D.20: HISTORICAL TORNADO IMPACTS IN JEFFERSON DAVIS COUNTY**

| Location                                             | Date       | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|------------------------------------------------------|------------|-----------|--------|----------|-----------------|-------------|
| <b>Town of Bassfield</b>                             |            |           |        |          |                 |             |
| <i>Bassfield</i>                                     | 11/27/2003 | F1        | 0      | 0        | \$15,000        | \$0         |
| <i>Bassfield</i>                                     | 10/16/2006 | F0        | 0      | 0        | \$0             | \$0         |
| <i>Bassfield</i>                                     | 2/13/2007  | EF0       | 0      | 0        | \$5,000         | \$0         |
| <i>Bassfield</i>                                     | 9/1/2008   | EF0       | 0      | 0        | 1,000           | \$0         |
| <i>Bassfield</i>                                     | 11/16/2011 | EF1       | 0      | 0        | \$100,000       | \$0         |
| <i>Bassfield</i>                                     | 4/12/2020  | EF4       | 4      | 4        | \$18,000,000    | \$2,500,000 |
| <i>Bassfield</i>                                     | 11/29/2022 | EF0       | 0      | 0        | \$3,000         | \$0         |
| <i>Bassfield</i>                                     | 11/29/2022 | EF1       | 0      | 0        | 60,000          | \$0         |
| <i>Bassfield</i>                                     | 2/16/2023  | EF0       | 0      | 0        | \$40,000        | \$0         |
| <b>Town of Prentiss</b>                              |            |           |        |          |                 |             |
| <i>Prentiss</i>                                      | 5/1/2004   | F1        | 0      | 0        | \$30,000        | \$0         |
| <i>Prentiss Airport</i>                              | 12/9/2008  | EF1       | 0      | 0        | \$100,000       | \$0         |
| <i>Prentiss</i>                                      | 12/24/2020 | EF0       | 0      | 0        | \$30,000        | \$0         |
| <i>Prentiss</i>                                      | 5/18/2021  | EF0       | 0      | 0        | \$75,000        | \$0         |
| <b>Unincorporated Area in Jefferson Davis County</b> |            |           |        |          |                 |             |
| <i>Melba</i>                                         | 2/16/2001  | F0        | 0      | 0        | \$15,000        | \$0         |
| <i>Hebron</i>                                        | 3/26/2005  | F1        | 0      | 0        | \$20,000        | \$0         |
| <i>Carson</i>                                        | 10/17/2007 | EF1       | 0      | 0        | \$100,000       | \$0         |
| <i>Gwinville</i>                                     | 5/3/2009   | EF1       | 0      | 0        | \$2,000         | \$0         |

|                               |                   |            |          |          |                    |                    |
|-------------------------------|-------------------|------------|----------|----------|--------------------|--------------------|
| <b>Terrell</b>                | <b>3/2/2012</b>   | <b>EF0</b> | <b>0</b> | <b>0</b> | <b>\$60,000</b>    | <b>\$0</b>         |
| <b>Hathorn</b>                | <b>2/21/2013</b>  | <b>EF2</b> | <b>0</b> | <b>0</b> | <b>\$175,000</b>   | <b>\$0</b>         |
| <b>Lucas</b>                  | <b>7/10/2016</b>  | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$110,000</b>   | <b>\$0</b>         |
| <b>Terrell</b>                | <b>8/30/2017</b>  | <b>EF0</b> | <b>0</b> | <b>0</b> | <b>\$15,000</b>    | <b>\$0</b>         |
| <b>Hebron &amp; MT Carmel</b> | <b>4/6/2018</b>   | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$35,000</b>    | <b>\$0</b>         |
| <b>Lucas</b>                  | <b>12/16/2019</b> | <b>EF1</b> | <b>0</b> | <b>1</b> | <b>\$500,000</b>   | <b>\$0</b>         |
| <b>MT Carmel</b>              | <b>3/4/2020</b>   | <b>EF0</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>     | <b>\$0</b>         |
| <b>Hathorn</b>                | <b>4/12/2020</b>  | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$1,000,000</b> | <b>\$0</b>         |
| <b>Oak Vale</b>               | <b>4/12/2020</b>  | <b>EF3</b> | <b>0</b> | <b>1</b> | <b>\$7,000,000</b> | <b>\$2,500,000</b> |
| <b>MT. Carmel</b>             | <b>4/5/2022</b>   | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$40,000</b>    | <b>\$0</b>         |
| <b>MT Carmel</b>              | <b>4/5/2022</b>   | <b>EF2</b> | <b>0</b> | <b>0</b> | <b>\$100,000</b>   | <b>\$0</b>         |
| <b>Hathorn</b>                | <b>11/29/2022</b> | <b>EF0</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>     | <b>\$0</b>         |
| <b>Gwinville</b>              | <b>12/14/2022</b> | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$25,000</b>    | <b>\$0</b>         |

Source: NCED/NOAA

Anecdotes are available from NCEI for the major storms that have impacted that area as found below:

**December 16, 2019**—This tornado started just north-northwest of the town of Silver Creek off of Stephens Cemetery Road and then crossed Highway 43. A barn and shed were initially damaged along with some downed trees. Damage to trees increased along Highway 43 with several snapped. The tornado then moved into the Silver Creek bottom then crossed Daughdrill Road, where more trees were snapped/uprooted along with downed power lines. One home had minor roof damage with a group of 3 chicken houses damaged, and one house destroyed. The tornado then crossed into Jefferson Davis County and intensified. As it crossed Spring Hill Church Road, trees and power lines were down. One home on blocks was destroyed. An area of woods adjacent to the home sustained significant tree damage where all the trees were snapped in a focused corridor from what appears to be an intense vortex. An EF2 rating was given here. The tornado then crossed Zion Hill Church Road, although the tornado weakened a bit at this point, it still snapped and uprooted numerous trees. The tornado then moved along Gholar Road. In this location, the tornado transitioned and took a hard right. While doing so, another intense vortex occurred within otherwise standard EF0, EF1 tree damage. The noted vortex destroyed a mobile home and threw a Nissan truck about 30 yds; one injury occurred here as the person was in the mobile home and was thrown out of it. Shortly after the hard right deviation, another intense vortex developed, and more extensive tree damage occurred just east of Sophia Sutton Road. As the tornado crossed Highway 42, it reached peak intensity with winds around 130 mph. Here a large cinder block store was demolished, and a well-built brick home had the roof removed. Multiple power poles were broken along with numerous trees snapped/uprooted. The tornado continued east-northeast generally along portions of Double Ponds Road. Here more trees were snapped and uprooted. The tornado crossed Highway 13 and then dissipated at Sugar Ridge Road but not before snapping a few tree limbs. Maximum winds were 130 mph. Total path length was 10.92 miles.

**April 12, 2020**—This violent, deadly tornado traveled 68 miles through parts of five counties including southeastern Jefferson Davis, central Covington, northwestern Jones, southeastern Jasper, and western Clarke counties. Locations impacted by this tornado include Bassfield, the areas between Collins and Seminary, Soso, Moss, Heidelberg, and Pachuta. This tornado is preliminarily rated EF4 with an estimated peak wind of 190 MPH east of Bassfield in southwestern Jefferson Davis County. Additional EF4 damage was noted near Soso in Jones County and at Moss in Jasper County. The maximum path width was 2.25 miles in the vicinity of Hughes Road west of Seminary in western Covington County. At this width, the tornado ranks 3rd widest in the official NOAA United States tornado database behind the El Reno, OK tornado of 2013 (2.6 mi) and the Hallam, NE tornado of 2004 (2.5 mi). This tornado now ranks as the widest on record in the state of Mississippi, surpassing the Yazoo City, MS tornado of 2010 (1.75 mi). Eight lives were lost in this tornado, and there was an undetermined number of additional injuries. Additional details on the damage path and area of most significant damage follow.

The tornado began south of Bassfield along Bassfield Cemetery Road, uprooting trees and resulting in relatively minor structural damage. As it proceeded northeastward, the diameter of the wind field steadily increased and the percentage of snapped trees in the center of the vortex increased considerably as the tornado approached MS Highway 42. At this location, two homes sustained major roof damage.

Tornado intensity then began to increase quickly, with EF3 damage as it crossed Hosey Mikell Road, completely demolishing a mobile home and scattering the debris field over 300 yards downwind. Tree damage also ramped up significantly beyond this location, with low end EF4 damage in a narrow swath of nearly complete tree destruction along the center of the tornado vortex and increasing instances of debarking of trees as the tornado moved across Pitts Lane and Reese Road.

Outside of this most intense corridor of tornadic winds, EF1 and EF2 damage to trees and structures was occurring over a wide area, up one mile wide. In addition, both ground surveys and aerial photography indicated the presence of multiple vortices at times. Intense damage continued as the tornado crossed the intersection of Graves Key Road and Harper Road, where a cinder block small business building was destroyed, with much of the slab swept clean. Four fatalities occurred at this location. Nearby, a mobile home was completely destroyed, with the undercarriage wrapped around the small set of trees that remained standing downwind. Debarking of some trees was again noted and continued along the tornado path across Claude Booth Road.

The tornado reached its peak intensity as it moved across a field north of Graves Key Road. At this location, the foundation of a wood frame and metal roof cabin was swept clean. A truck parked at this cabin was tossed approximately 300 yards downwind, and trees that remained standing at this site were partially debarked. Though the path of the intense tornado vortex through the field surrounding this cabin was clearly visible, significant scouring was not noted. The tornado continued to remain violent and grow in size, nearly 1.5 miles wide, as it crossed Good Hope Road and continued to track toward the Bouie River. Here, a large swath of extreme tree damage was noted as the whole forest was leveled. An intense core of the tornado was evident by debarking of trees along a well-defined center line or sub-vortex feature. Extreme debarking was noted around Willie Fortenberry Road. In this general area, several farmers reported roughly 60 cattle were killed by the tornado. The tornado grew larger as it entered Covington County and peaked in width in the vicinity of Hughes Road. Maximum width was measured at 2.25 miles. The incredible expansive tree damage continued along the path with millions of trees damaged. Several dozen structures were damaged or destroyed between McGowen Circle to US 49. Numerous chicken houses (23-30) were destroyed here as well. A section of Cold Springs Road looked to see another sub-vortex and it was here another area of EF4 damage occurred to a home.

As the tornado crossed US 49, the width decreased to 1.7 miles, but it remained quite strong with mid to upper end EF3 damage noted. Extreme tree damage persisted in large swaths along the path. In addition, a few dozen structures were damaged between US 49 and MS Highway 588. This consisted of varying degrees of damage from EF1 to EF3 levels. The tornado entered northwestern Jones County near the Centerville community where several homes had shingles blown off or parts of the decking exposed. A mobile home along Tommy Pickering Road was thrown and separated from the frame, with the highest winds in the EF2 range. As the storm moved northeast across US 84, trees were uprooted and snapped. Several homes on both sides of the highway had decking exposed or shingles blown off. At least one mobile home was destroyed along US 84. The tornado intensified to an EF3 causing significant damage to multiple homes along Danny Hillburn Road, where large sections of roofing was removed. Between US 84 and MS Highway 29, several mobile homes were completely destroyed and at least one separated from the frame. Several homes had one or more exterior walls collapsed or large sections of the roof removed. The tornado continued to cause widespread destruction as it moved into the town of Soso. Several homes and churches received significant damage. Large swaths of trees were snapped and uprooted along MS Highway 29. Near the center of town, a fire station was heavily damaged when the overhead doors collapsed, and portions of the roof were removed. Numerous homes had roofing removed and exposed decking. The worst damage occurred along MS Highway 28 where a convenience store was destroyed, and several other cinder block structures were heavily damaged when the storm intensified to low end EF-4. The tornado continued to mow down large swaths of trees and caused major uplift and loss of roofing to numerous homes as it moved northeast toward MS Highway 15. Along Mathews Road numerous mobile homes and several outbuildings were completely destroyed.

The tornado intensified to a low end EF4 as it moved into the Moss community, where winds near 175 mph resulted in widespread devastation. Nearly every structure in the community was damaged with the most significant damage occurring along or near MS Highway 537. About half of the First Baptist Church of Moss was completely leveled. Numerous homes were destroyed or had major roofing loss or uplifted. A small pick-up truck was thrown several hundred yards and completely destroyed. In addition, multiple mobile homes were completely demolished.

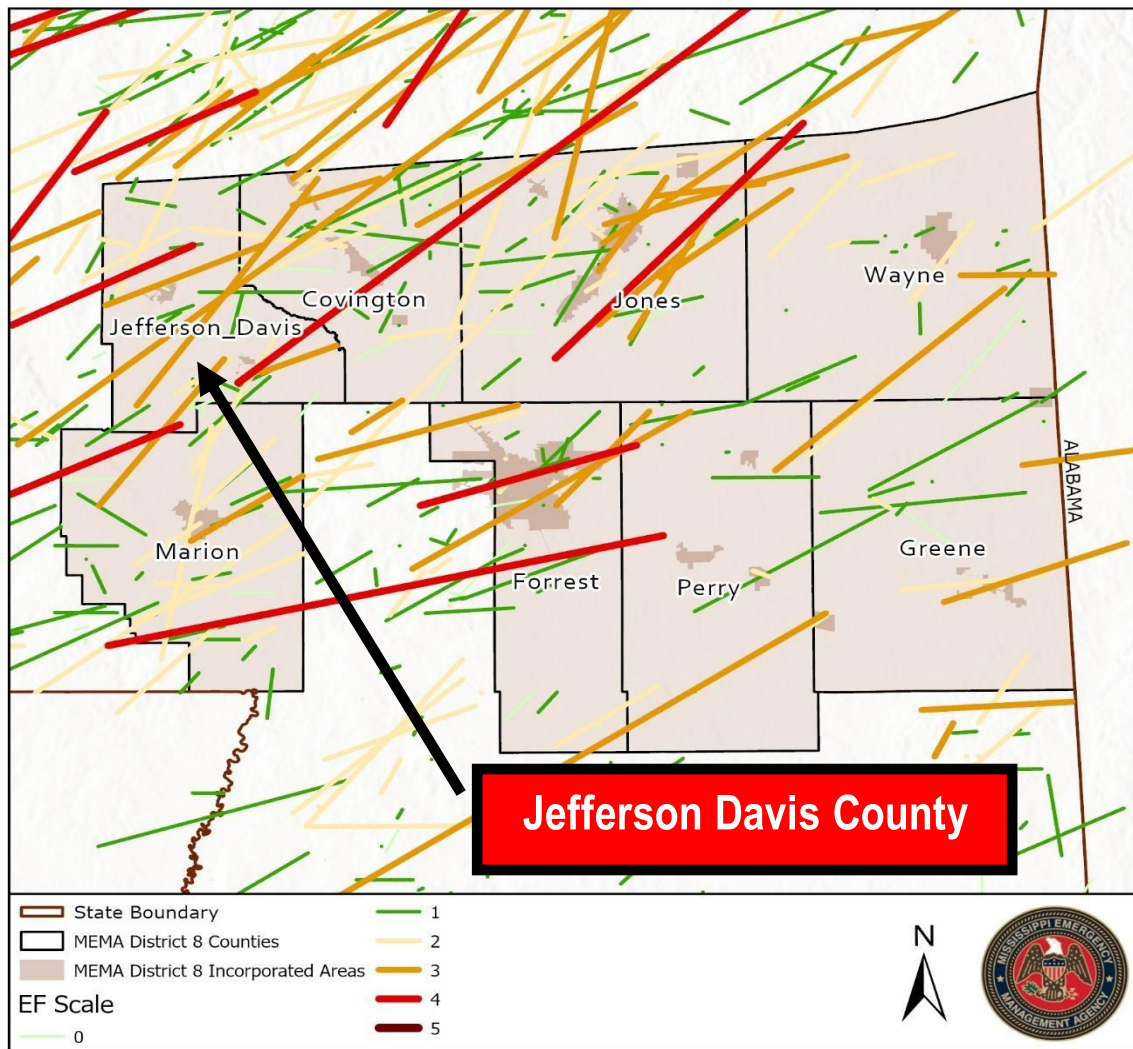
As the storm tracked toward I-59 a few miles west of Heidelberg, hundreds of trees were mowed down, outbuildings were destroyed. Several homes and mobile homes had metal roofing peeled back or decking exposed. Large swaths of trees were snapped for several miles including some along I-59 between the Heidelberg and Vossburg exits. Swaths of tree damage continued into the Barnett community. In the town of Pachuta there was scattered tree damage, and the metal roofing was peeled off of a church.



About two miles north of Pachuta, the damage became sporadic, and the tornado lifted in a wooded area along County Road 130. The total path length was 67.43 miles. The maximum estimated wind speed of both the tornado and in Jefferson Davis County was 190mph. This outbreak cost around \$31 Million in damages and caused 4 fatalities and 5 injuries.

**April 5, 2022**—A tornado began around Al Williamson Road where trees were blown down. It then traveled along E D Gray Road where it snapped and uprooted numerous hardwood and softwood trees, caused roof damage to a few mobile homes, and caused some minor damage to a barn. The tornado intensified to EF-2 strength and caused damage along Clem Road including uprooted and snapped hardwood trees. A home in this area was damaged, with some of the roofing removed and the porch awning blown away. The more significant damage at this location was to an outbuilding that had significant roof damage with debris strewn into a nearby field. A power pole across the street was snapped, and several trees were snapped and uprooted along 56 acres of property. The tornado then crossed Atwood Road where it snapped a power pole and caused additional tree damage. The tornado then crossed into Covington County. The estimated maximum wind gust for the portion of this tornado in Jefferson Davis County was 120 mph. The total path length of this tornado was 14.99 miles across both counties.

**FIGURE D.8: TORNADOES IN JEFFERSON DAVIS COUNTY 2000-2024**



### 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).

It is predicted that tornadoes and the type of storms that create tornadoes will increase in intensity, frequency, and magnitude as the temperature rises with climate change. More frequent strong tornadoes could have a large economic impact on each community in the county. It could also increase injuries and/death counts if the tornadoes increase in magnitude.

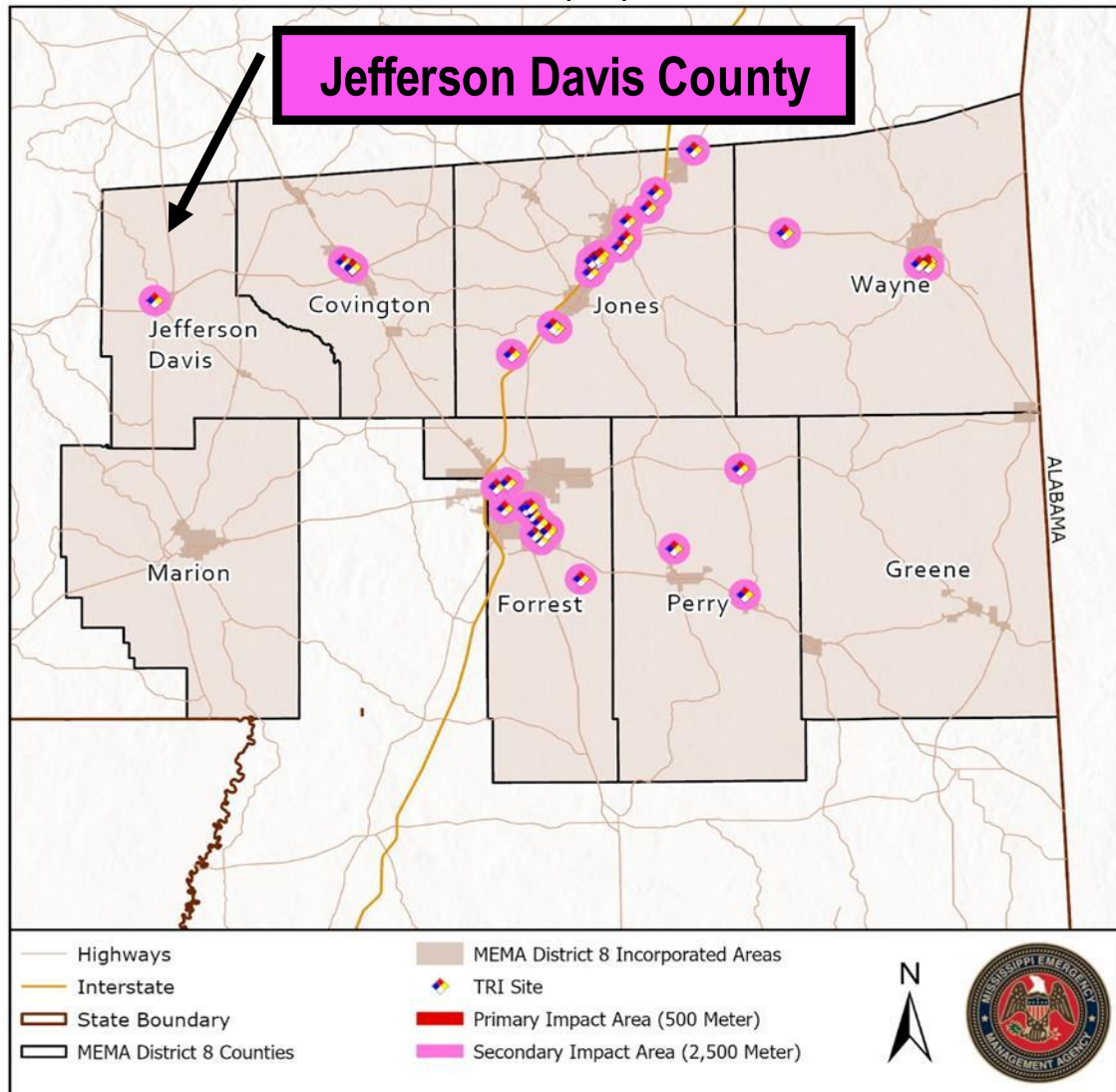
## D.2.13 Hazardous Materials Incidents

### LOCATION AND SPATIAL EXTENT

#### Hazardous Materials

Jefferson Davis County has one TRI sites as shown in **Figure D.9**.

**FIGURE D.9: TOXIC RELEASE INVENTORY (TRI) SITES IN JEFFERSON DAVIS COUNTY**



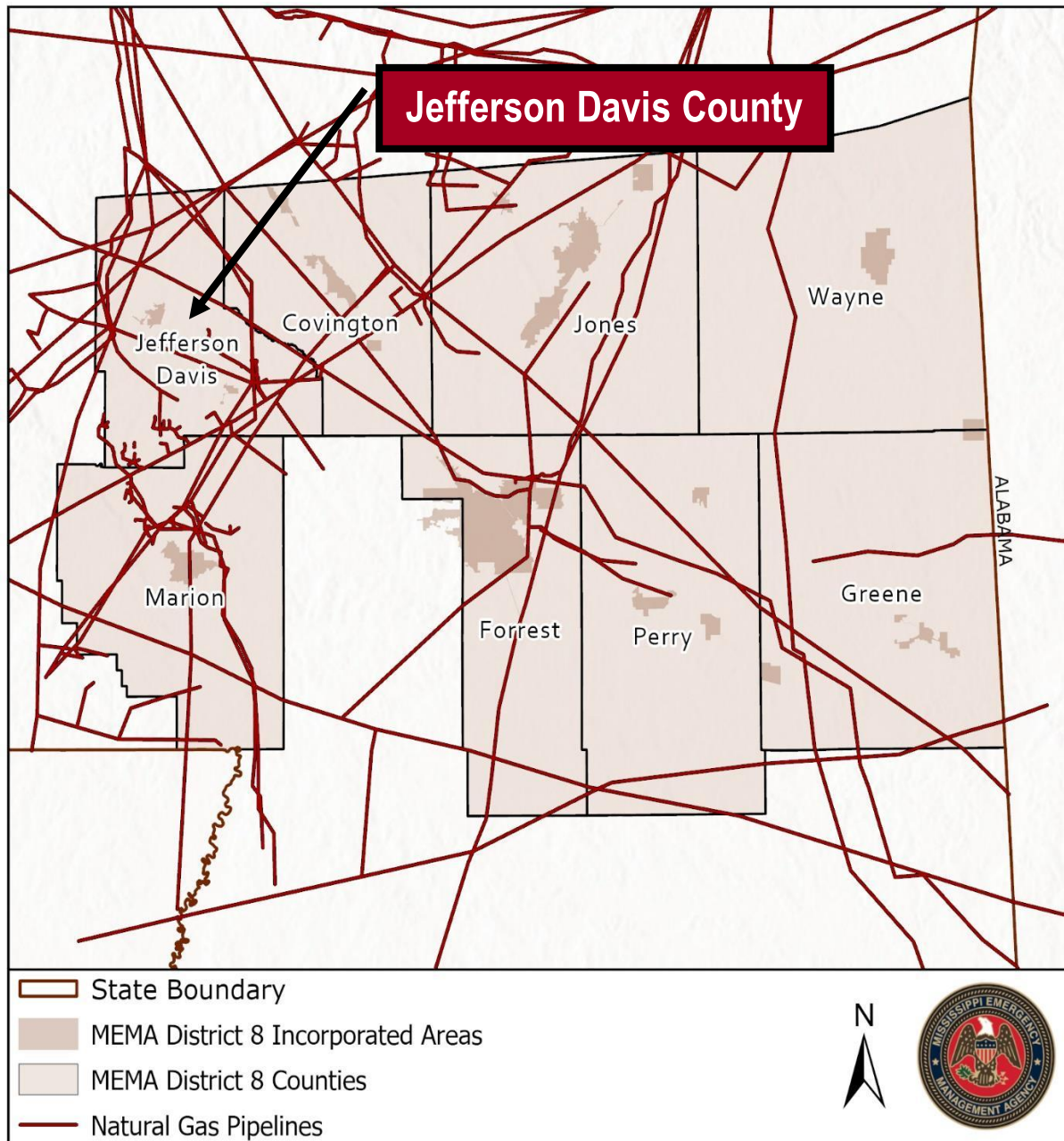
In addition to "fixed" hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially 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. The natural gas lines are in red/maroon. There are no changes to this data since the last plan.



FIGURE D.10: PIPELINES 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.

## HISTORICAL OCCURRENCES

### Hazardous Materials

There has been a total of one recorded HAZMAT incident in Jefferson Davis County since 2003, resulting in \$55,300 in property damages. **Table D.21** 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).

| Location               | Date      | Report Number | Mode    | Serious Incident | Deaths/Injuries | Damages  | Quantity Released |
|------------------------|-----------|---------------|---------|------------------|-----------------|----------|-------------------|
| Bassfield              | --        | --            | --      | --               | --              | --       | --                |
| Prentiss               | 4/22/2003 | I-2003120943  | Highway | YES              | 0/0             | \$55,300 | 200 LGA           |
| Unincorporated Area    | --        | --            | --      | --               | --              | --       | --                |
| Jefferson Davis County | Total= 1  |               |         |                  | 0/0             | \$55,300 | 200 LGA           |

Source: PHMSA

Pipelines

Between 2002 and 2024 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 one TRI site 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.

D.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 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.

## **D.2.15 Pandemic**

### **LOCATION AND SPATIAL EXTENT**

Pandemics are global in nature. However, they may start anywhere. Jefferson Davis County chose to analyze this hazard after the devastating effects of COVID 19. The Covid virus mutated several times and reinfected certain populations. The Virus also

caused major socioeconomic disruption. COVID 19 was also the first Disaster Declaration of its time and affected the entire county.

All populations should be considered at risk to pandemic. Buildings and infrastructure are not directly impacted by the virus but could be indirectly impacted if/when people are not able to operate and maintain them due to illness/quarantine. Many buildings may be shutdown, at least temporarily, as a result. Employers may initiate work from home procedures for non-essential workers in order to help stop infection. Commerce activities, and thus the economy, may suffer greatly during this time.

## ***HISTORICAL OCCURRENCES***

Several pandemics have been reported throughout history. The first known pandemic dates back to 430 B.C. with the Plague of Athens. It reportedly killed a quarter of the population over four years due to typhoid fever. In 165-180 A.D., the Antonine Plague killed nearly 5 million people. Next, the Plague of Justinian (the first bubonic plague pandemic) occurred from 541 to 566. It killed 10,000 people a day at its peak and resulted in a 50 percent drop in Europe's population.

Since the 1500s, influenza pandemics have occurred about three times every century or roughly every 10-50 years. The Black Death devastated European populations in the 14th century. Nearly a third of the population (20-30 million) was killed over six years. From 1817 to present, seven Cholera Pandemics have impacted to the world and killed millions. Perhaps most severe, was the Third Cholera Pandemic (1852-1959) which started in China. Isolated cases can still be found in the Western U.S. today. There were three major pandemics in the 20th century (1918-1919, 1957-1958, and 1968-1969). The most infamous pandemic flu of the 20th century, however, was that of 1918-1919. Since the 1960s, there has only been one pandemic, the 2009 H1N1 influenza. The pandemics of the 20th and 21st centuries that impacted the United States are detailed below.

**1918 Spanish Flu:** This was the most devastating flu of the 20th century. This pandemic spread across the world in three waves between 1918 and 1919. It typically impacted areas for around twelve weeks and then would largely disappear. However, it would frequently reemerge several months later. Worldwide, approximately 50 million persons died and over a quarter of the population was infected. Nearly 675,000 people died in the United States. The illness came on suddenly and could cause death within a few hours. The virus impacted those aged 15 to 35 especially hard. The movement of troops during World War I is thought to have facilitated the spread of the virus.

In Mississippi, state officials noted that "epidemics have been reported from a number of places in the State," on October 4th, 1918. By the 18th, twenty-six localities reported 1,934 cases (the real number of cases was likely much higher). West Point, Mississippi was hit especially hard, and quarantine was established. Throughout the state, African Americans were impacted at a greater rate than white populations. This is thought to be partly caused from a shortage of caretakers. It is estimated that over 6,000 people died in Mississippi, though that number may be much higher as death records were not widely recorded.

**1957 Asian Flu:** It is estimated that the Asian Flu caused 2 million deaths worldwide. Approximately 70,000 deaths were in the U.S. However, the proportion of people impacted was substantially higher than that of the Spanish Flu. This flu was characterized as having much milder effects than the Spanish Flu and greater survivability. Similar to other pandemics, this pandemic has two waves. Elderly and infant populations were more likely to succumb to death. This flu is thought to have originated from a genetic mutation of a bird virus.

**1968 Hong Kong Flu:** The Hong Kong Flu is thought to have caused one million deaths worldwide. It was milder than both the Asian and Spanish influenza viruses. It was similar to the Asian Flu, which may have provided some immunity to the virus. It had the most severe impact on elderly populations.

**2009 H1N1 Influenza:** This flu was derived from human, swine, and avian virus strains. It was initially reported in Mexico in April 2009. On April 26, the U.S. government declared H1N1 a public health emergency. A vaccine was developed and over 80 million were vaccinated which helped minimize the impacts. The virus had mild impacts on most of the population but did cause death (usually from viral pneumonia) in high-risk populations such as pregnant women, obese persons, indigenous people, and those with chronic respiratory, cardiac, neurological, or immunity conditions. Worldwide, it is estimated that 43 million to 89

million people contracted H1N1 between April 2009 and April 2010, and between 8,870 and 18,300 H1N1 cases resulted in death.

**COVID-19 (coronavirus disease 2019):** Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019 and changed the way people view Pandemics. Jefferson Davis County had 3,709 cases of COVID and 57 deaths.

COVID-19 most often causes respiratory symptoms that can feel much like a cold, the flu, or pneumonia. COVID-19 may attack more than your lungs and respiratory system. Other parts of your body may also be affected by the disease. Most people with COVID-19 have mild symptoms, but some people become severely ill. Some people are more likely than others to get very sick if they get COVID-19. This includes people who are older, are immunocompromised, have certain disabilities, or have underlying health conditions.

In addition to the pandemics above, there have been several cases of pandemic threats, some of which reached epidemic levels. They were contained before spreading globally. Examples include Smallpox, Polio, Tuberculosis, Malaria, AIDS, SARS and Yellow Fever. Advances in medicine and technology have been instrumental in containing the spread of viruses in recent history.

**PROBABILITY OF FUTURE OCCURRENCES**

Based on historical occurrence information, it is assumed that Webster County has a probability level of unlikely (less than 1 percent annual probability) for future pandemics events. While pandemic can have devastating impacts, they are relatively rare.

The Mississippi State Department of Health maintains a state pandemic plan which can be found here: <http://www.msdh.state.ms.us/msdhsite/index.cfm/44,1136,122,154,pdf/SNSPlan.pdf>

**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.22** 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 D.22: EXTENT OF JEFFERSON DAVIS COUNTY HAZARDS

| HAZARD | DESCRIPTION |
|--------|-------------|
|--------|-------------|



## Tectonic 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.

## Mass-Movements

### 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.

## Hydraulic Hazards

### Drought

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 four times over the twenty-four-year reporting period.

### Floods

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.

### 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.

## Meteorological Hazards

### Hurricane and Tropical Storms

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 Katrina in 2005) which carried tropical force winds of 130 miles per hour upon arrival in the county.

### Thunderstorms/ Hail/ Lightning/ Wind

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 May 13, 2024, at 96 knots (approximately 110mph). 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 2.50 inches (last reported on March 26, 2023). It should be noted that future events may exceed this.

According to the Vaisala's flash density map, 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.

### Winter Storms

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.

### Temperature Extremes/ Heat Wave

A four day stretch of extreme temperatures occurred across the region to start off the month of August. High pressure was firmly entrenched across the southeast and allowed temperatures to soar into the triple digits across much of the region. Across the NWS Jackson, MS forecast area, 19 record highs were set between August 1st and 4th. On August 2nd, the 2nd warmest average temperature was recorded. The low was 78 and the high 105, this resulted in an average temperature of 91.5 degrees. Additionally, relatively high humidity levels made conditions even more oppressive, with heat index readings surpassing 110 degrees in many areas. This extreme heat resulted in 3 fatalities across the forecast area.

### 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 12, 2020).

## Biological Hazards

### Pandemic

The extent of a pandemic impacting the county is difficult to estimate. It could result in thousands of deaths and extreme disruption of commerce and everyday life.

Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019, and changed the way people view Pandemics. Jefferson Davis County had 3,709 cases of COVID and 57 deaths

| Other Natural Hazards     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wildfire                  | Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2010-2023. 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 2022 when 1021 acres were burned. Although this data lists the extent that has occurred, larger and more frequent wildfires are possible throughout the county.                                                                                                                                                   |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Climate Change            | The extent Climate change will impact Jefferson Davis County is hard to estimate. It could cause more intense, frequent, and/or magnitude of thunderstorms, tropical storms, winds, tornadoes, heavy rains, flash flooding... If the intensity and magnitude increase so will property damage and possible loss of life.                                                                                                                                                                                                                                                                                            |
| Other Hazards             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                       |
| Hazard 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.<br>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.<br>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. |

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 D.23 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 D.23: SUMMARY OF PRI RESULTS FOR JEFFERSON DAVIS COUNTY

| HAZARD | Category/Degree of Risk |         |         |     |
|--------|-------------------------|---------|---------|-----|
|        |                         | Spatial | Warning | PRI |

|                                         | Probability   | Impact        | Extent      | Time               | Duration           | Score      |
|-----------------------------------------|---------------|---------------|-------------|--------------------|--------------------|------------|
| <b>Tectonic Hazards</b>                 |               |               |             |                    |                    |            |
| <b>Earthquake</b>                       | Unlikely      | Minor         | Moderate    | Less than 6 hours  | Less than 6 Hours  | <b>1.7</b> |
| <b>Mass-Movement Hazards</b>            |               |               |             |                    |                    |            |
| <b>Landslide</b>                        | Unlikely      | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | <b>1.5</b> |
| <b>Expansive Soil</b>                   | Possible      | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | <b>1.8</b> |
| <b>Hydrologic Hazards</b>               |               |               |             |                    |                    |            |
| <b>Drought</b>                          | Highly Likely | Minor         | Large       | More than 24 hours | More than 1 week   | <b>2.8</b> |
| <b>Floods</b>                           | Likely        | Limited       | Moderate    | 6 to 12 hours      | Less than 24 hours | <b>2.4</b> |
| <b>Dam Failure</b>                      | Unlikely      | Critical      | Moderate    | More than 24 hours | Less than 24 hours | <b>2.0</b> |
| <b>Meteorological Hazards</b>           |               |               |             |                    |                    |            |
| <b>Hurricane/ Tropical Storms</b>       | Likely        | Catastrophic  | Large       | More than 24 hours | Less than 24 hours | <b>3.2</b> |
| <b>Thunderstorm/ High Wind</b>          | Highly Likely | Limited       | Moderate    | Less than 6 hours  | Less than 6 hours  | <b>2.9</b> |
| <b>Hailstorm</b>                        | Likely        | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | <b>2.1</b> |
| <b>Lightning</b>                        | Highly Likely | Limited       | Negligible  | Less than 6 hours  | Less than 6 hours  | <b>2.5</b> |
| <b>Winter Storms</b>                    | Likely        | Limited       | Moderate    | More than 24 hours | Less than 24 hours | <b>2.3</b> |
| <b>Temperature Extremes/ Heat Waves</b> | Highly Likely | Likely        | Small       | More than 24 hours | More than 1 week   | <b>2.8</b> |
| <b>Tornado</b>                          | Likely        | Critical      | Small       | Less than 6 hours  | Less than 6 hours  | <b>2.7</b> |
| <b>Biological Hazards</b>               |               |               |             |                    |                    |            |
| <b>Pandemic</b>                         | Likely        | Limited—Major | Small—Large | More than 24 hours | More than a week   | <b>2.8</b> |
| <b>Other Natural Hazards</b>            |               |               |             |                    |                    |            |
| <b>Wildfire</b>                         | Likely        | Minor         | Small       | Less than 6 hours  | Less than one week | <b>2.3</b> |
| <b>Erosion</b>                          | Possible      | Minor         | Small       | More than 24 hours | More than 1 week   | <b>1.8</b> |
| <b>Climate Change</b>                   | Possible      | Critical      | Large       | More than 1 week   | More than 1 week   | <b>2.6</b> |
| <b>Other Hazards</b>                    |               |               |             |                    |                    |            |
| <b>Cyber Attack</b>                     | Unlikely      | Limited       | Small       | Less than 6 hours  | Less than 24 hours | <b>1.9</b> |
| <b>Hazardous Materials Incident</b>     | Unlikely      | Limited       | Small       | Less than 6 hours  | Less than 24 hours | <b>1.9</b> |
| <b>Meth Lab Incident</b>                | Possible      | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | <b>1.8</b> |
| <b>Pipeline Incident</b>                | Possible      | Limited       | Small       | Less than 6 hours  | Less than 24 hours | <b>2.2</b> |

## D.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 D.24). 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 D.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 D.24: CONCLUSIONS ON HAZARD RISK FOR JEFFERSON DAVIS COUNTY**

|                      |                                                                                                                                                |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High Risk</b>     | <i>Drought/Heat Wave<br/>Hurricane and Tropical Storm<br/>Thunderstorm/ High Wind<br/>Tornado<br/>Flood<br/>Lightning<br/>Pandemic</i>         |
| <b>Moderate Risk</b> | <i>Climate Change<br/>Hail<br/>Pipeline Incident<br/>Hazardous Materials Incident<br/>Wildfire<br/>Dam Failure<br/>Winter Storm and Freeze</i> |
| <b>Low Risk</b>      | <i>Expansive Soil<br/>Landslide<br/>Meth Lab Incident<br/>Pandemic<br/>Erosion<br/>Cyber Attack</i>                                            |

## D.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 amounts 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.25** 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 since digital parcel data was not available in this county.

**TABLE D.25: IMPROVED PROPERTY IN JEFFERSON DAVIS COUNTY**

| LOCATION               | Number of Improved Properties | Total Assessed Value of Improvements |
|------------------------|-------------------------------|--------------------------------------|
| Jefferson Davis County | 5,782                         | \$852,147,000                        |

**Table D.26** 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 was used to obtain the critical facilities for the county and this data was modified to reflect recent changes. In addition, **Figure D.11** shows the locations of essential facilities in Jefferson Davis County. **Table D.27** 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.26: CRITICAL FACILITY INVENTORY IN JEFFERSON DAVIS COUNTY**

| Location                             | Fire Station | Police Station | Medical Care Facility | EOC      | Schools   |
|--------------------------------------|--------------|----------------|-----------------------|----------|-----------|
| <i>Bassfield</i>                     | 2            | 1              | 0                     | --       | 2         |
| <i>Prentiss</i>                      | 2            | 2              | 1                     | 1        | 4         |
| <i>Unincorporated Area</i>           | 6            | 0              | 0                     | --       | 6         |
| <b>Jefferson Davis County Total:</b> | <b>11</b>    | <b>3</b>       | <b>1</b>              | <b>1</b> | <b>12</b> |

**Table D.27** 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").

**TABLE D.27: CRITICAL FACILITIES AND THEIR VULNERABILITY TO CERTAIN HAZARDS**

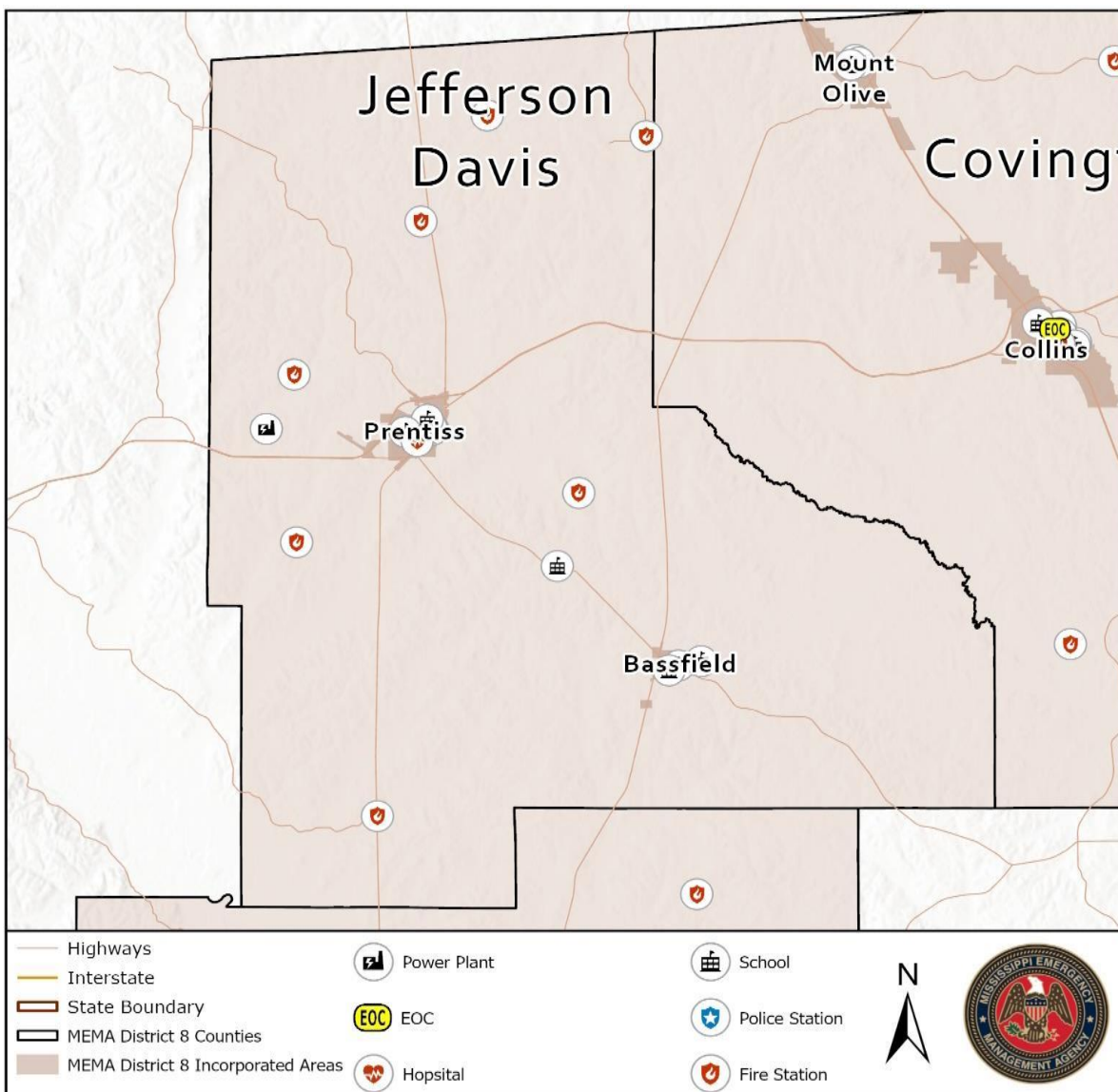
|          |          | Other |              |               | Atmospheric |                |                     |         |                | Geologic |       | Hydrologic  |          |          |
|----------|----------|-------|--------------|---------------|-------------|----------------|---------------------|---------|----------------|----------|-------|-------------|----------|----------|
| Facility | Facility | WHP   | Fixed HAZMAT | Mobile HAZMAT | Drought     | Thunder-storm. | Hurricane /Tropical | Tornado | Winter Storm & | Earth-   | Land- | Dam & Levee | 100-Year | 500-Year |



| Name                                              | Type           | Hazard       | 500-2500M<br>Roads &<br>Rails  | 500-2500M<br>Roads &<br>Rails   |         | Lightning,<br>& Hail       | Storm                     |         | Freeze                | quake       | slide      | Failure             | Flood           | Flood           |
|---------------------------------------------------|----------------|--------------|--------------------------------|---------------------------------|---------|----------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| <b>Jefferson Davis County Critical Facilities</b> |                |              |                                |                                 |         |                            |                           |         |                       |             |            |                     |                 |                 |
| Bassfield Police Dept.                            | Police Station | Non-burnable |                                |                                 | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| Bassfield VFD                                     | Fire Station   | Low          |                                |                                 | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| G W Carver Elem & Safe Room                       | School         | HIGH         |                                |                                 | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| Good Hope Elem. School                            | School         | Moderate     |                                |                                 | X       | X                          | X                         | X       | X                     | X           |            |                     |                 |                 |
| Good Hope Fire Dept.                              | Fire Station   | HIGH         |                                |                                 | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| Jefferson Davis High School                       | School         | HIGH         |                                |                                 | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| Bassfield Fire Dept.                              | Fire Station   | Non-burnable |                                |                                 | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| JDCS Learning Center                              | School         | HIGH         |                                |                                 | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| Jeff Davis CO VO Tech. & SR                       | School         | HIGH         |                                |                                 | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| Red House Fire Dept.                              | Fire Station   | HIGH         |                                |                                 | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| Oakvale VFD/ Society Hill                         | Fire Station   | Non-burnable |                                |                                 | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| Clem VFD/ Williamson Mill                         | Fire Station   | HIGH         |                                |                                 | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| Granby Fire Dept.                                 | Fire Station   | Moderate     |                                |                                 | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| HWY 84 West Fire Station Inc                      | Fire Dept.     | HIGH         |                                | X                               | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| HWY 84 West Fire Station                          | Fire Station   | Low          |                                |                                 | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| J E Johnson Elem & Safe Room                      | School         | HIGH         |                                | X                               | X       | X                          | X                         | X       | X                     | X           |            |                     |                 |                 |
| J E Johnson Head Start                            | School         | HIGH         |                                | X                               | X       | X                          | X                         | X       | X                     | X           |            |                     |                 |                 |
| Jefferson Davis CO Admin. Build.                  | Govt.          | Non-burnable |                                | X                               | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| Jefferson Davis CO Courthouse                     | Govt.          | Non-burnable |                                | X                               | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| Jefferson Davis CO EMA                            | EOC            | Non-burnable |                                | X                               | X       | X                          | X                         | X       | X                     | X           |            |                     |                 |                 |
| Jefferson Davis CO Sheriff's Office               | Police Dept.   | Non-burnable |                                | X                               | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| MS Dept. of Corrections                           | Prison         | Non-burnable |                                | X                               | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
| Prentiss Christian Sch. & Safe Room               | School         | Moderate     |                                | X                               | X       | X                          | X                         | X       | X                     | X           |            |                     |                 |                 |
| Prentiss City Hall                                | City Hall      | Non-burnable |                                | X                               | X       | X                          | X                         | X       | X                     | X           |            |                     |                 |                 |
| Prentiss Fire Dept.                               | Fire Station   | Non-burnable |                                | X                               | X       | X                          | X                         | X       | X                     | X           |            |                     |                 |                 |
| Prentiss Institute                                | Safe Room      | Non-burnable |                                | X                               | X       | X                          | X                         |         | X                     | X           |            |                     |                 |                 |
|                                                   |                |              | Other                          |                                 |         | Atmospheric                |                           |         |                       |             | Geologic   |                     | Hydrologic      |                 |
| Facility Name                                     | Facility Type  | WHP Hazard   | Fixed HAZMAT 500-2500M Roads & | Mobile HAZMAT 500-2500M Roads & | Drought | Thunder -storm, Lightning, | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |

|                                                      |                     |              | Rails | Rails |   | & Hail |   |   |   |   |   |  |  |  |
|------------------------------------------------------|---------------------|--------------|-------|-------|---|--------|---|---|---|---|---|--|--|--|
| Jefferson Davis County Critical Facilities Continued |                     |              |       |       |   |        |   |   |   |   |   |  |  |  |
| Prentiss Reg. Extended Care                          | Care Facility       | Non-burnable |       | X     | X | X      | X | X | X | X | X |  |  |  |
| Prentiss Reg. Hospital                               | Care Facility       | HIGH         |       | X     | X | X      | X | X | X | X | X |  |  |  |
| Prentiss Senior High School                          | School              | Non-burnable |       | X     | X | X      | X | X | X | X | X |  |  |  |
| Prentiss Fire/Police Dept.                           | Fire/Police Station | HIGH         |       | X     | X | X      | X |   | X | X |   |  |  |  |
| New Medinah Islamic School                           | School              | Moderate     |       |       | X | X      | X |   | X | X |   |  |  |  |

FIGURE D.11: CRITICAL FACILITY LOCATIONS IN JEFFERSON DAVIS COUNTY



## D3.2 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 D.28** lists the population by jurisdiction according to U.S. Census 2020 population. The total population in Jefferson Davis County according to Census data is 11,321 persons. If the decline in population continues to decline it could lead to a decline in the population vulnerability. Additional population estimates are presented above in **Section D.1**.

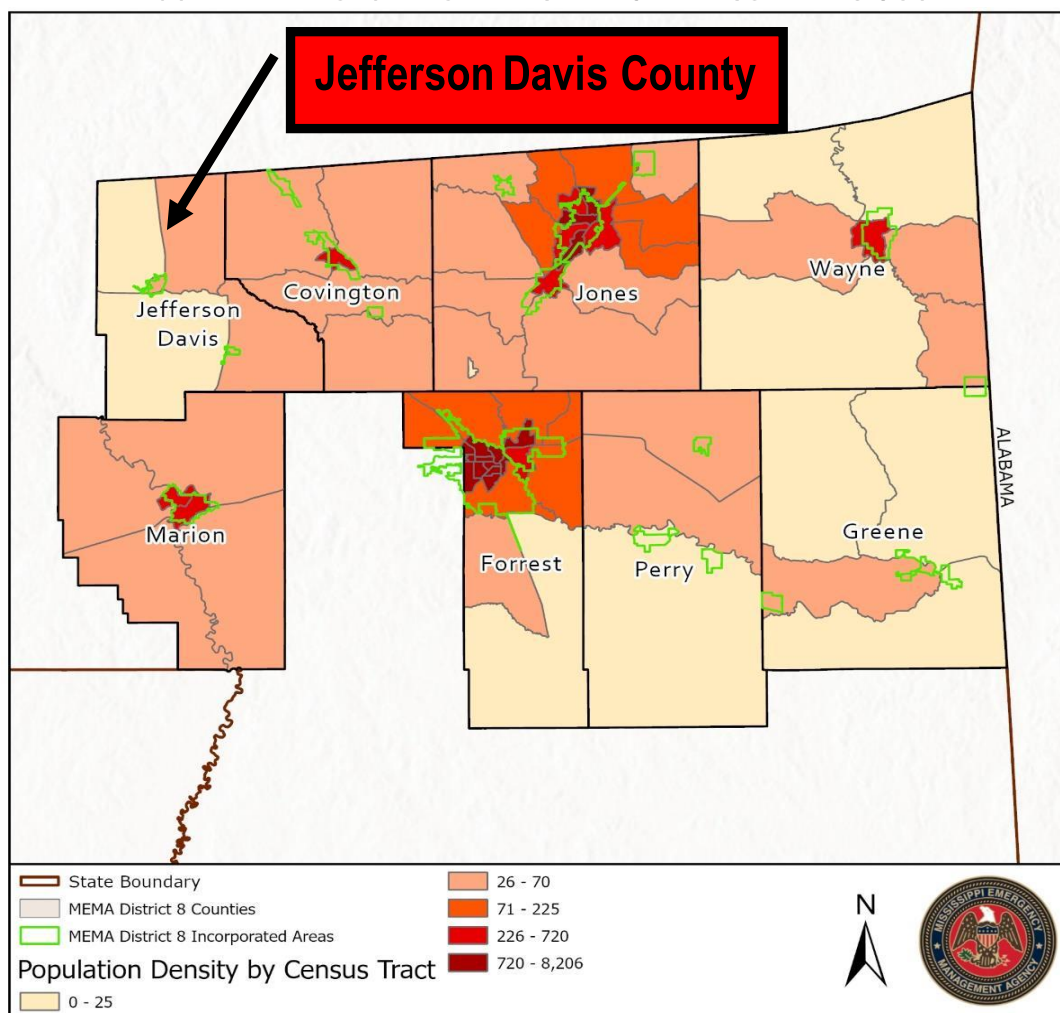
**TABLE D.28: TOTAL POPULATION IN JEFFERSON DAVIS COUNTY**

| Jurisdiction                         | 2010 Census   | 2020 Census   |
|--------------------------------------|---------------|---------------|
| <b>Jefferson Davis County Total:</b> | <b>12,487</b> | <b>11,321</b> |
| <i>Bassfield</i>                     | 254           | 192           |
| <i>Prentiss</i>                      | 1,081         | 976           |
| <i>Unincorporated Area</i>           | 11,152        | 10,153        |

Source: US Census Bureau

In addition, **Figure D.12** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2020.

**FIGURE D.12: POPULATION DENSITY IN JEFFERSON DAVIS COUNTY**



### 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 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 D.23**.

Since the previous plan, the jurisdictions are not aware of any developments in hazard prone areas that have increased or decreased vulnerability.

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

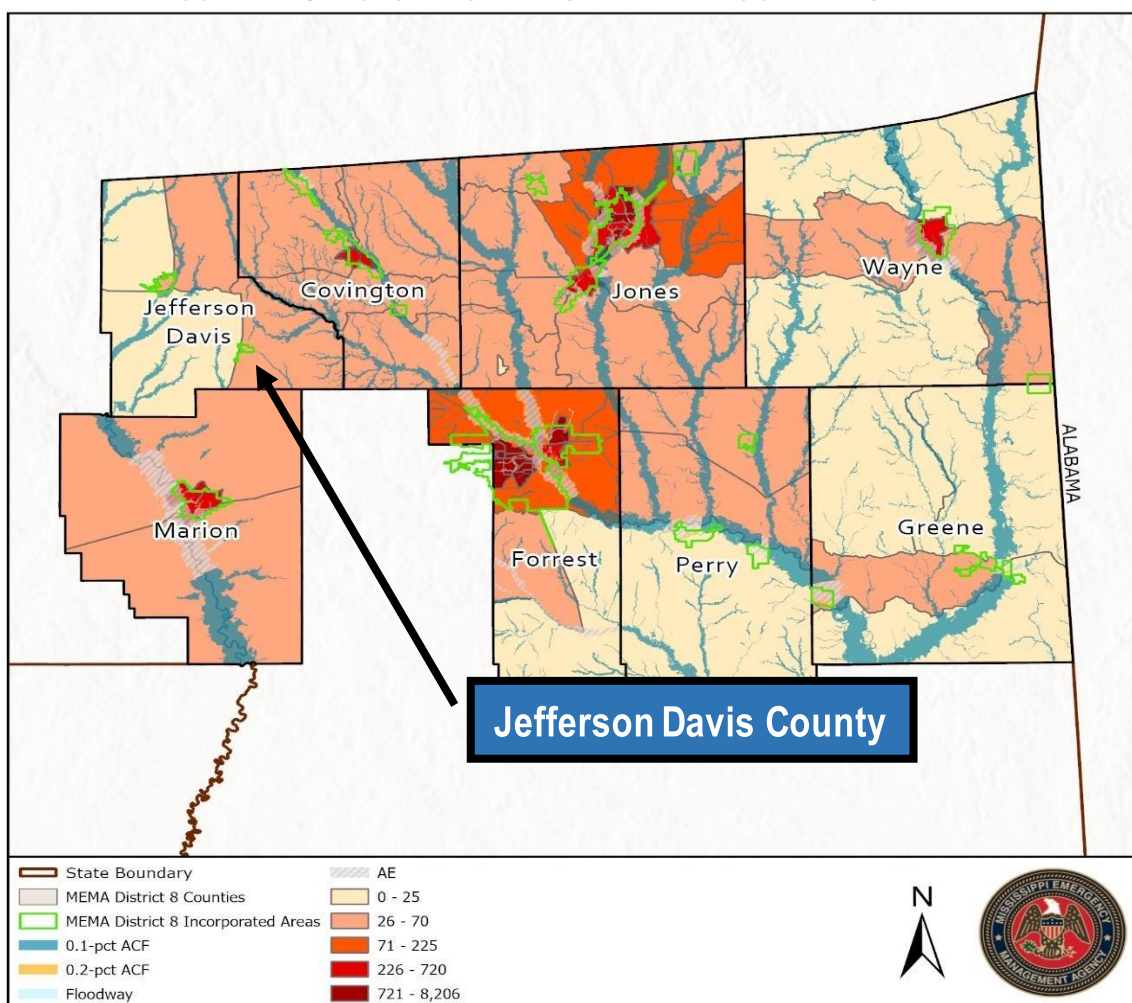
## FLOOD

Historical evidence indicates that Jefferson Davis County is susceptible to flood events. A total of 32 flood events have been reported by the National Centers for Environmental Information resulting in \$1.384 million in damages.

### Social Vulnerability

Since 2020 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.13** is presented to gain a better understanding of at-risk population.

**FIGURE D.13: POPULATION DENSITY NEAR FLOODPLAINS**



### Critical Facilities



The critical facility analysis revealed that there are no critical facilities located in the Jefferson Davis County 1.0-percent annual chance floodplain and 0.2-percent annual chance floodplain based on FEMAFIRM boundaries and GIS analysis. A list of specific critical facilities and their associated risk can be found in **Table D.27**.

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.

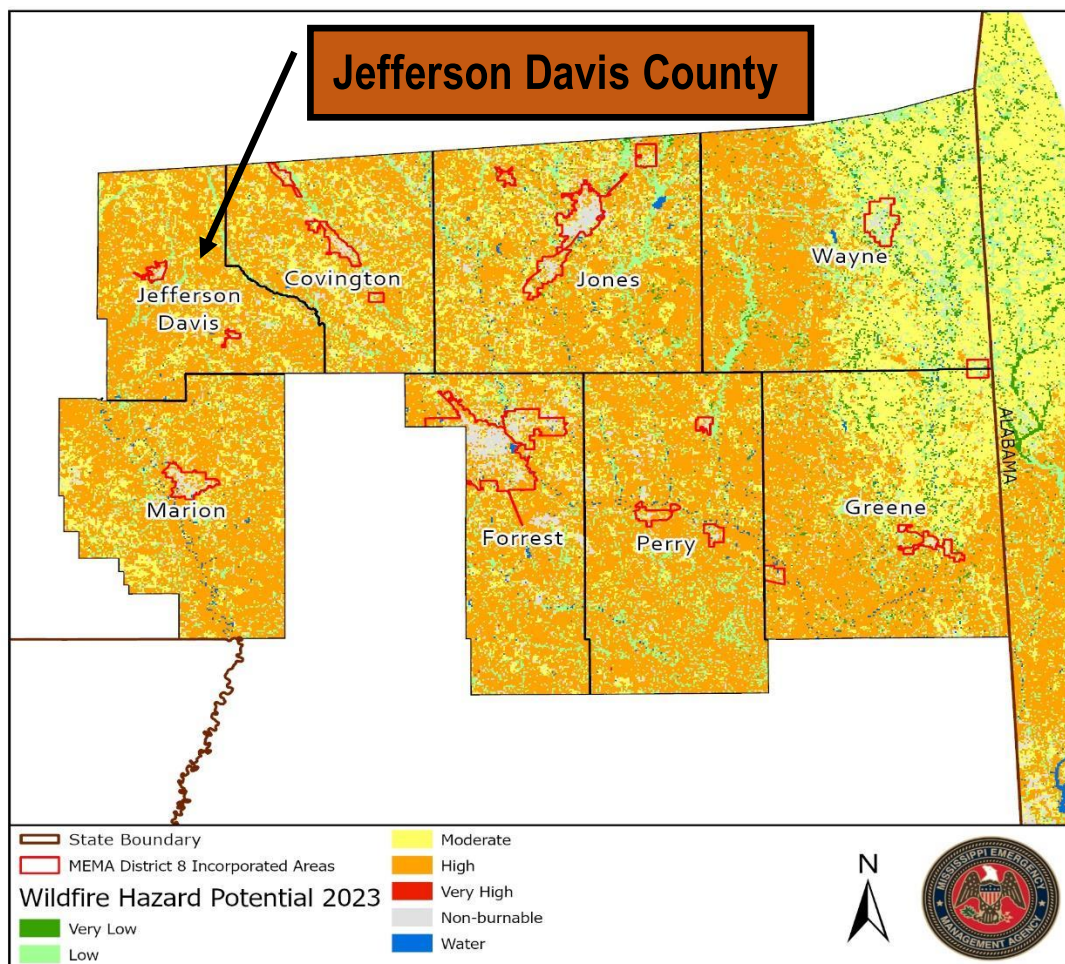
## WILDFIRE

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) 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 D.14** shows the wildfire hazard potential for Jefferson Davis County. Most of the planning areas falls within the low to high category.

**FIGURE D.14: WILDFIRE RISK AREAS IN JEFFERSON DAVIS COUNTY**





### **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 D.27**.

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 earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS 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 scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS 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 arbitrary scenario.

### **Critical Facilities**

There are 32 critical facilities identified for Jefferson Davis 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 Jefferson Davis County. While Jefferson Davis 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 D.27**.

## **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 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 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 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 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 estimated economic losses for the scenario event. HAZUS 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 estimated the amounts 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 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 Jefferson Davis 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 D.27**.

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. 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 is one 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 D.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.

**FIGURE D.16: MOBILE HAZMAT BUFFERS IN JEFFERSON DAVIS COUNTY**

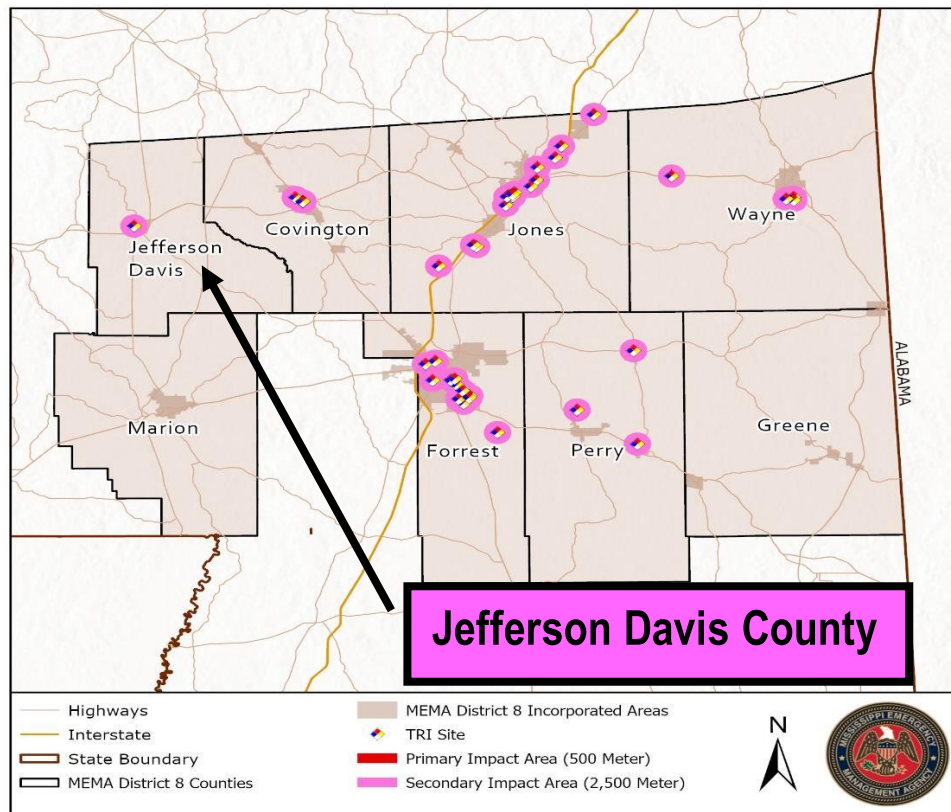
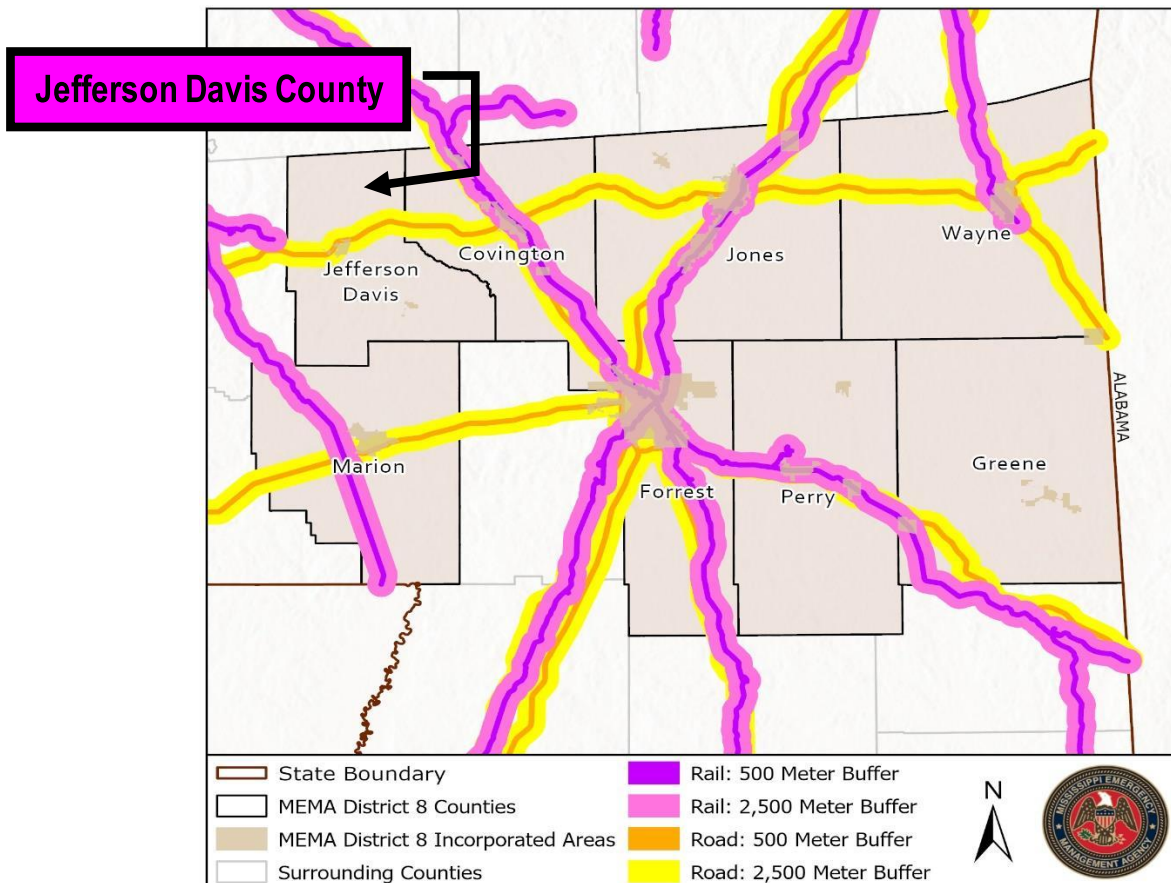


FIGURE D.16: MOBILE HAZMAT BUFFERS IN JEFFERSON DAVIS COUNTY



## 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 is one TRI sites located in the county. A list of specific critical facilities and their associated risk can be found in **Table D.27**.

#### **Mobile Analysis:**

The critical facility analysis for transportation corridors in Jefferson Davis 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 D.27**.

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.

## **D.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*.

### D.4.1 Planning and Regulatory Capability

**Table D.29** 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 D.29: RELEVANT PLANS, ORDINANCES, AND PROGRAMS**

| Planning/Regulatory Tool                | Jefferson Davis County | Bassfield | Prentiss |
|-----------------------------------------|------------------------|-----------|----------|
| Hazard Mitigation Plan                  | ✓                      | ✓         | ✓        |
| Comprehensive Land Use Plan             |                        | ✓         | ✓        |
| Floodplain Management Plan              |                        |           |          |
| Open Space Management Plan              | ✓                      | ✓         | ✓        |
| Stormwater Management Plan/Ordinance    |                        |           |          |
| National 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 Codes                          |                        | ✓         | ✓        |
| Fire Codes                              |                        | ✓         | ✓        |
| National Flood Insurance Program (NFIP) | ✓                      |           | ✓        |
| National Community Rating System        | ✓                      |           | ✓        |

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 D.30 provides NFIP policy and claim information for each participating jurisdiction in Jefferson Davis County.

**TABLE D.30: NFIP POLICY AND CLAIM INFORMATION**

| Location                       | Date Joined NFIP | Current Effective Map Date | NFIP Policies in Force | Insurance in Force | Closed Claims | Total Payments to Date |
|--------------------------------|------------------|----------------------------|------------------------|--------------------|---------------|------------------------|
| <b>Jefferson Davis County†</b> | 12/17/2010       | 12/17/2010(M)              | 7                      | \$762,600          | 0             | \$0                    |
| <i>Bassfield*</i>              | --               | --                         | --                     | --                 | --            | --                     |
| <i>Prentiss</i>                | 12/17/2010       | 12/17/2010(M)              | 0                      | \$0                | 2             | \$4,613                |

†Includes unincorporated areas of county only  
(M) – No Elevation Determined, All Zone A, C and X

### *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.

## D.4.2 Administrative and Technical Capability

**Table D.31** 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 D.31: RELEVANT STAFF / PERSONNEL RESOURCES**

| <b>Staff/Personal Resource</b>                                                                                 | <b>Jefferson Davis County</b> | <b>Bassfield</b> | <b>Prentiss</b> |
|----------------------------------------------------------------------------------------------------------------|-------------------------------|------------------|-----------------|
| <b>Planners with knowledge of land development/ land management practices</b>                                  |                               |                  |                 |
| <b>Engineers of professionals trained in construction practices related to buildings and/or infrastructure</b> | ✓                             | ✓                | ✓               |
| <b>Planners or engineers with an understanding of natural and/or human-caused hazards.</b>                     |                               |                  |                 |
| <b>Emergency Manager</b>                                                                                       | ✓                             | ✓                | ✓               |
| <b>Floodplain Manager</b>                                                                                      | ✓                             | ✓                | ✓               |
| <b>Land Surveyors</b>                                                                                          |                               |                  |                 |
| <b>Scientists familiar with the hazards of the community.</b>                                                  | ✓                             | ✓                | ✓               |
| <b>Staff with education or expertise to assess the community's vulnerability to hazards.</b>                   | ✓                             | ✓                | ✓               |
| <b>Personnel skilled in GIS and/or HAZ-US</b>                                                                  | ✓                             | ✓                | ✓               |
| <b>Resource development staff or grant writers</b>                                                             | ✓                             | ✓                | ✓               |

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.32** 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 D.32: RELEVANT FISCAL RESOURCES**

| <b>Fiscal Tool/Resource</b>                                    | <b>Jefferson Davis County</b> | <b>Bassfield</b> | <b>Prentiss</b> |
|----------------------------------------------------------------|-------------------------------|------------------|-----------------|
| <b>Capital Improvement Programing</b>                          | ✓                             | ✓                | ✓               |
| <b>Community Development Block Grants (CDBG)</b>               | ✓                             | ✓                | ✓               |
| <b>Special Purchase Taxes (or taxing districts)</b>            |                               |                  |                 |
| <b>Gas/ Electric Utility Fees</b>                              |                               |                  |                 |
| <b>Water/ Sewer Fees</b>                                       |                               |                  |                 |
| <b>Stormwater Utility Fees</b>                                 |                               |                  |                 |
| <b>Development Impact Fees</b>                                 |                               |                  |                 |
| <b>General Obligation, Revenue, and/or Special Tax Bonds</b>   |                               |                  |                 |
| <b>Partnering Arrangements or Intergovernmental Agreements</b> | ✓                             | ✓                | ✓               |

## D.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.

## D.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*.

D.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 D.33**.

TABLE D.33: MEMA DISTRICT 8 REGIONAL MITIGATION GOALS

| Goals   |                                                                                                                                               |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 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 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 | Completion Date (Target) | Implementation Status |

## Prevention

|      |                                                                                            |                |                |                                                   |                      |                            |                    |                                     |
|------|--------------------------------------------------------------------------------------------|----------------|----------------|---------------------------------------------------|----------------------|----------------------------|--------------------|-------------------------------------|
| P-1  | Identify high risk areas where hazards are most likely to occur.                           | All            | High           | N/A                                               | No cost              | County                     | Annual Plan 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              | County, JDCEMA             | Annual Review      | Ongoing                             |
| P-3  | Strictly enforce the flood damage prevention ordinance.                                    | FL             | High           | Self-funded                                       | No cost              | County & Floodplain Admin. | Ongoing            | Ongoing                             |
| P-4  | Consider adoption of subdivision regulations.                                              | TH, FL, HU, TS | High           | 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                                       | Annual County Budget | County BOS & 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                     | Ongoing            | County is considering               |
| 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                     | Ongoing            | County is considering               |
| P-8  | Support the development of a shared geographic data system for land use and site planning. | All            | Medium to high | Self-funded                                       | No cost              | County                     | Ongoing            | Ongoing                             |
| P-9  | Develop a comprehensive development plan.                                                  | All            | High           | CDBG, MSDA                                        | Unknown              | County                     | Ongoing            | County is considering               |
| P-10 | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.   | All            | Medium         | CDBG, MSDA                                        | No cost              | County                     | Ongoing            | 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 cost                    | County | Ongoing | Implemented and ongoing |
| PP-2 | Ensure that structures in floodplain areas are elevated.                                                                                      | FL             | High   | Self-funded                                          | No 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 cost                    | County | Ongoing | Deferred due to funds   |
| PP-4 | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                             | All            | High   | HMGP                                                 | Unknown                    | County | Ongoing | Deferred                |
| PP-5 | Ensure secure operation of water wells, water tanks and wastewater treatment facilities.                                                      | All            | High   | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., HMGP | Unknown                    | County | Ongoing | Implemented and ongoing |
| PP-6 | Property Acquisitions and elevations of flood prone structures                                                                                | FL             | Medium | Grants, BRIC, HMGP, PDM                              | N/A                        | County | Ongoing | Ongoing                 |
| PP-7 | Construct new multipurpose EOC facility to serve as EOC and safe room for emergency personnel during disaster situations.                     | All Hazards    | High   | Grants, BRIC, HMGP, PGM, Local Sources               | \$3,000,000 - \$10,000,000 | County | Ongoing | 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 to no cost | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing | Ongoing – contingent on funding |
|-------|---------------------------------------------------------------------------------------------|------------|---------------|----------|----------------|--------------------------------------------------------|---------|---------------------------------|

## 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 and MEMA | Low to 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 | County, JDCEMA         | Ongoing                | Complemented and ongoing                 |
| ES-3  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                 | All                | High           | HMGP                                    | Unknown            | County and County EMA  | Ongoing                | Deferred due to funding                  |
| ES-4  | Explore potential sites for a new shelter and/or special needs shelter.                                                                 | TO, HU, TS, FL     | High           | HMGP                                    | Unknown            | County and EMA         | Ongoing                | Deferred due to funding                  |
| ES-5  | Improve disaster communication systems within the County.                                                                               | All                | High           | Grants, BRIC, HMGP                      | Unknown            | County EMA             | Contingent on funding  | Ongoing                                  |
| ES-6  | Consider generators for local radio station service areas and /or other critical facilities.                                            | TO, HU, TS         | High           | HMGP                                    | Unknown            | County EMA             | Contingent on funding  | Deferred due to funding                  |
| ES-7  | Install warning sirens in the County.                                                                                                   | TO, HU             | High           | HMGP                                    | Unknown            | County EMA             | Contingent on funding  | Implemented and ongoing                  |
| ES-8  | Explore upgrade/enhancement of 911 system in Jefferson Davis County.                                                                    | All                | Medium         | HMGP                                    | Unknown            | County and/or EMA      | Contingent on funding  | Planning Upgrade                         |
| ES-9  | Explore potential to install Reverse 911 system.                                                                                        | All                | Low to Medium  | HMGP                                    | Unknown            | County and/or EMA      | Contingent on funding  | Deferred due to 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, County EMA | Ongoing                | Implemented, maps available upon request |
| ES-11 | 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 / Ongoing                    |
| ES-12 | Ensure continuity of utility services for public buildings and other critical facilities.                                               | All                | High           | HMGP                                    | Unknown            | County                 | Ongoing                | Implemented / Ongoing                    |
| ES-13 | Develop a government services continuity plan.                                                                                          | All                | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant | Unknown            | County                 | Ongoing/ 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                  | 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 Cost | County | Ongoing | 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            | County EMA         | Ongoing | Implemented / Ongoing           |
| PEA-3 | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High   | Self-funded, COPS, FIRE                       | Low or no cost     | County EMA         | Ongoing | Implemented / Ongoing           |
| PEA-4 | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High   | Self-funded                                   | No additional cost | County EMA/ County | Ongoing | Implemented / Ongoing           |
| PEA-5 | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High   | N/A                                           | No additional cost | County/ Town/ City | Ongoing | Implemented / 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 | Unknown            | County             | Ongoing | Deferred                        |

|              |                                                                                     |         |        |                                |                |        |         |                         |
|--------------|-------------------------------------------------------------------------------------|---------|--------|--------------------------------|----------------|--------|---------|-------------------------|
| <b>PEA-7</b> | Encourage businesses to develop business continuity or contingency operating plans. | CH      | High   | DHS, SAFER, COPS, FIRE, Others | Low or no Cost | County | Ongoing | Implemented and Ongoing |
| <b>PEA-8</b> | Develop/encourage water conservation measures during times of shortage              | Drought | Medium | HMGP                           | N/A            | County | Ongoing | Ongoing                 |

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

P = Pandemic

County EMA/ JDCEMA = Jefferson Davis County Emergency Management AgencyCounty BOS = Jefferson Davis County Board of Supervisors

## The Town of Bassfield Mitigation Action Plan

| Action # | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|

## Prevention

|      |                                                                                            |                |                |                                                   |                      |                            |                    |                                     |
|------|--------------------------------------------------------------------------------------------|----------------|----------------|---------------------------------------------------|----------------------|----------------------------|--------------------|-------------------------------------|
| P-1  | Identify high risk areas where hazards are most likely to occur.                           | All            | High           | N/A                                               | No cost              | County                     | Annual Plan 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              | County, JDCEMA             | Annual Review      | Ongoing                             |
| P-3  | Strictly enforce the flood damage prevention ordinance.                                    | FL             | High           | Self-funded                                       | No cost              | County & Floodplain Admin. | Ongoing            | Ongoing                             |
| P-4  | Consider adoption of subdivision regulations.                                              | TH, FL, HU, TS | High           | 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                                       | Annual County Budget | County BOS & 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                     | Ongoing            | County is considering               |
| 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                     | Ongoing            | County is considering               |
| P-8  | Support the development of a shared geographic data system for land use and site planning. | All            | Medium to high | Self-funded                                       | No cost              | County                     | Ongoing            | Ongoing                             |
| P-9  | Develop a comprehensive development plan.                                                  | All            | High           | CDBG, MSDA                                        | Unknown              | County                     | Ongoing            | County is considering               |
| P-10 | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.   | All            | Medium         | CDBG, MSDA                                        | No cost              | County                     | Ongoing            | 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 cost                    | County | Ongoing | Implemented and ongoing |
| PP-2 | Ensure that structures in floodplain areas are elevated.                                                                                      | FL             | High   | Self-funded                                          | No 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 cost                    | County | Ongoing | Deferred due to funds   |
| PP-4 | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                             | All            | High   | HMGP                                                 | Unknown                    | County | Ongoing | Deferred                |
| PP-5 | Ensure secure operation of water wells, water tanks and wastewater treatment facilities.                                                      | All            | High   | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., HMGP | Unknown                    | County | Ongoing | Implemented and ongoing |
| PP-6 | Property Acquisitions and elevations of flood prone structures                                                                                | FL             | Medium | Grants, BRIC, HMGP, PDM                              | N/A                        | County | Ongoing | Ongoing                 |
| PP-7 | Construct new multipurpose EOC facility to serve as EOC and safe room for emergency personnel during disaster situations.                     | All Hazards    | High   | Grants, BRIC, HMGP, PGM, Local Sources               | \$3,000,000 - \$10,000,000 | County | Ongoing | 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 to no cost | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing | Ongoing – contingent on funding |
|-------|---------------------------------------------------------------------------------------------|------------|---------------|----------|----------------|--------------------------------------------------------|---------|---------------------------------|

## 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 and MEMA | Low to 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 | County, JDCEMA         | Ongoing                | Complemented and ongoing                 |
| ES-3  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                 | All                | High           | HMGP                                    | Unknown            | County and County EMA  | Ongoing                | Deferred due to funding                  |
| ES-4  | Explore potential sites for a new shelter and/or special needs shelter.                                                                 | TO, HU, TS, FL     | High           | HMGP                                    | Unknown            | County and EMA         | Ongoing                | Deferred due to funding                  |
| ES-5  | Improve disaster communication systems within the County.                                                                               | All                | High           | Grants, BRIC, HMGP                      | Unknown            | County EMA             | Contingent on funding  | Ongoing                                  |
| ES-6  | Consider generators for local radio station service areas and /or other critical facilities.                                            | TO, HU, TS         | High           | HMGP                                    | Unknown            | County EMA             | Contingent on funding  | Deferred due to funding                  |
| ES-7  | Install warning sirens in the County.                                                                                                   | TO, HU             | High           | HMGP                                    | Unknown            | County EMA             | Contingent on funding  | Implemented and ongoing                  |
| ES-8  | Explore upgrade/enhancement of 911 system in Jefferson Davis County.                                                                    | All                | Medium         | HMGP                                    | Unknown            | County and/or EMA      | Contingent on funding  | Planning Upgrade                         |
| ES-9  | Explore potential to install Reverse 911 system.                                                                                        | All                | Low to Medium  | HMGP                                    | Unknown            | County and/or EMA      | Contingent on funding  | Deferred due to 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, County EMA | Ongoing                | Implemented, maps available upon request |
| ES-11 | 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 / Ongoing                    |
| ES-12 | Ensure continuity of utility services for public buildings and other critical facilities.                                               | All                | High           | HGMP                                    | Unknown            | County                 | Ongoing                | Implemented / Ongoing                    |
| ES-13 | Develop a government services continuity plan.                                                                                          | All                | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant | Unknown            | County                 | Ongoing/ 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                  | 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 Cost | County | Ongoing | 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            | County EMA         | Ongoing | Implemented / Ongoing           |
| PEA-3 | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High   | Self-funded, COPS, FIRE                  | Low or no cost     | County EMA         | Ongoing | Implemented / Ongoing           |
| PEA-4 | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High   | Self-funded                              | No additional cost | County EMA/ County | Ongoing | Implemented / Ongoing           |
| PEA-5 | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High   | N/A                                      | No additional cost | County/ Town/ City | Ongoing | Implemented / 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, | Unknown            | County             | Ongoing | Deferred                        |

|              |                                                                                     |         |        |                                |                |        |         |                         |
|--------------|-------------------------------------------------------------------------------------|---------|--------|--------------------------------|----------------|--------|---------|-------------------------|
|              |                                                                                     |         |        | Grants,<br>BRIC, HMGP          |                |        |         |                         |
| <b>PEA-7</b> | Encourage businesses to develop business continuity or contingency operating plans. | CH      | High   | DHS, SAFER, COPS, FIRE, Others | Low or no Cost | County | Ongoing | Implemented and Ongoing |
| <b>PEA-8</b> | Develop/encourage water conservation measures during times of shortage              | Drought | Medium | HMGP                           | N/A            | County | Ongoing | Ongoing                 |

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                      P = Pandemic  
County EMA/ JDCEMA = Jefferson Davis County Emergency Management Agency  
County BOS = Jefferson Davis County Board of Supervisors

## The Town of Prentiss Mitigation Action Plan

| Action # | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|



## Prevention

|      |                                                                                            |                |                |                                                   |                      |                            |                    |                                     |
|------|--------------------------------------------------------------------------------------------|----------------|----------------|---------------------------------------------------|----------------------|----------------------------|--------------------|-------------------------------------|
| P-1  | Identify high risk areas where hazards are most likely to occur.                           | All            | High           | N/A                                               | No cost              | County                     | Annual Plan 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              | County, JDCEMA             | Annual Review      | Ongoing                             |
| P-3  | Strictly enforce the flood damage prevention ordinance.                                    | FL             | High           | Self-funded                                       | No cost              | County & Floodplain Admin. | Ongoing            | Ongoing                             |
| P-4  | Consider adoption of subdivision regulations.                                              | TH, FL, HU, TS | High           | 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                                       | Annual County Budget | County BOS & 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                     | Ongoing            | County is considering               |
| 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                     | Ongoing            | County is considering               |
| P-8  | Support the development of a shared geographic data system for land use and site planning. | All            | Medium to high | Self-funded                                       | No cost              | County                     | Ongoing            | Ongoing                             |
| P-9  | Develop a comprehensive development plan.                                                  | All            | High           | CDBG, MSDA                                        | Unknown              | County                     | Ongoing            | County is considering               |
| P-10 | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.   | All            | Medium         | CDBG, MSDA                                        | No cost              | County                     | Ongoing            | 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 cost                    | County | Ongoing | Implemented and ongoing |
| PP-2 | Ensure that structures in floodplain areas are elevated.                                                                                      | FL             | High   | Self-funded                                          | No 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 cost                    | County | Ongoing | Deferred due to funds   |
| PP-4 | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                             | All            | High   | HMGP                                                 | Unknown                    | County | Ongoing | Deferred                |
| PP-5 | Ensure secure operation of water wells, water tanks and wastewater treatment facilities.                                                      | All            | High   | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., HMGP | Unknown                    | County | Ongoing | Implemented and ongoing |
| PP-6 | Property Acquisitions and elevations of flood prone structures                                                                                | FL             | Medium | Grants, BRIC, HMGP, PDM                              | N/A                        | County | Ongoing | Ongoing                 |
| PP-7 | Construct new multipurpose EOC facility to serve as EOC and safe room for emergency personnel during disaster situations.                     | All Hazards    | High   | Grants, BRIC, HMGP, PGM, Local Sources               | \$3,000,000 - \$10,000,000 | County | Ongoing | 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 to no cost | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing | Ongoing – contingent on funding |
|-------|---------------------------------------------------------------------------------------------|------------|---------------|----------|----------------|--------------------------------------------------------|---------|---------------------------------|

## 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 and MEMA | Low to 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 | County, JDCEMA         | Ongoing                | Complemented and ongoing                 |
| ES-3                                  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                             | All                  | High           | HMGP                                     | Unknown            | County and County EMA  | Ongoing                | Deferred due to funding                  |
| ES-4                                  | Explore potential sites for a new shelter and/or special needs shelter.                                                                                             | TO, HU, TS, FL       | High           | HMGP                                     | Unknown            | County and EMA         | Ongoing                | Deferred due to funding                  |
| ES-5                                  | Improve disaster communication systems within the County.                                                                                                           | All                  | High           | Grants, BRIC, HMGP                       | Unknown            | County EMA             | Contingent on funding  | Ongoing                                  |
| ES-6                                  | Consider generators for local radio station service areas and /or other critical facilities.                                                                        | TO, HU, TS           | High           | HMGP                                     | Unknown            | County EMA             | Contingent on funding  | Deferred due to funding                  |
| ES-7                                  | Install warning sirens in the County.                                                                                                                               | TO, HU               | High           | HMGP                                     | Unknown            | County EMA             | Contingent on funding  | Implemented and ongoing                  |
| ES-8                                  | Explore upgrade/enhancement of 911 system in Jefferson Davis County.                                                                                                | All                  | Medium         | HMGP                                     | Unknown            | County and/or EMA      | Contingent on funding  | Planning Upgrade                         |
| ES-9                                  | Explore potential to install Reverse 911 system.                                                                                                                    | All                  | Low to Medium  | HMGP                                     | Unknown            | County and/or EMA      | Contingent on funding  | Deferred due to 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, County EMA | Ongoing                | Implemented, maps available upon request |
| ES-11                                 | 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 / Ongoing                    |
| ES-12                                 | Ensure continuity of utility services for public buildings and other critical facilities.                                                                           | All                  | High           | HGMP                                     | Unknown            | County                 | Ongoing                | Implemented / Ongoing                    |
| ES-13                                 | Develop a government services continuity plan.                                                                                                                      | All                  | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant  | Unknown            | County                 | Ongoing/ 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                   | Unknown            | County                 | Ongoing                | Ongoing – contingent on funding          |
| <b>Structural Projects</b>            |                                                                                                                                                                     |                      |                |                                          |                    |                        |                        |                                          |
| 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 Cost            | County                 | Ongoing                | Ongoing as needed                        |
| <b>Public Education and Awareness</b> |                                                                                                                                                                     |                      |                |                                          |                    |                        |                        |                                          |
| 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            | County EMA             | Ongoing                | Implemented / Ongoing                    |
| PEA-3                                 | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High           | Self-funded, COPS, FIRE                  | Low or no cost     | County EMA             | Ongoing                | Implemented / Ongoing                    |
| PEA-4                                 | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High           | Self-funded                              | No additional cost | County EMA/ County     | Ongoing                | Implemented / Ongoing                    |
| PEA-5                                 | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High           | N/A                                      | No additional cost | County/ Town/ City     | Ongoing                | Implemented / Ongoing                    |
| PEA-6                                 | Encourage participation in the Community Rating System of the NFIP.                                                                                                 | FL, HU, TS, TH,      | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant, | Unknown            | County                 | Ongoing                | Deferred                                 |

|              |                                                                                     |                |             |                                |                |        |         |                         |
|--------------|-------------------------------------------------------------------------------------|----------------|-------------|--------------------------------|----------------|--------|---------|-------------------------|
|              |                                                                                     | HW             |             | Grants, BRIC                   |                |        |         |                         |
| <b>PEA-7</b> | Encourage businesses to develop business continuity or contingency operating plans. | <b>CH</b>      | <b>High</b> | DHS, SAFER, COPS, FIRE, Others | Low or no Cost | County | Ongoing | Implemented and Ongoing |
| <b>PEA-8</b> | Develop/encourage water conservation measures during times of shortage              | <b>Drought</b> | Medium      | HMGP                           | N/A            | County | Ongoing | Ongoing                 |

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

P = Pandemic

County EMA/ JDCEMA = Jefferson Davis County Emergency Management AgencyCounty BOS = Jefferson Davis County Board of Supervisors

# Annex E

## Jones County

This annex includes jurisdiction-specific information for Jones County and its participating municipalities. It consists of the following five subsections:

- ★ E.1 Jones County Community Profile
- ★ E.2 Jones County Risk Assessment
- ★ E.3 Jones County Vulnerability Assessment
- ★ E.4 Jones County Capability Assessment
- ★ E.5 Jones County Mitigation Strategy

### E.1 JONES COUNTY COMMUNITY PROFILE

#### E.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 E.1**.

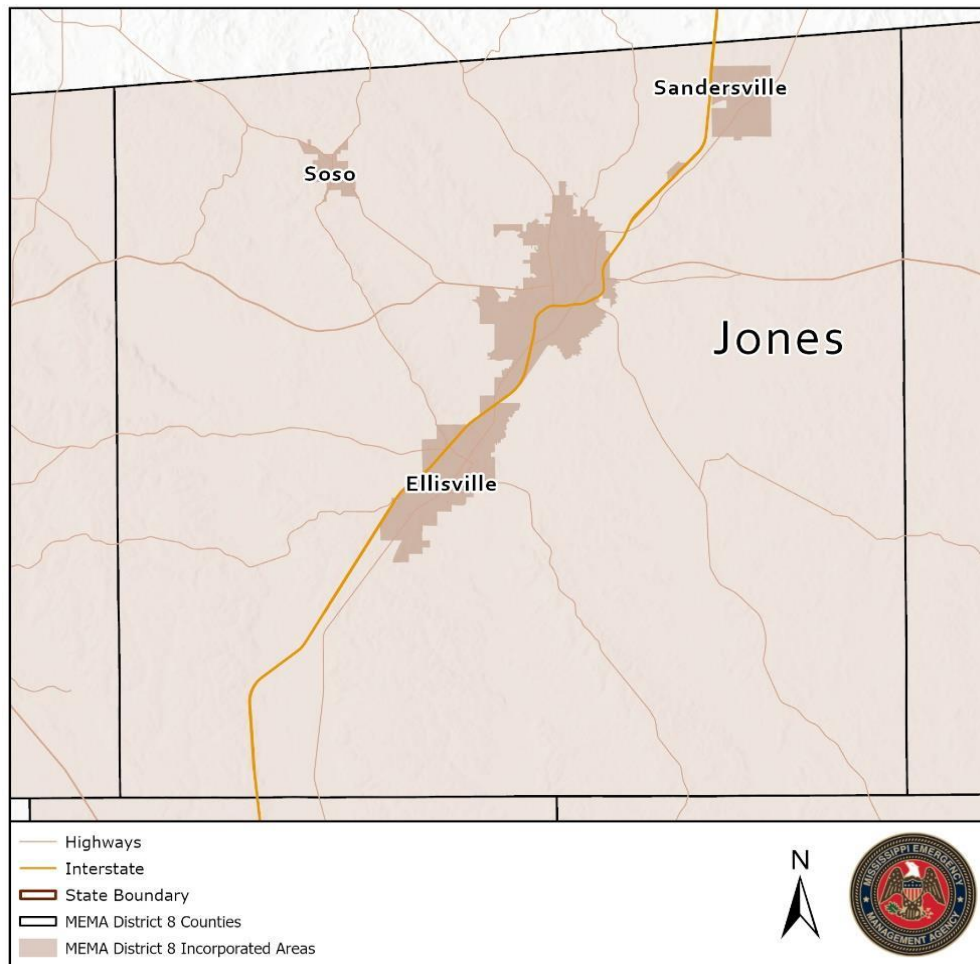
The county is made up of pine forests and streams. The total area of the county is 700 square miles, 5 square miles of which is water area.

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 92°F and is rarely below 25°F or above 97°F.

The hot season lasts for 5 months, from May to September, with an average daily high temperature above 89°F. The hottest day of the year is July 22, with an average high of 92°F and low of 72°F. The cool season lasts for 3 months, from December to February, with an average daily high temperature below 60°F. The coldest day of the year is January 17, with an average low of 39°F and high of 57°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 6 months, from December to May, 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 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. The least rain falls around October 5, with an average total accumulation of 3.1 inches.

|                         | Jan     | Feb.    | Mar.    | Apr.    | May   | June    | July    | Aug.    | Sept.   | Oct.    | Nov.    | Dec.    |
|-------------------------|---------|---------|---------|---------|-------|---------|---------|---------|---------|---------|---------|---------|
| Average <b>High</b>     | 57      | 62      | 69      | 77      | 84    | 91      | 92      | 92      | 88      | 79      | 67      | 60      |
| Average <b>Lows</b>     | 39      | 44      | 50      | 55      | 63    | 70      | 72      | 72      | 68      | 58      | 47      | 44      |
| Average <b>Rainfall</b> | 4.8 in. | 5.1 in. | 6.3 in. | 5.3 in. | 5 in. | 4.6 in. | 5.4 in. | 5.2 in. | 4.2 in. | 3.3 in. | 3.4 in. | 6.4 in. |

**FIGURE E.1: JONES COUNTY ORIENTATION MAP**

## E.1.2 Population and Demographics

According to the 2020 Census, Jones County has a population of 67,246 people. The county has seen just over 0.8% decline between 2010 and 2020, and the population density is 98 people per square mile. Per the Census Reports in 2023, Jones County had a population of 66,250, which is a .1 percent decrease since 2020. The population of the county had a slight overall population decline, although Ellisville and Soso had an increase in population. If the population count continues it could lead to an overall decrease in vulnerability in the county and Sandersville while Ellisville and Soso could have an increase in their vulnerability. The household income is \$59,815, which grew 35 percent. Population counts from the US Census Bureau for 2010, and 2020 for the county and both of the participating jurisdictions are presented in **Table E.1**.

**TABLE E.1: POPULATION COUNTS FOR JONES COUNTY**

| <b>Jurisdiction</b> | <b>2010 Census</b> | <b>2020 Census</b> | <b>% of Change 2010 to 2020</b> | <b>2023 Estimate</b> |
|---------------------|--------------------|--------------------|---------------------------------|----------------------|
| <b>Jones County</b> | <b>67,761</b>      | <b>67,246</b>      | <b>-0.76%</b>                   | <b>66,250</b>        |
| <b>Ellisville</b>   | <b>4,448</b>       | <b>4,652</b>       | <b>4.48%</b>                    | <b>4,786</b>         |
| <b>Laurel</b>       | <b>18,540</b>      | <b>17,161</b>      | <b>-7.43%</b>                   | <b>16,939</b>        |
| <b>Sandersville</b> | <b>731</b>         | <b>636</b>         | <b>-12.99%</b>                  | <b>609</b>           |
| <b>Soso</b>         | <b>408</b>         | <b>418</b>         | <b>2.45%</b>                    | <b>409</b>           |

Source: US Census Bureau



Based on the 2020 Census, the median age of residents of Jones County is 36.8 years. Per 2023 estimates, the median age has increased slightly to 37.1 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 increase and decrease, the racial characteristics differ slightly. The population is 29 percent for black or African American persons, 5 percent Hispanic or Latino. Whites make up the majority of the population in the county, accounting for 64 percent of the population.

**TABLE E.2: DEMOGRAPHICS OF JONES COUNTY**

| <b>Jurisdiction</b> | <b>White Persons<br/>(% 2020)</b> | <b>Black Persons<br/>(% 2020)</b> | <b>American Indian<br/>or Alaska Native<br/>(% 2020)</b> | <b>Other Races<br/>(% 2020)</b> | <b>Persons of<br/>Hispanic Origin<br/>(% 2020)</b> |
|---------------------|-----------------------------------|-----------------------------------|----------------------------------------------------------|---------------------------------|----------------------------------------------------|
| <b>Jones County</b> | <b>64%</b>                        | <b>29%</b>                        | <b>1%</b>                                                | <b>1%</b>                       | <b>5%</b>                                          |
| <i>Ellisville</i>   | 54%                               | 36%                               | 0.4%                                                     | 4%                              | 6%                                                 |
| <i>Laurel</i>       | 25%                               | 59%                               | 1%                                                       | 7%                              | 8%                                                 |
| <i>Sandersville</i> | 87%                               | 7%                                | 4%                                                       | 1%                              | 1%                                                 |
| <i>Soso</i>         | 63%                               | 23%                               | 1%                                                       | 2%                              | 11%                                                |

Source: US Census Bureau

**TABLE E.3: AVERAGE INCOME AND HEALTH IN JONES COUNTY**

| <b>Jurisdiction</b> | <b>% of Population<br/>Disabled</b> | <b>% of Population<br/>without Health<br/>Insurance</b> | <b>Median<br/>Household<br/>Income</b> | <b>% of Population<br/>Below the<br/>Poverty Level</b> |
|---------------------|-------------------------------------|---------------------------------------------------------|----------------------------------------|--------------------------------------------------------|
| <b>Jones County</b> | <b>19%</b>                          | <b>9%</b>                                               | <b>\$59,815</b>                        | <b>15%</b>                                             |
| <i>Ellisville</i>   | 24%                                 | 13%                                                     | \$30,479                               | 32%                                                    |
| <i>Laurel</i>       | 19%                                 | 13%                                                     | \$36,336                               | 33%                                                    |
| <i>Sandersville</i> | 22%                                 | 13%                                                     | \$44,219                               | 24%                                                    |
| <i>Soso</i>         | 11%                                 | 16%                                                     | \$69,375                               | 8%                                                     |

Source: US Census Bureau

### E.1.3 Housing

According to the 2020 US Census, there are 28,488 housing units in Jones County, the majority of which are single family homes or mobile homes. Per 2023 estimates, the total number of housing units increased to 29,481 units. The median home value is \$149,500, which also increased by at least 43 percent. The overall slight increase in housing units and the high increase in property values could increase vulnerability if the trend continues. Housing information for the county and four towns is presented in **Table E.4**.

**TABLE E.4: HOUSING CHARACTERISTICS OF JONES COUNTY**

| <b>Jurisdiction</b> | <b>Housing<br/>Units (2010)</b> | <b>Median Home<br/>Value (2010)</b> | <b>Housing<br/>Units (2020)</b> | <b>Median Home<br/>Value (2020)</b> |
|---------------------|---------------------------------|-------------------------------------|---------------------------------|-------------------------------------|
| <b>Jones County</b> | <b>28,424</b>                   | <b>\$85,000</b>                     | <b>28,488</b>                   | <b>\$149,500</b>                    |
| <i>Ellisville</i>   | 1,490                           | \$79,300                            | 1,501                           | \$97,800                            |
| <i>Laurel</i>       | 6,726                           | \$81,600                            | 7,320                           | \$111,300                           |
| <i>Sandersville</i> | 302                             | \$49,600                            | 293                             | \$100,000                           |
| <i>Soso</i>         | 174                             | \$85,300                            | 182                             | \$121,400                           |

Source: US Census Bureau

### E.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, passenger service offered via an Amtrak station located inside the City of Laurel.

## 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 numerous buildings and community facilities located throughout Jones County. According to the data collected for the vulnerability assessment, there are 30 fire stations, 5 police stations, and 18 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 found within the southeast corner of Jones County, as well as the Bogue Homa Indian Reservation, east of Sandersville in northeastern Jones County.

### E.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.

### E.1.6 Employment and Industry

According to the Mississippi Employment Security Commission, in 2024, Jones County had an average annual employment of 24,760 workers in 2024 and an average unemployment rate of 2.7 percent. According to the MESCC, in 2023, the Education Services and Health Care employed the most people, with 20 percent of the workforce, followed by Manufacturing (18.9%) and Retail Trade (13.7%). The average annual wage in Jones County was \$49,451.

## E.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*.

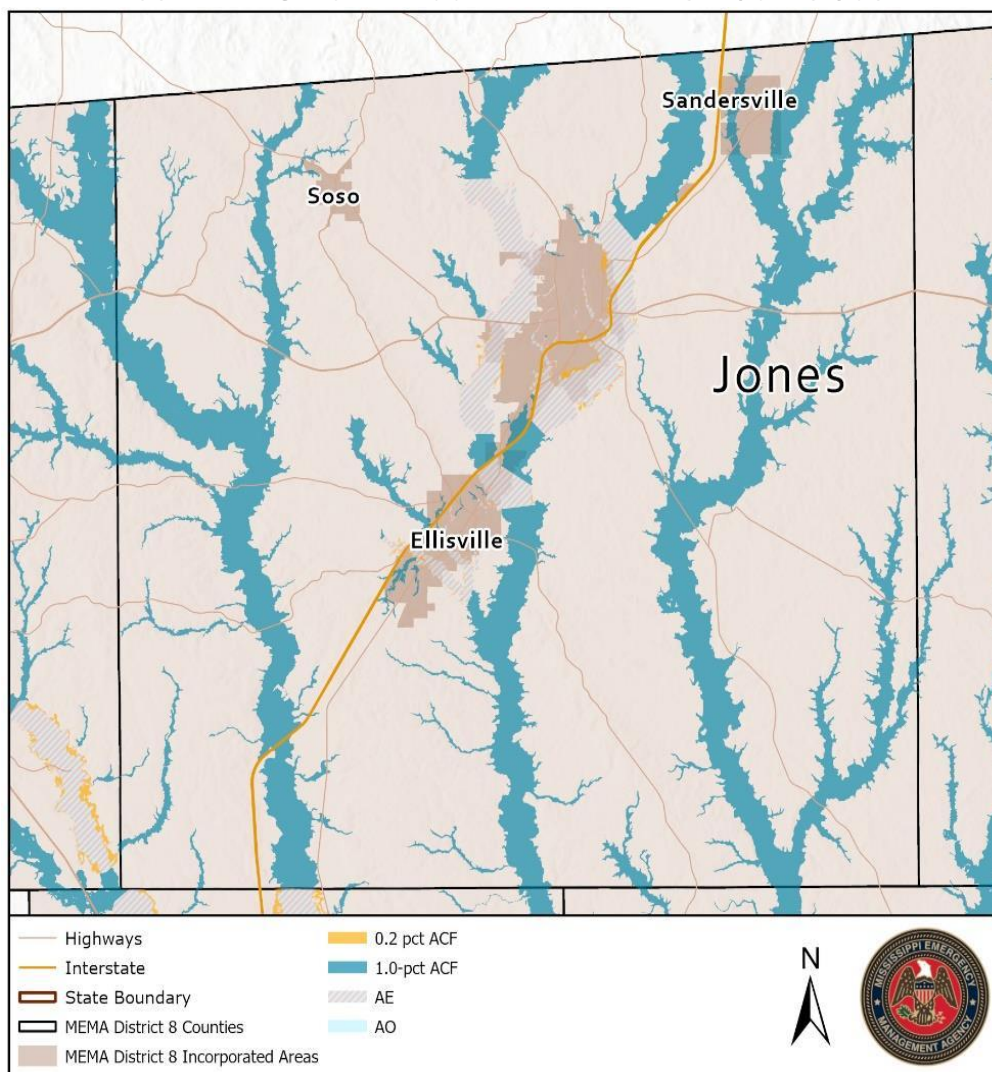
## E.2.1 Flood

### 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). 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 1.3 square mile of land in the 0.2-percent annual chance floodplain (500-year floodplain).

These flood zone values account for 20 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.

**FIGURE E.2: SPECIAL FLOOD HAZARD AREAS IN JONES COUNTY**



### HISTORICAL OCCURRENCES

Floods resulted in ten disaster declarations in Jones County in 1973, 1974, 1987, 1990, 2003, 2009, 2014, 2016, 2018, and in 2020. 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 105 events in Jones County since 2000. A summary of these events is presented in **Table E.5**. These events accounted for over \$11M 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.6 & E.7**.

**TABLE E.5: SUMMARY OF FLOOD OCCURRENCES IN JONES COUNTY**

| LOCATION                   | Number of Occurrences | Deaths   | Injuries | Property Damage     | Crop Damage      |
|----------------------------|-----------------------|----------|----------|---------------------|------------------|
| <i>Ellisville</i>          | 11                    | 0        | 0        | \$88,000            | \$0              |
| <i>Laurel</i>              | 48                    | 0        | 0        | \$1,322,000         | \$0              |
| <i>Sandersville</i>        | 4                     | 0        | 0        | \$34,000            | \$0              |
| <i>Soso</i>                | 2                     | 0        | 0        | \$10,000            | \$0              |
| <i>Unincorporated Area</i> | 41                    | 0        | 0        | \$9,306,000         | \$300,000        |
| <b>Jones County Total:</b> | <b>105</b>            | <b>0</b> | <b>0</b> | <b>\$10,760,000</b> | <b>\$300,000</b> |

Source: NCED/NOAA

**TABLE E.6: HISTORICAL FLOOD EVENTS IN JONES COUNTY**

| Location                      | Date       | Type        | Deaths | Injuries | Property Damage |
|-------------------------------|------------|-------------|--------|----------|-----------------|
| <b>The City of Ellisville</b> |            |             |        |          |                 |
| <i>Ellisville</i>             | 1/13/2004  | Flash Flood | 0      | 0        | \$5,000         |
| <i>Ellisville</i>             | 8/21/2009  | Flash Flood | 0      | 0        | \$1,000         |
| <i>Ellisville</i>             | 2/4/2010   | Flash Flood | 0      | 0        | \$10,000        |
| <i>Ellisville</i>             | 2/11/2013  | Flash Flood | 0      | 0        | \$25,000        |
| <i>Ellisville</i>             | 7/5/2015   | Flash Flood | 0      | 0        | \$3,000         |
| <i>Ellisville</i>             | 12/23/2015 | Flash Flood | 0      | 0        | \$5,000         |
| <i>Ellisville</i>             | 3/11/2016  | Flash Flood | 0      | 0        | \$10,000        |
| <i>Ellisville</i>             | 6/6/2017   | Flash Flood | 0      | 0        | \$10,000        |
| <i>Ellisville</i>             | 6/16/2017  | Flood       | 0      | 0        | \$1,000         |
| <i>Ellisville</i>             | 8/9/2017   | Flash Flood | 0      | 0        | \$15,000        |
| <i>Ellisville</i>             | 2/11/2021  | Flash Flood | 0      | 0        | \$3,000         |
| <b>The City of Laurel</b>     |            |             |        |          |                 |
| <i>Laurel</i>                 | 8/11/2001  | Flash Flood | 0      | 0        | \$0             |
| <i>Laurel</i>                 | 9/26/2002  | Flash Flood | 0      | 0        | \$2,000         |
| <i>Laurel</i>                 | 11/27/2003 | Flash Flood | 0      | 0        | \$15,000        |
| <i>Laurel</i>                 | 6/1/2004   | Flash Flood | 0      | 0        | \$0             |
| <i>Laurel</i>                 | 6/28/2004  | Flash Flood | 0      | 0        | \$40,000        |
| <i>Laurel</i>                 | 7/2/2004   | Flash Flood | 0      | 0        | \$0             |
| <i>Laurel</i>                 | 3/27/2009  | Flash Flood | 0      | 0        | \$25,000        |
| <i>Laurel</i>                 | 12/24/2009 | Flash Flood | 0      | 0        | \$12,000        |
| <i>Laurel</i>                 | 4/24/2010  | Flash Flood | 0      | 0        | \$5,000         |
| <i>Laurel</i>                 | 8/22/2010  | Flash Flood | 0      | 0        | \$15,000        |

|                                 |            |             |   |   |           |
|---------------------------------|------------|-------------|---|---|-----------|
| <i>Laurel</i>                   | 3/9/2011   | Flash Flood | 0 | 0 | \$30,000  |
| <i>Laurel</i>                   | 1/26/2012  | Flash Flood | 0 | 0 | \$5,000   |
| <i>Laurel</i>                   | 7/13/2012  | Flash Flood | 0 | 0 | \$0       |
| <i>Laurel</i>                   | 8/9/2012   | Flash Flood | 0 | 0 | \$0       |
| <i>Laurel</i>                   | 8/29/2012  | Flash Flood | 0 | 0 | \$50,000  |
| <i>Laurel</i>                   | 1/30/2013  | Flash Flood | 0 | 0 | \$5,000   |
| <i>Laurel</i>                   | 6/5/2013   | Flash Flood | 0 | 0 | \$0       |
| <i>Laurel</i>                   | 8/21/2013  | Flash Flood | 0 | 0 | \$0       |
| <i>Laurel</i>                   | 9/21/2013  | Flash Flood | 0 | 0 | \$0       |
| <i>Laurel</i>                   | 4/28/2014  | Flash Flood | 0 | 0 | \$500,000 |
| <i>Laurel</i>                   | 7/4/2015   | Flash Flood | 0 | 0 | \$2,000   |
| <i>Laurel</i>                   | 10/31/2015 | Flash Flood | 0 | 0 | \$5,000   |
| <i>Laurel</i>                   | 12/23/2015 | Flash Flood | 0 | 0 | \$5,000   |
| <i>Laurel</i>                   | 12/24/2015 | Flash Flood | 0 | 0 | \$5,000   |
| <i>Laurel</i>                   | 3/10/2016  | Flash Flood | 0 | 0 | \$22,000  |
| <i>Laurel</i>                   | 4/14/2016  | Flash Flood | 0 | 0 | \$5,000   |
| <i>Laurel</i>                   | 5/31/2016  | Flash Flood | 0 | 0 | \$7,000   |
| <i>Laurel</i>                   | 4/3/2017   | Flash Flood | 0 | 0 | \$250,000 |
| <i>Laurel</i>                   | 4/30/2017  | Flash Flood | 0 | 0 | \$8,000   |
| <i>Laurel</i>                   | 6/16/2017  | Flash Flood | 0 | 0 | \$1,000   |
| <i>Laurel</i>                   | 6/23/2017  | Flash Flood | 0 | 0 | \$7,000   |
| <i>Laurel</i>                   | 8/9/2017   | Flash Flood | 0 | 0 | \$5,000   |
| <i>Laurel</i>                   | 5/30/2018  | Flash Flood | 0 | 0 | \$35,000  |
| <i>Laurel</i>                   | 7/31/2018  | Flash Flood | 0 | 0 | \$50,000  |
| <i>Laurel</i>                   | 8/17/2018  | Flash Flood | 0 | 0 | \$10,000  |
| <i>Laurel</i>                   | 11/1/2018  | Flash Flood | 0 | 0 | \$25,000  |
| <i>Laurel</i>                   | 12/27/2018 | Flash Flood | 0 | 0 | \$40,000  |
| <i>Laurel</i>                   | 2/20/2019  | Flash Flood | 0 | 0 | \$15,000  |
| <i>Laurel</i>                   | 7/14/2019  | Flash Flood | 0 | 0 | \$5,000   |
| <i>Laurel</i>                   | 1/13/2020  | Flash Flood | 0 | 0 | \$5,000   |
| <i>Laurel</i>                   | 8/28/2020  | Flash Flood | 0 | 0 | \$10,000  |
| <i>Laurel</i>                   | 2/11/2021  | Flash Flood | 0 | 0 | \$3,000   |
| <i>Laurel</i>                   | 3/25/2021  | Flash Flood | 0 | 0 | \$5,000   |
| <i>Laurel</i>                   | 6/6/2021   | Flash Flood | 0 | 0 | \$50,000  |
| <i>Laurel</i>                   | 3/18/2022  | Flash Flood | 0 | 0 | \$11,000  |
| <i>Laurel</i>                   | 6/16/2023  | Flash Flood | 0 | 0 | \$30,000  |
| <i>Laurel</i>                   | 7/11/2023  | Flash Flood | 0 | 0 | \$1,000   |
| <i>Laurel</i>                   | 6/26/2024  | Flood       | 0 | 0 | \$1,000   |
| <b>The Town of Sandersville</b> |            |             |   |   |           |
| <i>Sandersville</i>             | 6/30/2010  | Flash Flood | 0 | 0 | \$20,000  |
| <i>Sandersville</i>             | 6/23/2017  | Flash Flood | 0 | 0 | \$5,000   |
| <i>Sandersville</i>             | 9/26/2018  | Flash Flood | 0 | 0 | \$4,000   |
| <i>Sandersville</i>             | 12/28/2018 | Flash Flood | 0 | 0 | \$5,000   |
| <b>The Town of Soso</b>         |            |             |   |   |           |
| <i>Soso</i>                     | 10/31/2015 | Flash Flood | 0 | 0 | \$8,000   |



|                                            |                  |                    |          |          |                |
|--------------------------------------------|------------------|--------------------|----------|----------|----------------|
| <b>Soso</b>                                | <b>7/14/2019</b> | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b> |
| <b>Unincorporated Area in Jones County</b> |                  |                    |          |          |                |
| <i>Countywide</i>                          | 3/2/2001         | Flash Flood        | 0        | 0        | \$12,000       |
| <i>Countywide</i>                          | 3/3/2001         | Flash Flood        | 0        | 0        | \$0            |
| <i>Countywide</i>                          | 6/10/2001        | Flash Flood        | 0        | 0        | \$20,000       |
| <i>Countywide</i>                          | 10/13/2001       | Flash Flood        | 0        | 0        | \$0            |
| <i>Countywide</i>                          | 12/13/2001       | Flash Flood        | 0        | 0        | \$0            |
| <i>Countywide</i>                          | 9/26/2002        | Flash Flood        | 0        | 0        | \$1,000        |
| <i>Countywide</i>                          | 2/21/2003        | Flash Flood        | 0        | 0        | \$5,000        |
| <i>Ovett</i>                               | 6/30/2003        | Flash Flood        | 0        | 0        | \$5,000        |
| <i>Countywide</i>                          | 3/31/2005        | Flash Flood        | 0        | 0        | \$400,000      |
| <i>Countywide</i>                          | 4/1/2005         | Flash Flood        | 0        | 0        | \$100,000      |
| <i>Western Portion</i>                     | 8/29/2005        | Flash Flood        | 0        | 0        | \$200,000      |
| <i>Errata</i>                              | 9/2/2008         | Flash Flood        | 0        | 0        | \$5,000,000    |
| <i>Gitano</i>                              | 4/12/2009        | Flash Flood        | 0        | 0        | \$500,000      |
| <i>Tuckers</i>                             | 2/4/2010         | Flood              | 0        | 0        | \$1,000        |
| <i>Tawanta</i>                             | 5/20/2010        | Flash Flood        | 0        | 0        | \$10,000       |
| <i>Blodgett</i>                            | 2/18/2012        | Flash Flood        | 0        | 0        | \$0            |
| <i>Tuckers Crossing</i>                    | 3/21/2012        | Flash Flood        | 0        | 0        | \$10,000       |
| <i>Ovett</i>                               | 3/22/2012        | Flash Flood        | 0        | 0        | \$250,000      |
| <i>Ovett &amp; Moselle</i>                 | 2/10/2013        | Flash Flood        | 0        | 0        | \$0            |
| <i>Hoy</i>                                 | 9/24/2013        | Flash Flood        | 0        | 0        | \$20,000       |
| <i>Errata</i>                              | 3/28/2014        | Flash Flood        | 0        | 0        | \$200,000      |
| <i>Errata, Hebron, &amp; Service</i>       | 10/31/2015       | Flash Flood        | 0        | 0        | \$14,000       |
| <i>Hoy, Errata, Service, &amp; Moselle</i> | 3/10/2016        | Flash Flood        | 0        | 0        | \$239,000      |
| <i>Reddoch</i>                             | 3/11/2016        | Flash Flood        | 0        | 0        | \$7,000        |
| <i>Moselle</i>                             | 4/14/2016        | Flash Flood        | 0        | 0        | \$3,000        |
| <i>Walters</i>                             | 1/21/2017        | Flash Flood        | 0        | 0        | \$3,000        |
| <i>Eastabuchie, Moselle, &amp; PIB</i>     | 6/6/2017         | Flash Flood        | 0        | 0        | \$190,000      |
| <i>Tuckers</i>                             | 6/16/2017        | Flash Flood        | 0        | 0        | \$8,000        |
| <i>Tuckers &amp; Errata</i>                | 6/23/2017        | Flash Flood        | 0        | 0        | \$34,000       |
| <i>Eastabuchie</i>                         | 8/9/2017         | Flash Flood        | 0        | 0        | \$5,000        |
| <i>(PIB) Pine Belt RGNL.</i>               | 8/16/2017        | Flash Flood        | 0        | 0        | \$4,000        |
| <i>Hoy</i>                                 | 12/27/2018       | Flash Flood        | 0        | 0        | \$2,000,000    |
| <i>Ovett &amp; Macedonia</i>               | 1/23/2019        | Flash Flood        | 0        | 0        | \$3,000        |
| <i>Hoy</i>                                 | 5/11/2019        | Flash Flood        | 0        | 0        | \$2,000        |
| <i>Moselle</i>                             | 1/13/2020        | Flash Flood        | 0        | 0        | \$2,000        |
| <i>PIB &amp; Service</i>                   | 8/30/2021        | Flash Flood        | 0        | 0        | \$15,000       |
| <i>Walters</i>                             | 3/18/2022        | Flash Flood        | 0        | 0        | \$1,000        |
| <i>Hoy</i>                                 | 7/4/2022         | Flash Flood        | 0        | 0        | \$5,000        |
| <i>Moselle</i>                             | 8/24/2022        | Flash Flood        | 0        | 0        | \$5,000        |
| <i>Tuckers</i>                             | 6/17/2023        | Flood              | 0        | 0        | \$31,000       |
| <i>Hoy</i>                                 | 1/24/2024        | Flood              | 0        | 0        | \$1,000        |

TABLE E.7: EXTENT: FLOOD EVENTS IN JONES COUNTY SINCE THE LAST UPDATE

## Jones County : \$175,000

| Location            | Date      | Loss     | Cause                                                                                                                                                                                                                                                                                                                                                                                  | Impact                                                                                                                                                                                                                                                                                                                      |
|---------------------|-----------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| County              | 1/23/2019 | \$3,000  | A low-pressure system moved east across the region, bringing widespread rainfall and a few strong to severe thunderstorms. Thunderstorms across the Pine Belt led to flash flooding.                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>Flash flooding led to rising water which threatened a home along Ovett Moselle Rd.</li> <li>Flash flooding led to water flowing across George Boutwell Road.</li> </ul>                                                                                                              |
| Laurel              | 2/20/2019 | \$15,000 | Heavy rain and thunderstorms developed as a frontal system stalled along the coast and a series of disturbances moved through the region. Some locations received 10 to over 15 inches of rain, resulting in significant flooding.                                                                                                                                                     | Several streets were closed due to flooding.                                                                                                                                                                                                                                                                                |
| Hoy                 | 5/11/2019 | \$2,000  | A cold front stalled across the ArkLaMiss region the day before, the remnant stationary front served as a focus for the development of widespread showers and thunderstorms on May 11th. Following several previous rounds of heavy rainfall across the region, heavy rain showers and storms produced flooding and flash flooding across mainly eastern and southeastern Mississippi. | Matthews Road off of MS Highway 15 was closed due to flash flooding.                                                                                                                                                                                                                                                        |
| Laurel & Soso       | 7/14/2019 | \$7,000  | Hurricane Barry made landfall in Louisiana and quickly weakened to a tropical storm as it moved inland across the region. The storm brought severe storms and flash flooding to the region on July 14th.                                                                                                                                                                               | <ul style="list-style-type: none"> <li>Water covered Feed Mill Road in Soso.</li> <li>In Laurel flash flooding occurred on Leontyne Price Boulevard between I-59 and Home Street. Home Street was flooded from Leontyne Price Boulevard to South Magnolia Street.</li> </ul>                                                |
| Laurel & Moselle    | 1/13/2020 | \$7,000  | A warm front was situated across southern Mississippi during the evening of January 13th. This, combined with a passing disturbance and anomalous moisture, supported numerous thunderstorms and heavy rainfall that produced widespread rainfall between 2 and 6 inches with the heaviest corridor right across the central portion of the forecast area.                             | <ul style="list-style-type: none"> <li>Some roads around Moselle were flooded and impassable.</li> <li>Several roads around Laurel were flooded and impassable.</li> </ul>                                                                                                                                                  |
| Laurel              | 8/28/2020 | \$10,000 | Hurricane Laura made landfall along the Louisiana coast near Lake Charles in the early morning hours of August 27, which led to minor flooding in the area.                                                                                                                                                                                                                            | Moderate street flooding caused a car to stall along 15th Avenue.                                                                                                                                                                                                                                                           |
| Ellisville & Laurel | 2/11/2021 | \$6,000  | Flash flooding occurred due to heavy rain.                                                                                                                                                                                                                                                                                                                                             | Multiple streets were flooded, and ditches were full over in the city of Ellisville, and multiple streets were flooded in Laurel.                                                                                                                                                                                           |
| Laurel              | 3/25/2021 | \$5,000  | Storms developed during the afternoon, bringing damaging winds and flash flooding to the region.                                                                                                                                                                                                                                                                                       | Flooding occurred east of the Interstate exchange in Laurel.                                                                                                                                                                                                                                                                |
| Laurel              | 6/6/2021  | \$50,000 | As an upper-level low pressure system moved over central parts of the country, a few storm systems moved across the state of Mississippi.                                                                                                                                                                                                                                              | Street flooding occurred in Laurel, especially in the southern part of the city. A few cars were flooded.                                                                                                                                                                                                                   |
| County              | 8/30/2021 | \$15,000 | <ul style="list-style-type: none"> <li>Major hurricane Ida made landfall as a strong category four hurricane August 29 near Grand Isle, LA. It then moved very slowly north through south central Louisiana and into Mississippi.</li> <li>Rainfall amounts of 4-8 inches occurred, which resulted in localized flooding.</li> </ul>                                                   | Heavy rainfall from Tropical Storm Ida resulted in flash flooding across Jones County. The intersection of Monroe Road and Emmons Road was underwater as well as a one eight mile stretch of RV Lindley Road.                                                                                                               |
| Laurel & County     | 3/18/2022 | \$12,000 | Showers and thunderstorms developed in the warm, moist airmass south of a warm front. Flash flooding occurred as storms began to move over the same region.                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>Flooding occurred in Laurel on Leontyne Price Blvd and Pendorff road. Multiple streets were flooded in town. A few vehicles stalled out from driving in flooded roads.</li> <li>Flooding occurred near the intersection of Burnt Bridge Rd. and Palmer Rd. in Ellisville.</li> </ul> |
|                     |           |          | Numerous showers and thunderstorms                                                                                                                                                                                                                                                                                                                                                     | Multiple streets were flooded in Laurel.                                                                                                                                                                                                                                                                                    |

|                |           |          |                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                 |
|----------------|-----------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>Laurel</b>  | 7/4/2022  | \$5,000  | developed across the area on the afternoon of July 4th. Some of these storms had torrential downpours which resulted in flash flooding in portions of Jones and Rankin Counties.                                                                                                                                                                                                                   |                                                                                                                                 |
| <b>Moselle</b> | 8/24/2022 | \$5,000  | A low-pressure system brought rounds of showers, thunderstorms, and heavy rain to MS which led to flash flooding.                                                                                                                                                                                                                                                                                  | A few roads were flooded around Moselle. This resulted in widespread flooding of roads, homes, and businesses around the state. |
| <b>Laurel</b>  | 6/16/2023 | \$30,000 | An upper-level disturbance triggered a cluster of thunderstorms along a stationary front boundary. These storms intensified and grew upscale into an intense mesoscale convective system (MCS) as they moved east-southeast along an axis of increased moisture and strong instability that extended toward the Central Gulf Coast.                                                                | A few cars were submerged in the Teresa Street underpass in Laurel.                                                             |
| <b>County</b>  | 6/17/2023 | \$1,000  | Convergence of moisture along a stationary front in southern Mississippi triggered thunderstorms during the day on June 17th.                                                                                                                                                                                                                                                                      | A portion of Dome House Road in the Glade community was flooded.                                                                |
| <b>Laurel</b>  | 7/11/2023 | \$1,000  | Scattered storms developed each afternoon. A few storms became strong to severe.                                                                                                                                                                                                                                                                                                                   | Multiple incidences of street flooding were observed in the Laurel area                                                         |
| <b>Hoy</b>     | 1/24/2024 | \$1,000  | With an upper-level trough of low pressure situated over Central Plains and a very moist air mass extending north through the Mississippi River Valley, training showers and thunderstorms produced heavy rain and flooding over parts of Mississippi.                                                                                                                                             | Creeks and fields were flooding.                                                                                                |
| <b>Laurel</b>  | 6/26/2024 | \$1,000  | A weakening band of strong storms resulted in a lull in activity after morning storms across western and northern Mississippi on June 26th. By afternoon, instability increased allowing new strong, damaging thunderstorms to develop mostly across eastern Mississippi moving from west to east. Wind was the primary damaging hazard though mostly small hail and heavy rain were also present. | Heavy rainfall rates caused ponding on streets and in poor drainage areas.                                                      |

### **HISTORICAL SUMMARY OF INSURED FLOOD LOSSES**

Recently, FEMA issued a directive that prevents states from receiving NFIP information such as rep loss or severe rep loss data directly from FEMA. The local jurisdiction should request the information directly from FEMA and share it with the State Planners. The information was requested from the local jurisdictions on multiple occasions. As a result, for continuity of information of the historical occurrences along with the corresponding damage amounts are unknown, unless the Jurisdiction requests the information directly from FEMA and shares it with the committee. The decision was made to leave the existing information in the plan if the Jurisdictions that did not provide the requested information and to add the information that was provided by the local jurisdictions to update the information.

According to FEMA flood insurance policy records as of March 2024, there have been 108 flood losses reported in Jones County through the National Flood Insurance Program (NFIP) since 1978, totaling nearly \$681,965 in claims payments. Currently, this remains the best available data. A summary of these figures for the county is provided in **Table E.8**. 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.

### **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 2024, there are 20 non-mitigated repetitive loss properties located in Jones County, which accounted for 55 losses and more than \$1,070,226 in claims payments under the NFIP. The average claim amount for these properties is \$18,923. Of

the 55 properties, 16 are single family residential, 2 is other residential, and 2 are non-residential. Without mitigation these properties will likely continue to experience flood losses. **Table E.8** presents detailed information on repetitive loss properties and NFIP claims and policies for Jones County. Currently, this remains the best available data.

**TABLE E.8: SUMMARY OF INSURED FLOOD LOSSES AND REPETITIVE LOSSES IN JONES COUNTY**

| Location                   | Flood Losses | Claim Payments   | Repetitive Loss Properties | Number of Properties | Number of Losses | Total Payments     | Average Payments |
|----------------------------|--------------|------------------|----------------------------|----------------------|------------------|--------------------|------------------|
| Ellisville                 | 5            | \$46,027         |                            | 1                    | 2                | \$17,996           | \$8,998          |
| Laurel                     | 75           | \$398,815        |                            | 15                   | 44               | \$876,069          | \$18,831         |
| Sandersville*              | --           | --               |                            | --                   | --               | --                 | --               |
| Soso*                      | --           | --               |                            | --                   | --               | --                 | --               |
| Unincorporated Area        | 28           | \$237,123        |                            | 4                    | 9                | \$176,161          | \$21,753         |
| <b>Jones County Total:</b> | <b>108</b>   | <b>\$681,965</b> |                            | <b>20</b>            | <b>55</b>        | <b>\$1,070,226</b> |                  |

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

The text below describes some of the major events and associated impacts on the county. Similar impacts can be expected with flash flooding.

**September 2, 2008**—Persistent bands of thunderstorms produced widespread 4 to 6 inches of rain across most of central Jones County. Many roads across the county as well as around Laurel were flooded. On the north side of Laurel, several cars were submerged in a flooded street. This heavy rainfall also flooded some homes and a few apartment complexes. Minor crop damage also occurred from flooded fields and water-soaked crops.

**April 12, 2009**—Widespread flash flooding occurred as 4 to 6.5 inches of rain fell across the county. Many roads were flooded across the county with several washed out. A portion of Highway 29 was undermined and was closed for a period of time. Additionally, numerous streets were flooded in and around Laurel.

**April 28, 2014**—Heavy rainfall caused extensive flooding in and around Laurel. Multiple roads were flooded with several cars under water and stalled. Some water rescues were performed as people were trapped in their vehicles.

**March 10, 2016**—Numerous roads were flooded across Jones County. Flooding occurred on US Highway 11 near the Jones and Jasper County border. Water was across US Highway 11 in the Pendorff Community. A bridge collapsed along Iris Drive in Laurel. One water rescue was performed from a vehicle in this location. Three Mile Stretch Road was flooded near Ellisville. Logs floated across the road from recent logging. A dirt driveway into a trailer park along Burnt Bridge Road was washed out. This cut off several residences from the road.

**April 3, 2017**—Water backed up into a home on West 21st Street in Laurel. Fifteen homes were threatened by flood waters. A foot of water entered Hardee's on Highway 11. Streets were flooded in Laurel.

**December 28, 2018**—Flash flooding occurred on streets in Laurel. Water entered homes on Ferrell Place and Roberts Street in Laurel. Water entered a home on Triangle Drive in the Glade community and a boat rescue occurred. Water was up to the bottom of the stop sign. Water entered a home on Hoy Green Acres Circle. Five water rescues occurred in parts of the county. Three homes flooded in the Calhoun Community west of Laurel, which resulted in water rescues. Homes were also flooded on Susie B Ruffin Avenue at E. 24th Street near Laurel. A bridge was flooded on MS Highway 184 east of Laurel.

## 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 flooding than the area surrounding Soso. Flooding 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.

As the climate continues to change, the chance of heavy rain leading to flash flooding could increase in frequency, intensity, and magnitude. In the first ten years of this century (2000-2010) there were 29 flooding events, and in the previous fourteen years (2011-2024) there have been 75 flooding events. With the increasing frequency and intensity, heavy rains and flash flooding can lead to cascading effects and can also lead to flooding in areas that do not usually flood.

## E.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).

If the climate continues to change as scientists predict, the higher intensity and magnitude of storms and the increasing drought and high heat days, can lead to erosion in areas that have not been impacted by erosion in the past.

## E.2.3 Dam Failure

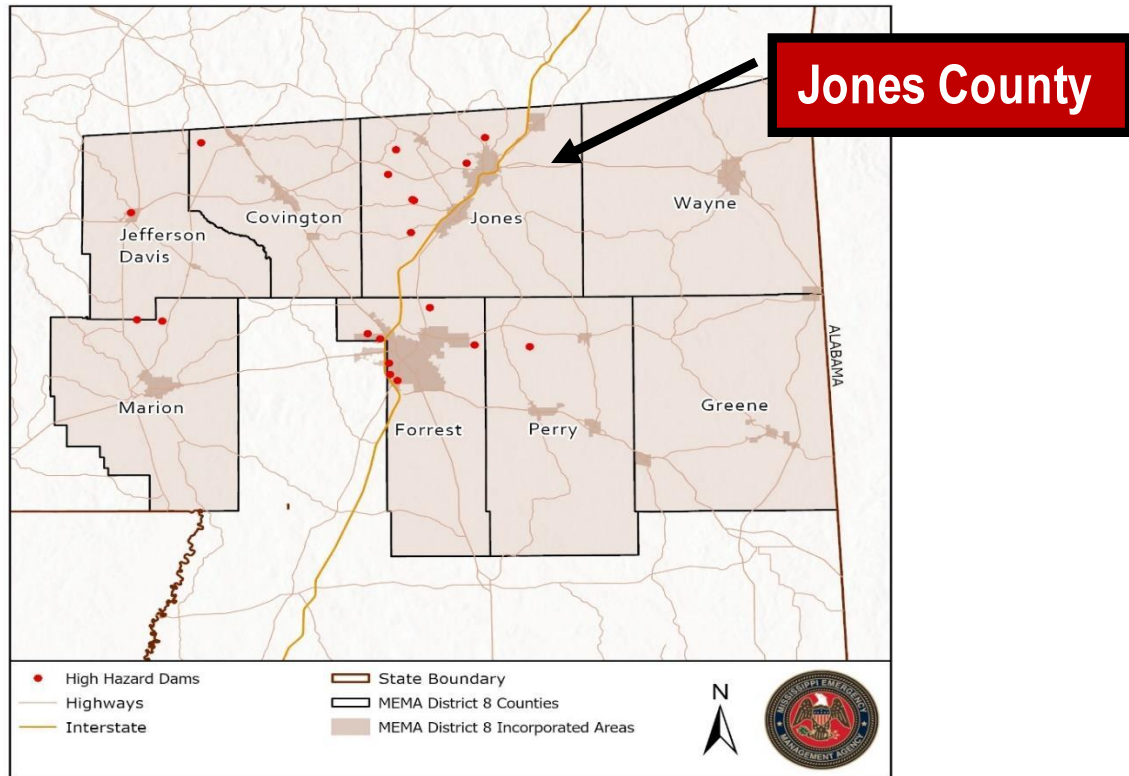
### LOCATION AND SPATIAL EXTENT

According to the Mississippi Department of Environmental Quality, there are five high hazard dams in Jones County. **Figure E.3** shows the location of each of these high hazard dams and **Table E.9** 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 E.3: JONES COUNTY REGION HIGH HAZARD DAM LOCATIONS**



**TABLE E.9: JONES COUNTY HIGH HAZARD DAMS**

| Hazard Potential | Dam Name                                   |
|------------------|--------------------------------------------|
| High             | <i>Lake Hatten Dam</i>                     |
| High             | <i>Lake Ivell Dam</i>                      |
| High             | <i>Big Creek Watershed Structure 9 Dam</i> |
| High             | <i>Big Creek Water Park Dam</i>            |
| High             | <i>Thunder Lake Dam</i>                    |

### **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.

## **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. 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 thirteen recorded winter storm events in Jones County since 2002. These events resulted in over \$1.7M in damages. Detailed information on the recorded winter storm events can be found in **Table E.10**.

**TABLE E.10: HISTORICAL SUMMARY OF WINTER STORM EVENTS IN JONES COUNTY**

| <b>Date</b>   | <b>Type</b>    | <b>Injuries/<br/>Deaths</b> | <b>Property<br/>Damage</b> |
|---------------|----------------|-----------------------------|----------------------------|
| 1/1/2002      | Heavy Snow     | 0/0                         | \$5,000                    |
| 1/19/2008     | Heavy Snow     | 0/0                         | \$100,000                  |
| 12/11/2008    | Winter Weather | 0/0                         | \$0                        |
| 12/4/2009     | Heavy Snow     | 0/0                         | \$0                        |
| 2/11/2010     | Heavy Snow     | 0/0                         | \$800,000                  |
| 1/9/2011      | Ice Storm      | 0/0                         | \$30,000                   |
| 2/3/2011      | Ice Storm      | 0/0                         | \$400,000                  |
| 1/28/2014     | Heavy Snow     | 0/0                         | \$0                        |
| 1/6/2017      | Sleet          | 0/0                         | \$20,000                   |
| 12/7/2017     | Heavy Snow     | 0/0                         | \$200,000                  |
| 1/16/2018     | Winter Weather | 0/0                         | \$0                        |
| 2/15/2021     | Ice Storm      | 0/0                         | \$150,000                  |
| 1/15/2024     | Winter Weather | 0/0                         | \$20,000                   |
| <b>Total:</b> | <b>13</b>      | <b>0/0</b>                  | <b>\$1,705,000</b>         |

Source: NCED/NOAA

**January 1, 2002**—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 19, 2008**—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.

**December 11, 2008**—Light sleet changed over to light snow by 630 am. Got a first report from the post office in Ellisville...which estimated one inch on the ground at 1130 am. A half inch was observed at Laurel at this time. At 140 pm one inch of snow was noted by a coop observer at Big Creek Water Park. The snow decreased to flurries after 2 pm and exited the region by 720 pm.

**February 11, 2010**—Up to 5 inches of snow was reported across portions of Jones County, with 5 inches reported near Ellisville.

**January 9, 2011**—Sleet and freezing rain began falling across the county during the morning hours. Bridges along Highway 15 north and south of Laurel, as well as along Highway 84 were iced over by early evening. Trees began snapping from ice accumulation by 8:00pm, including one tree that was down along Highway 28 at Gitano.

**February 3, 2011**—An ice storm developed across the area on February 3rd into the early morning hours of the 4th. While this icing event was not devastating, the impact to travel was a major issue across the region. Thousands of accidents occurred

from slick roads. As a result of the accidents, three fatalities occurred along with a handful of injuries. Overall, most areas received 0.25 to 0.5 inches of ice accumulation from freezing rain. Additionally, some areas had a mix of precipitation with sleet accumulating. Some snow did occur, but those were just across select areas and the accumulation was mainly one inch or less. A quarter inch of ice accumulated across Jones County with nearly all bridges iced over. Many accidents were reported.

**January 28, 2014**—Two to three inches of snow mixed with some sleet fell across the northern and northwestern portions of the county.

**January 6, 2017**—Up to one-half inch of sleet accumulated on Bridges, overpasses and other elevated surfaces. The highest accumulations fell over the northern portions of the county. One half an inch was reported at the big creek water park.

**December 7, 2017**—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.

**January 16, 2018**—Light snow fell across the county, with accumulations of up to 1.6 inches.

**February 15, 2021**—Freezing rain fell across the county. Accumulations of around three tenths of an inch occurred in the western part of the county, with lesser amounts in the eastern part. Ice accumulated in trees and on power lines. Numerous limbs were down along with multiple trees. Power outages occurred.

**January 15, 2024**—Light accumulations of freezing rain and sleet caused slick road conditions across the county, and a single car accident occurred on Interstate 59 near Exit 90 due to slick road conditions.

### **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).

## **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 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 thirteen times between the years, 2000-2024. **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 JONES COUNTY**

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

| Location      | Date       | Injuries/<br>Deaths | Property<br>Damage | Crop<br>Damage     | Event/<br>Severity |
|---------------|------------|---------------------|--------------------|--------------------|--------------------|
| Jones County  | 10/1/2006  | 0/0                 | \$0                | \$1,000,000        | D3                 |
| Jones County  | 4/25/2007  | 0/0                 | \$0                | \$0                | D2                 |
| Jones County  | 5/1/2007   | 0/0                 | \$0                | \$700,000          | D4                 |
| Jones County  | 6/1/2007   | 0/0                 | \$0                | \$900,000          | D4                 |
| Jones County  | 7/1/2007   | 0/0                 | \$80,000           | \$0                | D2                 |
| Jones County  | 10/1/2010  | 0/0                 | \$0                | \$500,000          | D2                 |
| Jones County  | 10/13/2015 | 0/0                 | \$0                | \$1,000            | D2                 |
| Jones County  | 10/25/2016 | 0/0                 | \$0                | \$30,000           | D4                 |
| Jones County  | 11/1/2016  | 0/0                 | \$50,000           | \$0                | D3                 |
| Jones County  | 12/1/2016  | 0/0                 | \$0                | \$50,000           | D3                 |
| Jones County  | 9/1/2023   | 0/0                 | \$0                | \$0                | D3                 |
| Jones County  | 10/1/2023  | 0/0                 | \$0                | \$0                | D3                 |
| Jones County  | 11/1/2023  | 0/0                 | \$0                | \$50,000           | D4                 |
| <b>Total:</b> | <b>13</b>  | <b>0/0</b>          | <b>\$130,000</b>   | <b>\$3,231,000</b> |                    |

Source: NCED/NOAA

**October 2006**—During a four-and-a-half-month period, from June to the middle of October, abnormally dry conditions prevailed across most of the Jackson, MS County Warning Area (CWA). Widespread drought conditions were reported across the area during this period. The U.S. Drought Monitor classified the drought as extreme (D3) over Southeast Mississippi. Drought conditions in the region peaked in intensity during early August over this area.

**April to July 2007**—During the month of May, the drought worsened and expanded a little as only a spattering of rain occurred across the area with the highest totals falling along and west of the Mississippi River. Actually, the area defined by severe drought (D2) only expanded by a few counties. By the end of May, crops across the state were beginning to feel the impact of the very dry conditions. At that point, some damage to crops had occurred with only small losses to yields expected. Extended drought conditions made conditions worse with more substantial crop damage/losses with no rain occurring into the month of June as most of the forecast area saw less than 40% of the normal rainfall. Historical climate sites ran 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 were affected with yields much less than normal by harvest time. The quality of the crops were affected as well due to the dry conditions.

The extreme to exceptional drought, which had gripped a large portion of the region since May, finally was reduced during the first and middle portion of July.

**October 2010**—Rainfall was 1 to 3 inches below normal for the month. This resulted in moderate to severe drought conditions across the county by the end of the month. Very dry conditions continued across central Mississippi during most of October. Crops were put under stress under the warm and dry conditions. The likely impact will be less crop yields for harvest time.

**October 2015**—The very dry conditions continued across Central Mississippi in October. The extended dry stretch resulted in an area of Severe (D2) drought developing across the area by October 13th. Approximately 25 to 50 percent of normal rainfall occurred across this area from August into mid-October. Crops were put under more stress from the dry and hot conditions.

**October to December 2016**—Severe (D2) drought conditions occurred in Jones County in October. This resulted in stress on crops due to the dry, hot conditions. In November, very dry conditions continued into November, which resulted in an area of severe drought (D2). This eventually turned into extreme (D3) drought across Jones County by the end of the month. Crops were put under more stress from the dry and hot conditions. Very dry conditions continued into December, which resulted in an area of severe drought (D2). Crops were put under more stress from the dry conditions. The drought eased by the middle of the month.

**September to November 2023**—Drought conditions in Jones County intensified from D1 (Moderate Drought) to D3 (Extreme Drought) as depicted on the U.S. Drought Monitor. Drought conditions in Jones County persisted at D3 (Extreme Drought) as depicted on the U.S. Drought Monitor through October. In December, drought conditions in Jones County persisted at D3 (Extreme Drought) as depicted on the U.S. Drought Monitor.

The combined effects of persistent above-normal temperatures and below-normal precipitation starting in early July 2023 resulted in mounting drought impacts across much of the state of Mississippi. Through the month of November, D3 (Extreme Drought), as depicted on the U.S. Drought Monitor. These conditions placed a severe stress on pastures for livestock and cropland at the end the growing season. Pine plantations and Christmas tree farms experienced severe losses especially among younger trees. In a study of over 13 million forested acres through western and central Mississippi surveyed by the Mississippi Forestry Commission, it was estimated that approximately 80,000 acres of pine trees were killed by drought stress. In the study area, this accounted for approximately 12.5 million pine trees lost. Stream flows on creeks and rivers were reduced.

## 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.

**August 1-4, 2010**—A four day stretch of extreme temperatures occurred across the region to start off the month of August. High pressure was firmly entrenched across the southeast and allowed temperatures to soar into the triple digits across much of the region. Across the NWS Jackson, MS forecast area, 19 record highs were set between August 1st and 4th. On August 2nd, the 2nd warmest average temperature was recorded. The low was 78 and the high 105, this resulted in an average temperature of 91.5 degrees. Additionally, relatively high humidity levels made conditions even more oppressive, with heat index readings surpassing 110 degrees in many areas. This extreme heat resulted in 3 fatalities across the forecast area.



**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. But, if the climate continues to warm, this could lead to more droughts with higher magnitude

### **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.

If temperatures continue to rise as climate change occurs, it could increase the impacts, intensity, and duration of droughts and extreme temperatures. These increases could have a large impact on the counties' crops, economy, and population.

## **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 2010 to 2023, Jones County experiences an average of 22.2 wildfires annually which burn an average of 180 acres per year. The data indicates that most of these fires are small, averaging eight acres per fire. **Table E.12** provides a summary of wildfire occurrences in Jones County since the last update, and **Table E.13** lists the number of reported wildfire occurrences in the county between the years 2010 and 2023.

**TABLE E.12: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2019 -2023) \***

| Jones County                                   |              |
|------------------------------------------------|--------------|
| <b>Average Number of Fires per year</b>        | <b>15.8</b>  |
| <b>Average Number of Acres Burned per year</b> | <b>165.6</b> |
| <b>Average Number of Acres Burned per fire</b> | <b>10.48</b> |

Source: MS Forestry Commission

**TABLE E.13: HISTORICAL WILDFIRE OCCURRENCES IN JONES COUNTY**

| Jones County           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Year                   | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| Number of Fires        | 48   | 53   | 22   | 11   | 30   | 33   | 21   | 5    | 7    | 6    | 5    | 6    | 20   | 42   |
| Number of Acres Burned | 372  | 400  | 84   | 157  | 358  | 164  | 111  | 30   | 16   | 75   | 104  | 47   | 229  | 373  |

Source: US 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 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 Jones County for future wildfire events is likely (a 10 and 100 percent annual probability).

If temperatures continue to rise as climate change occurs, it could cause more droughts and extreme temperatures. The increase in of these could have a negative impact on wildfires. Extreme heat and drought can cause plants to become dry and brittle which makes the area more susceptible to wildfires.

If the predicted increase in heavy rains occurs, it can also cause flooding and erosion, which can also make the area more susceptible to wildfires.

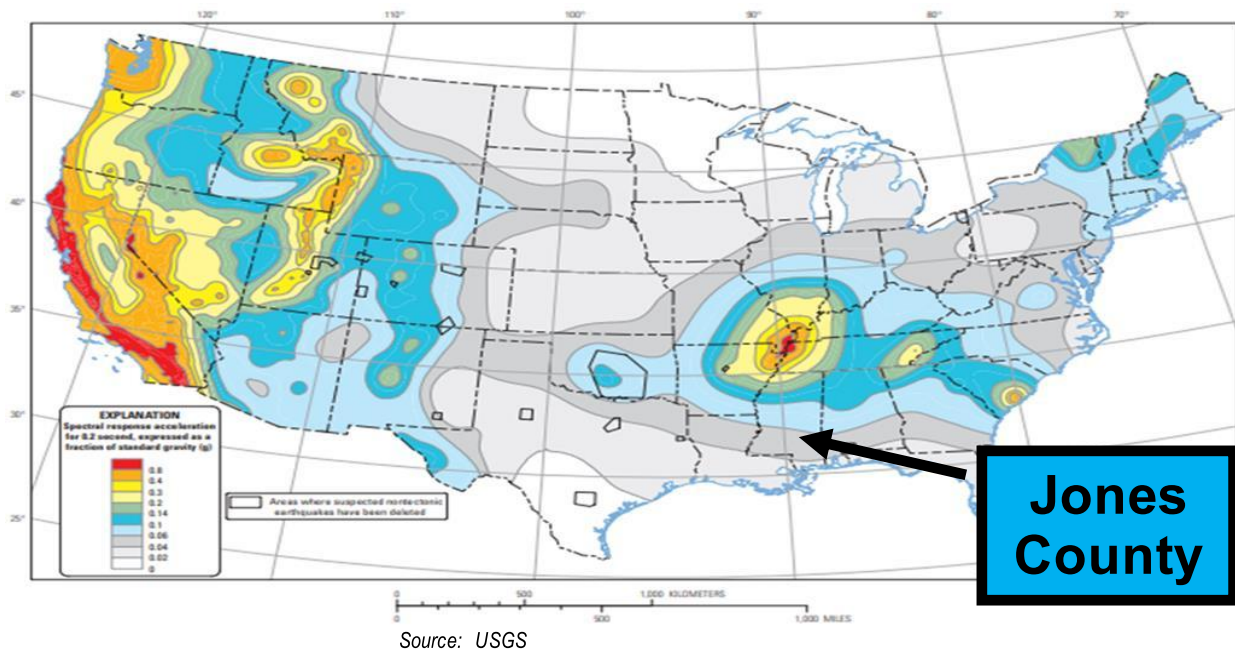
## E.2.7 Earthquake

### LOCATION AND SPATIAL EXTENT

**Figure E.4** 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 E.4: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS**



### HISTORICAL OCCURRENCES

No earthquakes are known to have affected Jones County since 1638. **Table E.14** provides a summary of earthquake events reported by the National Geophysical Data Center between 1638 and 2024.

**TABLE E.14: SUMMARY OF SEISMIC ACTIVITY IN JONES COUNTY**

| Location            | Date | Number of Occurrences | Greatest MMI Reported | Richter Scale Equivalent |
|---------------------|------|-----------------------|-----------------------|--------------------------|
| Ellisville          | --   | 0                     | --                    | --                       |
| Laurel              | --   | 0                     | --                    | --                       |
| Sandersville        | --   | 0                     | --                    | --                       |
| Soso                | --   | 0                     | --                    | --                       |
| Unincorporated Area | --   | 0                     | --                    | --                       |
| Jones County Total: |      | 0                     | --                    | --                       |

### 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).

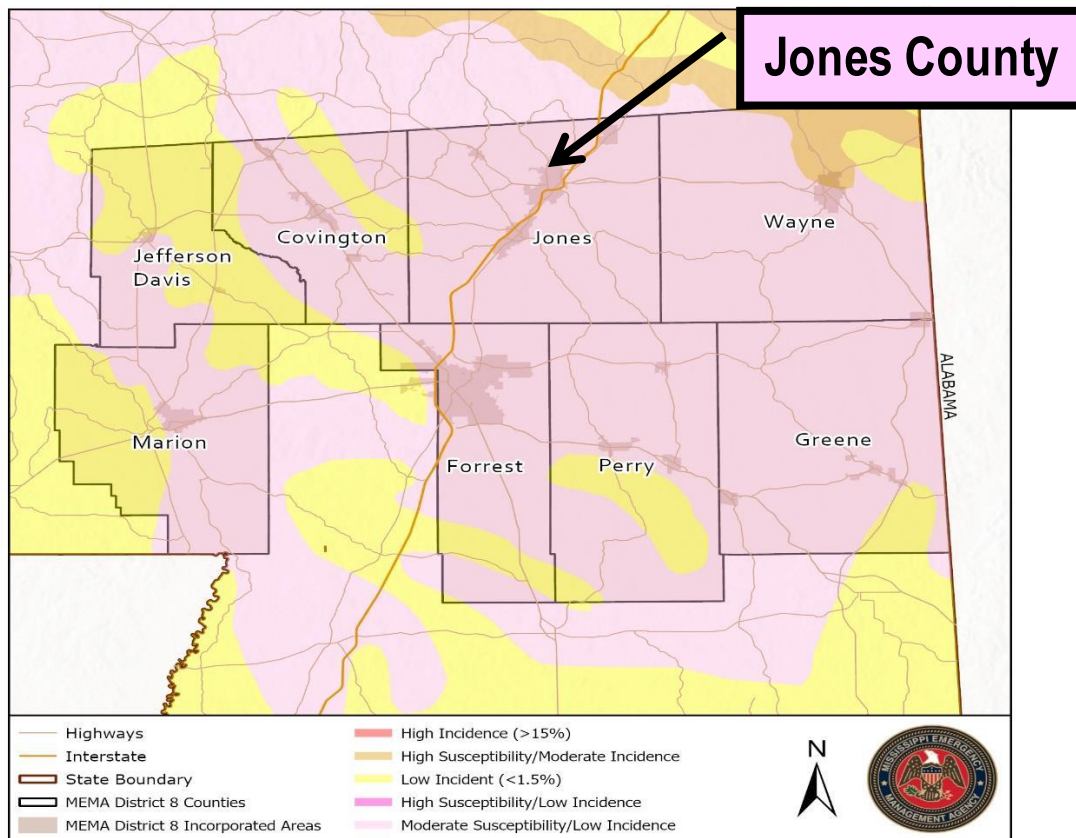
## E.2.8 Landslide

### 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. Landslides are possible throughout Jones County.

According to **Figure E.5** below, Most county falls under a Moderate Incidence/low incidence area (light pink) with a small area of Low Incident (yellow). This indicates that less than 1.5 percent of the area is involved in land sliding. The areas in yellow are defined as low incidence and low susceptibility. The areas in light pink, however, indicate that a moderate susceptibility to land sliding 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 JONES COUNTY**



## HISTORICAL OCCURRENCES

There is no extensive history of landslides in Jones County. Landslide events typically occur in isolated areas.

## PROBABILITY OF FUTURE OCCURRENCES

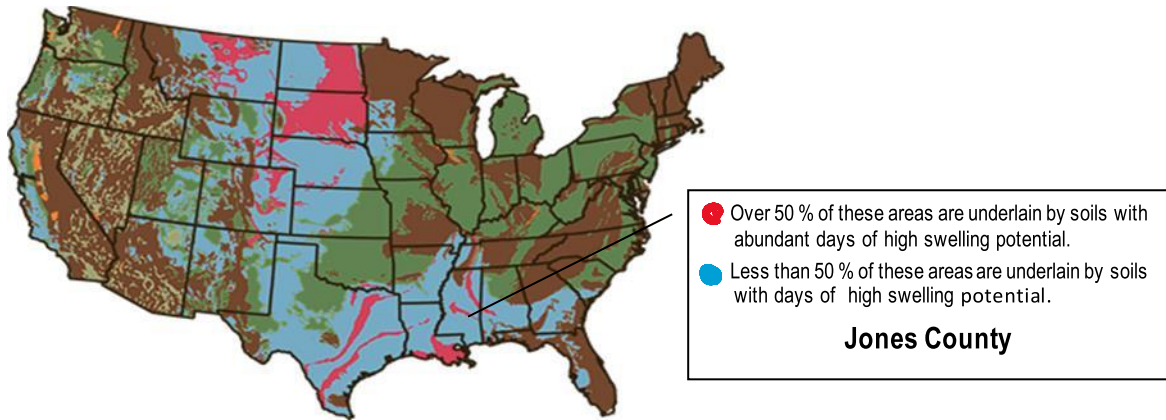
Based on historical information and the USGS susceptibility index, the probability of future landslide events is unlikely (less than 1 percent probability). The USGS data indicates that all areas in Jones County have a low landslide incidence rate. However, nearly all areas are reported as having moderate susceptibility to land sliding 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. Also, as the climate continues to change, scientists believe that the intensity, magnitude, and frequency of heavy rains will increase. This could cause cascading effects that could possibly lead to land sliding.

## E.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 E.6**. 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 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).

## **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 Jones County. All areas in Jones County are equally susceptible to hurricane and tropical storms.

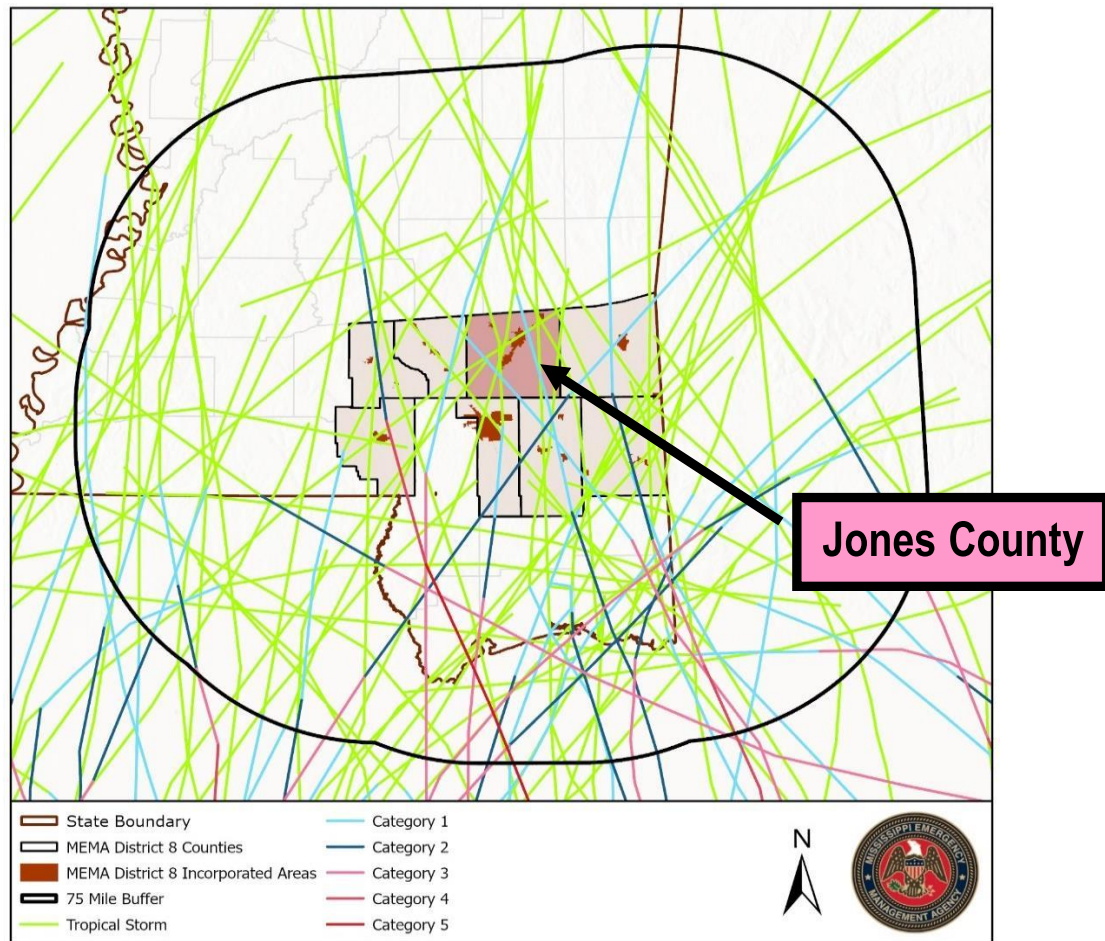
### **HISTORICAL OCCURRENCES**



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 41 tropical storms as shown in **Figure E.7**.

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 were 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 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 JONES COUNTY**



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), 2012 (Hurricane Isaac), and 2021 (Hurricane Ida). Hurricane and tropical storm events can cause substantial damage in the area due to high winds and flooding.

**TABLE E.15: HISTORICAL STORM TRACKS WITHIN 75 MILES OF JONES COUNTY (1850–2024)**

| Date of Occurrence | Storm Name | Maximum Wind Speed | Storm Category | Disaster Declaration | Property Damage | Crop Damage |
|--------------------|------------|--------------------|----------------|----------------------|-----------------|-------------|
| 9/16/1855          | Unnamed    | 80 (mph)           | Category 1     | --                   | Unknown         | Unknown     |
| 7/12/1872          | Unnamed    | 46 (mph)           | Tropical Storm | --                   | Unknown         | Unknown     |
| 9/8/1883           | Unnamed    | 63 (mph)           | Tropical Storm | --                   | Unknown         | Unknown     |
| 9/27/1906          | Unnamed    | 75 (mph)           | Category 1     | --                   | Unknown         | Unknown     |

|               |                    |           |                |            |                      |                     |
|---------------|--------------------|-----------|----------------|------------|----------------------|---------------------|
| 6/13/1912     | Unnamed            | 52 (mph)  | Tropical Storm | --         | Unknown              | Unknown             |
| 7/6/1916      | Unnamed            | 92 (mph)  | Category 1     | --         | Unknown              | Unknown             |
| 10/18/1923    | Unnamed            | 57 (mph)  | Tropical Storm | --         | Unknown              | Unknown             |
| 9/1/1932      | Unnamed            | 69 (mph)  | Tropical Storm | --         | Unknown              | Unknown             |
| 9/16/1960     | Hurricane Ethel    | 40 (mph)  | Tropical Storm | --         | Unknown              | Unknown             |
| 9/4/1969      | Hurricane Camille  | 80 (mph)  | Category 1     | Yes, #271  | Unknown              | Unknown             |
| 1979          | Hurricane Frederic | Unknown   | Tropical Storm | Yes, # 599 | Unknown              | Unknown             |
| 9/25/1998     | Hurricane Georges  | Unknown   | Tropical Storm | Yes, #1251 | Unknown              | Unknown             |
| 7/1/2003      | Hurricane Bill     | Unknown   | Tropical Storm | No         | \$0                  | \$0                 |
| 9/16/2004     | Hurricane Ivan     | 95 (mph)  | Category 1     | Yes, #1550 | \$93,750             | \$31,300            |
| 7/10/2005     | Hurricane Dennis   | 55 (mph)  | Tropical Storm | Yes, #1594 | \$100,000            | \$150,000           |
| 8/29/2005     | Hurricane Katrina  | 110 (mph) | Category 3     | Yes, #1604 | \$750,000,000        | \$80,000,000        |
| 9/1/2008      | Hurricane Gustav   | 50 (mph)  | Tropical Storm | No         | \$200,000            | \$0                 |
| 8/29/2012     | Hurricane Isaac    | 45 (mph)  | Tropical Storm | Yes, 4081  | \$50,000             | \$0                 |
| 10/7/2017     | Hurricane Nate     | 40 (mph)  | Tropical Storm | No         | \$12,000             | \$0                 |
| 9/5/2018      | Hurricane Gordon   | 35 (mph)  | Depression     | No         | \$50,000             | \$0                 |
| 10/28/2020    | Hurricane Zeta     | 43 (mph)  | Tropical Storm | No         | \$50,000             | \$0                 |
| 8/30/2021     | Hurricane Ida      | 50 (mph)  | Tropical Storm | Yes, #4626 | \$75,000             | \$0                 |
| <b>Total:</b> | <b>22</b>          | <b>--</b> | <b>--</b>      | <b>--</b>  | <b>\$750,630,750</b> | <b>\$80,181,300</b> |

Source: National Hurricane Center and NCED/NOAA

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:

**May 7, 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.

**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. This hurricane has changed life as we know it across the Gulf Coast region which will take many years to return to normal. Wind damage to structures was widespread as many roofs were blown off or partially peeled off. Hundreds of signs were shredded or blown down. Many businesses sustained structural damage as windows were broken, roofs were blown off and walls were collapsed.

Millions of trees were uprooted and snapped. Power poles and lines were snapped and taken down from wind and trees. It was the thousands of downed trees which caused the most significant structural damage as these trees fell onto homes and businesses. Ten fatalities were caused by trees falling on homes or on people in Jones county.

This region received an enormous blow to the timber industry as a large percentage of trees were blown down or severely damaged. This timber damage will affect this region for decades. Additionally, the combination of the winds and loss of power caused significant losses to the poultry industry and other agricultural industries across this region. The agricultural industry was severely hit across this region with the biggest losses in the timber and poultry industries.

The utility companies across the region were severely hit as well. Thousands of power poles and countless miles of power lines were taken down by fallen trees and wind. The power outages across the region were widespread and lasted for a period of a few days to as long as 4 weeks. The agriculture and forestry industries of the state were severely affected by Hurricane Katrina. The timber industry was hit the hardest with timberland damaged estimated around 1.3 billion dollars. The devastating impact to this industry will be felt for decades. Another particularly hard-hit industry was the poultry industry. In the region where the hurricane passed, about 9000 chicken houses exist and hold 20-25 thousand birds apiece. Approximately, 300 of these houses were destroyed and nearly another 2400 were damaged. The combination of lost birds and damaged houses bring damage estimates between 100-120 million dollars. The region's Row Crops were hard hit as well. The main crops in this industry are cotton, rice, corn and soybeans. The damage varied and was dependent on location.

**August 29, 2012—Hurricane Isaac** caused multiple trees to blowdown across the county between the afternoon of the 29th and mid-day on the 30th. By late evening on the 29th, trees were blown down on 5th Avenue in Laurel, U.S. 84 near Hebron, and Mississippi Highway 29 north of Ellisville.

**November 28, 2020**—Tropical storm force winds from **Hurricane Zeta** blew down scattered trees across the county. A peak wind gust of 46 mph was measured at 9:25 p.m. CDT at the Hattiesburg-Laurel Regional Airport, and a peak gust of 43 mph was measured at 9:55 p.m. at Hesler-Noble Field in Laurel.

**August 30, 2021—Hurricane Ida** brought tropical storm force wind gusts downed numerous trees and power lines across the county. At least 25 roads were blocked by fallen trees.

### **PROBABILITY OF FUTURE OCCURRENCES**

Based on historical evidence, the probability level of future occurrence is likely (annual probability between 10 and 100 per cent). 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.

Scientists and meteorologists predict tropical cyclones will increase in frequency, magnitude, and intensity as the climate continues to change. These increases could be catastrophic to MS Coastal areas and the counties near the coast. Scientists also predict that hurricanes could increase in frequency and strength in the near future due the effects of Climate Change. This can be seen in the 2023 season with 23 named storms, 11 hurricanes, and 5 major hurricanes. This prediction makes the season the third most active season on record, behind the 2005 season with 28, and the 2020 season with a total of 30. It is expected that an above-average season next season with up to 25 named storms and 4-7 major hurricanes.

## **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, 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 eleven disaster declarations in Jones County in 1971, 1973, 1974, 1987, 1990, 2001, 2014, 2016, 2018, 2020, and 2023. According to NCDC, there have been 272 reported thunderstorm and high wind events since 2000 in Jones County. These events caused over \$8M in damages. There were also reports of one fatality and eleven injuries. **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.

**TABLE E.16: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN JONES COUNTY**

| Location                   | Number of Occurrences | Injuries  | Deaths   | Property Damage    | Crop Damage      |
|----------------------------|-----------------------|-----------|----------|--------------------|------------------|
| <i>Ellisville</i>          | 33                    | 0         | 0        | \$669,000          | \$0              |
| <i>Laurel</i>              | 31                    | 5         | 0        | \$2,513,600        | \$0              |
| <i>Sandersville</i>        | 33                    | 1         | 0        | \$1,376,600        | \$0              |
| <i>Soso</i>                | 17                    | 0         | 0        | \$151,500          | \$0              |
| <i>Unincorporated Area</i> | 160                   | 5         | 1        | \$3,385,810        | \$130,000        |
| <b>Jones County Total:</b> | <b>274</b>            | <b>11</b> | <b>1</b> | <b>\$8,041,510</b> | <b>\$130,000</b> |

Source: NCED/NOAA

**TABLE E.17: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN JONES COUNTY**

| Location                      | Date      | Type      | Magnitude      | Deaths | Injuries | Property Damage | Crop Damage |
|-------------------------------|-----------|-----------|----------------|--------|----------|-----------------|-------------|
| <b>The City of Ellisville</b> |           |           |                |        |          |                 |             |
| <i>Ellisville</i>             | 1/29/2001 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$4,000         | \$0         |
| <i>Ellisville</i>             | 7/22/2003 | TSTM Wind | <i>55 kts.</i> | 0      | 0        | \$55,000        | \$0         |
| <i>Ellisville</i>             | 8/6/2003  | TSTM Wind | <i>50 kts.</i> | 0      | 0        | \$1,000         | \$0         |
| <i>Ellisville</i>             | 6/21/2004 | TSTM Wind | <i>55 kts.</i> | 0      | 0        | \$2,000         | \$0         |



|                   |            |           |         |   |   |           |     |
|-------------------|------------|-----------|---------|---|---|-----------|-----|
| <i>Ellisville</i> | 7/2/2004   | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Ellisville</i> | 7/16/2004  | TSTM Wind | 55 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Ellisville</i> | 4/30/2005  | TSTM Wind | 65 kts. | 0 | 0 | \$25,000  | \$0 |
| <i>Ellisville</i> | 5/29/2005  | TSTM Wind | 55 kts. | 0 | 0 | \$30,000  | \$0 |
| <i>Ellisville</i> | 6/23/2006  | TSTM Wind | 58 kts. | 0 | 0 | \$50,000  | \$0 |
| <i>Ellisville</i> | 8/5/2006   | TSTM Wind | 53 kts. | 0 | 0 | \$0       | \$0 |
| <i>Ellisville</i> | 8/15/2006  | TSTM Wind | 60 kts. | 0 | 0 | \$100,000 | \$0 |
| <i>Ellisville</i> | 2/13/2007  | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Ellisville</i> | 6/18/2007  | TSTM Wind | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Ellisville</i> | 10/17/2007 | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Ellisville</i> | 1/29/2008  | TSTM Wind | 55 kts. | 0 | 0 | \$0       | \$0 |
| <i>Ellisville</i> | 2/12/2008  | TSTM Wind | 55 kts. | 0 | 0 | \$8,000   | \$0 |
| <i>Ellisville</i> | 4/4/2011   | TSTM Wind | 74 kts. | 0 | 0 | \$300,000 | \$0 |
| <i>Ellisville</i> | 7/13/2011  | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Ellisville</i> | 8/10/2011  | TSTM Wind | 55 kts. | 0 | 0 | \$7,000   | \$0 |
| <i>Ellisville</i> | 4/3/2012   | TSTM Wind | 50 kts. | 0 | 0 | \$6,000   | \$0 |
| <i>Ellisville</i> | 7/4/2012   | TSTM Wind | 55 kts. | 0 | 0 | \$15,000  | \$0 |
| <i>Ellisville</i> | 7/12/2012  | TSTM Wind | 40 kts. | 0 | 0 | \$500     | \$0 |
| <i>Ellisville</i> | 6/5/2013   | TSTM Wind | 55 kts. | 0 | 0 | \$0       | \$0 |
| <i>Ellisville</i> | 6/29/2013  | TSTM Wind | 50 kts. | 0 | 0 | \$1,500   | \$0 |
| <i>Ellisville</i> | 9/3/2013   | TSTM Wind | 50 kts. | 0 | 0 | \$4,000   | \$0 |
| <i>Ellisville</i> | 2/20/2014  | TSTM Wind | 55 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Ellisville</i> | 7/5/2015   | TSTM Wind | 50 kts. | 0 | 0 | \$4,000   | \$0 |
| <i>Ellisville</i> | 4/14/2016  | TSTM Wind | 50 kts. | 0 | 0 | \$12,000  | \$0 |
| <i>Ellisville</i> | 5/12/2017  | TSTM Wind | 50 kts. | 0 | 0 | \$15,000  | \$0 |
| <i>Ellisville</i> | 5/21/2017  | TSTM Wind | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Ellisville</i> | 6/10/2018  | TSTM Wind | 39 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Ellisville</i> | 5/11/2019  | TSTM Wind | 35 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>Ellisville</i> | 8/2/2020   | TSTM Wind | 50kts.  | 0 | 0 | \$5,000   | \$0 |

### The City of Laurel

|               |            |           |                |   |   |           |     |
|---------------|------------|-----------|----------------|---|---|-----------|-----|
| <i>Laurel</i> | 1/3/2000   | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$2,000   | \$0 |
| <i>Laurel</i> | 4/2/2000   | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$110,000 | \$0 |
| <i>Laurel</i> | 7/17/2000  | TSTM Wind | <i>Unknown</i> | 0 | 1 | \$15,000  | \$0 |
| <i>Laurel</i> | 7/20/2000  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$3,000   | \$0 |
| <i>Laurel</i> | 7/22/2000  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$4,000   | \$0 |
| <i>Laurel</i> | 8/10/2000  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$55,000  | \$0 |
| <i>Laurel</i> | 12/13/2000 | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$2,000   | \$0 |
| <i>Laurel</i> | 1/19/2001  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$2,000   | \$0 |
| <i>Laurel</i> | 3/12/2001  | TSTM Wind | <i>Unknown</i> | 0 | 1 | \$100,000 | \$0 |
| <i>Laurel</i> | 5/31/2001  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$40,000  | \$0 |
| <i>Laurel</i> | 6/27/2001  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$1,000   | \$0 |
| <i>Laurel</i> | 7/12/2001  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$25,000  | \$0 |
| <i>Laurel</i> | 12/13/2001 | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$1,000   | \$0 |
| <i>Laurel</i> | 3/20/2002  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$1,000   | \$0 |
| <i>Laurel</i> | 5/17/2002  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$2,000   | \$0 |
| <i>Laurel</i> | 7/8/2002   | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$500     | \$0 |



|        |            |           |         |   |   |           |     |
|--------|------------|-----------|---------|---|---|-----------|-----|
| Laurel | 7/25/2002  | TSTM Wind | Unknown | 0 | 0 | \$2,000   | \$0 |
| Laurel | 8/2/2002   | TSTM Wind | Unknown | 0 | 0 | \$10,000  | \$0 |
| Laurel | 12/24/2002 | TSTM Wind | 60 kts. | 0 | 0 | \$3,500   | \$0 |
| Laurel | 4/6/2003   | TSTM Wind | 55 kts. | 0 | 0 | \$30,000  | \$0 |
| Laurel | 5/17/2003  | TSTM Wind | 50 kts. | 0 | 0 | \$10,000  | \$0 |
| Laurel | 7/11/2003  | TSTM Wind | 55 kts. | 0 | 0 | \$10,000  | \$0 |
| Laurel | 7/22/2003  | TSTM Wind | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| Laurel | 5/1/2004   | TSTM Wind | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| Laurel | 7/2/2004   | TSTM Wind | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| Laurel | 7/15/2004  | TSTM Wind | 58 kts. | 0 | 0 | \$3,000   | \$0 |
| Laurel | 1/13/2005  | TSTM Wind | 58 kts. | 0 | 0 | \$15,000  | \$0 |
| Laurel | 3/31/2005  | TSTM Wind | 60 kts. | 0 | 0 | \$20,000  | \$0 |
| Laurel | 11/15/2005 | TSTM Wind | 55 kts. | 0 | 0 | \$15,000  | \$0 |
| Laurel | 5/9/2006   | TSTM Wind | 57 kts. | 0 | 0 | \$60,000  | \$0 |
| Laurel | 6/23/2006  | TSTM Wind | 60 kts. | 0 | 0 | \$70,000  | \$0 |
| Laurel | 8/9/2006   | TSTM Wind | 60 kts. | 0 | 0 | \$400,000 | \$0 |
| Laurel | 2/25/2007  | TSTM Wind | 53 kts. | 0 | 0 | \$12,000  | \$0 |
| Laurel | 6/19/2007  | TSTM Wind | 53 kts. | 0 | 0 | \$70,000  | \$0 |
| Laurel | 8/1/2007   | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Laurel | 1/29/2008  | TSTM Wind | 55 kts. | 0 | 1 | \$50,000  | \$0 |
| Laurel | 8/7/2008   | TSTM Wind | 60 kts. | 0 | 0 | \$0       | \$0 |
| Laurel | 5/10/2009  | TSTM Wind | 60 kts. | 0 | 0 | \$200,000 | \$0 |
| Laurel | 5/2/2010   | TSTM Wind | 55 kts. | 0 | 0 | \$300,000 | \$0 |
| Laurel | 11/30/2010 | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| Laurel | 4/4/2011   | TSTM Wind | 56 kts. | 0 | 0 | \$30,000  | \$0 |
| Laurel | 4/26/2011  | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| Laurel | 6/7/2011   | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| Laurel | 6/28/2011  | TSTM Wind | 43 kts. | 0 | 0 | \$5,000   | \$0 |
| Laurel | 5/12/2012  | TSTM Wind | 50 kts. | 0 | 0 | \$50,000  | \$0 |
| Laurel | 5/30/2012  | TSTM Wind | 50 kts. | 0 | 0 | \$40,000  | \$0 |
| Laurel | 7/18/2012  | TSTM Wind | 35 kts. | 0 | 0 | \$100     | \$0 |
| Laurel | 9/4/2012   | TSTM Wind | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| Laurel | 12/20/2012 | TSTM Wind | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| Laurel | 1/30/2013  | TSTM Wind | 50 kts. | 0 | 0 | \$20,000  | \$0 |
| Laurel | 7/18/2013  | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| Laurel | 10/13/2014 | TSTM Wind | 52 kts. | 0 | 0 | \$3,000   | \$0 |
| Laurel | 5/20/2015  | TSTM Wind | 55 kts. | 0 | 0 | \$10,000  | \$0 |
| Laurel | 5/24/2015  | TSTM Wind | 52 kts. | 0 | 0 | \$30,000  | \$0 |
| Laurel | 6/24/2015  | TSTM Wind | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| Laurel | 2/15/2016  | TSTM Wind | 50 kts. | 0 | 0 | \$14,000  | \$0 |
| Laurel | 5/31/2016  | TSTM Wind | 50 kts. | 0 | 0 | \$7,000   | \$0 |
| Laurel | 8/5/2016   | TSTM Wind | 39 kts. | 0 | 1 | \$500     | \$0 |
| Laurel | 4/3/2017   | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| Laurel | 4/30/2017  | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| Laurel | 4/3/2018   | TSTM Wind | 50 kts. | 0 | 0 | \$20,000  | \$0 |
| Laurel | 4/6/2018   | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| Laurel | 5/16/2018  | TSTM Wind | 50 kts. | 0 | 0 | \$20,000  | \$0 |

|                                 |            |           |                |   |   |           |     |
|---------------------------------|------------|-----------|----------------|---|---|-----------|-----|
| <i>Laurel</i>                   | 5/30/2018  | TSTM Wind | 52 kts.        | 0 | 0 | \$30,000  | \$0 |
| <i>Laurel</i>                   | 7/31/2018  | TSTM Wind | 50 kts.        | 0 | 0 | \$5,000   | \$0 |
| <i>Laurel</i>                   | 6/25/2019  | TSTM Wind | 43 kts.        | 0 | 1 | \$2,000   | \$0 |
| <i>Laurel</i>                   | 5/22/2020  | TSTM Wind | 50 kts.        | 0 | 0 | \$10,000  | \$0 |
| <i>Laurel</i>                   | 6/5/2020   | TSTM Wind | 52 kts.        | 0 | 0 | \$10,000  | \$0 |
| <i>Laurel</i>                   | 6/25/2020  | TSTM Wind | 54 kts.        | 0 | 0 | \$10,000  | \$0 |
| <i>Laurel</i>                   | 12/13/2020 | TSTM Wind | 40 kts.        | 0 | 0 | \$1,500   | \$0 |
| <i>Laurel</i>                   | 5/4/2021   | TSTM Wind | 50 kts.        | 0 | 0 | \$1,000   | \$0 |
| <i>Laurel</i>                   | 3/18/2022  | TSTM Wind | 50 kts.        | 0 | 0 | \$2,000   | \$0 |
| <i>Laurel</i>                   | 4/13/2022  | TSTM Wind | 52 kts.        | 0 | 0 | \$0       | \$0 |
| <i>Laurel</i>                   | 4/16/2022  | TSTM Wind | 50 kts.        | 0 | 0 | \$7,000   | \$0 |
| <i>Laurel</i>                   | 6/10/2022  | TSTM Wind | 52 kts.        | 0 | 0 | \$10,000  | \$0 |
| <i>Laurel</i>                   | 1/3/2023   | TSTM Wind | 52 kts.        | 0 | 0 | \$10,000  | \$0 |
| <i>Laurel</i>                   | 6/18/2023  | TSTM Wind | 65 kts.        | 0 | 0 | \$250,000 | \$0 |
| <i>Laurel</i>                   | 5/9/2024   | TSTM Wind | 56 kts.        | 0 | 0 | \$1,000   | \$0 |
| <i>Laurel</i>                   | 5/14/2024  | TSTM Wind | 55 kts.        | 0 | 0 | \$25,000  | \$0 |
| <i>Laurel</i>                   | 6/5/2024   | TSTM Wind | 52 kts.        | 0 | 0 | \$200,000 | \$0 |
| <i>Laurel Airport</i>           | 7/17/2024  | TSTM Wind | 42 kts.        | 0 | 0 | \$500     | \$0 |
| <b>The Town of Sandersville</b> |            |           |                |   |   |           |     |
| <i>Sandersville</i>             | 7/20/2000  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$5,000   | \$0 |
| <i>Sandersville</i>             | 8/10/2000  | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$2,000   | \$0 |
| <i>Sandersville</i>             | 3/2/2001   | TSTM Wind | <i>Unknown</i> | 0 | 0 | \$25,000  | \$0 |
| <i>Sandersville</i>             | 7/22/2003  | TSTM Wind | 50 kts.        | 0 | 0 | \$2,000   | \$0 |
| <i>Sandersville</i>             | 6/22/2004  | TSTM Wind | 35 kts.        | 0 | 0 | \$1,000   | \$0 |
| <i>Sandersville</i>             | 7/15/2004  | TSTM Wind | 60 kts.        | 0 | 0 | \$5,000   | \$0 |
| <i>Sandersville</i>             | 5/20/2005  | TSTM Wind | 55 kts.        | 0 | 0 | \$10,000  | \$0 |
| <i>Sandersville</i>             | 6/9/2005   | TSTM Wind | 55 kts.        | 0 | 0 | \$8,000   | \$0 |
| <i>Sandersville</i>             | 5/10/2006  | TSTM Wind | 55 kts.        | 0 | 0 | \$20,000  | \$0 |
| <i>Sandersville</i>             | 7/28/2006  | TSTM Wind | 65 kts.        | 0 | 0 | \$70,000  | \$0 |
| <i>Sandersville</i>             | 7/30/2006  | TSTM Wind | 58 kts.        | 0 | 0 | \$350,000 | \$0 |
| <i>Sandersville</i>             | 1/10/2008  | TSTM Wind | 78 kts.        | 0 | 0 | \$350,000 | \$0 |
| <i>Sandersville</i>             | 12/10/2008 | TSTM Wind | 50 kts.        | 0 | 0 | \$0       | \$0 |
| <i>Sandersville</i>             | 5/6/2009   | TSTM Wind | 50 kts.        | 0 | 0 | \$0       | \$0 |
| <i>Sandersville</i>             | 5/15/2009  | TSTM Wind | 50 kts.        | 0 | 0 | \$1,600   | \$0 |
| <i>Sandersville</i>             | 5/18/2010  | TSTM Wind | 60 kts.        | 0 | 0 | \$60,000  | \$0 |
| <i>Sandersville</i>             | 8/3/2010   | TSTM Wind | 52 kts.        | 0 | 0 | \$25,000  | \$0 |
| <i>Sandersville</i>             | 4/11/2011  | TSTM Wind | 52 kts.        | 0 | 0 | \$0       | \$0 |
| <i>Sandersville</i>             | 6/13/2011  | TSTM Wind | 50 kts.        | 0 | 0 | \$100,000 | \$0 |
| <i>Sandersville</i>             | 6/22/2011  | TSTM Wind | 50 kts.        | 0 | 0 | \$25,000  | \$0 |
| <i>Sandersville</i>             | 6/11/2012  | TSTM Wind | 53 kts.        | 0 | 0 | \$10,000  | \$0 |
| <i>Sandersville</i>             | 11/16/2014 | TSTM Wind | 50 kts.        | 0 | 0 | \$2,000   | \$0 |
| <i>Sandersville</i>             | 2/23/2016  | TSTM Wind | 53 kts.        | 0 | 0 | \$2,000   | \$0 |
| <i>Sandersville</i>             | 6/17/2016  | TSTM Wind | 55 kts.        | 0 | 1 | \$75,000  | \$0 |
| <i>Sandersville</i>             | 9/26/2016  | TSTM Wind | 45 kts.        | 0 | 0 | \$9,000   | \$0 |
| <i>Sandersville</i>             | 6/23/2017  | TSTM Wind | 39 kts.        | 0 | 0 | \$5,000   | \$0 |
| <i>Sandersville</i>             | 10/4/2019  | TSTM Wind | 48 kts.        | 0 | 0 | \$25,000  | \$0 |

|                                            |                   |                  |                |          |          |                 |            |
|--------------------------------------------|-------------------|------------------|----------------|----------|----------|-----------------|------------|
| <b>Sandersville</b>                        | <b>6/5/2020</b>   | <b>TSTM Wind</b> | <b>52 kts.</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>  | <b>\$0</b> |
| <b>Sandersville</b>                        | <b>6/10/2023</b>  | <b>TSTM Wind</b> | <b>55 kts.</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b>  | <b>\$0</b> |
| <b>Sandersville</b>                        | <b>7/30/2023</b>  | <b>TSTM Wind</b> | <b>53 kts.</b> | <b>0</b> | <b>0</b> | <b>\$80,000</b> | <b>\$0</b> |
| <b>Sandersville</b>                        | <b>5/13/2024</b>  | <b>TSTM Wind</b> | <b>55 kts.</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>  | <b>\$0</b> |
| <b>Sandersville</b>                        | <b>6/5/2024</b>   | <b>TSTM Wind</b> | <b>52 kts.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      | <b>\$0</b> |
| <b>Sandersville</b>                        | <b>6/26/2024</b>  | <b>TSTM Wind</b> | <b>52 kts.</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>  | <b>\$0</b> |
| <b>The Town of Soso</b>                    |                   |                  |                |          |          |                 |            |
| <b>Soso</b>                                | <b>8/25/2000</b>  | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b>  | <b>\$0</b> |
| <b>Soso</b>                                | <b>1/19/2001</b>  | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>  | <b>\$0</b> |
| <b>Soso</b>                                | <b>3/12/2001</b>  | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$8,000</b>  | <b>\$0</b> |
| <b>Soso</b>                                | <b>5/17/2002</b>  | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>  | <b>\$0</b> |
| <b>Soso</b>                                | <b>7/7/2002</b>   | <b>TSTM Wind</b> | <b>50 kts.</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b>  | <b>\$0</b> |
| <b>Soso</b>                                | <b>7/12/2002</b>  | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$1,500</b>  | <b>\$0</b> |
| <b>Soso</b>                                | <b>7/7/2007</b>   | <b>TSTM Wind</b> | <b>50 kts.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      | <b>\$0</b> |
| <b>Soso</b>                                | <b>3/3/2008</b>   | <b>TSTM Wind</b> | <b>60 kts.</b> | <b>0</b> | <b>0</b> | <b>\$30,000</b> | <b>\$0</b> |
| <b>Soso</b>                                | <b>4/2/2012</b>   | <b>TSTM Wind</b> | <b>50 kts.</b> | <b>0</b> | <b>0</b> | <b>\$7,000</b>  | <b>\$0</b> |
| <b>Soso</b>                                | <b>4/28/2014</b>  | <b>TSTM Wind</b> | <b>60 kts.</b> | <b>0</b> | <b>0</b> | <b>\$50,000</b> | <b>\$0</b> |
| <b>Soso</b>                                | <b>7/22/2014</b>  | <b>TSTM Wind</b> | <b>54 kts.</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>  | <b>\$0</b> |
| <b>Soso</b>                                | <b>3/18/2015</b>  | <b>TSTM Wind</b> | <b>50 kts.</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>  | <b>\$0</b> |
| <b>Soso</b>                                | <b>2/15/2016</b>  | <b>TSTM Wind</b> | <b>50 kts.</b> | <b>0</b> | <b>0</b> | <b>\$4,000</b>  | <b>\$0</b> |
| <b>Soso</b>                                | <b>4/3/2017</b>   | <b>TSTM Wind</b> | <b>52 kts.</b> | <b>0</b> | <b>0</b> | <b>\$25,000</b> | <b>\$0</b> |
| <b>Soso</b>                                | <b>4/13/2019</b>  | <b>TSTM Wind</b> | <b>52 kts.</b> | <b>0</b> | <b>0</b> | <b>\$8,000</b>  | <b>\$0</b> |
| <b>Soso</b>                                | <b>5/25/2022</b>  | <b>TSTM Wind</b> | <b>50 kts.</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>  | <b>\$0</b> |
| <b>Soso</b>                                | <b>6/5/2024</b>   | <b>TSTM Wind</b> | <b>52 kts.</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>  | <b>\$0</b> |
| <b>Unincorporated Area in Jones County</b> |                   |                  |                |          |          |                 |            |
| <b>Countywide</b>                          | <b>4/1/2000</b>   | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b>  | <b>\$0</b> |
| <b>Countywide</b>                          | <b>7/16/2000</b>  | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$4,000</b>  | <b>\$0</b> |
| <b>Countywide</b>                          | <b>7/20/2000</b>  | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$10,000</b> | <b>\$0</b> |
| <b>Countywide</b>                          | <b>10/6/2000</b>  | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$15,000</b> | <b>\$0</b> |
| <b>Countywide</b>                          | <b>2/16/2001</b>  | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>  | <b>\$0</b> |
| <b>Ovett</b>                               | <b>3/2/2001</b>   | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>  | <b>\$0</b> |
| <b>Eastabuchie</b>                         | <b>3/12/2001</b>  | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>  | <b>\$0</b> |
| <b>Countywide</b>                          | <b>8/20/2001</b>  | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$20,000</b> | <b>\$0</b> |
| <b>Ovett</b>                               | <b>1/19/2002</b>  | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>  | <b>\$0</b> |
| <b>Countywide</b>                          | <b>7/1/2002</b>   | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>  | <b>\$0</b> |
| <b>Hebron</b>                              | <b>7/2/2002</b>   | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b>  | <b>\$0</b> |
| <b>Countywide</b>                          | <b>8/25/2002</b>  | <b>TSTM Wind</b> | <b>Unknown</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b>  | <b>\$0</b> |
| <b>Moselle</b>                             | <b>12/24/2002</b> | <b>TSTM Wind</b> | <b>58 kts.</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b>  | <b>\$0</b> |
| <b>Countywide</b>                          | <b>5/17/2003</b>  | <b>TSTM Wind</b> | <b>50 kts.</b> | <b>0</b> | <b>0</b> | <b>\$10,000</b> | <b>\$0</b> |
| <b>Countywide</b>                          | <b>7/22/2003</b>  | <b>TSTM Wind</b> | <b>53 kts.</b> | <b>0</b> | <b>0</b> | <b>\$15,000</b> | <b>\$0</b> |
| <b>Countywide</b>                          | <b>7/30/2003</b>  | <b>TSTM Wind</b> | <b>50 kts.</b> | <b>0</b> | <b>0</b> | <b>\$2,000</b>  | <b>\$0</b> |
| <b>Moselle</b>                             | <b>8/3/2003</b>   | <b>TSTM Wind</b> | <b>50 kts.</b> | <b>0</b> | <b>0</b> | <b>\$3,000</b>  | <b>\$0</b> |
| <b>Ovett</b>                               | <b>8/20/2003</b>  | <b>TSTM Wind</b> | <b>52 kts.</b> | <b>0</b> | <b>0</b> | <b>\$10,000</b> | <b>\$0</b> |
| <b>Countywide</b>                          | <b>11/18/2003</b> | <b>TSTM Wind</b> | <b>55 kts.</b> | <b>0</b> | <b>0</b> | <b>\$10,000</b> | <b>\$0</b> |
| <b>Countywide</b>                          | <b>6/27/2004</b>  | <b>TSTM Wind</b> | <b>53 kts.</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>  | <b>\$0</b> |

|                                  |            |             |         |   |   |           |           |
|----------------------------------|------------|-------------|---------|---|---|-----------|-----------|
| <i>Tuckers Crossing</i>          | 7/15/2004  | TSTM Wind   | 55 kts. | 0 | 0 | \$2,000   | \$0       |
| <i>Countywide</i>                | 7/16/2004  | TSTM Wind   | 53 kts. | 0 | 0 | \$1,000   | \$0       |
| <i>Pine Belt RGNL (PIB)</i>      | 4/30/2005  | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0       |
| <i>County</i>                    | 3/9/2006   | Strong Wind | 45 kts. | 0 | 0 | \$60,000  | \$0       |
| <i>Moselle</i>                   | 5/8/2006   | TSTM Wind   | 55 kts. | 0 | 0 | \$5,000   | \$0       |
| <i>Ovett</i>                     | 8/9/2006   | TSTM Wind   | 53 kts. | 0 | 0 | \$0       | \$0       |
| <i>Hebron</i>                    | 4/14/2007  | TSTM Wind   | 50 kts. | 0 | 0 | \$4,000   | \$0       |
| <i>Countywide</i>                | 6/9/2007   | Strong Wind | 39 kts. | 0 | 0 | \$10      | \$0       |
| <i>Moselle</i>                   | 6/19/2007  | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0       |
| <i>Moselle &amp; Myrick</i>      | 7/10/2007  | TSTM Wind   | 60 kts. | 0 | 0 | \$60,000  | \$0       |
| <i>Countywide</i>                | 7/14/2007  | Strong Wind | 39 kts. | 0 | 0 | \$3,000   | \$0       |
| <i>Reddoch</i>                   | 1/10/2008  | TSTM Wind   | 65 kts. | 0 | 0 | \$200,000 | \$100,000 |
| <i>Moselle</i>                   | 1/31/2008  | TSTM Wind   | 54 kts. | 0 | 0 | \$20,000  | \$0       |
| <i>Moselle, PIB, &amp; Ovett</i> | 2/12/2008  | TSTM Wind   | 70 kts. | 0 | 0 | \$12,000  | \$15,000  |
| <i>Service</i>                   | 3/3/2008   | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0       |
| <i>Moselle &amp; Blodgett</i>    | 5/3/2008   | TSTM Wind   | 65 kts. | 0 | 0 | \$35,000  | \$0       |
| <i>Countywide</i>                | 5/22/2008  | Strong Wind | 41 kts. | 0 | 0 | \$100     | \$0       |
| <i>Tawanta</i>                   | 8/7/2008   | TSTM Wind   | 55 kts. | 0 | 0 | \$0       | \$0       |
| <i>Pine Belt RGNL (PIB)</i>      | 8/12/2008  | TSTM Wind   | 53 kts. | 0 | 0 | \$2,000   | \$0       |
| <i>Hebron &amp; Tuckers</i>      | 11/24/2008 | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0       |
| <i>Tuckers Crossing</i>          | 3/26/2009  | TSTM Wind   | 65 kts. | 0 | 0 | \$80,000  | \$0       |
| <i>Tuckers</i>                   | 4/2/2009   | TSTM Wind   | 50 kts. | 0 | 0 | \$1,500   | \$0       |
| <i>Moselle</i>                   | 4/12/2009  | TSTM Wind   | 61 kts. | 0 | 0 | \$0       | \$0       |
| <i>Reddock &amp; Hebron</i>      | 5/3/2009   | TSTM Wind   | 70 kts. | 1 | 0 | \$335,000 | \$0       |
| <i>Countywide</i>                | 7/28/2009  | Strong Wind | 43 kts. | 0 | 0 | \$2,500   | \$0       |
| <i>Hebron &amp; Oak Bowley</i>   | 8/21/2009  | TSTM Wind   | 56 kts. | 0 | 0 | \$0       | \$0       |
| <i>Oak Bowley &amp; Tuckers</i>  | 12/9/2009  | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0       |
| <i>Ovett, &amp; Moselle</i>      | 5/20/2010  | TSTM Wind   | 52 kts. | 0 | 0 | \$0       | \$0       |
| <i>Lanham</i>                    | 6/1/2010   | TSTM Wind   | 58 kts. | 0 | 0 | \$40,000  | \$0       |
| <i>Hoy</i>                       | 6/5/2010   | TSTM Wind   | 60 kts. | 0 | 0 | \$40,000  | \$0       |
| <i>Tuckers &amp; Errata</i>      | 8/3/2010   | TSTM Wind   | 52 kts. | 0 | 0 | \$5,000   | \$0       |
| <i>Tawanta</i>                   | 8/22/2010  | TSTM Wind   | 60 kts. | 0 | 0 | \$10,000  | \$0       |
| <i>Hoy</i>                       | 10/12/2010 | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0       |
| <i>Tuckers</i>                   | 11/30/2010 | TSTM Wind   | 65 kts. | 0 | 0 | \$50,000  | \$0       |
| <i>Countywide</i>                | 12/12/2010 | Strong Wind | 40 kts. | 0 | 0 | \$25,000  | \$0       |
| <i>Tawanta</i>                   | 4/4/2011   | TSTM Wind   | 70 kts. | 0 | 0 | \$150,000 | \$0       |
| <i>Moselle &amp; Lanham</i>      | 4/15/2011  | TSTM Wind   | 52 kts. | 0 | 0 | \$4,000   | \$0       |
| <i>Moselle</i>                   | 5/13/2011  | TSTM Wind   | 50 kts. | 0 | 0 | \$30,000  | \$10,000  |
| <i>PIB</i>                       | 6/7/2011   | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000   | \$0       |
| <i>Reddoch</i>                   | 7/4/2011   | TSTM Wind   | 60 kts. | 0 | 0 | \$20,000  | \$0       |
| <i>Moselle</i>                   | 7/12/2011  | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000   | \$0       |
| <i>Countywide</i>                | 9/3/2011   | Strong Wind | 35 kts. | 0 | 0 | \$15,000  | \$0       |
| <i>Service</i>                   | 9/4/2011   | TSTM Wind   | 45 kts. | 0 | 0 | \$500     | \$0       |
| <i>Countywide</i>                | 2/23/2012  | Strong Wind | 43 kts. | 0 | 0 | \$10,000  | \$0       |
| <i>Countywide</i>                | 3/20/2012  | Strong Wind | 40 kts. | 0 | 0 | \$10,000  | \$0       |
| <i>Countywide</i>                | 3/21/2012  | Strong Wind | 43 kts. | 0 | 0 | \$1,000   | \$0       |
| <i>Reddoch</i>                   | 4/3/2012   | TSTM Wind   | 50 kts. | 0 | 0 | \$4,000   | \$0       |

|                              |            |             |         |   |   |           |     |
|------------------------------|------------|-------------|---------|---|---|-----------|-----|
| <b>Oak Bowery</b>            | 5/31/2012  | TSTM Wind   | 55 kts. | 0 | 0 | \$40,000  | \$0 |
| <b>Oak Bowery</b>            | 7/7/2012   | TSTM Wind   | 40 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Tawanta &amp; Moselle</b> | 8/6/2012   | TSTM Wind   | 50 kts. | 0 | 0 | \$15,000  | \$0 |
| <b>PIB</b>                   | 8/9/2012   | TSTM Wind   | 50 kts. | 0 | 0 | \$4,000   | \$0 |
| <b>Countywide</b>            | 8/18/2012  | Strong Wind | 43 kts. | 0 | 0 | \$2,000   | \$0 |
| <b>Countywide</b>            | 8/28/2012  | Strong Wind | 40 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Lanham</b>                | 9/4/2012   | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| <b>PIB</b>                   | 4/11/2013  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Service</b>               | 6/5/2013   | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0 |
| <b>Tuckers</b>               | 6/29/2013  | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| <b>Hoy</b>                   | 8/12/2013  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Hoy</b>                   | 9/24/2013  | TSTM Wind   | 40 kts. | 0 | 0 | \$1,000   | \$0 |
| <b>Countywide</b>            | 12/21/2013 | Strong Wind | 40 kts. | 0 | 0 | \$6,000   | \$0 |
| <b>County</b>                | 4/28/2014  | TSTM Wind   | 60 kts. | 0 | 0 | \$38,000  | \$0 |
| <b>Errata</b>                | 6/22/2014  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <b>Blodgett</b>              | 6/28/2014  | TSTM Wind   | 54 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Hebron</b>                | 7/22/2014  | TSTM Wind   | 53 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Service</b>               | 10/2/2014  | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| <b>Tuckers</b>               | 11/16/2014 | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0 |
| <b>Twanta &amp; Lanham</b>   | 12/23/2014 | TSTM Wind   | 52 kts. | 0 | 0 | \$2,200   | \$0 |
| <b>Errata</b>                | 3/18/2015  | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| <b>Myrick</b>                | 5/31/2015  | TSTM Wind   | 50 kts. | 0 | 0 | \$15,000  | \$0 |
| <b>Myrick</b>                | 6/24/2015  | TSTM Wind   | 45 kts. | 0 | 0 | \$2,000   | \$0 |
| <b>Twanta</b>                | 7/4/2015   | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Hoy</b>                   | 7/18/2015  | TSTM Wind   | 39 kts. | 0 | 0 | \$1,000   | \$0 |
| <b>PIB &amp; Ovett</b>       | 7/30/2015  | TSTM Wind   | 40 kts. | 0 | 0 | \$14,000  | \$0 |
| <b>Countywide</b>            | 2/2/2016   | Strong Wind | 35 kts. | 0 | 0 | \$20,000  | \$0 |
| <b>Blodgett</b>              | 2/15/2016  | TSTM Wind   | 50 kts. | 0 | 0 | \$4,000   | \$0 |
| <b>Errata</b>                | 2/23/2016  | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| <b>Moselle</b>               | 3/17/2016  | TSTM Wind   | 58 kts. | 0 | 0 | \$100,000 | \$0 |
| <b>Countywide</b>            | 4/27/2016  | Strong Wind | 35 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Lanham</b>                | 7/6/2016   | TSTM Wind   | 50 kts. | 0 | 0 | \$15,000  | \$0 |
| <b>County</b>                | 7/13/2016  | TSTM Wind   | 50 kts. | 0 | 0 | \$9,000   | \$0 |
| <b>Service</b>               | 9/25/2016  | TSTM Wind   | 46 kts. | 0 | 0 | \$10,000  | \$0 |
| <b>Countywide</b>            | 11/18/2016 | Strong Wind | 34 kts. | 0 | 0 | \$3,000   | \$0 |
| <b>Tuckers</b>               | 11/30/2016 | TSTM Wind   | 45 kts. | 0 | 0 | \$5,000   | \$0 |
| <b>Hoy &amp; Blodgett</b>    | 1/2/2017   | TSTM Wind   | 50 kts. | 0 | 0 | \$18,000  | \$0 |
| <b>County</b>                | 1/21/2017  | TSTM Wind   | 55 kts. | 0 | 0 | \$27,000  | \$0 |
| <b>Tuckers</b>               | 3/27/2017  | TSTM Wind   | 50 kts. | 0 | 0 | \$75,000  | \$0 |
| <b>Lanham</b>                | 4/22/2017  | TSTM Wind   | 50 kts. | 0 | 0 | \$10,000  | \$0 |
| <b>Oak Bowery</b>            | 5/21/2017  | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| <b>Myrick</b>                | 6/13/2017  | TSTM Wind   | 50 kts. | 0 | 0 | \$8,000   | \$0 |
| <b>County</b>                | 6/16/2017  | TSTM Wind   | 65 kts. | 0 | 0 | \$204,000 | \$0 |
| <b>Countywide</b>            | 6/22/2017  | Strong Wind | 35 kts. | 0 | 0 | \$13,000  | \$0 |
| <b>County</b>                | 6/30/2017  | TSTM Wind   | 43 kts. | 0 | 0 | \$29,000  | \$0 |
| <b>Walters</b>               | 8/9/2017   | TSTM Wind   | 50 kts. | 0 | 0 | \$8,000   | \$0 |
| <b>Countywide</b>            | 10/7/2017  | Strong Wind | 35 kts. | 0 | 0 | \$5,000   | \$0 |



|                             |            |             |         |   |   |           |     |
|-----------------------------|------------|-------------|---------|---|---|-----------|-----|
| <i>Moselle</i>              | 4/14/2018  | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>Service</i>              | 5/17/2018  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Lanham</i>               | 5/20/2018  | TSTM Wind   | 50 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Moselle &amp; Lanham</i> | 6/9/2018   | TSTM Wind   | 50 kts. | 0 | 0 | \$11,000  | \$0 |
| <i>Eastabuchie</i>          | 7/19/2018  | TSTM Wind   | 50 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>County</i>               | 7/31/2018  | TSTM Wind   | 50 kts. | 0 | 0 | \$21,000  | \$0 |
| <i>Hoy</i>                  | 8/7/2018   | TSTM Wind   | 39 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Tawanta</i>              | 11/1/2018  | TSTM Wind   | 56 kts. | 0 | 0 | \$20,000  | \$0 |
| <i>Hoy</i>                  | 12/27/2018 | TSTM Wind   | 48 kts. | 0 | 1 | \$200,000 | \$0 |
| <i>County</i>               | 1/19/2019  | TSTM Wind   | 60 kts. | 0 | 0 | \$36,000  | \$0 |
| <i>PIB</i>                  | 1/23/2019  | TSTM Wind   | 55 kts. | 0 | 0 | \$20,000  | \$0 |
| <i>Tuckers</i>              | 3/3/2019   | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Countywide</i>           | 3/10/2019  | Strong Wind | 39 kts. | 0 | 0 | \$8,000   | \$0 |
| <i>Moselle</i>              | 4/18/2019  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Gitano &amp; Errata</i>  | 5/11/2019  | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>PIB</i>                  | 6/7/2019   | TSTM Wind   | 52 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Hoy</i>                  | 6/25/2019  | TSTM Wind   | 43 kts. | 0 | 1 | \$50,000  | \$0 |
| <i>Moselle &amp; PIB</i>    | 7/14/2019  | TSTM Wind   | 50 kts. | 0 | 0 | \$8,000   | \$0 |
| <i>Moselle</i>              | 9/9/2019   | TSTM Wind   | 55 kts. | 0 | 1 | \$15,000  | \$0 |
| <i>Countywide</i>           | 10/26/2019 | Strong Wind | 50 kts. | 0 | 0 | \$50,000  | \$0 |
| <i>Reddoch</i>              | 4/22/2020  | TSTM Wind   | 87 kts. | 0 | 0 | \$50,000  | \$0 |
| <i>Hoy</i>                  | 4/23/2020  | TSTM Wind   | 50kts.  | 0 | 0 | \$15,000  | \$0 |
| <i>Myrick</i>               | 8/2/2020   | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Hoy</i>                  | 3/31/2021  | TSTM Wind   | 52 kts. | 0 | 0 | \$7,000   | \$0 |
| <i>Ovett</i>                | 5/4/2021   | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>Mill Creek</i>           | 6/13/2021  | TSTM Wind   | 53 kts. | 0 | 0 | \$30,000  | \$0 |
| <i>Myrick</i>               | 7/13/2021  | TSTM Wind   | 48 kts. | 0 | 0 | \$20,000  | \$0 |
| <i>Walters</i>              | 1/9/2022   | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Hoy &amp; Moselle</i>    | 3/18/2022  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,500   | \$0 |
| <i>Walters</i>              | 4/5/2022   | TSTM Wind   | 55 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Hoy &amp; Errata</i>     | 4/17/2022  | TSTM Wind   | 78 kts. | 0 | 0 | \$30,000  | \$0 |
| <i>Moselle</i>              | 5/21/2022  | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Tawamta &amp; PIB</i>    | 5/25/2022  | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Service</i>              | 6/10/2022  | TSTM Wind   | 52 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Tuckers</i>              | 7/21/2022  | TSTM Wind   | 40 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>Mill Creek</i>           | 11/29/2022 | TSTM Wind   | 55 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>PIB</i>                  | 1/3/2023   | TSTM Wind   | 52 kts. | 0 | 0 | \$15,000  | \$0 |
| <i>Tuckers</i>              | 5/11/2023  | TSTM Wind   | 52 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>Gitano</i>               | 6/10/2023  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>Moselle</i>              | 6/14/2023  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>County</i>               | 6/16/2023  | TSTM Wind   | 65 kts. | 0 | 0 | \$254,000 | \$0 |
| <i>Tuckers</i>              | 6/17/2023  | TSTM Wind   | 55 kts. | 0 | 0 | \$17,000  | \$0 |
| <i>Union Line</i>           | 6/25/2023  | TSTM Wind   | 65 kts. | 0 | 2 | \$150,000 | \$0 |
| <i>Moselle</i>              | 7/5/2023   | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>Ovett</i>                | 7/12/2023  | TSTM Wind   | 53 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>Tuckers</i>              | 7/22/2023  | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>County</i>               | 7/30/2023  | TSTM Wind   | 50 kts. | 0 | 0 | \$22,000  | \$0 |

|                   |                  |                    |                |          |          |                 |                |
|-------------------|------------------|--------------------|----------------|----------|----------|-----------------|----------------|
| <b>Moselle</b>    | <b>1/9/2024</b>  | <b>TSTM Wind</b>   | <b>50 kts.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      | <b>\$5,000</b> |
| <b>County</b>     | <b>4/3/2024</b>  | <b>Strong Wind</b> | <b>43 kts.</b> | <b>0</b> | <b>0</b> | <b>\$50,000</b> | <b>\$0</b>     |
| <b>Hoy</b>        | <b>4/10/2024</b> | <b>TSTM Wind</b>   | <b>55 kts.</b> | <b>0</b> | <b>0</b> | <b>\$5,000</b>  | <b>\$0</b>     |
| <b>Hesler FLD</b> | <b>7/17/2024</b> | <b>TSTM Wind</b>   | <b>42 kts.</b> | <b>0</b> | <b>0</b> | <b>\$500</b>    | <b>\$0</b>     |
| <b>Service</b>    | <b>8/28/2024</b> | <b>TSTM Wind</b>   | <b>45 kts.</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>  | <b>\$0</b>     |

Source: NCED/NOAA

## Hailstorm

According to the National Centers for Environmental Information, 112 recorded hailstorm events have affected Jones County since 2000. **Table E.18** is a summary of the hail events in Jones County. **Table E.19** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over \$3.5 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.

## Lightning

According to the National Centers for Environmental Information, there have been 21 recorded lightning events in Jones County since 2008. These events resulted in almost \$1M in damages as listed in summary **Table E.18**. 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 E.19**.

**TABLE E.18: SUMMARY OF HAIL AND LIGHTNING OCCURRENCES IN JONES DAVIS COUNTY**

| <b>Location</b>            | <b>Number of Occurrences</b> | <b>Deaths</b> | <b>Injuries</b> | <b>Property Damage</b> | <b>Crop Damage</b> |
|----------------------------|------------------------------|---------------|-----------------|------------------------|--------------------|
| <b>Ellisville</b>          | 13                           | 0             | 1               | \$217,000              | \$0                |
| <b>Laurel</b>              | 32                           | 0             | 0               | \$265,500              | \$0                |
| <b>Sandersville</b>        | 15                           | 0             | 0               | \$27,000               | \$0                |
| <b>Soso</b>                | 7                            | 0             | 0               | \$950,000              | \$0                |
| <b>Unincorporated Area</b> | 66                           | 0             | 1               | \$2,958,500            | \$3,000            |
| <b>County Total:</b>       | <b>133</b>                   | <b>0</b>      | <b>2</b>        | <b>\$4,417,000</b>     | <b>\$3,000</b>     |

Source: NCED/NOAA

## Fog

According to the Natural Centers for Environmental Information, there has been 1 dense fog incident in Jones County. The event resulted in approximately \$750,000 in damages and 21 injuries, due to a 20-vehicle crash that was caused by the fog. It is possible that more fog related incidents could occur as the climate continues to change. According to NCDC/NOAA:

**February 21, 2024**—Dense fog and smoke combined to reduce visibility to near-zero in parts of the area on the morning of February 21st. A 20-vehicle crash occurred near the intersection of US Highway 84 and Ben Pitts Road, including multiple 18-wheeler trucks and a loaded log truck which spilled its contents across the roadway. The crash resulted in 21 injuries and a road closure which lasted for several hours.

**TABLE E.19: HISTORICAL HAIL AND LIGHTNING OCCURRENCES IN JONES COUNTY**

| <b>Location</b>           | <b>Date</b>       | <b>Type</b> | <b>Magnitude</b> | <b>Deaths</b> | <b>Injuries</b> | <b>Property Damage</b> | <b>Crop Damage</b> |
|---------------------------|-------------------|-------------|------------------|---------------|-----------------|------------------------|--------------------|
| <b>City of Ellisville</b> |                   |             |                  |               |                 |                        |                    |
| <b>Ellisville</b>         | <b>11/29/2001</b> | <b>Hail</b> | <b>1.75 in.</b>  | <b>0</b>      | <b>0</b>        | <b>\$20,000</b>        | <b>\$0</b>         |

|                       |            |           |          |   |   |           |     |
|-----------------------|------------|-----------|----------|---|---|-----------|-----|
| Ellisville            | 3/12/2003  | Hail      | 1 in.    | 0 | 0 | \$1,000   | \$0 |
| Ellisville            | 3/13/2003  | Hail      | 0.75 in. | 0 | 0 | \$1,000   | \$0 |
| Ellisville            | 4/22/2005  | Hail      | 1.75 in. | 0 | 0 | \$100,000 | \$0 |
| Ellisville            | 2/3/2006   | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| Ellisville            | 7/28/2006  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| Ellisville            | 3/21/2012  | Lightning | --       | 0 | 0 | \$50,000  | \$0 |
| Ellisville            | 7/31/2012  | Lightning | --       | 0 | 1 | \$0       | \$0 |
| Ellisville            | 8/9/2012   | Lightning | --       | 0 | 0 | \$25,000  | \$0 |
| Ellisville            | 2/10/2013  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| Ellisville            | 3/23/2013  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| Ellisville            | 3/3/2016   | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| Ellisville            | 8/2/2020   | Hail      | 2 in.    | 0 | 0 | \$20,000  | \$0 |
| <b>City of Laurel</b> |            |           |          |   |   |           |     |
| Laurel                | 4/1/2000   | Hail      | 1.75 in. | 0 | 0 | \$25,000  | \$0 |
| Laurel                | 7/17/2000  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| Laurel                | 8/10/2000  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| Laurel                | 8/31/2000  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| Laurel                | 7/7/2002   | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| Laurel                | 7/15/2002  | Hail      | 1 in.    | 0 | 0 | \$500     | \$0 |
| Laurel                | 11/15/2002 | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| Laurel                | 4/6/2003   | Hail      | 1.75 in. | 0 | 0 | \$5,000   | \$0 |
| Laurel                | 4/6/2003   | Hail      | 1 in.    | 0 | 0 | \$1,000   | \$0 |
| Laurel                | 5/14/2003  | Hail      | 0.75 in. | 0 | 0 | \$1,000   | \$0 |
| Laurel                | 3/22/2005  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| Laurel                | 4/22/2005  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| Laurel                | 4/26/2005  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| Laurel                | 5/9/2006   | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| Laurel                | 6/23/2006  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| Laurel                | 4/14/2007  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| Laurel                | 8/7/2008   | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| Laurel                | 12/10/2008 | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| Laurel                | 5/10/2009  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| Laurel                | 3/12/2010  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| Laurel                | 7/4/2011   | Hail      | 1 in.    | 0 | 0 | \$5,000   | \$0 |
| Laurel                | 4/3/2012   | Lightning | --       | 0 | 0 | \$75,000  | \$0 |
| Laurel                | 7/13/2012  | Lightning | --       | 0 | 0 | \$5,000   | \$0 |
| Laurel                | 8/6/2012   | Lightning | --       | 0 | 0 | \$10,000  | \$0 |
| Laurel                | 8/9/2012   | Lightning | --       | 0 | 0 | \$15,000  | \$0 |
| Laurel                | 2/20/2014  | Lightning | --       | 0 | 0 | \$20,000  | \$0 |
| Laurel                | 6/30/2015  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| Laurel                | 5/16/2018  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| Laurel                | 12/16/2019 | Hail      | 1.25 in. | 0 | 0 | \$3,000   | \$0 |
| Laurel                | 1/3/2023   | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| Laurel                | 4/3/2023   | Hail      | 1 in.    | 0 | 0 | \$100,000 | \$0 |
| Laurel                | 6/19/2023  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |

### Town of Sandersville

|              |           |      |          |   |   |          |     |
|--------------|-----------|------|----------|---|---|----------|-----|
| Sandersville | 3/14/2003 | Hail | 0.75 in. | 0 | 0 | \$1,000  | \$0 |
| Sandersville | 4/25/2003 | Hail | 0.75 in. | 0 | 0 | \$1,000  | \$0 |
| Sandersville | 7/15/2004 | Hail | 1 in.    | 0 | 0 | \$0      | \$0 |
| Sandersville | 3/30/2005 | Hail | 0.88 in. | 0 | 0 | \$0      | \$0 |
| Sandersville | 4/26/2005 | Hail | 1 in.    | 0 | 0 | \$0      | \$0 |
| Sandersville | 4/11/2008 | Hail | 0.75 in. | 0 | 0 | \$0      | \$0 |
| Sandersville | 6/1/2008  | Hail | 1 in.    | 0 | 0 | \$0      | \$0 |
| Sandersville | 5/20/2010 | Hail | 1.25 in. | 0 | 0 | \$0      | \$0 |
| Sandersville | 8/3/2010  | Hail | 1 in.    | 0 | 0 | \$0      | \$0 |
| Sandersville | 6/13/2011 | Hail | 1 in.    | 0 | 0 | \$25,000 | \$0 |
| Sandersville | 3/31/2016 | Hail | 1 in.    | 0 | 0 | \$0      | \$0 |
| Sandersville | 4/14/2016 | Hail | 1 in.    | 0 | 0 | \$0      | \$0 |
| Sandersville | 5/24/2020 | Hail | 1 in.    | 0 | 0 | \$0      | \$0 |
| Sandersville | 3/31/2021 | Hail | 1 in.    | 0 | 0 | \$0      | \$0 |
| Sandersville | 6/26/2024 | Hail | 1 in.    | 0 | 0 | \$0      | \$0 |

### Town of Soso

|      |           |      |          |   |   |           |     |
|------|-----------|------|----------|---|---|-----------|-----|
| Soso | 4/6/2005  | Hail | 1 in.    | 0 | 0 | \$0       | \$0 |
| Soso | 4/22/2005 | Hail | 0.75 in. | 0 | 0 | \$0       | \$0 |
| Soso | 4/22/2005 | Hail | 2.75 in. | 0 | 0 | \$800,000 | \$0 |
| Soso | 2/3/2006  | Hail | 1 in.    | 0 | 0 | \$0       | \$0 |
| Soso | 5/9/2006  | Hail | 1 in.    | 0 | 0 | \$0       | \$0 |
| Soso | 4/28/2014 | Hail | 1 in.    | 0 | 0 | \$0       | \$0 |
| Soso | 3/26/2023 | Hail | 1 in.    | 0 | 0 | \$150,000 | \$0 |

### Unincorporated Area in Jones County

|                  |           |           |          |   |   |          |     |
|------------------|-----------|-----------|----------|---|---|----------|-----|
| Hebron           | 1/9/2000  | Hail      | 0.88 in. | 0 | 0 | \$0      | \$0 |
| Ovett            | 3/3/2000  | Hail      | 1 in.    | 0 | 0 | \$0      | \$0 |
| Ovett            | 3/1/2001  | Hail      | 0.88 in. | 0 | 0 | \$0      | \$0 |
| Moselle          | 3/12/2002 | Hail      | 0.75 in. | 0 | 0 | \$0      | \$0 |
| Eastabuchie      | 3/6/2003  | Hail      | 0.88 in. | 0 | 0 | \$1,000  | \$0 |
| Moselle          | 4/25/2003 | Hail      | 1 in.    | 0 | 0 | \$1,000  | \$0 |
| Oak Boweryy      | 3/26/2005 | Hail      | 1.75 in. | 0 | 0 | \$20,000 | \$0 |
| Ovett            | 3/30/2005 | Hail      | 1.75 in. | 0 | 0 | \$10,000 | \$0 |
| Moselle          | 3/31/2005 | Hail      | 1 in.    | 0 | 0 | \$15,000 | \$0 |
| Ovett            | 3/31/2005 | Hail      | 1.75 in. | 0 | 0 | \$0      | \$0 |
| Moselle          | 4/22/2005 | Hail      | 0.75 in. | 0 | 0 | \$0      | \$0 |
| Hebron           | 3/20/2006 | Hail      | 1 in.    | 0 | 0 | \$0      | \$0 |
| Moselle          | 5/8/2006  | Hail      | 1.50 in. | 0 | 0 | \$50,000 | \$0 |
| Ovett            | 4/14/2007 | Hail      | 1 in.    | 0 | 0 | \$0      | \$0 |
| Moselle          | 1/10/2008 | Hail      | 1.75 in. | 0 | 0 | \$70,000 | \$0 |
| Ovett            | 1/10/2008 | Hail      | 0.75 in. | 0 | 0 | \$0      | \$0 |
| Tuckers Crossing | 2/12/2008 | Hail      | 0.75 in. | 0 | 0 | \$0      | \$0 |
| Moselle          | 3/3/2008  | Hail      | 1 in.    | 0 | 0 | \$0      | \$0 |
| Ovett            | 3/3/2008  | Lightning | --       | 0 | 0 | \$10,000 | \$0 |

|                      |            |           |          |   |   |           |         |
|----------------------|------------|-----------|----------|---|---|-----------|---------|
| Blodgett             | 4/4/2008   | Hail      | 1 in.    | 0 | 0 | \$0       | \$0     |
| Reddoch              | 12/10/2008 | Hail      | 1.75 in. | 0 | 0 | \$0       | \$0     |
| Service              | 3/27/2009  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0     |
| Ovett                | 3/27/2009  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0     |
| Eastabuchie          | 5/5/2009   | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0     |
| Tuckers              | 12/9/2009  | Hail      | 1.25 in. | 0 | 0 | \$0       | \$0     |
| Oak Bowery           | 3/12/2010  | Hail      | 1 in.    | 0 | 1 | \$0       | \$0     |
| Oak Bowery           | 3/12/2010  | Hail      | 1.75 in. | 0 | 0 | \$4,000   | \$0     |
| Tawanta              | 5/20/2010  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0     |
| PIB                  | 5/20/2010  | Lightning | --       | 0 | 0 | \$100,000 | \$0     |
| Reddoch              | 5/20/2010  | Lightning | --       | 0 | 0 | \$80,000  | \$0     |
| Lanham               | 6/1/2010   | Hail      | 1.25 in. | 0 | 0 | \$0       | \$0     |
| Ovett                | 4/15/2011  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0     |
| Tawamta              | 5/13/2011  | Hail      | 1.75 in. | 0 | 0 | \$50,000  | \$0     |
| Servoce              | 3/21/2012  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0     |
| Hoy                  | 4/5/2012   | Hail      | 1 in.    | 0 | 0 | \$0       | \$0     |
| Hoy                  | 7/31/2012  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0     |
| Hoy                  | 7/31/2012  | Hail      | 1.75 in. | 0 | 0 | \$10,000  | \$0     |
| Lanham               | 9/4/2012   | Hail      | 1 in.    | 0 | 0 | \$0       | \$0     |
| Gitano               | 3/18/2013  | Hail      | 1.75 in. | 0 | 0 | \$500,000 | \$0     |
| Service              | 8/12/2013  | Lightning | --       | 0 | 0 | \$5,000   | \$0     |
| Gitano               | 12/23/2014 | Hail      | 1 in.    | 0 | 0 | \$0       | \$0     |
| Myrick               | 3/26/2015  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0     |
| Errata               | 8/21/2015  | Lightning | --       | 0 | 0 | \$50,000  | \$0     |
| Tawanta              | 3/17/2016  | Hail      | 1.75 in. | 0 | 0 | \$6,000   | \$0     |
| PIB                  | 4/14/2016  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0     |
| Tuckers              | 8/4/2016   | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0     |
| Ovett                | 9/25/2016  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0     |
| Lanham               | 4/14/2018  | Lightning | --       | 0 | 0 | \$5,000   | \$0     |
| Moselle              | 6/9/2018   | Hail      | 0.75 in. | 0 | 0 | \$1,000   | \$0     |
| Moselle              | 6/9/2018   | Lightning | --       | 0 | 0 | \$50,000  | \$1,000 |
| Servoce              | 6/30/2018  | Hail      | 0.88 in. | 0 | 0 | \$500     | \$2,000 |
| Oak Bowery           | 7/31/2018  | Lightning | --       | 0 | 0 | \$300,000 | \$0     |
| Hoy                  | 8/10/2018  | Lightning | --       | 0 | 1 | \$0       | \$0     |
| Tawanta              | 12/27/2018 | Lightning | --       | 0 | 0 | \$30,000  | \$0     |
| Hoy                  | 4/7/2019   | Lightning | --       | 0 | 0 | \$50,000  | \$0     |
| Service              | 3/4/2020   | Hail      | 2.50 in. | 0 | 0 | \$500,000 | \$0     |
| Moselle              | 4/17/2022  | Hail      | 1 in.    | 0 | 0 | \$10,000  | \$0     |
| Myrick               | 8/16/2022  | Hail      | 1.25 in. | 0 | 0 | \$100,000 | \$0     |
| Service and Hoy      | 1/3/2023   | Hail      | 1 in.    | 0 | 0 | \$0       | \$0     |
| Hoy                  | 4/3/2023   | Hail      | 1.25 in. | 0 | 0 | \$200,000 | \$0     |
| Hoy                  | 6/16/2023  | Lightning | --       | 0 | 0 | \$5,000   | \$0     |
| Ovett and Mill Creek | 6/18/2023  | Hail      | 1 in.    | 0 | 0 | \$100,000 | \$0     |
| Twanta               | 6/19/2023  | Hail      | 1.5 in.  | 0 | 0 | \$200,000 | \$0     |
| Walters              | 12/10/2023 | Hail      | 1 in.    | 0 | 0 | \$250,000 | \$0     |
| Errata               | 2/12/2024  | Hail      | 1 in.    | 0 | 0 | \$150,000 | \$0     |
| Service              | 5/10/2024  | Lightning | --       | 0 | 0 | \$25,000  | \$0     |



Source: NCED/NOAA

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. 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.

Fog

Though there are not a high number of historical events in Jones County that include dense fog, it is possible that fog events could worsen as the climate continues to change which could increase events due to low visibility (1-100 percent of annual probability). Meteorologists predict that thunderstorms will continue to increase in frequency, magnitude, and intensity as climate change continues to effect weather. These increases could greatly impact the county with more crop and property damage and life safety. If these storms intensify it could also affect the economy of the county.

E.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 six disaster declarations in Jones County in 1971, 1973, 1987, 1990, 2001, and 2014. According to the National Centers for Environmental Information, there have been a total of 46 recorded tornado events in Jones County since 2000 (Table E.20), resulting in over \$40 million in property damages. In addition, 6 fatalities and 119 injuries were reported. The magnitude of these tornadoes ranges from F0 to EF4 in intensity, although an F5 event is possible. Detailed information on historic tornado events can be found in Table E.21.

TABLE E.20: SUMMARY OF TORNADO OCCURRENCES IN JONES COUNTY

| Location | Number of Occurrences | Deaths | Injuries | Property Damage | Crop Damage |
|----------|-----------------------|--------|----------|-----------------|-------------|
|----------|-----------------------|--------|----------|-----------------|-------------|

|                            |           |          |            |                     |                    |
|----------------------------|-----------|----------|------------|---------------------|--------------------|
| <i>Ellisville</i>          | 4         | 0        | 0          | \$16,000            | \$0                |
| <i>Laurel</i>              | 5         | 0        | 2          | \$4,275,000         | \$0                |
| <i>Sandersville</i>        | 1         | 0        | 0          | \$5,000             | \$0                |
| <i>Soso</i>                | 2         | 0        | 0          | \$175,000           | \$0                |
| <i>Unincorporated Area</i> | 34        | 6        | 117        | \$31,490,000        | \$4,450,000        |
| <b>Jones County Total:</b> | <b>46</b> | <b>6</b> | <b>119</b> | <b>\$35,961,000</b> | <b>\$4,450,000</b> |

Source: NCED/NOAA

TABLE E.21: HISTORICAL TORNADO IMPACTS IN JONES COUNTY

| Location                                   | Date       | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|--------------------------------------------|------------|-----------|--------|----------|-----------------|-------------|
| <b>City of Ellisville</b>                  |            |           |        |          |                 |             |
| <i>Ellisville</i>                          | 2/16/2001  | F0        | 0      | 0        | \$1,000         | \$0         |
| <i>Ellisville</i>                          | 1/13/2001  | F0        | 0      | 0        | \$0             | \$0         |
| <i>Ellisville</i>                          | 11/27/2003 | F1        | 0      | 0        | \$5,000         | \$0         |
| <i>Ellisville</i>                          | 2/20/2014  | EF0       | 0      | 0        | \$10,000        | \$0         |
| <b>City of Laurel</b>                      |            |           |        |          |                 |             |
| <i>Laurel</i>                              | 6/13/2001  | F0        | 0      | 0        | \$0             | \$0         |
| <i>Laurel</i>                              | 10/13/2001 | F0        | 0      | 0        | \$25,000        | \$0         |
| <i>Laurel</i>                              | 3/15/2002  | F1        | 0      | 0        | \$3,250,000     | \$0         |
| <i>Laurel</i>                              | 11/15/2006 | F1        | 0      | 0        | \$0             | \$0         |
| <i>Laurel</i>                              | 12/16/2019 | EF3       | 0      | 2        | \$1,000,000     | \$0         |
| <b>Town of Sandersville</b>                |            |           |        |          |                 |             |
| <i>Sandersville</i>                        | 9/2/2008   | EF0       | 0      | 0        | \$5,000         | \$0         |
| <b>Town of Soso</b>                        |            |           |        |          |                 |             |
| <i>Soso</i>                                | 3/20/2006  | F1        | 0      | 0        | \$100,000       | \$0         |
| <i>Soso</i>                                | 1/5/2007   | F1        | 0      | 0        | \$75,000        | \$0         |
| <b>Unincorporated Area in Jones County</b> |            |           |        |          |                 |             |
| <i>Moselle</i>                             | 5/17/2003  | F1        | 0      | 0        | \$30,000        | \$0         |
| <i>Moselle</i>                             | 3/22/2005  | F1        | 0      | 0        | \$800,000       | \$0         |
| <i>Hebron</i>                              | 3/20/2006  | F0        | 0      | 0        | \$20,000        | \$0         |
| <i>Tuckers Crossing</i>                    | 11/15/2006 | F3        | 0      | 1        | \$1,700,000     | \$0         |
| <i>Oak Bowery</i>                          | 4/14/2007  | EF0       | 0      | 0        | \$0             | \$0         |
| <i>Service</i>                             | 12/20/2007 | EF2       | 0      | 2        | \$450,000       | \$0         |
| <i>Hebron</i>                              | 9/2/2008   | EF0       | 0      | 0        | \$80,000        | \$0         |
| <i>Walters</i>                             | 12/10/2008 | EF1       | 0      | 0        | \$250,000       | \$0         |
| <i>Reddoch</i>                             | 3/26/2009  | EF2       | 0      | 0        | \$800,000       | \$150,000   |
| <i>PIB</i>                                 | 5/20/2010  | EF0       | 0      | 0        | \$40,000        | \$0         |
| <i>Truckers Crossing</i>                   | 11/20/2010 | EF0       | 0      | 0        | \$70,000        | \$0         |
| <i>Service</i>                             | 4/26/2011  | EF1       | 0      | 0        | \$180,000       | \$0         |

|                   |                   |            |          |           |                     |                    |
|-------------------|-------------------|------------|----------|-----------|---------------------|--------------------|
| <b>Hebron</b>     | <b>11/16/2011</b> | <b>EF1</b> | <b>0</b> | <b>0</b>  | <b>\$50,000</b>     | <b>\$0</b>         |
| <b>Service</b>    | <b>11/16/2011</b> | <b>EF2</b> | <b>0</b> | <b>15</b> | <b>\$400,000</b>    | <b>\$0</b>         |
| <b>Reddoch</b>    | <b>3/21/2012</b>  | <b>EF0</b> | <b>0</b> | <b>0</b>  | <b>\$25,000</b>     | <b>\$0</b>         |
| <b>Myrick</b>     | <b>12/9/2012</b>  | <b>EF0</b> | <b>0</b> | <b>0</b>  | <b>\$1,000</b>      | <b>\$0</b>         |
| <b>Ovett</b>      | <b>12/25/2012</b> | <b>EF1</b> | <b>0</b> | <b>0</b>  | <b>\$50,000</b>     | <b>\$0</b>         |
| <b>PIB</b>        | <b>2/20/2014</b>  | <b>EF1</b> | <b>0</b> | <b>0</b>  | <b>\$400,000</b>    | <b>\$0</b>         |
| <b>Gitano</b>     | <b>4/7/2014</b>   | <b>EF0</b> | <b>0</b> | <b>0</b>  | <b>\$10,000,000</b> | <b>\$0</b>         |
| <b>Errata</b>     | <b>4/28/2014</b>  | <b>EF3</b> | <b>0</b> | <b>15</b> | <b>1,500,000</b>    | <b>\$300,000</b>   |
| <b>Mill Creek</b> | <b>11/16/2014</b> | <b>EF1</b> | <b>0</b> | <b>0</b>  | <b>\$45,000</b>     | <b>\$0</b>         |
| <b>Service</b>    | <b>12/23/2014</b> | <b>EF2</b> | <b>2</b> | <b>0</b>  | <b>\$2,200,000</b>  | <b>\$0</b>         |
| <b>Lanhame</b>    | <b>7/22/2016</b>  | <b>EF0</b> | <b>0</b> | <b>0</b>  | <b>\$45,000</b>     | <b>\$0</b>         |
| <b>Gitano</b>     | <b>1/22/2018</b>  | <b>EF0</b> | <b>0</b> | <b>0</b>  | <b>\$15,000</b>     | <b>\$0</b>         |
| <b>Hebron</b>     | <b>4/12/2020</b>  | <b>EF4</b> | <b>4</b> | <b>80</b> | <b>\$11,800,000</b> | <b>\$3,000,000</b> |
| <b>Gitano</b>     | <b>4/12/2020</b>  | <b>EF1</b> | <b>0</b> | <b>0</b>  | <b>\$20,000</b>     | <b>\$1,000,000</b> |
| <b>Service</b>    | <b>4/23/2020</b>  | <b>EF2</b> | <b>0</b> | <b>0</b>  | <b>\$300,000</b>    | <b>\$0</b>         |
| <b>Hebron</b>     | <b>4/5/2022</b>   | <b>EF0</b> | <b>0</b> | <b>0</b>  | <b>\$1,000</b>      | <b>\$0</b>         |
| <b>Lanham</b>     | <b>4/5/2022</b>   | <b>EF1</b> | <b>0</b> | <b>0</b>  | <b>\$50,000</b>     | <b>\$0</b>         |
| <b>Oak Bowery</b> | <b>4/13/2022</b>  | <b>EF1</b> | <b>0</b> | <b>0</b>  | <b>\$75,000</b>     | <b>\$0</b>         |
| <b>Hoy</b>        | <b>4/17/2022</b>  | <b>EF1</b> | <b>0</b> | <b>0</b>  | <b>\$3,000</b>      | <b>\$0</b>         |
| <b>Ovett</b>      | <b>12/14/2022</b> | <b>EF1</b> | <b>0</b> | <b>0</b>  | <b>\$20,000</b>     | <b>\$0</b>         |
| <b>Errata</b>     | <b>1/3/2023</b>   | <b>EF1</b> | <b>0</b> | <b>0</b>  | <b>\$50,000</b>     | <b>\$0</b>         |

Source: NCED/NOAA

Anecdotes are available from NCEI for the tornadoes that have impacted that area as found below:

**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.

**March 15, 2002**—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 Laurel. West Jones County High School and Middle School sustained significant, structural damage. Most of the roof had collapsed, along with other structural damage which made the facility inhabitable. Damage costs to the school alone exceeded 2.5 million dollars, per one county official. One home and one mobile home were also destroyed. Otherwise, ten to twelve homes sustained major damage along with several trees that were uprooted by the tornado.

**November 15, 2006**—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, F 0 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. The total path length across Jones and Wayne Counties was 17 miles.

**March 26, 2009**—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. The maximum winds were around 125 mph.

**April 7, 2014**—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 damage 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. The total path length was 16.5 miles. The maximum winds were around 125 mph.

**April 28, 2014**—This tornado developed just to the west of Interstate 59 southwest of Sandersville. The tornado crossed the interstate into areas along Dogwood Trail and Magnolia Roads, snapping hundreds of trees and heavily damaging 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. The total path length was almost 11 miles. Maximum winds were around 145 mph.

**December 23, 2014**—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, its width and intensity increased. 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 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 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.

**December 16, 2019**—This tornado touched down over the Hesler-Noble Airfield and quickly moved northeast across Hillcrest Drive and into downtown Laurel. Through town, the tornado produced a continuous path of snapped and uprooted trees, broken tree limbs, and minor structural damage to homes and businesses. As it crossed North 16th Avenue, it produced more



significant damage to several businesses and a hotel, including briefly lifting the roof of the Super 8, collapsing portions of a small strip mall and standalone office building, and causing damage to the exterior and roofing of the Piggly Wiggly. A semi-truck and flatbed trailer carrying automobiles were also overturned in this area. The tornado continued to damage or blow down trees as it passed through the neighborhoods and the warehouse district of downtown, with several trees falling onto and damaging homes and cars. The Nora Davis Magnet School sustained heavy roof damage and a nearby home lost its entire roof and carport as the tornado crossed Interstate 59 and moved east of Laurel. It was in this area that the most intense damage occurred and was rated at EF3. A few electrical transmission trusses were collapsed, and the Wade Services manufacturing plant took a direct hit and experienced a total collapse of its structures. The tornado remained east of US Highway 11 as it crossed through Erata and Sandersville, causing a continuous path and uprooted trees. It briefly passed through the far northwestern corner of Wayne County northwest of Eucutta and then crossed into southern Clarke County near County Road 230. Damage to many trees and a few homes occurred as it continued northeast across US Highway 45 and into Alabama where MS Highway 18 meets the state line near Hinton, Alabama. Two mobile homes in southern Clarke County were rolled and severely damaged, and two single family homes in the county experienced severe roof damage. Residents in both mobile homes received advance warning of the tornado and were able to shelter in another location before it hit. The tornado continued into Alabama before it dissipated. Two very minor injuries occurred in Sandersville during the tornado from debris. A third injury occurred three days later on the 19th when a man was cleaning up after the tornado. A cracked tree fell on him and broke his jaw. Maximum winds were 140 mph. Total path length was 51.48 miles in Mississippi but 61.34 miles total.

**April 12, 2020**—This violent, deadly tornado traveled 68 miles through parts of five counties including southeastern Jefferson Davis, central Covington, northwestern Jones, southeastern Jasper, and western Clarke counties. Locations impacted by this tornado include Bassfield, the areas between Collins and Seminary, Soso, Moss, Heidelberg, and Pachuta. This tornado is preliminarily rated EF4 with an estimated peak wind of 190 MPH east of Bassfield in southwestern Jefferson Davis County. Additional EF4 damage was noted near Soso in Jones County and at Moss in Jasper County. The maximum path width was 2.25 miles in the vicinity of Hughes Road west of Seminary in western Covington County. At this width, the tornado ranks 3rd widest in the official NOAA United States tornado database behind the El Reno, OK tornado of 2013 (2.6 mi) and the Hallam, NE tornado of 2004 (2.5 mi). This tornado now ranks as the widest on record in the state of Mississippi, surpassing the Yazoo City, MS tornado of 2010 (1.75 mi). Eight lives were lost in this tornado, and there was an undetermined number of additional injuries. Additional details on the damage path and area of most significant damage follow.

The tornado began south of Bassfield along Bassfield Cemetery Road, uprooting trees and resulting in relatively minor structural damage. As it proceeded northeastward, the diameter of the wind field steadily increased and the percentage of snapped trees in the center of the vortex increased considerably as the tornado approached MS Highway 42. At this location, two homes sustained major roof damage. Tornado intensity then began to increase quickly, with EF3 damage as it crossed Hosey Mikell Road, completely demolishing a mobile home and scattering the debris field over 300 yards downwind. Tree damage also ramped up significantly beyond this location, with low end EF4 damage in a narrow swath of nearly complete tree destruction along the center of the tornado vortex and increasing instances of debarking of trees as the tornado moved across Pitts Lane and Reese Road.

Outside of this most intense corridor of tornadic winds, EF1 and EF2 damage to trees and structures was occurring over a wide area, up one mile wide. In addition, both ground surveys and aerial photography indicated the presence of multiple vortices at times. Intense damage continued as the tornado crossed the intersection of Graves Key Road and Harper Road, where a cinder block small business building was destroyed, with much of the slab swept clean. Four fatalities occurred at this location. Nearby, a mobile home was completely destroyed, with the undercarriage wrapped around the small set of trees that remained standing downwind. Debarking of some trees was again noted and continued along the tornado path across Claude Booth Road. The tornado reached its peak intensity as it moved across a field north of Graves Key Road. At this location, the foundation of a wood frame and metal roof cabin was swept clean. A truck parked at this cabin was tossed approximately 300 yards downwind, and trees that remained standing at this site were partially debarked. Though the path of the intense tornado vortex through the field surrounding this cabin was clearly visible, significant scouring was not noted.

The tornado continued to remain violent and grow in size, nearly 1.5 miles wide, as it crossed Good Hope Road and continued to track toward the Bouie River. Here, a large swath of extreme tree damage was noted as the whole forest was leveled. An intense core of the tornado was evident by debarking of trees along a well-defined center line or sub-vortex feature.

Extreme debarking was noted around Willie Fortenberry Road. In this general area, several farmers reported roughly 60 cattle were killed by the tornado. The tornado grew larger as it entered Covington County and peaked in width in the vicinity of Hughes



Road. Maximum width was measured at 2.25 miles. The incredible expansive tree damage continued along the path with millions of trees damaged. Several dozen structures were damaged or destroyed between McGowen Circle to US 49. Numerous chicken houses (23-30) were destroyed here as well. A section of Cold Springs Road looked to see another sub-vortex and it was here another area of EF4 damage occurred to a home.

As the tornado crossed US 49, the width decreased to 1.7 miles, but it remained quite strong with mid to upper end EF3 damage noted. Extreme tree damage persisted in large swaths along the path. In addition, a few dozen structures were damaged between US 49 and MS Highway 588. This consisted of varying degrees of damage from EF1 to EF3 levels. The tornado entered northwestern Jones County near the Centerville community where several homes had shingles blown off or parts of the decking exposed. A mobile home along Tommy Pickering Road was thrown and separated from the frame, with the highest winds in the EF2 range. As the storm moved northeast across US 84, trees were uprooted and snapped. Several homes on both sides of the highway had decking exposed or shingles blown off. At least one mobile home was destroyed along US 84. The tornado intensified to an EF3 causing significant damage to multiple homes along Danny Hillburn Road, where large sections of roofing was removed. Between US 84 and MS Highway 29, several mobile homes were completely destroyed and at least one separated from the frame. Several homes had one or more exterior walls collapsed or large sections of the roof removed. The tornado continued to cause widespread destruction as it moved into the town of Soso. Several homes and churches received significant damage. Large swaths of trees were snapped and uprooted along MS Highway 29. Near the center of town, a fire station was heavily damaged when the overhead doors collapsed, and portions of the roof were removed. Numerous homes had roofing removed and exposed decking. The worst damage occurred along MS Highway 28 where a convenience store was destroyed, and several other cinder block structures were heavily damaged when the storm intensified to low end EF-4. The tornado continued to mow down large swaths of trees and caused major uplift and loss of roofing to numerous homes as it moved northeast toward MS Highway 15. Along Mathews Road numerous mobile homes and several outbuildings were completely destroyed.

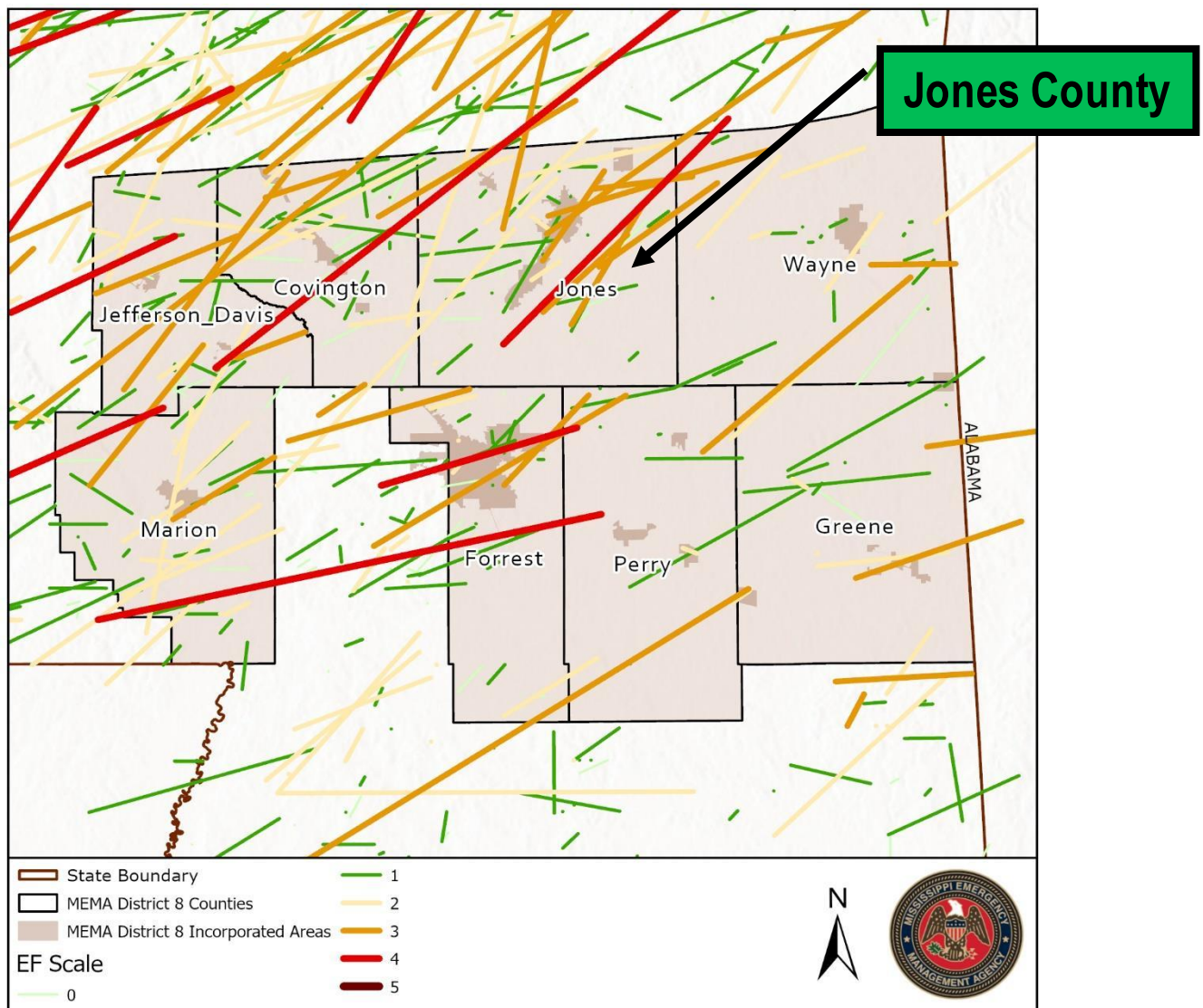
The tornado intensified to a low end EF4 as it moved into the Moss community, where winds near 175 mph resulted in widespread devastation. Nearly every structure in the community was damaged with the most significant damage occurring along or near MS Highway 537. About half of the First Baptist Church of Moss was completely leveled. Numerous homes were destroyed or had major roofing loss or uplifted. A small pick-up truck was thrown several hundred yards and completely destroyed. In addition, multiple mobile homes were completely demolished.

As the storm tracked toward I-59 a few miles west of Heidelberg, hundreds of trees were mowed down, outbuildings were destroyed. Several homes and mobile homes had metal roofing peeled back or decking exposed. Large swaths of trees were snapped for several miles including some along I-59 between the Heidelberg and Vossburg exits.

Swaths of tree damage continued into the Barnett community. In the town of Pachuta there was scattered tree damage, and the metal roofing was peeled off of a church. About two miles north of Pachuta, the damage became sporadic, and the tornado lifted in a wooded area along County Road 130.

The total path length was 67.43 miles. The maximum estimated wind speed of the tornado was 190mph, while the maximum wind speed in Jones County was 167mph.

### **FIGURE E. 8: TORNADOE PATHS THROUGH JONES COUNTY**



### 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).

It is predicted that tornadoes and the type of storms that create tornadoes will increase in intensity, frequency, and magnitude as the temperature rises due to climate change. More frequent strong tornadoes could have a large economic impact on each community in the county. It could also increase injuries and/death counts if the tornadoes increase in magnitude.

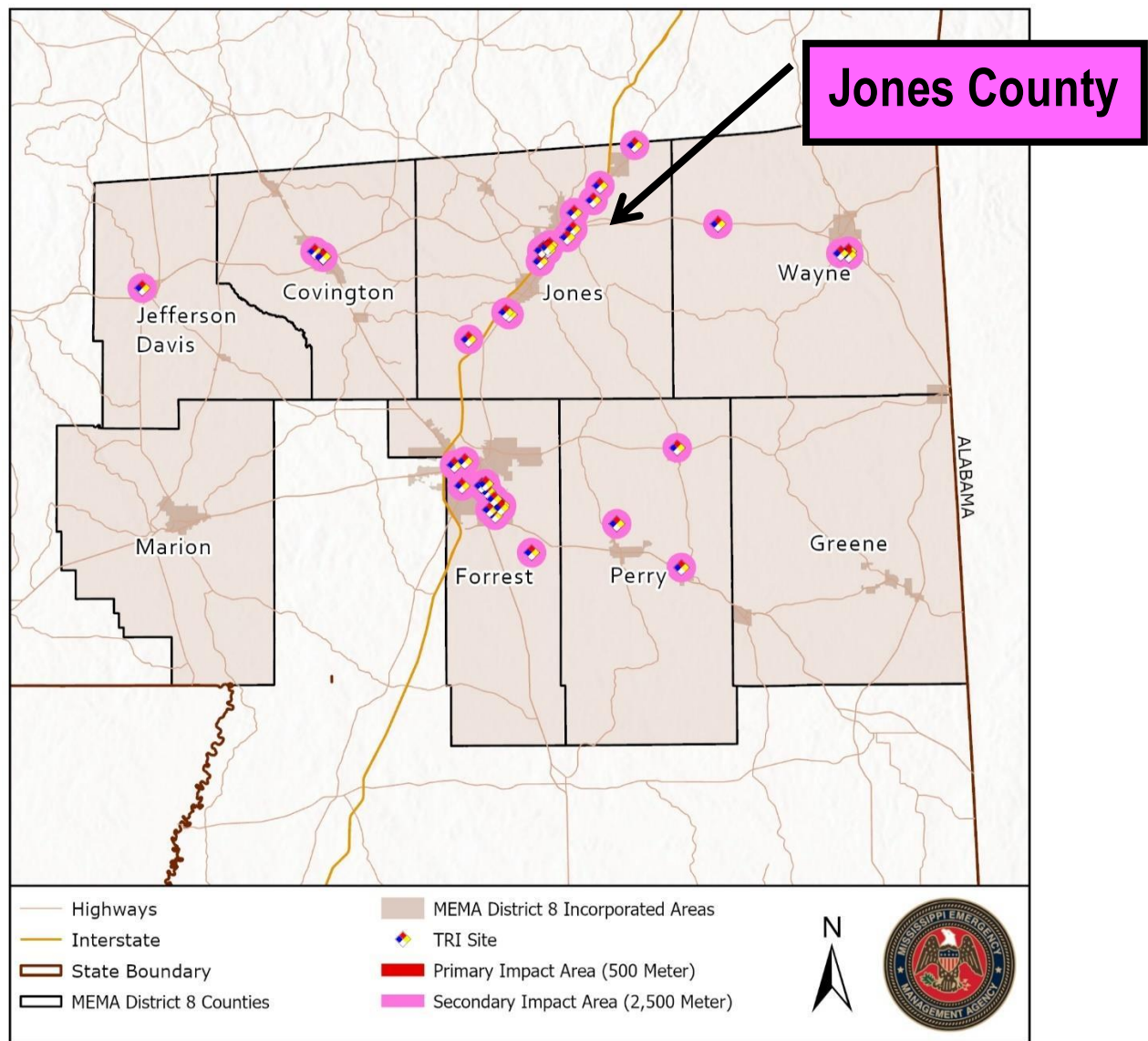
## E.2.13 Hazardous Materials Incidents

### LOCATION AND SPATIAL EXTENT

#### Hazardous Materials

Jones County has twelve TRI sites. These sites are shown in **Figure E.9**.

**FIGURE E.9: TOXIC RELEASE INVENTORY (TRI) SITES IN JONES COUNTY**



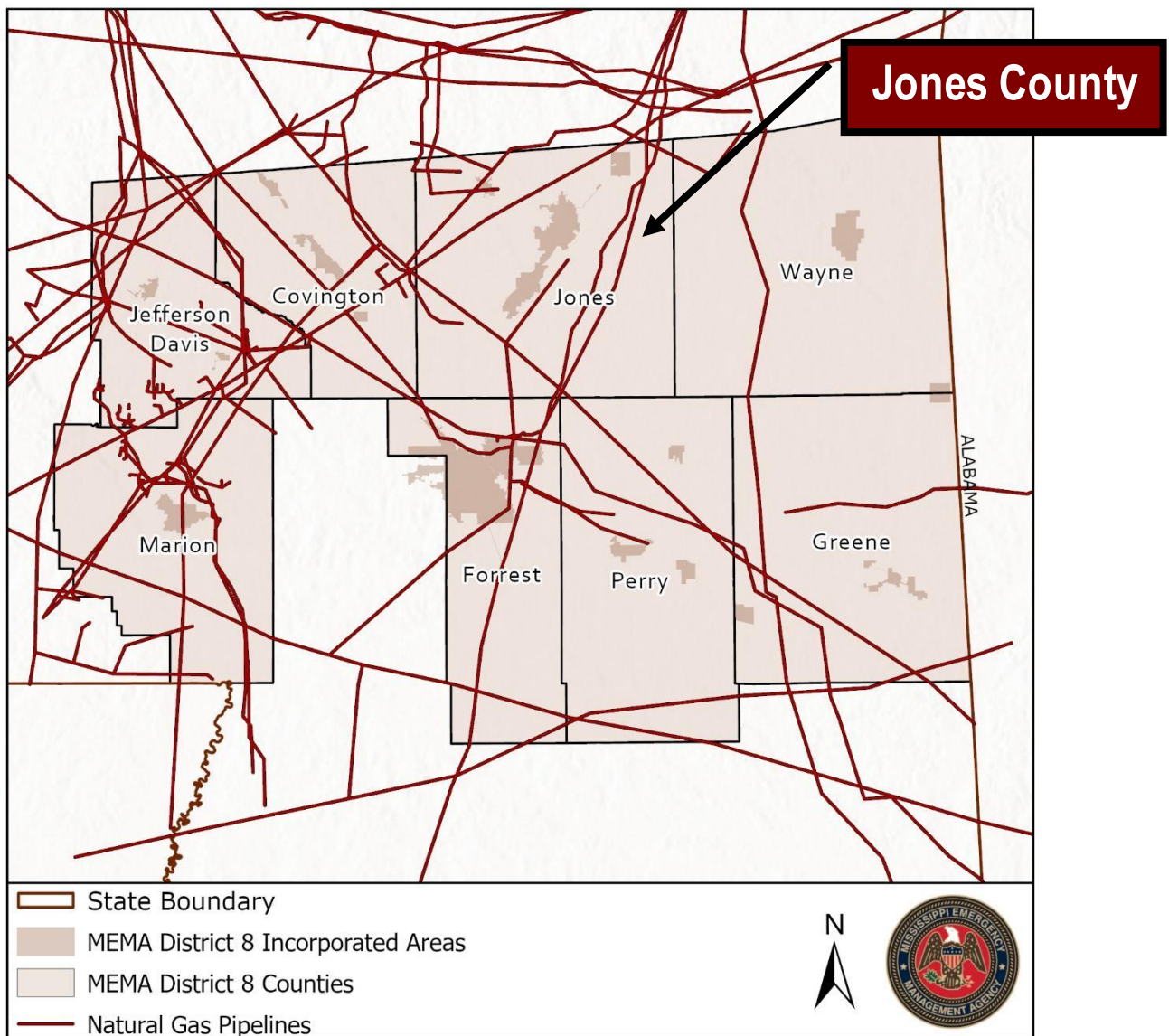
In addition to “fixed” hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially 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 E.10** shows the trunk lines for each of these material types but does not show the gathering or distribution pipelines. Natural gas pipelines are in red/maroon. This data has not changed since the last plan update.

**FIGURE E.10: PIPELINES IN JONES COUNTY**





### 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), resulting in over \$102,000 in property damages. In addition, one death was reported. **Table E.22** 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).

**TABLE E.22: HAZMAT INCIDENTS IN JONES COUNTY**

| Location                      | Date       | Report Number | Mode    | Serious Incident | Deaths/Injuries | Damages   | Quantity Released |
|-------------------------------|------------|---------------|---------|------------------|-----------------|-----------|-------------------|
| <b>The City of Ellisville</b> |            |               |         |                  |                 |           |                   |
| <i>Ellisville</i>             | 6/6/1974   | I-1974060418  | Highway | No               | 0/0             | \$0       | 0                 |
| <i>Ellisville</i>             | 1/20/1981  | I-1981020390  | Highway | No               | 0/0             | \$0       | 55 LGA            |
| <i>Ellisville</i>             | 3/3/2018   | I-2018040085  | Highway | Yes              | 0/0             | \$138,000 | 4,000 SLB         |
| <b>The City of Laurel</b>     |            |               |         |                  |                 |           |                   |
| <i>Laurel</i>                 | 7/15/1971  | I-1971070159  | Highway | No               | 0/0             | \$0       | 0                 |
| <i>Laurel</i>                 | 8/29/1971  | I-1971090106  | Highway | No               | 0/0             | \$0       | 0                 |
| <i>Laurel</i>                 | 9/15/1971  | I-1971090227  | Highway | No               | 0/0             | \$0       | 0                 |
| <i>Laurel</i>                 | 9/27/1971  | I-1971100060  | Highway | No               | 0/0             | \$0       | 0                 |
| <i>Laurel</i>                 | 11/10/1971 | I-1971110207  | Highway | No               | 0/0             | \$0       | 0                 |
| <i>Laurel</i>                 | 11/20/1971 | I-1971120155  | Other   | No               | 0/0             | \$0       | 0                 |
| <i>Laurel</i>                 | 6/5/1974   | I-1974070384  | Highway | No               | 0/0             | \$0       | 0                 |
| <i>Laurel</i>                 | 4/14/1975  | I-1975050292  | Highway | No               | 0/0             | \$0       | 0                 |
| <i>Laurel</i>                 | 8/27/1975  | I-1975090380  | Highway | No               | 0/0             | \$0       | 0                 |
| <i>Laurel</i>                 | 4/24/1976  | I-1976050157  | Rail    | No               | 0/0             | \$0       | 1 LGA             |
| <i>Laurel</i>                 | 5/21/1978  | I-1978060527  | Highway | Yes              | 0/0             | \$0       | 150 LGA           |
| <i>Laurel</i>                 | 6/12/1979  | I-1979070592  | Highway | No               | 0/0             | \$0       | 0                 |
| <i>Laurel</i>                 | 12/21/1979 | I-1980010323  | Highway | No               | 0/0             | \$0       | 0                 |
| <i>Laurel</i>                 | 4/30/1980  | I-1980050562  | Highway | No               | 0/0             | \$0       | 650 LGA           |
| <i>Laurel</i>                 | 6/16/1980  | I-1980071410  | Highway | No               | 0/0             | \$0       | 0                 |
| <i>Laurel</i>                 | 4/29/1981  | I-1981060090  | Highway | No               | 0/0             | \$0       | 112 LGA           |
| <i>Laurel</i>                 | 11/3/1981  | I-1981110551  | Highway | No               | 0/0             | \$0       | 10 LGA            |
| <i>Laurel</i>                 | 6/5/1984   | I-1984060045  | Highway | Yes              | 0/0             | \$0       | 1,305 SLB         |
| <i>Laurel</i>                 | 1/15/1988  | I-1988020089  | Highway | No               | 0/0             | \$0       | 0.016 LGA         |
| <i>Laurel</i>                 | 11/10/1988 | I-1988120082  | Highway | No               | 0/0             | \$0       | 0.007 LGA         |
| <i>Laurel</i>                 | 4/23/1990  | I-1990050072  | Highway | No               | 0/0             | \$100     | 2.5 LGA           |
| <i>Laurel</i>                 | 8/3/1992   | I-1992080645  | Highway | Yes              | 0/0             | \$88,300  | 630 LGA           |
| <i>Laurel</i>                 | 8/13/1992  | I-1992080915  | Highway | No               | 0/0             | \$7       | 1 LGA             |
| <i>Laurel</i>                 | 11/19/1992 | I-1992120046  | Highway | No               | 0/0             | \$0       | 1 LGA             |
| <i>Laurel</i>                 | 11/29/1992 | I-1993010032  | Highway | No               | 0/0             | \$4,210   | 0.25 LGA          |
| <i>Laurel</i>                 | 6/23/1993  | I-1993070937  | Highway | No               | 0/0             | \$0       | 25 LGA            |
| <i>Laurel</i>                 | 5/13/1994  | I-1994060271  | Highway | No               | 0/0             | \$0       | 0.03125LGA        |
| <i>Laurel</i>                 | 7/25/1994  | I-1994071528  | Highway | No               | 0/0             | \$615     | 55 LGA            |
| <i>Laurel</i>                 | 11/12/1994 | I-1994120079  | Highway | No               | 0/0             | \$90      | 1 LGA             |
| <i>Laurel</i>                 | 4/18/1995  | I-1995050030  | Highway | No               | 0/0             | \$750     | 0.03125 LGA       |
| <i>Laurel</i>                 | 1/26/1999  | I-1999040931  | Highway | No               | 0/0             | \$0       | 1 LGA             |
| <i>Laurel</i>                 | 11/30/1999 | I-1999121599  | Highway | No               | 0/0             | \$25      | 1 LGA             |
| <i>Laurel</i>                 | 11/21/2003 | I-2004050459  | Highway | Yes              | 0/0             | \$884     | 700 LGA           |
| <i>Laurel</i>                 | 9/18/2007  | I-2007100845  | Highway | No               | 0/0             | \$0       | 0.015625 LGA      |
| <i>Laurel</i>                 | 6/28/2008  | I-2008080089  | Highway | No               | 0/0             | \$1,040   | 10 LGA            |
| <i>Laurel</i>                 | 9/8/2010   | I-2010090316  | Highway | No               | 0/0             | \$0       | 0.25 LGA          |
| <i>Laurel</i>                 | 8/16/2012  | X-2013040015  | Highway | No               | 0/0             | \$0       | 0.25 LGA          |



|                                            |            |              |           |     |            |                  |             |
|--------------------------------------------|------------|--------------|-----------|-----|------------|------------------|-------------|
| <i>Laurel</i>                              | 12/4/2015  | E-2016010015 | Highway   | No  | 0/0        | \$0              | 0.5 LGA     |
| <i>Laurel</i>                              | 8/15/2017  | E-2017080732 | Highway   | No  | 0/0        | \$0              | 2 LGA       |
| <i>Laurel</i>                              | 4/24/2020  | E-2020050098 | Highway   | No  | 0/0        | \$0              | 1 LGA       |
| <i>Laurel</i>                              | 5/13/2021  | E-2021060336 | Highway   | No  | 0/0        | \$130,010        | 5 LGA       |
| <i>Laurel</i>                              | 6/27/2022  | E-2022070940 | Highway   | No  | 0/0        | \$0              | 15 LGA      |
| <i>Laurel</i>                              | 11/29/2023 | E-2023120088 | Highway   | No  | 0/0        | \$5,000          | 20 LGA      |
| <b>The Town of Sandersville</b>            |            |              |           |     |            |                  |             |
| <i>Sandersville</i>                        | 5/10/1977  | I-1977060053 | Highway   | No  | 0/0        | \$0              | 1 LGA       |
| <i>Sandersville</i>                        | 3/24/1989  | I-1989040045 | Highway   | Yes | 0/0        | \$0              | 6,960 LGA   |
| <i>Sandersville</i>                        | 8/31/1999  | I-1999100303 | Highway   | No  | 0/0        | \$400            | 40 LGA      |
| <i>Sandersville</i>                        | 11/17/2002 | I-2002120544 | Highway   | No  | 0/0        | \$0              | 3 LGA       |
| <b>The Town of Soso</b>                    |            |              |           |     |            |                  |             |
| <i>None Reported</i>                       | --         | --           | --        | --  | --         | --               | --          |
| <b>Unincorporated Area in Jones County</b> |            |              |           |     |            |                  |             |
| <i>Sand Hill</i>                           | 5/1/1978   | I-1978051074 | Highway   | Yes | 0/0        | \$0              | 550 LGA     |
| <i>Moselle</i>                             | 6/14/1978  | I-1978061581 | Highway   | Yes | 0/0        | \$0              | 1,000 LGA   |
| <i>Ovett</i>                               | 1/22/1988  | I-1988020220 | Highway   | Yes | 1/0        | \$0              | 200 LGA     |
| <i>Ovett</i>                               | 8/26/1989  | I-1989090177 | Highway   | Yes | 0/0        | \$0              | 392 LGA     |
| <i>Moselle</i>                             | 11/30/1994 | I-1995010081 | Highway   | No  | 0/0        | \$505            | 0.125 LGA   |
| <i>Moselle</i>                             | 5/19/1995  | I-1995060890 | Highway   | No  | 0/0        | \$525            | 0.03125 LGA |
| <i>Sharon</i>                              | 12/22/1997 | I-1998010684 | Highway   | No  | 0/0        | \$0              | 20 LGA      |
| <i>Moselle</i>                             | 9/21/1998  | I-1998100283 | Highway   | No  | 0/0        | \$420            | 1 LGA       |
| <i>Moselle</i>                             | 10/2/1998  | I-1998100613 | Highway   | No  | 0/0        | \$800            | 15 LGA      |
| <i>Moselle</i>                             | 1/20/1999  | I-1999020002 | Highway   | No  | 0/0        | \$2,810          | 0.5 LGA     |
| <i>Moselle</i>                             | 8/21/2000  | I-2000090177 | Highway   | No  | 0/0        | \$380            | 1 LGA       |
| <i>Moselle</i>                             | 8/26/2002  | I-2002090623 | Highway   | No  | 0/0        | \$475            | 8 LGA       |
| <i>Union</i>                               | 7/29/2004  | I-2004080718 | Highway   | No  | 0/0        | \$0              | 5000 SLB    |
| <i>Moselle</i>                             | 12/2/2020  | X-2020120350 | Rail      | Yes | 0/0        | \$1,025,000      | 20 LGA      |
| <b>Total:</b>                              | <b>64</b>  | <b>--</b>    | <b>--</b> |     | <b>1/0</b> | <b>1,400,346</b> |             |

## Pipelines

Between 2019 and 2024, 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.

## E.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 Jones County to date.

### PROBABILITY OF FUTURE OCCURRENCES

As is the case for any governmental organization, there will always be the potential for impact on Jones County. As such, the county will continue to be compelled to respond to acts of cyberterrorism 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 daily 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 Pandemic

## LOCATION AND SPATIAL EXTENT

Pandemics are global in nature. However, they may start anywhere. Jones County chose to analyze this hazard given the economic and social impacts of the COVID-19 Pandemic. The Covid Virus mutated several times which caused reinfection of some individuals and the closure of several businesses and schools for several months.

All populations should be considered at risk to pandemic. Buildings and infrastructure are not directly impacted by the virus but could be indirectly impacted if people are not able to operate and maintain them due to illness. Many buildings may be closed, at least temporarily, as a result. Employers may initiate work from home procedures for non-essential workers to help stop infection. Commerce activities, and thus the economy, may suffer greatly during this time.

## HISTORICAL OCCURRENCES

Several pandemics have been reported throughout history. The first known pandemic dates to 430 B.C. with the Plague of Athens. It reportedly killed a quarter of the population over four years due to typhoid fever. In 165-180 A.D., the Antonine Plague killed nearly 5 million people. Next, the Plague of Justinian (the first bubonic plague pandemic) occurred from 541 to 566. It killed 10,000 people a day at its peak and resulted in a 50 percent drop in Europe's population.

Since the 1500s, influenza pandemics have occurred about three times every century or roughly every 10-50 years. The Black Death devastated European populations in the 14th century. Nearly a third of the population (20-30 million) was killed over six years. From 1817 to present, seven Cholera Pandemics have impacted to the world and killed millions. Perhaps most severe, was the Third Cholera Pandemic (1852-1959) which started in China. Isolated cases can still be found in the Western U.S. today. There were three major pandemics in the 20th century (1918-1919, 1957-1958, and 1968-1969). The most infamous pandemic flu of the 20th century, however, was that of 1918-1919. Since the 1960s, there has only been one pandemic, the 2009 H1N1 influenza. The pandemics of the 20th and 21st centuries that impacted the United States are detailed below.

**1918 Spanish Flu:** This was the most devastating flu of the 20th century. This pandemic spread across the world in three waves between 1918 and 1919. It typically impacted areas for around twelve weeks and then would largely disappear. However, it would frequently reemerge several months later. Worldwide, approximately 50 million persons died and over a quarter of the population was infected. Nearly 675,000 people died in the United States. The illness came on suddenly and could cause death within a few hours. The virus impacted those aged 15 to 35 especially hard. The movement of troops during World War I is thought to have facilitated the spread of the virus.

In Mississippi, state officials noted that "epidemics have been reported from a number of places in the State," on October 4th, 1918. By the 18th, twenty-six localities reported 1,934 cases (the real number of cases was likely much higher). West Point, Mississippi was hit especially hard, and quarantine was established. Throughout the state, African Americans were impacted at a greater rate than white populations. This is thought to be partly caused by a shortage of caretakers. It is estimated that over 6,000 people died in Mississippi, though that number may be much higher as death records were not widely recorded.

**1957 Asian Flu:** It is estimated that the Asian Flu caused 2 million deaths worldwide. Approximately 70,000 deaths were in the U.S. However, the proportion of people impacted was substantially higher than that of the Spanish Flu. This flu was characterized as having much milder effects than the Spanish Flu and greater survivability. Like other pandemics, this pandemic had two waves. Elderly and infant populations were more likely to succumb to death. This flu is thought to have originated from a genetic mutation of a bird virus.

**1968 Hong Kong Flu:** The Hong Kong Flu is thought to have caused one million deaths worldwide. It was milder than both the Asian and Spanish influenza viruses. Similarity to the then recent, 1957 Asian Flu, may have provided some lingering immunity to the virus. It had the most severe impact on elderly populations.

**2009 H1N1 Influenza:** This flu was derived from human, swine, and avian virus strains. It was initially reported in Mexico in April 2009. On April 26, the U.S. government declared H1N1 a public health emergency. A vaccine was developed and over 80 million were vaccinated which helped minimize the impacts. The virus had mild impacts on most of the population but did cause death (usually from viral pneumonia) in high-risk populations such as pregnant women, obese persons, indigenous people, and

those with chronic respiratory, cardiac, neurological, or immunity conditions. Worldwide, it is estimated that 43 million to 89 million people contracted H1N1 between April 2009 and April 2010, and between 8,870 and 18,300 H1N1 cases resulted in death.

**COVID-19 (coronavirus disease 2019):** Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spread quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019 and changed the way people view Pandemics. Jones County had 26,729 cases of COVID and 316 deaths.

COVID-19 most often causes respiratory symptoms that can feel much like a cold, the flu, or pneumonia. COVID-19 may attack more than your lungs and respiratory system. Other parts of your body may also be affected by the disease. Most people with COVID-19 have mild symptoms, but some people become severely ill. Some people are more likely than others to get very sick if they get COVID-19. This includes people who are older, are immuno-compromised, have certain disabilities, or have underlying health conditions.

In addition to the above pandemics, there have been several cases of pandemic threats, some of which reached epidemic levels. They were contained before spreading globally. Examples include Smallpox, Polio, Tuberculosis, Malaria, AIDS, SARS and Yellow Fever. Advances in medicine and technology have been instrumental in containing the spread of viruses in recent history.

### **PROBABILITY OF FUTURE OCCURRENCES**

Based on historical occurrence information, it is assumed that Jones County has a probability level of unlikely (less than 1 percent annual probability) for future pandemics events. While pandemics can have devastating impacts, they are relatively rare.

The Mississippi State Department of Health maintains a state pandemic plan which can be found here: <http://www.msdh.state.ms.us/msdhsite/index.cfm/44,1136,122,154,pdf/SNSPlan.pdf>

## **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.23** 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 E.23: EXTENT OF JONES COUNTY HAZARDS**

| HAZARD                                              | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tectonic Hazards</b>                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Earthquake</b>                                   | 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, 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.                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Mass-Movements</b>                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Landslide</b>                                    | 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.                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Expansive Soils</b>                              | 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.                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Hydraulic Hazards</b>                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Drought</b>                                      | 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 several times over the reporting period.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Floods</b>                                       | 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.<br>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 gauge height was recorded at 26.00 feet.                                                                                                                                                                                     |
| <b>Dam Failure</b>                                  | Dam Failure extent is defined using the Mississippi Division of Environmental Quality criteria. Five dams are classified as high hazard in the county.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Meteorological Hazards</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Hurricane and Tropical Storms</b>                | 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 3 storm (Hurricane Katrina in 2005) which carried tropical force winds of 130 miles per hour upon arrival in the county.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Thunderstorms/<br/>Hail/ Lightning/<br/>Wind</b> | 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 last reported on April 17, 2020, at 78 knots (approximately 90 mph). It should be noted that future events may exceed these historical occurrences.<br>Hail extent can be defined by the size of the hail stone. The largest hail stone reported in Jones County was 2.75 inches (last reported on March 22, 2005). It should be noted that future events may exceed this.<br>According to the Vaisala's flash density map, Jones County is 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. |
| <b>Winter Storms</b>                                | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Temperature</b>                                  | A four day stretch of extreme temperatures occurred across the region to start off the month of August. High pressure was firmly entrenched across the southeast and allowed temperatures to soar into triple digits across much of the region. Across                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |



|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Extremes/ Heat Wave</b>       | the NWS Jackson, MS forecast area, 19 record highs were set between August 1st and 4th. On August 2nd, the 2nd warmest average temperature was recorded. The low was 78 and the high 105, this resulted in an average temperature of 91.5 degrees. Additionally, relatively high humidity levels made conditions even more oppressive, with heat index readings surpassing 110 degrees in many areas. This extreme heat resulted in 3 fatalities across the forecast area.                                                                                                                                                                             |
| <b>Tornado</b>                   | 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 Jones County was an EF4 (reported on April 12, 2020).                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Biological Hazards</b>        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Pandemic</b>                  | The extent of a pandemic impacting the county is difficult to estimate. It could result in thousands of deaths and extreme disruption of commerce and everyday life.<br>Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spread quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019, changing the way people view Pandemics. Jones County had 26,729 cases of COVID and 316 deaths                                                                                                                                                                  |
| <b>Other Natural Hazards</b>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Wildfire</b>                  | Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by each county from 2010-2023. The greatest number of fires occurring in Jones County in any year was 53 in 2011. The greatest number of acres burned 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.                                                                                                                                                                                             |
| <b>Erosion</b>                   | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Climate Change</b>            | The extent Climate change will impact Jones County is hard to estimate. It could cause more intense, frequent, and/or magnitude of thunderstorms, tropical storms, winds, tornadoes, heavy rains, flash flooding... If the intensity and magnitude increase so will property damage and possible loss of life.                                                                                                                                                                                                                                                                                                                                         |
| <b>Other Hazards</b>             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Cyber Attack</b>              | The extent of cyberterrorism is difficult to estimate. Attacks can originate from any computer to affect any other computer in the world. The resulting damage depends on the whims and demands of the cyberterrorist and their willingness to honor their bargains, even if demands are possible to meet.                                                                                                                                                                                                                                                                                                                                             |
| <b>Hazard Materials Incident</b> | 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.<br>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.<br>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. |

## PRIORITY RISK INDEX RESULTS

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 E.24** 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.24: SUMMARY OF PRI RESULTS FOR JONES COUNTY**

|  | Category/Degree of Risk |
|--|-------------------------|
|--|-------------------------|

| HAZARD                           | Probability   | Impact        | Spatial Extent | Warning Time       | Duration           | PRI Score |
|----------------------------------|---------------|---------------|----------------|--------------------|--------------------|-----------|
| <b>Tectonic Hazards</b>          |               |               |                |                    |                    |           |
| Earthquake                       | Unlikely      | Minor         | Moderate       | Less than 6 hours  | Less than 6 Hours  | 1.7       |
| <b>Mass-Movement Hazards</b>     |               |               |                |                    |                    |           |
| Landslide                        | Unlikely      | Minor         | Small          | Less than 6 hours  | Less than 6 hours  | 1.5       |
| Expansive Soil                   | Possible      | Minor         | Small          | Less than 6 hours  | Less than 6 hours  | 1.8       |
| <b>Hydrologic Hazards</b>        |               |               |                |                    |                    |           |
| Drought                          | Highly Likely | Minor         | Large          | More than 24 hours | More than 1 week   | 2.8       |
| Floods                           | Likely        | Limited       | Moderate       | 6 to 12 hours      | Less than 24 hours | 2.4       |
| Dam Failure                      | Unlikely      | Critical      | Moderate       | More than 24 hours | Less than 24 hours | 2.0       |
| <b>Meteorological Hazards</b>    |               |               |                |                    |                    |           |
| Hurricane/ Tropical Storms       | Likely        | Catastrophic  | Large          | More than 24 hours | Less than 24 hours | 3.2       |
| Thunderstorm/ 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       |
| Lightning                        | Highly Likely | Limited       | Negligible     | Less than 6 hours  | Less than 6 hours  | 2.5       |
| Winter Storms                    | Likely        | Limited       | Moderate       | More than 24 hours | Less than 24 hours | 2.3       |
| Temperature Extremes/ Heat Waves | Highly Likely | Likely        | Small          | More than 24 hours | More than 1 week   | 2.8       |
| Tornado                          | Likely        | Critical      | Small          | Less than 6 hours  | Less than 6 hours  | 2.7       |
| <b>Biological Hazards</b>        |               |               |                |                    |                    |           |
| Pandemic                         | Likely        | Limited—Major | Small—Large    | More than 24 hours | More than a week   | 2.8       |
| <b>Other Natural Hazards</b>     |               |               |                |                    |                    |           |
| Wildfire                         | Likely        | Minor         | Small          | Less than 6 hours  | Less than one week | 2.3       |
| Erosion                          | Possible      | Minor         | Small          | More than 24 hours | More than 1 week   | 1.8       |
| Climate Change                   | Possible      | Critical      | Large          | More than 1 week   | More than 1 week   | 2.6       |
| <b>Other Hazards</b>             |               |               |                |                    |                    |           |
| Cyber Attack                     | Possible      | Limited       | Small          | Less than 6 hours  | Less than 24 hours | 1.9       |
| Hazardous Materials Incident     | Unlikely      | Limited       | Small          | Less than 6 hours  | Less than 24 hours | 1.9       |
| Meth Lab Incident                | Possible      | Minor         | Small          | Less than 6 hours  | Less than 6 hours  | 1.8       |
| Pipeline Incident                | Possible      | Limited       | Small          | Less than 6 hours  | Less than 24 hours | 2.2       |

## E.2.17 Final Determinations on Hazard Risk

The conclusions drawn from the hazard profiling process for Jones 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.25). 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 Jones 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.25: CONCLUSIONS ON HAZARD RISK FOR JONES COUNTY**

|                      |                                                                                                                                                                                    |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High Risk</b>     | <i>Drought/Heat Wave</i><br><i>Hurricane and Tropical Storm</i><br><i>Thunderstorm/ High Wind</i><br><i>Tornado</i><br><i>Flood</i><br><i>Lightning</i><br><i>Pandemic</i>         |
| <b>Moderate Risk</b> | <i>Climate Change</i><br><i>Hail</i><br><i>Pipeline Incident</i><br><i>Hazardous Materials Incident</i><br><i>Wildfire</i><br><i>Dam Failure</i><br><i>Winter Storm and Freeze</i> |
| <b>Low Risk</b>      | <i>Expansive Soil</i><br><i>Landslide</i><br><i>Meth Lab Incident</i><br><i>Pandemic</i><br><i>Erosion</i><br><i>Cyber Attack</i>                                                  |

## E.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.

### E.3.1 Asset Inventory

**Table E.26** lists the number of parcels and the total assessed value of improvements for Jones County and its participating jurisdictions (study area of vulnerability assessment).

**TABLE E.26: IMPROVED PROPERTY IN JONES COUNTY**

| LOCATION     | Number of Improved Properties | Total Assessed Value of Improvements |
|--------------|-------------------------------|--------------------------------------|
| Jones County | 41,590                        | \$2,814,125,428                      |

**Table E.27** lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools and other critical facilities located in Jones County. HAZUS was used to obtain the critical facilities for the county and this data was modified to reflect recent changes. In addition, **Figure E.11** shows the locations of essential facilities in Jones County. **Table E.28**, 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.27: CRITICAL FACILITY INVENTORY IN JONES COUNTY**

| Location                   | Fire Station | Police Station | Medical Care Facility | EOC      | Schools   | Houses of Worship |
|----------------------------|--------------|----------------|-----------------------|----------|-----------|-------------------|
| <i>Ellisville</i>          | 3            | 1              | 0                     | 0        | 2         |                   |
| <i>Laurel</i>              | 5            | 2              | 1                     | 1        | 9         |                   |
| <i>Sandersville</i>        | 1            | 1              | 0                     | 0        | 0         |                   |
| <i>Soso</i>                | 1            | 1              | 0                     | 0        | 0         |                   |
| <i>Unincorporated Area</i> | 20           | --             | 0                     | 0        | 7         |                   |
| <b>Jones County Total:</b> | <b>30</b>    | <b>5</b>       | <b>1</b>              | <b>1</b> | <b>18</b> | <b>141</b>        |

**Table E.28** 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").

|               |               | Other |                    |                         | Atmospheric |                           |                     |         |                | Geologic    |            | Hydrologic  |          |          |
|---------------|---------------|-------|--------------------|-------------------------|-------------|---------------------------|---------------------|---------|----------------|-------------|------------|-------------|----------|----------|
| Facility Name | Facility Type | WHP   | Fixed HAZMA T 500- | Mobile HAZMAT 500-2500M | Drought     | Thunder storm, Lightning, | Hurricane /Tropical | Tornado | Winter Storm & | Earth quake | Land-slide | Dam & Levee | 100-Year | 500-Year |

|                                         |                 | Hazard       | 2500M<br>Roads &<br>Rails | Roads &<br>Rails |   | & Hail      | Storm |   | Freeze |   |          | Failure    | Flood | Flood |
|-----------------------------------------|-----------------|--------------|---------------------------|------------------|---|-------------|-------|---|--------|---|----------|------------|-------|-------|
| <b>Jones County Critical Facilities</b> |                 |              |                           |                  |   |             |       |   |        |   |          |            |       |       |
| EOC                                     | EOC             | Non-burnable | X                         | X                | X | X           | X     | X | X      | X |          |            |       | X     |
| Court House District 1                  | Govt.           | Non-burnable |                           | X                | X | X           | X     |   | X      | X |          |            |       |       |
| Court House District 2                  | Govt.           | Non-burnable | X                         | X                | X | X           | X     | X | X      | X |          |            |       |       |
| Beat 1 Barn                             | Public Works    | HIGH         |                           |                  | X | X           | X     |   | X      | X |          |            |       |       |
| Beat 2 Barn                             | Public Works    | HIGH         |                           |                  | X | X           | X     |   | X      | X |          |            |       |       |
| Beat 3 Barn                             | Public Works    | Non-burnable |                           | X                | X | X           | X     |   | X      | X |          |            |       |       |
| Beat 4 Barn                             | Public Works    | LOW          |                           | X                | X | X           | X     |   | X      | X |          |            |       |       |
| Beat 5 Barn                             | Public Works    | Non-burnable | X                         | X                | X | X           | X     | X | X      | X |          |            |       |       |
| Jones Co. Maintenance Office            | Public Works    | Non-burnable |                           | X                | X | X           | X     |   | X      | X |          |            |       |       |
| Adult Deten. Facility                   | Deten. Facility | Non-burnable |                           | X                | X | X           | X     |   | X      | X |          |            |       |       |
| Juvenile Deten. Facility                | Deten. Facility | Non-burnable |                           | X                | X | X           | X     |   | X      | X |          |            |       |       |
| Safe Room / Shelter                     | Safe Room       | Moderate     | X                         | X                | X | X           | X     | X | X      | X |          |            |       |       |
| Sheriff's Department                    | Police Station  | Non-burnable | X                         | X                | X | X           | X     | X | X      | X |          |            |       |       |
| South Central Regional Medical Center   | Care Facility   | Non-burnable | X                         | X                | X | X           | X     |   | X      | X |          |            |       |       |
| Hebron VFD                              | Fire Station    | LOW          |                           | X                | X | X           | X     |   | X      | X |          |            |       |       |
| Pleasant Ridge VFD                      | Fire Station    | HIGH         |                           | X                | X | X           | X     |   | X      | X |          |            |       |       |
| Soso VFD                                | Fire Station    | Non-burnable | X                         | X                | X | X           | X     | X | X      | X |          |            |       | X     |
| Calhoun VFD                             | Fire Station    | Non-burnable |                           | X                | X | X           | X     |   | X      | X |          |            |       |       |
| Sharon VFD                              | Fire Station    | HIGH         |                           |                  | X | X           | X     |   | X      | X |          |            |       |       |
| Shady Grove VFD                         | Fire Station    | HIGH         |                           |                  | X | X           | X     |   | X      | X |          |            |       |       |
| Sandersville VFD                        | Fire Station    | Non-burnable |                           | X                | X | X           | X     |   | X      | X |          |            |       |       |
| Ruston VFD                              | Fire Station    | HIGH         |                           |                  | X | X           | X     |   | X      | X |          |            |       |       |
| Powers VFD                              | Fire Station    | Non-burnable | X                         | X                | X | X           | X     |   | X      | X |          |            |       |       |
| M & M VFD                               | Fire Station    | Non-burnable |                           |                  | X | X           | X     |   | X      | X |          |            |       |       |
| Glade VFD                               | Fire Station    | Moderate     |                           |                  | X | X           | X     |   | X      | X |          |            |       |       |
| Ovett VFD                               | Fire Station    | Moderate     |                           |                  | X | X           | X     |   | X      | X |          |            |       |       |
| Johnson VFD                             | Fire Station    | LOW          |                           | X                | X | X           | X     |   | X      | X |          |            |       |       |
| Union VFD                               | Fire Station    | HIGH         |                           | X                | X | X           | X     |   | X      | X |          |            |       |       |
| Moselle VFD                             | Fire Station    | HIGH         |                           | X                | X | X           | X     |   | X      | X |          |            |       |       |
|                                         |                 |              | Other                     |                  |   | Atmospheric |       |   |        |   | Geologic | Hydrologic |       |       |



| Facility Name                                     | Facility Type  | WHP Hazard   | Fixed HAZMA T 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought            | Thunder storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth quake     | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |
|---------------------------------------------------|----------------|--------------|---------------------------------------|---------------------------------------|--------------------|----------------------------------|---------------------------|---------|-----------------------|-----------------|------------|---------------------|-----------------|-----------------|
| <b>Jones County Critical Facilities Continued</b> |                |              |                                       |                                       |                    |                                  |                           |         |                       |                 |            |                     |                 |                 |
| Southwest Jones VFD                               | Fire Station   | LOW          |                                       |                                       | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| Boggy VFD                                         | Fire Station   | LOW          |                                       |                                       | X                  | X                                | X                         | X       | X                     | X               |            |                     |                 |                 |
| Ellisville State School                           | School         | Non-burnable |                                       | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     | X               |                 |
| East Jones Elem. School                           | School         | HIGH         | X                                     | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| Glade Elem. School                                | School         | LOW          |                                       |                                       | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| Moselle Elem. School                              | School         | HIGH         |                                       | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| North Jones Elem. School                          | School         | LOW          |                                       | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| South Jones Elem. School                          | School         | LOW          |                                       | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     | X               |                 |
| West Jones Elem. School                           | School         | Non-burnable |                                       | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| Northeast Jones High School                       | School         | HIGH         | X                                     | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| South Jones High School                           | School         | Non-burnable |                                       | X                                     | X                  | X                                | X                         | X       | X                     | X               |            |                     |                 |                 |
| West Jones High School                            | School         | Moderate     |                                       | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| A P Fathree Voc. Tech                             | School         | Moderate     | X                                     | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| Jones Co. Learning Center                         | School         | Moderate     | X                                     | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| Laurel City Hall                                  | Govt.          | Non-burnable | X                                     | X                                     | X                  | X                                | X                         | X       | X                     | X               |            |                     |                 |                 |
| Laurel City Police Dept                           | Police Station | Non-burnable | X                                     | X                                     | X                  | X                                | X                         | X       | X                     | X               |            |                     |                 | X               |
| Laurel Fire Department #1                         | Fire Station   | Non-burnable | X                                     | X                                     | X                  | X                                | X                         | X       | X                     | X               |            |                     |                 | X               |
| Laurel Fire Department #2                         | Fire Station   | Non-burnable | X                                     | X                                     | X                  | X                                | X                         | X       | X                     | X               |            |                     |                 | X               |
| Laurel Fire Department #4                         | Fire Station   | Non-burnable | X                                     | X                                     | X                  | X                                | X                         | X       | X                     | X               |            |                     |                 | X               |
| Laurel Fire Department #5                         | Fire Station   | Non-burnable | X                                     | X                                     | X                  | X                                | X                         | X       | X                     | X               |            |                     |                 | X               |
| Laurel Fire Department #6                         | Fire Station   | Non-burnable | X                                     | X                                     | X                  | X                                | X                         | X       | X                     | X               |            |                     |                 | X               |
| Public Works Facility                             | Govt.          | LOW          | X                                     | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| Water Department                                  | Public Works   | Non-burnable | X                                     | X                                     | X                  | X                                | X                         | X       | X                     | X               |            |                     |                 | X               |
| Laurel High School                                | School         | Non-burnable | X                                     | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| Laurel Educ. Center                               | School         | LOW          | X                                     | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| Oak Park Elem. School                             | School         | Non-burnable | X                                     | X                                     | X                  | X                                | X                         | X       | X                     | X               |            |                     |                 |                 |
| Nora Davis Elem. School                           | School         | Non-burnable | X                                     | X                                     | X                  | X                                | X                         | X       | X                     | X               |            |                     |                 |                 |
| Laurel Upper Elem. School                         | School         | LOW          | X                                     | X                                     | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
| South Jones VFD                                   | Fire Station   | LOW          |                                       |                                       | X                  | X                                | X                         |         | X                     | X               |            |                     |                 |                 |
|                                                   |                |              | <b>Other</b>                          |                                       | <b>Atmospheric</b> |                                  |                           |         |                       | <b>Geologic</b> |            | <b>Hydrologic</b>   |                 |                 |

| Facility Name                                     | Facility Type    | WHP Hazard   | Fixed HAZMA T 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder storm, Lightning & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |
|---------------------------------------------------|------------------|--------------|---------------------------------------|---------------------------------------|-------------|---------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| <b>Jones County Critical Facilities Continued</b> |                  |              |                                       |                                       |             |                                 |                           |         |                       |             |            |                     |                 |                 |
| Laurel Magnet School of the Arts                  | School           | Non-burnable | X                                     | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     | X               |                 |
| Laurel Vocational Complex                         | School           | Non-burnable | X                                     | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Laurel Middle School                              | School           | LOW          | X                                     | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Immaculate Conception School                      | School           | Non-burnable | X                                     | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Laurel Christian School                           | School           | HIGH         | X                                     | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| ST Johns Day School                               | School           | Non-burnable | X                                     | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Hesler-Noble Field                                | General Aviation | LOW          | X                                     | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Hattie. -Laurel Regional Airport                  | General Aviation | LOW          | X                                     | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Ellisville City Hall                              | Govt.            | Non-burnable |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Ellisville Police Dept                            | Police Station   | Non-burnable |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Ellisville Fire Department #1                     | Fire Station     | Non-burnable |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Ellisville Fire Department #2                     | Fire Station     | Non-burnable |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Ellisville Fire Department #3                     | Fire Station     | Non-burnable |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Public Works                                      | Govt.            | HIGH         |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     | X               |                 |
| Sewer Department                                  | Waste-water      | Moderate     | X                                     | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     | X               |                 |
| Sandersville Police Dept                          | Police Station   | Non-burnable | X                                     | X                                     | X           | X                               | X                         | X       | X                     | X           |            |                     |                 | X               |
| Public Works                                      | Govt.            | HIGH         |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     | X               |                 |
| Sewer Department                                  | Waste-water      | Moderate     | X                                     | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     | X               |                 |
| Water Department                                  | Public Works     | Non-burnable | X                                     | X                                     | X           | X                               | X                         | X       | X                     | X           |            |                     |                 | X               |
| Soso Police Dept                                  | Police Station   | Non-burnable | X                                     | X                                     | X           | X                               | X                         | X       | X                     | X           |            |                     |                 | X               |
| Public Works                                      | Govt.            | HIGH         |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     | X               |                 |
| Sewer Department                                  | Waste-water      | Moderate     | X                                     | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     | X               |                 |
| Water Department                                  | Public Works     | Non-burnable | X                                     | X                                     | X           | X                               | X                         | X       | X                     | X           |            |                     |                 | X               |
| Agape Church of Jones County                      | House of Worship |              |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Antioch United Methodist Church                   | House of Worship |              |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Audubon Drive Bible Church                        | House of Worship |              |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Berean Baptist Church                             | House of Worship |              |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Bethlehem Baptist Church                          | House of Worship |              |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
|                                                   |                  | Other        |                                       |                                       | Atmospheric |                                 |                           |         |                       | Geologic    | Hydrologic |                     |                 |                 |

| Facility Name                                     | Facility Type    | WHP Hazard | Fixed HAZMA T 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder storm, Lightning & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |
|---------------------------------------------------|------------------|------------|---------------------------------------|---------------------------------------|-------------|---------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| <b>Jones County Critical Facilities Continued</b> |                  |            |                                       |                                       |             |                                 |                           |         |                       |             |            |                     |                 |                 |
| Bethlehem Community Church                        | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Big Creek Baptist Church                          | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Calvary Baptist Church                            | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Center Point Christian Church                     | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Centerville Baptist Church                        | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Christian Valley Missionary Baptist Church        | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Christian Life Church                             | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Church of Christ                                  | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Ignite Church                                     | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Church of the Harvest                             | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| County Line Baptist Church                        | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Covenant Presbyterian Church                      | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Crosspointe Community Church                      | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Dudley United Methodist Church                    | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| East Laurel Church of Christ                      | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| East Laurel Pentecostal Jesus Name Church         | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Eastview Baptist Church                           | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Ellisville Church of Christ                       | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Ellisville First Assembly of God                  | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Ellisville First Methodist Church                 | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Ellisville Presbyterian Church                    | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Emmanuel Baptist Church                           | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Evangel Temple                                    | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Fairfield Baptist Church                          | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Fairfield Methodist Church                        | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
|                                                   |                  | Other      |                                       |                                       | Atmospheric |                                 |                           |         |                       | Geologic    |            | Hydrologic          |                 |                 |

| Facility Name                                     | Facility Type    | WHP Hazard | Fixed HAZMA T 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder storm, Lightning & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |
|---------------------------------------------------|------------------|------------|---------------------------------------|---------------------------------------|-------------|---------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| <b>Jones County Critical Facilities Continued</b> |                  |            |                                       |                                       |             |                                 |                           |         |                       |             |            |                     |                 |                 |
| Faith Arena                                       | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Faith Community Church                            | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Faith Sanctuary of Praise Baptist Church          | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Fellowship Baptist Church                         | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| First Baptist Church (Laurel)                     | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| First Baptist Church (Ellisville)                 | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| First Baptist Church Calhoun                      | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| First Baptist Church Myrick                       | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| First Baptist Church of Sharon                    | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| First Baptist Church-Shady Grove                  | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| First Church of Nazarene Laurel                   | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| First United Methodist Church (Laurel)            | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| First-Trinity Presbyterian Church                 | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Franklin United Methodist Church                  | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Freedom Baptist Church                            | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Fresh Oil Ministry                                | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Friendship Baptist Church (Johnson Community)     | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Friendship Missionary Baptist Church              | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Gitano United Methodist Church                    | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Glade Baptist Church                              | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Goodwill Missionary Baptist Church                | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Grace Baptist Church                              | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Grace Covenant Church                             | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Greater Jerusalem MB Church                       | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Hebron Baptist Church                             | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Highland Baptist Church                           | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
|                                                   |                  | Other      |                                       |                                       | Atmospheric |                                 |                           |         |                       | Geologic    |            | Hydrologic          |                 |                 |

| Facility Name                                                 | Facility Type    | WHP Hazard | Fixed HAZMA T 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder storm, Lightning & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |
|---------------------------------------------------------------|------------------|------------|---------------------------------------|---------------------------------------|-------------|---------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| <b>Jones County Critical Facilities Continued</b>             |                  |            |                                       |                                       |             |                                 |                           |         |                       |             |            |                     |                 |                 |
| Iglesia Adventista del Séptimo Día Hispana de Laurel - Bethel | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Iglesia El Faro                                               | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Ignite Church                                                 | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Immaculate Conception Church                                  | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Indian Springs Baptist Church                                 | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Jesus Name Church-Ellisville                                  | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Jesus Name Home Church (Crestwood Academy)                    | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Journey Church Northeast campus                               | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Journey Church North Laurel campus                            | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Keys Temple Church of God                                     | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Kingston Assembly of God                                      | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Kingston United Methodist Church                              | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Lake Congregational Methodist Church                          | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Laurel Seventh Day Adventist Church                           | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Lawn Haven Baptist Church                                     | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Life Church                                                   | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Lighthouse Church                                             | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Lowery Creek Baptist Church                                   | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Magnolia Baptist Church                                       | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Mallalieu United Methodist Church                             | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Mill Creek Church                                             | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Mill Creek Church of God                                      | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Morning Star Baptist Church                                   | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Moselle Memorial Baptist Church                               | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
|                                                               |                  | Other      |                                       |                                       | Atmospheric |                                 |                           |         |                       | Geologic    | Hydrologic |                     |                 |                 |

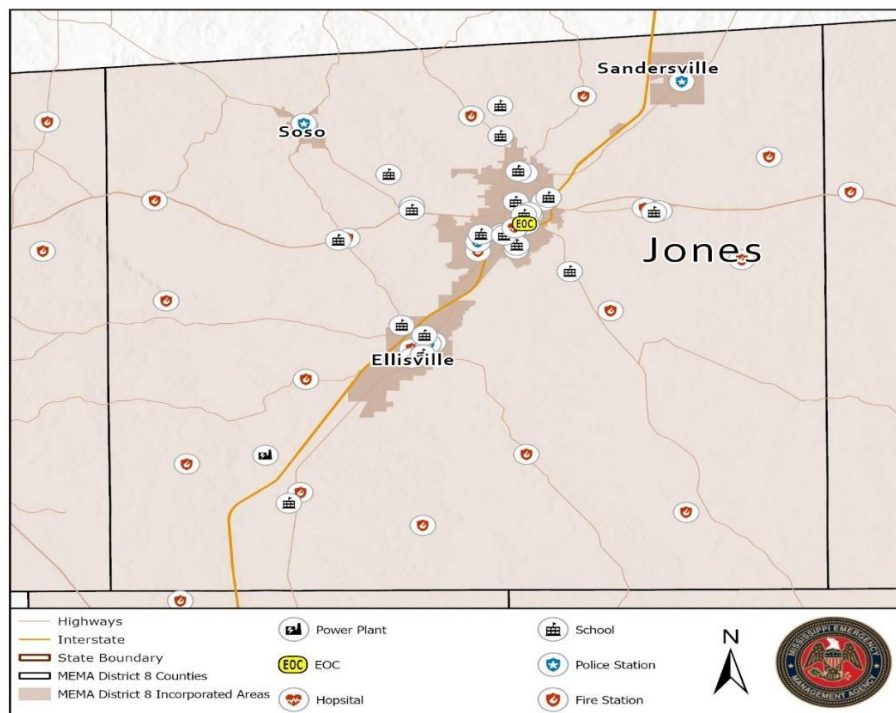


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|-------------------------------------------------------|------------------|------------|---------------------------------------|---------------------------------------|-------------|---------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| <b>Jones County Critical Facilities Continued</b>     |                  |            |                                       |                                       |             |                                 |                           |         |                       |             |            |                     |                 |                 |
| Mt Bethel MB Church                                   | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Mt Moriah Missionary Baptist Church                   | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Mt Olive Baptist Church                               | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Mt Vernon Congregational Church                       | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Mt Williams Church                                    | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| New Bethany Baptist Church                            | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| New Fellowship Baptist Church                         | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| New Hope Baptist Church                               | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| New Jerusalem Full Gospel Church                      | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| New Testament Interdenominational                     | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Oak Grove Baptist Church                              | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Oakland Grove Baptist Church                          | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Open Door Baptist Church                              | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Park Haven Baptist Church                             | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Parkview Baptist Church                               | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Pecan Grove First Baptist Church                      | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Pine Grove MB Church                                  | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Pineview Baptist Church (Excellence Learning Academy) | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Plainway Baptist Church                               | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Pleasant Grove Baptist Church                         | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Pleasant Grove Missionary Baptist Church              | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Pleasant Home Baptist Church                          | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Pleasant Ridge Baptist Church                         | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Pleasant Ridge Baptist Church (The Ridge) Ellisville  | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Pleasant Valley Missionary Church                     | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Praise Tabernacle Church                              | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
|                                                       |                  | Other      |                                       |                                       | Atmospheric |                                 |                           |         |                       | Geologic    | Hydrologic |                     |                 |                 |

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|----------------------------------------------------------------------------------|------------------|------------|---------------------------------------|---------------------------------------|-------------|---------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| <b>Jones County Critical Facilities Continued</b>                                |                  |            |                                       |                                       |             |                                 |                           |         |                       |             |            |                     |                 |                 |
| Prince of Peace Lutheran Church (YWCO)                                           | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Providence Baptist Church                                                        | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Restoration Life Christian Center / Iglesia Misionera Pentecoste Pan Divida Inc. | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Riverside Baptist Church                                                         | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Salem Heights Baptist Church                                                     | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Salvation in Christ Church                                                       | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Sand Hill Baptist Church                                                         | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Second Baptist Missionary Church                                                 | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Shelton Baptist Church                                                           | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Skyview Congregational Methodist Church                                          | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Soso First Baptist Church                                                        | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Soso Seventh Day Adventist Church                                                | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Spring Hill Baptist Church                                                       | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| St Elmo Baptist Church                                                           | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| St John Baptist Church                                                           | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| St Johns Episcopal Church                                                        | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| St Paul United Methodist Church                                                  | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Sunlight Baptist Church                                                          | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Sweet Hope Baptist Church                                                        | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Temple Baptist Church                                                            | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| The Church of Christian Unity                                                    | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| The Church of Jesus Christ of Latter-Day Saints                                  | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| The Glory House Global Outreach Center                                           | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| The Pentecostal Church of God                                                    | House of Worship |            |                                       | X                                     | X           | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
|                                                                                  |                  | Other      |                                       |                                       | Atmospheric |                                 |                           |         |                       | Geologic    | Hydrologic |                     |                 |                 |

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|---------------------------------------------------|------------------|------------|---------------------------------------|---------------------------------------|---------|---------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| <b>Jones County Critical Facilities Continued</b> |                  |            |                                       |                                       |         |                                 |                           |         |                       |             |            |                     |                 |                 |
| The Rock Church                                   | House of Worship |            |                                       | X                                     | X       | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Trinity Baptist Church                            | House of Worship |            |                                       | X                                     | X       | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Tuckers Crossing Baptist Church                   | House of Worship |            |                                       | X                                     | X       | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| United Missionary Baptist Church                  | House of Worship |            |                                       | X                                     | X       | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Unity Baptist Church                              | House of Worship |            |                                       | X                                     | X       | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Victory Hill Baptist Church & Ministries          | House of Worship |            |                                       | X                                     | X       | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Welcome Home Jesus Name Church                    | House of Worship |            |                                       | X                                     | X       | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| West Ellisville Baptist Church                    | House of Worship |            |                                       | X                                     | X       | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| West Laurel Baptist Church                        | House of Worship |            |                                       | X                                     | X       | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| West Laurel United Methodist Church               | House of Worship |            |                                       | X                                     | X       | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| Westminster Presbyterian Church                   | House of Worship |            |                                       | X                                     | X       | X                               | X                         |         | X                     | X           |            |                     |                 |                 |
| White Oak Baptist Church                          | House of Worship |            |                                       | X                                     | X       | X                               | X                         |         | X                     | X           |            |                     |                 |                 |

FIGURE E.11: CRITICAL FACILITY LOCATIONS IN JONES COUNTY



## 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 Jones County that are potentially at risk to these hazards.

**Table E.29** lists the population by jurisdiction according to U.S. Census 2020 population estimates. census block level, limited the total population in Jones County according to Census data is 67,246 persons. There was a slight overall decline in population in Jones county. If the population decline continues, it could lead to a decline in the population vulnerability. Additional population estimates are presented above in **Section E.1**.

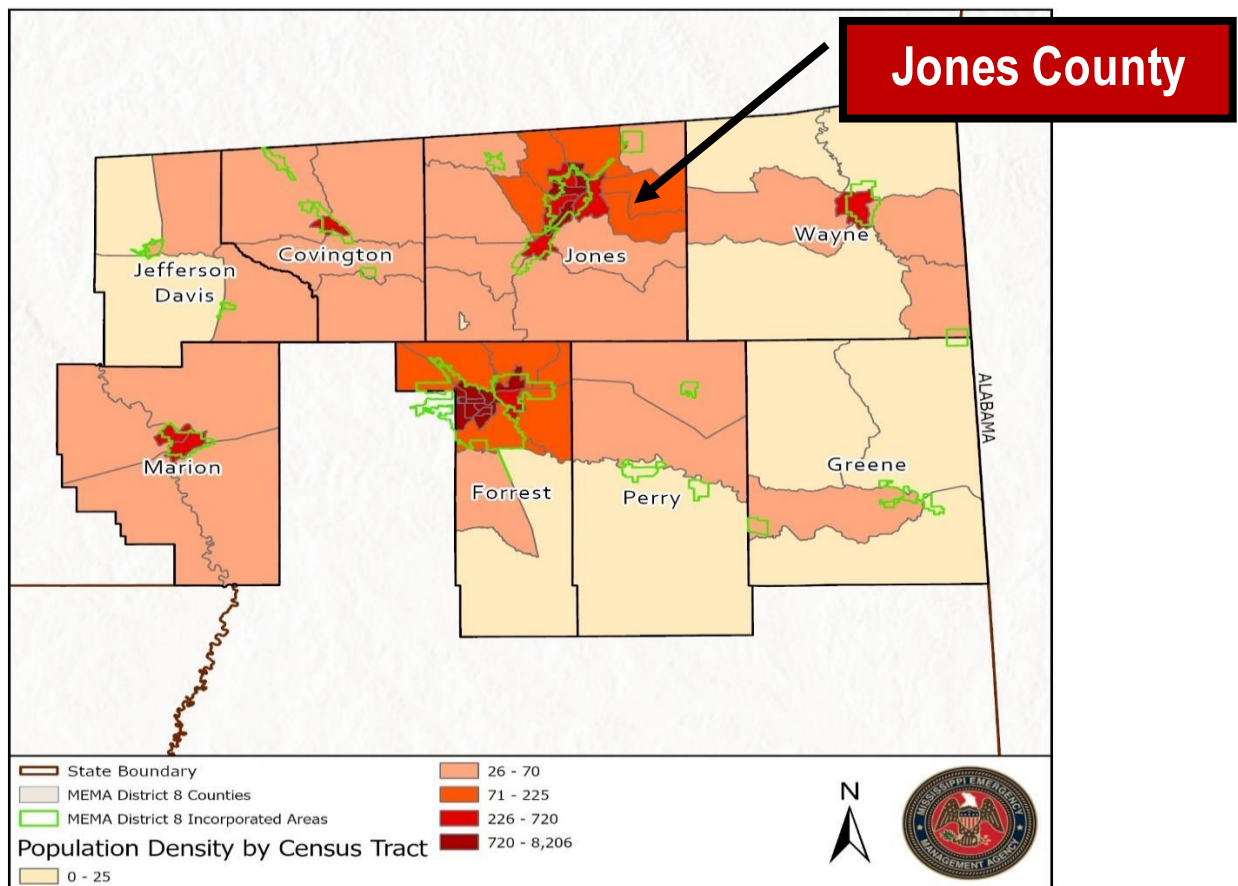
**TABLE E.29: TOTAL POPULATION IN Jones COUNTY**

| Jurisdiction               | 2010 Census   | 2020 Census   |
|----------------------------|---------------|---------------|
| <b>Jones County Total:</b> | <b>67,761</b> | <b>67,246</b> |
| <i>Ellisville</i>          | 4,448         | 4,652         |
| <i>Laurel</i>              | 18,540        | 17,161        |
| <i>Sandersville</i>        | 731           | 636           |
| <i>Soso</i>                | 408           | 418           |
| <i>Unincorporated Area</i> | 44,174        | 44,379        |

Source: US Census Bureau

In addition, **Figure E.12** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2020.

**FIGURE E.12: POPULATION DENSITY IN JONES COUNTY**



### 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 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 E.28**.

Since the previous plan, the jurisdictions are not aware of any developments in hazard prone areas that have increased or decreased vulnerability.

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

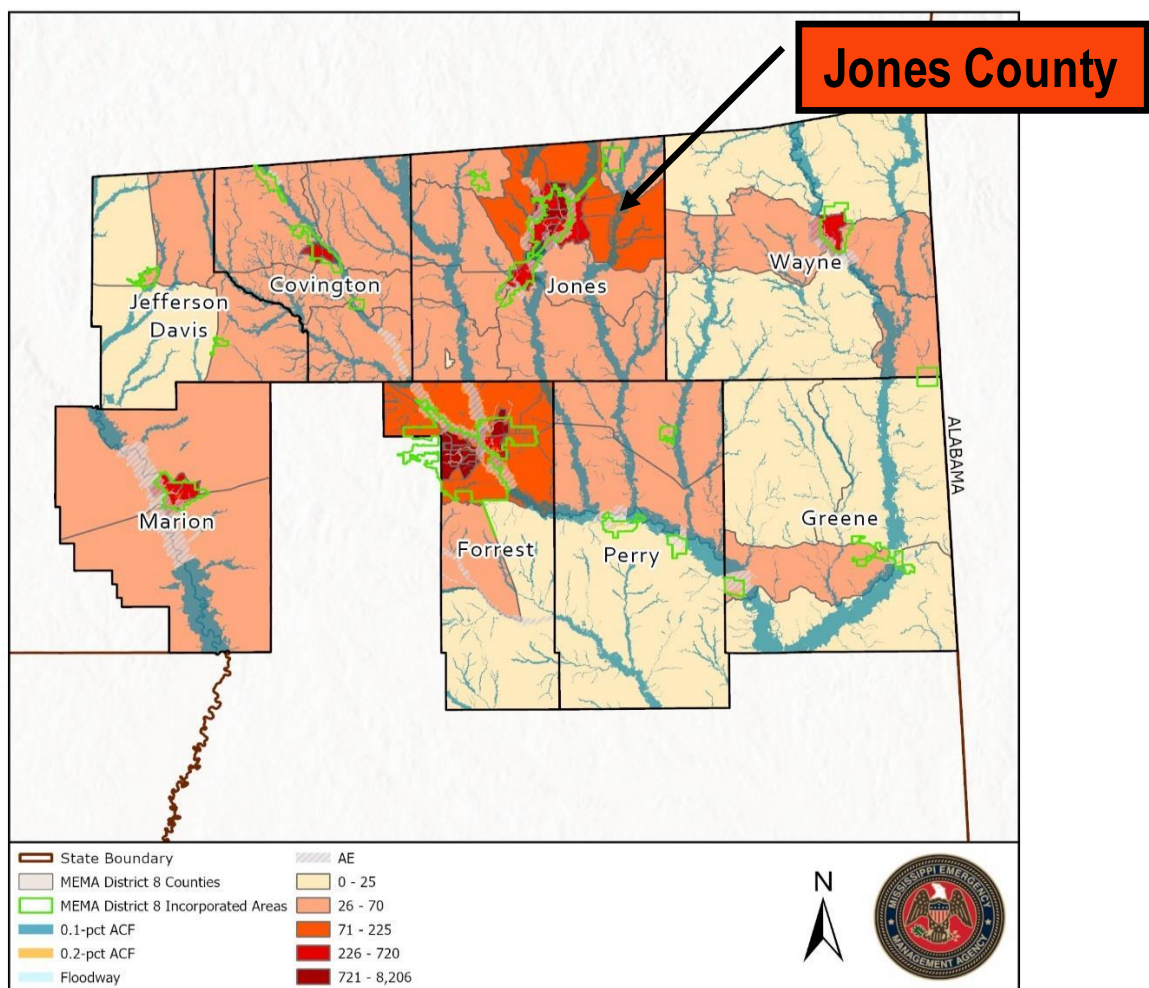
## FLOOD

Historical evidence indicates that Jones County is susceptible to flood events. A total of 105 flood events have been reported by the National Centers for Environmental Information resulting in almost \$11 million in damages.

### Social Vulnerability

Since 2020 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.13** is presented to gain a better understanding of at-risk population.

**FIGURE E.13 : POPULATION DENSITY NEAR FLOODPLAINS**



### Critical Facilities



The critical facility analysis revealed that there are 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 E.28**.

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.

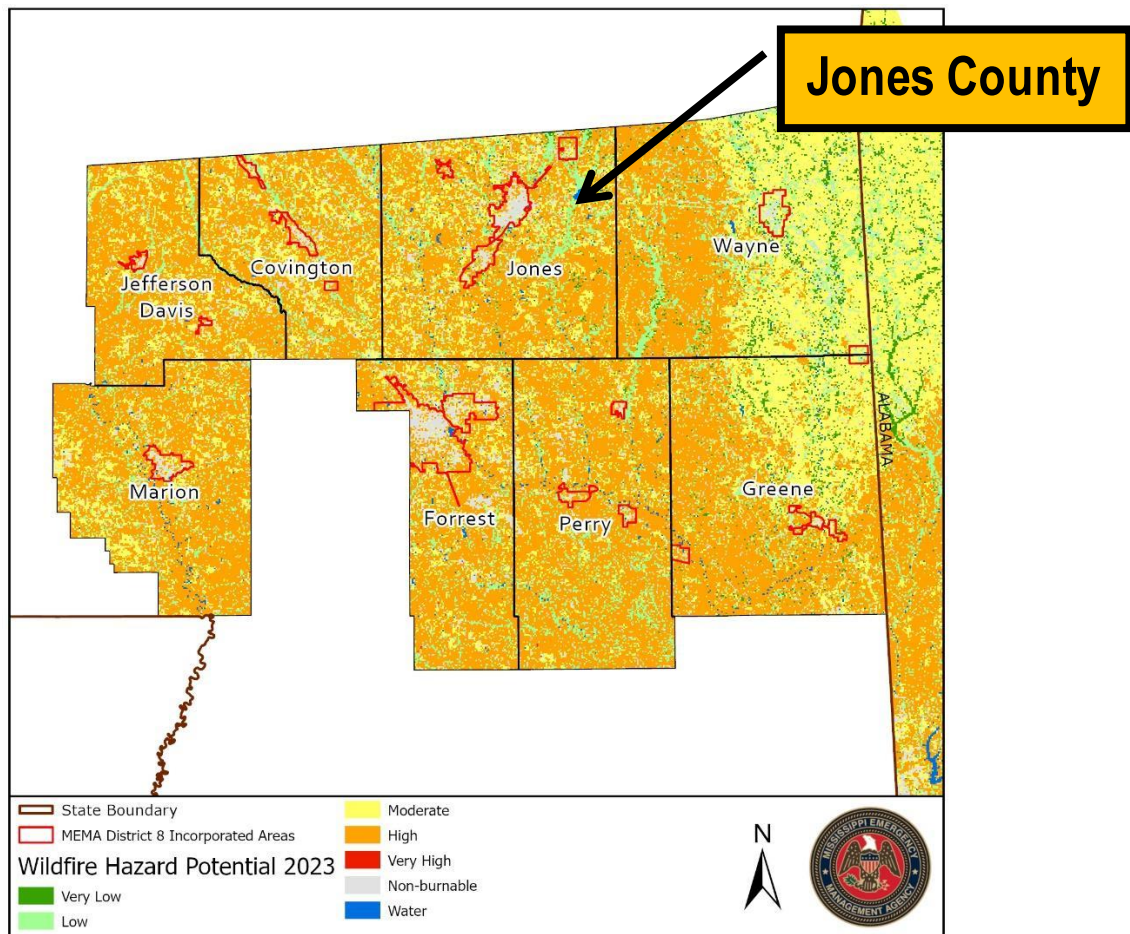
## WILDFIRE

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 E.14** shows the wildfire hazard potential for Jones County. Most of the planning areas falls within the low to moderate category.

**FIGURE E.14: WILDFIRE RISK AREAS IN JONES COUNTY**



## 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 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 are 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 wildfire, putting all facilities at risk. A list of specific critical facilities and their associated risk can be found in **Table E.28**.

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 earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS 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 scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS 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 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, earthquakes have the potential to impact all existing and future buildings, facilities, and populations in Jones County. The HAZUS 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 E.28**.

## **HURRICANE AND TROPICAL STORM**

Historical evidence indicates that Jones County has an elevated risk of hurricane and tropical storm hazards. 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 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 of hurricane and tropical storm hazards. HAZUS 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 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 estimated economic losses for the scenario event. HAZUS 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's region. 88 percent of the losses were sustained by residential structures.

### **Debris Generation**

As part of the scenario, HAZUS estimated the amounts 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 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 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 mitigate against the effects of the hurricane hazard. A list of specific critical facilities can be found in **Table E.28**.

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**

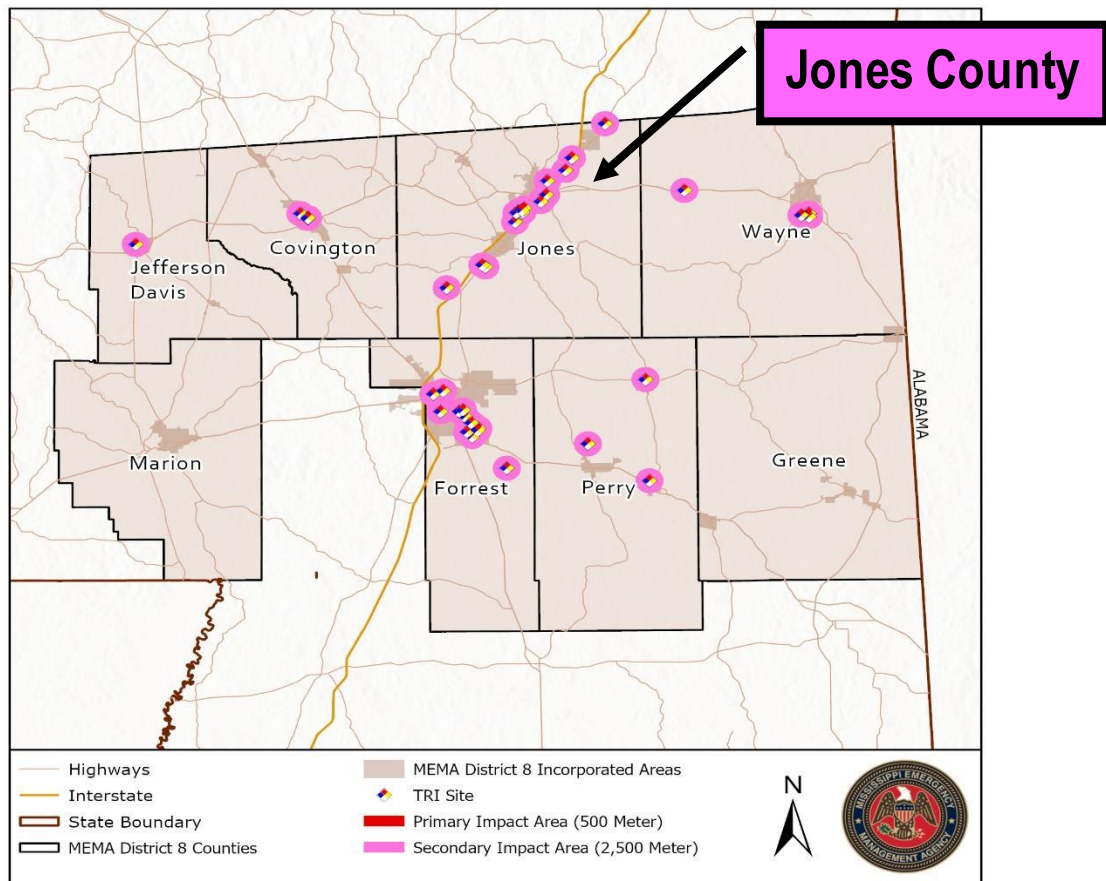
Although historical evidence and existing Toxic Release Inventory sites indicate that Jones County is susceptible to hazardous materials events, there are few reports of damage.

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 hazardous materials release. The duration of a hazardous materials incident can range from hours to days. Warning time is minimal to none.

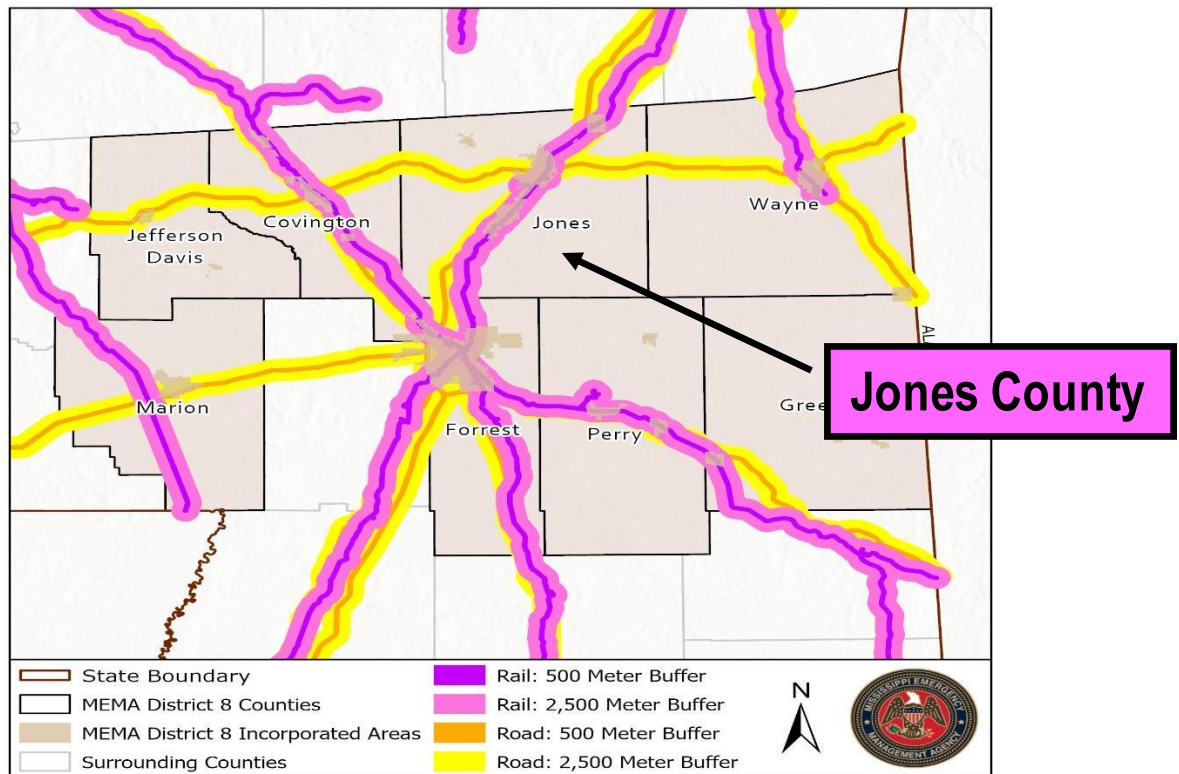
To conduct a vulnerability assessment for this hazard, GIS intersection analysis was used for fixed and mobile areas and parcels. In both scenarios, two sizes of buffers—500 and 2,500 meters—were used. These areas are assumed to respect the different levels of effect: immediate (primary) and secondary. 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 E.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 E.16** shows the areas used for mobile toxic release buffer analysis. The mobile toxic release buffer data has not changed since the last plan update.

**FIGURE E.15 : TRI SITES WITH BUFFERS IN JONES COUNTY**





**FIGURE E.16 : 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 of evacuating 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 E.28** 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 E.28**.

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.

## **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 E.30** 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 E.30: RELEVANT PLANS, ORDINANCES, AND PROGRAMS**

| Planning/Regulatory Tool                | Jones County | Ellisville | Laurel | Sandersville | Soso |
|-----------------------------------------|--------------|------------|--------|--------------|------|
| Hazard Mitigation Plan                  | ✓            | ✓          | ✓      | ✓            | ✓    |
| Comprehensive Land Use Plan             |              | ✓          | ✓      |              |      |
| Floodplain Management Plan              |              |            |        |              |      |
| Open Space Management Plan              | ✓            | ✓          | ✓      | ✓            | ✓    |
| Stormwater Management Plan/Ordinance    |              |            | ✓      |              |      |
| National 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 Codes                          |              | ✓          | ✓      |              |      |
| Fire Codes                              |              |            | ✓      |              |      |
| National Flood Insurance Program (NFIP) | ✓            | ✓          | ✓      |              |      |
| National Community Rating System        |              |            |        |              |      |

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 E.31 provides NFIP policy and claim information for each participating jurisdiction in Jones County.

**TABLE E.31: NFIP POLICY AND CLAIM INFORMATION**

| Location      | Date Joined NFIP | Current Effective Map Date | NFIP Policies in Force | Insurance in Force | Closed Claims | Total Payments to Date |
|---------------|------------------|----------------------------|------------------------|--------------------|---------------|------------------------|
| Jones County† | 12/16/1990       | 9/29/2010                  | 133                    | \$17,174,300       | 28            | \$237,123              |
| Ellisville    | 12/16/1988       | 9/29/2010                  | 24                     | \$2,281,200        | 5             | \$46,027               |
| Laurel        | 9/15/1977        | 9/29/2010                  | 254                    | \$30,415,800       | 75            | \$398,815              |
| Sandersville* | --               | 9/29.2010(M)               | --                     | --                 | --            | --                     |
| Soso*         | --               | --                         | --                     | --                 | --            | --                     |

†Includes unincorporated areas of county only  
(M) – No Elevation Determined, All Zone A, C and X

### **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.

## E.4.2 Administrative and Technical Capability

**Table E.32** 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 E.32: RELEVANT STAFF / PERSONNEL RESOURCES**

| <b>Staff/Personal Resource</b>                                                                                 | <b>Jones County</b> | <b>Ellisville</b> | <b>Laurel</b> | <b>Sandersville</b> | <b>Soso</b> |
|----------------------------------------------------------------------------------------------------------------|---------------------|-------------------|---------------|---------------------|-------------|
| <b>Planners with knowledge of land development/ land management practices</b>                                  | ✓                   |                   | ✓             |                     |             |
| <b>Engineers or professionals trained in construction practices related to buildings and/or infrastructure</b> | ✓                   | ✓                 | ✓             | ✓                   | ✓           |
| <b>Planners or engineers with an understanding of natural and/or human-caused hazards.</b>                     | ✓                   | ✓                 | ✓             | ✓                   | ✓           |
| <b>Emergency Manager</b>                                                                                       | ✓                   | ✓                 | ✓             | ✓                   | ✓           |
| <b>Floodplain Manager</b>                                                                                      | ✓                   | ✓                 | ✓             |                     |             |
| <b>Land Surveyors</b>                                                                                          |                     |                   |               |                     |             |
| <b>Scientists familiar with the hazards of the community.</b>                                                  | ✓                   | ✓                 | ✓             | ✓                   | ✓           |
| <b>Staff with education or expertise to assess the community's vulnerability to hazards.</b>                   | ✓                   | ✓                 | ✓             | ✓                   | ✓           |
| <b>Personnel skilled in GIS and/or HAZ-US</b>                                                                  | ✓                   | ✓                 | ✓             | ✓                   | ✓           |
| <b>Resource development staff or grant writers</b>                                                             | ✓                   |                   |               |                     |             |

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.33** 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 E.33: RELEVANT FISCAL RESOURCES**

| <b>Fiscal Tool/Resource</b>                             | <b>Jones County</b> | <b>Ellisville</b> | <b>Laurel</b> | <b>Sandersville</b> | <b>Soso</b> |
|---------------------------------------------------------|---------------------|-------------------|---------------|---------------------|-------------|
| Capital Improvement Programing                          | ✓                   | ✓                 | ✓             |                     |             |
| Community Development Block Grants (CDBG)               | ✓                   | ✓                 | ✓             | ✓                   |             |
| Special Purchase 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 | ✓                   | ✓                 | ✓             | ✓                   | ✓           |

## 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.

## E.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.

## E.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 E.34**.

**TABLE E.34: MEMA DISTRICT 8 REGIONAL MITIGATION GOALS**

| Goal           |                                                                                                                                               |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Goal #1</b> | Develop a sustainable, comprehensive mitigation program to ensure safer communities.                                                          |
| <b>Goal #2</b> | Reduce or avoid loss of life, injury, and damage to property, the economy, and the environment.                                               |
| <b>Goal #3</b> | Enhance preparedness and effective response to hazards.                                                                                       |
| <b>Goal #4</b> | Strengthen and improve local mitigation capabilities.                                                                                         |
| <b>Goal #5</b> | 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 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 Addressed | Relative Priority | Funding Sources             | Estimated Cost             | Responsible Party       | Completion Date (Target) | Implementation Status       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|-----------------------------|----------------------------|-------------------------|--------------------------|-----------------------------|
| <b>Prevention</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                        |                  |                   |                             |                            |                         |                          |                             |
| P-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 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. | Multiple         | Moderate          | Little to no cost           | To be determined           | County                  | Ongoing                  | Completed & Ongoing         |
| P-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.                                                                                                                            | Multiple         | High              | Local Budget and FMA        | To be determined           | County                  | Ongoing                  | Ongoing                     |
| P-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.                                                                                                                    | Multiple         | Moderate          | Local Budget and FMA        | To be determined           | County EMA              | Annual                   | Completed & Ongoing         |
| P-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.                                                                                                  | Multiple         | Moderate          | CDBD, Federal, State, Local | \$150,000                  | County BOS              | 3-5 years                | Ongoing                     |
| P-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 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                                                  | Multiple         | Moderate          | Local Funds                 | \$20,000                   | Municipalities          | Ongoing                  | Ongoing                     |
| <b>Property Protection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                        |                  |                   |                             |                            |                         |                          |                             |
| 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           | County                  | Ongoing                  | Ongoing                     |
| <b>Natural Resource Protection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                        |                  |                   |                             |                            |                         |                          |                             |
| NRP-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Evaluate streams and identify potential projects to mitigate stream bank restoration.                                                                                                                                                                                  | FL               | Moderate          | Grants, BRIC, HMGP, PGM,    | To be determined           | County                  | Ongoing                  | Completed & Ongoing         |
| <b>Emergency Services</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                        |                  |                   |                             |                            |                         |                          |                             |
| ES-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Develop a drought council to implement an emergency response plan for the County                                                                                                                                                                                       | DR               | Moderate          | Little to no cost           | To be determined           | County EMA              | N/A                      | Deferred—No Drought Council |
| ES-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Identify and implement automated mass notification/warning system County wide                                                                                                                                                                                          | All Hazards      | High              | Grants, BRIC, HMGP          | \$15,000-\$20,000 Annually | County & Municipalities | Ongoing                  | Ongoing                     |
| <b>Structural Projects</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                        |                  |                   |                             |                            |                         |                          |                             |
| SP-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Flood Elevations                                                                                                                                                                                                                                                       | FL               | Medium            | FEMA                        | N/A                        | County                  | Ongoing                  | Ongoing                     |
| <b>Public Education and Awareness</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                        |                  |                   |                             |                            |                         |                          |                             |
| PEA-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Partner with various stakeholder groups to develop an all-hazard public outreach and education program.                                                                                                                                                                | Multiple         | High              | Little to no Cost           | To be Determined           | County                  | Ongoing                  | Completed & Ongoing         |
| FL = Flood                      HU = Hurricane                      TS = Tropical Storm                      TO = Tornado<br>TH = Thunderstorm                      BH = Biological Hazards                      HW = High Winds                      RH = Roadway Hazards<br>TT = Transportation and Technological Hazards                      CH = Civil Hazards                      P = Pandemic<br>County EMA = Jones County Emergency Management Agency                      County BOS = Jones County Board of Supervisors |                                                                                                                                                                                                                                                                        |                  |                   |                             |                            |                         |                          |                             |
| <b>City of Ellisville Mitigation Action Plan</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                        |                  |                   |                             |                            |                         |                          |                             |

| Action #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Description                                                                                                                                                                                                                                                            | Hazard Addressed | Relative Priority | Funding Sources                | Estimated Cost             | Responsible Party       | Completion Date (Target) | Implementation Status       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|--------------------------------|----------------------------|-------------------------|--------------------------|-----------------------------|
| <b>Prevention</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| P-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 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. | Multiple         | Moderate          | Little to no cost              | To be determined           | County                  | Ongoing                  | Completed & Ongoing         |
| P-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.                                                                                                                            | Multiple         | High              | Local Budget and FMA           | To be determined           | County                  | Ongoing                  | Ongoing                     |
| P-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.                                                                                                                    | Multiple         | Moderate          | Local Budget and FMA           | To be determined           | County EMA              | Annual                   | Completed & Ongoing         |
| P-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.                                                                                                  | Multiple         | Moderate          | Grants, BRIC, HMGP CDBD, Local | \$150,000                  | County BOS              | 3-5 years                | Ongoing                     |
| P-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 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                                                  | Multiple         | Moderate          | Local Funds                    | \$20,000                   | Municipalities          | Ongoing                  | Ongoing                     |
| <b>Property Protection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| PP-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Upon receipt of the new floodplain maps, review repetitive loss structures and implement a plan to complete the acquisition process.                                                                                                                                   | FL               | Moderate          | Grants, BRIC, HMGP, FMA        | To be determined           | County                  | Ongoing                  | Ongoing                     |
| <b>Natural Resource Protection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| NRP-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Evaluate streams and identify potential projects to mitigate stream bank restoration.                                                                                                                                                                                  | FL               | Moderate          | Grants, BRIC, HMGP, PGM,       | To be determined           | County                  | Ongoing                  | Completed & Ongoing         |
| <b>Emergency Services</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| ES-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Develop a drought council to implement an emergency response plan for the County                                                                                                                                                                                       | DR               | Moderate          | Little to no cost              | To be determined           | County EMA              | N/A                      | Deferred—No Drought Council |
| ES-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Identify and implement automated mass notification/warning system County wide                                                                                                                                                                                          | All Hazards      | High              | Grants, BRIC, HMGP             | \$15,000-\$20,000 Annually | County & Municipalities | Ongoing                  | Ongoing                     |
| <b>Structural Projects</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| SP-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Flood Elevations                                                                                                                                                                                                                                                       | FL               | Medium            | Grants, BRIC, HMGP             | N/A                        | County                  | Ongoing                  | Ongoing                     |
| <b>Public Education and Awareness</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| PEA-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Partner with various stakeholder groups to develop an all-hazard public outreach and education program.                                                                                                                                                                | Multiple         | High              | Little to no Cost, MEMA        | To be Determined           | County                  | Ongoing                  | Completed & Ongoing         |
| FL = Flood                      TS = Tropical Storm                      TO = Tornado                      TH = Thunderstorm<br>BH = Biological Hazards                      P = Pandemic                      HW = High Winds                      RH = Roadway Hazards<br>TT = Transportation and Technological Hazards                      CH = Civil Hazards                      HU = Hurricane<br>County EMA = Jones County Emergency Management Agency                      County BOS = Jones County Board of Supervisors |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| <b>City of Laurel Mitigation Action Plan</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |

| Action #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Description                                                                                                                                                                                                                                                            | Hazard Addressed | Relative Priority | Funding Sources                | Estimated Cost             | Responsible Party       | Completion Date (Target) | Implementation Status       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|--------------------------------|----------------------------|-------------------------|--------------------------|-----------------------------|
| <b>Prevention</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| P-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 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. | Multiple         | Moderate          | Little to no cost              | To be determined           | County                  | Ongoing                  | Completed & Ongoing         |
| P-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.                                                                                                                            | Multiple         | High              | Local Budget and FMA           | To be determined           | County                  | Ongoing                  | Ongoing                     |
| P-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.                                                                                                                    | Multiple         | Moderate          | Local Budget and FMA           | To be determined           | County EMA              | Annual                   | Completed & Ongoing         |
| P-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.                                                                                                  | Multiple         | Moderate          | CDBD, Grants, BRIC, HMGP Local | \$150,000                  | County BOS              | 3-5 years                | Ongoing                     |
| P-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 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                                                  | Multiple         | Moderate          | Local Funds                    | \$20,000                   | Municipalities          | Ongoing                  | Ongoing                     |
| <b>Property Protection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| 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           | County                  | Ongoing                  | Ongoing                     |
| <b>Natural Resource Protection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| NRP-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Evaluate streams and identify potential projects to mitigate stream bank restoration.                                                                                                                                                                                  | FL               | Moderate          | Grants, BRIC, HMGP             | To be determined           | County                  | Ongoing                  | Completed & Ongoing         |
| <b>Emergency Services</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| ES-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Develop a drought council to implement an emergency response plan for the County                                                                                                                                                                                       | DR               | Moderate          | Little to no cost              | To be determined           | County EMA              | N/A                      | Deferred—No Drought Council |
| ES-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Identify and implement automated mass notification/warning system County wide                                                                                                                                                                                          | All Hazards      | High              | TBD                            | \$15,000-\$20,000 Annually | County & Municipalities | Ongoing                  | Ongoing                     |
| <b>Structural Projects</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| SP-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Flood Elevations                                                                                                                                                                                                                                                       | FL               | Medium            | Grants, BRIC, HMGP             | N/A                        | County                  | Ongoing                  | Ongoing                     |
| <b>Public Education and Awareness</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| PEA-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Partner with various stakeholder groups to develop an all-hazard public outreach and education program.                                                                                                                                                                | Multiple         | High              | Little to no cost              | To be Determined           | County                  | Ongoing                  | Completed & Ongoing         |
| FL = Flood                      HU = Hurricane                      TS = Tropical Storm                      TO = Tornado<br>TH = Thunderstorm                      BH = Biological Hazards                      HW = High Winds                      RH = Roadway Hazards<br>TT = Transportation and Technological Hazards                      CH = Civil Hazards                      P = Pandemic<br><u>County EMA</u> = Jones County Emergency Management Agency <u>County BOS</u> = Jones County Board of Supervisors |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| <b>Town of Sandersville Mitigation Action Plan</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |

| Action #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Description                                                                                                                                                                                                                                                            | Hazard Addressed | Relative Priority | Funding Sources                | Estimated Cost             | Responsible Party       | Completion Date (Target) | Implementation Status       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|--------------------------------|----------------------------|-------------------------|--------------------------|-----------------------------|
| <b>Prevention</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| P-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 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. | Multiple         | Moderate          | Little to no Cost              | To be determined           | County                  | Ongoing                  | Completed & Ongoing         |
| P-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.                                                                                                                            | Multiple         | High              | Local Budget and FMA           | To be determined           | County                  | Ongoing                  | Ongoing                     |
| P-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.                                                                                                                    | Multiple         | Moderate          | Local Budget and FMA           | To be determined           | County EMA              | Annual                   | Completed & Ongoing         |
| P-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.                                                                                                  | Multiple         | Moderate          | CDBD, Grants, BRIC, HMGP Local | \$150,000                  | County BOS              | 3-5 years                | Ongoing                     |
| P-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 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                                                  | Multiple         | Moderate          | Local Funds                    | \$20,000                   | Municipalities          | Ongoing                  | Ongoing                     |
| <b>Property Protection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| PP-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Upon receipt of the new floodplain maps, review repetitive loss structures and implement a plan to complete the acquisition process.                                                                                                                                   | FL               | Moderate          | Grants, BRIC, HMGP, HMA        | To be determined           | County                  | Ongoing                  | Ongoing                     |
| <b>Natural Resource Protection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| NRP-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Evaluate streams and identify potential projects to mitigate stream bank restoration.                                                                                                                                                                                  | FL               | Moderate          | Grants, BRIC, HMGP             | To be determined           | County                  | Ongoing                  | Completed & Ongoing         |
| <b>Emergency Services</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| ES-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Develop a drought council to implement an emergency response plan for the County                                                                                                                                                                                       | DR               | Moderate          | Little to no cost              | To be determined           | County EMA              | N/A                      | Deferred—No Drought Council |
| ES-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Identify and implement automated mass notification/warning system County wide                                                                                                                                                                                          | All Hazards      | High              | Grants, BRIC, HMGP             | \$15,000-\$20,000 Annually | County & Municipalities | Ongoing                  | Ongoing                     |
| <b>Structural Projects</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| SP-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Flood Elevations                                                                                                                                                                                                                                                       | FL               | Medium            | Grants, BRIC, HMGP             | N/A                        | County                  | Ongoing                  | Ongoing                     |
| <b>Public Education and Awareness</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| PEA-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Partner with various stakeholder groups to develop an all-hazard public outreach and education program.                                                                                                                                                                | Multiple         | High              | Little to no cost, MEMA        | To be Determined           | County                  | Ongoing                  | Completed & Ongoing         |
| FL = Flood                      HU = Hurricane                      TS = Tropical Storm                      TO = Tornado<br>TH = Thunderstorm                      BH = Biological Hazards                      HW = High Winds                      RH = Roadway Hazards<br>TT = Transportation and Technological Hazards                      CH = Civil Hazards                      P = Pandemic<br>County EMA = Jones County Emergency Management Agency                      County BOS = Jones County Board of Supervisors |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |
| <b>Town of Soso Mitigation Action Plan</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                        |                  |                   |                                |                            |                         |                          |                             |

| Action #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Description                                                                                                                                                                                                                                                            | Hazard Addressed | Relative Priority | Funding Sources                 | Estimated Cost             | Responsible Party              | Completion Date (Target) | Implementation Status       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|---------------------------------|----------------------------|--------------------------------|--------------------------|-----------------------------|
| <b>Prevention</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                        |                  |                   |                                 |                            |                                |                          |                             |
| P-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 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. | Multiple         | Moderate          | Little to no cost               | To be determined           | County                         | Ongoing                  | Completed & Ongoing         |
| P-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Evaluate existing land-use studies and determine if any changes need to be made to address land-use in the new designated floodplain areas.                                                                                                                            | Multiple         | High              | Local Budget and FMA            | To be determined           | County                         | Ongoing                  | Ongoing                     |
| P-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Assign data collection of each disaster/weather event countywide. This process will aid community leaders in assessing needs as an ongoing process.                                                                                                                    | Multiple         | Moderate          | Local Budget and FMA            | To be determined           | County Emergency Manag. Agency | Annual                   | Completed & Ongoing         |
| P-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Conduct a study throughout the county identifying storm water issues and determine areas that need improvement. Issues include physical and regulatory interventions.                                                                                                  | Multiple         | Moderate          | CDBD, Grants, BRIC, HMGP, Local | \$150,000                  | County BOS                     | 3-5 years                | Ongoing                     |
| P-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 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                                                  | Multiple         | Moderate          | Local Funds                     | \$20,000                   | Municipalities                 | Ongoing                  | Ongoing                     |
| <b>Property Protection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                        |                  |                   |                                 |                            |                                |                          |                             |
| PP-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Upon receipt of the new floodplain maps, review repetitive loss structures and implement a plan to complete the acquisition process.                                                                                                                                   | FL               | Moderate          | Grants, BRIC, HMGP, FMA         | To be determined           | County                         | Ongoing                  | Ongoing                     |
| <b>Natural Resource Protection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                        |                  |                   |                                 |                            |                                |                          |                             |
| NRP-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Evaluate streams and identify potential projects to mitigate stream bank restoration.                                                                                                                                                                                  | FL               | Moderate          | Grants, BRIC, HMGP              | To be determined           | County                         | Ongoing                  | Completed & Ongoing         |
| <b>Emergency Services</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                        |                  |                   |                                 |                            |                                |                          |                             |
| ES-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Develop a drought council to implement an emergency response plan for the County                                                                                                                                                                                       | DR               | Moderate          | Little to no cost               | To be determined           | County EMA                     | N/A                      | Deferred—No Drought Council |
| ES-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Identify and implement automated mass notification/warning system County wide                                                                                                                                                                                          | All Hazards      | High              | Grants, BRIC, HMGP              | \$15,000-\$20,000 Annually | County & Municipalities        | Ongoing                  | Ongoing                     |
| <b>Structural Projects</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                        |                  |                   |                                 |                            |                                |                          |                             |
| SP-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Flood Elevations                                                                                                                                                                                                                                                       | FL               | Medium            | Grants, BRIC, HMGP              | N/A                        | County                         | Ongoing                  | Ongoing                     |
| <b>Public Education and Awareness</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                        |                  |                   |                                 |                            |                                |                          |                             |
| PEA-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Partner with various stakeholder groups to develop an all-hazard public outreach and education program.                                                                                                                                                                | Multiple         | High              | Little to no cost, MEMA         | To be Determined           | County                         | Ongoing                  | Completed & Ongoing         |
| FL = Flood                                      HU = Hurricane                                      TS = Tropical Storm                                      TO = Tornado<br>TH = Thunderstorm                                      BH = Biological Hazards                                      HW = High Winds                                      RH = Roadway Hazards<br>TT = Transportation and Technological Hazards                                      CH = Civil Hazards                                      P = Pandemic<br>County EMA = Jones County Emergency Management Agency                                      County BOS = Jones County Board of Supervisors |                                                                                                                                                                                                                                                                        |                  |                   |                                 |                            |                                |                          |                             |



# Annex F

## Marion County

This annex includes jurisdiction-specific information for Marion County and its participating municipalities. It consists of the following five subsections:

- ★ F.1 Marion County Community Profile
- ★ F.2 Marion County Risk Assessment
- ★ F.3 Marion County Vulnerability Assessment
- ★ F.4 Marion County Capability Assessment
- ★ F.5 Marion County Mitigation Strategy

### F.1 MARION COUNTY COMMUNITY PROFILE

#### F.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 F.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.

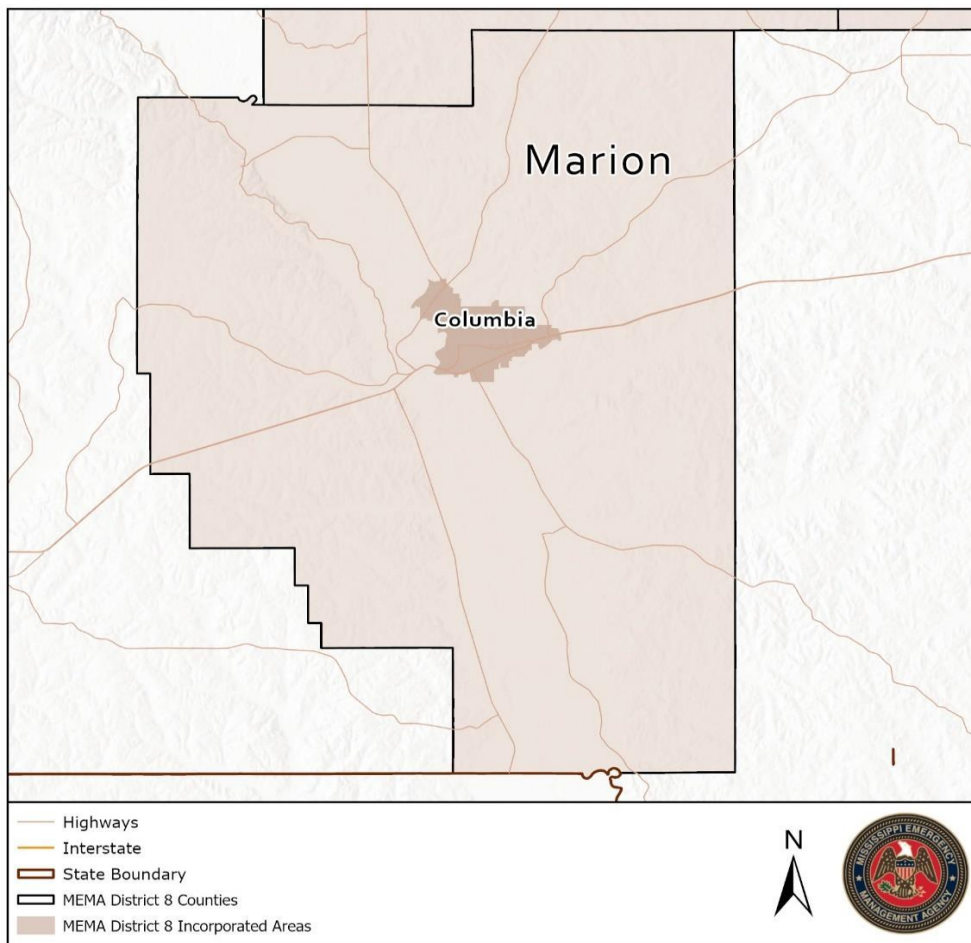
In Marion County, the summers are long, hot, and oppressive; the winters are short and cold; and it is wet and partly cloudy year-round. Over the course of the year, the temperature typically varies from 36°F to 92°F and is rarely below 30°F or above 97°F.

The hot season lasts for 5 months, from May through September, 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 71°F. The cool season lasts for 4 months, from November through February, with an average daily high temperature below 65°F. The coldest day of the year is January 17, with an average low of 36°F and high of 60°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.

|                         | Jan     | Feb.    | Mar.    | Apr.    | May     | June    | July    | Aug.    | Sept.   | Oct.    | Nov.    | Dec.   |
|-------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| Average <b>High</b>     | 60      | 63      | 71      | 78      | 85      | 90      | 92      | 92      | 88      | 80      | 70      | 61     |
| Average <b>Lows</b>     | 36      | 40      | 47      | 53      | 62      | 69      | 71      | 71      | 66      | 54      | 45      | 38     |
| Average <b>Rainfall</b> | 6.35 in | 5.67 in | 5.65 in | 5.25 in | 4.92 in | 5.46 in | 5.31 in | 4.79 in | 3.08 in | 3.91 in | 4.38 in | 5.5 in |

FIGURE F.1: MARION COUNTY ORIENTATION MAP



## F.1.2 Population and Demographics

According to the 2020 Census, Marion County has a population of 24,441 people. The county has seen almost 10% decline between 2010 and 2020, and the population density is 45.1 people per square mile. The decline continues. Per the Census Reports, in 2023, Marion County had a population of 24,224, which is a 0.9 percent decline. This decline could lower the vulnerability of the population. The household income is \$38,399, which grew 19 percent. Population counts from the US Census Bureau for 2010, and 2020 for the county and both of the participating jurisdictions are presented in **Table F.1**. Estimates for 2023 are also included.

**TABLE F.1: POPULATION COUNTS FOR MARION COUNTY**

| Jurisdiction  | 2010 Census | 2020 Census | % of Change 2010 to 2020 | 2023 Estimate |
|---------------|-------------|-------------|--------------------------|---------------|
| Marion County | 27,088      | 24,441      | -9.77%                   | 24,224        |
| Columbia      | 6,582       | 5,864       | -10.9                    | 5,886         |

Source: US Census Bureau

Based on the 2020 Census, the median age of residents of Marion County is 38 years, which by Census estimates rose to 40 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 32 percent black or African American persons and 2% percent Hispanic and Latino. Whites make up the majority of the population in the county, accounting for 66 percent of the population.

**TABLE F.2: DEMOGRAPHICS OF MARION COUNTY**

| Jurisdiction  | White Persons<br>(% 2020) | Black Persons<br>(% 2020) | American Indian or<br>Alaska Native (% 2020) | Other Races<br>(% 2020) | Persons of Hispanic<br>Origin (% 2020) |
|---------------|---------------------------|---------------------------|----------------------------------------------|-------------------------|----------------------------------------|
| Marion County | 66%                       | 32%                       | 0%                                           | 0.5%                    | 2%                                     |
| Columbia      | 53%                       | 43%                       | 0.2%                                         | 2%                      | 2%                                     |

Source: US Census Bureau

TABLE F.3: AVERAGE INCOME AND HEALTH IN MARION COUNTY

| Jurisdiction  | % of<br>Population<br>Disabled | % of Population<br>without Health<br>Insurance | Median<br>Household<br>Income | % of Population<br>Below The<br>Poverty Level |
|---------------|--------------------------------|------------------------------------------------|-------------------------------|-----------------------------------------------|
| Marion County | 22%                            | 16%                                            | \$38,399                      | 23%                                           |
| Columbia      | 25%                            | 13%                                            | \$29,470                      | 27%                                           |

Source: US Census Bureau

### F.1.3 Housing

According to the 2020 US Census, there are 11,080 housing units in Marion County, the majority of which are single family homes or mobile homes. Per 2023 estimates, the total number of housing units has not changed. The median home value is \$104,100, which also increased by at least 24.6% percent. Housing information for the county and town is presented in **Table F.4**.

TABLE F.4: HOUSING CHARACTERISTICS OF MARION COUNTY

| Jurisdiction  | Housing<br>Units (2010) | Median Home<br>Value (2010) | Housing<br>Units (2020) | Median Home<br>Value (2020) |
|---------------|-------------------------|-----------------------------|-------------------------|-----------------------------|
| Marion County | 11,080                  | \$78,500                    | 11,080                  | \$104,100                   |
| Columbia      | 2,815                   | \$82,800                    | 2,650                   | \$95,200                    |

Source: Census Bureau

### F.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 within 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 7 fire stations, 3 police stations, and 14 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.

### **F.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.

### **F.1.6 Employment and Industry**

According to the Mississippi Employment Security Commission, in 2023 Marion County had an average annual employment of 8,220 workers and an average unemployment rate of 5.1 percent. In 2023, 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 \$38,399.

## **F.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*.

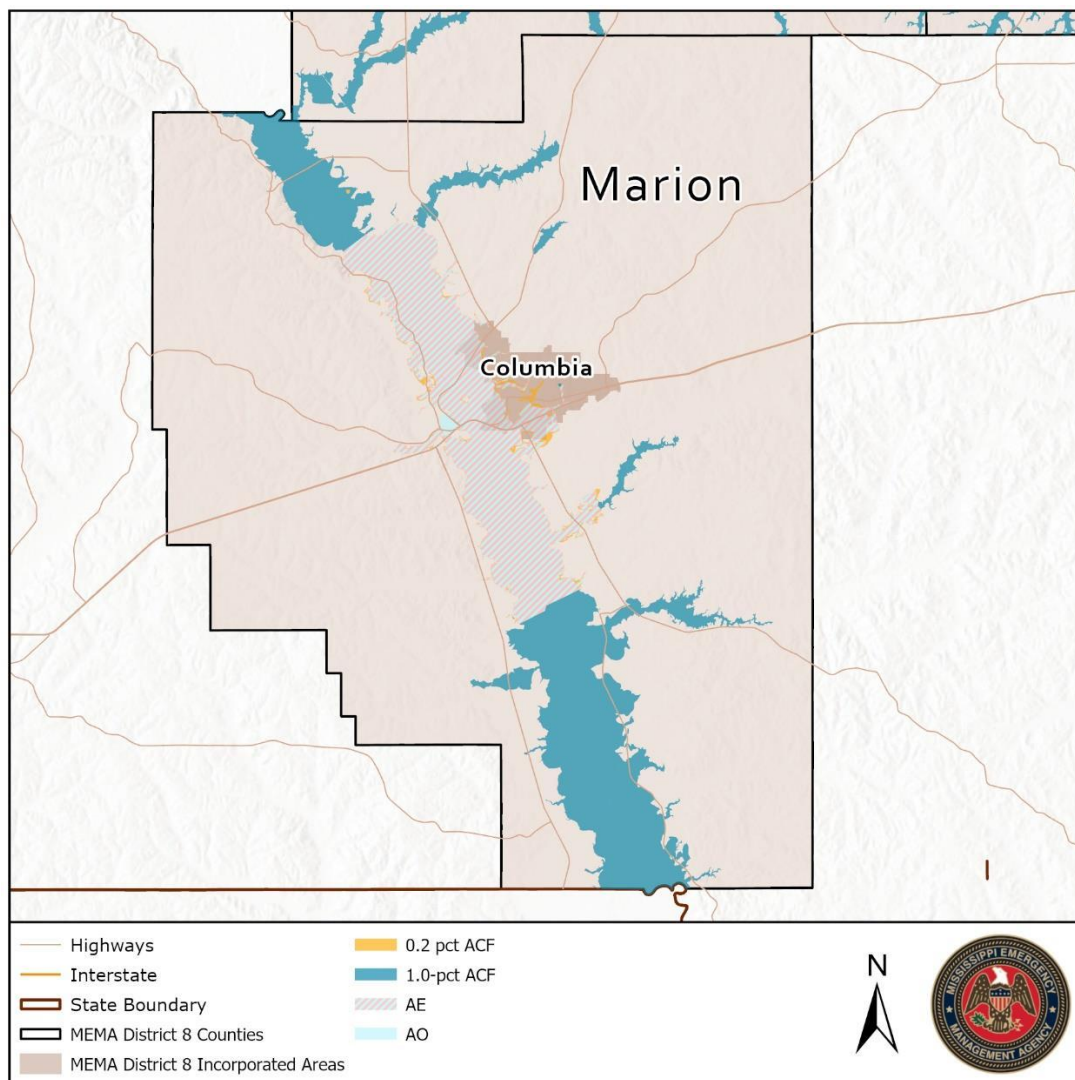
## F.2.1 Flood

### 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). 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.

**FIGURE F.2: SPECIAL FLOOD HAZARD AREAS IN MARION COUNTY**



### HISTORICAL OCCURRENCES



Floods resulted in Thirteen disaster declarations in Marion County in 1972, 1973, 1974, 1979, 1980, 1983, 1990, 2003, 2013, 2016, 2018, and twice in 2020. 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 61 events in Marion County since 2000. A summary of these events is presented in **Table F.5**. These events accounted for almost \$10.6 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 F.6 & F.7**.

**TABLE F.5: SUMMARY OF FLOOD OCCURRENCES IN MARION COUNTY**

| LOCATION                    | Number of Occurrences | Deaths/Injuries | Property Damage     | Crop Damage |
|-----------------------------|-----------------------|-----------------|---------------------|-------------|
| <i>Columbia</i>             | 32                    | 0/0             | \$1,736,000         | \$0         |
| <i>Unincorporated Area</i>  | 29                    | 0/0             | \$8,791,000         | \$0         |
| <b>Marion County Total:</b> | <b>61</b>             | <b>0/0</b>      | <b>\$10,527,000</b> | <b>\$0</b>  |

Source: NCED/NOAA

**TABLE F.6: HISTORICAL FLOOD EVENTS IN MARION COUNTY**

| Location                    | Date       | Type        | Deaths | Injuries | Property Damage |
|-----------------------------|------------|-------------|--------|----------|-----------------|
| <b>The City of Columbia</b> |            |             |        |          |                 |
| <i>Columbia</i>             | 11/9/2000  | Flash Flood | 0      | 0        | \$5,000         |
| <i>Columbia</i>             | 8/12/2001  | Flash Flood | 0      | 0        | \$20,000        |
| <i>Columbia</i>             | 9/26/2002  | Flash Flood | 0      | 0        | \$2,000         |
| <i>Columbia</i>             | 6/30/2003  | Flash Flood | 0      | 0        | \$2,000         |
| <i>Columbia</i>             | 2/23/2004  | Flash Flood | 0      | 0        | \$10,000        |
| <i>Columbia</i>             | 10/17/2006 | Flash Flood | 0      | 0        | \$300,000       |
| <i>Columbia</i>             | 8/25/2007  | Flash Flood | 0      | 0        | \$50,000        |
| <i>Columbia</i>             | 3/27/2009  | Flash Flood | 0      | 0        | \$300,000       |
| <i>Columbia</i>             | 12/14/2009 | Flash Flood | 0      | 0        | \$60,000        |
| <i>Columbia</i>             | 7/25/2010  | Flash Flood | 0      | 0        | \$2,000         |
| <i>Columbia</i>             | 3/8/2011   | Flash Flood | 0      | 0        | \$25,000        |
| <i>Columbia</i>             | 7/16/2011  | Flash Flood | 0      | 0        | \$100,000       |
| <i>Columbia</i>             | 9/4/2011   | Flash Flood | 0      | 0        | \$3,000         |
| <i>Columbia</i>             | 9/5/2011   | Flash Flood | 0      | 0        | \$5,000         |
| <i>Columbia</i>             | 8/29/2012  | Flash Flood | 0      | 0        | \$0             |
| <i>Columbia</i>             | 4/14/2013  | Flash Flood | 0      | 0        | \$0             |
| <i>Columbia</i>             | 8/13/2013  | Flash Flood | 0      | 0        | \$25,000        |
| <i>Columbia</i>             | 9/21/2013  | Flash Flood | 0      | 0        | \$0             |
| <i>Columbia</i>             | 1/3/2015   | Flash Flood | 0      | 0        | \$5,000         |
| <i>Columbia</i>             | 7/1/2015   | Flash Flood | 0      | 0        | \$1,000         |
| <i>Columbia</i>             | 3/10/2016  | Flash Flood | 0      | 0        | \$55,000        |
| <i>Columbia</i>             | 3/11/2016  | Flash Flood | 0      | 0        | \$15,000        |
| <i>Columbia</i>             | 4/3/2017   | Flash Flood | 0      | 0        | \$10,000        |
| <i>Columbia</i>             | 8/23/2017  | Flash Flood | 0      | 0        | \$7,000         |
| <i>Columbia</i>             | 7/7/2018   | Flash Flood | 0      | 0        | \$45,000        |
| <i>Columbia</i>             | 12/27/2018 | Flash Flood | 0      | 0        | \$507,000       |

|                                             |            |             |   |   |             |
|---------------------------------------------|------------|-------------|---|---|-------------|
| <i>Columbia</i>                             | 7/8/2020   | Flash Flood | 0 | 0 | \$2,000     |
| <i>Columbia</i>                             | 2/11/2021  | Flash Flood | 0 | 0 | \$95,000    |
| <i>Columbia</i>                             | 4/10/2021  | Flash Flood | 0 | 0 | \$3,000     |
| <i>Columbia</i>                             | 3/18/2022  | Flash Flood | 0 | 0 | \$2,000     |
| <i>Columbia</i>                             | 4/5/2022   | Flash Flood | 0 | 0 | \$5,000     |
| <i>Columbia</i>                             | 1/24/2024  | Flash Flood | 0 | 0 | \$75,000    |
| <b>Unincorporated Area in Marion County</b> |            |             |   |   |             |
| <i>County Wide</i>                          | 3/2/2001   | Flash Flood | 0 | 0 | \$0         |
| <i>County Wide</i>                          | 3/3/2001   | Flash Flood | 0 | 0 | \$0         |
| <i>County Wide</i>                          | 6/6/2001   | Flash Flood | 0 | 0 | \$5,000     |
| <i>North Part of the County</i>             | 6/8/2001   | Flash Flood | 0 | 0 | \$0         |
| <i>County Wide</i>                          | 8/5/2002   | Flash Flood | 0 | 0 | \$7,000     |
| <i>County Wide</i>                          | 2/21/2003  | Flash Flood | 0 | 0 | \$2,000     |
| <i>Kokomo</i>                               | 7/2/2003   | Flash Flood | 0 | 0 | \$50,000    |
| <i>East Part of the County</i>              | 2/25/2004  | Flash Flood | 0 | 0 | \$10,000    |
| <i>Pinebur</i>                              | 3/12/2004  | Flash Flood | 0 | 0 | \$2,500,000 |
| <i>North Part of the County</i>             | 3/31/2005  | Flash Flood | 0 | 0 | \$150,000   |
| <i>County Wide</i>                          | 4/1/2005   | Flash Flood | 0 | 0 | \$100,000   |
| <i>East Part of the County</i>              | 8/29/2005  | Flash Flood | 0 | 0 | \$100,000   |
| <i>Fortenberry</i>                          | 5/26/2008  | Flash Flood | 0 | 0 | \$5,000,000 |
| <i>Kokomo</i>                               | 4/12/2009  | Flash Flood | 0 | 0 | \$25,000    |
| <i>Goss</i>                                 | 10/15/2009 | Flash Flood | 0 | 0 | \$5,000     |
| <i>Fortenberry</i>                          | 8/15/2010  | Flash Flood | 0 | 0 | \$5,000     |
| <i>Morgantown</i>                           | 12/26/2011 | Flash Flood | 0 | 0 | \$3,000     |
| <i>Kokomo &amp; Morgantown</i>              | 2/18/2012  | Flash Flood | 0 | 0 | \$500,000   |
| <i>Hub</i>                                  | 3/21/2012  | Flash Flood | 0 | 0 | \$0         |
| <i>Fortenberry</i>                          | 8/29/2012  | Flash Flood | 0 | 0 | \$185,000   |
| <i>Cheraw</i>                               | 2/20/2014  | Flash Flood | 0 | 0 | \$15,000    |
| <i>Fortenberry</i>                          | 3/10/2016  | Flash Flood | 0 | 0 | \$10,000    |
| <i>Pinebur &amp; Lovelace</i>               | 3/11/2016  | Flash Flood | 0 | 0 | \$70,000    |
| <i>Hub</i>                                  | 1/21/2017  | Flash Flood | 0 | 0 | \$3,000     |
| <i>Sandy Hook, &amp; Saxton</i>             | 12/27/2018 | Flash Flood | 0 | 0 | \$12,000    |
| <i>Pinebure</i>                             | 12/28/2018 | Flood       | 0 | 0 | \$5,000     |
| <i>Lovelace</i>                             | 7/4/2020   | Flash Flood | 0 | 0 | \$5,000     |
| <i>Pinebur</i>                              | 7/8/2020   | Flash Flood | 0 | 0 | \$1,000     |
| <i>Hub &amp; Fortenberry</i>                | 2/11/2021  | Flash Flood | 0 | 0 | \$23,000    |

Source: NCED/NOAA

TABLE F.7: EXTENT: FLOOD EVENTS IN MARION COUNTY SINCE THE LAST UPDATE

## Marion County: \$211,000

| Location          | Date      | Loss      | Cause                                                                                                                                                                                                                                                  | Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------|-----------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Columbia & County | 7/4/2020  | \$5,000   | An area of intense and slower moving storms produced some flash flooding around the Columbia area in southeast Mississippi.                                                                                                                            | Heavy rain caused flash flooding on several roads on the western side of downtown Columbia and toward the Foxworth area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Columbia & County | 7/8/2020  | \$3,000   | Scattered thunderstorms developed in an unstable air mass across Mississippi during the late morning of July 8th.                                                                                                                                      | <ul style="list-style-type: none"> <li>• Water blocked a portion of South High School Road in Columbia.</li> <li>• Water blocked part of Pine Burr Road near MS Highway 13 South.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Columbia          | 2/11/2021 | \$118,000 | Flash flooding occurred due to heavy rain.                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>• Flash flooding occurred around Columbia. Flooding occurred at Eagle Day Avenue and Highway 98. A furniture store in this area had water enter the building. Flooding occurred at Pineview Drive and at Meadowood Drive. In both of these locations, water entered a home. Multiple city streets were flooded in Columbia as well as parking lots under water and water entered a home. Flash flooding reported at Meadowood Road in Downtown Columbia. Flash flooding reported at Pineview Drive. Water began entering a residential home. Multiple city streets flooded along with parking lots under water. Water is also inside one home of a special needs person. Fire department and the police deployed sandbags.</li> <li>• Portions of Columbia Purvis Road were underwater. A vehicle got stuck and required a water rescue.</li> <li>• A portion of Highway 13 was underwater in the county.</li> </ul> |
| Columbia          | 4/10/2021 | \$3,000   | Showers and thunderstorms developed in association with a frontal system moving through the region.                                                                                                                                                    | Water covered roads in Columbia.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Columbia          | 3/18/2022 | \$2,000   | Showers and thunderstorms developed in the warm, moist airmass south of a warm front.                                                                                                                                                                  | Multiple streets were flooded in Columbia, some were closed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Columbia          | 4/5/2022  | \$5,000   | A low-pressure system moving east along the Arkansas Louisiana border helped to organize a line of severe thunderstorms early in the morning of April 5th.                                                                                             | Several roads were flooded in Columbia.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Columbia          | 1/24/2024 | \$75,000  | With an upper-level trough of low pressure situated over Central Plains and a very moist air mass extending north through the Mississippi River Valley, training showers and thunderstorms produced heavy rain and flooding over parts of Mississippi. | Flood prone roads were covered with 4 to 8 inches of water, and other roads were closed with cars stalled in floodwaters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

### HISTORICAL SUMMARY OF INSURED FLOOD LOSSES

Recently, FEMA issued a directive that prevents states and/or state planners from receiving NFIP information such as rep loss or severe rep loss data directly from FEMA. The local jurisdictions must request the information from FEMA and share it with the state planners. The information was requested from the jurisdictions on multiple occasions, but some did not provide the information. As a result, for continuity of information of the historical occurrences along with the corresponding damage amounts are unknown, unless the Jurisdiction requests the information directly from FEMA and shares it with the committee. The decision was made to leave the existing information in the plan if the Jurisdiction did not provide the requested information and to include the updated information for local jurisdictions that supplied it.

According to FEMA flood insurance policy records as of March 2023, 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 F.8**.

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.

### 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 2023, 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 F.8** presents detailed information on repetitive loss properties and NFIP claims and policies for Marion County.

**TABLE F.8: SUMMARY OF INSURED FLOOD LOSSES AND REPETITIVE LOSSES IN MARION COUNTY**

| Location             | Flood Losses | Claim Payments | Repetitive Loss Properties | Number of Properties | Number of Losses | Total Payments | Average Payments |
|----------------------|--------------|----------------|----------------------------|----------------------|------------------|----------------|------------------|
| Columbia             | 303          | \$3,612,752    |                            | 47                   | 139              | \$2,027,858    | \$14,589         |
| Unincorporated Area  | 248          | \$2,337,509    |                            | 44                   | 143              | \$1,536,092    | \$10,742         |
| Marion County Total: | 551          | \$5,950,261    |                            | 91                   | 282              | \$3,563,949    | \$12,638         |

Source: FEMA, NFIP

### 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.

As the climate continues to change, the chance of heavy rain leading to flash flooding could increase in frequency, intensity, and magnitude. With the increasing frequency and intensity, heavy rains and flash flooding can lead to cascading effects and can also lead to flooding in areas that do not usually flood.

## **F.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 restricting 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).

If the climate continues to change as scientists predict, the higher intensity and magnitude of storms and the increasing drought and high heat days, can lead to erosion in areas that have not been impacted by erosion in the past.

As the climate continues to change, the chance of heavy rain leading to flash flooding could also increase in frequency, intensity, and magnitude. With the increasing frequency and intensity, heavy rains and flash flooding cascading effects are possible such as erosion of soil from the ground, under/ around trees, and under roads. This can lead to falling trees, power outages, and road damage.

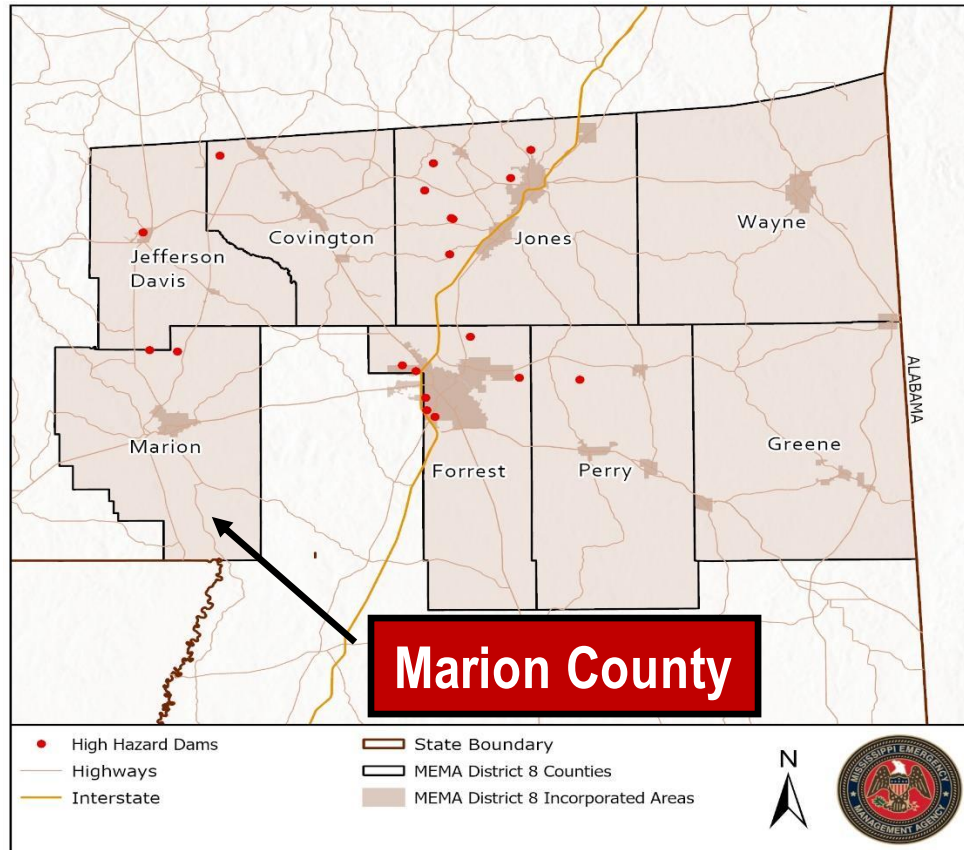


## F.2.3 Dam Failure

### LOCATION AND SPATIAL EXTENT

According to the Mississippi Division of Environmental Quality, there are two high hazard dams in Marion County. **Figure F.3** shows the location of each of these high hazard dams and **Table F.9** 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 F.3: MARION COUNTY HIGH HAZARD DAM LOCATIONS**



**TABLE F.8: MARION COUNTY HIGH HAZARD DAMS**

| Hazard Potential | Dam Name                             |
|------------------|--------------------------------------|
| High             | <i>Holiday Creek WS Street 4 Dam</i> |
| High             | <i>Holiday Creek WS Street 3 Dam</i> |

### 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.

## 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. 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 ten recorded winter storm events in Marion County since 2000. These events resulted in over \$700,000 in damages. Detailed information on the recorded winter storm events can be found in **Table F.10**.

**TABLE F.10: HISTORICAL WINTER STORM IMPACTS IN MARION COUNTY**

| Date                           | Type            | Death/<br>Injuries | Damage           |
|--------------------------------|-----------------|--------------------|------------------|
| 1/1/2002                       | Heavy Snow      | 0/0                | \$5,000          |
| 1/19/2008                      | Heavy Snow      | 0/0                | \$0              |
| 12/11/2008                     | Heavy Snow      | 0/0                | \$0              |
| 12/4/2009                      | Heavy Snow      | 0/0                | \$0              |
| 1/1/2010                       | Cold/Wind Chill | 0/0                | \$250,000        |
| 2/11/2010                      | Heavy Snow      | 0/0                | \$300,000        |
| 1/9/2011                       | Winter Weather  | 0/0                | \$0              |
| 12/8/2017                      | Heavy Snow      | 0/0                | \$50,000         |
| 1/16/2018                      | Winter Weather  | 0/0                | \$0              |
| 2/15/2021                      | Ice Storm       | 0/0                | \$100,000        |
| <b>Marion County Total: 10</b> |                 | <b>0/0</b>         | <b>\$705,000</b> |

Source: NCED/NOAA

There have been a couple of severe winter weather events in Marion 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.

**December 10, 2008**—Light sleet changed over to light snow flurries by 610 am. Columbia measured a half inch as of 632 am. As of 915 am Columbia had measured around two inches of snow on the ground. There was also some power outages reported with some fallen limbs. By 11 am an estimated 4 to 5 inches of snow was reported by the Columbia police department. As of 1230 pm reports of 3 to 6 inches was noted across the county. Snowfall intensities decreased after 1 pm. The snow exited the region by 430 pm.

**January 2010**—The first ten days of 2010 were the coldest first ten days of any year on record with an average temperature of around 29 degrees, which is around 14 to 16 degrees below normal. This outbreak will not be remembered for any bitterly cold temperatures, it will be remembered for the prolonged period of cold conditions and spans of time below freezing. Due to the duration of the cold, a great deal of damage occurred to the water line infrastructure around the region. The issues from the hard freeze were as follows: water line breaks, and frozen water pipes to homes, especially rural homes; wells freezing up; and water valves being stuck. Due to all the water line breaks, flooding of buildings and homes occurred. This event also caused 3 fatalities due to hypothermia. One occurred in Hinds County and two in Lauderdale County.

**February 11, 2010**—Between 2 and 4 inches of snow fell in Marion County. Some roads were covered with snow, and some bridges were iced over.

**February 15, 2021**—Freezing rain fell across the county. Accumulations around one quarter of an inch occurred in the northwest part of the county with lighter accumulations elsewhere. There was also sleet accumulation of around one tenth of an inch. Icing occurred in the trees and on some power lines. Numerous limbs were down and resulted in power outages.

### **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).

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 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 twenty-four years (2000-2024). 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 MARION COUNTY |                  |                 |                 |                     |                |
|--------------------------------------------------------------|------------------|-----------------|-----------------|---------------------|----------------|
| Abnormally Dry                                               | Moderate Drought | Severe Drought  | Extreme Drought | Exceptional Drought |                |
| Location                                                     | Date             | Injuries/Deaths | Property Damage | Crop Damage         | Event/Severity |
| Marion County                                                | 10/1/2006        | 0/0             | \$0             | \$400,000           | D3             |
| Marion County                                                | 5/1/2007         | 0/0             | \$0             | \$200,000           | D3             |
| Marion County                                                | 6/1/2007         | 0/0             | \$0             | \$400,000           | D4             |
| Marion County                                                | 7/1/2007         | 0/0             | \$40,000        | \$0                 | D2             |
| Marion County                                                | 10/6/2015        | 0/0             | \$0             | \$1,000             | D3             |
| Marion County                                                | 11/15/2016       | 0/0             | \$0             | \$50,000            | D2             |
| Marion County                                                | 8/1/2023         | 0/0             | \$0             | \$0                 | D2             |
| Marion County                                                | 9/1/2023         | 0/0             | \$0             | \$0                 | D3             |
| Marion County                                                | 10/1/2023        | 0/0             | \$0             | \$0                 | D4             |
| Marion County                                                | 11/1/2023        | 0/0             | \$0             | \$275,000           | D4             |
| Total:                                                       | 10               | 0/0             | \$40,000        | \$1,326,000         |                |

Source: NCED/NOAA

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

**October 2006**—During a four-and-a-half-month period, from June to the middle of October, abnormally dry conditions prevailed across most of the Jackson, MS County Warning Area (CWA). Widespread drought conditions were reported across the area during this time period. The U.S. Drought Monitor classified the drought as extreme (D3) over Southeast Mississippi. Drought conditions in the region peaked in intensity during early August over this area. This drought caused approximately \$400 thousand in crop damage.

**May to July 2007**—During May, crops across the state were beginning to feel the impact of the very dry conditions. At that point, some damage to crops had occurred with only small losses to yields expected. Extended drought conditions would make conditions worse with more substantial crop damage/losses if no rain occurred into the month of June.

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. The quality of the crops has been affected as well due to the dry conditions.

The extreme to exceptional drought, which had gripped a large portion of the region since May, finally was reduced during the first and middle portion of July.

**October 2015**—Very dry conditions occurred over Central Mississippi during the summer months with severe to extreme drought conditions developing over the area by September and continuing into October.

**November 2016**—Dry conditions 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. Very dry conditions continued into November, which resulted in an area of severe drought (D2). Crops were put under more stress from the dry and hot conditions.

**August to November 2023**—The combined effects of persistent above-normal temperatures and minimal precipitation starting in early July 2023 resulted in mounting drought impacts across portions of southwest and southern Mississippi. Through the month of August, D2 (Severe Drought) conditions, as depicted on the U.S. Drought Monitor, were common across areas generally from south and west of a line from Claiborne County through Marion County.

Drought conditions in Marion County continued during September at D3 (Extreme Drought) as depicted on the U.S. Drought Monitor.

In October soil moisture values continued to worsen through the month, with subsoil moisture values between 25 to 50 percent below normal for much of the affected area. This placed a severe stress on pastures for livestock and reduced the yield from row crops to end the growing season. Pine plantations and Christmas tree farms experienced severe losses especially among younger trees. Stream flows on creeks and rivers were reduced. Drought conditions in Marion County intensified from D3 (Extreme Drought) to D4 (Exceptional Drought) as depicted on the U.S. Drought Monitor.

Drought conditions in Marion County remained at D4 (Exceptional Drought) as depicted on the U.S. Drought Monitor during the month of November.

## **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.

**August 2010**—A four day stretch of extreme temperatures occurred across the region to start off the month of August. High pressure was firmly entrenched across the southeast and allowed temperatures to soar into the triple digits across much of the region. Across the NWS Jackson, MS forecast area, 19 record highs were set between August 1st and 4th. On August 2nd, the 2nd warmest average temperature was recorded. The low was 78 and the high 105, this resulted in an average temperature of 91.5 degrees. Additionally, relatively high humidity levels made conditions even more oppressive, with heat index readings surpassing 110 degrees in many areas. This extreme heat resulted in 3 fatalities across the forecast area.



## **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. But, if the climate continues to warm, this could lead to more droughts with higher magnitude.

### **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.

If temperatures continue to rise as climate change occurs, it could increase the impacts, intensity, and duration of droughts and extreme temperatures. These increases could impact the effects on the counties' crops, economy, and population.

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 2010 to 2024, Marion County experiences an average of 47.6 wildfires annually which burn an average of 592 acres per year. The data indicates that most of these fires are small, averaging 12.4 acres per fire. **Table F.12** provides a summary of wildfire occurrences in Marion County since the last update, and **Table F.13** lists the number of reported wildfire occurrences in the county between the years 2010 and 2024.

TABLE F.12: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2019 -2024) \*

| Marion County                           |       |
|-----------------------------------------|-------|
| Average Number of Fires per year        | 42.2  |
| Average Number of Acres Burned per year | 735.8 |
| Average Number of Acres Burned per fire | 17.44 |

Source: MS Forestry Commission

TABLE F.13: HISTORICAL WILDFIRE OCCURRENCES IN MARION COUNTY

| Marion County          |      |      |      |      |      |      |       |      |      |      |      |      |      |      |
|------------------------|------|------|------|------|------|------|-------|------|------|------|------|------|------|------|
| Year                   | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016  | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| Number of Fires        | 46   | 128  | 39   | 38   | 83   | 28   | 32    | 30   | 31   | 19   | 12   | 38   | 62   | 80   |
| Number of Acres Burned | 265  | 895  | 198  | 402  | 638  | 171  | 1,200 | 475  | 364  | 96   | 124  | 1317 | 846  | 1296 |

Source: US 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).

If temperatures continue to rise as climate change occurs, it could cause more droughts and extreme temperatures. The increase in of these could have a negative impact or wildfires. Extreme heat and drought can cause plants to become dry and brittle which makes the area more susceptible to wildfires.

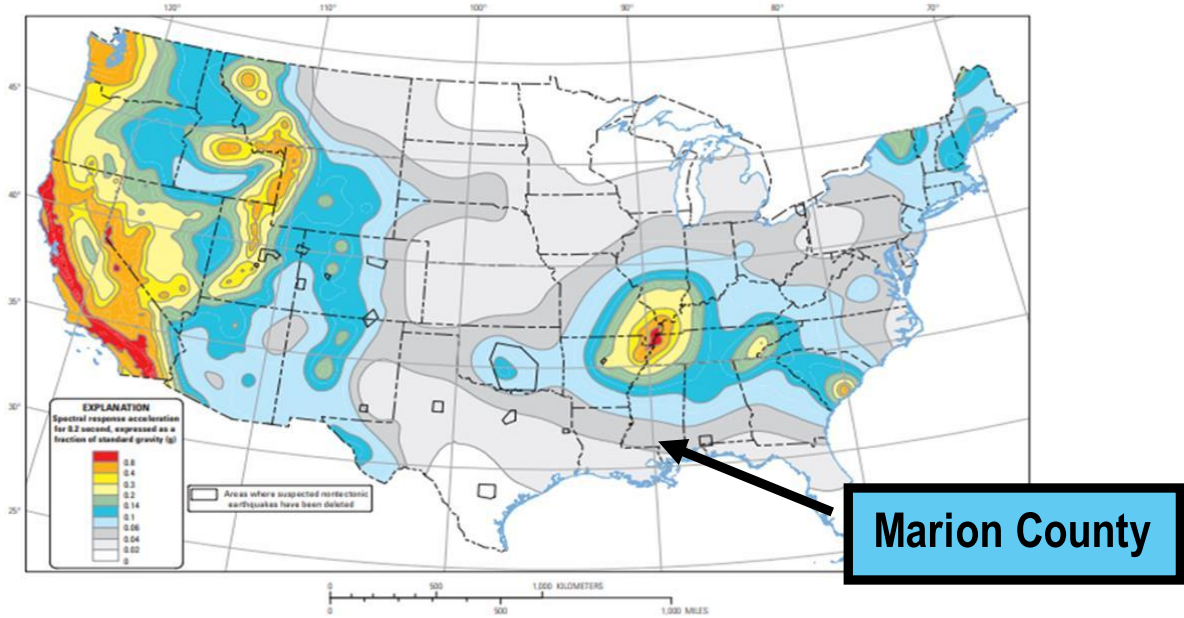
If the predicted increase in heavy rains occur it can also cause flooding and erosion, which can also make the area more susceptible to wildfires.

F.2.7 Earthquake

LOCATION AND SPATIAL EXTENT

Figure F.4 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.

FIGURE F.4: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS



HISTORICAL OCCURRENCES

No earthquakes are known to have affected Marion County since 1638. Table F.14 provides a summary of earthquake events reported by the National Geophysical Data Center between 1638 and 2024.

TABLE F.14: SUMMARY OF SEISMIC ACTIVITY IN MARION COUNTY

| Location             | Date | Number of Occurrences | Greatest MMI Reported | Richter Scale Equivalent |
|----------------------|------|-----------------------|-----------------------|--------------------------|
| Columbia             | --   | 0                     | --                    | --                       |
| Unincorporated Area  | --   | 0                     | --                    | --                       |
| Marion County Total: |      | 0                     | --                    | --                       |

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).

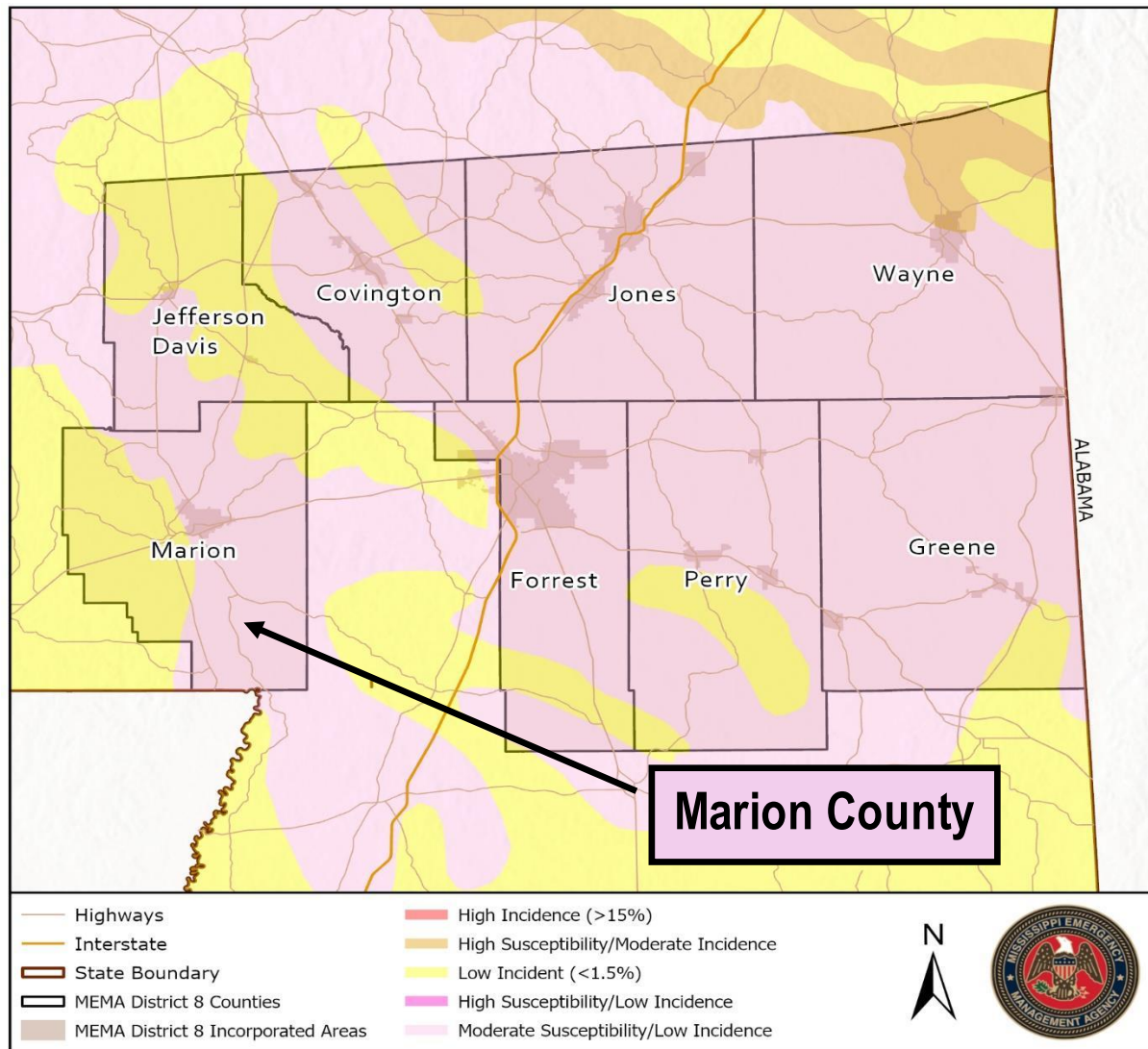
F.2.8 Landslide

## 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. 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. Landslides are possible throughout Marion County.

According to **Figure F.5** below, the entire county falls under a Moderate Susceptibility/Low Incidence area (light pink) and Low Incidence (yellow). This indicates that less than 1.5 percent of the area is involved in land sliding. The areas in yellow are defined as low incidence and low susceptibility. The areas in light pink, however, indicate that a moderate susceptibility to land sliding 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 MARION COUNTY**



## 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 all areas in Marion County have a low landslide incidence rate. However, some areas are reported as having moderate susceptibility to land sliding 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.

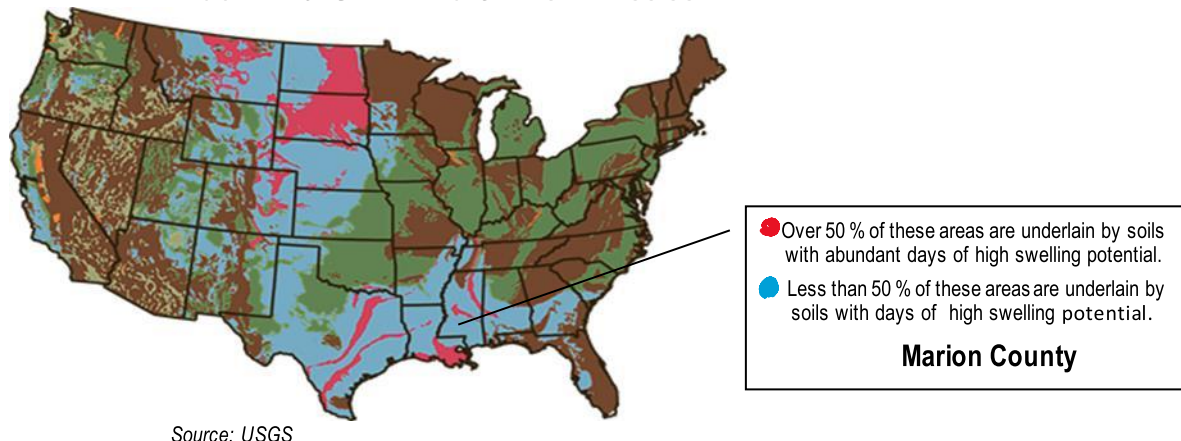
As the climate continues to change, scientists believe that the intensity, magnitude, and frequency of heavy rains will increase. This could cause cascading effects that could possibly lead to land sliding.

## F.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 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**



### 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).

## F.2.10 Hurricane and Tropical Storm



## LOCATION AND SPATIAL EXTENT

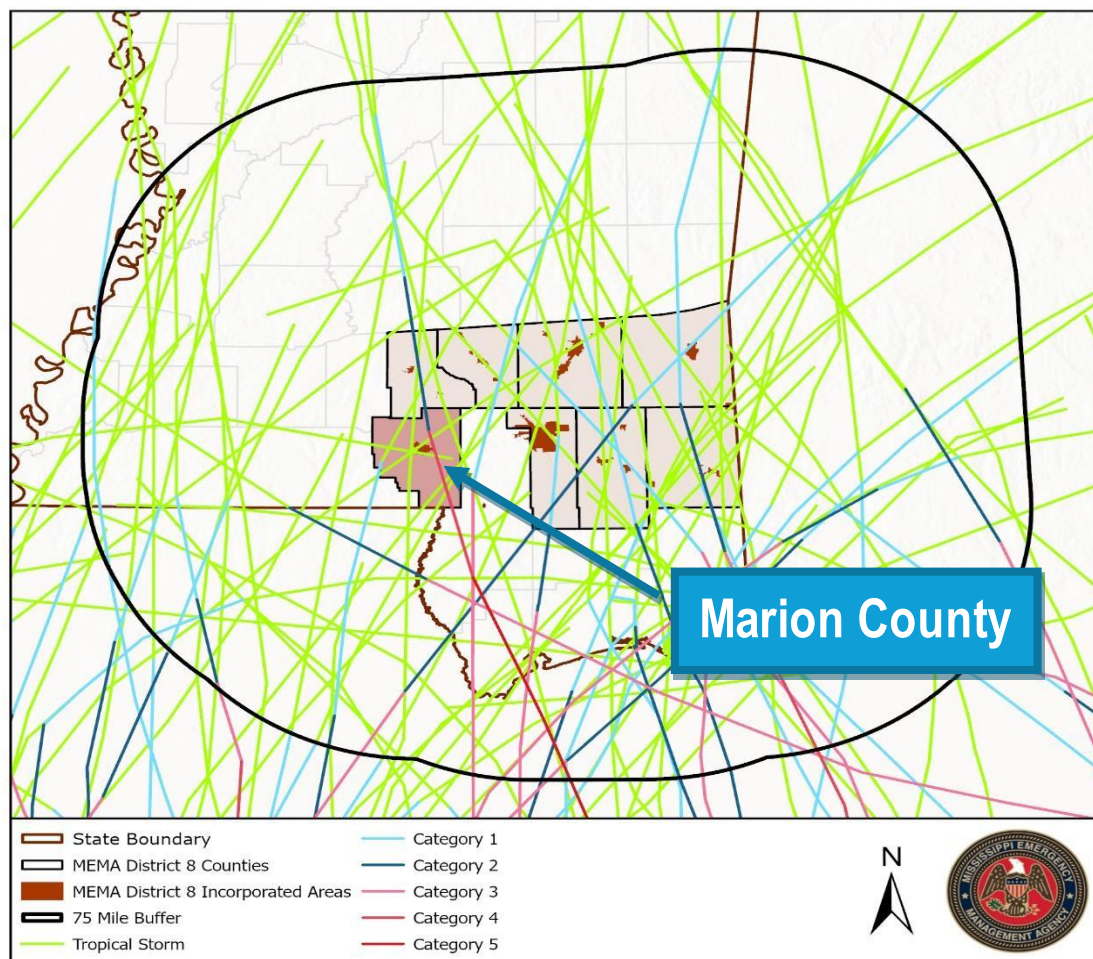
Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact Marion County. All areas in Marion 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 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 F.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 were tropical storms when they traversed the county except for two: 1915 Category 1 Unnamed Storm and 1969 Category 3 Hurricane Camille. **Table F.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 F.8: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF MARION COUNTY**



Federal records indicate that disaster declarations were made in 1969 (Hurricane Camille), 1998 (Hurricane Georges), 2004 (Hurricane Ivan), 2005 (Hurricane Katrina), 2008 (Hurricane Gustav), 2012 (Hurricane Isaac), and 2021 (Hurricane Ida). Hurricane and tropical storm events can cause substantial damage in the area due to high winds and flooding.

**TABLE F.14: HISTORICAL STORM TRACKS WITHIN 75 MILES OF MARION COUNTY (1850–2024)**

| Date of Occurrence | Storm Name                 | Maximum Wind Speed (mph) | Storm Category | Disaster Declaration | Property Damage      | Crop Damage         |
|--------------------|----------------------------|--------------------------|----------------|----------------------|----------------------|---------------------|
| 10/7/1879          | <i>Unnamed</i>             | 57                       | Tropical Storm | --                   | Unknown              | Unknown             |
| 6/15/1886          | <i>Unnamed</i>             | 40                       | Tropical Storm | --                   | Unknown              | Unknown             |
| 9/8/1893           | <i>Unnamed</i>             | 63                       | Tropical Storm | --                   | Unknown              | Unknown             |
| 6/13/1912          | <i>Unnamed</i>             | 57                       | Tropical Storm | --                   | Unknown              | Unknown             |
| 9/30/1915          | <i>Unnamed</i>             | 81                       | Category 1     | --                   | Unknown              | Unknown             |
| 8/18/1969          | <i>Hurricane Camille</i>   | 130                      | Category 3     | Yes, #271            | Unknown              | Unknown             |
| 9/25/1998          | <i>Hurricane George</i>    | Unknown                  | Tropical Storm | Yes, #1251           | Unknown              | Unknown             |
| 9/26/2002          | <i>Hurricane Isidore</i>   | 63                       | Tropical Storm | No                   | \$0                  | \$0                 |
| 6/30/2003          | <i>Tropical Storm Bill</i> | 52                       | Tropical Storm | No                   | \$0                  | \$0                 |
| 9/16/2004          | <i>Hurricane Ivan</i>      | 95                       | Category 1     | Yes, #1550           | \$93,750             | \$31,300            |
| 8/29/2005          | <i>Hurricane Katrina</i>   | 130                      | Category 3     | Yes, #1604           | \$300,000,000        | \$65,000,000        |
| 9/24/2005          | <i>Hurricane Rita</i>      | 40                       | Tropical Storm | No                   | \$10,000             | \$10,000            |
| 9/1/2008           | <i>Hurricane Gustav</i>    | 55                       | Tropical Storm | Yes, #1837           | \$600,000            | \$0                 |
| 8/29/2012          | <i>Hurricane Isaac</i>     | 50                       | Tropical Storm | Yes, # 4081          | \$100,000            | \$0                 |
| 10/28/2020         | <i>Hurricane Zeta</i>      | 37                       | Depression     | No                   | \$30,000             | \$0                 |
| 8/30/2021          | <i>Hurricane Ida</i>       | 45                       | Tropical Storm | Yes, #4626           | \$30,000             | \$0                 |
| 9/12/2024          | <i>Hurricane Francine</i>  | 40                       | Tropical Storm | No                   | \$10,000             | \$0                 |
| <b>Total:</b>      | <b>17</b>                  |                          |                |                      | <b>\$300,873,750</b> | <b>\$65,041,300</b> |

Source: National Hurricane Center and NCED/NOAA

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:

**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.

**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.

**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

**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. This hurricane has changed life as we know it across the Gulf Coast region which will take many years to return to normal.

Hurricane Katrina was a very large and powerful storm which set several unfortunate records. The sustained winds were 145 mph, and the central pressure was 918 mb or 27.11 inches of mercury. This ranks Katrina as having the 3rd lowest pressure at landfall behind Camille (2nd) and the Labor Day Hurricane (1st).

Millions of trees were uprooted, snapped or severely damaged which caused just about all of the structural damage and downed power lines across this region. Hundreds of trees fell onto homes causing minor to major damage. Additionally, significant and extensive damage occurred to the Agriculture and Forestry industries of this region. The most devastating damage occurred across Southeast Mississippi, especially south and east of a Columbia to Collins to Laurel line. This region received sustained winds between 60 and 80 mph with gusts ranging from 80 to 120 mph. Wind damage to structures was widespread as many roofs were blown off or partially peeled off. Hundreds of signs were shredded or blown down. Many businesses sustained structural damage as windows were broken, roofs were blown off and walls were collapsed. Millions of trees were uprooted and snapped. Power poles and lines were snapped and taken down from wind and trees. It was the thousands of downed trees which caused the most significant structural damage as these trees fell onto homes and businesses. Ten fatalities were caused by trees falling on homes or on people in Jones county. This region received an enormous blow to the timber industry as a large percentage of trees were blown down or severely damaged. This timber damage will effect this region for decades. Additionally, the combination of the winds and loss of power caused significant losses to the poultry industry and other agricultural industries across this region.

Hurricane Katrina was responsible for 15 direct fatalities across inland Mississippi and 19 indirect. All the direct deaths, in some way, were attributed to fallen trees. Trees either fell on homes, on vehicles, or on the actual person. The indirect fatalities varied and ranged from heart attacks to heat stress during the days after without power.

Damage costs associated with this hurricane will be the highest for any natural disaster in United States history. Preliminary amounts, across the NWS Jackson County Warning Area (CWA), show property damage estimates around 5.9 Billion dollars. Agricultural damage across the region was also extremely high with estimates around 1.5 Billion dollars. The total estimated damage is approximately 7.4 Billion dollars. All of these estimates are extremely preliminary and will likely be adjusted over the coming months.

**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.

**September 1, 2008**—Hurricane Gustav was the 2nd major hurricane of the 2008 Atlantic Hurricane Season. Tropical storm force winds occurred across Marion County as the outer edges of Hurricane Gustav moved across southern Louisiana. Scattered trees and power lines were blown down, especially across the southern portion of the county. Wind gusts peaked between 45 and 55 mph for a few hours.

**August 29, 2012**—Isaac moved very slowly to the north and northwest over the course of August 29th, which made for prolonged impacts. Forward motion of about 5 mph lead to tremendous flooding issues for both Louisiana and portions of Mississippi south of I-20. Around noon on August 29th, Isaac was downgraded to a Tropical Storm, but this was not much relief to the many residents who were being inundated with rain and wind. Storm total rainfall across portions of Marion County indicated at least 10 to 15 inches fell. Numerous homes and buildings were flooded, and some water rescues occurred in Lamar, Marion and Clarke counties. By midafternoon on the 29th trees were blown down across the county, with a few power outages occurring. At midnight, roof damage occurred to a home southwest of Columbia with water leaking into the house. Strong winds continued into the morning hours before subsiding.

**August 29, 2021**—Major hurricane Ida made landfall as a strong category four hurricane around 11:55am on August 29 near Grand Isle, LA. It then moved very slowly north through south central Louisiana and into Mississippi on August 30. It then turned northeast and moved across the Jackson metro area as a tropical storm and into northeast Mississippi as a tropical depression through the early morning of August 31. Ida brought tropical storm force gusts to portions of Mississippi, which brought down trees and power lines. Rainfall amounts of 4-8 inches occurred, which resulted in localized flooding. Tropical storm force wind gusts resulted in several trees and power lines downed across the county.

**September 12, 2024**—Tropical Storm Francine produced strong wind damage as it weakened across central Mississippi. Winds blew down scattered trees and powerlines across Marion 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.

Scientist and meteorologists predict tropical cyclones to increase in frequency, magnitude, and intensity as the climate continues to change. These increases could be catastrophic to MS Coastal areas and the counties near the coast. Scientists also predict that hurricanes could increase in frequency and strength in the near future due the effects of Climate Change. This can be seen in the 2023 season with 23 named storms, 11 hurricanes, and 5 major hurricanes. This prediction makes the season the third most active season on record, behind the 2005 season with 28, and the 2020 season with a total of 30. It is expected that an above-average season next season with up to 25 named storms and 4-7 major hurricanes.

## **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, 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, 2013, 2015, 2016, 2018, and twice in 2020. According to NCEI, there have been 133 reported thunderstorm and high wind events since 2020 in Marion County. These events caused over \$2.5 million in damages. **Table F.15** summarizes this information. **Table F.16** presents detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event.

**TABLE F.15: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN MARION COUNTY**

| Location                    | Number of Occurrences | Injuries | Deaths   | Property Damage    | Crop Damage      |
|-----------------------------|-----------------------|----------|----------|--------------------|------------------|
| <i>Columbia</i>             | 61                    | 0        | 0        | \$1,071,100        | \$100,000        |
| <i>Unincorporated Area</i>  | 62                    | 0        | 0        | \$1,351,000        | \$30,000         |
| <b>Marion County Total:</b> | <b>133</b>            | <b>0</b> | <b>0</b> | <b>\$2,422,100</b> | <b>\$130,000</b> |

Source: NCED/NOAA

**TABLE F.16: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN MARION COUNTY**

| Location                | Date      | Type      | Magnitude      | Deaths | Injuries | Property Damage | Crop Damage |
|-------------------------|-----------|-----------|----------------|--------|----------|-----------------|-------------|
| <b>City of Columbia</b> |           |           |                |        |          |                 |             |
| <i>Columbia</i>         | 7/16/2000 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$3,000         | \$0         |
| <i>Columbia</i>         | 7/17/2000 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$2,000         | \$0         |
| <i>Columbia</i>         | 7/19/2000 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$2,000         | \$0         |
| <i>Columbia</i>         | 3/2/2001  | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$1,000         | \$0         |
| <i>Columbia</i>         | 6/4/2001  | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$8,000         | \$0         |
| <i>Columbia</i>         | 6/19/2001 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$1,000         | \$0         |
| <i>Columbia</i>         | 3/15/2002 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$25,000        | \$0         |
| <i>Columbia</i>         | 3/26/2002 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$1,000         | \$0         |
| <i>Columbia</i>         | 4/8/2002  | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$1,000         | \$0         |
| <i>Columbia</i>         | 6/19/2002 | TSTM Wind | <i>Unknown</i> | 0      | 0        | \$1,000         | \$0         |



|          |            |           |         |   |   |           |           |
|----------|------------|-----------|---------|---|---|-----------|-----------|
| Columbia | 7/7/2002   | TSTM Wind | 60 kts. | 0 | 0 | \$6,000   | \$0       |
| Columbia | 7/12/2002  | TSTM Wind | Unknown | 0 | 0 | \$1,000   | \$0       |
| Columbia | 12/24/2002 | TSTM Wind | 60 kts. | 0 | 0 | \$5,000   | \$0       |
| Columbia | 12/31/2002 | TSTM Wind | 60 kts. | 0 | 0 | \$2,000   | \$0       |
| Columbia | 5/14/2003  | TSTM Wind | 50 kts. | 0 | 0 | \$10,000  | \$0       |
| Columbia | 6/3/2003   | TSTM Wind | 50 kts. | 0 | 0 | \$10,000  | \$0       |
| Columbia | 11/27/2003 | TSTM Wind | 55 kts. | 0 | 0 | \$2,000   | \$0       |
| Columbia | 6/27/2004  | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0       |
| Columbia | 8/12/2005  | TSTM Wind | 60 kts. | 0 | 0 | \$250,000 | \$100,000 |
| Columbia | 3/20/2006  | TSTM Wind | 50 kts. | 0 | 0 | \$10,000  | \$0       |
| Columbia | 6/23/3006  | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0       |
| Columbia | 7/19/2006  | TSTM Wind | 58 kts. | 0 | 0 | \$25,000  | \$0       |
| Columbia | 10/17/2006 | TSTM Wind | 54 kts. | 0 | 0 | \$2,000   | \$0       |
| Columbia | 11/15/2006 | TSTM Wind | 53 kts. | 0 | 0 | \$0       | \$0       |
| Columbia | 6/9/2007   | TSTM Wind | 50 kts. | 0 | 0 | \$4,000   | \$0       |
| Columbia | 6/18/2007  | TSTM Wind | 53 kts. | 0 | 0 | \$25,000  | \$0       |
| Columbia | 6/19/2007  | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0       |
| Columbia | 8/1/2007   | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0       |
| Columbia | 2/17/2008  | TSTM Wind | 50 kts. | 0 | 0 | \$8,000   | \$0       |
| Columbia | 3/3/2008   | TSTM Wind | 55 kts. | 0 | 0 | \$0       | \$0       |
| Columbia | 6/27/2008  | TSTM Wind | 55 kts. | 0 | 0 | \$10,000  | \$0       |
| Columbia | 8/12/2008  | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0       |
| Columbia | 5/5/2009   | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0       |
| Columbia | 7/4/2009   | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0       |
| Columbia | 7/30/2009  | TSTM Wind | 50 kts. | 0 | 0 | \$3,000   | \$0       |
| Columbia | 4/24/2010  | TSTM Wind | 50 kts. | 0 | 0 | \$50,000  | \$0       |
| Columbia | 8/15/2010  | TSTM Wind | 55 kts. | 0 | 0 | \$12,000  | \$0       |
| Columbia | 11/30/2010 | TSTM Wind | 53 kts. | 0 | 0 | \$15,000  | \$0       |
| Columbia | 4/15/2011  | TSTM Wind | 50 kts. | 0 | 0 | \$4,000   | \$0       |
| Columbia | 7/12/2011  | TSTM Wind | 50 kts. | 0 | 0 | \$3,000   | \$0       |
| Columbia | 8/18/2011  | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0       |
| Columbia | 9/28/2011  | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0       |
| Columbia | 4/3/2012   | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0       |
| Columbia | 5/31/2012  | TSTM Wind | 40 kts. | 0 | 0 | \$15,000  | \$0       |
| Columbia | 7/20/2012  | TSTM Wind | 43 kts. | 0 | 0 | \$100     | \$0       |
| Columbia | 8/28/2012  | TSTM Wind | 50 kts. | 0 | 0 | \$2,000   | \$0       |
| Columbia | 12/20/2012 | TSTM Wind | 50 kts. | 0 | 0 | \$1,000   | \$0       |
| Columbia | 8/12/2013  | TSTM Wind | 50 kts. | 0 | 0 | \$10,000  | \$0       |
| Columbia | 4/8/2014   | TSTM Wind | 65 kts. | 0 | 0 | \$50,000  | \$0       |
| Columbia | 10/13/2014 | TSTM Wind | 52 kts. | 0 | 0 | \$0       | \$0       |
| Columbia | 6/27/2015  | TSTM Wind | 39 kts. | 0 | 0 | \$3,000   | \$0       |
| Columbia | 7/1/2015   | TSTM Wind | 50 kts. | 0 | 0 | \$3,000   | \$0       |
| Columbia | 3/17/2016  | TSTM Wind | 50 kts. | 0 | 0 | \$7,000   | \$0       |
| Columbia | 8/5/2016   | TSTM Wind | 57 kts. | 0 | 0 | \$258,000 | \$0       |
| Columbia | 4/3/2017   | TSTM Wind | 50 kts. | 0 | 0 | \$2,000   | \$0       |
| Columbia | 6/16/2017  | TSTM Wind | 55 kts. | 0 | 0 | \$30,000  | \$0       |
| Columbia | 7/2/2018   | TSTM Wind | 50 kts. | 0 | 0 | \$4,000   | \$0       |

|                                             |            |             |                |   |   |          |          |
|---------------------------------------------|------------|-------------|----------------|---|---|----------|----------|
| <i>Columbia</i>                             | 7/7/2018   | TSTM Wind   | 43 kts.        | 0 | 0 | \$5,000  | \$0      |
| <i>Columbia</i>                             | 8/7/2018   | TSTM Wind   | 43 kts.        | 0 | 0 | \$2,000  | \$0      |
| <i>Columbia</i>                             | 11/1/2018  | TSTM Wind   | 50 kts.        | 0 | 0 | \$10,000 | \$0      |
| <i>Columbia</i>                             | 10/26/2019 | TSTM Wind   | 54 kts.        | 0 | 0 | \$35,000 | \$0      |
| <i>Columbia</i>                             | 7/8/2020   | TSTM Wind   | 50 kts.        | 0 | 0 | \$2,000  | \$0      |
| <i>Columbia</i>                             | 8/16/2020  | TSTM Wind   | 50 kts.        | 0 | 0 | \$2,000  | \$0      |
| <i>Columbia</i>                             | 11/30/2022 | TSTM Wind   | 50 kts.        | 0 | 0 | \$25,000 | \$0      |
| <i>Columbia</i>                             | 5/5/2023   | TSTM Wind   | 52 kts.        | 0 | 0 | \$50,000 | \$0      |
| <i>Columbia</i>                             | 7/22/2023  | TSTM Wind   | 50 kts.        | 0 | 0 | \$2,000  | \$0      |
| <i>Columbia</i>                             | 9/7/2023   | TSTM Wind   | 50 kts.        | 0 | 0 | \$1,000  | \$0      |
| <i>Columbia</i>                             | 6/4/2024   | TSTM Wind   | 52 kts.        | 0 | 0 | \$30,000 | \$0      |
| <b>Unincorporated Area in Monroe County</b> |            |             |                |   |   |          |          |
| <i>Foxworth</i>                             | 1/9/2000   | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$5,000  | \$0      |
| <i>Sandy Hook</i>                           | 6/25/2000  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$2,000  | \$0      |
| <i>Sandy Hook</i>                           | 8/30/2000  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$1,000  | \$0      |
| <i>Goss</i>                                 | 12/13/2000 | TSTM Wind   | 56 kts.        | 0 | 0 | \$2,000  | \$0      |
| <i>County Wide</i>                          | 1/29/2001  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$8,000  | \$0      |
| <i>Kokomo</i>                               | 3/12/2001  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$5,000  | \$0      |
| <i>Kokomo</i>                               | 10/13/2001 | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$1,000  | \$0      |
| <i>County Wide</i>                          | 5/17/2002  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$2,000  | \$0      |
| <i>Morgantown</i>                           | 7/7/2002   | TSTM Wind   | 55 kts.        | 0 | 0 | \$1,000  | \$0      |
| <i>Morgantown</i>                           | 7/12/2002  | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$1,000  | \$0      |
| <i>Morgantown</i>                           | 10/29/2002 | TSTM Wind   | <i>Unknown</i> | 0 | 0 | \$10,000 | \$0      |
| <i>White Bluff</i>                          | 4/24/2003  | TSTM Wind   | 50 kts.        | 0 | 0 | \$10,000 | \$0      |
| <i>County Wide</i>                          | 5/14/2003  | TSTM Wind   | 55 kts.        | 0 | 0 | \$20,000 | \$0      |
| <i>Sandy Hook</i>                           | 6/12/2003  | TSTM Wind   | 50 kts.        | 0 | 0 | \$15,000 | \$0      |
| <i>County Wide</i>                          | 7/22/2003  | TSTM Wind   | 50 kts.        | 0 | 0 | \$5,000  | \$0      |
| <i>Goss</i>                                 | 11/24/2003 | TSTM Wind   | 50 kts.        | 0 | 0 | \$0      | \$0      |
| <i>Sandy Hook</i>                           | 11/27/2003 | TSTM Wind   | 60 kts.        | 0 | 0 | \$5,000  | \$0      |
| <i>Foxworth</i>                             | 4/6/2005   | TSTM Wind   | 70 kts.        | 0 | 0 | \$80,000 | \$0      |
| <i>Hub</i>                                  | 4/30/2005  | TSTM Wind   | 55 kts.        | 0 | 0 | \$10,000 | \$0      |
| <i>Kokomo</i>                               | 8/21/2005  | TSTM Wind   | 55 kts.        | 0 | 0 | \$30,000 | \$30,000 |
| <i>Sandy Hook</i>                           | 12/4/2005  | TSTM Wind   | 55 kts.        | 0 | 0 | \$20,000 | \$0      |
| <i>Kokomo</i>                               | 1/4/2007   | TSTM Wind   | 55 kts.        | 0 | 0 | \$5,000  | \$0      |
| <i>County</i>                               | 2/24/2007  | Strong Wind | 39 kts.        | 0 | 0 | \$1,000  | \$0      |
| <i>Neb &amp; Mildred</i>                    | 4/14/2007  | TSTM Wind   | 54 kts.        | 0 | 0 | \$15,000 | \$0      |
| <i>Morgantown</i>                           | 5/3/2007   | TSTM Wind   | 53 kts.        | 0 | 0 | \$0      | \$0      |
| <i>Sandy Hook</i>                           | 6/19/2007  | TSTM Wind   | 50 kts.        | 0 | 0 | \$0      | \$0      |
| <i>Neb</i>                                  | 7/12/2007  | TSTM Wind   | 50 kts.        | 0 | 0 | \$20,000 | \$0      |
| <i>Twin</i>                                 | 2/12/2008  | TSTM Wind   | 70 kts.        | 0 | 0 | \$50,000 | \$0      |
| <i>Sumbax</i>                               | 2/17/2008  | TSTM Wind   | 53 kts.        | 0 | 0 | \$8,000  | \$0      |
| <i>Kokomo</i>                               | 3/3/2008   | TSTM Wind   | 55 kts.        | 0 | 0 | \$0      | \$0      |
| <i>Natcole</i>                              | 4/18/2008  | TSTM Wind   | 50 kts.        | 0 | 0 | \$10,000 | \$0      |
| <i>Cheraw</i>                               | 5/15/2008  | TSTM Wind   | 50 kts.        | 0 | 0 | \$0      | \$0      |
| <i>Kokomo</i>                               | 5/26/2008  | TSTM Wind   | 50 kts.        | 0 | 0 | \$0      | \$0      |
| <i>Morgantown &amp; Twin</i>                | 6/25/2008  | TSTM Wind   | 60 kts.        | 0 | 0 | \$11,000 | \$0      |

|                                  |            |             |         |   |   |           |     |
|----------------------------------|------------|-------------|---------|---|---|-----------|-----|
| <i>Pinebur</i>                   | 8/2/2008   | TSTM Wind   | 54 kts. | 0 | 0 | \$15,000  | \$0 |
| <i>Sumbax</i>                    | 4/2/2009   | TSTM Wind   | 50 kts. | 0 | 0 | \$4,000   | \$0 |
| <i>Kokomo</i>                    | 10/15/2009 | TSTM Wind   | 50 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>County</i>                    | 3/1/2010   | Strong Wind | 43 kts. | 0 | 0 | \$25,000  | \$0 |
| <i>Cheraw</i>                    | 8/15/2010  | TSTM Wind   | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Lovelace &amp; Sandy Hook</i> | 4/4/2011   | TSTM Wind   | 60 kts. | 0 | 0 | \$40,000  | \$0 |
| <i>Cheraw</i>                    | 6/10/2011  | TSTM Wind   | 50 kts. | 0 | 0 | \$30,000  | \$0 |
| <i>Neb</i>                       | 6/21/2011  | TSTM Wind   | 50 kts. | 0 | 0 | \$20,000  | \$0 |
| <i>Kokomo</i>                    | 8/18/2011  | TSTM Wind   | 50 kts. | 0 | 0 | \$3,000   | \$0 |
| <i>County</i>                    | 5/30/2012  | Strong Wind | 40 kts. | 0 | 0 | \$15,000  | \$0 |
| <i>Lovelace</i>                  | 6/11/2012  | TSTM Wind   | 53 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>County</i>                    | 4/15/2014  | Strong Wind | 43 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Sumbax</i>                    | 12/28/2015 | TSTM Wind   | 50 kts. | 0 | 0 | \$6,000   | \$0 |
| <i>Jamestown &amp; Hub</i>       | 1/2/2017   | TSTM Wind   | 55 kts. | 0 | 0 | \$27,000  | \$0 |
| <i>Twin</i>                      | 1/21/2017  | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Kokomo</i>                    | 4/30/2017  | TSTM Wind   | 55 kts. | 0 | 0 | \$7,000   | \$0 |
| <i>Goss</i>                      | 6/16/2017  | TSTM Wind   | 55 kts. | 0 | 0 | \$20,000  | \$0 |
| <i>Sandy Hook, &amp; Pinebur</i> | 4/14/2018  | TSTM Wind   | 52 kts. | 0 | 0 | \$14,000  | \$0 |
| <i>County</i>                    | 10/26/2019 | TSTM Wind   | 54 kts. | 0 | 0 | \$45,000  | \$0 |
| <i>Kokomo</i>                    | 2/5/2020   | TSTM Wind   | 55 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Kokomo</i>                    | 4/23/2020  | TSTM Wind   | 50 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>White Bluff</i>               | 6/25/2020  | TSTM Wind   | 52 kts. | 0 | 0 | \$8,000   | \$0 |
| <i>Kokomo</i>                    | 7/8/2020   | TSTM Wind   | 45 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Fortenberry</i>               | 8/16/2020  | TSTM Wind   | 50 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Goss &amp; Sandy Hook</i>     | 3/17/2021  | TSTM Wind   | 65kts.  | 0 | 0 | \$252,000 | \$0 |
| <i>Morgantown</i>                | 4/9/2021   | TSTM Wind   | 60 kts. | 0 | 0 | \$75,000  | \$0 |
| <i>Pickwick</i>                  | 3/30/2022  | TSTM Wind   | 54 kts. | 0 | 0 | \$20,000  | \$0 |
| <i>Foxworth</i>                  | 1/3/2023   | TSTM Wind   | 52 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Kokomo</i>                    | 4/15/2023  | TSTM Wind   | 75 kts. | 0 | 0 | \$1,000   | \$0 |
| <i>Carmich</i>                   | 6/14/2023  | TSTM Wind   | 75 kts. | 0 | 0 | \$25,000  | \$0 |
| <i>Neb</i>                       | 9/7/2023   | TSTM Wind   | 55 kts. | 0 | 0 | \$20,000  | \$0 |
| <i>Jamestown</i>                 | 4/10/2024  | TSTM Wind   | 50 kts. | 0 | 0 | \$15,000  | \$0 |
| <i>Goss</i>                      | 5/13/2024  | TSTM Wind   | 96 kts. | 0 | 0 | \$250,000 | \$0 |
| <i>Goss</i>                      | 5/13/2024  | TSTM Wind   | 60 kts. | 0 | 0 | \$6,000   | \$0 |

Source: NCED/NOAA

## Hailstorm

According to the National Centers for Environmental Information, 81 recorded hailstorm events have affected Marion County since 2000. **Table F.17** is a summary of the hail events in Marion County. **Table F.18** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over \$28 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.

## Lightning

According to the National Centers for Environmental Information, there has been five recorded lightning events in Marion County since 2000, as listed in summary **Table F.17**. They caused approximately \$342,000 in damages.

**Table F.18** provides detailed information about each event that occurred in the county. 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.

**TABLE F.17: SUMMARY OF HAIL AND LIGHTNING OCCURRENCES IN MARION COUNTY**

| Location                    | Number of Occurrences | Deaths   | Injuries | Property Damage     | Crop Damage |
|-----------------------------|-----------------------|----------|----------|---------------------|-------------|
| <i>Columbia</i>             | 39                    | 0        | 0        | \$504,000           | \$0         |
| <i>Unincorporated Area</i>  | 48                    | 0        | 0        | \$27,915,000        | \$0         |
| <b>Marion County Total:</b> | <b>86</b>             | <b>0</b> | <b>0</b> | <b>\$28,419,000</b> | <b>\$0</b>  |

Source: NCED/NOAA

**TABLE F.18: HISTORICAL HAIL AND LIGHTNING OCCURRENCES IN MARION COUNTY**

| Location                | Date       | Type      | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|-------------------------|------------|-----------|-----------|--------|----------|-----------------|-------------|
| <b>City of Columbia</b> |            |           |           |        |          |                 |             |
| <i>Columbia</i>         | 5/5/2000   | Hail      | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 8/10/2000  | Hail      | 0.75 in.  | 0      | 0        | \$15,000        | \$0         |
| <i>Columbia</i>         | 3/1/2001   | Hail      | 1.75 in.  | 0      | 0        | \$12,000        | \$0         |
| <i>Columbia</i>         | 3/1/2001   | Hail      | 0.88 in.  | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 3/12/2002  | Hail      | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 7/7/2002   | Hail      | 1.75 in.  | 0      | 0        | \$1,000         | \$0         |
| <i>Columbia</i>         | 7/21/2002  | Hail      | 1.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 4/7/2003   | Hail      | 0.75 in.  | 0      | 0        | \$1,000         | \$0         |
| <i>Columbia</i>         | 4/7/2003   | Hail      | 1.75 in.  | 0      | 0        | \$20,000        | \$0         |
| <i>Columbia</i>         | 5/3/2003   | Hail      | 0.75 in.  | 0      | 0        | \$1,000         | \$0         |
| <i>Columbia</i>         | 5/3/2003   | Hail      | 1.75 in.  | 0      | 0        | \$20,000        | \$0         |
| <i>Columbia</i>         | 5/3/2003   | Hail      | 1 in.     | 0      | 0        | \$1,000         | \$0         |
| <i>Columbia</i>         | 3/31/2005  | Hail      | 0.88 in.  | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 8/12/2005  | Hail      | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 12/28/2007 | Hail      | 1 in.     | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 3/3/2008   | Lightning | --        | 0      | 0        | \$100,000       | \$0         |
| <i>Columbia</i>         | 6/10/2008  | Hail      | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 7/29/2008  | Hail      | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 3/27/2009  | Hail      | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 4/12/2009  | Hail      | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 4/13/2009  | Hail      | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 6/1/2009   | Hail      | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 8/21/2009  | Hail      | 0.75 in.  | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 2/21/2010  | Hail      | 1 in.     | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 4/24/2010  | Hail      | 1 in.     | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 7/25/2010  | Lightning | --        | 0      | 0        | \$12,000        | \$0         |
| <i>Columbia</i>         | 4/15/2011  | Hail      | 1.5 in.   | 0      | 0        | \$0             | \$0         |
| <i>Columbia</i>         | 5/13/2011  | Hail      | 1.75 in.  | 0      | 0        | \$50,000        | \$0         |
| <i>Columbia</i>         | 9/28/2011  | Hail      | 1 in.     | 0      | 0        | \$0             | \$0         |

|                                             |            |           |          |   |   |           |     |
|---------------------------------------------|------------|-----------|----------|---|---|-----------|-----|
| <i>Columbia</i>                             | 9/28/2011  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Columbia</i>                             | 8/9/2012   | Lightning | --       | 0 | 0 | \$5,000   | \$0 |
| <i>Columbia</i>                             | 9/4/2012   | Hail      | 1 in.    | 0 | 0 | \$4,000   | \$0 |
| <i>Columbia</i>                             | 2/22/2013  | Hail      | 1.5 in.  | 0 | 0 | \$2,000   | \$0 |
| <i>Columbia</i>                             | 1/21/2016  | Hail      | 1.25 in. | 0 | 0 | \$0       | \$0 |
| <i>Columbia</i>                             | 8/11/2017  | Lightning | --       | 0 | 0 | \$200,000 | \$0 |
| <i>Columbia</i>                             | 5/26/2018  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Columbia</i>                             | 4/19/2020  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Columbia</i>                             | 5/27/2020  | Hail      | 1.75 in. | 0 | 0 | \$10,000  | \$0 |
| <i>Columbia</i>                             | 3/28/2023  | Hail      | 1 in.    | 0 | 0 | \$50,000  | \$0 |
| <b>Unincorporated Area in Marion County</b> |            |           |          |   |   |           |     |
| <i>Foxworth</i>                             | 4/23/2000  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>County Wide</i>                          | 4/24/2000  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Foxworth</i>                             | 3/12/2001  | Hail      | 1 in.    | 0 | 0 | \$8,000   | \$0 |
| <i>Goss</i>                                 | 3/12/2001  | Lightning | --       | 0 | 0 | 25,000    | \$0 |
| <i>Sandy Hook</i>                           | 3/6/2003   | Hail      | 0.88 in. | 0 | 0 | \$1,000   | \$0 |
| <i>Kokomo</i>                               | 4/7/2003   | Hail      | 1.50 in. | 0 | 0 | \$10,000  | \$0 |
| <i>Kokomo</i>                               | 4/7/2003   | Hail      | 4 in.    | 0 | 0 | \$500,000 | \$0 |
| <i>Goss</i>                                 | 4/24/2003  | Hail      | 0.88 in. | 0 | 0 | \$1,000   | \$0 |
| <i>Goss</i>                                 | 4/25/2003  | Hail      | 0.88 in. | 0 | 0 | \$1,000   | \$0 |
| <i>Goss</i>                                 | 4/25/2003  | Hail      | 1 in.    | 0 | 0 | \$1,000   | \$0 |
| <i>Morgantown</i>                           | 5/14/2003  | Hail      | 1.75 in. | 0 | 0 | \$10,000  | \$0 |
| <i>Kokomo</i>                               | 4/29/2004  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>Foxworth</i>                             | 3/22/2005  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Kokomo</i>                               | 3/30/2005  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Kokomo</i>                               | 3/31/2005  | Hail      | 1.75 in. | 0 | 0 | \$15,000  | \$0 |
| <i>White Bluff &amp; Kokomo</i>             | 4/6/2005   | Hail      | 1.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Goss</i>                                 | 4/22/2005  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Goss</i>                                 | 8/9/2006   | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>Sandy Hook</i>                           | 2/13/2007  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Kokomo</i>                               | 4/3/2007   | Hail      | 1.75 in. | 0 | 0 | \$40,000  | \$0 |
| <i>White Bluff</i>                          | 12/28/2007 | Hail      | 1.25 in. | 0 | 0 | \$0       | \$0 |
| <i>Kokomo</i>                               | 1/10/2008  | Hail      | 2.75 in. | 0 | 0 | \$100,000 | \$0 |
| <i>Sumbax</i>                               | 2/12/2008  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Lovelace</i>                             | 3/3/2008   | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Sandy Hook</i>                           | 6/20/2008  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Pinebure</i>                             | 6/25/2008  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Saxon &amp; Twin</i>                     | 6/25/2008  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Sandy Hook</i>                           | 9/20/2008  | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>White Bluff</i>                          | 3/27/2009  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Hub</i>                                  | 3/27/2009  | Hail      | 1.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Sandy Hook</i>                           | 4/13/2009  | Hail      | 1 in.    | 0 | 0 | \$0       | \$0 |
| <i>Pickwick</i>                             | 5/5/2009   | Hail      | 0.88 in. | 0 | 0 | \$0       | \$0 |
| <i>White Bluff</i>                          | 5/12/2009  | Hail      | 0.75 in. | 0 | 0 | \$0       | \$0 |
| <i>Morgantown</i>                           | 2/21/2010  | Hail      | 1.75 in. | 0 | 0 | \$3,000   | \$0 |
| <i>Goss</i>                                 | 2/10/2010  | Hail      | 2.75 in. | 0 | 0 | \$150,000 | \$0 |



|                              |                   |             |                 |          |          |                     |            |
|------------------------------|-------------------|-------------|-----------------|----------|----------|---------------------|------------|
| <b>Jamestown</b>             | <b>3/18/2013</b>  | <b>Hail</b> | <b>1.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>          | <b>\$0</b> |
| <b>Foxworth &amp; Kokomo</b> | <b>12/23/2014</b> | <b>Hail</b> | <b>0.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>          | <b>\$0</b> |
| <b>Morgantown</b>            | <b>3/17/2016</b>  | <b>Hail</b> | <b>2.50 in.</b> | <b>0</b> | <b>0</b> | <b>\$50,000</b>     | <b>\$0</b> |
| <b>Pinebur</b>               | <b>1/21/2017</b>  | <b>Hail</b> | <b>1.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$10,000</b>     | <b>\$0</b> |
| <b>Goss</b>                  | <b>2/7/2017</b>   | <b>Hail</b> | <b>0.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>          | <b>\$0</b> |
| <b>Pinebur</b>               | <b>3/17/2018</b>  | <b>Hail</b> | <b>1 in.</b>    | <b>0</b> | <b>0</b> | <b>\$0</b>          | <b>\$0</b> |
| <b>Morgantown</b>            | <b>5/27/2020</b>  | <b>Hail</b> | <b>1 in.</b>    | <b>0</b> | <b>0</b> | <b>\$0</b>          | <b>\$0</b> |
| <b>Kokomo</b>                | <b>4/23/2021</b>  | <b>Hail</b> | <b>0.88 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>          | <b>\$0</b> |
| <b>Kokomo</b>                | <b>4/15/2022</b>  | <b>Hail</b> | <b>1.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$1,000,000</b>  | <b>\$0</b> |
| <b>Pickwick</b>              | <b>4/15/2022</b>  | <b>Hail</b> | <b>1.25 in.</b> | <b>0</b> | <b>0</b> | <b>\$25,000,000</b> | <b>\$0</b> |
| <b>Jamestown</b>             | <b>4/15/2023</b>  | <b>Hail</b> | <b>1 in.</b>    | <b>0</b> | <b>0</b> | <b>\$30,000</b>     | <b>\$0</b> |
| <b>Pinebur</b>               | <b>4/27/2023</b>  | <b>Hail</b> | <b>1 in.</b>    | <b>0</b> | <b>0</b> | <b>\$10,000</b>     | <b>\$0</b> |
| <b>Pickwick &amp; Sumbax</b> | <b>2/11/2024</b>  | <b>Hail</b> | <b>1.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$950,000</b>    | <b>\$0</b> |

Source: NCED/NOAA

## 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 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 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. 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.

Meteorologists predict that thunderstorms will continue to increase in frequency, magnitude, and intensity as climate change continues to effect weather. These increases could greatly impact the county in crop and property damage and life safety. If these storms intensify it could also affect the economy of the county.

## F.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 eleven disaster declarations in Marion County in 1973, 1979, 1980, 1983, 1990, 2001, 2003, 2013, 2014, 2015, and 2018. According to the National Centers for Environmental Information, there have been a total of 32 recorded tornado events in Marion County since 2000 (**Table F.19**), resulting in over \$30 million in property damages. In addition, 55 injuries and 4 deaths were reported. The magnitude of these tornadoes ranges from F0 to EF4 in intensity, although an EF5 event is possible. Detailed information on historic tornado events can be found in **Table F.20**.

**TABLE F.19: SUMMARY OF TORNADO OCCURRENCES IN MARION COUNTY**

| Location                   | Number of Occurrences | Deaths   | Injuries  | Property Damage     | Crop Damage     |
|----------------------------|-----------------------|----------|-----------|---------------------|-----------------|
| <i>Columbia</i>            | 9                     | 3        | 50        | \$25,934,000        | \$0             |
| <i>Unincorporated Area</i> | 23                    | 1        | 5         | 4,100,000           | \$25,000        |
| <b>County Total:</b>       | <b>32</b>             | <b>4</b> | <b>55</b> | <b>\$30,034,000</b> | <b>\$25,000</b> |

**TABLE F.20: HISTORICAL TORNADO IMPACTS IN MARION COUNTY**

| Location                                    | Date       | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|---------------------------------------------|------------|-----------|--------|----------|-----------------|-------------|
| <b>City of Columbia</b>                     |            |           |        |          |                 |             |
| <i>Columbia</i>                             | 2/16/2001  | F0        | 0      | 0        | \$1,000         | \$0         |
| <i>Columbia</i>                             | 3/12/2001  | F1        | 0      | 0        | \$100,000       | \$0         |
| <i>Columbia</i>                             | 3/12/2001  | F1        | 0      | 0        | \$702,000       | \$0         |
| <i>Columbia</i>                             | 10/13/2001 | F0        | 0      | 0        | \$1,000         | \$0         |
| <i>Columbia</i>                             | 2/20/2014  | EF0       | 0      | 0        | \$15,000        | \$0         |
| <i>Columbia</i>                             | 12/23/2014 | EF3       | 3      | 50       | \$25,000,000    | \$0         |
| <i>Columbia</i>                             | 10/31/2015 | EF0       | 0      | 0        | \$5,000         | \$0         |
| <i>Columbia</i>                             | 12/16/2019 | EF1       | 0      | 0        | \$50,000        | \$0         |
| <i>Columbia</i>                             | 6/19/2023  | EF0       | 0      | 0        | \$60,000        | \$0         |
| <b>Unincorporated Area in Marion County</b> |            |           |        |          |                 |             |
| <i>Kokomo</i>                               | 3/12/2001  | F1        | 0      | 0        | \$10,000        | \$0         |
| <i>Sandy Hook</i>                           | 11/11/2002 | F1        | 0      | 0        | \$75,000        | \$0         |
| <i>Hub</i>                                  | 4/30/2005  | F0        | 0      | 0        | \$10,000        | \$0         |
| <i>Sandy Hook</i>                           | 1/1/2006   | F1        | 0      | 0        | \$100,000       | \$0         |
| <i>Kokomo</i>                               | 10/27/2006 | F1        | 0      | 0        | \$700,000       | \$0         |
| <i>Sandy Hook</i>                           | 11/15/2006 | F1        | 0      | 0        | \$90,000        | \$0         |
| <i>Pinebur</i>                              | 4/14/2007  | EF0       | 0      | 0        | \$1,000         | \$0         |
| <i>Jamestown</i>                            | 3/3/2008   | EF1       | 0      | 0        | \$250,000       | \$25,000    |
| <i>Goss</i>                                 | 9/1/2008   | EF0       | 0      | 0        | \$1,000         | \$0         |
| <i>Goss</i>                                 | 11/16/2011 | EF1       | 0      | 0        | \$200,000       | \$0         |
| <i>Pinebur</i>                              | 1/17/2012  | EF2       | 0      | 2        | \$250,000       | \$0         |

|                    |                   |            |          |          |                    |            |
|--------------------|-------------------|------------|----------|----------|--------------------|------------|
| <b>Pickwick</b>    | <b>12/10/2012</b> | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$40,000</b>    | <b>\$0</b> |
| <b>Pickwick</b>    | <b>2/10/2013</b>  | <b>EF2</b> | <b>0</b> | <b>3</b> | <b>\$300,000</b>   | <b>\$0</b> |
| <b>Pickwick</b>    | <b>10/31/2015</b> | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$75,000</b>    | <b>\$0</b> |
| <b>Twin</b>        | <b>2/23/2016</b>  | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$25,000</b>    | <b>\$0</b> |
| <b>Sumbax</b>      | <b>12/16/2019</b> | <b>EF2</b> | <b>0</b> | <b>0</b> | <b>\$300,000</b>   | <b>\$0</b> |
| <b>White Bluff</b> | <b>4/12/2020</b>  | <b>EF2</b> | <b>0</b> | <b>0</b> | <b>\$1,000,000</b> | <b>\$0</b> |
| <b>St. Paul</b>    | <b>4/19/2020</b>  | <b>EF4</b> | <b>1</b> | <b>0</b> | <b>\$400,000</b>   | <b>\$0</b> |
| <b>White Bluff</b> | <b>4/23/2020</b>  | <b>EF0</b> | <b>0</b> | <b>0</b> | <b>\$20,000</b>    | <b>\$0</b> |
| <b>Kokomo</b>      | <b>6/24/2020</b>  | <b>EF0</b> | <b>0</b> | <b>0</b> | <b>\$12,000</b>    | <b>\$0</b> |
| <b>Morgantown</b>  | <b>4/9/2021</b>   | <b>EF1</b> | <b>0</b> | <b>0</b> | <b>\$90,000</b>    | <b>\$0</b> |
| <b>Goss</b>        | <b>11/29/2022</b> | <b>EF0</b> | <b>0</b> | <b>0</b> | <b>\$1,000</b>     | <b>\$0</b> |
| <b>Jamestown</b>   | <b>11/30/2022</b> | <b>EF2</b> | <b>0</b> | <b>0</b> | <b>\$150,000</b>   | <b>\$0</b> |

Source: NCED/NOAA

Anecdotes are available from NCEI for the major storms that have impacted that area as found below:

**October 27, 2006**—October 27th offered another strong early fall system to move through the area. Most of the storm activity remained across the far southern and southeast portion of the forecast area. This portion of the region received some flash flooding, wind damage and a few tornadoes. An 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.

**March 3, 2008**—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.

**January 17, 2012**—The tornado first touched down along Mail Route Road and tracked across a farm, uprooting and snapping trees and causing minor damage to shed 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.

**February 10, 2013**—This tornado started just inside Marion County on New Hope Road where a few outbuildings were destroyed. On the east side of the road, a home had a good portion of the roof torn off. The tornado then crossed Hurricane Creek Road and approached Mt Carmel Church Road, which is where the most intense damage occurred. Three mobile homes were completely destroyed with just the undercarriage left (3 injuries occurred here). A bit further northeast, the tornado crossed Regan Road where three homes sustained significant roof damage. Numerous trees were snapped or uprooted in this area as well. The tornado weakened as it crossed Hwy 35 but continued to produce low end tree damage across Hwy 13 South and Game Reserve Road. Additional damage to structures occurred near the Lamar County line along Columbia-Purvis Road, Powell Lane and Cul-de-sac Drive.

The tornado then entered Lamar County causing additional damage to structures with one home off Wiley Lott Road having the roof removed. A number of power poles were snapped in this area as well, along with significant tree damage. The tornado dissipated shortly after producing this damage. Maximum wind speeds were estimated at 120 mph.

**December 23, 2014**—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.

One well-built home was mostly destroyed and nearly reduced to a slab. This home received the highest damage rating. Extensive tree damage also occurred along the path of the storm. Maximum wind speed of this tornado was 165mph.

**April 12, 2020**—The total path length of the tornado was 21.17 miles. Maximum width was 1.1 miles in Lawrence County. Maximum estimated wind speed for the tornado was 170mph and rated an EF4. However the maximum estimated wind speed in Marion County was 125mph, which was rated an EF2.

**April 9, 2021**—This EF1 tornado started in western Marion County, near Bracey Road, and tracked southeast for just over 7 miles. The tornadic circulation was embedded in a swath of wind that tracked in a similar manner but was much wider and had sporadic tree damage. Shortly after the tornadic circulation organized, it peaked in intensity and produced a focused corridor of solid tree damage. This was near the intersection of Circle Bar Road and Ratliff Road. From here, the tornado weakened a bit but continued to produce a more focused corridor of mostly tree damage. A few homes had trees on them with several sheds and carports having the roof taken off. The tornado basically stayed just on the north side of Highway 586. The tornado dissipated before crossing Highway 586 on the west side of Foxworth and all that remained was straight line wind damage. Max winds were 105 mph.

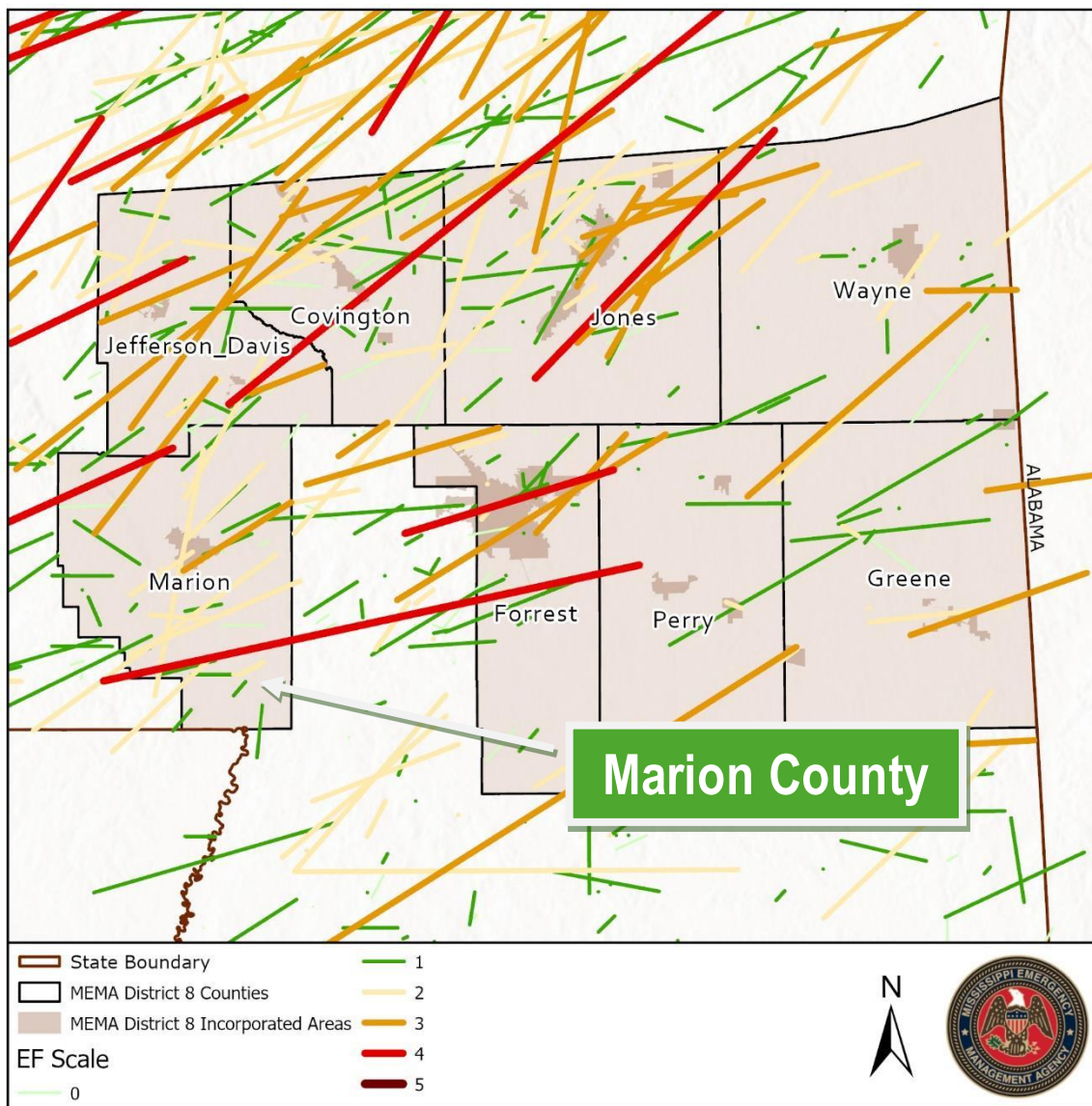
**November 29, 2022**—Satellite imagery suggests this EF-0 tornado may have touched down near and began damaging trees along Pierce Creek between JL Robbins Road and Smith Hill Road in southwest Jefferson Davis County. The tornado continued northeastward and briefly crossed into far northern Marion County. After it crossed Bunker Hill Road, the tornado continued again into Jefferson Davis County. A few trees were uprooted and damaged near Ebenezer Church Road, and satellite imagery suggests a few additional trees were damaged or uprooted between Ebenezer Church Road and Mill Road. The tornado dissipated before it reached Mississippi Highway 35. The estimated peak wind speed was 85 mph. The combined tornado path across both counties was 3.38 miles. A tornadic debris signature was observed on radar with this tornado.

**November 30, 2022**—An EF-2 tornado touched down just north of Ten Mile Creek Road in southern Marion County where it initially produced minor tree damage. An outbuilding was blown over in this area as well. The tornado quickly intensified and damaged the roof of a residence as it moved eastward. Nearby trees, power poles, and a flag pole were also blown down. The tornado tracked eastward where it continued to intensify and reached its maximum intensity with approximately 125 mph winds. Here, a cellular tower along Dunaway Loop was destroyed. As the tornado crossed Mississippi Highway 35, outbuildings were damaged, and snapped and uprooted trees were common in a narrow path. Sentinel satellite imagery indicated that the tornado continued eastward across the Pearl River and dissipated just west of Old River Road. A tornadic debris signature was observed on radar with this tornado.

**July 19, 2023**—An EF-0 tornado began near the Broad Street and East Avenue intersection where tree limb and sporadic tree damage occurred. The tornado continued eastward and produced damage primarily to branches but did uproot a few trees as well. As the tornado crossed the area from Clearview Drive into Briarwood Dr., a tree was blown onto a home which caused roof damage. The tornado dissipated near Hasselwood Dr. where a few pines were leaned over, and small branches were blown down. Peak estimated winds were 75 mph.

## **FIGURE F.8: TORNADOES IN MARION COUNTY 2000-2024**





### 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).

It is predicted that tornadoes and the type of storms that create tornadoes will increase in intensity, frequency, and magnitude as the temperature rises with climate change. More frequent strong tornadoes could have a large economic impact on each community in the county. It could also increase injuries and/death counts if the tornadoes increase in magnitude.

## F.2.13 Hazardous Materials Incidents

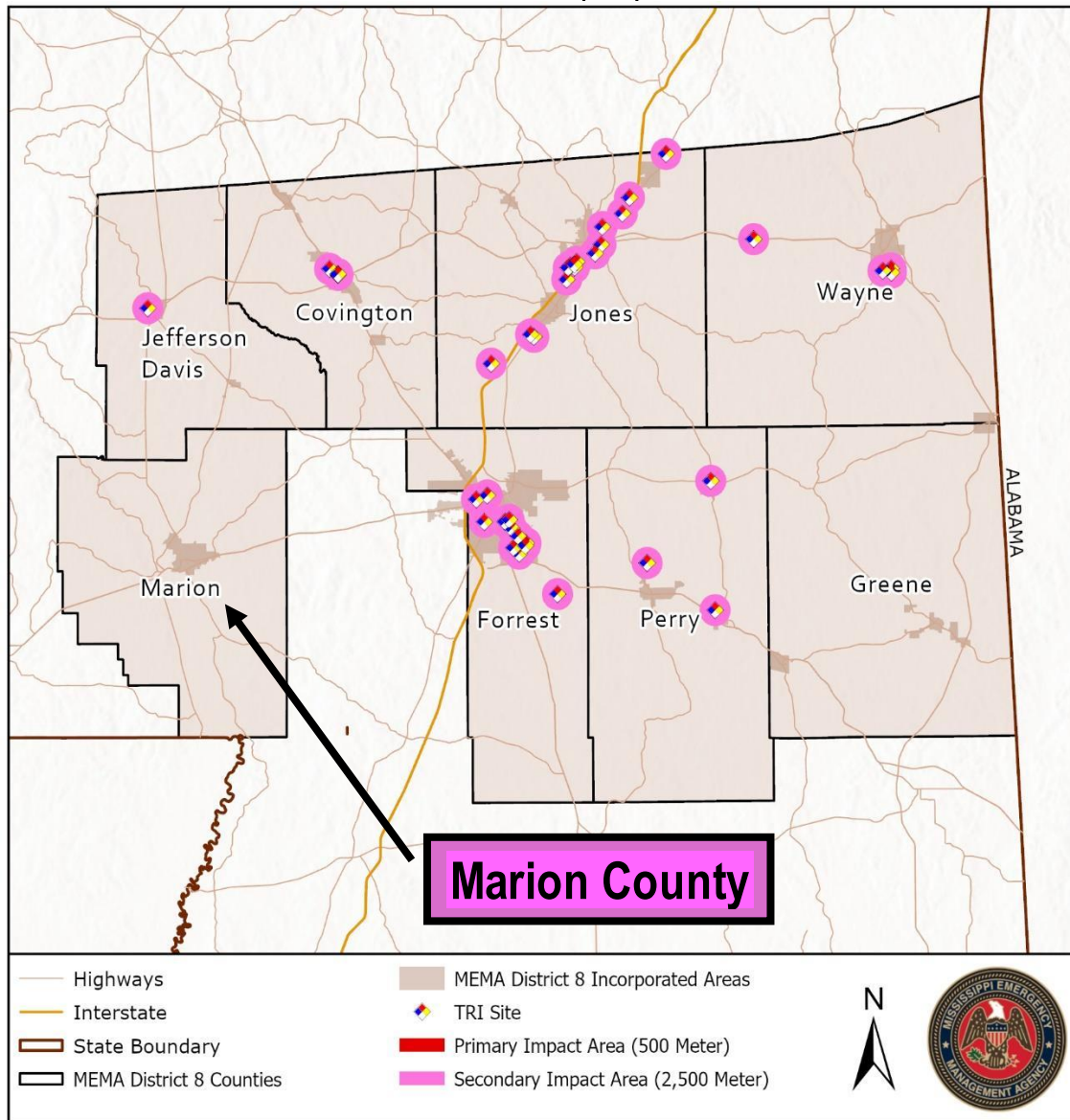


## LOCATION AND SPATIAL EXTENT

### Hazardous Materials

Marion County has no TRI sites as shown in **Figure F.9**.

**FIGURE F.9 TOXIC RELEASE INVENTORY (TRI) SITES IN MARION COUNTY**

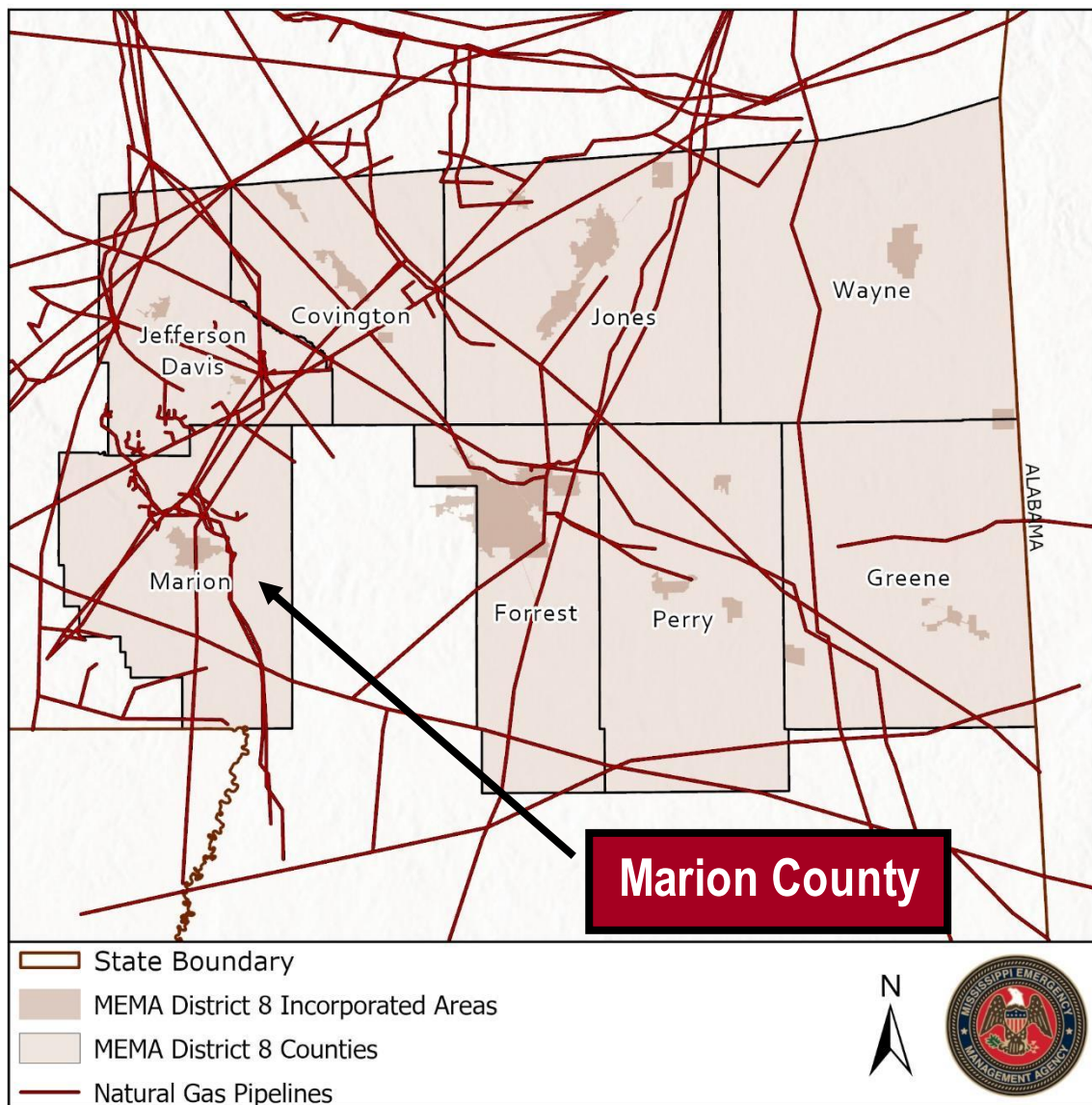


In addition to “fixed” hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially 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.10** shows the trunk lines for each of these material types but does not show the gathering or distribution pipelines. The natural gas pipelines are in red/maroon. This data has not changed since the last plan update.

**FIGURE F.10: PIPELINES IN MARION COUNTY**



### 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, resulting in nearly \$318,000 in property damages. In addition, one injury was reported. **Table F.21** 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 F.21: HAZMAT INCIDENTS IN MARION COUNTY**

| Location                                    | Date       | Report Number | Mode    | Serious Incident | Deaths/ Injuries | Damages   | Quantity Released |
|---------------------------------------------|------------|---------------|---------|------------------|------------------|-----------|-------------------|
| <b>The City of Columbia</b>                 |            |               |         |                  |                  |           |                   |
| <i>Columbia</i>                             | 12/31/1978 | I-1979010516  | Highway | No               | 0/0              | \$0       | 0                 |
| <i>Columbia</i>                             | 9/3/1980   | I-1980091215  | Highway | Yes              | 0/0              | \$0       | 7,808 LGA         |
| <i>Columbia</i>                             | 9/11/2000  | I-2000100690  | Highway | No               | 0/0              | \$60      | 0.5 LGA           |
| <i>Columbia</i>                             | 9/18/2003  | I-2003091346  | Highway | Yes              | 0/1              | \$280     | 700 LGA           |
| <b>Unincorporated Area in Marion County</b> |            |               |         |                  |                  |           |                   |
| <i>Foxworth</i>                             | 9/4/1996   | I-1996100679  | Highway | Yes              | 0/1              | \$317,659 | 3,977 LGA         |

Source: PHMSA

### Pipelines

Between 2002 and 2024, 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.

## F.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 parts of Marion County 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 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.

## **F.2.15 Pandemic**



## LOCATION AND SPATIAL EXTENT

Pandemics are global in nature. However, they may start anywhere. Marion County chose to analyze this hazard given impacts of the Covid-19 Virus on the health and welfare of the county as well as its economy. A Disaster Declaration was declared for the Covid-19 Virus. This was the first Declaration of this kind.

All populations should be considered at risk to pandemic. Buildings and infrastructure are not directly impacted by the virus but could be indirectly impacted if people are not able to operate and maintain them due to illness. Many buildings may be shutdown, at least temporarily, as a result. Employers may initiate work from home procedures for non-essential workers in order to help stop infection. Commerce activities, and thus the economy, may suffer greatly during this time.

## HISTORICAL OCCURRENCES

Several pandemics have been reported throughout history. The first known pandemic dates back to 430 B.C. with the Plague of Athens. It reportedly killed a quarter of the population over four years due to typhoid fever. In 165-180 A.D., the Antonine Plague killed nearly 5 million people. Next, the Plague of Justinian (the first bubonic plague pandemic) occurred from 541 to 566. It killed 10,000 people a day at its peak and resulted in a 50 percent drop in Europe's population.

Since the 1500s, influenza pandemics have occurred about three times every century or roughly every 10-50 years. The Black Death devastated European populations in the 14th century. Nearly a third of the population (20-30 million) was killed over six years. From 1817 to present, seven Cholera Pandemics have impacted the world and killed millions. Perhaps most severe, was the Third Cholera Pandemic (1852-1959) which started in China. Isolated cases can still be found in the Western U.S. today. There were three major pandemics in the 20th century (1918-1919, 1957-1958, and 1968-1969). The most infamous pandemic flu of the 20th century, however, was that of 1918-1919. Since the 1960s, there has only been one pandemic, the 2009 H1N1 influenza. The pandemics of the 20th and 21st centuries that impacted the United States are detailed below.

**1918 Spanish Flu:** This was the most devastating flu of the 20th century. This pandemic spread across the world in three waves between 1918 and 1919. It typically impacted areas for around twelve weeks and then would largely disappear. However, it would frequently reemerge several months later. Worldwide, approximately 50 million persons died and over a quarter of the population was infected. Nearly 675,000 people died in the United States. The illness came on suddenly and could cause death within a few hours. The virus impacted those aged 15 to 35 especially hard. The movement of troops during World War I is thought to have facilitated the spread of the virus.

In Mississippi, state officials noted that "epidemics have been reported from a number of places in the State," on October 4th, 1918. By the 18th, twenty-six localities reported 1,934 cases (the real number of cases was likely much higher). West Point, Mississippi was hit especially hard, and quarantine was established. Throughout the state, African Americans were impacted at a greater rate than white populations. This is thought to be partly caused from a shortage of caretakers. It is estimated that over 6,000 people died in Mississippi, though that number may be much higher as death records were not widely recorded.

**1957 Asian Flu:** It is estimated that the Asian Flu caused 2 million deaths worldwide. Approximately 70,000 deaths were in the U.S. However, the proportion of people impacted was substantially higher than that of the Spanish Flu. This flu was characterized as having much milder effects than the Spanish Flu and greater survivability. Similar to other pandemics, this pandemic has two waves. Elderly and infant populations were more likely to succumb to death. This flu is thought to have originated from a genetic mutation of a bird virus.

**1968 Hong Kong Flu:** The Hong Kong Flu is thought to have caused one million deaths worldwide. It was milder than both the Asian and Spanish influenza viruses. It was similar to the Asian Flu, which may have provided some immunity to the virus. It had the most severe impact on elderly populations.

**2009 H1N1 Influenza:** This flu was derived from human, swine, and avian virus strains. It was initially reported in Mexico in April 2009. On April 26, the U.S. government declared H1N1 a public health emergency. A vaccine was developed and over 80 million were vaccinated which helped minimize the impacts. The virus had mild impacts on most of the population but did cause death (usually from viral pneumonia) in high-risk populations such as pregnant women, obese persons, indigenous people, and those with chronic respiratory, cardiac, neurological, or immunity conditions. Worldwide, it is estimated that 43 million to 89 million people contracted H1N1 between April 2009 and April 2010, and between 8,870 and 18,300 H1N1 cases resulted in death.



**COVID-19 (coronavirus disease 2019):** Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019 and changed the way people view Pandemics. Marion County had 8,872 cases of Covid and 155 deaths.

COVID-19 most often causes respiratory symptoms that can feel much like a cold, the flu, or pneumonia. COVID-19 may attack more than your lungs and respiratory system. Other parts of your body may also be affected by the disease. Most people with COVID-19 have mild symptoms, but some people become severely ill. Some people are more likely than others to get very sick if they get COVID-19. This includes people who are older, are immunocompromised, have certain disabilities, or have underlying health conditions.

In addition to the pandemics above, there have been several cases of pandemic threats, some of which reached epidemic levels. They were contained before spreading globally. Examples include Smallpox, Polio, Tuberculosis, Malaria, AIDS, SARS and Yellow Fever. Advances in medicine and technology have been instrumental in containing the spread of viruses in recent history.

### **PROBABILITY OF FUTURE OCCURRENCES**

Based on historical occurrence information, it is assumed that Webster County has a probability level of unlikely (less than 1 percent annual probability) for future pandemics events. While pandemic can have devastating impacts, they are relatively rare.

The Mississippi State Department of Health maintains a state pandemic plan which can be found here: <http://www.msdh.state.ms.us/msdhsite/index.cfm/44,1136,122,154.pdf/SNSPlan.pdf>

## **F.2.16 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.22** 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 F.22: EXTENT OF MARION COUNTY HAZARDS**

| HAZARD                                     | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tectonic Hazards</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 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, 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.                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Mass-Movements</b>                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Hydraulic Hazards</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Drought                                    | 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 several times over the twenty-four-year reporting period.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Floods                                     | 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.<br><br>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.                                                                                                                                                                                         |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Meteorological Hazards</b>              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Hurricane and Tropical Storms              | 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 Katrina in 2005) which carried tropical force winds of 130 miles per hour upon arrival in the county.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Thunderstorms/<br>Hail/ Lightning/<br>Wind | 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 May 14, 2024, at 96 knots (approximately 110 mph). It should be noted that future events may exceed these historical occurrences.<br><br>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.<br><br>According to the Vaisala's flash density map, 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. |
| Winter Storms                              | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Temperature<br>Extremes/ Heat<br>Wave      | A four day stretch of extreme temperatures occurred across the region to start off the month of August in 2023. High pressure was firmly entrenched across the southeast and allowed temperatures to soar into the triple digits across much of the region. Across the NWS Jackson, MS forecast area, 19 record highs were set between August 1st and 4th. On August 2nd, the 2nd warmest average temperature was recorded. The low was 78 and the high 105, this resulted in an average temperature of 91.5 degrees. Additionally, relatively high humidity levels made conditions even more oppressive, with heat index readings surpassing 110 degrees in many areas. This extreme heat resulted in 3 fatalities across the forecast area.                                                                                                                         |
| 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 EF4 (reported on April 19, 2020).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Biological Hazards</b>                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Pandemic                                   | The extent of a pandemic impacting the county is difficult to estimate. It could result in thousands of deaths and extreme disruption of commerce and everyday life.<br><br>Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                  | people have died from COVID-19 in the United States. Covid hit the United States in 2019 and changed the way people view Pandemics. Marion County had 8,872 cases of COVID and 155 deaths                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Other Natural Hazards</b>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Wildfire</b>                  | Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2010-2023. 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 2021 when 1,317 acres were burned and again in 2023 with 1,296 acres burned. Although this data lists the extent that has occurred, larger and more frequent wildfires are possible throughout the county.                                                                                                                                  |
| <b>Erosion</b>                   | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Climate Change</b>            | The extent Climate change will impact Marion County is hard to estimate. It could cause more intense, frequent, and/or magnitude of thunderstorms, tropical storms, winds, tornadoes, heavy rains, flash flooding... If the intensity and magnitude increase so will property damage and possible loss of life.                                                                                                                                                                                                                                                                                                                      |
| <b>Other Hazards</b>             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Cyber Attack</b>              | 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.                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Hazard Materials Incident</b> | <p>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.</p> <p>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.</p> <p>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.</p> |

## 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 F.23** 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.23: SUMMARY OF PRI RESULTS FOR MARION COUNTY**

| HAZARD                           | Category/Degree of Risk |               |                |                    |                    |           |
|----------------------------------|-------------------------|---------------|----------------|--------------------|--------------------|-----------|
|                                  | Probability             | Impact        | Spatial Extent | Warning Time       | Duration           | PRI Score |
| Tectonic Hazards                 |                         |               |                |                    |                    |           |
| Earthquake                       | Unlikely                | Minor         | Moderate       | Less than 6 hours  | Less than 6 Hours  | 1.7       |
| Mass-Movement Hazards            |                         |               |                |                    |                    |           |
| Landslide                        | Unlikely                | Minor         | Small          | Less than 6 hours  | Less than 6 hours  | 1.5       |
| Expansive Soil                   | Possible                | Minor         | Small          | Less than 6 hours  | Less than 6 hours  | 1.8       |
| Hydrologic Hazards               |                         |               |                |                    |                    |           |
| Drought                          | Highly Likely           | Minor         | Large          | More than 24 hours | More than 1 week   | 2.8       |
| Floods                           | Likely                  | Limited       | Moderate       | 6 to 12 hours      | Less than 24 hours | 2.4       |
| Dam Failure                      | Unlikely                | Critical      | Moderate       | More than 24 hours | Less than 24 hours | 2.0       |
| Meteorological Hazards           |                         |               |                |                    |                    |           |
| Hurricane/ Tropical Storms       | Likely                  | Catastrophic  | Large          | More than 24 hours | Less than 24 hours | 3.2       |
| Thunderstorm/ 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       |
| Lightning                        | Highly Likely           | Limited       | Negligible     | Less than 6 hours  | Less than 6 hours  | 2.5       |
| Winter Storms                    | Likely                  | Limited       | Moderate       | More than 24 hours | Less than 24 hours | 2.3       |
| Temperature Extremes/ Heat Waves | Highly Likely           | Likely        | Small          | More than 24 hours | More than 1 week   | 2.8       |
| Tornado                          | Likely                  | Critical      | Small          | Less than 6 hours  | Less than 6 hours  | 2.7       |
| Biological Hazards               |                         |               |                |                    |                    |           |
| Pandemic                         | Likely                  | Limited—Major | Small—Large    | More than 24 hours | More than a week   | 2.8       |
| Other Natural Hazards            |                         |               |                |                    |                    |           |
| Wildfire                         | Likely                  | Minor         | Small          | Less than 6 hours  | Less than one week | 2.3       |
| Erosion                          | Possible                | Minor         | Small          | More than 24 hours | More than 1 week   | 1.8       |
| Climate Change                   | Possible                | Critical      | Large          | More than 1 week   | More than 1 week   | 2.6       |
| Other Hazards                    |                         |               |                |                    |                    |           |
| Cyber Attack                     | Unlikely                | Limited       | Small          | Less than 6 hours  | Less than 24 hours | 1.9       |
| Hazardous Materials Incident     | Unlikely                | Limited       | Small          | Less than 6 hours  | Less than 24 hours | 1.9       |
| Meth Lab Incident                | Possible                | Minor         | Small          | Less than 6 hours  | Less than 6 hours  | 1.8       |
| Pipeline Incident                | Possible                | Limited       | Small          | Less than 6 hours  | Less than 24 hours | 2.2       |

## F.2.17 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 F.24). 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 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.24: CONCLUSIONS ON HAZARD RISK FOR MARION COUNTY**

|                      |                                                                                                                                                |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High Risk</b>     | <i>Drought/Heat Wave<br/>Hurricane and Tropical Storm<br/>Thunderstorm/ High Wind<br/>Tornado<br/>Flood<br/>Lightning<br/>Pandemic</i>         |
| <b>Moderate Risk</b> | <i>Climate Change<br/>Hail<br/>Pipeline Incident<br/>Hazardous Materials Incident<br/>Wildfire<br/>Dam Failure<br/>Winter Storm and Freeze</i> |
| <b>Low Risk</b>      | <i>Expansive Soil<br/>Landslide<br/>Meth Lab Incident<br/>Pandemic<br/>Erosion<br/>Cyber Attack</i>                                            |



## F.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.

### F.3.1 Asset Inventory

**Table F.25** 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.

**TABLE F.25: IMPROVED PROPERTY IN MARION COUNTY**

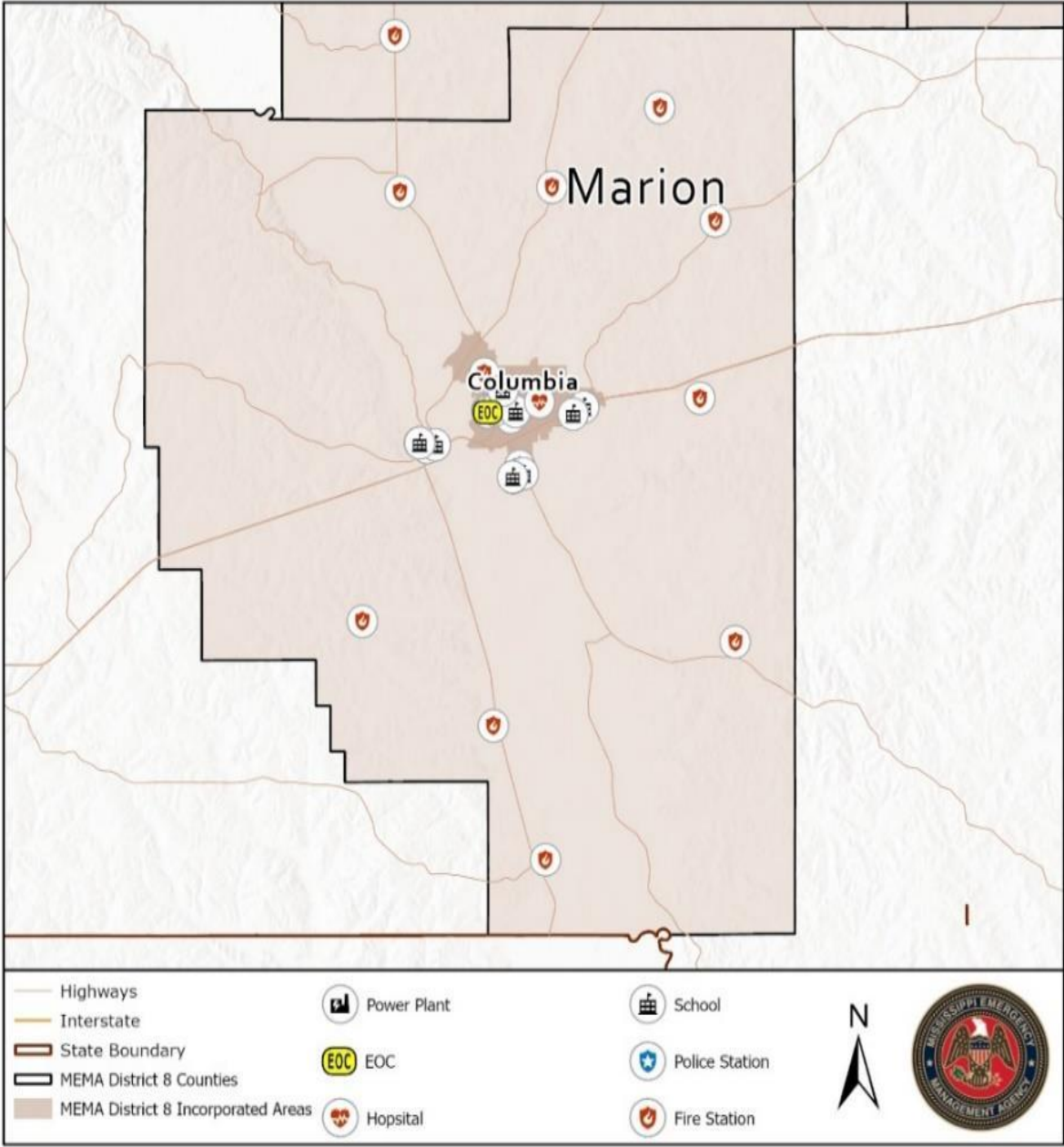
| LOCATION      | Number of Improved Properties | Total Assessed Value of Improvements |
|---------------|-------------------------------|--------------------------------------|
| Marion County | 12,536                        | \$2,186,833,000                      |

**Table F.26** lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools and other critical facilities located in Marion County. HAZUS was used to obtain the critical facilities for the county and this data was updated to reflect recent changes. In addition, **Figure F.8** shows the locations of essential facilities in Marion County. **Table F.27** 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.26: CRITICAL FACILITY INVENTORY IN MARION COUNTY**

| Location             | Fire Station | Police Station | Medical Care Facility | EOC | Schools |
|----------------------|--------------|----------------|-----------------------|-----|---------|
| Columbia             | 1            | 2              | 0                     | 0   | 5       |
| Unincorporated Area  | 6            | 1              | 1                     | 1   | 9       |
| Marion County Total: | 7            | 3              | 1                     | 1   | 14      |

FIGURE F.8: CRITICAL FACILITY LOCATIONS IN MARION COUNTY



**Table F.27** 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”).

TABLE F.27: AT-RISK CRITICAL FACILITIES IN MARION COUNTY

|                                          |                | Other        |                                      |                                       | Atmospheric |                                  |                           |         |                       | Geologic    |            | Hydrologic          |                |                |
|------------------------------------------|----------------|--------------|--------------------------------------|---------------------------------------|-------------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
| Facility Name                            | Facility Type  | WHP Hazard   | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder-storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |
| <b>Marion County Critical Facilities</b> |                |              |                                      |                                       |             |                                  |                           |         |                       |             |            |                     |                |                |
| Columbia Academy                         | School         | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Columbia Elem. School                    | School         | Non-burnable | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Columbia Fire Department                 | Fire Station   | Moderate     | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     | X              |                |
| Columbia High School                     | School         | Non-burnable | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                | X              |
| Columbia Police Dept                     | Police Station | Non-burnable | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     | X              |                |
| Columbia Police Investigator             | Police Station | Moderate     | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     | X              |                |
| Columbia Primary Sch.                    | School         | Non-burnable | X                                    | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                |                |
| East Columbia High School                | School         | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| East Marion Elem. School                 | School         | Moderate     |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| East Marion High School                  | School         | Moderate     |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| East Marion Primary Sch.                 | School         | Moderate     |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Jefferson Middle School                  | School         | Non-burnable | X                                    | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                |                |
| Marion CO VOC Complex                    | School         | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Marion County Civil Defense              | Emer. Facility | HIGH         |                                      |                                       | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Marion County Sheriff Dept               | Police Station | Non-burnable | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Marion General Hospital                  | Care Facility  | Non-burnable |                                      | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                |                |
| Pine Burr VFD                            | Fire Station   | VERY HIGH    |                                      |                                       | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Tri-Community VFD                        | Fire Station   | HIGH         |                                      |                                       | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Southwest Marion VFD                     | Fire Station   | LOW          |                                      |                                       | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Southwest Marion VFD                     | Fire Station   | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| West Marion Elementary                   | School         | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| West Marion High School                  | School         | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| West Marion Junior High                  | School         | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| West Marion Primary                      | School         | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     | X              |                |
| Southwest Marion VFD                     | Fire Station   | Non-burnable |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Southwest Marion VFD                     | Fire Station   | VERY HIGH    |                                      |                                       | X           | X                                | X                         |         | X                     | X           |            |                     |                |                |

## 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 Marion County that are potentially at risk to these hazards.

**Table F.28** lists the population by jurisdiction according to U.S. Census 2020 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 24,441 persons. If the decline in population continues the population decrease could lead to a decline in the population vulnerability. Additional population estimates are presented above in *Section F.1*.

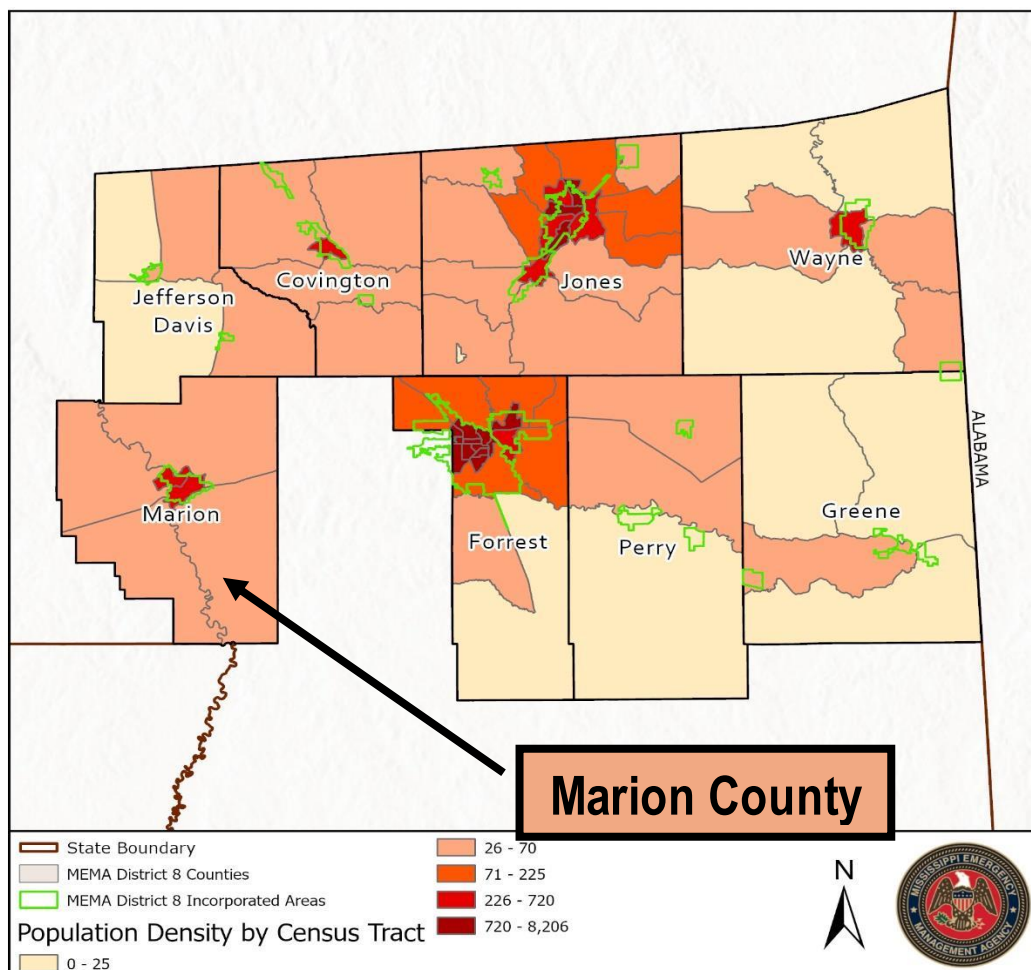
**TABLE F.28: TOTAL POPULATION IN MARION COUNTY**

| Jurisdiction        | 2010 Census | 2020 Census |
|---------------------|-------------|-------------|
| Marion County       | 27,088      | 24,224      |
| Columbia            | 6,582       | 5,864       |
| Unincorporated Area | 20,506      | 18,360      |

Source: US Census Bureau

In addition, **Figure F.12** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2020. This information has not changed since the last plan update.

**FIGURE F.12: POPULATION DENSITY IN MARION COUNTY**



### 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 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 F.24**.

Since the previous plan, the jurisdictions are not aware of any developments in hazard prone areas that have increased or decreased vulnerability.

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

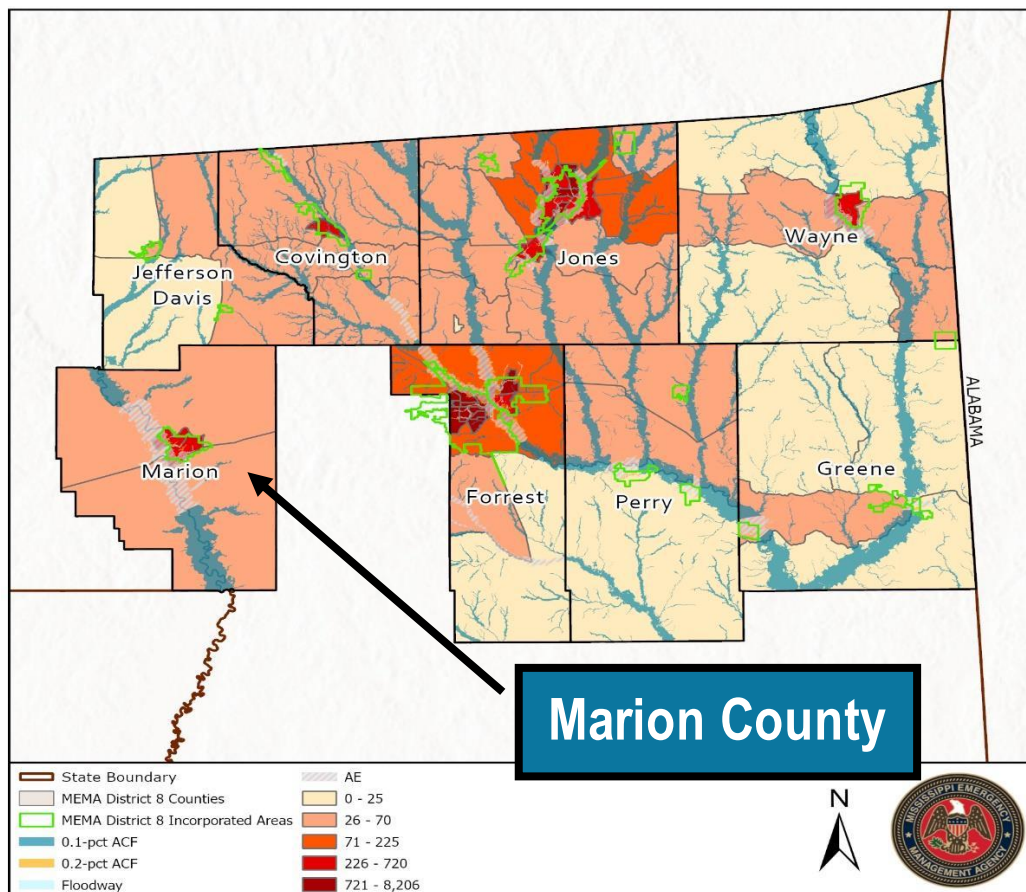
## FLOOD

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 2020 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.13** is presented to gain a better understanding of at-risk population.

**FIGURE F.13: POPULATION DENSITY NEAR FLOODPLAINS**



### 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 F.27**.

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.

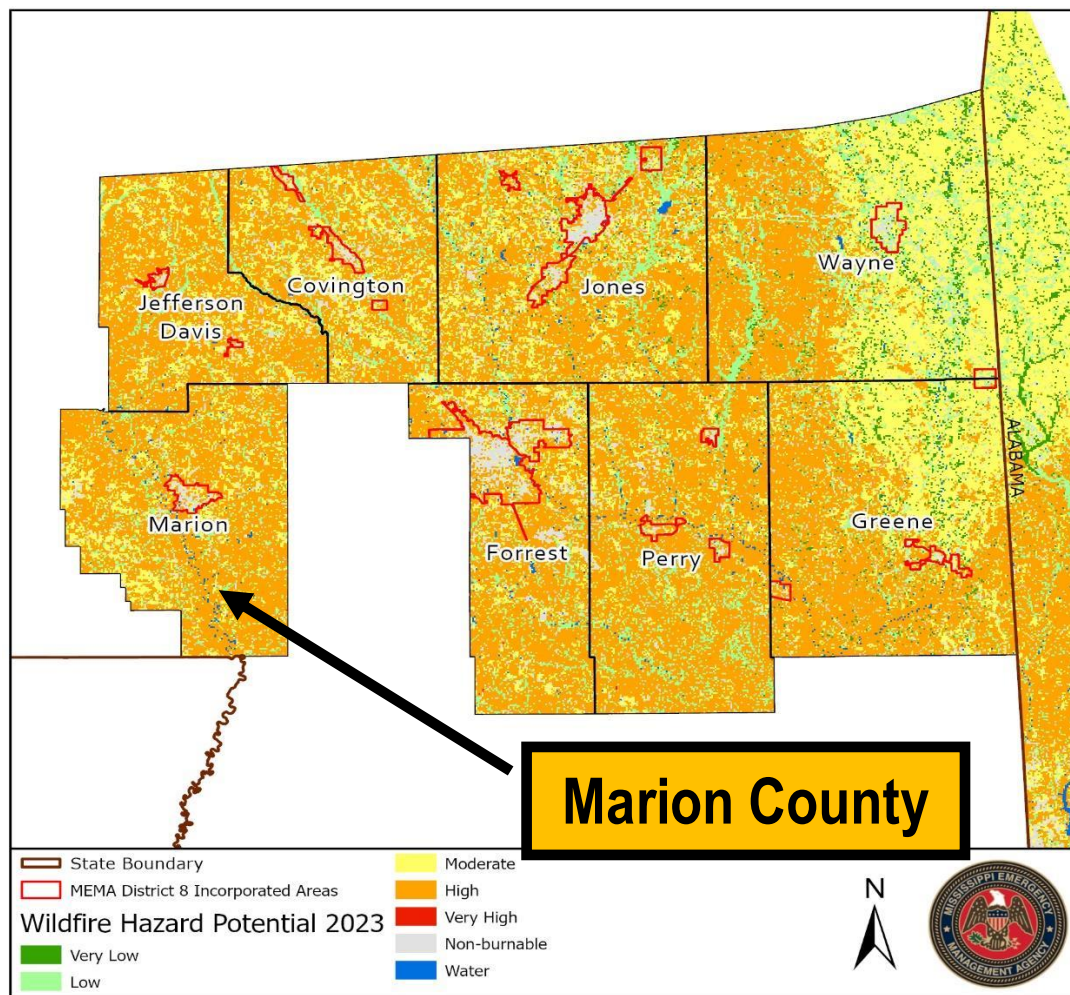
## WILDFIRE

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) 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 F.14** shows the wildfire hazard potential for Marion County. Most of the planning areas falls within the low to high category.

**FIGURE F.14: WILDFIRE RISK AREAS IN MARION COUNTY**



### **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 F.27**.

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 earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS 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 scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS 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 arbitrary scenario.

### **Critical Facilities**

There are 18 critical facilities identified for Marion 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 F.27**.

## **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 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 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 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 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 estimated economic losses for the scenario event. HAZUS 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 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 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 Marion 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 F.27**.

## **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 no 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.

**FIGURE F.15: TRI SITES WITH BUFFERS IN MARION COUNTY**



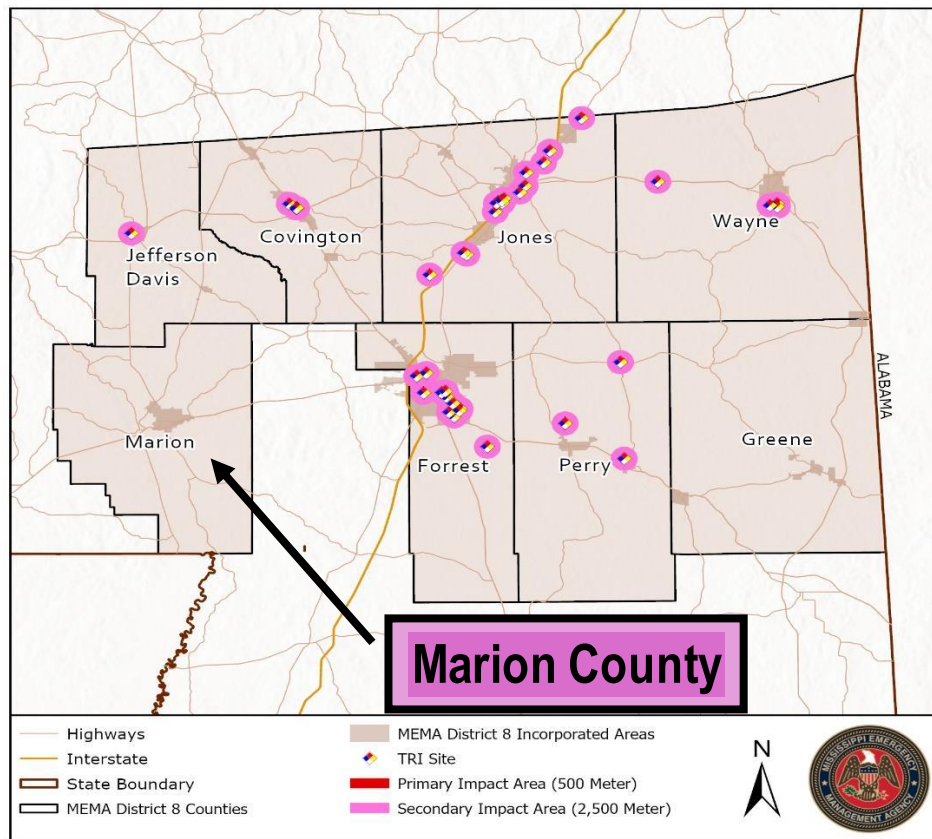
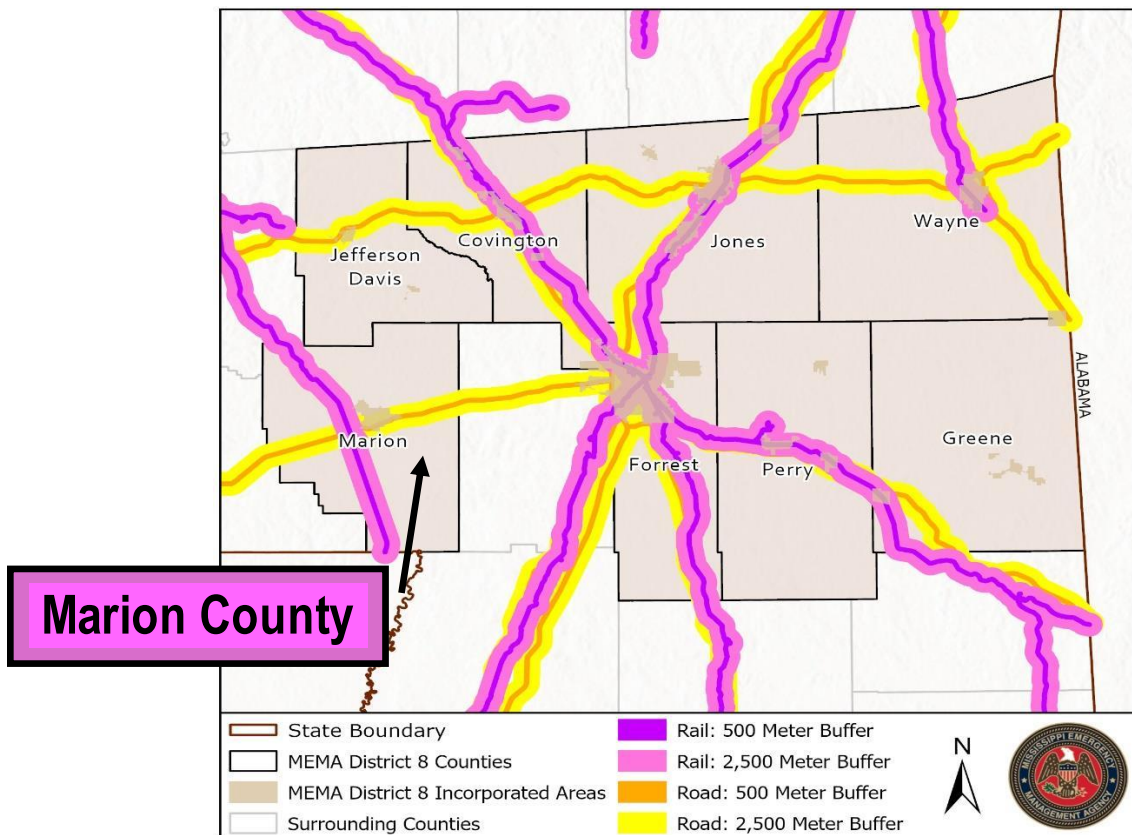


FIGURE F.15: MOBILE HAZMAT BUFFERS IN MARION COUNTY



## 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 F.27**.

#### **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 F.27**.

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.

## **F.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*.

## F.4.1 Planning and Regulatory Capability

**Table F.29** 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 F.29: RELEVANT PLANS, ORDINANCES, AND PROGRAMS**

| Planning/Regulatory Tool                | Marion County | Columbia |
|-----------------------------------------|---------------|----------|
| Hazard Mitigation Plan                  | ✓             | ✓        |
| Comprehensive Land Use Plan             |               | ✓        |
| Floodplain Management Plan              |               |          |
| Open Space Management Plan              | ✓             | ✓        |
| Stormwater Management Plan/Ordinance    |               |          |
| National 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 Codes                          | ✓             | ✓        |
| Fire Codes                              |               |          |
| National Flood Insurance Program (NFIP) | ✓             | ✓        |
| National Community Rating System        |               |          |

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 of 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 F.30 provides NFIP policy and claim information for each participating jurisdiction in Marion County.

**TABLE F.30: NFIP POLICY AND CLAIM INFORMATION**

| Location       | Date Joined NFIP | Current Effective Map Date | NFIP Policies in Force | Insurance in Force | Closed Claims | Total Payments to Date |
|----------------|------------------|----------------------------|------------------------|--------------------|---------------|------------------------|
| Marion County† | 9/28/1979        | 10/18/2019                 | 189                    | \$29,435,100       | 248           | \$2,337,509            |
| Columbia       | 9/28/1979        | 10/18/2019                 | 197                    | \$27,315,800       | 303           | \$3,612,752            |

†Includes unincorporated areas of county only

### *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.

## F.4.2 Administrative and Technical Capability

Table F.31 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 F.31: RELEVANT STAFF / PERSONNEL RESOURCES**

| Staff/Personal Resource                                                                                 | Marion County | Columbia |
|---------------------------------------------------------------------------------------------------------|---------------|----------|
| Planners with knowledge of land development/ land management practices                                  |               |          |
| Engineers of 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 HAZ-US                                                                  | ✓             | ✓        |
| 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.

### F.4.3 Fiscal Capability

**Table F.32** 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 F.32: RELEVANT FISCAL RESOURCES**

| Fiscal Tool/Resource                                    | Marion County | Columbia |
|---------------------------------------------------------|---------------|----------|
| Capital Improvement Programing                          | ✓             | ✓        |
| Community Development Block Grants (CDBG)               | ✓             | ✓        |
| Special Purchase 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 | ✓             | ✓        |

F.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.

F.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*.

F.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 F.33**.

TABLE F.33: 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. |

F.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             | Completion Date (Target)           | Implementation Status                                                                                                         |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|---------------------------------------------------|--------------------|-------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>Prevention</b>          |                                                                                                                                               |                     |                   |                                                   |                    |                               |                                    |                                                                                                                               |
| P-1                        | Identify high risk areas where hazards are most likely to occur.                                                                              | All                 | High              | N/A                                               | No 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                 | 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 Admin.      | Ongoing                            | Ongoing                                                                                                                       |
| P-4                        | Strictly enforce subdivision regulations concerning developments in flood hazard areas.                                                       | FL                  | High              | CDBG, HMGP, PDM, USDA Rural Dev., Self-Funding    | Unknown            | 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                        | Ongoing                            | 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                        | Ongoing                            | 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                        | Ongoing                            | Ongoing/ Pending staff availability and funding                                                                               |
| P-9                        | Develop a comprehensive development plan.                                                                                                     | All                 | High              | CDBG, MSDA                                        | Unknown            | County                        | Ongoing                            | Ongoing/ Pending staff 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                                                                               |
| <b>Property Protection</b> |                                                                                                                                               |                     |                   |                                                   |                    |                               |                                    |                                                                                                                               |
| 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                            | Pending staff availability and funding                                                                                        |
| PP-2                       | Ensure that structures in floodplain areas are elevated.                                                                                      | FL                  | High              | Self-funded                                       | TBD                | County                        | Ongoing                            | Ongoing for construction in the Floodplain                                                                                    |
| PP-3                       | Ensure that new public buildings are designed and built to hurricane resistant buildings codes.                                               | HU, TS, TO, HW      | High              | Self-funded                                       | No cost            | County                        | Ongoing                            | 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                        | Ongoing                            | Ongoing/ Pending staff availability and funding                                                                               |
| PP-5                       | Ensure secure operation of water wells and wastewater treatment facilities.                                                                   | All                 | High              | HMGP, USDA Rural Dev., CDBG, Small Muni. Grant    | Unknown            | County                        | Ongoing                            | Ongoing                                                                                                                       |



## Natural Resource Protection

|              |                                                                                             |            |               |          |     |                                                        |         |                                       |
|--------------|---------------------------------------------------------------------------------------------|------------|---------------|----------|-----|--------------------------------------------------------|---------|---------------------------------------|
| <b>NRP-1</b> | 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 | Ongoing | Ongoing/ Pending Funding availability |
|--------------|---------------------------------------------------------------------------------------------|------------|---------------|----------|-----|--------------------------------------------------------|---------|---------------------------------------|

## Emergency Services

|              |                                                                                                                                                                                                                 |                    |                |                                               |                     |                   |                         |                                                 |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|-----------------------------------------------|---------------------|-------------------|-------------------------|-------------------------------------------------|
| <b>ES-1</b>  | 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             | Ongoing                 | Ongoing pending staff availability and funding  |
| <b>ES-2</b>  | Establish a notification procedure for populations in high-risk areas.                                                                                                                                          | All                | Medium         | Self-funded                                   | TBD                 | MCEMA, County     | Ongoing                 | Ongoing/ Pending staff availability and funding |
| <b>ES-3</b>  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                                         | All                | High           | HMGP                                          | TBD                 | MCEMA, County     | Ongoing                 | Ongoing/ Pending staff availability and funding |
| <b>ES-4</b>  | Explore potential sites for a new special needs shelter.                                                                                                                                                        | TO, HU, TS, FL     | High           | HMGP                                          | TBD                 | MCEMA, County     | Ongoing                 | Ongoing/ Pending staff availability and funding |
| <b>ES-5</b>  | Improve disaster communication systems within the county.                                                                                                                                                       | All                | High           | CDBG, HMGP, PSM, USDA Rural Dev., Self-funded | TBD                 | MCEMA             | Ongoing                 | Ongoing/ Pending staff availability and funding |
| <b>ES-6</b>  | Consider generators for local radio station service areas.                                                                                                                                                      | TO, HU, TS         | High           | HMGP                                          | TBD                 | MCEMA             | Contingent upon funding | Pending funding                                 |
| <b>ES-7</b>  | Install warning sirens.                                                                                                                                                                                         | TO, HU, TS         | High           | HMGP                                          | \$350,000-\$400,000 | MCEMA             | Contingent upon funding | Pending funding                                 |
| <b>ES-8</b>  | Enhance Central Dispatch.                                                                                                                                                                                       | All                | Medium         | HMGP                                          | Unknown             | MCEMA, County     | Ongoing                 | Completed/ Ongoing                              |
| <b>ES-9</b>  | Explore potential to install Reverse 911 system.                                                                                                                                                                | All                | Low to Medium  | HMGP                                          | Unknown             | MCEMA, County     | Contingent upon funding | Ongoing/ Pending staff availability and funding |
| <b>ES-10</b> | Coordinate with neighboring jurisdictions to ensure consistency of evacuation plans.                                                                                                                            | FL, HU, TS, Others | Medium         | Self-funded                                   | TBD                 | County BOS, MCEMA | Annual Review           | Ongoing                                         |
| <b>ES-11</b> | Enhance identification of evacuation routes through the distribution of MDOT maps.                                                                                                                              | FL, HU, TS, Others | High           | Self-funded                                   | Unknown             | County            | Ongoing                 | Ongoing                                         |
| <b>ES-12</b> | Ensure continuity of utility services for public buildings and other critical facilities.                                                                                                                       | All                | High           | HMGP                                          | Unknown             | County            | Ongoing                 | Ongoing Pending funding                         |
| <b>ES-13</b> | Develop a government services continuity plan.                                                                                                                                                                  | All                | Medium         | USDA Rural Dev., CDBG, Small Muni. Grant      | Unknown             | County            | Annual Review           | Completed/ Ongoing                              |
| <b>ES-14</b> | Host a meeting to review Marion County Comprehensive Emergency Management Plan                                                                                                                                  | TT                 | Medium         | N/A                                           | No Additional Cost  | County            | Annual Review           | Ongoing                                         |
| <b>ES-15</b> | 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

|             |                                                                                                                               |                |                |                                               |                    |               |         |         |
|-------------|-------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|-----------------------------------------------|--------------------|---------------|---------|---------|
| <b>SP-1</b> | 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 |
| <b>SP-2</b> | 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-funded | TBD                | MCEMA, County | Ongoing | Ongoing |
| <b>SP-3</b> | Elevation/Acquisition Rep Loss properties                                                                                     | FL             | Medium to High | HMGP, PDM                                     | TBD                | MCEMA, County | Ongoing | Ongoing |
| <b>SP-4</b> | Harden existing structures to serve as safe rooms (schools, emergency shelters).                                              | All            | High           | CDBG, HMGP, PDM, USDA Rural Dev., Self-funded | TBD                | MCEMA, County | Ongoing | Ongoing |
| <b>SP-5</b> | Construct community multipurpose facilities/saferooms in vulnerable communities throughout the county.                        | All            | High           | CDBG, HMGP, PDM, USDA Rural Dev., Self-funded | TBD                | MCEMA, County | Ongoing | Ongoing |

## Public Education and Awareness

|              |                                                                                                                                                                     |                |        |                                |                |               |               |                         |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|--------------------------------|----------------|---------------|---------------|-------------------------|
| <b>PEA-1</b> | 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 |
| <b>PEA-2</b> | Provide education and outreach materials to citizens and visitors.                                                                                                  | All            | High   | Self-funded                    | TBD            | MCEMA         | Annual Review | Ongoing                 |
| <b>PEA-3</b> | Encourage the development of Family Disaster Plans.                                                                                                                 | All            | High   | Self-funded, COPS, FIRE        | Low or no cost | MCEMA         | Annually      | Ongoing                 |
| <b>PEA-4</b> | 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                 |
| <b>PEA-5</b> | Encourage businesses to develop business continuity or contingency operating plans.                                                                                 | CH             | High   | DHS, SAFER, COPS, FIRE, Others | TBD            | County        | Annual Review | Ongoing                 |

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

P = Pandemic

MCEMA = Marion County Emergency Management Agency

County BOS = Marion County Board of Supervisors

# The City of Columbia Mitigation Action Plan

| Action #          | Description                                                                                | Hazard(s) Addressed | Relative Priority | Funding Sources                                   | Estimated Cost     | Responsible Party             | Completion Date (Target)           | Implementation Status                                                                                                         |
|-------------------|--------------------------------------------------------------------------------------------|---------------------|-------------------|---------------------------------------------------|--------------------|-------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>Prevention</b> |                                                                                            |                     |                   |                                                   |                    |                               |                                    |                                                                                                                               |
| P-1               | Identify high risk areas where hazards are most likely to occur.                           | All                 | High              | N/A                                               | No 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                 | 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 Admin.      | Ongoing                            | Ongoing                                                                                                                       |
| P-4               | Strictly enforce subdivision regulations concerning developments in flood hazard areas.    | FL                  | High              | CDBG, HMGP, PDM, USDA Rural Dev., Self-Funding    | Unknown            | 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                        | Ongoing                            | 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                        | Ongoing                            | 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                        | Ongoing                            | Ongoing/ Pending staff availability and funding                                                                               |
| P-9               | Develop a comprehensive development plan.                                                  | All                 | High              | CDBG, MSDA                                        | Unknown            | County                        | Ongoing                            | Ongoing/ Pending staff 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 | Ongoing | Pending staff availability and funding          |
| PP-2 | Ensure that structures in floodplain areas are elevated.                                                                                      | FL             | High   | Self-funded                                    | TBD                | County | Ongoing | Ongoing for construction in the Floodplain      |
| PP-3 | Ensure that new public buildings are designed and built to hurricane resistant buildings codes.                                               | HU, TS, TO, HW | High   | Self-funded                                    | No cost            | County | Ongoing | 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 | Ongoing | Ongoing/ Pending staff availability and funding |
| PP-5 | Ensure secure operation of water wells and wastewater treatment facilities.                                                                   | All            | High   | HMGP, USDA Rural Dev., CDBG, Small Muni. Grant | Unknown            | County | Ongoing | 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 | Ongoing                 | Ongoing/ Pending Funding availability           |
| <b>Emergency Services</b>  |                                                                                                                                                                                                                 |                    |                |                                               |                     |                                                        |                         |                                                 |
| 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                                                  | Ongoing                 | 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                 | 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                                          | Ongoing                 | 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                                          | Ongoing                 | Ongoing/ Pending staff availability and funding |
| ES-5                       | Improve disaster communication systems within the county.                                                                                                                                                       | All                | High           | CDBG, HMGP, PSM, USDA Rural Dev., Self-funded | 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                 | Completed/ Ongoing                              |
| ES-9                       | Explore potential to install Reverse 911 system.                                                                                                                                                                | All                | Low to Medium  | HMGP                                          | Unknown             | MCEMA, County                                          | Contingent upon funding | Ongoing/ Pending staff availability and funding |
| 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                                   | Unknown             | County                                                 | Ongoing                 | Ongoing                                         |
| ES-12                      | Ensure continuity of utility services for public buildings and other critical facilities.                                                                                                                       | All                | High           | HMGP                                          | Unknown             | County                                                 | Ongoing                 | Ongoing Pending funding                         |
| 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         |                                               | 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 |
| <b>Structural Projects</b> |                                                                                                                                                                                                                 |                    |                |                                               |                     |                                                        |                         |                                                 |
|                            | Address cross-jurisdictional issues related to response, recovery and                                                                                                                                           | HU, TS, FL, RH     | Low to Medium  | Self-funded                                   | No Additional       | County                                                 | Ongoing                 | Ongoing                                         |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                     |                |                |                                               |                |               |               |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|-----------------------------------------------|----------------|---------------|---------------|-------------------------|
| <b>SP-1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | mitigation on key projects with overlapping boundaries.                                                                                                             |                |                |                                               | Cost           |               |               |                         |
| <b>SP-2</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 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-funded | TBD            | MCEMA, County | Ongoing       | Ongoing                 |
| <b>SP-3</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Elevation/Acquisition Rep Loss properties                                                                                                                           | FL             | Medium to High | HMGP, PDM                                     | TBD            | MCEMA, County | Ongoing       | Ongoing                 |
| <b>SP-4</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Harden existing structures to serve as safe rooms (schools, emergency shelters).                                                                                    | All            | High           | CDBG, HMGP, PDM, USDA Rural Dev., Self-funded | TBD            | MCEMA, County | Ongoing       | Ongoing                 |
| <b>SP-5</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Construct community multipurpose facilities/saferooms in vulnerable communities throughout the county.                                                              | All            | High           | CDBG, HMGP, PDM, USDA Rural Dev., Self-funded | TBD            | MCEMA, County | Ongoing       | Ongoing                 |
| <b>Public Education and Awareness</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                     |                |                |                                               |                |               |               |                         |
| <b>PEA-1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 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 |
| <b>PEA-2</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Provide education and outreach materials to citizens and visitors.                                                                                                  | All            | High           | Self-funded                                   | TBD            | MCEMA         | Annual Review | Ongoing                 |
| <b>PEA-3</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Encourage the development of Family Disaster Plans.                                                                                                                 | All            | High           | Self-funded, COPS, FIRE                       | Low or no cost | MCEMA         | Annually      | Ongoing                 |
| <b>PEA-4</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 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                 |
| <b>PEA-5</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Encourage businesses to develop business continuity or contingency operating plans.                                                                                 | CH             | High           | DHS, SAFER, COPS, FIRE, Others                | TBD            | County        | Annual Review | Ongoing                 |
| <b>FL = Flood                      HU = Hurricane                      TS = Tropical Storm                      TO = Tornado                      TH = Thunderstorm</b><br><b>BH = Biological Hazards                      HW = High Winds                      TT = Transportation and Technological Hazards</b><br><b>RH = Roadway Hazards                      CH = Civil Hazards                      P = Pandemic</b><br><b><u>MCEMA</u> = Marion County Emergency Management Agency                      <u>County BOS</u> = Marion County Board of Supervisors</b> |                                                                                                                                                                     |                |                |                                               |                |               |               |                         |



# Annex G

## Perry County

This annex includes jurisdiction-specific information for Perry County and its participating municipalities. It consists of the following five subsections:

- ★ G.1 Perry County Community Profile
- ★ G.2 Perry County Risk Assessment
- ★ G.3 Perry County Vulnerability Assessment
- ★ G.4 Perry County Capability Assessment
- ★ G.5 Perry County Mitigation Strategy

### G.1 PERRY COUNTY COMMUNITY PROFILE

#### G.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 G.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.

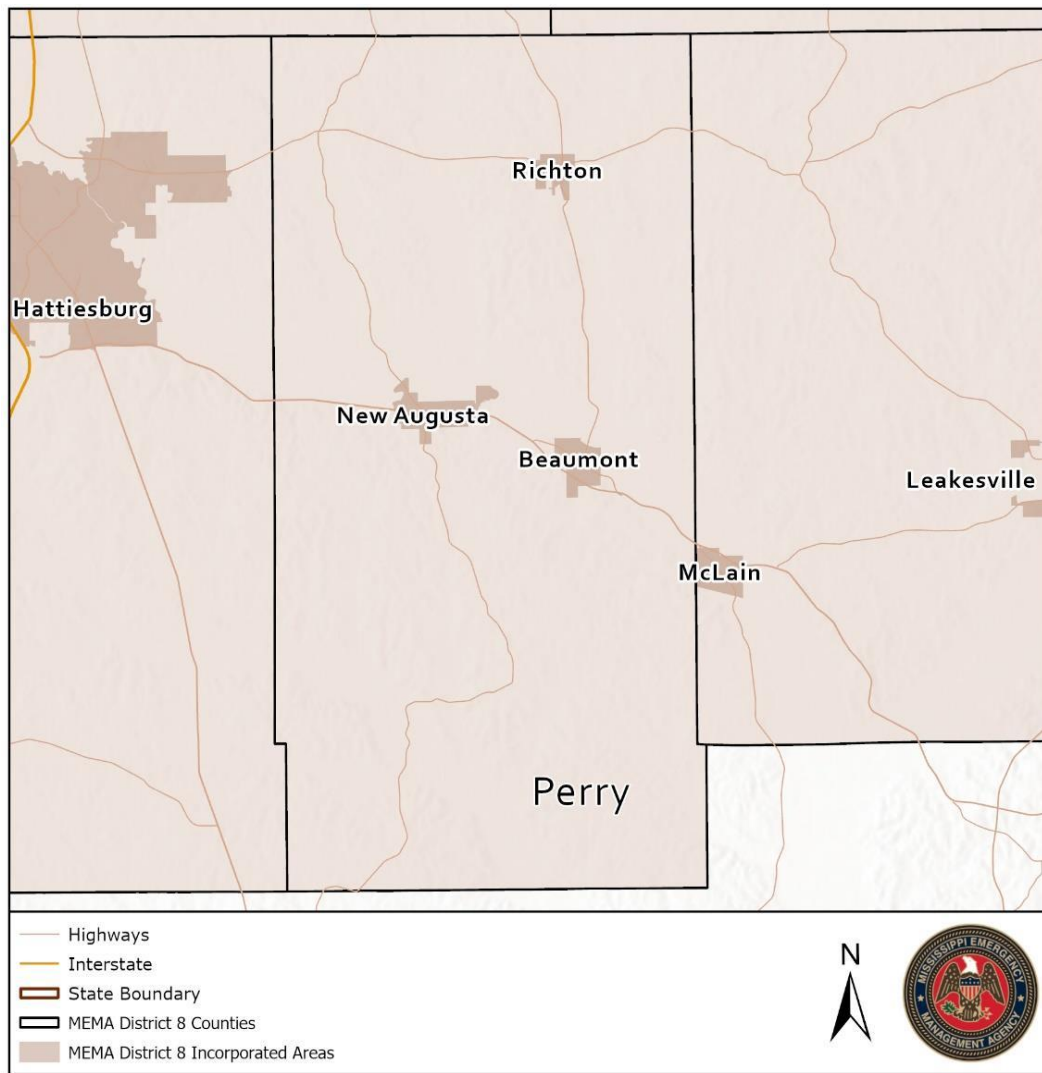
In Perry County, the summers are long, hot, and oppressive; the winters are short and cold; and it is wet and partly cloudy year-round. Over the course of the year, the temperature typically varies from 40°F to 92°F and is rarely below 30°F or above 97°F.

The hot season lasts for 5 months, from May through September, 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 73°F. The cool season lasts for 3 months, from December through February, with an average daily high temperature below 64°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 6 months, from March through August, 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 3.0 months, from September through November. 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 Perry County. The most rain falls during the 31 days centered around March 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.

|                         | Jan     | Feb.    | Mar.    | Apr.    | May     | June    | July    | Aug.    | Sept.   | Oct.    | Nov.    | Dec.    |
|-------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Average <b>High</b>     | 58      | 63      | 71      | 77      | 85      | 91      | 92      | 92      | 88      | 80      | 68      | 61      |
| Average <b>Lows</b>     | 40      | 45      | 51      | 56      | 64      | 71      | 73      | 73      | 69      | 59      | 48      | 45      |
| Average <b>Rainfall</b> | 4.8 in. | 5.2 in. | 6.1 in. | 5.6 in. | 5.7 in. | 5.4 in. | 6.2 in. | 6.6 in. | 4.5 in. | 3.5 in. | 3.5 in. | 6.5 in. |

**FIGURE G.1: PERRY COUNTY ORIENTATION MAP**

## G.1.2 Population and Demographics

According to the 2020 Census, Perry County has a population of 11,511 people. The county has seen a decline in population between 2010 and 2020 which could lead to a decrease in vulnerability if the trend continues. The population density is 18 people per square mile. Per the Census Reports, in 2023, Perry County had a population of 11,315 which is a 1.7 percent decline from 2020. The household income is \$48,333, which grew 27 percent. Population counts from the US Census Bureau for 2010, and 2020 for the county and both of the participating jurisdictions are presented in **Table G.1**. Estimates for 2023 are also included.

**TABLE G.1: POPULATION COUNTS FOR PERRY COUNTY**

| <b>Jurisdiction</b> | <b>2010 Census</b> | <b>2020 Census</b> | <b>% of Change 2010 to 2020</b> | <b>2023 Estimate</b> |
|---------------------|--------------------|--------------------|---------------------------------|----------------------|
| <b>Perry County</b> | <b>12,250</b>      | <b>11,511</b>      | <b>-6%</b>                      | <b>11,315</b>        |
| <b>Beaumont</b>     | <b>951</b>         | <b>669</b>         | <b>-30%</b>                     | <b>653</b>           |
| <b>New Augusta</b>  | <b>644</b>         | <b>554</b>         | <b>-14%</b>                     | <b>542</b>           |
| <b>Richton</b>      | <b>1068</b>        | <b>920</b>         | <b>-14%</b>                     | <b>903</b>           |

Source: US Census Bureau

Based on the 2020 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 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 is 19 percent for black or African American persons, 2 percent Hispanic or Latino. Whites make up the majority of the population in the county, accounting for 78 percent of the population.

**TABLE G.2: DEMOGRAPHICS OF PERRY COUNTY**

| <b>Jurisdiction</b> | <b>White Persons<br/>(% 2020)</b> | <b>Black Persons<br/>(% 2020)</b> | <b>American Indian<br/>or Alaska Native<br/>(% 2020)</b> | <b>Other Races<br/>(% 2020)</b> | <b>Persons of<br/>Hispanic<br/>Origin (% 2020)</b> |
|---------------------|-----------------------------------|-----------------------------------|----------------------------------------------------------|---------------------------------|----------------------------------------------------|
| <b>Perry County</b> | <b>78%</b>                        | <b>19%</b>                        | <b>1%</b>                                                | <b>0%</b>                       | <b>2%</b>                                          |
| <i>Beaumont</i>     | 51%                               | 46%                               | 1%                                                       | 0%                              | 2%                                                 |
| <i>New Augusta</i>  | 55%                               | 41%                               | 1%                                                       | 1%                              | 2%                                                 |
| <i>Richton</i>      | 70%                               | 28%                               | 0%                                                       | 1%                              | 1%                                                 |

Source: NCED/NOAA

**TABLE G.3: AVERAGE INCOME AND HEALTH IN PERRY COUNTY**

| <b>Jurisdiction</b> | <b>% of<br/>Population<br/>Disabled</b> | <b>% of Population<br/>without Health<br/>Insurance</b> | <b>Median<br/>Household<br/>Income</b> | <b>% of Population<br/>Below The<br/>Poverty Level</b> |
|---------------------|-----------------------------------------|---------------------------------------------------------|----------------------------------------|--------------------------------------------------------|
| <b>Perry County</b> | <b>30%</b>                              | <b>14%</b>                                              | <b>\$48,333</b>                        | <b>21%</b>                                             |
| <i>Beaumont</i>     | 58%                                     | 32%                                                     | \$75,071                               | 22%                                                    |
| <i>New Augusta</i>  | 21%                                     | 15%                                                     | Unknown                                | 42%                                                    |
| <i>Richton</i>      | 23%                                     | 6 %                                                     | \$33,621                               | 21%                                                    |

Source: US Census Bureau

### G.1.3 Housing

According to the 2020 US Census, there are 5,426 housing units in Perry County, the majority of which are single family homes or mobile homes. The median home value is \$126,400, which also increased by at least 35 percent. The total population and housing units both show a decline which could lead to a decrease in overall vulnerability-based development. Although the increase of property values could balance out the vulnerability. Housing information for the county and three towns is presented in **Table G.4**.

**TABLE G.4: HOUSING CHARACTERISTICS OF PERRY COUNTY**

| <b>Jurisdiction</b> | <b>Housing<br/>Units (2010)</b> | <b>Median Home<br/>Value (2010)</b> | <b>Housing<br/>Units (2020)</b> | <b>Median Home<br/>Value (2020)</b> |
|---------------------|---------------------------------|-------------------------------------|---------------------------------|-------------------------------------|
| <b>Perry County</b> | <b>5519</b>                     | <b>\$82,200</b>                     | <b>5426</b>                     | <b>\$126,400</b>                    |
| <i>Beaumont</i>     | 461                             | \$53,100                            | 390                             | \$211,100                           |
| <i>New Augusta</i>  | 319                             | \$69,200                            | 295                             | \$90,700                            |
| <i>Richton</i>      | 463                             | \$67,800                            | 429                             | \$145,800                           |

Source: US Census Bureau

### G.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 2 fire stations, 3 police stations, and 7 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.

### G.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.

### G.1.6 Employment and Industry

According to the Mississippi Employment Security Commission, in 2024 Perry County had an average annual employment of 2,220 workers and an average unemployment rate of 6.0 percent. According to the MESCC, in 2024, 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 \$48,333.

## G.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*.

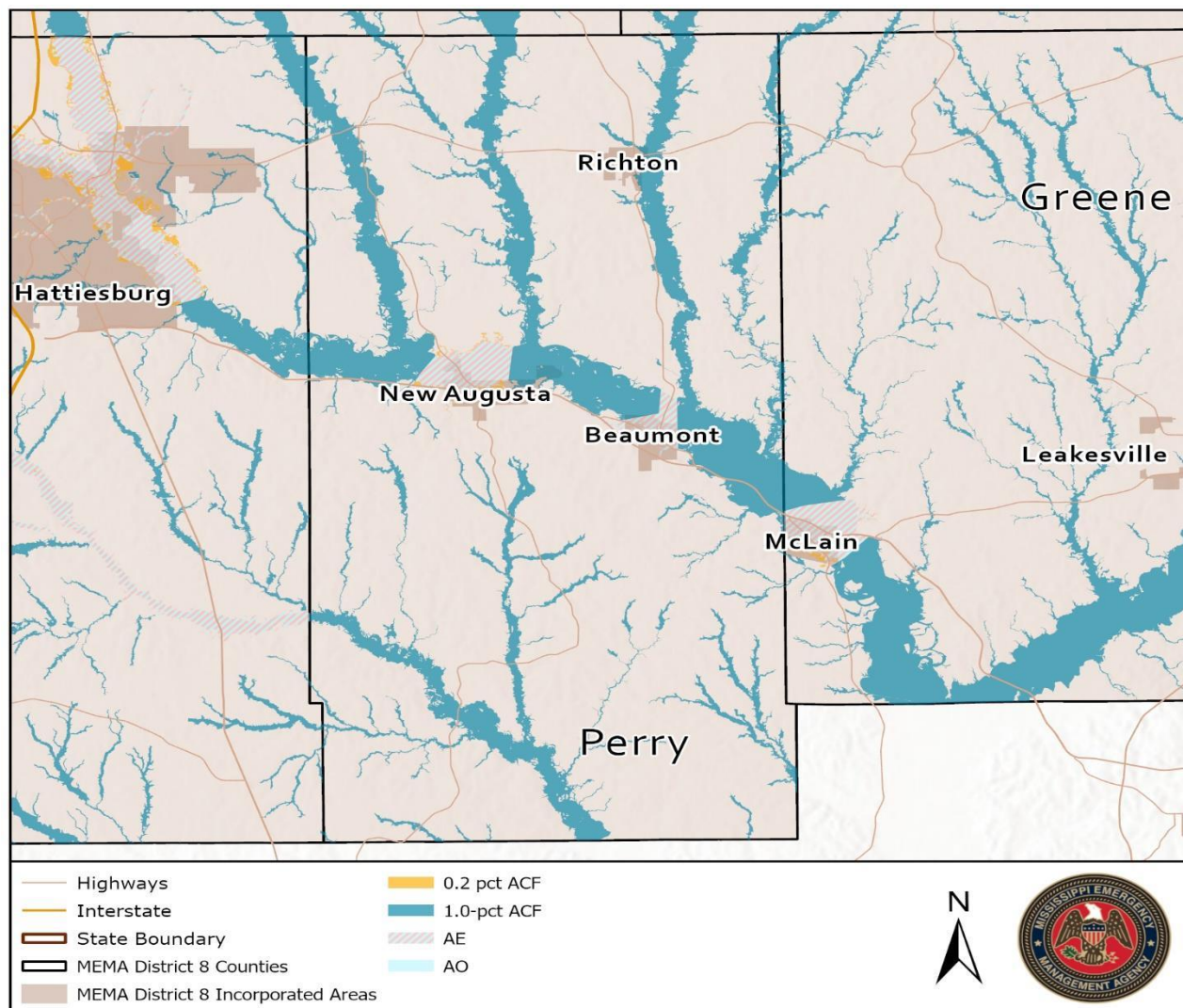
## G.2.1 Flood

### 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). 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.

**FIGURE G.2: SPECIAL FLOOD HAZARD AREAS IN PERRY COUNTY**



### HISTORICAL OCCURRENCES

Floods resulted in seven disaster declarations in Perry County in 1974, 1983, 1990, 2013, 2016, 2017, and 2018. 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 27 events in Perry County since 2000. A summary of these events is presented in **Table G.5**. These events accounted for almost \$2 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 G.6 & G.7**.

**TABLE G.5: SUMMARY OF FLOOD OCCURRENCES IN PERRY COUNTY**

| <b>LOCATION</b>            | <b>Number of Occurrences</b> | <b>Deaths</b> | <b>Injuries</b> | <b>Property Damage</b> | <b>Crop Damage</b> |
|----------------------------|------------------------------|---------------|-----------------|------------------------|--------------------|
| <i>Beaumont</i>            | 1                            | 0             | 0               | \$0                    | \$0                |
| <i>New Augusta</i>         | 3                            | 0             | 0               | \$50,000               | \$0                |
| <i>Richton</i>             | 4                            | 0             | 0               | \$15,000               | \$0                |
| <i>Unincorporated Area</i> | 19                           | 0             | 0               | \$1,897,000            | \$0                |
| <b>Perry County Total:</b> | <b>27</b>                    | <b>0</b>      | <b>0</b>        | <b>\$1,962,000</b>     | <b>\$0</b>         |

**TABLE G.6: HISTORICAL FLOOD EVENTS IN PERRY COUNTY**

| <b>Location</b>                            | <b>Date</b> | <b>Type</b> | <b>Deaths</b> | <b>Injuries</b> | <b>Property Damage</b> |
|--------------------------------------------|-------------|-------------|---------------|-----------------|------------------------|
| <b>The Town of Beaumont</b>                |             |             |               |                 |                        |
| <i>Beaumont</i>                            | 10/22/2007  | Flash Flood | 0             | 0               | \$0                    |
| <b>The Town of New Augusta</b>             |             |             |               |                 |                        |
| <i>New Augusta</i>                         | 3/11/2016   | Flash Flood | 0             | 0               | \$50,000               |
| <i>New Augusta</i>                         | 8/9/2017    | Flash Flood | 0             | 0               | \$0                    |
| <i>New Augusta</i>                         | 5/11/2019   | Flash Flood | 0             | 0               | \$0                    |
| <b>The Town of Richton</b>                 |             |             |               |                 |                        |
| <i>Richton</i>                             | 6/28/2000   | Flash Flood | 0             | 0               | \$0                    |
| <i>Richton</i>                             | 4/13/2009   | Flash Flood | 0             | 0               | \$15,000               |
| <i>Richton</i>                             | 2/4/2010    | Flash Flood | 0             | 0               | \$0                    |
| <i>Richton</i>                             | 3/9/2011    | Flash Flood | 0             | 0               | \$0                    |
| <b>Unincorporated Area in Jones County</b> |             |             |               |                 |                        |
| <i>County Wide</i>                         | 3/3/2001    | Flash Flood | 0             | 0               | \$30,000               |
| <i>South Portion of the County</i>         | 10/28/2002  | Flash Flood | 0             | 0               | \$0                    |
| <i>County Wide</i>                         | 6/30/2003   | Flash Flood | 0             | 0               | \$0                    |
| <i>Janice</i>                              | 5/12/2004   | Flash Flood | 0             | 0               | \$0                    |
| <i>County Wide</i>                         | 8/29/2005   | Flash Flood | 0             | 0               | \$0                    |
| <i>Janice</i>                              | 12/21/2006  | Flash Flood | 0             | 0               | \$5,000                |
| <i>Runnelstown</i>                         | 4/5/2008    | Flash Flood | 0             | 0               | \$0                    |
| <i>Janice</i>                              | 9/1/2008    | Flash Flood | 0             | 0               | \$2,000                |
| <i>Mahned</i>                              | 12/14/2009  | Flash Flood | 0             | 0               | \$0                    |
| <i>Runnelstown</i>                         | 3/9/2011    | Flash Flood | 0             | 0               | \$0                    |
| <i>Janice</i>                              | 3/22/2012   | Flash Flood | 0             | 0               | \$0                    |
| <i>Tallahala</i>                           | 3/11/2016   | Flash Flood | 0             | 0               | \$50,000               |
| <i>Tallahala &amp; Runnelstown</i>         | 4/14/2016   | Flash Flood | 0             | 0               | \$0                    |
| <i>Hintonville</i>                         | 12/27/2018  | Flash Flood | 0             | 0               | \$1,800,000            |

|                                |                   |                    |          |          |                 |
|--------------------------------|-------------------|--------------------|----------|----------|-----------------|
| <b>Janice &amp; Belleville</b> | <b>5/11/2019</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$10,000</b> |
| <b>Janice</b>                  | <b>10/28/2020</b> | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Tallahala</b>               | <b>6/6/2021</b>   | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Runnelstown</b>             | <b>2/3/2022</b>   | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Rhodes</b>                  | <b>8/24/2022</b>  | <b>Flash Flood</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |

Source: NCED/NOAA

The text below describes two of the major events and associated impacts on the county. Similar impacts can be expected with flash flooding.

**March 11, 2016**—Slow moving thunderstorms produced heavy rain and flooding across southeast Mississippi. Heavy rain caused water to enter a building at the elementary school. Several roads closed across the northern portion of the Perry County.

**December 28, 2018**—Significant flash flooding occurred in the northeast part of Perry County, particularly in the town of Richton. In Richton, a dozen businesses were flooded. Water was knee deep in some businesses. At the height of the flash flooding, 15 people were rescued from a low-lying apartment complex in Richton. In total for Perry County, over a dozen homes experienced major flood damage. Numerous roads were flooded and closed. One public road was destroyed by the flash flooding with 5 other roads experiencing major damage. Twelve other roads had minor flood damage. Perry County EMA estimated damages of \$300,000 to residences and business and \$1.5 million in infrastructure damage.

**TABLE G.7: EXTENT: FLOOD EVENTS IN PERRY COUNTY SINCE THE LAST UPDATE**

| <b>Perry County: \$10,000</b>   |             |             |                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|---------------------------------|-------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Location</b>                 | <b>Date</b> | <b>Loss</b> | <b>Cause</b>                                                                                                                                         | <b>Impact</b>                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| <b>New Augusta &amp; County</b> | 5/11/2019   | \$10,000    | A stalled front just to the northwest of the area combined with several upper-level disturbances moving across created several rounds of heavy rain. | <ul style="list-style-type: none"> <li>• In the county, Lake Road was closed due to a possible washout. Janice Brooklyn Road was closed due to flooding. Water over several road including Bailey Road, McKenzie Road and Old River Road.</li> <li>• Flooding along Benndale Road in Janice.</li> <li>• Water over the Wingate Road near New Augusta School.</li> </ul>                                                                   |  |
| <b>Janice</b>                   | 10/28/2020  | \$0         | Hurricane Zeta made landfall in southeast Louisiana during the late afternoon hours. It brought heavy rain that led to flash flooding.               | <ul style="list-style-type: none"> <li>• Perry County MS: The county experienced sustained strong tropical storm force winds with frequent gusts to hurricane force. This resulted in significant tree and power line damage. Numerous to widespread power outages were reported. 36 homes were damaged, experiencing either roof damage or damage due to downed trees.</li> <li>• Two roads washed out due to flash flooding.</li> </ul> |  |
| <b>Tallahala</b>                | 6/6/2021    | \$0         | Strong thunderstorm developed in southeast Mississippi and produced locally heavy rain along with strong wind gusts that caused some damage.         | Heavy rain caused pumping station road to be closed due to culverts washing out.                                                                                                                                                                                                                                                                                                                                                          |  |
| <b>Runnelstown</b>              | 2/3/2022    | \$0         | Heavy rain from slow moving storms also caused flooding in some areas.                                                                               | Heavy caused water to cover the road on Buck Creek Loop, Henry James Road and Corinth Church Road.                                                                                                                                                                                                                                                                                                                                        |  |
| <b>Rhodes</b>                   | 8/24/2022   | \$0         | A very favorable pattern for heavy rain combined with already wet ground conditions led to development of heavy rain and flooding across the area.   | Heavy rains caused water to cover the road on Good Hope Church Road.                                                                                                                                                                                                                                                                                                                                                                      |  |

### **HISTORICAL SUMMARY OF INSURED FLOOD LOSSES**

Recently, FEMA issued a directive that prevents states or state planners from receiving NFIP information such as rep loss or severe rep loss data directly from FEMA. Only local jurisdictions may request the information from FEMA and share it with state planners. The state planners requested the information from the local jurisdictions on several occasions. As a result, for

continuity of information of the historical occurrences along with the corresponding damage amounts that are unknown for some of the local jurisdictions the decision was made to leave the existing information in the plan for the Jurisdictions did not provide the requested information and to update the information for jurisdictions that provided the requested information.

According to FEMA flood insurance policy records as of March 2023, 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 G.8**. 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.

### 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 2023, 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 G.8** presents detailed information on repetitive loss properties and NFIP claims and policies for Perry County. Currently, this remains the best available data.

**TABLE G.8: SUMMARY OF INSURED FLOOD LOSSES AND REPETITIVE LOSSES IN PERRY COUNTY**

| Location            | Flood Losses | Claim Payments | Repetitive Loss Properties | Number of Properties | Number of Losses | Total Payments | Average Payments |
|---------------------|--------------|----------------|----------------------------|----------------------|------------------|----------------|------------------|
| Beaumont            | 16           | \$32,703       |                            | 2                    | 4                | \$650          | \$2,672          |
| New Augusta         | 12           | \$51,683       |                            | 3                    | 6                | \$33,259       | \$5,543          |
| Richton             | 1            | \$42,415       |                            | 0                    | 0                | \$0            | \$0              |
| Unincorporated Area | 38           | \$131,996      |                            | 6                    | 16               | \$72,053       | \$4,503          |
| Perry County Total: | 67           | \$258,797      |                            | 11                   | 26               | \$116,001      | \$12,728         |

\*These communities do not participate in the National Flood Insurance Program. Therefore, no values are reported.

Source: FEMA, NFIP

### 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.

As the climate continues to change, the chance of heavy rain leading to flash flooding could increase in frequency, intensity, and magnitude. With the increasing frequency and intensity, heavy rains and flash flooding can lead to cascading effects and lead to flooding in areas that do not usually flood.

## G.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).

If the climate continues to change as scientists predict, the higher intensity and magnitude of storms and the increasing drought and high heat days, can lead to erosion in areas that have not been impacted by erosion in the past.

As the climate continues to change, the chance of heavy rain leading to flash flooding could also increase in frequency, intensity, and magnitude. With the increasing frequency and intensity, heavy rains and flash flooding cascading effects are possible such as erosion of soil from the ground, under/ around trees, and under roads. This can lead to falling trees, power outages, and road damage.

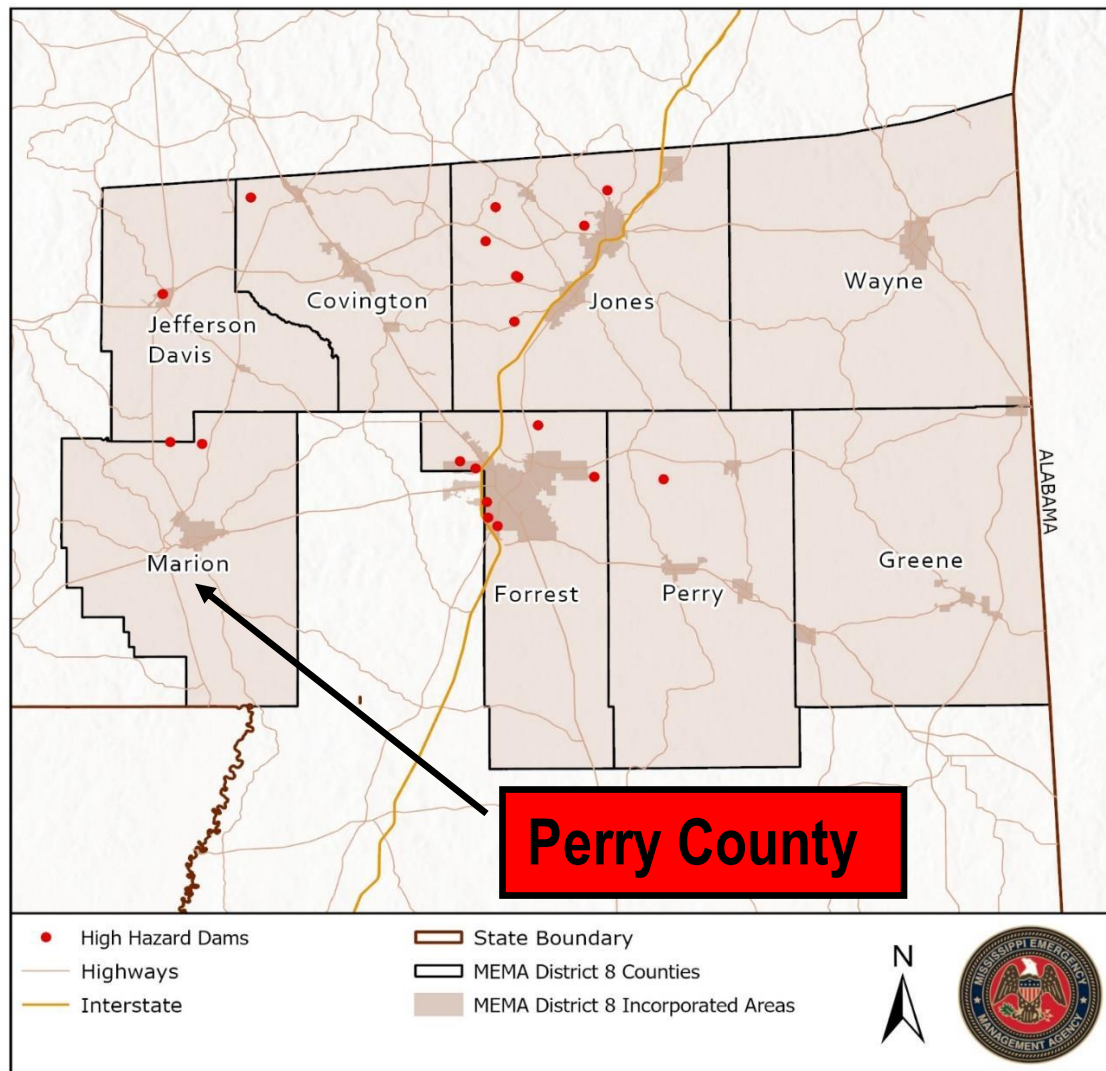
## ***G.2.3 Dam Failure***

### ***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 G.9** and **Figure G.3**. 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 G.9: PERRY COUNTY HIGH HAZARD DAMS**

| Hazard Potential | Dam Name                  |
|------------------|---------------------------|
| High             | <i>Sportsman Lake Dam</i> |

**FIGURE G.3: HIGH HAZARD DAM IN PERRY COUNTY**

### 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. 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.

### **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. These events were reported to cause no damages. Detailed information on the recorded winter storm events can be found in **Table G.10**.

**TABLE G.10: HISTORICAL SUMMARY OF WINTER STORM EVENTS IN PERRY COUNTY**

| Date          | Type           | Injuries/<br>Deaths | Property<br>Damage |
|---------------|----------------|---------------------|--------------------|
| 1/27/2000     | Sleet          | 0/0                 | \$0                |
| 1/1/2001      | Winter Storm   | 0/0                 | \$0                |
| 1/1/2002      | Winter Storm   | 0/0                 | \$0                |
| 12/11/2008    | Winter Weather | 0/0                 | \$0                |
| 2/12/2010     | Winter Storm   | 0/0                 | \$0                |
| 12/8/2017     | Heavy Snow     | 0/0                 | \$0                |
| 1/16/2018     | Winter Storm   | 0/0                 | \$0                |
| <b>Total:</b> | <b>7</b>       | <b>0/0</b>          | <b>\$0</b>         |

Source: NCEI/NOAA

There have been several severe winter weather events in Perry 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.

**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.

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 a fire or an accumulation of toxic fumes.

### **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).

## **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 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 (2000-2024). **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 PERRY COUNTY |                  |                     |                    |                     |                    |
|------------------------------------------------------------|------------------|---------------------|--------------------|---------------------|--------------------|
| Abnormally Dry                                             | Moderate Drought | Severe Drought      | Extreme Drought    | Exceptional Drought |                    |
|                                                            |                  |                     |                    |                     |                    |
| Location                                                   | Date             | Injuries/<br>Deaths | Property<br>Damage | Crop<br>Damage      | Event/<br>Severity |
| Perry County                                               | 10/1/2016        | 0/0                 | \$0                | \$0                 | D2                 |
| Perry County                                               | 11/1/1016        | 0/0                 | \$0                | \$0                 | D3                 |
| Perry County                                               | 12/1/1016        | 0/0                 | \$0                | \$0                 | D3                 |
| Total:                                                     | 3                | 0/0                 | \$0                | \$0                 |                    |

Source: NCED/NOAA

There was at least one reported drought events for Perry County according to the National Centers for Environmental Information. However, the event was not significant enough to cause any crop damages.

**October – December 2016**—An extensive period of dry weather resulted in worsening drought conditions across southeast Mississippi, with severe drought developing over a portion of inland southeast Mississippi. Severe (D2) drought conditions developed through the month of October in Perry County. For most of inland southeast Mississippi, no measurable rain was recorded for the entire month with the last significant rain occurring in mid to late September.

By the end of November, the entire region was under Extreme (D3) Drought. The entire area saw rain totals less than 50% of normal for the month, with many areas receiving less than 10% of normal. This lack of rain came on the heels of one of the driest Octobers on record.

A prolonged period of dry weather continued through much of December resulting in continued drought conditions across southeast Mississippi. Severe (D2) and Extreme (D3) drought conditions were found across much of the region. A couple of rain events late in the month helped to improve conditions.

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 degrees 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. But, if the climate continues to warm, this could lead to more droughts with higher magnitude.

### **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.

If temperatures continue to rise as climate change occurs, it could increase the impacts, intensity, and duration of droughts and extreme temperatures. These increases could impact the effects on the counties' crops, economy, and population.

## **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 2010 to 2023, Perry County experiences an average of 19 wildfires annually which burn an average of 287 acres per year. The data indicates that most of these fires are small, averaging fifteen acres per fire. **Table G.12** provides a summary of wildfire occurrences in Perry County since the last update, and **Table G.13** lists the number of reported wildfire occurrences in the county between the years 2010 and 2023.

**TABLE G.12: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2019 -2023) \***

| Perry County                            |      |
|-----------------------------------------|------|
| Average Number of Fires per year        | 12.2 |
| Average Number of Acres Burned per year | 196  |
| Average Number of Acres Burned per fire | 16.1 |

Source: MS Forestry Commission

**TABLE G.13: HISTORICAL WILDFIRE OCCURRENCES IN PERRY COUNTY**

| Perry County           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Year                   | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| Number of Fires        | 39   | 48   | 8    | 22   | 42   | 11   | 26   | 21   | 9    | 8    | 8    | 10   | 15   | 20   |
| Number of Acres Burned | 379  | 483  | 13   | 181  | 634  | 47   | 544  | 540  | 215  | 138  | 79   | 217  | 229  | 317  |

Source: US 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).

If temperatures continue to rise as climate change occurs, it could cause more droughts and extreme temperatures. The increase in of these could have a negative impact or wildfires. Extreme heat and drought can cause plants to become dry and brittle which makes the area more susceptible to wildfires.

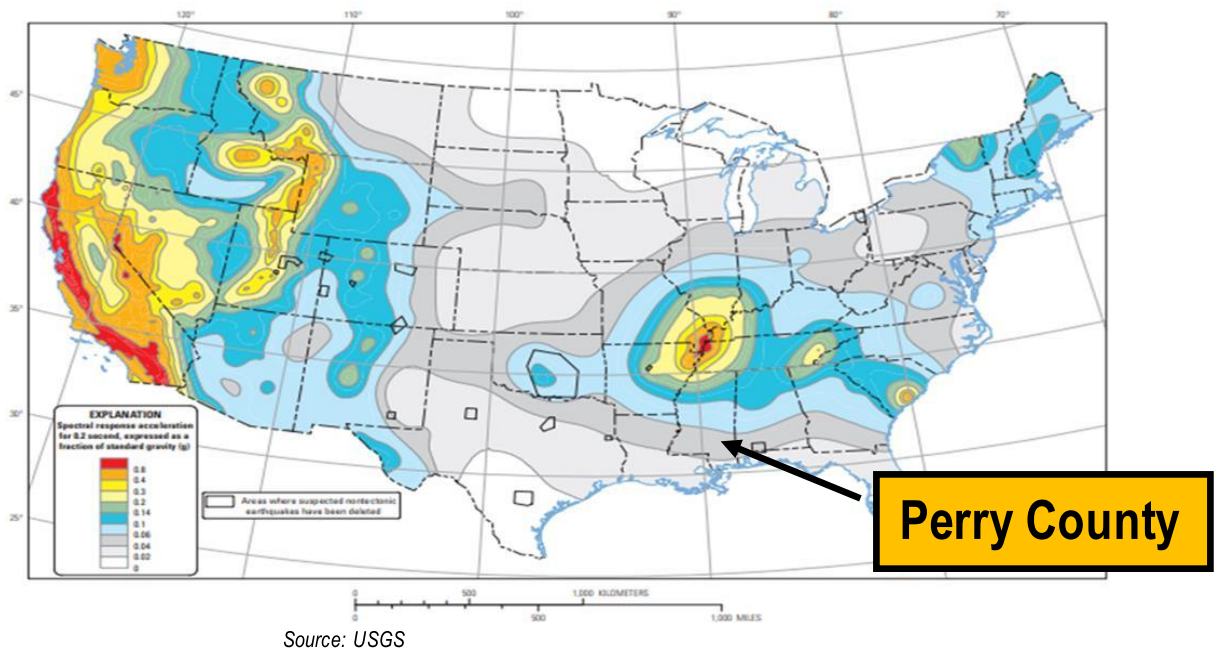
If the predicted increase in heavy rains occur it can also cause flooding and erosion, which can also make the area more susceptible to wildfires.

**G.2.7 Earthquake**

**LOCATION AND SPATIAL EXTENT**

**Figure G.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.

**FIGURE G.4: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS**



**HISTORICAL OCCURRENCES**

No earthquakes are known to have affected Jones County since 1638. **Table G.14** provides a summary of earthquake events reported by the National Geophysical Data Center between 1638 and 2024.

**TABLE G.14: SUMMARY OF SEISMIC ACTIVITY IN PERRY COUNTY**

| Location            | Date | Number of Occurrences | Greatest MMI Reported | Richter Scale Equivalent |
|---------------------|------|-----------------------|-----------------------|--------------------------|
| Beaumont            | --   | 0                     | --                    | --                       |
| New Augusta         | --   | 0                     | --                    | --                       |
| Richton             | --   | 0                     | --                    | --                       |
| Unincorporated Area | --   | 0                     | --                    | --                       |
| Perry County Total: |      | 0                     | --                    | --                       |

**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).

**G.2.8 Landslide**

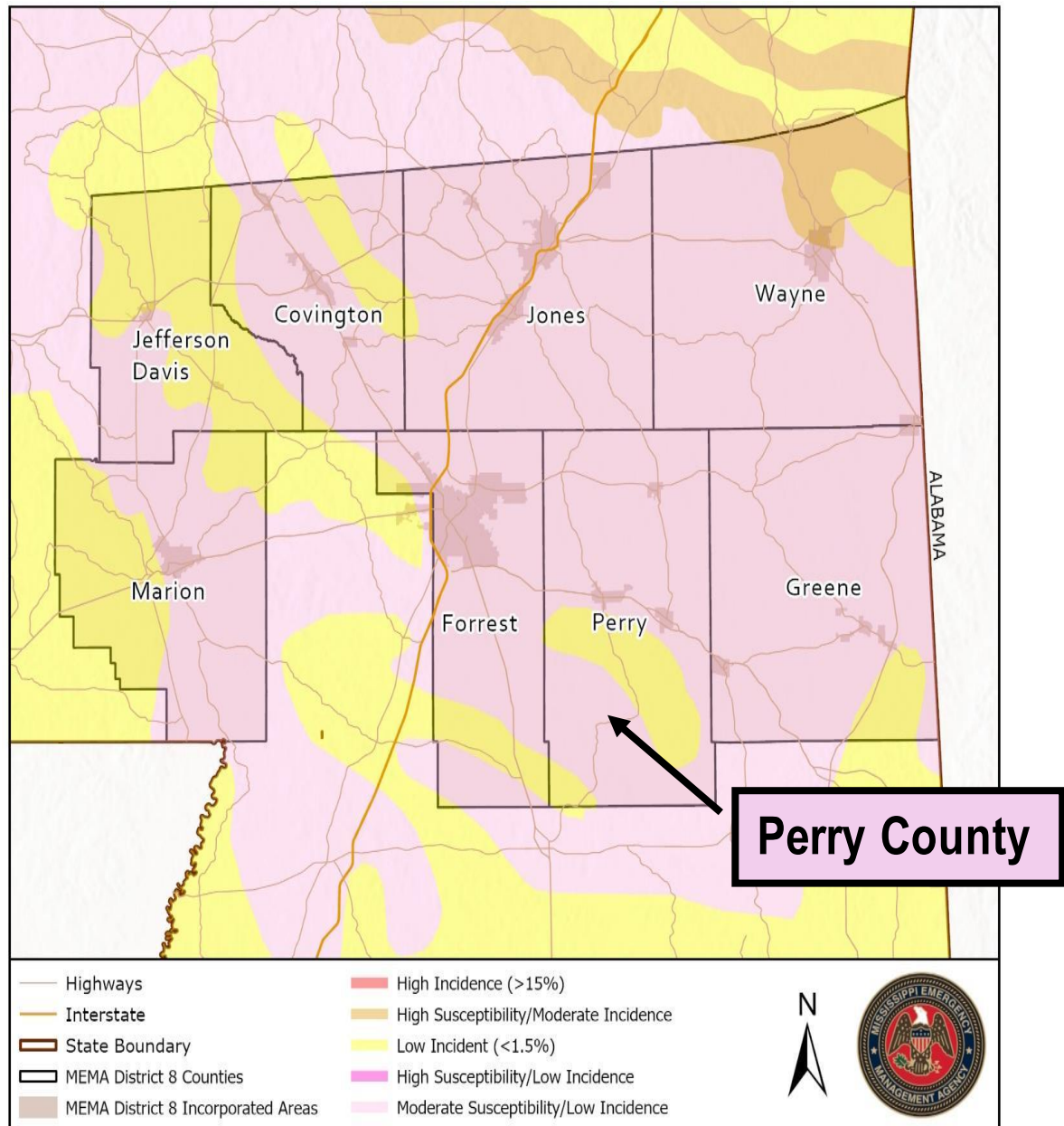
**LOCATION AND SPATIAL EXTENT**



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 Perry County.

According to **Figure G.5** below, the entire county falls under a moderate incidence/low incidence area (light pink) and low Incident (yellow). This indicates that less than 1.5 percent of the area is involved in land sliding. The areas in yellow are defined as low incidence and low susceptibility. The areas in light pink, however, indicate that a moderate susceptibility to land sliding activity is present. There are no changes with susceptibility to the landslide hazard since the last plan update.

**FIGURE G.5: LANDSLIDE SUSCEPTIBILITY AND INCIDENCE MAP OF PERRY COUNTY**



### **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 all areas in Perry County have a low landslide incidence rate. However,

some areas are reported as having moderate susceptibility to land sliding 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.

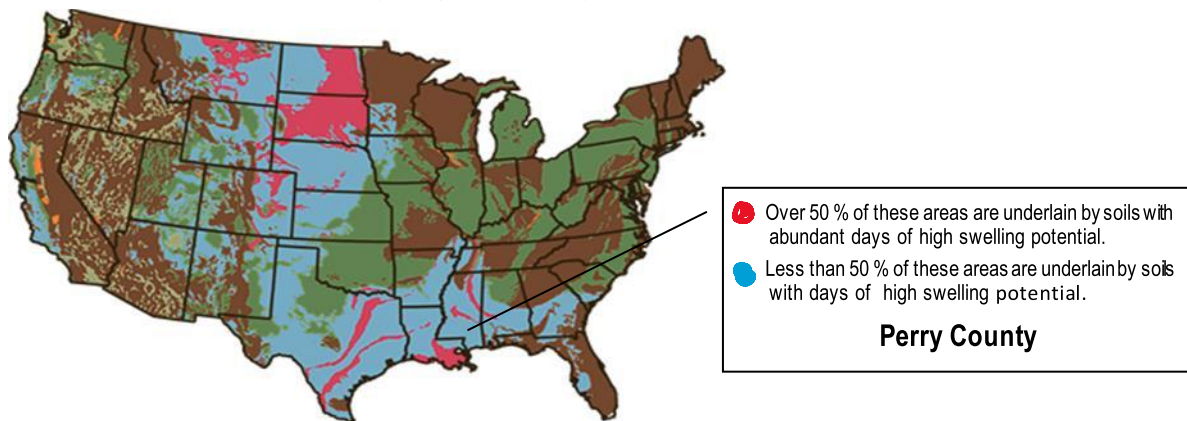
Also, as the climate continues to change, scientists believe that the intensity, magnitude, and frequency of heavy rains will increase. This could cause cascading effects that could possibly lead to land sliding.

## G.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 G.6**. The areas in blue are underlain with generally less than 50 percent clay having high swelling potential.

**FIGURE G.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).

## G.2.10 Hurricane and Tropical Storm

### LOCATION AND SPATIAL EXTENT

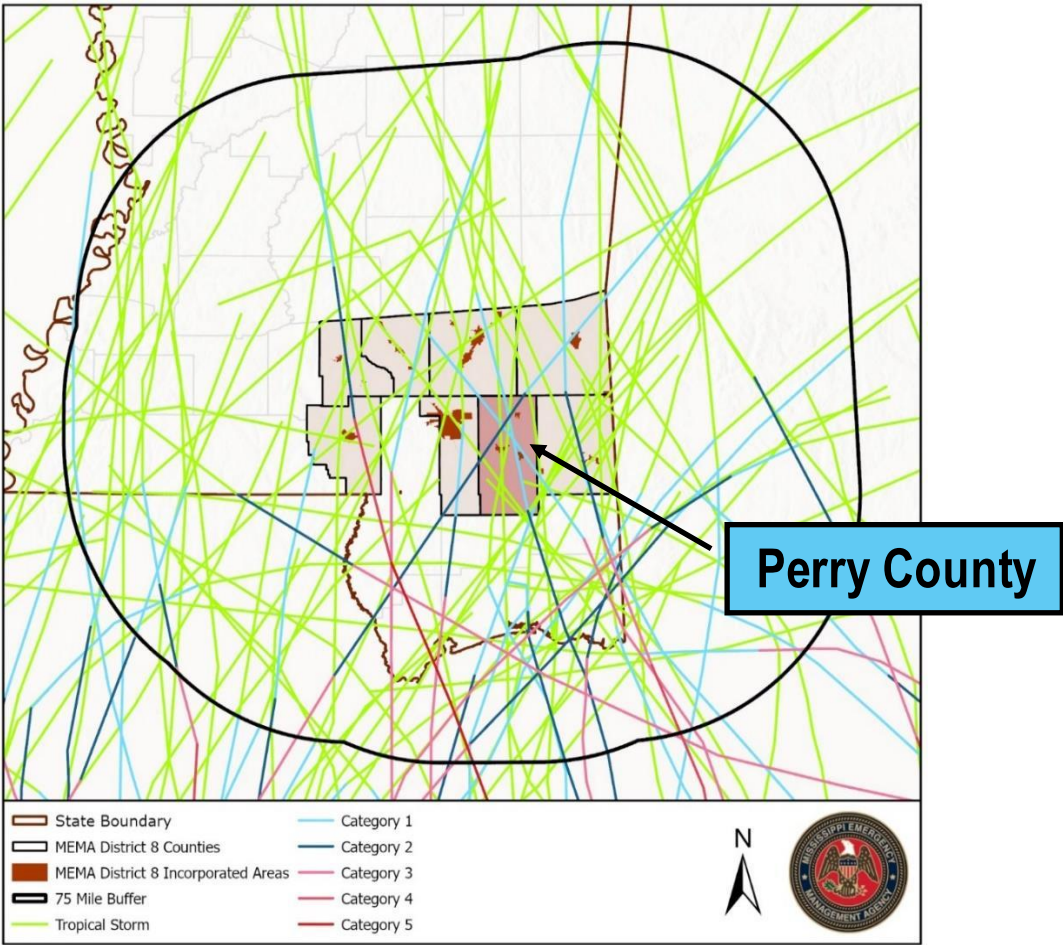
Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact Perry County. 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 G.7**.

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 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.

**FIGURE G.7: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF PERRY COUNTY**



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), 2020 (Hurricane Zeta), and 2021 (Hurricane Ida). Hurricane and tropical storm events can cause substantial damage in the area due to high winds and flooding.

**TABLE G.15: HISTORICAL STORM TRACKS WITHIN 75 MILES OF PERRY COUNTY (1850–2024)**

| Date of | Storm Name | Maximum Wind Speed (mph) | Storm |
|---------|------------|--------------------------|-------|
|---------|------------|--------------------------|-------|



| Occurrence    |                    |           | 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     | Hurricane Ethel    | 52        | Tropical Storm |
| 9/4/1969      | Hurricane Camille  | 80        | Category 1     |
| 9/13/1979     | Hurricane Frederic | Unknown   | Tropical Storm |
| 8/20/1995     | Hurricane Erin     | 50        | Tropical Storm |
| 9/25/1998     | Hurricane Georges  | Unknown   | Tropical Storm |
| 9/16/2004     | Hurricane Ivan     | 50        | Tropical Storm |
| 7/10/2005     | Hurricane Dennis   | 55        | Tropical Storm |
| 8/29/2005     | Hurricane Katrina  | 75        | Category 1     |
| 9/1/2008      | Hurricane Gustav   | 35        | Depression     |
| 8/29/2012     | Hurricane Isaac    | 45        | Tropical Storm |
| 10/28/2020    | Hurricane Zeta     | 43        | Tropical Storm |
| 8/30/2021     | Hurricane Ida      | 50        | Tropical Storm |
| <b>Total:</b> | <b>22</b>          | <b>--</b> | <b>--</b>      |

Source: NCED/NOAA

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.

**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.

Gustav brought tropical depression conditions to southeast Mississippi as it moved south of the area.

**Hurricane Zeta – October 28, 2020**—Perry County MS: The county experienced sustained strong tropical storm force winds with frequent gusts to hurricane force. This resulted in significant tree and power line damage. Numerous to widespread power outages were reported. 36 homes were damaged, experiencing either roof damage or damage due to downed trees.

**Hurricane Ida – August 30, 2021**—Hurricane Ida brought tropical storm force wind gusts downed numerous trees and power lines across the county.

## **PROBABILITY OF FUTURE OCCURRENCES**

Based on historical evidence, the probability level of future occurrence is likely (annual probability between 10 and 100 per cent). 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.

Scientists and meteorologists predict tropical cyclones to increase in frequency, magnitude, and intensity as the climate continues to change. These increases could be catastrophic to MS Coastal areas and the counties near the coast. Scientists also predict that hurricanes could increase in frequency and strength in the near future due the effects of Climate Change. This can be seen in the 2023 season with 23 named storms, 11 hurricanes, and 5 major hurricanes. This prediction makes the season the third most active season on record, behind the 2005 season with 28, and the 2020 season with a total of 30. It is expected that an above-average season next season with up to 25 named storms and 4-7 major hurricanes.

## **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, 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. According to NCEI, there have been 64 reported thunderstorm and high wind events since 2000 in Perry County. These events caused almost \$700 thousand in damages. **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.

**TABLE G.16: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN PERRY COUNTY**

| Location                   | Number of Occurrences | Injuries | Deaths   | Property Damage  | Crop Damage |
|----------------------------|-----------------------|----------|----------|------------------|-------------|
| <i>Beaumont</i>            | 8                     | 0        | 0        | \$43,000         | \$0         |
| <i>New Augusta</i>         | 16                    | 0        | 0        | \$142,000        | \$0         |
| <i>Richton</i>             | 18                    | 0        | 0        | \$338,500        | \$0         |
| <i>Unincorporated Area</i> | 22                    | 0        | 0        | \$172,000        | \$0         |
| <b>Perry County Total:</b> | <b>64</b>             | <b>0</b> | <b>0</b> | <b>\$695,500</b> | <b>\$0</b>  |

Source: NCED/NOAA

**TABLE G.17: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN PERRY COUNTY**

| Location                    | Date       | Type      | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|-----------------------------|------------|-----------|-----------|--------|----------|-----------------|-------------|
| <b>The Town of Beaumont</b> |            |           |           |        |          |                 |             |
| <i>Beaumont</i>             | 1/19/2001  | TSTM Wind | 55 kts.   | 0      | 0        | \$2,000         | \$0         |
| <i>Beaumont</i>             | 7/21/2002  | TSTM Wind | 50 kts.   | 0      | 0        | \$10,000        | \$0         |
| <i>Beaumont</i>             | 10/27/2006 | TSTM Wind | 50 kts.   | 0      | 0        | \$10,000        | \$0         |
| <i>Beaumont</i>             | 6/19/2007  | TSTM Wind | 50 kts.   | 0      | 0        | \$12,000        | \$0         |
| <i>Beaumont</i>             | 9/4/2012   | TSTM Wind | 52 kts.   | 0      | 0        | \$5,000         | \$0         |
| <i>Beaumont</i>             | 6/29/2013  | TSTM Wind | 52 kts.   | 0      | 0        | \$2,000         | \$0         |
| <i>Beaumont</i>             | 6/30/2018  | TSTM Wind | 52 kts.   | 0      | 0        | \$2,000         | \$0         |
| <i>Beaumont</i>             | 4/24/2021  | TSTM Wind | 61 kts.   | 0      | 0        | \$0             | \$0         |

## The Town of New Augusta

|                    |            |           |         |   |   |          |     |
|--------------------|------------|-----------|---------|---|---|----------|-----|
| <i>New Augusta</i> | 7/22/2000  | TSTM Wind | 70 kts. | 0 | 0 | \$25,000 | \$0 |
| <i>New Augusta</i> | 10/13/2001 | TSTM Wind | 50 kts. | 0 | 0 | \$10,000 | \$0 |
| <i>New Augusta</i> | 4/8/2002   | TSTM Wind | 55 kts. | 0 | 0 | \$10,000 | \$0 |
| <i>New Augusta</i> | 7/30/2005  | TSTM Wind | 50 kts. | 0 | 0 | \$12,000 | \$0 |
| <i>New Augusta</i> | 6/19/2007  | TSTM Wind | 50 kts. | 0 | 0 | \$25,000 | \$0 |
| <i>New Augusta</i> | 1/31/2008  | TSTM Wind | 50 kts. | 0 | 0 | \$8,000  | \$0 |
| <i>New Augusta</i> | 2/12/2008  | TSTM Wind | 50 kts. | 0 | 0 | \$12,000 | \$0 |
| <i>New Augusta</i> | 5/3/3008   | TSTM Wind | 50 kts. | 0 | 0 | \$10,000 | \$0 |
| <i>New Augusta</i> | 5/15/2008  | TSTM Wind | 50 kts. | 0 | 0 | \$15,000 | \$0 |
| <i>New Augusta</i> | 4/3/2012   | TSTM Wind | 52 kts. | 0 | 0 | \$5,000  | \$0 |
| <i>New Augusta</i> | 12/20/2012 | TSTM Wind | 52 kts. | 0 | 0 | \$3,000  | \$0 |
| <i>New Augusta</i> | 6/29/2013  | TSTM Wind | 52 kts. | 0 | 0 | \$2,000  | \$0 |
| <i>New Augusta</i> | 3/31/2016  | TSTM Wind | 61 kts. | 0 | 0 | \$5,000  | \$0 |
| <i>New Augusta</i> | 6/7/2019   | TSTM Wind | 52 kts. | 0 | 0 | \$0      | \$0 |
| <i>New Augusta</i> | 4/19/2020  | TSTM Wind | 61 kts. | 0 | 0 | \$0      | \$0 |
| <i>New Augusta</i> | 4/10/2021  | TSTM Wind | 52 kts. | 0 | 0 | \$0      | \$0 |

## The Town of Richton

|                |            |           |         |   |   |           |     |
|----------------|------------|-----------|---------|---|---|-----------|-----|
| <i>Richton</i> | 4/3/2000   | TSTM Wind | 60 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Richton</i> | 3/2/2001   | TSTM Wind | 65 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Richton</i> | 3/12/2001  | TSTM Wind | 70 kts. | 0 | 0 | \$50,000  | \$0 |
| <i>Richton</i> | 12/13/2001 | TSTM Wind | 55 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Richton</i> | 7/6/2004   | TSTM Wind | 50 kts. | 0 | 0 | \$8,000   | \$0 |
| <i>Richton</i> | 4/14/2007  | TSTM Wind | 55 kts. | 0 | 0 | \$200,000 | \$0 |
| <i>Richton</i> | 8/7/2008   | TSTM Wind | 50 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Richton</i> | 3/9/2011   | TSTM Wind | 52 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Richton</i> | 4/4/2011   | TSTM Wind | 50 kts. | 0 | 0 | \$0       | \$0 |
| <i>Richton</i> | 6/7/2011   | TSTM Wind | 52 kts. | 0 | 0 | \$2,000   | \$0 |
| <i>Richton</i> | 6/5/2012   | TSTM Wind | 52 kts. | 0 | 0 | \$1,500   | \$0 |
| <i>Richton</i> | 2/15/2016  | TSTM Wind | 52 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Richton</i> | 5/20/2018  | TSTM Wind | 52 kts. | 0 | 0 | \$20,000  | \$0 |
| <i>Richton</i> | 7/31/2018  | TSTM Wind | 50 kts. | 0 | 0 | \$5,000   | \$0 |
| <i>Richton</i> | 4/18/2019  | TSTM Wind | 61 kts. | 0 | 0 | \$10,000  | \$0 |
| <i>Richton</i> | 2/3/2022   | TSTM Wind | 52 kts. | 0 | 0 | \$0       | \$0 |
| <i>Richton</i> | 6/12/2023  | TSTM Wind | 52 kts. | 0 | 0 | \$0       | \$0 |
| <i>Richton</i> | 6/14/2023  | TSTM Wind | 52 kts. | 0 | 0 | \$0       | \$0 |

## Unincorporated Area in Perry County

|                    |            |           |         |   |   |          |     |
|--------------------|------------|-----------|---------|---|---|----------|-----|
| <i>Belleville</i>  | 7/19/2002  | TSTM Wind | 50 kts. | 0 | 0 | \$10,000 | \$0 |
| <i>Janice</i>      | 6/27/2004  | TSTM Wind | 50 kts. | 0 | 0 | \$5,000  | \$0 |
| <i>Runnelstown</i> | 8/15/2006  | TSTM Wind | 50 kts. | 0 | 0 | \$8,000  | \$0 |
| <i>Kittrell</i>    | 2/13/2007  | TSTM Wind | 50 kts. | 0 | 0 | \$30,000 | \$0 |
| <i>Runnelstown</i> | 1/10/2008  | TSTM Wind | 50 kts. | 0 | 0 | \$8,000  | \$0 |
| <i>Runnelstown</i> | 1/31/2008  | TSTM Wind | 50 kts. | 0 | 0 | \$20,000 | \$0 |
| <i>Belleville</i>  | 12/24/2009 | TSTM Wind | 50 kts. | 0 | 0 | \$0      | \$0 |
| <i>Mahned</i>      | 4/4/2011   | TSTM Wind | 50 kts. | 0 | 0 | \$0      | \$0 |

|                    |            |             |         |   |   |          |     |
|--------------------|------------|-------------|---------|---|---|----------|-----|
| <i>Janice</i>      | 3/22/2012  | TSTM Wind   | 52 kts. | 0 | 0 | \$4,000  | \$0 |
| <i>Runnelstown</i> | 4/11/2013  | TSTM Wind   | 61 kts. | 0 | 0 | \$10,000 | \$0 |
| <i>County</i>      | 12/21/2013 | Strong Wind | 39 kts. | 0 | 0 | \$5,000  | \$0 |
| <i>Belleville</i>  | 1/2/2017   | TSTM Wind   | 52 kts. | 0 | 0 | \$5,000  | \$0 |
| <i>Janice</i>      | 4/3/2017   | TSTM Wind   | 61 kts. | 0 | 0 | \$8,000  | \$0 |
| <i>Kittrell</i>    | 6/30/2018  | TSTM Wind   | 52 kts. | 0 | 0 | \$2,000  | \$0 |
| <i>County</i>      | 7/31/2018  | TSTM Wind   | 50 kts. | 0 | 0 | \$15,000 | \$0 |
| <i>County</i>      | 11/1/2018  | TSTM Wind   | 52 kts. | 0 | 0 | \$12,000 | \$0 |
| <i>Mahned</i>      | 11/23/2018 | TSTM Wind   | 50 kts. | 0 | 0 | \$5,000  | \$0 |
| <i>Runnelstown</i> | 4/18/2019  | TSTM Wind   | 61 kts. | 0 | 0 | \$25,000 | \$0 |
| <i>Runnelstown</i> | 4/12/2020  | TSTM Wind   | 52 kts. | 0 | 0 | \$0      | \$0 |
| <i>Janice</i>      | 4/24/2021  | TSTM Wind   | 52 kts. | 0 | 0 | \$0      | \$0 |
| <i>Runnelstown</i> | 6/10/2022  | TSTM Wind   | 52 kts. | 0 | 0 | \$0      | \$0 |
| <i>Runnelstown</i> | 6/10/2023  | TSTM Wind   | 52 kts. | 0 | 0 | \$0      | \$0 |

Source: NCED/NOAA

## Hailstorm

According to the National Centers for Environmental Information, 30 recorded hailstorm events have affected Perry County since 2000. **Table G.18** is a summary of the hail events in Perry County. **Table G.19** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over \$7,000 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.

## Lightning

According to the National Centers for Environmental Information, there has been one recorded lightning events in Perry County since 2000, as listed in summary **Table G.19**. 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.

**TABLE G.18: SUMMARY OF HAIL AND LIGHTNING OCCURRENCES IN PERRY COUNTY**

| Location                   | Number of Occurrences | Deaths/Injuries | Property Damage |
|----------------------------|-----------------------|-----------------|-----------------|
| <i>Beaumont</i>            | 7                     | 0/0             | \$3,000         |
| <i>New Augusta</i>         | 3                     | 0/0             | \$0             |
| <i>Richton</i>             | 14                    | 0/0             | \$64,000        |
| <i>Unincorporated Area</i> | 7                     | 0/0             | \$0             |
| <b>Perry County Total:</b> | <b>31</b>             | <b>0/0</b>      | <b>\$67,000</b> |

Source: NCED/NOAA

**TABLE G.19: HISTORICAL HAIL AND LIGHTNING OCCURRENCES IN PERRY COUNTY**

| Location | Date | Type | Magnitude | Deaths/Injuries | Property Damage |
|----------|------|------|-----------|-----------------|-----------------|
|----------|------|------|-----------|-----------------|-----------------|

| The Town of Beaumont                |           |           |          |     |          |
|-------------------------------------|-----------|-----------|----------|-----|----------|
| <i>Beaumont</i>                     | 3/9/2003  | Hail      | 0.75 in. | 0/0 | \$0      |
| <i>Beaumont</i>                     | 4/25/2003 | Hail      | 0.75 in. | 0/0 | \$0      |
| <i>Beaumont</i>                     | 5/18/2003 | Hail      | 0.75 in. | 0/0 | \$0      |
| <i>Beaumont</i>                     | 3/30/2005 | Hail      | 1.75 in. | 0/0 | \$3,000  |
| <i>Beaumont</i>                     | 3/9/2011  | Hail      | 1 in.    | 0/0 | \$0      |
| <i>Beaumont</i>                     | 1/21/2017 | Hail      | 1 in.    | 0/0 | \$0      |
| <i>Beaumont</i>                     | 5/27/2020 | Hail      | 1 in.    | 0/0 | \$0      |
| The Town of New Augusta             |           |           |          |     |          |
| <i>New Augusta</i>                  | 7/17/2006 | Hail      | 0.88 in. | 0/0 | \$0      |
| <i>New Augusta</i>                  | 3/8/2011  | Hail      | 1 in.    | 0/0 | \$0      |
| <i>New Augusta</i>                  | 2/24/2012 | Hail      | 1.75 in. | 0/0 | \$0      |
| The Town of Richton                 |           |           |          |     |          |
| <i>Richton</i>                      | 3/12/2002 | Hail      | 0.75 in. | 0/0 | \$0      |
| <i>Richton</i>                      | 3/13/2003 | Hail      | 0.75 in. | 0/0 | \$0      |
| <i>Richton</i>                      | 4/25/2003 | Hail      | 0.75 in. | 0/0 | \$0      |
| <i>Richton</i>                      | 5/3/2003  | Hail      | 0.88 in. | 0/0 | \$0      |
| <i>Richton</i>                      | 2/23/2004 | Hail      | 1 in.    | 0/0 | \$0      |
| <i>Richton</i>                      | 3/22/2005 | Hail      | 0.75 in. | 0/0 | \$0      |
| <i>Richton</i>                      | 4/11/2000 | Hail      | 0.75 in. | 0/0 | \$0      |
| <i>Richton</i>                      | 4/22/2005 | Hail      | 1.75 in. | 0/0 | \$4,000  |
| <i>Richton</i>                      | 4/4/2008  | Hail      | 1 in.    | 0/0 | \$0      |
| <i>Richton</i>                      | 6/27/2015 | Lightning | --       | 0/0 | \$60,000 |
| <i>Richton</i>                      | 4/15/2021 | Hail      | 1 in.    | 0/0 | \$0      |
| <i>Richton</i>                      | 4/17/2022 | Hail      | 1 in.    | 0/0 | \$0      |
| <i>Richton</i>                      | 6/16/2023 | Hail      | 2.50 in. | 0/0 | \$0      |
| Unincorporated Area in Perry County |           |           |          |     |          |
| <i>Mahned &amp; Ferguson</i>        | 4/25/2003 | Hail      | 0.75 in. | 0/0 | \$0      |
| <i>Runnelstown</i>                  | 4/11/2005 | Hail      | 0.75 in. | 0/0 | \$0      |
| <i>Janice</i>                       | 6/23/2006 | Hail      | 0.75 in. | 0/0 | \$0      |
| <i>Mahned</i>                       | 4/24/2010 | Hail      | 1.75 in. | 0/0 | \$0      |
| <i>Hintonville</i>                  | 6/8/2013  | Hail      | 1 in.    | 0/0 | \$0      |
| <i>Ferguson</i>                     | 1/21/2017 | Hail      | 1.75 in. | 0/0 | \$0      |
| <i>Hintonville</i>                  | 6/16/2023 | Hail      | 2.50 in. | 0/0 | \$0      |

Source: NCED/NOAA

## 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.

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.

Meteorologists predict that thunderstorms will continue to increase in frequency, magnitude, and intensity as climate change continues to effect weather. These increases could greatly impact the county in crop and property damage and life safety. If these storms intensify it could also affect the economy of the county.

## G.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. According to the National Centers for Environmental Information, there have been a total of 12 recorded tornado events in Perry County since 2000 (Table G.19), resulting in over \$218 thousand in property damages. In addition, 0 fatalities and 1 injury was reported. The magnitude of these tornadoes ranges from F0 to EF2 in intensity, although an F5 event is possible. Detailed information on historic tornado events can be found in Table G.20.

**TABLE G.19: SUMMARY OF TORNADO OCCURRENCES IN PERRY COUNTY**

| Location                   | Number of Occurrences | Deaths   | Injuries | Property Damage  |
|----------------------------|-----------------------|----------|----------|------------------|
| <i>Beaumont</i>            | 3                     | 0        | 0        | \$8,000          |
| <i>New Augusta</i>         | 0                     | 0        | 0        | \$0              |
| <i>Richton</i>             | 1                     | 0        | 0        | \$0              |
| <i>Unincorporated Area</i> | 9                     | 0        | 1        | \$210,000        |
| <b>Perry County Total:</b> | <b>12</b>             | <b>0</b> | <b>1</b> | <b>\$218,000</b> |

Source: NCED/NOAA

**TABLE G.20: HISTORICAL TORNADO IMPACTS IN PERRY COUNTY**

| Location                                   | Date       | Magnitude | Deaths | Injuries | Property Damage |
|--------------------------------------------|------------|-----------|--------|----------|-----------------|
| <b>Town of Beaumont</b>                    |            |           |        |          |                 |
| <i>Beaumont</i>                            | 12/23/2002 | F0        | 0      | 0        | \$8,000         |
| <i>Beaumont</i>                            | 3/30/2022  | EF2       | 0      | 0        | \$0             |
| <i>Beaumont</i>                            | 4/17/2022  | EF2       | 0      | 0        | \$0             |
| <b>Town of New Augusta</b>                 |            |           |        |          |                 |
| <i>None</i>                                | --         | --        | --     | --       | --              |
| <b>Town of Richton</b>                     |            |           |        |          |                 |
| <i>Richton</i>                             | 4/17/2022  | EF1       | 0      | 0        | \$0             |
| <b>Unincorporated Area in Perry County</b> |            |           |        |          |                 |
| <i>Hintonville</i>                         | 12/13/2001 | F0        | 0      | 0        | \$10,000        |
| <i>Janice</i>                              | 4/24/2003  | F0        | 0      | 0        | \$10,000        |
| <i>Janice</i>                              | 11/24/2004 | F0        | 0      | 0        | \$5,000         |
| <i>Janice</i>                              | 12/25/2012 | EF2       | 0      | 0        | \$0             |
| <i>Tallahala</i>                           | 2/10/2013  | EF1       | 0      | 0        | \$25,000        |
| <i>Tallahala</i>                           | 1/21/2017  | EF2       | 0      | 1        | \$160,000       |
| <i>Bellville</i>                           | 4/19/2020  | EF1       | 0      | 0        | \$0             |
| <i>Janice</i>                              | 3/30/2022  | EF0       | 0      | 0        | \$0             |

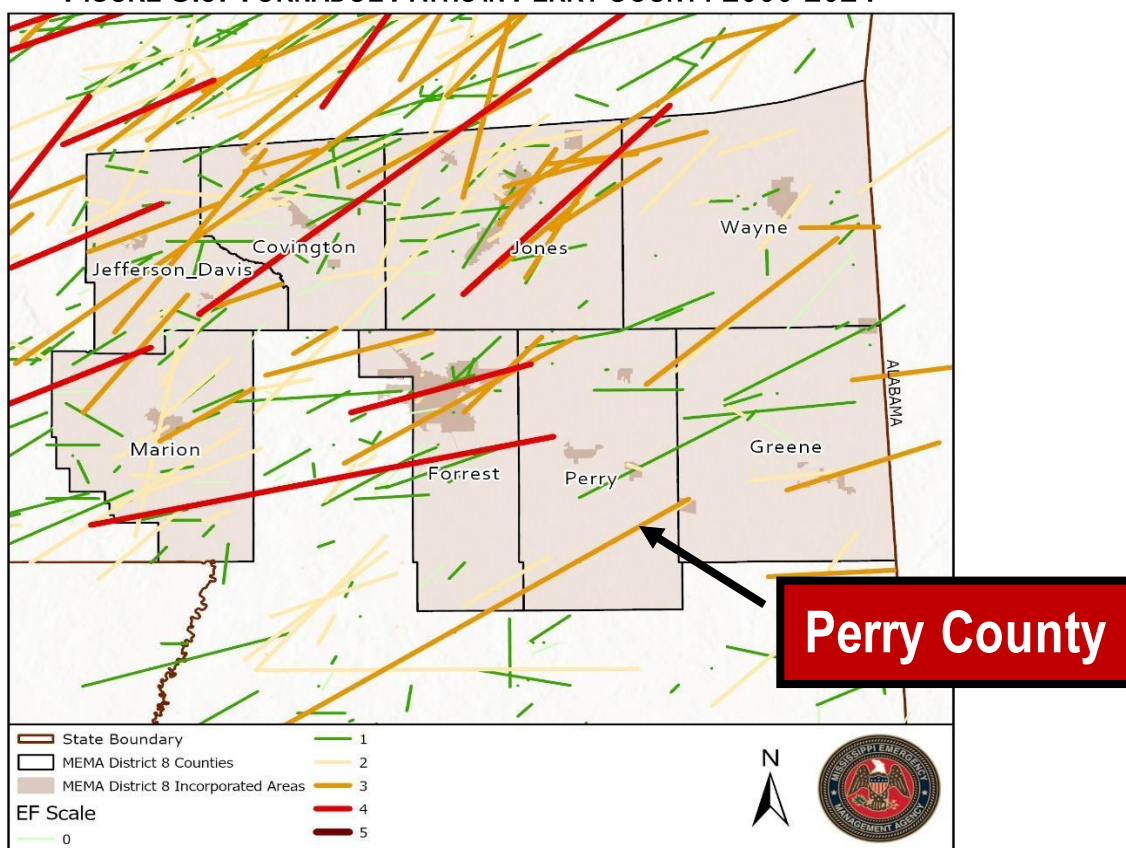
Source: NCED/NOAA

Anecdotes are available from NCEI for the tornadoes that have impacted that area as found below:

**February 10, 2013**—Thunderstorms developed ahead of an approaching cold front. Some of the thunderstorms became severe with damaging winds and tornadoes. The storms also produced very heavy rain which caused flash flooding. **Event Narrative** This was a continuation of the EF-4 Hattiesburg tornado as it was weakening and crossing into Perry County Mississippi. The tornado was at EF-1 strength at 100 yards wide as it crossed the county line then weakened quickly to less than 80 yards wide at EF-0 strength as it crossed Corinth Church Road just south of Highway 42. The tornado dissipated just east of Corinth Church Road in a wooded area.

**January 21, 2017**—This 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.

**FIGURE G.8: TORNADOE PATHS IN PERRY COUNTY 2000-2024**



### 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).

It is predicted that tornadoes and the type of storms that create tornadoes will increase in intensity, frequency, and magnitude as the temperature rises with climate change. More frequent strong tornadoes could have a large economic impact on each community in the county. It could also increase injuries and/death counts if the tornadoes increase in magnitude.

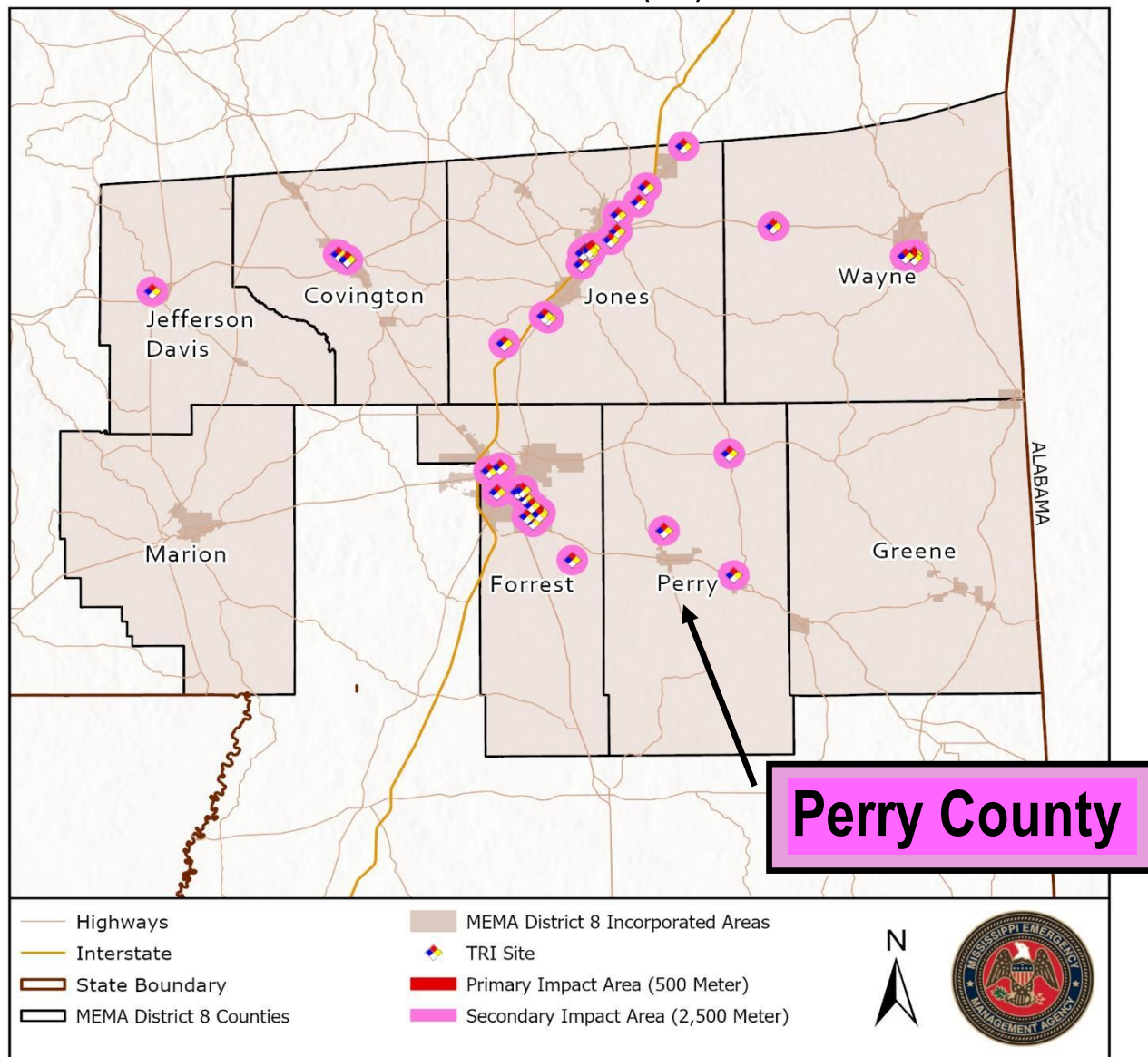
## G.2.13 Hazardous Materials Incidents

### LOCATION AND SPATIAL EXTENT

## Hazardous Materials

Perry County has three TRI sites. These sites are shown in **Figure G.8**

**FIGURE G.8: TOXIC RELEASE INVENTORY (TRI) SITES IN PERRY COUNTY**



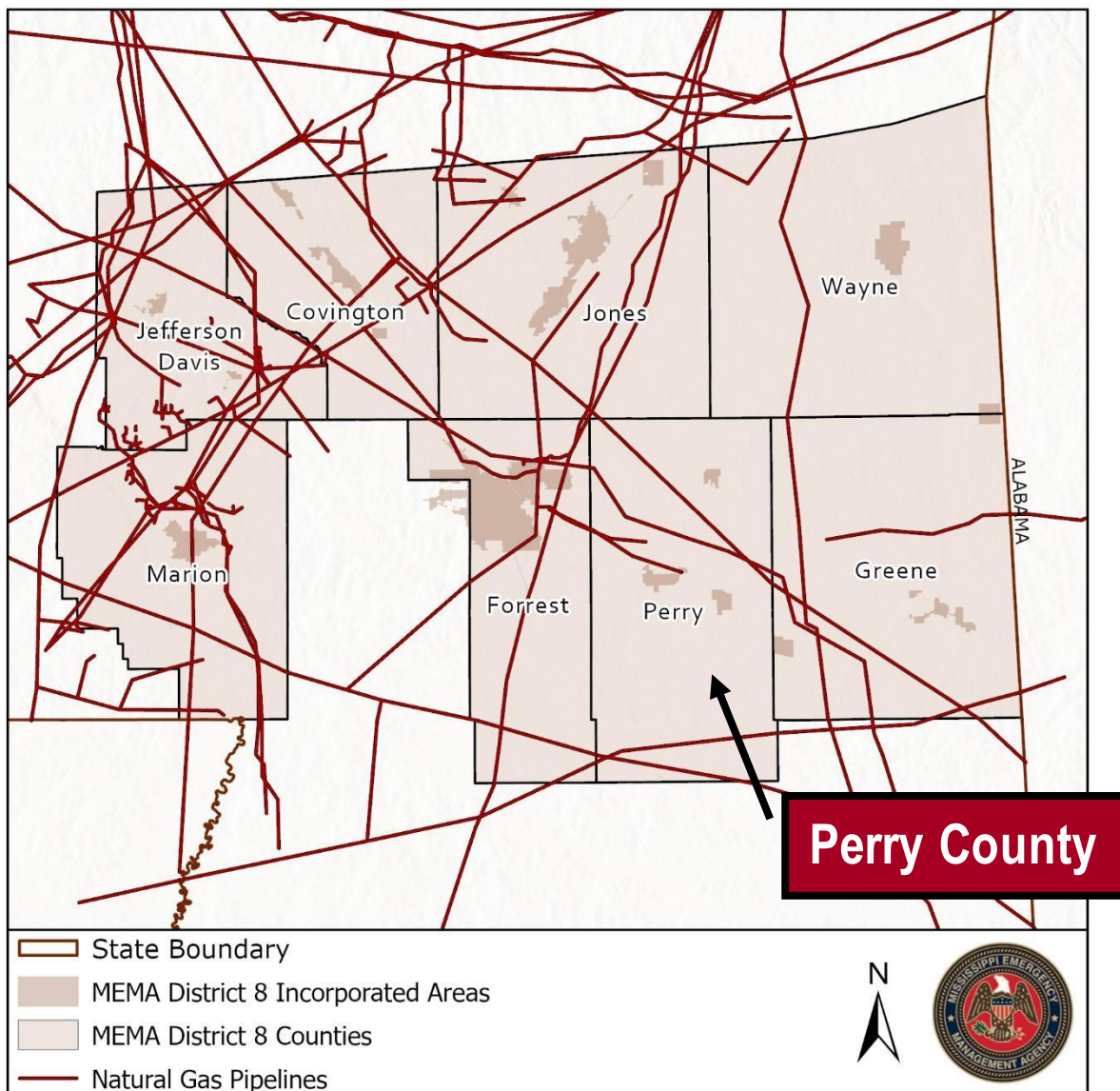
In addition to “fixed” hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially 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.9** shows the trunk lines for each of these material types but does not show the gathering or distribution pipelines. Gas lines and liquid lines are in red/maroon. This data has not changed since the last plan update.

**FIGURE G.9: PIPELINES IN PERRY COUNTY**





### 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 G.21** 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 G.21: HAZMAT INCIDENTS IN PERRY COUNTY**

| Location                                   | Date       | Report Number | Mode    | Serious Incident | Deaths/Injuries | Damages | Quantity Released |
|--------------------------------------------|------------|---------------|---------|------------------|-----------------|---------|-------------------|
| <b>The Town of Beaumont</b>                |            |               |         |                  |                 |         |                   |
| <i>None Reported</i>                       | --         | --            | --      | --               | --              | --      | --                |
| <b>The Town of New Augusta</b>             |            |               |         |                  |                 |         |                   |
| <i>New Augusta</i>                         | 4/3/1973   | I-1973040166  | Highway | No               | 0/0             | \$0     | 0                 |
| <i>New Augusta</i>                         | 3/6/1979   | I-1979031112  | Highway | Yes              | 0/0             | \$0     | 4,000 LGA         |
| <i>New Augusta</i>                         | 11/12/1984 | I-1984120013  | Highway | No               | 0/0             | \$0     | 25 LGA            |
| <i>New Augusta</i>                         | 1/18/1987  | I-1987010388  | Highway | No               | 0/0             | \$0     | 629 LGA           |
| <i>New Augusta</i>                         | 1/18/2012  | I-2012020040  | Highway | No               | 0/0             | \$0     | 3.5 LGA           |
| <b>The Town of Richton</b>                 |            |               |         |                  |                 |         |                   |
| <i>Richton</i>                             | 7/9/1976   | I-1976070629  | Highway | No               | 0/0             | \$0     | 5 LGA             |
| <i>Richton</i>                             | 2/13/1992  | I-1992030246  | Highway | No               | 0/0             | \$0     | 10 LGA            |
| <b>Unincorporated Area in Perry County</b> |            |               |         |                  |                 |         |                   |
| <i>None Reported</i>                       | --         | --            | --      | --               | --              | --      | --                |

Source: USDOT PHMSA

## Pipelines

Between 2000 and 2024, 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.



## 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 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.

## G.2.15 Pandemic

## LOCATION AND SPATIAL EXTENT

Pandemics are global in nature. However, they may start anywhere. Perry County chose to analyze this hazard given due to the devastating effects of the COVID-19 Virus. The virus affected the health, welfare, and economy of the people of Perry County. The Covid-19 Virus also had a Disaster Declaration issued for the entire country. This was the first Declaration of this kind.

All populations should be considered at risk to pandemic. Buildings and infrastructure are not directly impacted by the virus but could be indirectly impacted if people are not able to operate and maintain them due to illness. Many buildings may be shutdown, at least temporarily, as a result. Employers may initiate work from home procedures for non-essential workers in order to help stop infection. Commerce activities, and thus the economy, may suffer greatly during this time.

## HISTORICAL OCCURRENCES

Several pandemics have been reported throughout history. The first known pandemic dates back to 430 B.C. with the Plague of Athens. It reportedly killed a quarter of the population over four years due to typhoid fever. In 165-180 A.D., the Antonine Plague killed nearly 5 million people. Next, the Plague of Justinian (the first bubonic plague pandemic) occurred from 541 to 566. It killed 10,000 people a day at its peak and resulted in a 50 percent drop in Europe's population.

Since the 1500s, influenza pandemics have occurred about three times every century or roughly every 10-50 years. The Black Death devastated European populations in the 14th century. Nearly a third of the population (20-30 million) was killed over six years. From 1817 to present, seven Cholera Pandemics have impacted the world and killed millions. Perhaps most severe, was the Third Cholera Pandemic (1852-1959) which started in China. Isolated cases can still be found in the Western U.S. today. There were three major pandemics in the 20th century (1918-1919, 1957-1958, and 1968-1969). The most infamous pandemic flu of the 20th century, however, was that of 1918-1919. Since the 1960s, there has only been one pandemic, the 2009 H1N1 influenza. The pandemics of the 20th and 21st centuries that impacted the United States are detailed below.

**1918 Spanish Flu:** This was the most devastating flu of the 20th century. This pandemic spread across the world in three waves between 1918 and 1919. It typically impacted areas for around twelve weeks and then would largely disappear. However, it would frequently reemerge several months later. Worldwide, approximately 50 million persons died and over a quarter of the population was infected. Nearly 675,000 people died in the United States. The illness came on suddenly and could cause death within a few hours. The virus impacted those aged 15 to 35 especially hard. The movement of troops during World War I is thought to have facilitated the spread of the virus.

In Mississippi, state officials noted that "epidemics have been reported from a number of places in the State," on October 4th, 1918. By the 18th, twenty-six localities reported 1,934 cases (the real number of cases was likely much higher). West Point, Mississippi was hit especially hard, and quarantine was established. Throughout the state, African Americans were impacted at a greater rate than white populations. This is thought to be partly caused from a shortage of caretakers. It is estimated that over 6,000 people died in Mississippi, though that number may be much higher as death records were not widely recorded.

**1957 Asian Flu:** It is estimated that the Asian Flu caused 2 million deaths worldwide. Approximately 70,000 deaths were in the U.S. However, the proportion of people impacted was substantially higher than that of the Spanish Flu. This flu was characterized as having much milder effects than the Spanish Flu and greater survivability. Similar to other pandemics, this pandemic has two waves. Elderly and infant populations were more likely to succumb to death. This flu is thought to have originated from a genetic mutation of a bird virus.

**1968 Hong Kong Flu:** The Hong Kong Flu is thought to have caused one million deaths worldwide. It was milder than both the Asian and Spanish influenza viruses. It was similar to the Asian Flu, which may have provided some immunity to the virus. It had the most severe impact on elderly populations.

**2009 H1N1 Influenza:** This flu was derived from human, swine, and avian virus strains. It was initially reported in Mexico in April 2009. On April 26, the U.S. government declared H1N1 a public health emergency. A vaccine was developed and over 80 million were vaccinated which helped minimize the impacts. The virus had mild impacts on most of the population but did cause death (usually from viral pneumonia) in high-risk populations such as pregnant women, obese persons, indigenous people, and those with chronic respiratory, cardiac, neurological, or immunity conditions.

Worldwide, it is estimated that 43 million to 89 million people contracted H1N1 between April 2009 and April 2010, and between 8,870 and 18,300 H1N1 cases resulted in death.

**COVID-19 (coronavirus disease 2019):** Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019, and changed the way people view Pandemics. Perry County had 3,807 cases of COVID and 66 deaths.

COVID-19 most often causes respiratory symptoms that can feel much like a cold, the flu, or pneumonia. COVID-19 may attack more than your lungs and respiratory system. Other parts of your body may also be affected by the disease. Most people with COVID-19 have mild symptoms, but some people become severely ill. Some people are more likely than others to get very sick if they get COVID-19. This includes people who are older, are immunocompromised, have certain disabilities, or have underlying health conditions.

In addition to the pandemics above, there have been several cases of pandemic threats, some of which reached epidemic levels. They were contained before spreading globally. Examples include Smallpox, Polio, Tuberculosis, Malaria, AIDS, SARS and Yellow Fever. Advances in medicine and technology have been instrumental in containing the spread of viruses in recent history.

**PROBABILITY OF FUTURE OCCURRENCES**

Based on historical occurrence information, it is assumed that Webster County has a probability level of unlikely (less than 1 percent annual probability) for future pandemics events. While pandemic can have devastating impacts, they are relatively rare.

The Mississippi State Department of Health maintains a state pandemic plan which can be found here: <http://www.msdh.state.ms.us/msdhsite/index.cfm/44,1136,122,154.pdf/SNSPlan.pdf>

**G.2.16 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.22** 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.

**TABLE G.22: EXTENT OF PERRY COUNTY HAZARDS**

| HAZARD | DESCRIPTION |
|--------|-------------|
|--------|-------------|

## Tectonic 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.

## Mass-Movements

### 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.

## Hydraulic Hazards

### Drought

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 several times over the reporting period.

### Floods

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.

### Dam Failure

Dam Failure extent is defined using the Mississippi Division of Environmental Quality criteria. One dam is classified as high hazard in the county.

## Meteorological Hazards

### Hurricane and Tropical Storms

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.

### Thunderstorms/ Hail/ Lightning/ Wind

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 last reported on July 22, 2000 & March 12, 2001, at 70 knots (approximately 80 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 2.5 inches (last reported on July 16, 2023). It should be noted that future events may exceed this.

According to the Vaisala's flash density map, 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.

### Winter Storms

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.

### Temperature Extremes/ Heat Wave

A four day stretch of extreme temperatures occurred across the region to start off the month of August. High pressure was firmly entrenched across the southeast and allowed temperatures to soar into the triple digits across much of the region. Across the NWS Jackson, MS forecast area, 19 record highs were set between August 1st and 4th. On August 2nd, the 2nd warmest average temperature was recorded. The low was 78 and the high 105, this resulted in an average temperature of 91.5 degrees. Additionally, relatively high humidity levels made conditions even more oppressive, with heat index readings surpassing 110 degrees in many areas.

### 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 Perry County was an EF2 (reported on January 21, 2017).

## Biological Hazards

### Pandemic

The extent of a pandemic impacting the county is difficult to estimate. It could result in thousands of deaths and extreme disruption of commerce and everyday life.

Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019, and changed the way people view Pandemics. Perry County had 3,807 cases of COVID and 66 deaths.

## Other Natural Hazards

### Wildfire

Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2010-2023. 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.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Erosion</b>                   | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Climate Change</b>            | The extent Climate Change will impact Perry County is hard to estimate. It could cause more intense, frequent, and/or magnitude of thunderstorms, tropical storms, winds, tornadoes, heavy rains, flash flooding... If the intensity and magnitude increase so will property damage and possible loss of life.                                                                                                                                                                                                                                                                                                                          |
| <b>Other Hazards</b>             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Cyber Attack</b>              | 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.                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Hazard Materials Incident</b> | <p>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.</p> <p>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.</p> <p>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.</p> |

### **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 G.23** 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.23: SUMMARY OF PRI RESULTS FOR PERRY COUNTY**

|  | <b>Category/Degree of Risk</b> |
|--|--------------------------------|
|--|--------------------------------|



| HAZARD                           | Probability   | Impact        | Spatial Extent | Warning Time       | Duration           | PRI Score |
|----------------------------------|---------------|---------------|----------------|--------------------|--------------------|-----------|
| <b>Tectonic Hazards</b>          |               |               |                |                    |                    |           |
| Earthquake                       | Unlikely      | Minor         | Moderate       | Less than 6 hours  | Less than 6 Hours  | 1.7       |
| <b>Mass-Movement Hazards</b>     |               |               |                |                    |                    |           |
| Landslide                        | Unlikely      | Minor         | Small          | Less than 6 hours  | Less than 6 hours  | 1.5       |
| Expansive Soil                   | Possible      | Minor         | Small          | Less than 6 hours  | Less than 6 hours  | 1.8       |
| <b>Hydrologic Hazards</b>        |               |               |                |                    |                    |           |
| Drought                          | Highly Likely | Minor         | Large          | More than 24 hours | More than 1 week   | 2.8       |
| Floods                           | Likely        | Limited       | Moderate       | 6 to 12 hours      | Less than 24 hours | 2.4       |
| Dam Failure                      | Unlikely      | Critical      | Moderate       | More than 24 hours | Less than 24 hours | 2.0       |
| <b>Meteorological Hazards</b>    |               |               |                |                    |                    |           |
| Hurricane/ Tropical Storms       | Likely        | Catastrophic  | Large          | More than 24 hours | Less than 24 hours | 3.2       |
| Thunderstorm/ 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       |
| Lightning                        | Highly Likely | Limited       | Negligible     | Less than 6 hours  | Less than 6 hours  | 2.5       |
| Winter Storms                    | Likely        | Limited       | Moderate       | More than 24 hours | Less than 24 hours | 2.3       |
| Temperature Extremes/ Heat Waves | Highly Likely | Likely        | Small          | More than 24 hours | More than 1 week   | 2.8       |
| Tornado                          | Likely        | Critical      | Small          | Less than 6 hours  | Less than 6 hours  | 2.7       |
| <b>Biological Hazards</b>        |               |               |                |                    |                    |           |
| Pandemic                         | Likely        | Limited—Major | Small—Large    | More than 24 hours | More than a week   | 2.8       |
| <b>Other Natural Hazards</b>     |               |               |                |                    |                    |           |
| Wildfire                         | Likely        | Minor         | Small          | Less than 6 hours  | Less than one week | 2.3       |
| Erosion                          | Possible      | Minor         | Small          | More than 24 hours | More than 1 week   | 1.8       |
| Climate Change                   | Possible      | Critical      | Large          | More than 1 week   | More than 1 week   | 2.6       |
| <b>Other Hazards</b>             |               |               |                |                    |                    |           |
| Cyber Attack                     | Unlikely      | Limited       | Small          | Less than 6 hours  | Less than 24 hours | 1.9       |
| Hazardous Materials Incident     | Unlikely      | Limited       | Small          | Less than 6 hours  | Less than 24 hours | 1.9       |
| Meth Lab Incident                | Possible      | Minor         | Small          | Less than 6 hours  | Less than 6 hours  | 1.8       |
| Pipeline Incident                | Possible      | Limited       | Small          | Less than 6 hours  | Less than 24 hours | 2.2       |

## G.2.17 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 G.24). 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 G.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.24: CONCLUSIONS ON HAZARD RISK FOR PERRY COUNTY**

|                      |                                                                                                                                                |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High Risk</b>     | <i>Drought/Heat Wave<br/>Hurricane and Tropical Storm<br/>Thunderstorm/ High Wind<br/>Tornado<br/>Flood<br/>Lightning<br/>Pandemic</i>         |
| <b>Moderate Risk</b> | <i>Climate Change<br/>Hail<br/>Pipeline Incident<br/>Hazardous Materials Incident<br/>Wildfire<br/>Dam Failure<br/>Winter Storm and Freeze</i> |
| <b>Low Risk</b>      | <i>Expansive Soil<br/>Landslide<br/>Meth Lab Incident<br/>Pandemic<br/>Erosion<br/>Cyber Attack</i>                                            |

## G.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 amounts 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.25** lists the number of parcels and the total assessed value of improvements for Perry County and its participating jurisdictions (study area of vulnerability assessment).

**TABLE G.25: IMPROVED PROPERTY IN PERRY COUNTY**

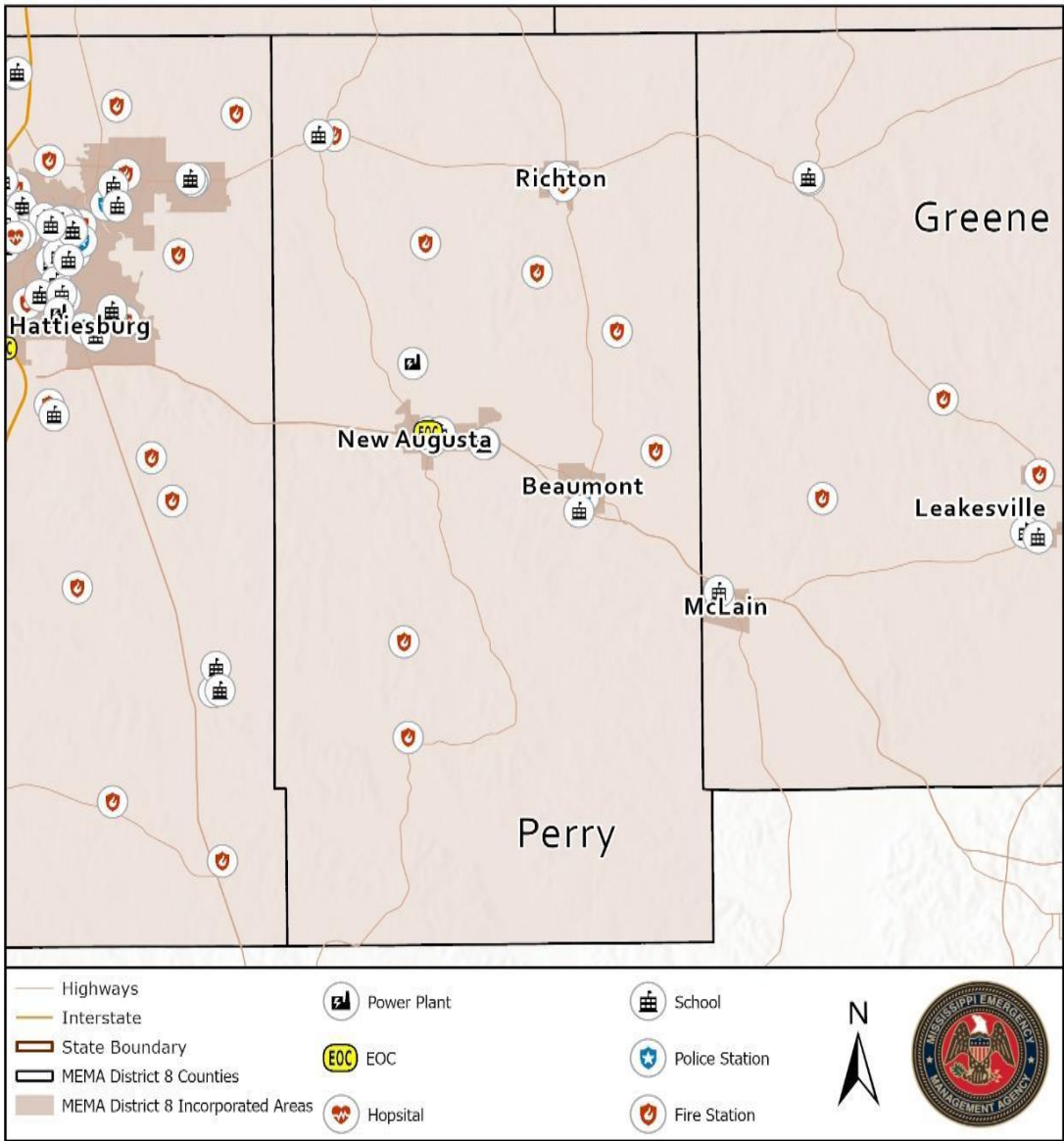
| LOCATION     | Number of Improved Properties | Total Assessed Value of Improvements |
|--------------|-------------------------------|--------------------------------------|
| Perry County | 5,608                         | \$874,179,000                        |

**Table G.26** 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 6.1 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 Perry County. **Table G.27** 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.26: CRITICAL FACILITY INVENTORY IN PERRY COUNTY**

| Location                   | Fire Station | Police Station | Medical Care Facility | EOC      | Schools  |
|----------------------------|--------------|----------------|-----------------------|----------|----------|
| <i>Beaumont</i>            | 1            | 1              | 0                     | -        | 1        |
| <i>New Augusta</i>         | 1            | 0              | 0                     | -        | 1        |
| <i>Richton</i>             | 0            | 1              | 1                     | -        | 2        |
| <i>Unincorporated Area</i> | 0            | 1              | 0                     | -        | 3        |
| <b>Perry County Total:</b> | <b>2</b>     | <b>3</b>       | <b>1</b>              | <b>0</b> | <b>7</b> |

**FIGURE G.11: CRITICAL FACILITY LOCATIONS IN PERRY COUNTY**



**Table G.28** 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”).

**TABLE G.28: CRITICAL FACILITES VULNERABLE TO ADDITIONAL HAZARDS**

|  | Other | Atmospheric | Geologic | Hydrologic |
|--|-------|-------------|----------|------------|
|--|-------|-------------|----------|------------|

| Facility Name                           | Facility Type  | WHP Hazard   | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought | Thunder-storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100-Year Flood | 500-Year Flood |
|-----------------------------------------|----------------|--------------|--------------------------------------|---------------------------------------|---------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|----------------|----------------|
| <b>Perry County Critical Facilities</b> |                |              |                                      |                                       |         |                                  |                           |         |                       |             |            |                     |                |                |
| Beaumont Elem. School                   | School         | HIGH         | X                                    | X                                     | X       | X                                | X                         | X       | X                     | X           |            |                     |                |                |
| Beaumont Police Dept                    | Police Station | LOW          | X                                    | X                                     | X       | X                                | X                         | X       | X                     | X           |            |                     |                |                |
| Beaumont VFD                            | Fire Station   | Non-burnable | X                                    | X                                     | X       | X                                | X                         | X       | X                     | X           |            |                     |                |                |
| Perry CO Alt. School                    | School         | HIGH         | X                                    | X                                     | X       | X                                | X                         |         | X                     | X           |            |                     |                |                |
| New Augusta Elem. School                | School         | LOW          |                                      | X                                     | X       | X                                | X                         |         | X                     | X           |            |                     |                | X              |
| Perry Central High School               | School         | HIGH         |                                      | X                                     | X       | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Perry CO VOC Complex                    | School         | HIGH         |                                      | X                                     | X       | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Perry County Sheriff's Dept             | Police Station | Non-burnable |                                      | X                                     | X       | X                                | X                         |         | X                     | X           |            |                     |                | X              |
| Town of New Augusta VFD                 | Fire Station   | HIGH         |                                      | X                                     | X       | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Perry CO General Hospital               | Care Facility  | Non-burnable | X                                    |                                       | X       | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Richton Elem. School                    | School         | Non-burnable | X                                    |                                       | X       | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Richton High School                     | School         | Non-burnable | X                                    |                                       | X       | X                                | X                         |         | X                     | X           |            |                     |                |                |
| Richton Police Dept                     | Police Station | Non-burnable | X                                    |                                       | X       | X                                | X                         | X       | X                     | X           |            |                     |                |                |

### 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 Perry County that are potentially at risk to these hazards.

**Table G.29** lists the population by jurisdiction according to U.S. Census 2020 population estimates. Population counts are presented at the county and municipal level. The total population in Perry County according to Census data is 11,511 persons. If the decline in population continues, it could lead to a decline in the population vulnerability. Additional population estimates are presented above in *Section G.1*.

**TABLE G.29: TOTAL POPULATION IN PERRY COUNTY**

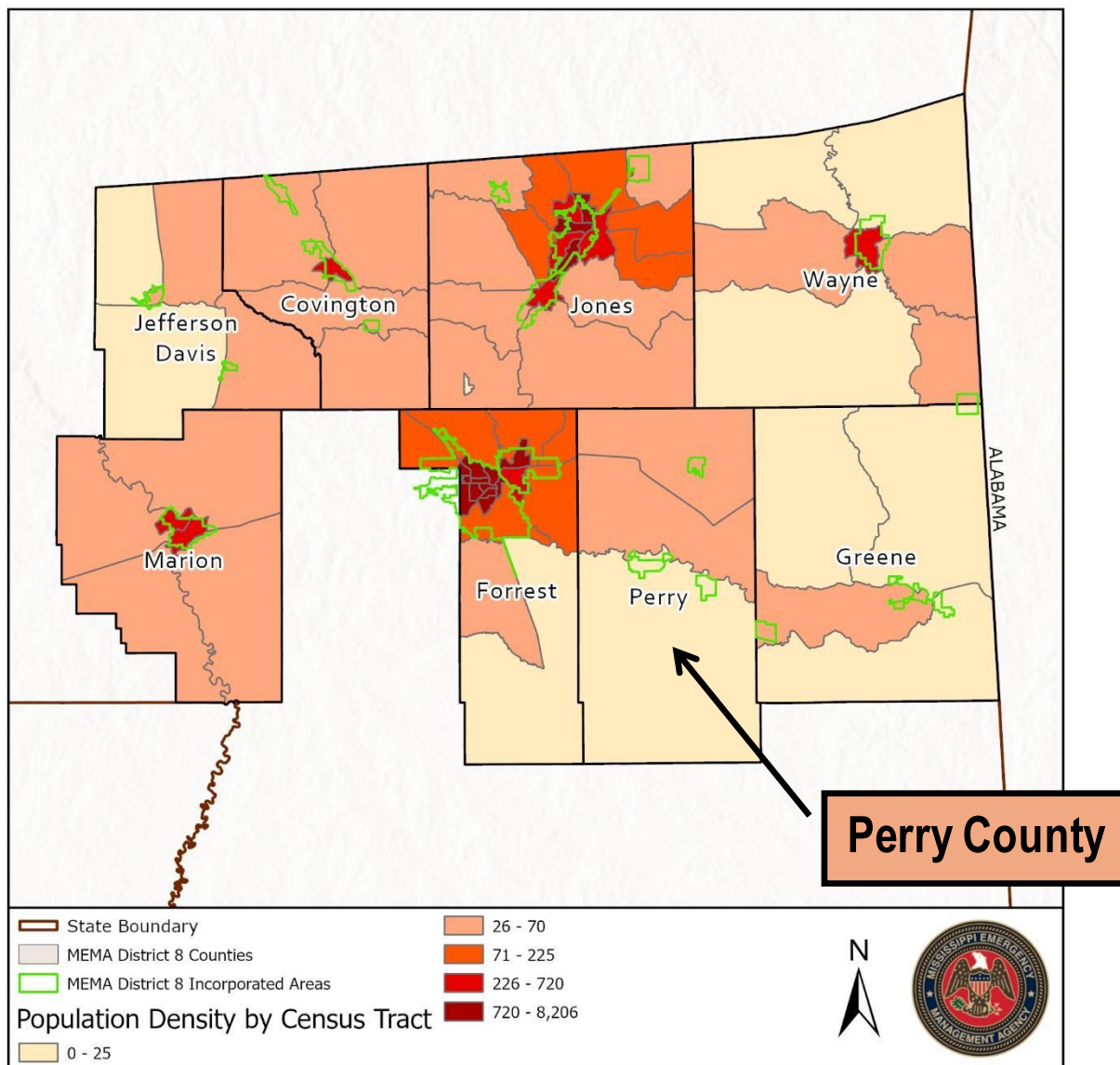
| Jurisdiction               | 2010 Census   | 2020 Census   |
|----------------------------|---------------|---------------|
| <b>Perry County Total:</b> | <b>12,250</b> | <b>11,511</b> |
| <i>Beaumont</i>            | 951           | 669           |
| <i>New Augusta</i>         | 644           | 554           |
| <i>Richton</i>             | 1068          | 920           |
| <i>Unincorporated Area</i> | 9,587         | 9,368         |

Source: US Census Bureau

In addition, **Figure G.12** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2020. This information has not changed since the last plan update.

**FIGURE G.12: POPULATION DENSITY IN PERRY COUNTY**





### 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 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 G.24**.

Since the previous plan, the jurisdictions are not aware of any developments in hazard prone areas that have increased or decreased vulnerability.

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

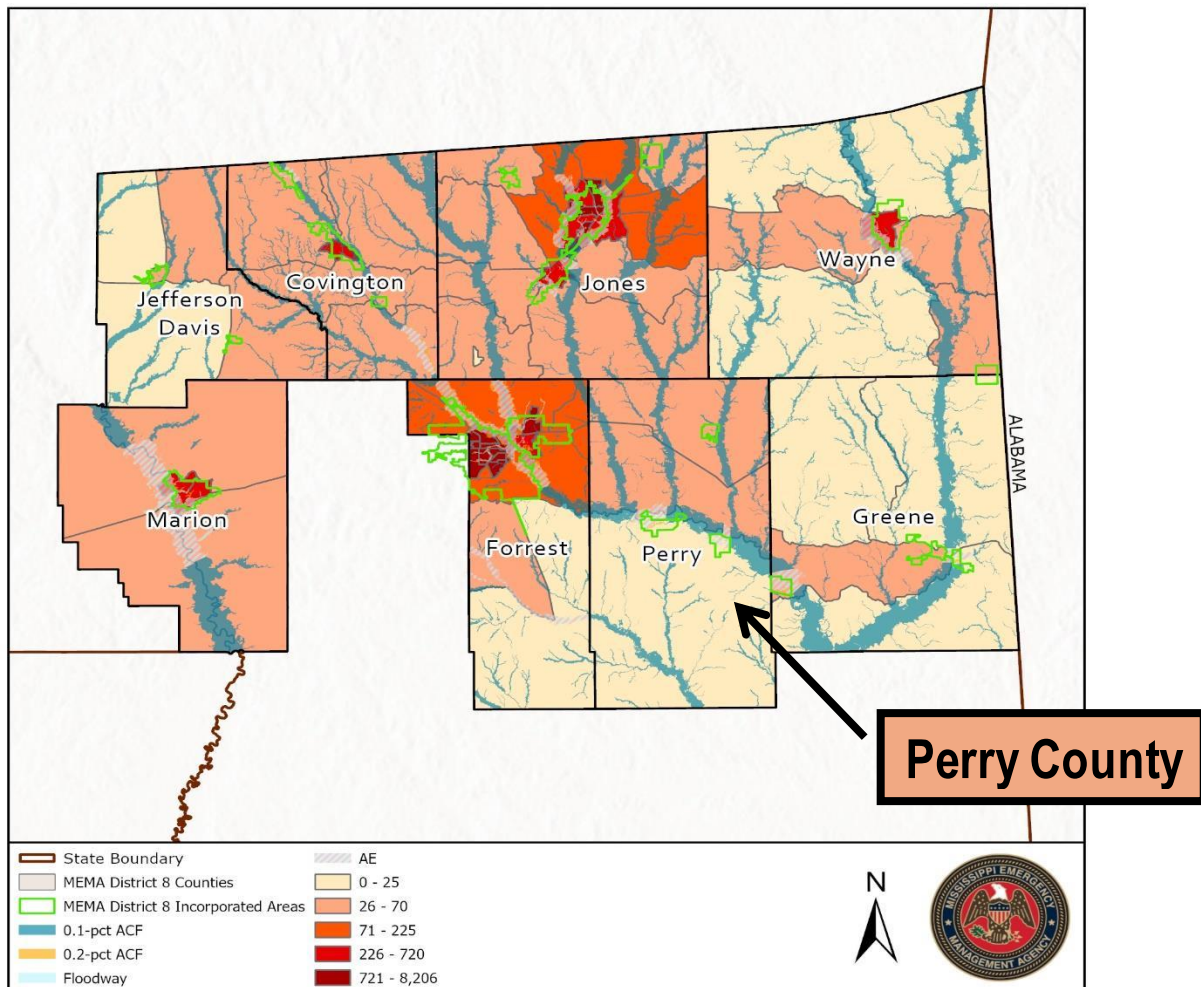
### FLOOD

Historical evidence indicates that Perry County is susceptible to flood events. A total of 27 flood events have been reported by the National Centers for Environmental Information resulting in over \$1.9 M in damages.

## Social Vulnerability

Since 2020 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.

**FIGURE G.13: POPULATION DENSITY NEAR FLOODPLAINS**



## Critical Facilities

The critical facility analysis revealed that there are no critical facilities located in the Perry County 1.0-percent annual chance floodplain and two critical facilities 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 G.28**.

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.

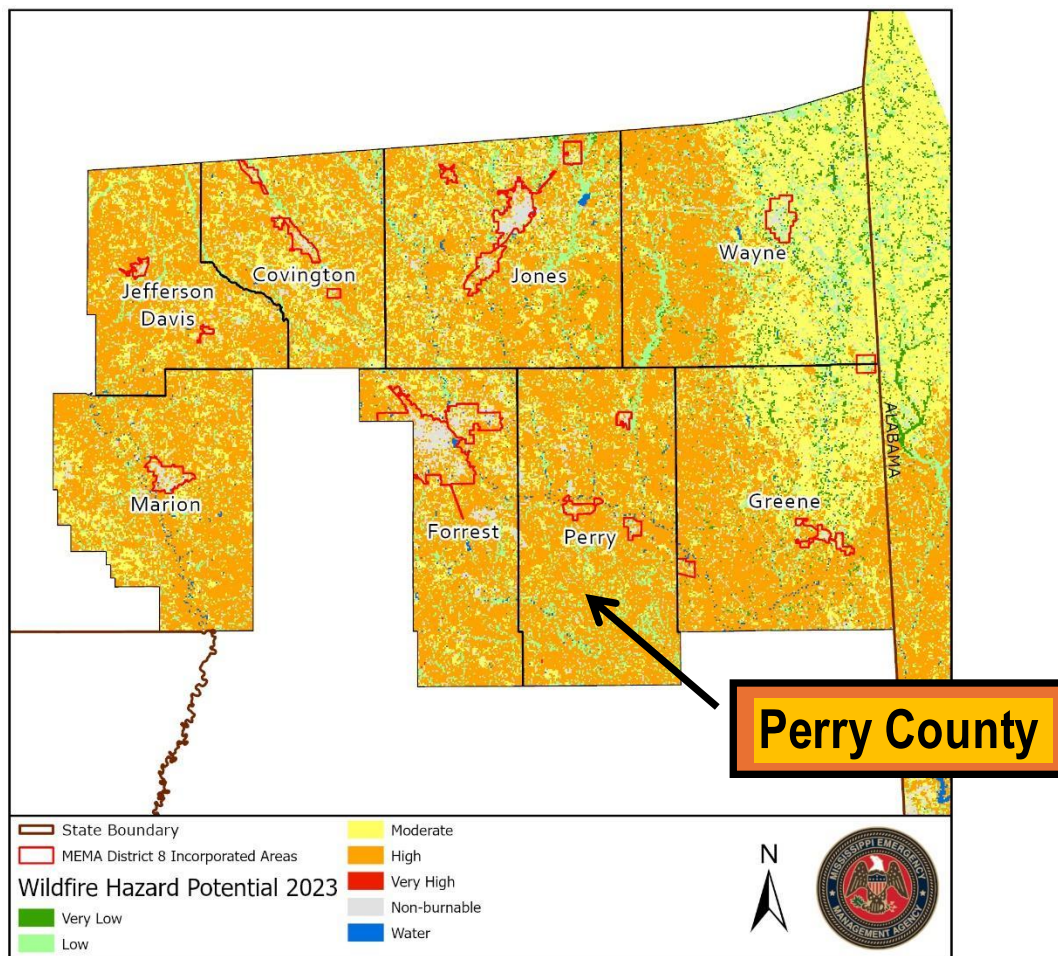
## WILDFIRE

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) 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 G.14** shows the wildfire hazard potential for Perry County. Most of the planning areas falls within the low to high category.

**FIGURE G.14: WILDFIRE RISK AREAS IN PERRY COUNTY**



### 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 G.28**.

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 earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS



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 scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS 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 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 G.28**.

## **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 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 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 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 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 estimated economic losses for the scenario event. HAZUS 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 estimated the amounts 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 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 G.28**.

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

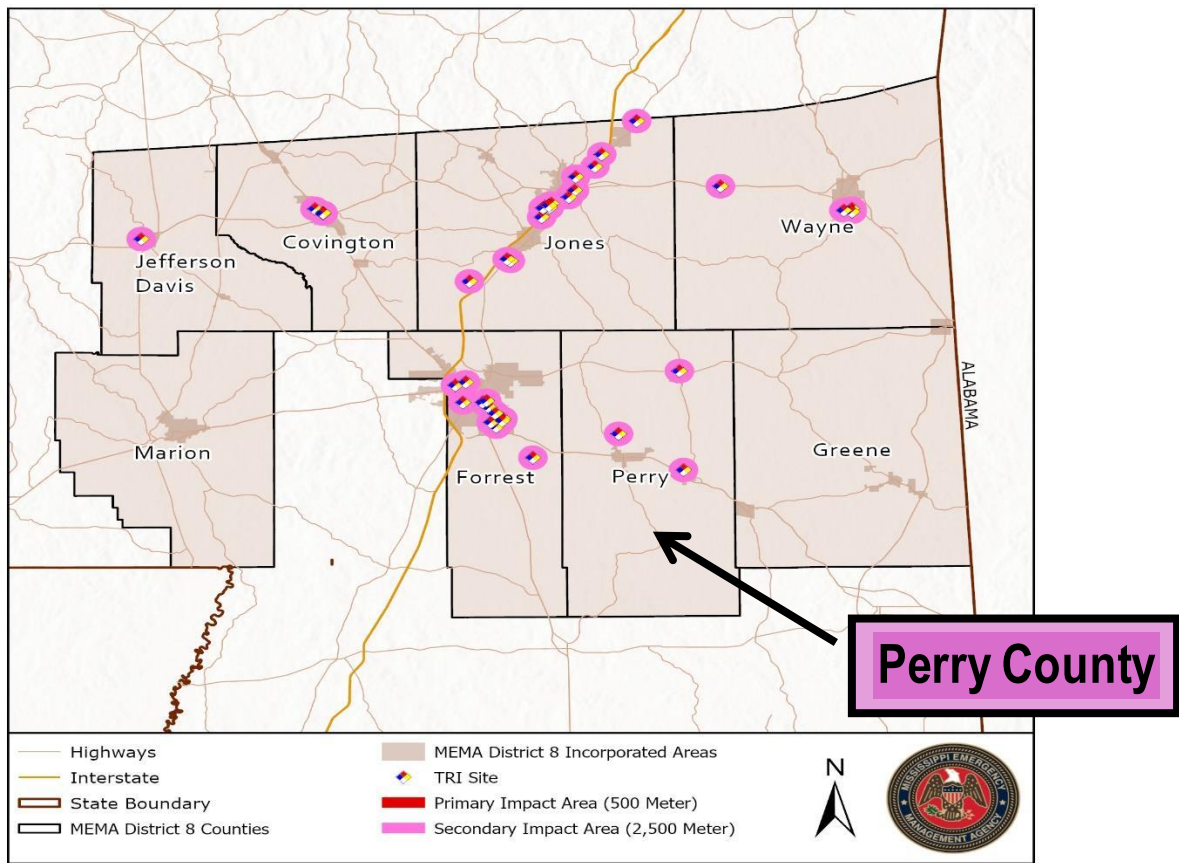
Although historical evidence and existing Toxic Release Inventory sites indicate that Perry County is susceptible to hazardous materials events, there are few reports of damage.

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.

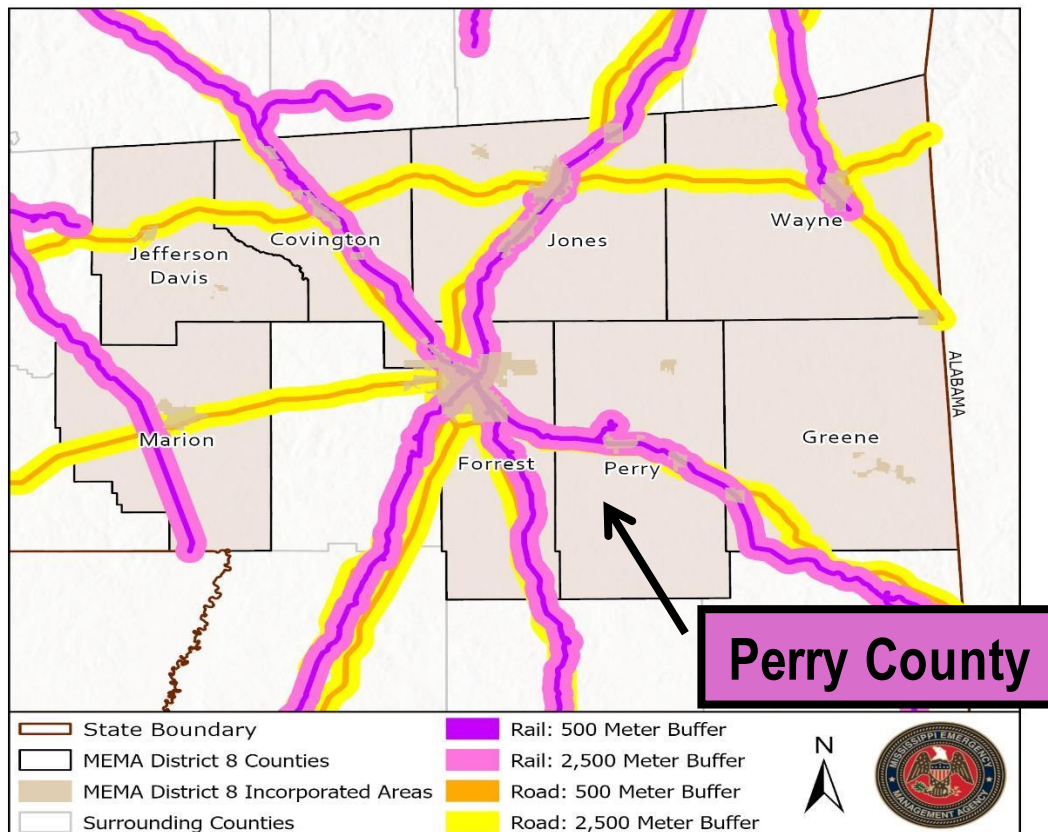
In order to conduct the vulnerability assessment for this hazard, GIS analysis was used for fixed and mobile areas. In both scenarios, two sizes of buffers—500 and 2,500 meters—were used. These areas are assumed to respect the different levels of effect: immediate (primary) and secondary. Primary and 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 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.

**FIGURE G.15: TRI SITES WITH BUFFERS IN PERRY COUNTY**





**FIGURE G.14: 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 G.28** at the end of this section.

#### **Mobile Analysis:**

The critical facility analysis for transportation corridors in Perry 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 G.28**.

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.

## **G.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*.

## G.4.1 Planning and Regulatory Capability

**Table G.30** 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 G.30: RELEVANT PLANS, ORDINANCES, AND PROGRAMS**

| Planning/Regulatory Tool                | Perry County | Beaumont | New Augusta | Richton |
|-----------------------------------------|--------------|----------|-------------|---------|
| Hazard Mitigation Plan                  | ✓            | ✓        | ✓           | ✓       |
| Comprehensive Land Use Plan             |              |          | ✓           | ✓       |
| Floodplain Management Plan              |              |          |             |         |
| Open Space Management Plan              | ✓            | ✓        | ✓           | ✓       |
| Stormwater Management Plan/Ordinance    |              |          |             |         |
| National 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 Codes                          | ✓            | ✓        | ✓           | ✓       |
| Fire Codes                              |              |          |             |         |
| National Flood Insurance Program (NFIP) | ✓            | ✓        | ✓           | ✓       |
| National Community Rating System        |              |          |             |         |

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 G.31 provides NFIP policy and claim information for each participating jurisdiction in Perry County.

**TABLE G.31: NFIP POLICY AND CLAIM INFORMATION**

| Location             | Date Joined NFIP | Current Effective Map Date | NFIP Policies in Force | Insurance in Force | Closed Claims | Total Payments to Date |
|----------------------|------------------|----------------------------|------------------------|--------------------|---------------|------------------------|
| <i>Perry County†</i> | 9/1/1987         | 11/19/2021                 | 86                     | \$10,072,300       | 38            | \$131,996              |
| <i>Beaumont</i>      | 8/16/1988        | 12/16/2011                 | 11                     | \$3,209,400        | 16            | \$32,703               |
| <i>New Augusta</i>   | 4/2/1986         | 11/19/2024                 | 10                     | \$804,800          | 12            | \$51,683               |
| <i>Richton</i>       | 11/17/1978       | 11/19/2024                 | 4                      | \$553,000          | 1             | \$42,415               |

†Includes unincorporated areas of county only  
(M) – No Elevation Determined, All Zone A, C and X

### 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.

## G.4.2 Administrative and Technical Capability

**Table G.32** 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 G.32: RELEVANT STAFF / PERSONNEL RESOURCES**

| <b>Staff/Personal Resource</b>                                                                          | <b>Perry County</b> | <b>Beaumont</b> | <b>New Augusta</b> | <b>Richton</b> |
|---------------------------------------------------------------------------------------------------------|---------------------|-----------------|--------------------|----------------|
| Planners with knowledge of land development/ land management practices                                  | ✓                   |                 |                    |                |
| Engineers of 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 HAZ-US                                                                  | ✓                   | ✓               | ✓                  | ✓              |
| 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.

### G.4.3 Fiscal Capability

**Table G.33** 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 G.33: RELEVANT FISCAL RESOURCES**

| <b>Fiscal Tool/Resource</b>                             | <b>Perry County</b> | <b>Beaumont</b> | <b>New Augusta</b> | <b>Richton</b> |
|---------------------------------------------------------|---------------------|-----------------|--------------------|----------------|
| Capital Improvement Programing                          | ✓                   | ✓               | ✓                  | ✓              |
| Community Development Block Grants (CDBG)               | ✓                   | ✓               | ✓                  | ✓              |
| Special Purchase 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 | ✓                   | ✓               | ✓                  | ✓              |

### G.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.

## G.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*.

### G.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 G.34**.

**TABLE G.34: MEMA DISTRICT 8 REGIONAL MITIGATION GOALS**

| Goal           |                                                                                                                                               |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Goal #1</b> | Develop a sustainable, comprehensive mitigation program to ensure safer communities.                                                          |
| <b>Goal #2</b> | Reduce or avoid loss of life, injury, and damage to property, the economy, and the environment.                                               |
| <b>Goal #3</b> | Enhance preparedness and effective response to hazards.                                                                                       |
| <b>Goal #4</b> | Strengthen and improve local mitigation capabilities.                                                                                         |
| <b>Goal #5</b> | 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 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                                      | Completion Date (Target) | Implementation Status                                 |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-------------------------------------------------------------|----------------------|--------------------------------------------------------|--------------------------|-------------------------------------------------------|
| <b>Prevention</b>                  |                                                                                                                                               |                     |                   |                                                             |                      |                                                        |                          |                                                       |
| P-1                                | Identify high risk areas where hazards are most likely to occur.                                                                              | All                 | High              | N/A                                                         | No cost              | County                                                 | Annual Plan 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              | County, JDCEMA                                         | Annual Review            | Ongoing                                               |
| P-3                                | Consider adoption of subdivision regulations.                                                                                                 | TH, FL, HU, TS      | Medium            | Self-funded                                                 | No cost              | County                                                 | Ongoing                  | Deferred                                              |
| P-4                                | Continue to maintain and upgrade the County's drainage facilities.                                                                            | HU, TS, FL, BH      | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.              | Annual County Budget | County BOS & Road Crews                                | Annual Review            | Implemented & Ongoing                                 |
| P-5                                | Consider adoption of a comprehensive drainage plan.                                                                                           | FL, TS, HU          | Medium            | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.              | Unknown              | County                                                 | Ongoing                  | Deferred based on funding availability.               |
| P-6                                | 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                                                 | Ongoing                  | This action has been deferred due to lack of funding. |
| P-7                                | 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.              | TBD                  | County                                                 | Ongoing                  | Deferred based on funding availability.               |
| P-8                                | Develop a comprehensive development plan.                                                                                                     | All                 | High              | CDBG, MSDA                                                  | TBD                  | County                                                 | Ongoing                  | Deferred based on funding availability.               |
| P-9                                | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.                                                      | All                 | Medium            | CDBG, MSDA                                                  | TBD                  | County                                                 | Ongoing                  | Deferred based on funding availability.               |
| <b>Property Protection</b>         |                                                                                                                                               |                     |                   |                                                             |                      |                                                        |                          |                                                       |
| 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                                                 | Ongoing                  | Implemented & Ongoing                                 |
| PP-2                               | Ensure that structures in floodplain areas are elevated.                                                                                      | FL                  | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded | TBD                  | County                                                 | Ongoing                  | Implemented & 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                                                 | Ongoing                  | Implemented & Ongoing                                 |
| PP-4                               | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                             | All                 | High              | Grants, BRIC HMGP                                           | TBD                  | County                                                 | Ongoing                  | Deferred due to funds                                 |
| PP-5                               | Ensure secure operation of water wells, water tanks, and wastewater treatment facilities.                                                     | All                 | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., HMGP        | TBD                  | County                                                 | Annual Review            | Implemented & Ongoing                                 |
| <b>Natural Resource Protection</b> |                                                                                                                                               |                     |                   |                                                             |                      |                                                        |                          |                                                       |
| NRP-1                              | Preserve natural wetlands and riparian areas through acquisition of conversation easements.                                                   | HU, TS, FL          | Low to Medium     | Donation                                                    | Low to no cost       | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing                  | Ongoing – contingent on funding (no action taken)     |
| <b>Emergency Services</b>          |                                                                                                                                               |                     |                   |                                                             |                      |                                                        |                          |                                                       |
| ES-1                               | Encourage participation by staff and elected officials in voluntary or extracurricular activities related to emergency management, disaster   | All                 | Medium            | Self-funded and MEMA                                        | Low to no cost       | County EMA                                             | Annual Review            | Implemented & Ongoing                                 |

|                                       |                                                                                                                                                                                                       |                    |                |                                                                   |                    |                        |                               |                                 |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|-------------------------------------------------------------------|--------------------|------------------------|-------------------------------|---------------------------------|
|                                       | preparedness, civil defense, or other hazard mitigation activities.                                                                                                                                   |                    |                |                                                                   |                    |                        |                               |                                 |
| ES-2                                  | Establish a notification procedure for populations in high-risk areas.                                                                                                                                | All                | Medium         | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded       | Unknown            | County EMA, County BOS | Ongoing                       | Completed and ongoing           |
| ES-3                                  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                               | All                | High           | HGMP, CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded | Unknown            | County EMA             | Ongoing                       | Implemented & Ongoing           |
| ES-4                                  | Improve disaster communication systems within the County.                                                                                                                                             | All                | High           | Unknown                                                           | Unknown            | County EMA             | Contingent on funding         | Ongoing                         |
| ES-5                                  | Install warning sirens in the County.                                                                                                                                                                 | TO, HU             | Medium         | Grants, BRIC HMGP                                                 | Unknown            | County EMA             | Contingent on funding         |                                 |
| ES-6                                  | Enhance Central Dispatch and other communications equipment                                                                                                                                           | All                | Medium         | Grants, BRIC HMGP                                                 | Unknown            | County EMA             | Contingent on funding         | Completed & Ongoing             |
| ES-7                                  | Explore Upgrade/enhancement of 911 in Perry County.                                                                                                                                                   | All                | Low to Medium  | Grants, BRIC HMGP, Self-funded                                    | Unknown            | County EMA             | Contingent on funding         | Completed & Ongoing             |
| ES-8                                  | Explore potential to install Reverse 911 system.                                                                                                                                                      | All                | Low to Medium  | Grants, BRIC HMGP                                                 | Unknown            | County EMA, County     | Contingent on funding         | Completed & Ongoing             |
| ES-9                                  | 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                 | Implemented & Ongoing           |
| ES-10                                 | Enhance identification of evacuation routes through the distribution of MDOT maps.                                                                                                                    | F, HU, TS, Others  | High           | Self-funded                                                       | No additional cost | County EMA             | Ongoing                       | Implemented & Ongoing           |
| ES-11                                 | 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           | Grants, BRIC, HMGP                                                | Unknown            | County                 | Ongoing                       | Implemented & Ongoing           |
| ES-12                                 | Develop a government services continuity plan.                                                                                                                                                        | All                | Medium         | USDA Rural Dev CDBG, Small Muni. Grant                            | Unknown            | County                 | Ongoing/ Annual Review        | Ongoing – contingent on funding |
| ES-13                                 | Host a meeting to review Perry County Comprehensive Emergency Management Plan.                                                                                                                        | All                | Medium         | Self-funded                                                       | No additional cost | County                 | Annual Meeting                | Implemented & Ongoing           |
| ES-14                                 | 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                       | Implemented & Ongoing           |
| ES-15                                 | Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.                                                                                | Range              | Medium         | Self-Funded, MEMA                                                 | Low Cost           | County                 | Ongoing                       | Implemented & Ongoing           |
| <b>Structural Projects</b>            |                                                                                                                                                                                                       |                    |                |                                                                   |                    |                        |                               |                                 |
| 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 Cost            | County                 | Ongoing Contingent on funding | Deferred due to funds           |
| SP-2                                  | Acquisitions of RL/SRL Properties                                                                                                                                                                     | FL                 | High           | Grants, BRIC HMGP, EMI                                            | No Cost            | County                 | Ongoing                       | Implemented & Ongoing           |
| <b>Public Education and Awareness</b> |                                                                                                                                                                                                       |                    |                |                                                                   |                    |                        |                               |                                 |
| PEA-1                                 | Explore continuing education programs/ opportunities for staff and elected officials.                                                                                                                 | FL, TH, HU, TS     | Medium         | Grants, BRIC HMGP, EMI                                            | Low to No Cost     | County                 | Ongoing                       | Implemented & Ongoing           |

|              |                                                                                                                                                                     |                      |        |                                                       |                    |                    |         |                           |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------|-------------------------------------------------------|--------------------|--------------------|---------|---------------------------|
| <b>PEA-2</b> | Provide education and outreach materials to citizens and visitors.                                                                                                  | All                  | High   | Self-funded                                           | No Cost            | County EMA         | Ongoing | Implemented & Ongoing     |
| <b>PEA-3</b> | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High   | Self-funded, COPS, FIRE                               | Low or no cost     | County EMA         | Ongoing | Implemented & Ongoing     |
| <b>PEA-4</b> | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High   | Self-funded                                           | No additional cost | County EMA/ County | Ongoing | Implemented & Ongoing     |
| <b>PEA-5</b> | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High   | N/A                                                   | No additional cost | County/ Town/ City | Ongoing | Completed & Ongoing       |
| <b>PEA-6</b> | 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 | Deferred, no action taken |

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

P = Pandemic

County EMA = Perry County Emergency Management AgencyCounty BOS = Perry County Board of Supervisors

## The Town of Beaumont Mitigation Action Plan

| Action #                           | Description                                                                                                                                   | Hazard(s) Addressed | Relative Priority | Funding Sources                                             | Estimated Cost       | Responsible Party                                      | Completion Date (Target) | Implementation Status                                 |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-------------------------------------------------------------|----------------------|--------------------------------------------------------|--------------------------|-------------------------------------------------------|
| <b>Prevention</b>                  |                                                                                                                                               |                     |                   |                                                             |                      |                                                        |                          |                                                       |
| P-1                                | Identify high risk areas where hazards are most likely to occur.                                                                              | All                 | High              | N/A                                                         | No cost              | County                                                 | Annual Plan 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              | County, JDCEMA                                         | Annual Review            | Ongoing                                               |
| P-3                                | Consider adoption of subdivision regulations.                                                                                                 | TH, FL, HU, TS      | Medium            | Self-funded                                                 | No cost              | County                                                 | Ongoing                  | Deferred                                              |
| P-4                                | Continue to maintain and upgrade the County's drainage facilities.                                                                            | HU, TS, FL, BH      | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.              | Annual County Budget | County BOS & Road Crews                                | Annual Review            | Implemented & Ongoing                                 |
| P-5                                | Consider adoption of a comprehensive drainage plan.                                                                                           | FL, TS, HU          | Medium            | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.              | Unknown              | County                                                 | Ongoing                  | Deferred based on funding availability.               |
| P-6                                | 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                                                 | Ongoing                  | This action has been deferred due to lack of funding. |
| P-7                                | 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.              | TBD                  | County                                                 | Ongoing                  | Deferred based on funding availability.               |
| P-8                                | Develop a comprehensive development plan.                                                                                                     | All                 | High              | CDBG, MSDA                                                  | TBD                  | County                                                 | Ongoing                  | Deferred based on funding availability.               |
| P-9                                | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.                                                      | All                 | Medium            | CDBG, MSDA                                                  | TBD                  | County                                                 | Ongoing                  | Deferred based on funding availability.               |
| <b>Property Protection</b>         |                                                                                                                                               |                     |                   |                                                             |                      |                                                        |                          |                                                       |
| 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                                                 | Ongoing                  | Implemented & Ongoing                                 |
| PP-2                               | Ensure that structures in floodplain areas are elevated.                                                                                      | FL                  | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded | TBD                  | County                                                 | Ongoing                  | Implemented & 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                                                 | Ongoing                  | Implemented & Ongoing                                 |
| PP-4                               | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                             | All                 | High              | Grants, BRIC HMGP                                           | TBD                  | County                                                 | Ongoing                  | Deferred due to funds                                 |
| PP-5                               | Ensure secure operation of water wells, water tanks, and wastewater treatment facilities.                                                     | All                 | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., HMGP        | TBD                  | County                                                 | Annual Review            | Implemented & Ongoing                                 |
| <b>Natural Resource Protection</b> |                                                                                                                                               |                     |                   |                                                             |                      |                                                        |                          |                                                       |
| NRP-1                              | Preserve natural wetlands and riparian areas through acquisition of conversation easements.                                                   | HU, TS, FL          | Low to Medium     | Donation                                                    | Low to no cost       | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing                  | Ongoing – contingent on funding (no action taken)     |
| <b>Emergency Services</b>          |                                                                                                                                               |                     |                   |                                                             |                      |                                                        |                          |                                                       |
|                                    | Encourage participation by staff and elected officials in voluntary or                                                                        |                     |                   |                                                             |                      |                                                        |                          |                                                       |



|       |                                                                                                                                                                                                       |                    |                |                                                                   |                    |                        |                        |                                 |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|-------------------------------------------------------------------|--------------------|------------------------|------------------------|---------------------------------|
| ES-1  | extracurricular activities related to emergency management, disaster preparedness, civil defense, or other hazard mitigation activities.                                                              | All                | Medium         | Self-funded and MEMA                                              | Low to no cost     | County EMA             | Annual Review          | Implemented & Ongoing           |
| ES-2  | Establish a notification procedure for populations in high-risk areas.                                                                                                                                | All                | Medium         | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded       | Unknown            | County EMA, County BOS | Ongoing                | Completed and ongoing           |
| ES-3  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                               | All                | High           | HGMP, CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded | Unknown            | County EMA             | Ongoing                | Implemented & Ongoing           |
| ES-4  | Improve disaster communication systems within the County.                                                                                                                                             | All                | High           | Grants, BRIC HMGP                                                 | Unknown            | County EMA             | Contingent on funding  | Ongoing                         |
| ES-5  | Install warning sirens in the County.                                                                                                                                                                 | TO, HU             | Medium         | Grants, BRIC HMGP                                                 | Unknown            | County EMA             | Contingent on funding  |                                 |
| ES-6  | Enhance Central Dispatch and other communications equipment                                                                                                                                           | All                | Medium         | Grants, BRIC HMGP                                                 | Unknown            | County EMA             | Contingent on funding  | Completed & Ongoing             |
| ES-7  | Explore Upgrade/enhancement of 911 in Perry County.                                                                                                                                                   | All                | Low to Medium  | HMGP, Self-funded                                                 | Unknown            | County EMA             | Contingent on funding  | Completed & Ongoing             |
| ES-8  | Explore potential to install Reverse 911 system.                                                                                                                                                      | All                | Low to Medium  | Grants, BRIC HMGP                                                 | Unknown            | County EMA, County     | Contingent on funding  | Completed & Ongoing             |
| ES-9  | 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          | Implemented & Ongoing           |
| ES-10 | 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 & Ongoing           |
| ES-11 | 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           | Grants, BRIC HMGP                                                 | Unknown            | County                 | Ongoing                | Implemented & Ongoing           |
| ES-12 | Develop a government services continuity plan.                                                                                                                                                        | All                | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant                           | Unknown            | County                 | Ongoing/ Annual Review | Ongoing – contingent on funding |
| ES-13 | Host a meeting to review Perry County Comprehensive Emergency Management Plan.                                                                                                                        | All                | Medium         | Self-funded                                                       | No additional cost | County                 | Annual Meeting         | Implemented & Ongoing           |
| ES-14 | 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                | Implemented & Ongoing           |
| ES-15 | Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.                                                                                | Range              | Medium         | Self-Funded, MEMA                                                 | Low Cost           | County                 | Ongoing                | Implemented & 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 Cost | County | Ongoing Contingent on funding | Deferred due to funds |
| SP-2 | Acquisitions of RL/SRL Properties                                                                                             | FL             | High          | Grants, BRIC HMGP, EMI | No Cost | County | Ongoing                       | Implemented & Ongoing |

## Public Education and Awareness

|       |                                                                                       |                |        |                         |                |        |         |                       |
|-------|---------------------------------------------------------------------------------------|----------------|--------|-------------------------|----------------|--------|---------|-----------------------|
| PEA-1 | Explore continuing education programs/ opportunities for staff and elected officials. | FL, TH, HU, TS | Medium | Grants, BRIC, HMGP, EMI | Low to No Cost | County | Ongoing | Implemented & Ongoing |
|-------|---------------------------------------------------------------------------------------|----------------|--------|-------------------------|----------------|--------|---------|-----------------------|

## ANNEX G: PERRY COUNTY

|              |                                                                                                                                                                     |                      |        |                                                       |                    |                    |         |                           |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------|-------------------------------------------------------|--------------------|--------------------|---------|---------------------------|
| <b>PEA-2</b> | Provide education and outreach materials to citizens and visitors.                                                                                                  | All                  | High   | Self-funded                                           | No Cost            | County EMA         | Ongoing | Implemented & Ongoing     |
| <b>PEA-3</b> | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High   | Self-funded, COPS, FIRE                               | Low or no cost     | County EMA         | Ongoing | Implemented & Ongoing     |
| <b>PEA-4</b> | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High   | Self-funded                                           | No additional cost | County EMA/ County | Ongoing | Implemented & Ongoing     |
| <b>PEA-5</b> | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High   | N/A                                                   | No additional cost | County/ Town/ City | Ongoing | Completed & Ongoing       |
| <b>PEA-6</b> | 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 | Deferred, no action taken |

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

P = Pandemic

County EMA = Perry County Emergency Management Agency

County BOS = Perry County Board of Supervisors

# The Town of New Augusta Mitigation Action Plan

| Action # | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|

## Prevention

|            |                                                                                            |                |                |                                                   |                      |                         |                    |                                                       |
|------------|--------------------------------------------------------------------------------------------|----------------|----------------|---------------------------------------------------|----------------------|-------------------------|--------------------|-------------------------------------------------------|
| <b>P-1</b> | Identify high risk areas where hazards are most likely to occur.                           | All            | High           | N/A                                               | No cost              | County                  | Annual Plan Review | Ongoing                                               |
| <b>P-2</b> | Site-locate vulnerable population on a County-wide map.                                    | Multiple       | High           | Area Agency on Aging, USDA Rural Dev., Cops, FIRE | Unknown              | County, JDCEMA          | Annual Review      | Ongoing                                               |
| <b>P-3</b> | Consider adoption of subdivision regulations.                                              | TH, FL, HU, TS | Medium         | Self-funded                                       | No cost              | County                  | Ongoing            | Deferred                                              |
| <b>P-4</b> | Continue to maintain and upgrade the County's drainage facilities.                         | HU, TS, FL, BH | High           | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.    | Annual County Budget | County BOS & Road Crews | Annual Review      | Implemented & Ongoing                                 |
| <b>P-5</b> | Consider adoption of a comprehensive drainage plan.                                        | FL, TS, HU     | Medium         | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.    | Unknown              | County                  | Ongoing            | Deferred based on funding availability.               |
| <b>P-6</b> | 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                  | Ongoing            | This action has been deferred due to lack of funding. |
| <b>P-7</b> | 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.    | TBD                  | County                  | Ongoing            | Deferred based on funding availability.               |
| <b>P-8</b> | Develop a comprehensive development plan.                                                  | All            | High           | CDBG, MSDA                                        | TBD                  | County                  | Ongoing            | Deferred based on funding availability.               |
| <b>P-9</b> | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.   | All            | Medium         | CDBG, MSDA                                        | TBD                  | County                  | Ongoing            | Deferred based on funding availability.               |

## Property Protection

|             |                                                                                                                                               |                |        |                                                             |     |        |               |                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|-------------------------------------------------------------|-----|--------|---------------|-----------------------|
| <b>PP-1</b> | 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 | Ongoing       | Implemented & Ongoing |
| <b>PP-2</b> | Ensure that structures in floodplain areas are elevated.                                                                                      | FL             | High   | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded | TBD | County | Ongoing       | Implemented & Ongoing |
| <b>PP-3</b> | 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 | Ongoing       | Implemented & Ongoing |
| <b>PP-4</b> | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                             | All            | High   | Grants, BRIC HMGP                                           | TBD | County | Ongoing       | Deferred due to funds |
| <b>PP-5</b> | Ensure secure operation of water wells, water tanks, and wastewater treatment facilities.                                                     | All            | High   | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., HMGP        | TBD | County | Annual Review | Implemented & Ongoing |

## Natural Resource Protection

|              |                                                                                             |            |               |          |                |                                                        |         |                                                   |
|--------------|---------------------------------------------------------------------------------------------|------------|---------------|----------|----------------|--------------------------------------------------------|---------|---------------------------------------------------|
| <b>NRP-1</b> | Preserve natural wetlands and riparian areas through acquisition of conservation easements. | HU, TS, FL | Low to Medium | Donation | Low to no cost | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing | Ongoing – contingent on funding (no action taken) |
|--------------|---------------------------------------------------------------------------------------------|------------|---------------|----------|----------------|--------------------------------------------------------|---------|---------------------------------------------------|

## Emergency Services

|             |                                                                                                                                                                                                                 |     |        |                      |                |            |               |                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------|----------------------|----------------|------------|---------------|-----------------------|
| <b>ES-1</b> | 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 and MEMA | Low to no cost | County EMA | Annual Review | Implemented & Ongoing |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------|----------------------|----------------|------------|---------------|-----------------------|

|       |                                                                                                                                                                                                       |                    |                |                                                                   |                    |                        |                       |                                 |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|-------------------------------------------------------------------|--------------------|------------------------|-----------------------|---------------------------------|
| ES-2  | Establish a notification procedure for populations in high-risk areas.                                                                                                                                | All                | Medium         | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded       | Unknown            | County EMA, County BOS | Ongoing               | Completed and ongoing           |
| ES-3  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                               | All                | High           | HGMP, CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded | Unknown            | County EMA             | Ongoing               | Implemented & Ongoing           |
| ES-4  | Improve disaster communication systems within the County.                                                                                                                                             | All                | High           | Grants, BRIC, HMGP,                                               | Unknown            | County EMA             | Contingent on funding | Ongoing                         |
| ES-5  | Install warning sirens in the County.                                                                                                                                                                 | TO, HU             | Medium         | Grants, BRIC, HMGP                                                | Unknown            | County EMA             | Contingent on funding | Ongoing                         |
| ES-6  | Enhance Central Dispatch and other communications equipment                                                                                                                                           | All                | Medium         | Grants, BRIC, HMGP,                                               | Unknown            | County EMA             | Contingent on funding | Completed & Ongoing             |
| ES-7  | Explore Upgrade/enhancement of 911 in Perry County.                                                                                                                                                   | All                | Low to Medium  | Grants, BRIC, HMGP, Self-funded                                   | Unknown            | County EMA             | Contingent on funding | Completed & Ongoing             |
| ES-8  | Explore potential to install Reverse 911 system.                                                                                                                                                      | All                | Low to Medium  | Grants, BRIC, HMGP                                                | Unknown            | County EMA, County     | Contingent on funding | Completed & Ongoing             |
| ES-9  | 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         | Implemented & Ongoing           |
| ES-10 | 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 & Ongoing           |
| ES-11 | 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           | Grants, BRIC, HMGP                                                | Unknown            | County                 | Ongoing               | Implemented & Ongoing           |
| ES-12 | Develop a government services continuity plan.                                                                                                                                                        | All                | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant                           | Unknown            | County                 | Ongoing/Annual Review | Ongoing – contingent on funding |
| ES-13 | Host a meeting to review Perry County Comprehensive Emergency Management Plan.                                                                                                                        | All                | Medium         | Self-funded                                                       | No additional cost | County                 | Annual Meeting        | Implemented & Ongoing           |
| ES-14 | 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               | Implemented & Ongoing           |
| ES-15 | Explore continuing education programs/opportunities for first responders, especially in hazardous materials training.                                                                                 | Range              | Medium         | Self-Funded, MEMA                                                 | Low Cost           | County                 | Ongoing               | Implemented & 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 Cost | County | Ongoing Contingent on funding | Deferred due to funds |
| SP-2 | Acquisitions of RL/SRL Properties                                                                                             | FL             | High          | Grants, BRIC, HMGP, EMI | No Cost | County | Ongoing                       | Implemented & Ongoing |

## Public Education and Awareness

|       |                                                                                      |                |        |                         |                |        |         |                       |
|-------|--------------------------------------------------------------------------------------|----------------|--------|-------------------------|----------------|--------|---------|-----------------------|
| PEA-1 | Explore continuing education programs/opportunities for staff and elected officials. | FL, TH, HU, TS | Medium | Grants, BRIC, HMGP, EMI | Low to No Cost | County | Ongoing | Implemented & Ongoing |
| PEA-2 | Provide education and outreach materials to citizens and visitors.                   | All            | High   | Self-funded             | No Cost        | County | Ongoing | Implemented           |

|              |                                                                                                                                                                     |                      |        |                                                      |                    | EMA                |         | & Ongoing                 |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------|------------------------------------------------------|--------------------|--------------------|---------|---------------------------|
| <b>PEA-3</b> | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High   | Self-funded, COPS, FIRE                              | Low or no cost     | County EMA         | Ongoing | Implemented & Ongoing     |
| <b>PEA-4</b> | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High   | Self-funded                                          | No additional cost | County EMA/ County | Ongoing | Implemented & Ongoing     |
| <b>PEA-5</b> | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High   | N/A                                                  | No additional cost | County/ Town/ City | Ongoing | Completed & Ongoing       |
| <b>PEA-6</b> | 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 | Deferred, no action taken |

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

P = Pandemic

County EMA = Perry County Emergency Management Agency

County BOS = Perry County Board of Supervisors

## The Town of Richton Mitigation Action Plan

| Action # | Description | Hazard(s) Addressed | Relative Priority | Funding Sources | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|
|----------|-------------|---------------------|-------------------|-----------------|----------------|-------------------|--------------------------|-----------------------|



## Prevention

|            |                                                                                            |                |                |                                                   |                      |                         |                    |                                                       |
|------------|--------------------------------------------------------------------------------------------|----------------|----------------|---------------------------------------------------|----------------------|-------------------------|--------------------|-------------------------------------------------------|
| <b>P-1</b> | Identify high risk areas where hazards are most likely to occur.                           | All            | High           | N/A                                               | No cost              | County                  | Annual Plan Review | Ongoing                                               |
| <b>P-2</b> | Site-locate vulnerable population on a County-wide map.                                    | Multiple       | High           | Area Agency on Aging, USDA Rural Dev., Cops, FIRE | Unknown              | County, JDCEMA          | Annual Review      | Ongoing                                               |
| <b>P-3</b> | Consider adoption of subdivision regulations.                                              | TH, FL, HU, TS | Medium         | Self-funded                                       | No cost              | County                  | Ongoing            | Deferred                                              |
| <b>P-4</b> | Continue to maintain and upgrade the County's drainage facilities.                         | HU, TS, FL, BH | High           | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.    | Annual County Budget | County BOS & Road Crews | Annual Review      | Implemented & Ongoing                                 |
| <b>P-5</b> | Consider adoption of a comprehensive drainage plan.                                        | FL, TS, HU     | Medium         | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.    | Unknown              | County                  | Ongoing            | Deferred based on funding availability.               |
| <b>P-6</b> | 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                  | Ongoing            | This action has been deferred due to lack of funding. |
| <b>P-7</b> | 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.    | TBD                  | County                  | Ongoing            | Deferred based on funding availability.               |
| <b>P-8</b> | Develop a comprehensive development plan.                                                  | All            | High           | CDBG, MSDA                                        | TBD                  | County                  | Ongoing            | Deferred based on funding availability.               |
| <b>P-9</b> | Incorporate the hazard mitigation plan into the comprehensive emergency management plan.   | All            | Medium         | CDBG, MSDA                                        | TBD                  | County                  | Ongoing            | Deferred based on funding availability.               |

## Property Protection

|             |                                                                                                                                               |                |        |                                                             |     |        |               |                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|-------------------------------------------------------------|-----|--------|---------------|-----------------------|
| <b>PP-1</b> | 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 | Ongoing       | Implemented & Ongoing |
| <b>PP-2</b> | Ensure that structures in floodplain areas are elevated.                                                                                      | FL             | High   | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded | TBD | County | Ongoing       | Implemented & Ongoing |
| <b>PP-3</b> | 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 | Ongoing       | Implemented & Ongoing |
| <b>PP-4</b> | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                             | All            | High   | Grants, BRIC, HMGP                                          | TBD | County | Ongoing       | Deferred due to funds |
| <b>PP-5</b> | Ensure secure operation of water wells, water tanks, and wastewater treatment facilities.                                                     | All            | High   | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., HMGP        | TBD | County | Annual Review | Implemented & Ongoing |

## Natural Resource Protection

|             |                                                                                             |            |               |          |                |                                                        |         |                                                   |
|-------------|---------------------------------------------------------------------------------------------|------------|---------------|----------|----------------|--------------------------------------------------------|---------|---------------------------------------------------|
| <b>NP-1</b> | Preserve natural wetlands and riparian areas through acquisition of conservation easements. | HU, TS, FL | Low to Medium | Donation | Low to no cost | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing | Ongoing – contingent on funding (no action taken) |
|-------------|---------------------------------------------------------------------------------------------|------------|---------------|----------|----------------|--------------------------------------------------------|---------|---------------------------------------------------|

## Emergency Services

|             |                                                                                                                                                                                                                 |     |        |                      |                |            |               |                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------|----------------------|----------------|------------|---------------|-----------------------|
| <b>ES-1</b> | 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 and MEMA | Low to no cost | County EMA | Annual Review | Implemented & Ongoing |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------|----------------------|----------------|------------|---------------|-----------------------|

|       |                                                                                                                                                                                                       |                    |                |                                                                   |                    |                        |                        |                                 |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|-------------------------------------------------------------------|--------------------|------------------------|------------------------|---------------------------------|
| ES-2  | Establish a notification procedure for populations in high-risk areas.                                                                                                                                | All                | Medium         | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded       | Unknown            | County EMA, County BOS | Ongoing                | Completed and ongoing           |
| ES-3  | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                               | All                | High           | HGMP, CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., Self-funded | Unknown            | County EMA             | Ongoing                | Implemented & Ongoing           |
| ES-4  | Improve disaster communication systems within the County.                                                                                                                                             | All                | High           | Grants, BRIC, HMGP,                                               | Unknown            | County EMA             | Contingent on funding  | Ongoing                         |
| ES-5  | Install warning sirens in the County.                                                                                                                                                                 | TO, HU             | Medium         | Grants, BRIC, HMGP                                                | Unknown            | County EMA             | Contingent on funding  |                                 |
| ES-6  | Enhance Central Dispatch and other communications equipment                                                                                                                                           | All                | Medium         | Grants, BRIC, HMGP                                                | Unknown            | County EMA             | Contingent on funding  | Completed & Ongoing             |
| ES-7  | Explore Upgrade/enhancement of 911 in Perry County.                                                                                                                                                   | All                | Low to Medium  | Grants, BRIC, HMGP, Self-funded                                   | Unknown            | County EMA             | Contingent on funding  | Completed & Ongoing             |
| ES-8  | Explore potential to install Reverse 911 system.                                                                                                                                                      | All                | Low to Medium  | Grants, BRIC, HMGP,                                               | Unknown            | County EMA, County     | Contingent on funding  | Completed & Ongoing             |
| ES-9  | 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          | Implemented & Ongoing           |
| ES-10 | 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 & Ongoing           |
| ES-11 | 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           | Grants, BRIC, HMGP,                                               | Unknown            | County                 | Ongoing                | Implemented & Ongoing           |
| ES-12 | Develop a government services continuity plan.                                                                                                                                                        | All                | Medium         | USDA Rural Dev. CDBG, Small Muni. Grant                           | Unknown            | County                 | Ongoing/ Annual Review | Ongoing – contingent on funding |
| ES-13 | Host a meeting to review Perry County Comprehensive Emergency Management Plan.                                                                                                                        | All                | Medium         | Self-funded                                                       | No additional cost | County                 | Annual Meeting         | Implemented & Ongoing           |
| ES-14 | 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                | Implemented & Ongoing           |
| ES-15 | Explore continuing education programs/ opportunities for first responders, especially in hazardous materials training.                                                                                | Range              | Medium         | Self-Funded, MEMA                                                 | Low Cost           | County                 | Ongoing                | Implemented & 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 Cost | County | Ongoing Contingent on funding | Deferred due to funds |
| SP-2 | Acquisitions of RL/SRL Properties                                                                                             | FL             | High          | Grants, BRIC, HMGP, EMI | No Cost | County | Ongoing                       | Implemented & Ongoing |

## Public Education and Awareness

|       |                                                                                       |                |        |                         |                |        |         |                       |
|-------|---------------------------------------------------------------------------------------|----------------|--------|-------------------------|----------------|--------|---------|-----------------------|
| PEA-1 | Explore continuing education programs/ opportunities for staff and elected officials. | FL, TH, HU, TS | Medium | Grants, BRIC, HMGP, EMI | Low to No Cost | County | Ongoing | Implemented & Ongoing |
|-------|---------------------------------------------------------------------------------------|----------------|--------|-------------------------|----------------|--------|---------|-----------------------|

# ANNEX G: PERRY COUNTY

|              |                                                                                                                                                                     |                      |        |                                                       |                    |                    |         |                           |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------|-------------------------------------------------------|--------------------|--------------------|---------|---------------------------|
| <b>PEA-2</b> | Provide education and outreach materials to citizens and visitors.                                                                                                  | All                  | High   | Self-funded                                           | No Cost            | County EMA         | Ongoing | Implemented & Ongoing     |
| <b>PEA-3</b> | Encourage development of Family Disaster Plans.                                                                                                                     | All                  | High   | Self-funded, COPS, FIRE                               | Low or no cost     | County EMA         | Ongoing | Implemented & Ongoing     |
| <b>PEA-4</b> | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspaper articles. | FL, Multiple Hazards | High   | Self-funded                                           | No additional cost | County EMA/ County | Ongoing | Implemented & Ongoing     |
| <b>PEA-5</b> | Provide education/outreach to communities to encourage participation in the National Flood Insurance Program.                                                       | FL                   | High   | N/A                                                   | No additional cost | County/ Town/ City | Ongoing | Completed & Ongoing       |
| <b>PEA-6</b> | 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 | Deferred, no action taken |

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

P = Pandemic

County EMA = Perry County Emergency Management Agency

County BOS = Perry County Board of Supervisors

# Annex H

## Wayne County

This annex includes jurisdiction-specific information for Wayne County and its participating municipalities. It consists of the following five subsections:

- ★ H.1 Wayne County Community Profile
- ★ H.2 Wayne County Risk Assessment
- ★ H.3 Wayne County Vulnerability Assessment
- ★ H.4 Wayne County Capability Assessment
- ★ H.5 Wayne County Mitigation Strategy

### H.1 WAYNE COUNTY COMMUNITY PROFILE

#### H.1.1 Geography and the Environment

Wayne County is located in southeast Mississippi on the Mississippi/Alabama state line. It comprises one municipality, the City of Waynesboro, as well as many several unincorporated communities. An orientation map is provided as **Figure H.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.

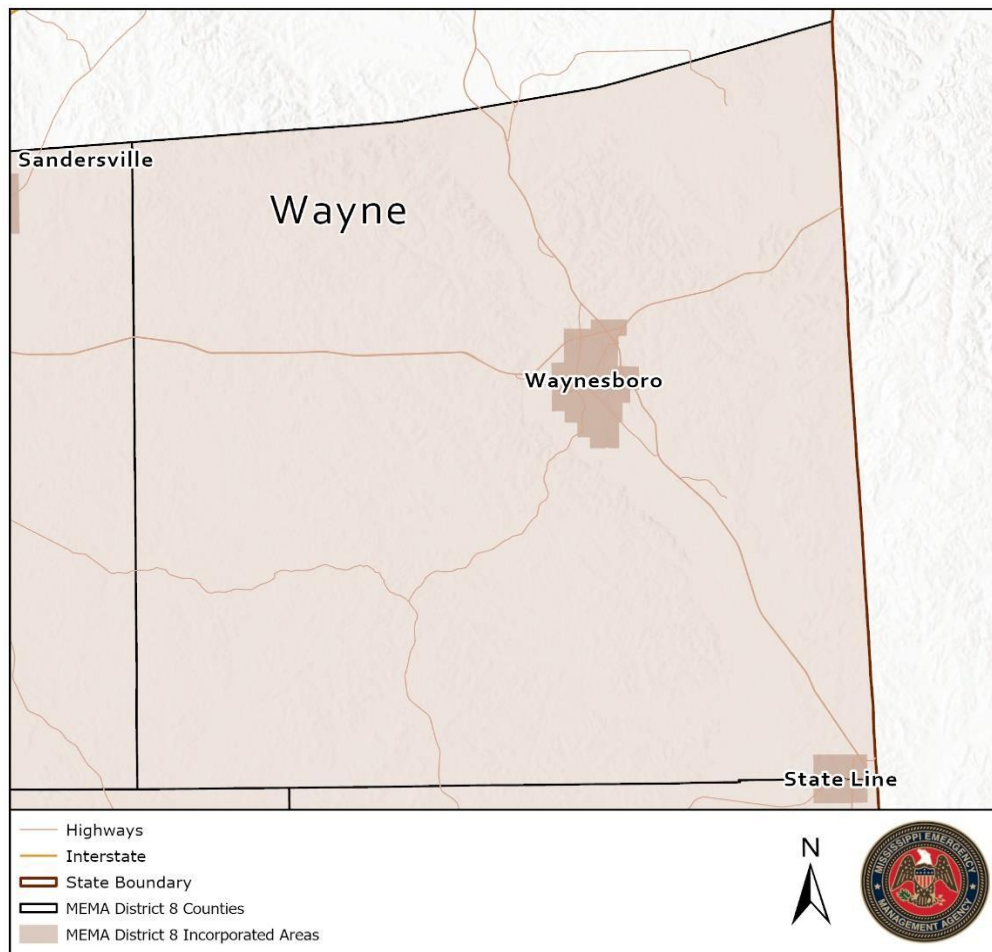
Summer temperatures in the county range from highs of about 91 degrees Fahrenheit (°F) to lows in the upper 60s. Winter temperatures range from highs in the upper 50s to 61°F to lows around 35°F. Average annual rainfall is approximately 57 inches, with the wettest months being December through March.

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°F and is rarely below 25°F or above 97°F.

The drier season lasts 3 months, from August to October. 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 January 25. Wayne County experiences significant seasonal variation in monthly rainfall. Rain falls throughout the year.

|                         | Jan     | Feb.    | Mar.    | Apr.    | May     | June    | July    | Aug.    | Sept.   | Oct.   | Nov.    | Dec.    |
|-------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|---------|
| Average <b>High</b>     | 57      | 62      | 69      | 76      | 83      | 89      | 91      | 91      | 86      | 78     | 69      | 59      |
| Average <b>Lows</b>     | 35      | 39      | 45      | 52      | 61      | 68      | 71      | 71      | 65      | 53     | 44      | 37      |
| Average <b>Rainfall</b> | 5.78 in | 4.75 in | 5.42 in | 4.14 in | 4.79 in | 5.26 in | 5.07 in | 3.95 in | 4.14 in | 3.1 in | 5.05 in | 5.41 in |

FIGURE H.1: WAYNE COUNTY ORIENTATION MAP



## H.1.2 Population and Demographics

According to the 2020 Census, Wayne County has a population of 19,779 people. The county has seen a roughly 5 percent decline in population between 2010 and 2020, and the population density is 24 people per square mile. The decline continues. Per the Census Reports, in 2023, Wayne County had a population of 19,703, which is a 0.3 percent decline. This decrease could lower the vulnerability of the population. The household income is \$34,875, which grew 2 percent. Population counts from the US Census Bureau for 2010, and 2020 for the county and both of the participating jurisdictions are presented in **Table H.1**. Estimates for 2023 are also included.

**TABLE H.1: POPULATION COUNTS FOR WAYNE COUNTY**

| Jurisdiction | 2010 Census | 2020 Census | % of Change 2010 to 2020 | 2023 Estimate |
|--------------|-------------|-------------|--------------------------|---------------|
| Wayne County | 20,747      | 19,779      | -5%                      | 19,703        |
| Waynesboro   | 5,043       | 4,567       | -9%                      | 4499          |

Source: US Census Bureau

Based on the 2020 Census, the median age of residents of Wayne County is 38.1 years. The racial characteristics of the county are presented in **Table H.2**. Due to the population decrease, the racial characteristics differ slightly. The population of white persons is 57 percent, 40 percent black or African American persons, and 2 percent Hispanic Origin. Whites continue to make up the majority of the population in the county, accounting for 57 percent of the population.

**TABLE H.2: DEMOGRAPHICS OF WAYNE COUNTY**



| Jurisdiction | White Persons<br>(% 2020) | Black Persons<br>(% 2020) | American Indian or<br>Alaska Native (% 2020) | Other Races<br>(% 2020) | Persons of Hispanic<br>Origin (% 2020) |
|--------------|---------------------------|---------------------------|----------------------------------------------|-------------------------|----------------------------------------|
| Wayne County | 57%                       | 40%                       | 0%                                           | 1%                      | 2%                                     |
| Waynesboro   | 30%                       | 62%                       | 0%                                           | 3%                      | 5%                                     |

Source: US Census Bureau

**TABLE H.3: AVERAGE INCOME AND HEALTH IN WAYNE COUNTY**

| Jurisdiction | % of<br>Population<br>Disabled | % of Population<br>without Health<br>Insurance | Median<br>Household<br>Income | % of Population<br>Below The Poverty<br>Level |
|--------------|--------------------------------|------------------------------------------------|-------------------------------|-----------------------------------------------|
| Wayne County | 19%%                           | 18%                                            | \$34,875                      | 26%                                           |
| Waynesboro   | 34%                            | 29%                                            | \$24,779                      | 39%                                           |

Source: US Census Bureau

### H.1.3 Housing

According to the 2020 US Census, there are 9,031 housing units in Wayne County, the majority of which are single family homes or mobile homes. The median home value is \$89,100, which also increased by at least 8.24 percent. The total population and housing units both show a decline which could lead to a decrease in overall vulnerability-based development. Housing information for the county, one town, and one city is presented in **Table H.4**.

**TABLE H.4: HOUSING CHARACTERISTICS OF WAYNE COUNTY**

| Jurisdiction | Housing<br>Units (2010) | Median Home<br>Value (2010) | Housing<br>Units (2020) | Median Home<br>Value (2020) |
|--------------|-------------------------|-----------------------------|-------------------------|-----------------------------|
| Wayne County | 9,213                   | \$80,100                    | 9,175                   | \$89,100                    |
| Waynesboro   | 2,306                   | \$85,300                    | 2,177                   | \$85,200                    |

Source: US Census Bureau

### H.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.

#### 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.

### **H.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.

### **H.1.6 Employment and Industry**

According to the Mississippi Employment Security Commission, in 2024, 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 2024, 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 2024 for Wayne County was \$34,875 compared to \$52,985 for the State of Mississippi.

## **H.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*.

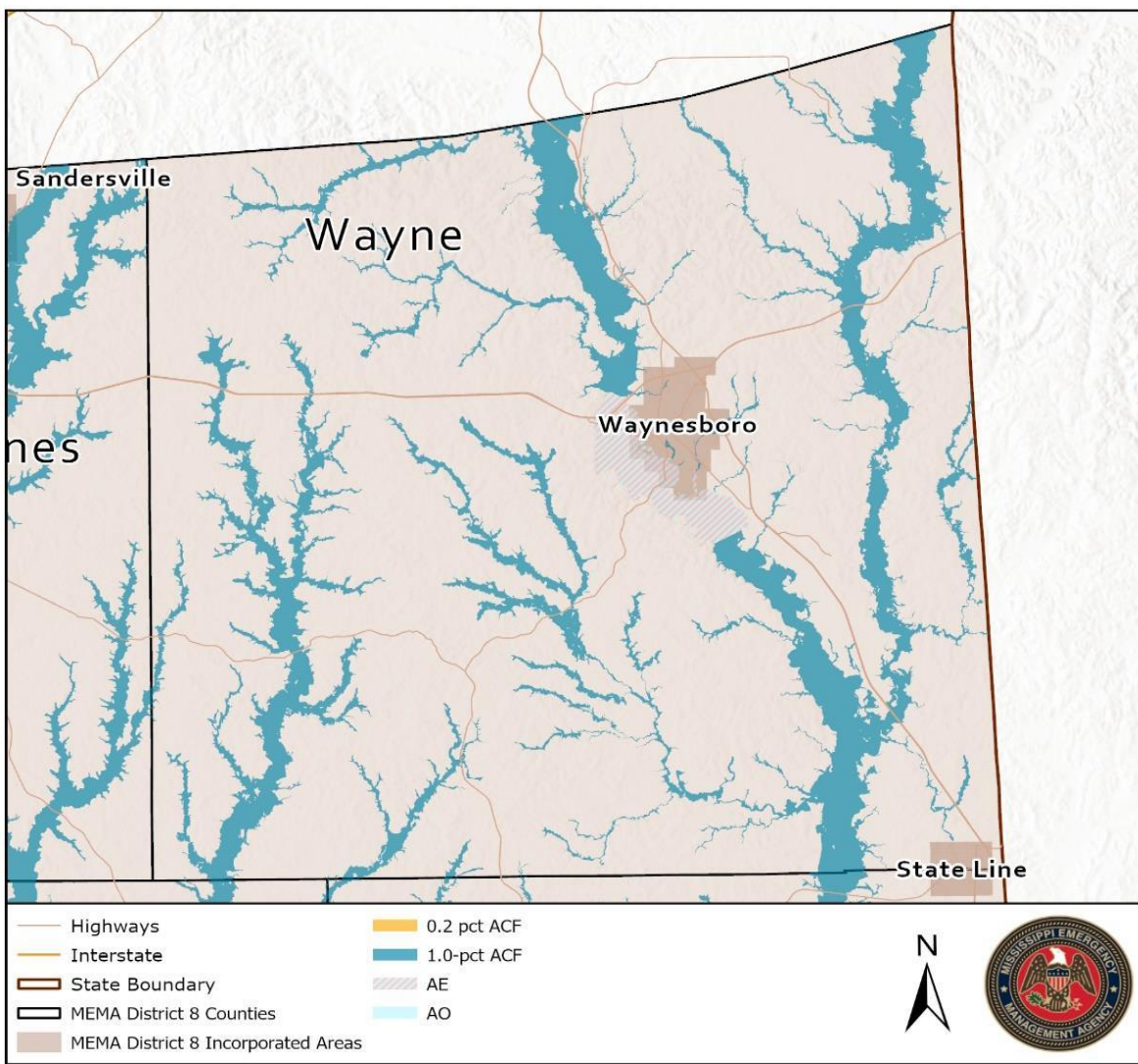
## H.2.1 Flood

### 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). 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.

**FIGURE H.2: SPECIAL FLOOD HAZARD AREAS IN WAYNE COUNTY**



### HISTORICAL OCCURRENCES

Floods resulted in nine disaster declarations in Wayne County in 1973, 1974, 2003, 2009, 2013, 2014, 2016, 2018, and 2020. 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 19 events in Wayne County since 2000. A summary of these events is presented in **Table H.5**. These events accounted for over \$1.2M 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 H.6 & H.7**.

**TABLE H.5: SUMMARY OF FLOOD OCCURRENCES IN WAYNE COUNTY**

| LOCATION                   | Number of Occurrences | Deaths/ Injuries | Property Damage    | Crop Damage |
|----------------------------|-----------------------|------------------|--------------------|-------------|
| <i>Waynesboro</i>          | 8                     | 0/0              | \$70,000           | \$0         |
| <i>Unincorporated Area</i> | 11                    | 0/0              | \$1,140,000        | \$0         |
| <b>Wayne County Total:</b> | <b>19</b>             | <b>0/0</b>       | <b>\$1,211,000</b> | <b>\$0</b>  |

Source: NCED/NOAA

**TABLE H.6: HISTORICAL FLOOD EVENTS IN WAYNE COUNTY**

| Location                                   | Date       | Type        | Deaths/ Injuries | Property Damage |
|--------------------------------------------|------------|-------------|------------------|-----------------|
| <b>The City of Waynesboro</b>              |            |             |                  |                 |
| <i>Waynesboro</i>                          | 4/13/2009  | Flash Flood | 0/0              | \$10,000        |
| <i>Waynesboro</i>                          | 2/4/2010   | Flash Flood | 0/0              | \$0             |
| <i>Waynesboro</i>                          | 3/9/2011   | Flash Flood | 0/0              | \$0             |
| <i>Waynesboro</i>                          | 3/22/2012  | Flash Flood | 0/0              | \$0             |
| <i>Waynesboro</i>                          | 6/5/2013   | Flash Flood | 0/0              | \$0             |
| <i>Waynesboro</i>                          | 7/4/2013   | Flash Flood | 0/0              | \$0             |
| <i>Waynesboro</i>                          | 3/11/2016  | Flash Flood | 0/0              | \$60,000        |
| <i>Waynesboro</i>                          | 7/13/2022  | Flash Flood | 0/0              | \$0             |
| <b>Unincorporated Area in Wayne County</b> |            |             |                  |                 |
| <i>County Wide</i>                         | 3/3/2001   | Flash Flood | 0/0              | \$10,000        |
| <i>County Wide</i>                         | 7/1/2003   | Flash Flood | 0/0              | \$0             |
| <i>Eastern Portion</i>                     | 3/31/2005  | Flash Flood | 0/0              | \$0             |
| <i>County Wide</i>                         | 8/29/2005  | Flash Flood | 0/0              | \$0             |
| <i>Denham</i>                              | 2/4/2010   | Flash Flood | 0/0              | \$0             |
| <i>Eucutta &amp; Denham</i>                | 3/9/2011   | Flash Flood | 0/0              | \$20,000        |
| <i>Winchester</i>                          | 7/4/2013   | Flash Flood | 0/0              | \$0             |
| <i>Whistler &amp; Eucutta</i>              | 3/11/2016  | Flash Flood | 0/0              | \$110,000       |
| <i>Boice</i>                               | 6/22/2017  | Flash Flood | 0/0              | \$0             |
| <i>Mulberry</i>                            | 12/27/2018 | Flash Flood | 0/0              | \$1,000,000     |
| <i>County</i>                              | 8/25/2022  | Flash Flood | 0/0              | \$0             |

Source: NCED/NOAA

**TABLE H.7: EXTENT: FLOOD EVENTS IN WAYNE COUNTY SINCE THE LAST UPDATE**

**Wayne County: \$0**



| Location   | Date      | Loss | Cause                                                                                                                                                       | Impact                                                                                                                                                                                                                                                                                |
|------------|-----------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Waynesboro | 7/13/2022 | \$0  | Slow moving thunderstorms caused heavy rain which produced flooding in southeast Mississippi.                                                               | Heavy rain caused flooding on several streets in Waynesboro.                                                                                                                                                                                                                          |
| County     | 8/25/2022 | \$0  | A wet pattern continued across the Gulf Coast as additional heavy rain led to numerous flooding reports across southwest Alabama and southeast Mississippi. | <ul style="list-style-type: none"> <li>• Water over the roadway near Winchester Cross Road near Highway 45.</li> <li>• Water over the roadway on Bud Stevens Roads off Big Creek Road.</li> <li>• Heavy rain caused water to cover several roads in southern Wayne County.</li> </ul> |

### HISTORICAL SUMMARY OF INSURED FLOOD LOSSES

Recently, FEMA issued a directive that requires local governments or jurisdictions to request NFIP information such as rep loss or severe rep loss data directly from them. FEMA will not share it with the State and/or State Planners. The information was requested from the local jurisdiction on multiple occasions. As a result, for continuity of information so that the reader will have an idea of the historical occurrences along with the corresponding damage amounts, the information provided is a combination of new information shared by the local jurisdictions, and the existing information in cases where the information was not provided for the plan.

According to FEMA flood insurance policy records as of March 2023, there have been 24 flood losses reported in Wayne County through the National Flood Insurance Program (NFIP) since 1978, totaling over \$251,000 in claims payments. A summary of these figures for the county is provided in **Table H.7**. 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.

### 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 2023, 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 H.8** presents detailed information on repetitive loss properties and NFIP claims and policies for Wayne County.

**TABLE H.8: SUMMARY OF INSURED FLOOD LOSSES AND REPETITIVE LOSSES IN WAYNE COUNTY**

| Location            | Flood Losses | Claim Payments | Repetitive Loss Properties | Number of Properties | Number of Losses | Total Payments | Average Payments |
|---------------------|--------------|----------------|----------------------------|----------------------|------------------|----------------|------------------|
| Waynesboro          | 17           | \$134,036      |                            | 3                    | 11               | \$118,826      | \$10,803         |
| Unincorporated Area | 6            | \$117,636      |                            | 0                    | 0                | \$0            | \$0              |
| Wayne County Total: | 23           | \$251,672      |                            | 3                    | 11               | \$118,828      | \$10,803         |

Source: FEMA, NFIP

### 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.



As the climate continues to change, the chance of heavy rain leading to flash flooding could increase in frequency, intensity, and magnitude. With the increasing frequency and intensity, heavy rains and flash flooding can lead to cascading effects and can also lead to flooding in areas that do not usually flood.

## **H.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).

If the climate continues to change as scientists predict, the higher intensity and magnitude of storms and the increasing drought and high heat days, can lead to erosion in areas that have not been impacted by erosion in the past.

As the climate continues to change, the chance of heavy rain leading to flash flooding could increase in frequency, intensity, and magnitude. With the increasing frequency and intensity, heavy rains and flash flooding cascading effects are possible such as erosion of soil from the ground, under/ around trees, and under roads. This can lead to falling trees, power outages, and road damage.

## **H.2.3 Dam Failure**

### **LOCATION AND SPATIAL EXTENT**

During the plan update, the Mississippi Division of Environmental Quality, recognized that there are no high hazard dams in Wayne County.

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.

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.

## **H.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 12 recorded winter storm events in Wayne County since 2000. These events were reported to cause \$10 thousand in damages. Detailed information on the recorded winter storm events can be found in **Table H.9**.

**TABLE H.9: HISTORICAL WINTER STORM IMPACTS IN WAYNE COUNTY**

| <b>Date</b>                   | <b>Type</b>    | <b>Injuries/<br/>Deaths</b> | <b>Property<br/>Damage</b> |
|-------------------------------|----------------|-----------------------------|----------------------------|
| 1/27/2000                     | Sleet          | 0/0                         | \$0                        |
| 12/21/2000                    | Winter Storm   | 0/0                         | \$0                        |
| 1/1/2001                      | Winter Storm   | 0/0                         | \$0                        |
| 1/1/2002                      | Winter Storm   | 0/0                         | \$0                        |
| 1/19/2008                     | Heavy Snow     | 0/0                         | \$0                        |
| 12/11/2008                    | Winter Weather | 0/0                         | \$0                        |
| 2/12/2010                     | Winter Storm   | 0/0                         | \$0                        |
| 1/28/2014                     | Winter Storm   | 0/0                         | \$0                        |
| 3/5/2015                      | Sleet          | 0/0                         | \$0                        |
| 1/6/2017                      | Ice Storm      | 0/0                         | \$10,000                   |
| 12/8/2017                     | Heavy Snow     | 0/0                         | \$0                        |
| 1/16/2018                     | Winter Storm   | 0/0                         | \$0                        |
| <b>Wayne County Total: 12</b> |                | <b>0/0</b>                  | <b>\$10,000</b>            |

Source: NCED/NOAA

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 to the weight of wet snow on limbs and lines. The heaviest snow fell in the areas around Covington, Jefferson Davis, and Jones Counties.

**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.

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 cause a fire or an accumulation of toxic fumes.

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).

H.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 (2000-2024). Records show that there were no measurable drought events. Table H.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 H. 10: HISTORICAL DROUGHT OCCURRENCES IN WAYNE COUNTY |                  |                 |                 |                     |                |
|-------------------------------------------------------------|------------------|-----------------|-----------------|---------------------|----------------|
| Abnormally Dry                                              | Moderate Drought | Severe Drought  | Extreme Drought | Exceptional Drought |                |
| Location                                                    | Date             | Injuries/Deaths | Property Damage | Crop Damage         | Event/Severity |
| Wayne County                                                | 10/1/2016        | 0/0             | \$0             | \$0                 | D2             |
| Wayne County                                                | 11/1/2016        | 0/0             | \$0             | \$0                 | D3             |
| Wayne County                                                | 12/1/2016        | 0/0             | \$0             | \$0                 | D3             |
| Total:                                                      | 3                | 0/0             | \$0             | \$0                 |                |

Source: NCED/NOAA

The National Centers for Environmental Information reported three drought events for Wayne County; however, there was no property or crop damages associated with these events.

**October to December 2016**—An extensive period of dry weather resulted in worsening drought conditions across southeast Mississippi, with severe drought developing over a portion of inland southeast Mississippi. Severe (D2) drought conditions developed through the month of October. For most of inland southeast Mississippi, no measurable rain was recorded for the entire month with the last significant rain occurring in mid to late September.

A prolonged period of dry weather resulted in worsening drought conditions across southeast Mississippi. By the end of November, the entire region was under Extreme (D3) Drought. The entire area saw rain totals less than 50% of normal for the month, with many areas receiving less than 10% of normal. This lack of rain came on the heels of one of the driest Octobers on record.

A prolonged period of dry weather continued through much of December resulting in continued drought conditions across southeast Mississippi. Severe (D2) and Extreme (D3) drought conditions were found across much of the region. A couple of rain events late in the month helped to improve conditions.

## 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. But, if the climate continues to warm, this could lead to more droughts with higher magnitude.

### 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.

If temperatures continue to rise as climate change occurs, it could increase the impacts, intensity, and duration of droughts and extreme temperatures. These increases could have a large impact on the counties' crops, economy, and population.

## H.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 2010 to 2023, Wayne County experiences an average of 27 wildfires annually which burn an average of 193 acres per year. The data indicates that most of these fires are small, averaging seven acres per fire. **Table H.11** provides a summary of wildfire occurrences in Wayne County since the last update, and **Table H.12** lists the number of reported wildfire occurrences in the county between the years 2010 and 2023.

**TABLE H.11: SUMMARY TABLE OF ANNUAL WILDFIRE OCCURRENCES (2019 -2023) \***

| Wayne County                            |       |
|-----------------------------------------|-------|
| Average Number of Fires per year        | 16.2  |
| Average Number of Acres Burned per year | 225   |
| Average Number of Acres Burned per fire | 13.89 |

Source: MS Forestry Commission

**TABLE H.12: HISTORICAL WILDFIRE OCCURRENCES IN WAYNE COUNTY**

| Wayne County           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Year                   | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| Number of Fires        | 51   | 57   | 33   | 22   | 44   | 14   | 47   | 15   | 12   | 10   | 10   | 15   | 16   | 30   |
| Number of Acres Burned | 321  | 349  | 108  | 85   | 245  | 67   | 480  | 355  | 183  | 95   | 253  | 163  | 259  | 355  |

Source: US 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).

If temperatures continue to rise as climate change occurs, it could cause more droughts and extreme temperatures. The increase in of these could have a negative impact or wildfires. Extreme heat and drought can cause plants to become dry and brittle which makes the area more susceptible to wildfires.

If the predicted increase in heavy rains occurs, it can also cause flooding and erosion, which can also make the area more susceptible to wildfires.

**H.2.7 Earthquake**

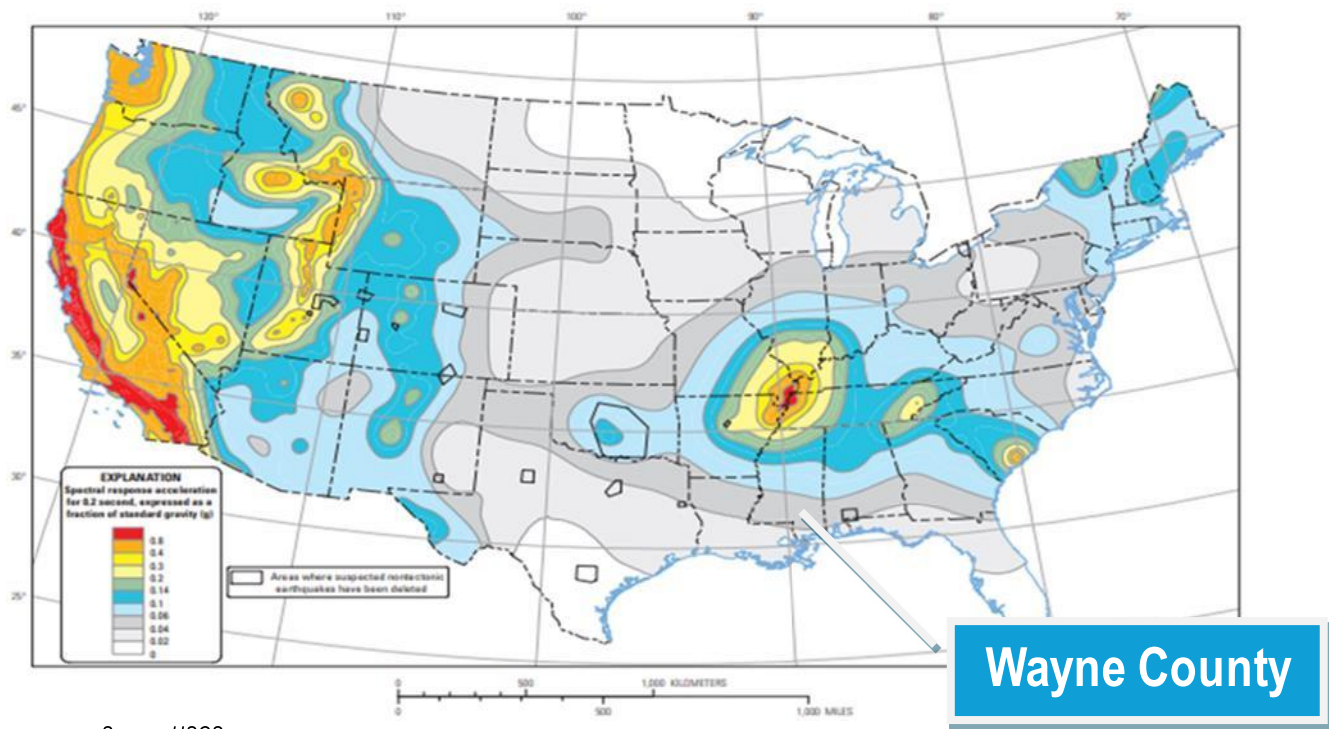
**LOCATION AND SPATIAL EXTENT**

**Figure H.3** 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.

FIGURE H.3: PEAK ACCELERATION WITH 10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS



HISTORICAL OCCURRENCES

No earthquakes are known to have affected Wayne County since 1638. Table H.13 provides a summary of earthquake events reported by the National Geophysical Data Center between 1638 and 2024.

TABLE H.13: SUMMARY OF SEISMIC ACTIVITY IN WAYNE COUNTY

| Location            | Date | Number of Occurrences | Greatest MMI Reported | Richter Scale Equivalent |
|---------------------|------|-----------------------|-----------------------|--------------------------|
| Waynesboro          | --   | 0                     | --                    | --                       |
| Unincorporated Area | --   | 0                     | --                    | --                       |
| Wayne County Total: |      | 0                     | --                    | --                       |

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).

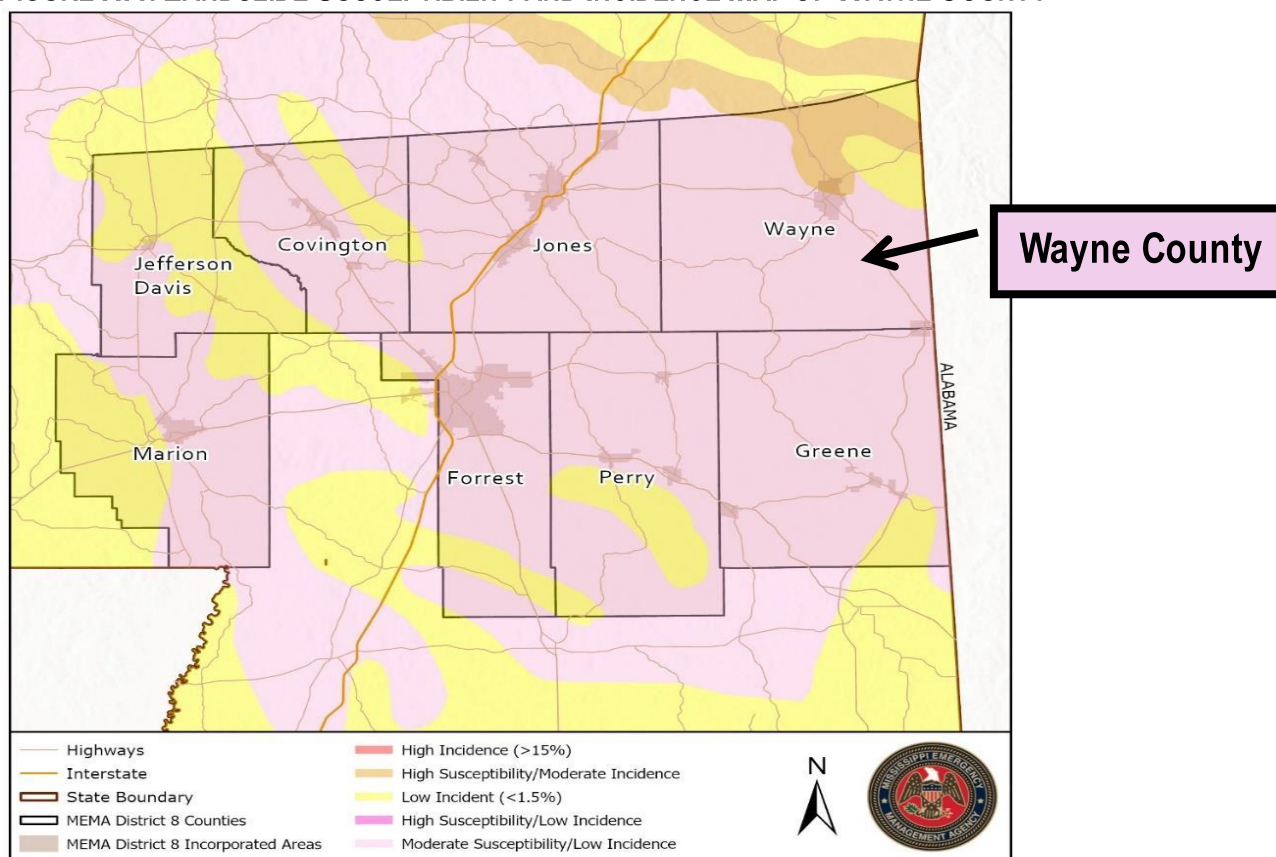
H.2.8 Landslide

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 H.4** below, the entire county falls under a low incidence area (yellow and light pink). This indicates that less than 1.5 percent of the area is involved in land sliding. The areas in yellow are defined as low incidence and low susceptibility. The areas in light pink, however, indicate that a moderate susceptibility to land sliding 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 land sliding according to the United States Geological Survey data. There are no changes with susceptibility to the landslide hazard since the last plan update.

**FIGURE H.4: LANDSLIDE SUSCEPTIBILITY AND INCIDENCE MAP OF WAYNE COUNTY**



## HISTORICAL OCCURRENCES

There is no extensive history of landslides in Wayne. Landslide events typically occur in isolated areas.

## PROBABILITY OF FUTURE OCCURRENCES

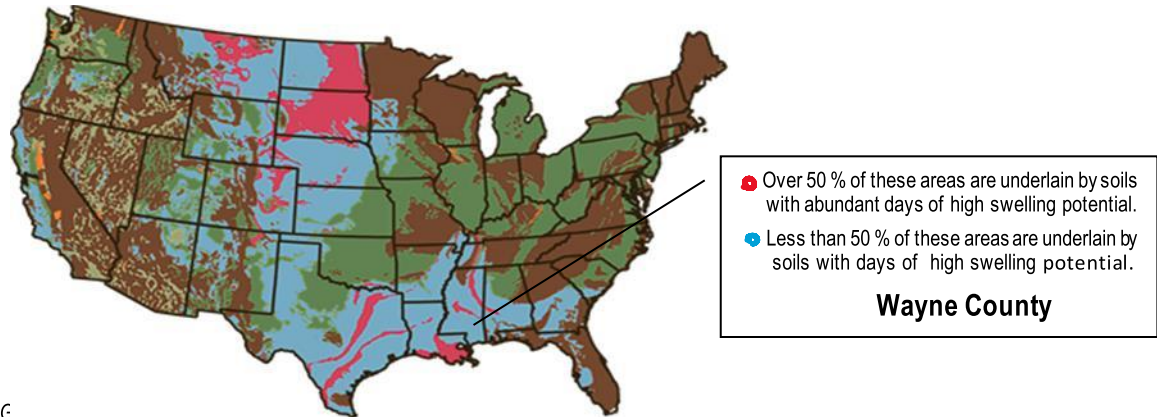
Based on historical information and the USGS susceptibility index, the probability of future landslide events is possible (1 to 10 percent probability). The USGS data indicates that nearly all areas in Wayne County have a low landslide incidence rate except for a small area in the northeast corner that is reported to have a moderate incidence rate. However, most areas are reported as having moderate or high susceptibility to land sliding 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. Also, as the climate continues to change, scientists believe that the intensity, magnitude, and frequency of heavy rains will increase. This could cause cascading effects that could possibly lead to land sliding.

## H.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 H.5**. The areas in blue are underlain with generally less than 50 percent clay having high swelling potential.

**FIGURE H.5: SWELLING CLAYS IN MISSISSIPPI**



Source: USG \_

### **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).

## **H.2.10 Hurricane and Tropical Storm**

### **LOCATION AND SPATIAL EXTENT**



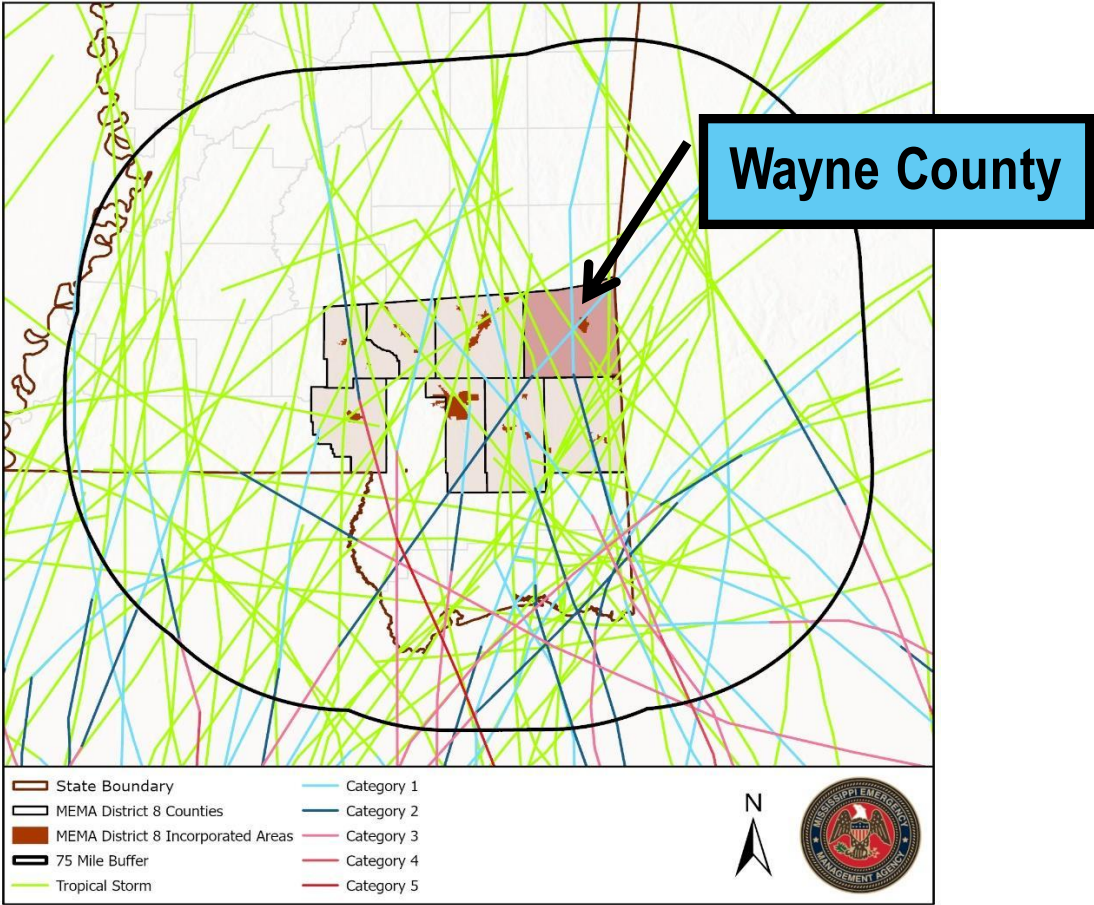
Hurricanes and tropical storms threaten the entire Atlantic and Gulf seaboard of the United States. While coastal areas are most directly exposed to the brunt of landfalling storms, their impact is often felt hundreds of miles inland and major hurricanes (category 3 or higher) may impact Wayne County. 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 H.6**.

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 were 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 H.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 H.6: HISTORICAL HURRICANE STORM TRACKS WITHIN 75 MILES OF WAYNE COUNTY**



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), 2012 (Hurricane Isaac), 2020 (Hurricane Zeta), and 2021 (Hurricane Ida). Hurricane and tropical storm events can cause substantial damage in the area due to high winds and flooding.

**TABLE H.14: HISTORICAL STORM TRACKS WITHIN 75 MILES OF WAYNE COUNTY (1850–2024)**

| Date of Occurrence | Storm Name | Maximum Wind Speed (mph) | 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     | Hurricane Ethel    | 40        | Tropical Storm |
| 8/18/1969     | Hurricane Camille  | 130       | Category 3     |
| 9/13/1979     | Hurricane Fredrick | 109       | Category 2     |
| 8/4/1995      | Hurricane Erin     | 52        | Tropical Storm |
| 9/25/1998     | Hurricane George   | Unknown   | Tropical Storm |
| 9/14/2004     | Hurricane Ivan     | 50        | Tropical Storm |
| 7/10/2005     | Hurricane Dennis   | 55        | Tropical Storm |
| 8/29/2005     | Hurricane Katrina  | 135       | Category 3     |
| 9/1/2008      | Hurricane Gustav   | 50        | Tropical Storm |
| 8/29/2012     | Hurricane Isaac    | 45        | Tropical Storm |
| 10/7/2017     | UNNAMED            | 60        | Tropical Storm |
| 10/28/2020    | Hurricane Zeta     | 40        | Tropical Storm |
| 8/30/2021     | Hurricane Ida      | 50        | Tropical Storm |
| <b>Total:</b> | <b>23</b>          | <b>--</b> | <b>--</b>      |

Source: National Hurricane Center and NCED/NOAA

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:

**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.

**September 16, 2004—Hurricane Ivan** caused 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.

**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.

**September 1, 2008—Hurricane Gustav** was the 2nd major hurricane of the 2008 Atlantic Hurricane Season. Tropical storm force winds occurred across Marion County as the outer edges of Hurricane Gustav moved across southern Louisiana. Scattered trees and power lines were blown down, especially across the southern portion of the county. Wind gusts peaked between 45 and 55 mph for a few hours.

**August 29, 2012—Isaac** moved very slowly to the north and northwest over the course of August 29th, which made for prolonged impacts. Forward motion of about 5 mph led to tremendous flooding issues for both Louisiana and portions of Mississippi south of I-20. Around noon on August 29th, Isaac was downgraded to a Tropical Storm, but this was not much relief to the many residents who were being inundated with rain and wind. Storm total rainfall across portions of Marion County indicated at least 10 to 15 inches fell. Numerous homes and buildings were flooded, and some water rescues occurred in Lamar, Marion and Clarke counties. By midafternoon on the 29th trees were blown down across the county, with a few power outages occurring. At midnight, roof damage occurred to a home southwest of Columbia with water leaking into the house. Strong winds continued into the morning hours before subsiding.

**August 29, 2021—Major hurricane Ida** made landfall as a strong category four hurricane around 11:55am on August 29 near Grand Isle, LA. It then moved very slowly north through south central Louisiana and into Mississippi on August 30. It then turned northeast and moved across the Jackson metro area as a tropical storm and into northeast Mississippi as a tropical depression through the early morning of August 31. Ida brought tropical storm force gusts to portions of Mississippi, which brought down trees and power lines. Rainfall amounts of 4-8 inches occurred, which resulted in localized flooding. Tropical storm force wind gusts resulted in several trees and power lines downed across the county.

## **PROBABILITY OF FUTURE OCCURRENCES**

Based on historical evidence, the probability level of future occurrence is likely (annual probability between 10 and 100 per cent). 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.

Scientists and meteorologists predict tropical cyclones to increase in frequency, magnitude, and intensity as the climate continues to change. These increases could be catastrophic to MS Coastal areas and the counties near the coast. Scientists also predict that hurricanes could increase in frequency and strength in the near future due the effects of Climate Change. This can be seen in the 2023 season with 23 named storms, 11 hurricanes, and 5 major hurricanes. This prediction makes the season the third most active season on record, behind the 2005 season with 28, and the 2020 season with a total of 30. It is expected that an above-average season next season with up to 25 named storms and 4-7 major hurricanes.

## **H.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 eight disaster declarations in Wayne County in 2003, 2009, 2013, 2014, 2016, 2018, 2020, and 2023. According to NCED, there have been 69 reported thunderstorm and high wind events since 2000 in Wayne County. These events caused over \$523,000 in damages and one reported injury. **Table H.15** summarizes this information. **Table H.16** presents detailed thunderstorm and high wind event reports including date, magnitude, and associated damages for each event.

**TABLE H.15: SUMMARY OF THUNDERSTORM / HIGH WIND OCCURRENCES IN WAYNE COUNTY**

| Location            | Number of Occurrences | Injuries | Deaths | Property Damage | Crop Damage |
|---------------------|-----------------------|----------|--------|-----------------|-------------|
| Waynesboro          | 22                    | 0        | 0      | \$172,000       | \$0         |
| Unincorporated Area | 42                    | 0        | 1      | \$300,000       | \$0         |
| Wayne County Total: | 64                    | 0        | 1      | \$472,000       | \$0         |

Source: NCED/NOAA

**TABLE H.16: HISTORICAL THUNDERSTORM / HIGH WIND OCCURRENCES IN WAYNE COUNTY**

| Location               | Date       | Type      | Magnitude | Death/Injuries | Property Damage |
|------------------------|------------|-----------|-----------|----------------|-----------------|
| The City of Waynesboro |            |           |           |                |                 |
| Waynesboro             | 4/2/2000   | TSTM Wind | 60 kts.   | 0/0            | \$5,000         |
| Waynesboro             | 7/16/2000  | TSTM Wind | 55 kts.   | 0/0            | \$5,000         |
| Waynesboro             | 12/16/2000 | TSTM Wind | 50 kts.   | 0/0            | \$5,000         |
| Waynesboro             | 3/12/2001  | TSTM Wind | 60 kts.   | 0/0            | \$5,000         |
| Waynesboro             | 10/13/2001 | TSTM Wind | 60 kts.   | 0/0            | \$10,000        |
| Waynesboro             | 8/25/2002  | TSTM Wind | 55 kts.   | 0/0            | \$30,000        |
| Waynesboro             | 8/6/2003   | TSTM Wind | 50 kts.   | 0/0            | \$5,000         |
| Waynesboro             | 4/30/2005  | TSTM Wind | 50 kts.   | 0/0            | \$15,000        |
| Waynesboro             | 5/24/2005  | TSTM Wind | 50 kts.   | 0/0            | \$10,000        |
| Waynesboro             | 1/31/2008  | TSTM Wind | 50 kts.   | 0/0            | \$25,000        |
| Waynesboro             | 4/11/2008  | TSTM Wind | 50 kts.   | 0/0            | \$12,000        |
| Waynesboro             | 4/4/2011   | TSTM Wind | 50 kts.   | 0/0            | \$0             |
| Waynesboro             | 5/26/2011  | TSTM Wind | 61 kts.   | 0/0            | \$7,000         |

|                                            |            |           |         |     |          |
|--------------------------------------------|------------|-----------|---------|-----|----------|
| Waynesboro                                 | 6/28/2013  | TSTM Wind | 52 kts. | 0/0 | \$3,000  |
| Waynesboro                                 | 10/13/2014 | TSTM Wind | 52 kts. | 0/0 | \$5,000  |
| Waynesboro                                 | 2/15/2016  | TSTM Wind | 52 kts. | 0/0 | \$20,000 |
| Waynesboro                                 | 1/2/2017   | TSTM Wind | 52 kts. | 0/0 | \$0      |
| Waynesboro                                 | 11/1/2018  | TSTM Wind | 61 kts. | 0/0 | \$5,000  |
| Waynesboro                                 | 4/14/2019  | TSTM Wind | 52 kts. | 0/0 | \$5,000  |
| Waynesboro                                 | 1/11/2020  | TSTM Wind | 52 kts. | 0/0 | \$0      |
| Waynesboro                                 | 4/12/2020  | TSTM Wind | 52 kts. | 0/0 | \$0      |
| Waynesboro                                 | 4/13/2022  | TSTM Wind | 61 kts. | 0/0 | \$0      |
| <b>Unincorporated Area in Wayne County</b> |            |           |         |     |          |
| Mulberry                                   | 1/29/2001  | TSTM Wind | 55 kts. | 0/0 | \$5,000  |
| Matherville                                | 3/2/2001   | TSTM Wind | 65 kts. | 0/0 | \$10,000 |
| Eucutta                                    | 3/2/2001   | TSTM Wind | 55 kts. | 0/0 | \$3,000  |
| Clara                                      | 10/13/2001 | TSTM Wind | 50 kts. | 0/0 | \$10,000 |
| Hiwannee                                   | 11/10/2002 | TSTM Wind | 55 kts. | 0/0 | \$20,000 |
| Clara & Hiwannee                           | 4/6/2003   | TSTM Wind | 50 kts. | 0/0 | \$10,000 |
| Buckatunna                                 | 1/10/2008  | TSTM Wind | 50 kts. | 0/0 | \$10,000 |
| Smithtown                                  | 3/3/2008   | TSTM Wind | 74 kts. | 0/0 | \$0      |
| Hiwannee                                   | 4/4/2008   | TSTM Wind | 50 kts. | 0/0 | \$10,000 |
| Clara                                      | 5/15/2008  | TSTM Wind | 50 kts. | 0/0 | \$15,000 |
| Battles                                    | 4/4/2011   | TSTM Wind | 50 kts. | 0/0 | \$0      |
| Eucutta                                    | 4/11/2013  | TSTM Wind | 52 kts. | 0/0 | \$10,000 |
| Matherville                                | 6/28/2013  | TSTM Wind | 52 kts. | 0/0 | \$3,000  |
| Denham                                     | 6/28/2013  | TSTM Wind | 61 kts. | 0/0 | \$8,000  |
| Whistler                                   | 7/23/2013  | TSTM Wind | 52 kts. | 0/0 | \$7,000  |
| Buckatunna                                 | 7/23/2013  | TSTM Wind | 50 kts. | 0/0 | \$2,000  |
| Winchester                                 | 8/5/2013   | TSTM Wind | 52 kts. | 0/0 | \$5,000  |
| Whistler                                   | 2/20/2014  | TSTM Wind | 52 kts. | 0/0 | \$1,000  |
| Woodwards                                  | 4/28/2014  | TSTM Wind | 83 kts. | 0/0 | \$50,000 |
| Whistler                                   | 9/2/2014   | TSTM Wind | 61 kts. | 0/0 | \$5,000  |
| Matherville                                | 10/2/2014  | TSTM Wind | 52 kts. | 0/0 | \$5,000  |
| Clara                                      | 10/13/2014 | TSTM Wind | 52 kts. | 0/0 | \$5,000  |
| Clara                                      | 10/31/2015 | TSTM Wind | 52 kts. | 0/0 | \$10,000 |
| County                                     | 2/15/2016  | TSTM Wind | 52 kts. | 0/0 | \$43,000 |
| Whistler                                   | 2/23/2016  | TSTM Wind | 52 kts. | 0/0 | \$3,000  |
| Mulberry                                   | 7/9/2016   | TSTM Wind | 52 kts. | 0/0 | \$10,000 |
| County                                     | 7/10/2016  | TSTM Wind | 52 kts. | 0/0 | \$15,000 |
| Eucutta                                    | 4/13/2019  | TSTM Wind | 52 kts. | 0/0 | \$10,000 |
| County                                     | 6/27/2019  | TSTM Wind | 52 kts. | 0/0 | \$0      |
| Whistler                                   | 9/9/2019   | TSTM Wind | 52 kts. | 0/0 | \$0      |
| Smithtown                                  | 3/31/2020  | TSTM Wind | 61 kts. | 0/0 | \$0      |
| County                                     | 4/12/2020  | TSTM Wind | 52 kts. | 0/0 | \$5,000  |
| Hiwannee                                   | 4/23/2020  | TSTM Wind | 70 kts. | 0/0 | \$10,000 |
| Buckatunna                                 | 4/10/2021  | TSTM Wind | 52 kts. | 0/0 | \$0      |
| County                                     | 2/3/2022   | TSTM Wind | 52 kts. | 0/0 | \$0      |
| Matherville                                | 4/13/2022  | TSTM Wind | 61 kts. | 0/0 | \$0      |

|                            |                  |                  |                |            |            |
|----------------------------|------------------|------------------|----------------|------------|------------|
| <b>County</b>              | <b>6/10/2022</b> | <b>TSTM Wind</b> | <b>52 kts.</b> | <b>0/1</b> | <b>\$0</b> |
| <b>Denham</b>              | <b>6/23/2022</b> | <b>TSTM Wind</b> | <b>52 kts.</b> | <b>0/0</b> | <b>\$0</b> |
| <b>Whistler</b>            | <b>4/3/2023</b>  | <b>TSTM Wind</b> | <b>52 kts.</b> | <b>0/0</b> | <b>\$0</b> |
| <b>Clara &amp; Eucutta</b> | <b>6/16/2023</b> | <b>TSTM Wind</b> | <b>61 kts.</b> | <b>0/0</b> | <b>\$0</b> |
| <b>Woodwards</b>           | <b>6/25/2023</b> | <b>TSTM Wind</b> | <b>52 kts.</b> | <b>0/0</b> | <b>\$0</b> |
| <b>Eucutta</b>             | <b>5/13/2024</b> | <b>TSTM Wind</b> | <b>52 kts.</b> | <b>0/0</b> | <b>\$0</b> |

Source: NCED/NOAA

## Hailstorm

According to the National Centers for Environmental Information, 28 recorded hailstorm events have affected Wayne County since 2000. **Table H.17** is a summary of the hail events in Wayne County. **Table H.18** provides detailed information about each event that occurred in the county. In all, hail occurrences resulted in over \$13,000 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.

## Lightning

According to the National Centers for Environmental Information, there has been two recorded lightning events in Wayne County since 2000. These events resulted in almost \$50,000 in damages and two reported injuries, as listed in summary **Table H.17**. 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 H.18**.

**TABLE H.17: SUMMARY OF HAIL AND LIGHTNING OCCURRENCES IN WAYNE COUNTY**

| <b>Location</b>            | <b>Number of Occurrences</b> | <b>Deaths</b> | <b>Injuries</b> | <b>Property Damage</b> |
|----------------------------|------------------------------|---------------|-----------------|------------------------|
| <b>Waynesboro</b>          | <b>7</b>                     | <b>0</b>      | <b>0</b>        | <b>\$0</b>             |
| <b>Unincorporated Area</b> | <b>21</b>                    | <b>0</b>      | <b>2</b>        | <b>\$63,000</b>        |
| <b>Wayne County Total:</b> | <b>28</b>                    | <b>0</b>      | <b>2</b>        | <b>\$63,000</b>        |

Source: NCED/NOAA

**TABLE F.18: HISTORICAL HAIL AND LIGHTNING OCCURRENCES IN WAYNE COUNTY**

| <b>Location</b>               | <b>Date</b>      | <b>Type</b> | <b>Magnitude</b> | <b>Deaths</b> | <b>Injuries</b> | <b>Property Damage</b> |
|-------------------------------|------------------|-------------|------------------|---------------|-----------------|------------------------|
| <b>The City of Waynesboro</b> |                  |             |                  |               |                 |                        |
| <b>Waynesboro</b>             | <b>5/2/2000</b>  | <b>Hail</b> | <b>1.75 in.</b>  | <b>0</b>      | <b>0</b>        | <b>\$0</b>             |
| <b>Waynesboro</b>             | <b>4/11/2005</b> | <b>Hail</b> | <b>0.75 in.</b>  | <b>0</b>      | <b>0</b>        | <b>\$0</b>             |

|                                            |                  |                  |                 |          |          |                 |
|--------------------------------------------|------------------|------------------|-----------------|----------|----------|-----------------|
| <b>Waynesboro</b>                          | <b>4/22/2005</b> | <b>Hail</b>      | <b>0.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Waynesboro</b>                          | <b>4/26/2005</b> | <b>Hail</b>      | <b>0.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Waynesboro</b>                          | <b>3/22/2015</b> | <b>Hail</b>      | <b>1 in.</b>    | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Waynesboro</b>                          | <b>4/16/2022</b> | <b>Hail</b>      | <b>1.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Waynesboro</b>                          | <b>5/17/2023</b> | <b>Hail</b>      | <b>1 in.</b>    | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Waynesboro</b>                          | <b>6/17/2023</b> | <b>Hail</b>      | <b>1.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Unincorporated Area in Wayne County</b> |                  |                  |                 |          |          |                 |
| <b>Eucutta</b>                             | <b>4/1/2000</b>  | <b>Hail</b>      | <b>1.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Hiwannee</b>                            | <b>4/3/2001</b>  | <b>Hail</b>      | <b>1.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>County</b>                              | <b>6/11/2001</b> | <b>Lightning</b> | <b>--.</b>      | <b>0</b> | <b>2</b> | <b>\$0</b>      |
| <b>Clara</b>                               | <b>7/6/20002</b> | <b>Hail</b>      | <b>0.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Buckatunna</b>                          | <b>3/13/2003</b> | <b>Hail</b>      | <b>0.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Battles</b>                             | <b>4/25/2003</b> | <b>Hail</b>      | <b>0.75in.</b>  | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Mulberry</b>                            | <b>5/3/2003</b>  | <b>Hail</b>      | <b>0.88 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>County</b>                              | <b>8/27/2003</b> | <b>Lightning</b> | <b>--</b>       | <b>0</b> | <b>0</b> | <b>\$50,000</b> |
| <b>Hiwannee</b>                            | <b>4/7/2004</b>  | <b>Hail</b>      | <b>0.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Clara</b>                               | <b>3/22/2005</b> | <b>Hail</b>      | <b>0.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Buckatunna</b>                          | <b>4/11/2005</b> | <b>Hail</b>      | <b>0.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Clara</b>                               | <b>4/22/2005</b> | <b>Hail</b>      | <b>1.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$3,000</b>  |
| <b>Clara</b>                               | <b>4/22/2005</b> | <b>Hail</b>      | <b>0.88 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Boice</b>                               | <b>5/9/2006</b>  | <b>Hail</b>      | <b>0.88 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Matherville</b>                         | <b>6/20/2008</b> | <b>Hail</b>      | <b>0.88 in.</b> | <b>0</b> | <b>0</b> | <b>\$10,000</b> |
| <b>Clara</b>                               | <b>4/15/2011</b> | <b>Hail</b>      | <b>1.75 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Buckatunna</b>                          | <b>5/31/2012</b> | <b>Hail</b>      | <b>1 in.</b>    | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Hiwannee</b>                            | <b>2/20/2014</b> | <b>Hail</b>      | <b>1 in.</b>    | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Eucutta</b>                             | <b>3/27/2017</b> | <b>Hail</b>      | <b>1 bin.</b>   | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Whistler</b>                            | <b>3/4/2020</b>  | <b>Hail</b>      | <b>1 in.</b>    | <b>0</b> | <b>0</b> | <b>\$0</b>      |
| <b>Mulberry</b>                            | <b>4/16/2022</b> | <b>Hail</b>      | <b>1.50 in.</b> | <b>0</b> | <b>0</b> | <b>\$0</b>      |

Source: NCED/NOAA

## 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. 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.

Meteorologists predict that thunderstorms will continue to increase in frequency, magnitude, and intensity as climate change continues to effect weather. These increases could greatly impact the county with more crop and property damage and life safety. If these storms intensify it could also affect the economy of the county.

## **H.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 eight disaster declarations in Wayne County in 1973, 2003, 2009, 2013, 2014, 2018, 2020, and 2023. According to the National Centers for Environmental Information, there have been a total of 19 recorded tornado events in Wayne County since 2000 (**Table H.19**), resulting in \$1.705M in property damages. The magnitude of these tornadoes ranges from F0 to EF2 in intensity, although an EF5 event is possible. Detailed information on historic tornado events can be found in **Table H.20**.

**TABLE H.19: SUMMARY OF TORNADO OCCURRENCES IN WAYNE COUNTY**

| Location             | Number of Occurrences | Deaths   | Injuries | Property Damage    |
|----------------------|-----------------------|----------|----------|--------------------|
| Waynesboro           | 3                     | 0        | 0        | \$30,000           |
| Unincorporated Area  | 13                    | 0        | 0        | \$1,560,00         |
| <b>County Total:</b> | <b>16</b>             | <b>0</b> | <b>0</b> | <b>\$1,590,000</b> |

**TABLE H.20: HISTORICAL TORNADO IMPACTS IN WAYNE COUNTY**

| Location                                   | Date       | Magnitude | Deaths/<br>Injuries | Property Damage |
|--------------------------------------------|------------|-----------|---------------------|-----------------|
| <b>The City of Waynesboro</b>              |            |           |                     |                 |
| Waynesboro                                 | 5/17/2003  | F0        | 0/0                 | \$5,000         |
| Waynesboro                                 | 10/7/2017  | EF0       | 0/0                 | \$25,000        |
| Waynesboro                                 | 3/30/2022  | EF1       | 0/0                 | \$0             |
| <b>Unincorporated Area in Wayne County</b> |            |           |                     |                 |
| Whistler                                   | 11/15/2006 | F1        | 0/0                 | \$250,000       |
| Whistler                                   | 4/15/2011  | EF0       | 0/0                 | \$0             |
| Robinson JCT                               | 1/13/2013  | EF1       | 0/0                 | \$100,000       |
| Clara & Denham                             | 2/10/2013  | EF1       | 0/0                 | \$150,000       |
| Eucutta                                    | 4/28/2014  | EF1       | 0/0                 | \$50,000        |
| Hiwannee                                   | 4/28/2014  | EF2       | 0/0                 | \$1,000,000     |
| Merrill                                    | 12/16/2019 | EF1       | 0/0                 | \$10,000        |
| Eucutta                                    | 4/23/2020  | EF1       | 0/0                 | \$0             |
| Whistler                                   | 3/17/2021  | EF2       | 0/0                 | \$0             |
| Denham                                     | 3/17/2021  | EF1       | 0/0                 | \$0             |
| Denham                                     | 3/30/2022  | EF1       | 0/0                 | \$0             |
| Whistler                                   | 4/5/2022   | EF2       | 0/0                 | \$0             |
| Denham                                     | 4/5/2022   | EF1       | 0/0                 | \$0             |

Source: NCED/NOAA

Anecdotes are available from NCEI for the major storms that have impacted that area as found below:

**November 15, 2006**—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.

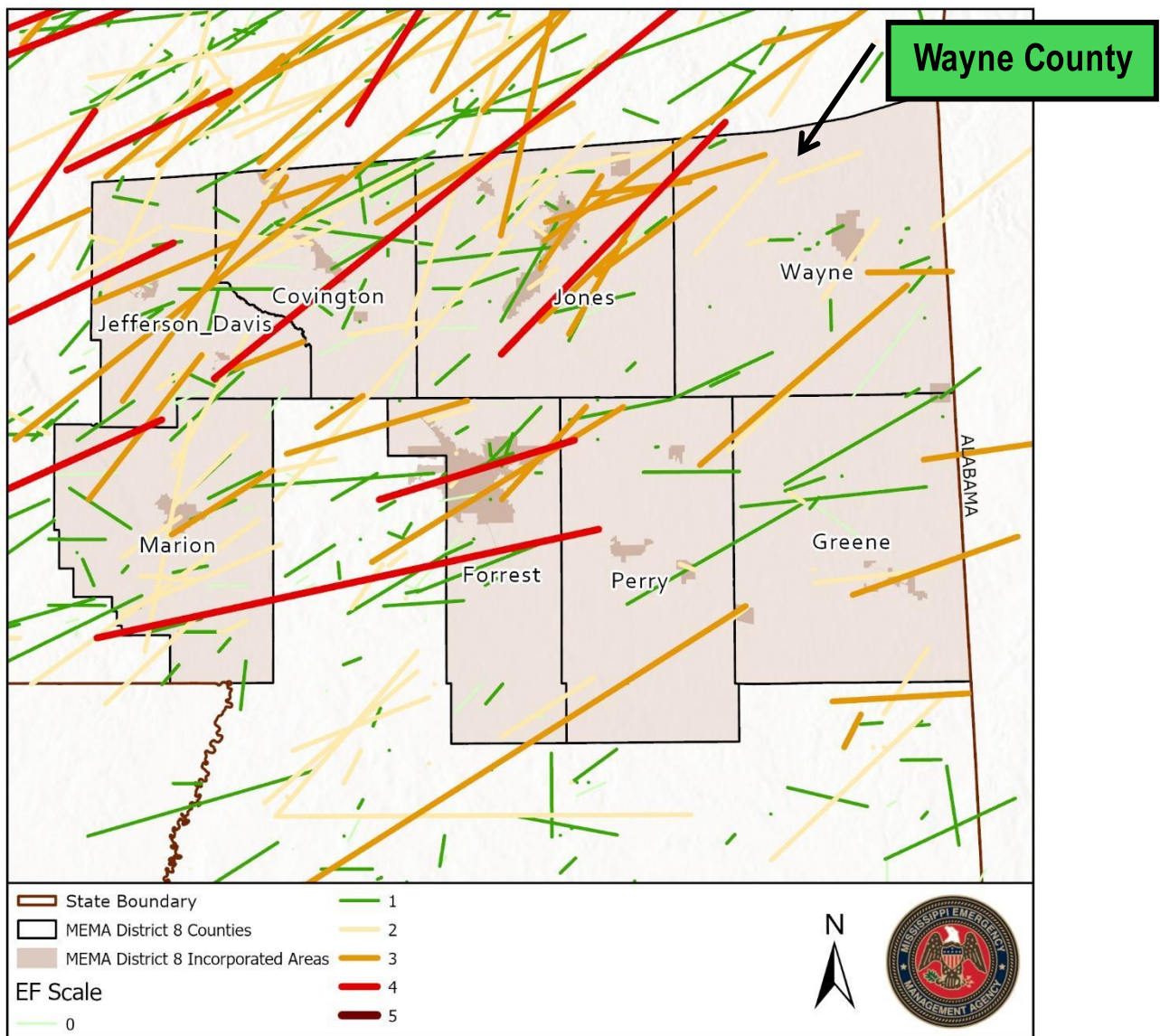
**January 13, 2013**—An isolated severe thunderstorm developed ahead of a strong cold front and tracked from northern Perry County and extreme northwest Greene County into southeastern Wayne County. The storm intensified as it approached Highway 45 near Buckatunna and produced a short, tracked tornado just east of Highway 45 and north of Buckatunna. The initial tornado touchdown was located near Odell Chambers Drive where it produced sporadic tree damage. The tornado continued northeastward...Intensifying to EF-1 intensity and widening to 200 yards as it moved across Oscar Jordan Road. In this area...significant tree damage was observed. Numerous pine trees were snapped, and several large oak trees were uprooted. The tornado continued northeast...Producing structural damage near the intersection of John Pettis Drive and Jordan Sumrall Road. One modular home and one mobile home suffered the loss of their roofs. Additional tree damage was noted with pine trees snapped and oak trees uprooted. The damage was consistent with EF -1 intensity. The tornado continued northeast to Denham Progress Road where one large chicken house was destroyed and another experienced major damage. The tornado weakened and lifted just to the east of Denham Progress Road in a wooded area.

**February 10, 2013**— The tornado touched down in the southwest portions of Wayne County just south of Strickland Road and just west of Salem Road along Byrd Creek in the Desoto National Forest. The tornado quickly intensified to EF -1 strength as it crossed Shows Road where it damaged the roofs of 2 homes and snapped or uprooted numerous large trees. The tornado overturned camping trailers at a hunting camp off of Fire Road 726 and continued east northeast. The tornado weakened to EF-0 strength as it crossed a large section of the Desoto National Forest and Highway 63 approximately 4 miles southwest of Clara where it produced minor damage to the roofs of a few homes...destroyed a few small outbuildings...and topped out trees in an 80-yard-wide path. The tornado then quickly re-intensified as it moved across Hudson Town Road and Roy Shoemaker Drive where it widened to 200 yards...snapping numerous large tree pine trees...damaging the roof of one brick home and causing damage to a barn. The tornado crossed Buckatunna Clara Road where it snapped numerous pine trees and caused major damage to 3 homes when pine trees fell on them. The tornado weakened and dissipated near Hutcherson Hutto Road. The storm that produced this tornado also had severe downburst winds on the rear flank downdraft. The rear flank downdraft with this storm uprooted or snapped a wide swath of trees south of the main tornado track.

**April 28, 2014**—A strong storm system brought record flooding along with severe thunderstorms that produced damaging winds and tornadoes to the region. The NWS 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.

**February 23, 2016**—The storm survey team found a third tornado touchdown in a heavily wooded area near the Greene/Wayne county line. Numerous large diameter (greater than 2 feet) hardwood and pine trees were either snapped near the base of the trunk or uprooted. Significant damage occurred to a log cabin built in 1909 just inside the Wayne County line...with windowpanes blown out and large portions of the roof destroyed. A detached outbuilding...built roughly at the same time...was destroyed by a large tree falling on its north side. The tornado continued affecting mostly wooded areas before lifting just to the northeast of Woulard Bend River Road.

## FIGURE H.8: TORNADO PATHS IN WAYNE COUNTY



### PROBABILITY OF FUTURE OCCURRENCES

According to historical information, tornado events pose a significant threat to Wayne County. The probability of future tornado occurrences affecting Wayne County is likely (10 – 100 percent annual probability).

It is predicted that tornadoes and the type of storms that create tornadoes will increase in intensity, frequency, and magnitude as the temperature rises with climate change. More frequent strong tornadoes could have a large economic impact on each community in the county. It could also increase injuries and/death counts if the tornadoes increase in magnitude.

## H.2.13 Hazardous Materials Incidents

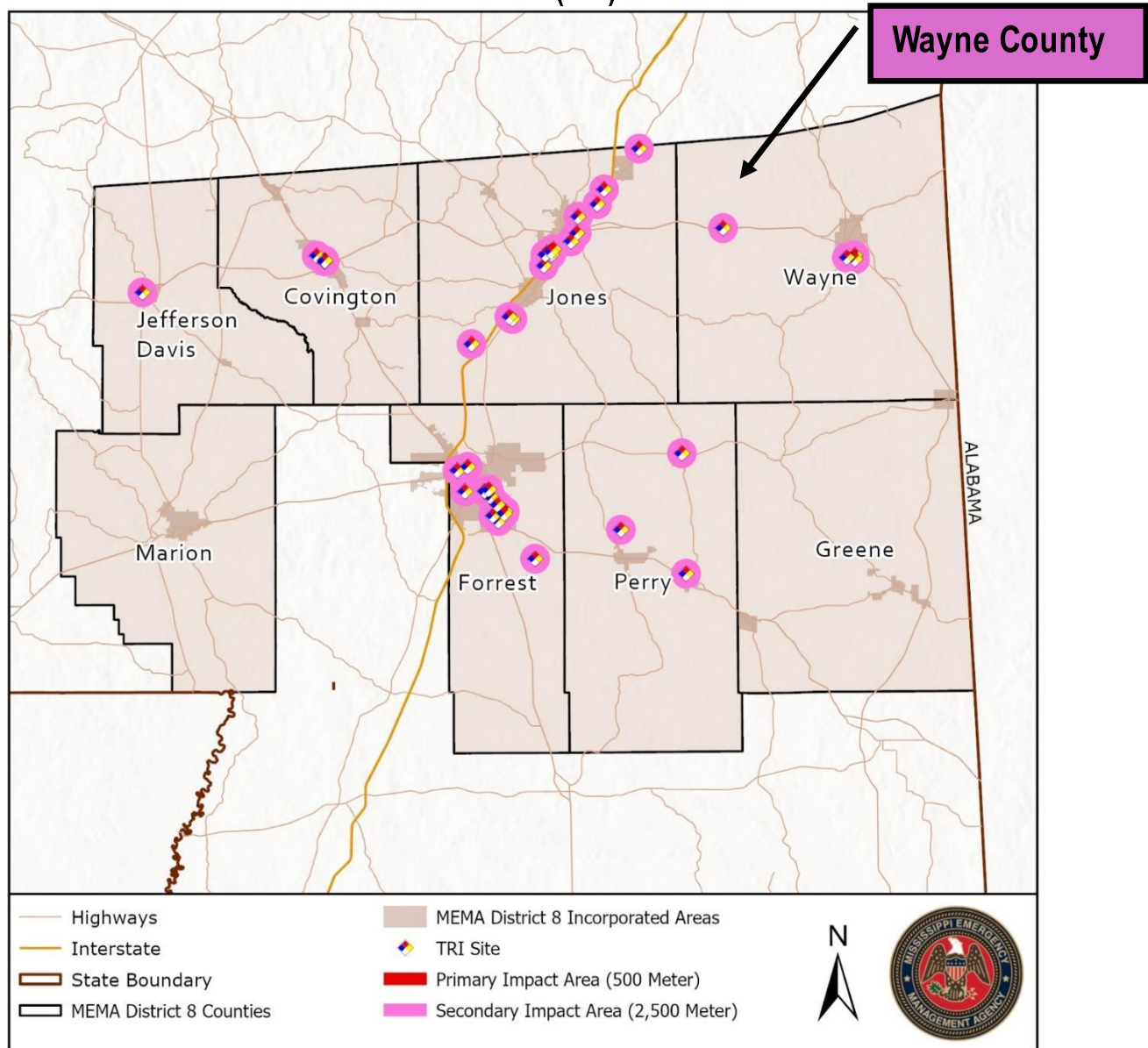


## LOCATION AND SPATIAL EXTENT

### Hazardous Materials

Wayne County has four TRI sites. These sites are shown in **Figure H.7**.

**FIGURE H.7: TOXIC RELEASE INVENTORY (TRI) SITES IN WAYNE COUNTY**



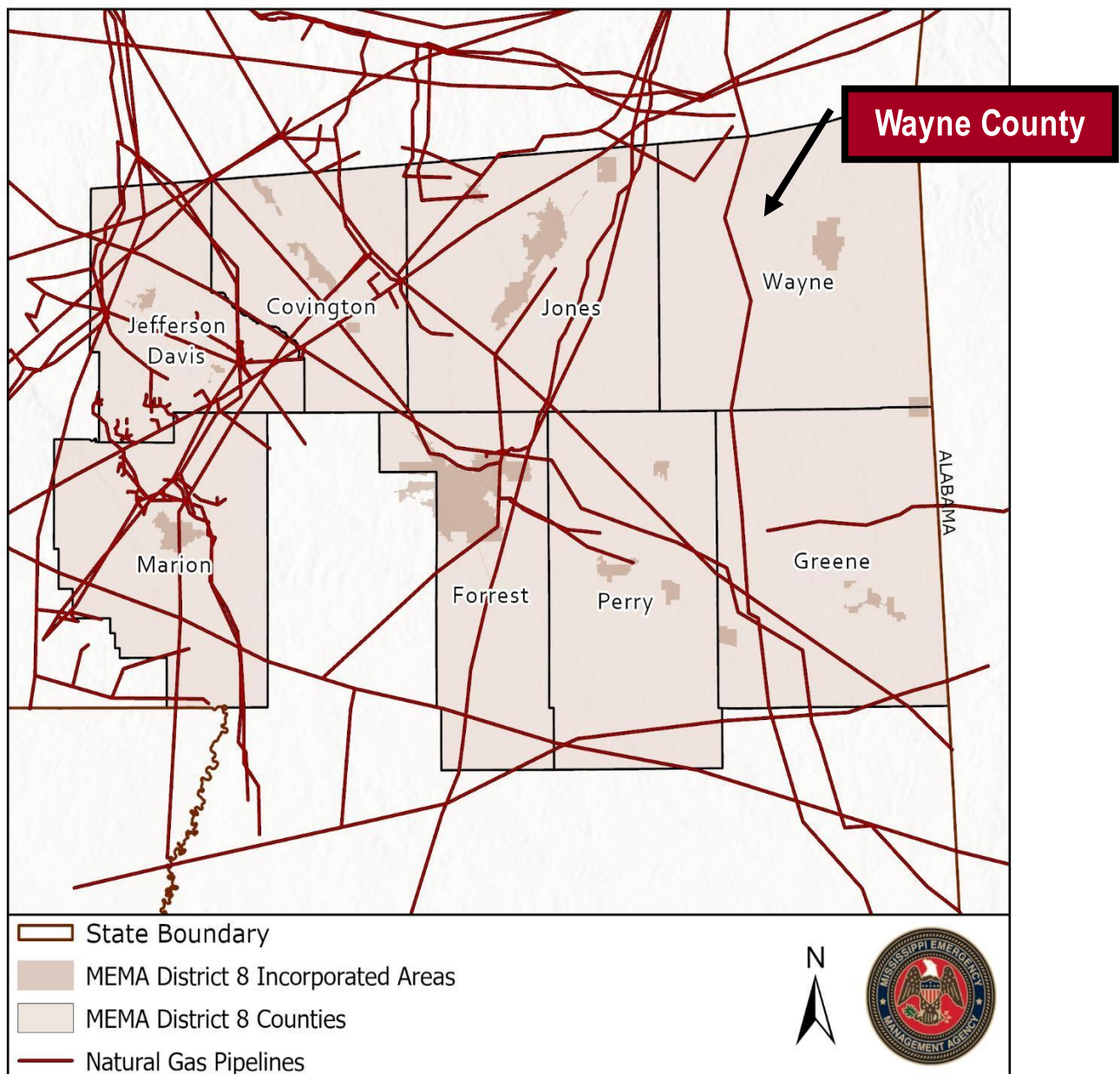
In addition to “fixed” hazardous materials locations, hazardous materials may also impact the county via roadways and rail. Many roads in the county are narrow, making hazardous material transport in the area especially treacherous. All roads that permit hazardous material transport are considered potentially 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 H.8** shows the trunk lines for each of these material types but does not show the gathering or distribution pipelines. Gaslines are in blue and hazardous liquid lines are in red. This data has not changed since the last plan update.

**FIGURE H.8: PIPELINES IN WAYNE COUNTY**





### 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, resulting in \$4,450 in property damages. In addition, one injury was reported. **Table H.21** 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 H.21: HAZMAT INCIDENTS IN WAYNE COUNTY**

| Location                                   | Date       | Report Number | Mode    | Serious Incident | Deaths/Injuries | Damages | Quantity Released |
|--------------------------------------------|------------|---------------|---------|------------------|-----------------|---------|-------------------|
| <b>The City of Waynesboro</b>              |            |               |         |                  |                 |         |                   |
| Waynesboro                                 | 11/18/1979 | I-1979120895  | Highway | No               | 0/0             | \$0     | 42 LGA            |
| Waynesboro                                 | 10/2/1998  | I-1998100617  | Highway | No               | 0/0             | \$400   | 5 LGA             |
| Waynesboro                                 | 3/16/2000  | I-2000031243  | Highway | No               | 0/0             | \$0     | 0                 |
| Waynesboro                                 | 9/14/2012  | I-2012100243  | Highway | No               | 0/0             | \$0     | 10 LGA            |
| Waynesboro                                 | 9/14/2012  | E-2012110328  | Highway | Yes              | 0/1             | \$0     | 15 LGA            |
| <b>Unincorporated Area in Wayne County</b> |            |               |         |                  |                 |         |                   |
| Eucutta                                    | 2/15/2003  | I-2003031009  | Highway | No               | 0/0             | \$4,050 | 20 LGA            |

Source: PHMSA

### Pipelines

Between 2000 and 2024, 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. Although it is difficult to predict where exactly these incidents would occur, the probability that they will is possible.

## H.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.

## **H.2.15 Pandemic**

### **LOCATION AND SPATIAL EXTENT**

Pandemics are global in nature. However, they may start anywhere. In 2019 a Global Pandemic hit the United States, and for the first time, a Disaster Declaration was declared for the COVID Pandemic.

All populations should be considered at risk to pandemic. Buildings and infrastructure are not directly impacted by the virus but could be indirectly impacted if people are not able to operate and maintain them due to illness. Many buildings may be shutdown, at least temporarily, as a result. Employers may initiate work from home procedures for non-essential workers in order to help stop infection. Commerce activities, and thus the economy, may suffer greatly during this time.

## ***HISTORICAL OCCURRENCES***

Several pandemics have been reported throughout history. The first known pandemic dates back to 430 B.C. with the Plague of Athens. It reportedly killed a quarter of the population over four years due to typhoid fever. In 165-180 A.D., the Antonine Plague killed nearly 5 million people. Next, the Plague of Justinian (the first bubonic plague pandemic) occurred from 541 to 566. It killed 10,000 people a day at its peak and resulted in a 50 percent drop in Europe's population.

Since the 1500s, influenza pandemics have occurred about three times every century or roughly every 10-50 years. The Black Death devastated European populations in the 14th century. Nearly a third of the population (20-30 million) was killed over six years. From 1817 to present, seven Cholera Pandemics have impacted to the world and killed millions. Perhaps most severe, was the Third Cholera Pandemic (1852-1959) which started in China. Isolated cases can still be found in the Western U.S. today. There were three major pandemics in the 20th century (1918-1919, 1957-1958, and 1968-1969). The most infamous pandemic flu of the 20th century, however, was that of 1918-1919. Since the 1960s, there has only been one pandemic, the 2009 H1N1 influenza. The pandemics of the 20th and 21st centuries that impacted the United States are detailed below.

**1918 Spanish Flu:** This was the most devastating flu of the 20th century. This pandemic spread across the world in three waves between 1918 and 1919. It typically impacted areas for around twelve weeks and then would largely disappear. However, it would frequently reemerge several months later. Worldwide, approximately 50 million persons died and over a quarter of the population was infected. Nearly 675,000 people died in the United States. The illness came on suddenly and could cause death within a few hours. The virus impacted those aged 15 to 35 especially hard. The movement of troops during World War I is thought to have facilitated the spread of the virus.

In Mississippi, state officials noted that "epidemics have been reported from a number of places in the State," on October 4th, 1918. By the 18th, twenty-six localities reported 1,934 cases (the real number of cases was likely much higher). West Point, Mississippi was hit especially hard, and quarantine was established. Throughout the state, African Americans were impacted at a greater rate than white populations. This is thought to be partly caused from a shortage of caretakers. It is estimated that over 6,000 people died in Mississippi, though that number may be much higher as death records were not widely recorded.

**1957 Asian Flu:** It is estimated that the Asian Flu caused 2 million deaths worldwide. Approximately 70,000 deaths were in the U.S. However, the proportion of people impacted was substantially higher than that of the Spanish Flu. This flu was characterized as having much milder effects than the Spanish Flu and greater survivability. Similar to other pandemics, this pandemic has two waves. Elderly and infant populations were more likely to succumb to death. This flu is thought to have originated from a genetic mutation of a bird virus.

**1968 Hong Kong Flu:** The Hong Kong Flu is thought to have caused one million deaths worldwide. It was milder than both the Asian and Spanish influenza viruses. It was similar to the Asian Flu, which may have provided some immunity to the virus. It had the most severe impact on elderly populations.

**2009 H1N1 Influenza:** This flu was derived from human, swine, and avian virus strains. It was initially reported in Mexico in April 2009. On April 26, the U.S. government declared H1N1 a public health emergency. A vaccine was developed and over 80 million were vaccinated which helped minimize the impacts. The virus had mild impacts on most of the population but did cause death (usually from viral pneumonia) in high-risk populations such as pregnant women, obese persons, indigenous people, and those with chronic respiratory, cardiac, neurological, or immunity conditions.

Worldwide, it is estimated that 43 million to 89 million people contracted H1N1 between April 2009 and April 2010, and between 8,870 and 18,300 H1N1 cases resulted in death.

**COVID-19 (coronavirus disease 2019):** Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019 and changed the way people view Pandemics. Wayne County had 7,031 cases of Covid and 92 deaths.

COVID-19 most often causes respiratory symptoms that can feel much like a cold, the flu, or pneumonia. COVID-19 may attack more than your lungs and respiratory system. Other parts of your body may also be affected by the disease. Most people with COVID-19 have mild symptoms, but some people become severely ill. Some people are more likely than others to get very sick if they get COVID-19. This includes people who are older, are immunocompromised, have certain disabilities, or have underlying health conditions.

In addition to the pandemics above, there have been several cases of pandemic threats, some of which reached epidemic levels. They were contained before spreading globally. Examples include Smallpox, Polio, Tuberculosis, Malaria, AIDS, SARS and Yellow Fever. Advances in medicine and technology have been instrumental in containing the spread of viruses in recent history.

### **PROBABILITY OF FUTURE OCCURRENCES**

Based on historical occurrence information, it is assumed that Webster County has a probability level of unlikely (less than 1 percent annual probability) for future pandemics events. While pandemic can have devastating impacts, they are relatively rare.

The Mississippi State Department of Health maintains a state pandemic plan which can be found here: <http://www.msdh.state.ms.us/msdhsite/index.cfm/44,1136,122,154,pdf/SNSPlan.pdf>

## **H.2.16 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 H.21** 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 H.21: EXTENT OF WAYNE COUNTY HAZARDS**

| HAZARD                                              | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tectonic Hazards</b>                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Earthquake</b>                                   | 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.                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Mass-Movements</b>                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Landslide</b>                                    | 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.                                                                                                                                                                                                                                                                                                                            |
| <b>Expansive Soils</b>                              | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Hydraulic Hazards</b>                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Drought</b>                                      | 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 over the twenty-four-year reporting period.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Floods</b>                                       | 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 percent of the total land area in Wayne County.<br><br>Flood depth and velocity are recorded via United States Geological Survey streamgages 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.                                                                                                                                                                                    |
| <b>Dam Failure</b>                                  | Dam Failure extent is defined using the Mississippi Division of Environmental Quality criteria. There are no dams classified as high hazard in the county.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Meteorological Hazards</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Hurricane and Tropical Storms</b>                | 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 3 storm (Hurricane Katrina in 2005) which carried tropical force winds of 135 miles per hour upon arrival in the county.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Thunderstorms/<br/>Hail/ Lightning/<br/>Wind</b> | 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 last reported on April 28, 2014, at 83 knots (approximately 96 mph). It should be noted that future events may exceed these historical occurrences.<br><br>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 July 17, 2023). It should be noted that future events may exceed this.<br><br>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. |
| <b>Winter Storms</b>                                | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Heat Wave</b>                                    | 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 Wayne County. However, the highest recorded temperature in Hattiesburg (southwest of the county) was 109°F in 2023.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tornado</b>                   | 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 EF2 (reported on April 5, 2022).                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Biological Hazards</b>        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Pandemic</b>                  | The extent of a pandemic impacting the county is difficult to estimate. It could result in thousands of deaths and extreme disruption of commerce and everyday life.<br>Covid is a disease caused by a virus named SARS-CoV-2. It can be very contagious and spreads quickly. Over one million people have died from COVID-19 in the United States. Covid hit the United States in 2019 and changed the way people view Pandemics. Marion County had 7,031 cases of COVID and 92 deaths                                                                                                                              |
| <b>Other Natural Hazards</b>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Wildfire</b>                  | Wildfire data was provided by the Mississippi Forestry Commission and is reported annually by county from 2000-2023. 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.                                                                                                                                                                |
| <b>Erosion</b>                   | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Climate Change</b>            | The extent Climate change will impact Wayne County is hard to estimate. It could cause more intense, frequent, and/or greater magnitude of thunderstorms, tropical storms, winds, tornadoes, heavy rains, flash flooding... If the intensity and magnitude increase it could lead to greater property & crop damage and possible loss of life.                                                                                                                                                                                                                                                                       |
| <b>Other Hazards</b>             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Cyber Attack</b>              | 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.                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Hazard Materials Incident</b> | 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.<br>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.<br>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. |

## 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 H.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 H.22: SUMMARY OF PRI RESULTS FOR WAYNE COUNTY**

| <b>HAZARD</b> | <b>Category/Degree of Risk</b> |               |                       |                     |                  |
|---------------|--------------------------------|---------------|-----------------------|---------------------|------------------|
|               | <b>Probability</b>             | <b>Impact</b> | <b>Spatial Extent</b> | <b>Warning Time</b> | <b>PRI Score</b> |

| Tectonic Hazards                 |               |               |             |                    |                    |     |
|----------------------------------|---------------|---------------|-------------|--------------------|--------------------|-----|
| Earthquake                       | Unlikely      | Minor         | Moderate    | Less than 6 hours  | Less than 6 Hours  | 1.7 |
| Mass-Movement Hazards            |               |               |             |                    |                    |     |
| Landslide                        | Unlikely      | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | 1.5 |
| Expansive Soil                   | Possible      | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | 1.8 |
| Hydrologic Hazards               |               |               |             |                    |                    |     |
| Drought                          | Highly Likely | Minor         | Large       | More than 24 hours | More than 1 week   | 2.8 |
| Floods                           | Likely        | Limited       | Moderate    | 6 to 12 hours      | Less than 24 hours | 2.4 |
| Dam Failure                      | Unlikely      | Critical      | Moderate    | More than 24 hours | Less than 24 hours | 2.0 |
| Meteorological Hazards           |               |               |             |                    |                    |     |
| Hurricane/ Tropical Storms       | Likely        | Catastrophic  | Large       | More than 24 hours | Less than 24 hours | 3.2 |
| Thunderstorm/ 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 |
| Lightning                        | Highly Likely | Limited       | Negligible  | Less than 6 hours  | Less than 6 hours  | 2.5 |
| Winter Storms                    | Likely        | Limited       | Moderate    | More than 24 hours | Less than 24 hours | 2.3 |
| Temperature Extremes/ Heat Waves | Highly Likely | Likely        | Small       | More than 24 hours | More than 1 week   | 2.8 |
| Tornado                          | Likely        | Critical      | Small       | Less than 6 hours  | Less than 6 hours  | 2.7 |
| Biological Hazards               |               |               |             |                    |                    |     |
| Pandemic                         | Likely        | Limited—Major | Small—Large | More than 24 hours | More than a week   | 2.8 |
| Other Natural Hazards            |               |               |             |                    |                    |     |
| Wildfire                         | Likely        | Minor         | Small       | Less than 6 hours  | Less than one week | 2.3 |
| Erosion                          | Possible      | Minor         | Small       | More than 24 hours | More than 1 week   | 1.8 |
| Climate Change                   | Likely        | Critical      | Large       | More than 1 week   | More than 1 week   | 2.6 |
| Other Hazards                    |               |               |             |                    |                    |     |
| Cyber Attack                     | Possible      | Limited       | Small       | Less than 6 hours  | Less than 24 Hours | 1.9 |
| Hazardous Materials Incident     | Unlikely      | Limited       | Small       | Less than 6 hours  | Less than 24 hours | 1.9 |
| Meth Lab Incident                | Possible      | Minor         | Small       | Less than 6 hours  | Less than 6 hours  | 1.8 |
| Pipeline Incident                | Possible      | Limited       | Small       | Less than 6 hours  | Less than 6 hours  | 2.2 |

## H.2.17 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 H.23). 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 H.23: CONCLUSIONS ON HAZARD RISK FOR WAYNE COUNTY**

|                      |                                                                                                                                                                                    |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High Risk</b>     | <i>Drought/Heat Wave</i><br><i>Hurricane and Tropical Storm</i><br><i>Thunderstorm/ High Wind</i><br><i>Tornado</i><br><i>Flood</i><br><i>Lightning</i><br><i>Pandemic</i>         |
| <b>Moderate Risk</b> | <i>Climate Change</i><br><i>Hail</i><br><i>Pipeline Incident</i><br><i>Hazardous Materials Incident</i><br><i>Wildfire</i><br><i>Dam Failure</i><br><i>Winter Storm and Freeze</i> |
| <b>Low Risk</b>      | <i>Expansive Soil</i><br><i>Landslide</i><br><i>Meth Lab Incident</i><br><i>Pandemic</i><br><i>Erosion</i><br><i>Cyber Attack</i>                                                  |

### H.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 amounts of damage 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*.

### H.3.1 Asset Inventory

**Table H.24** lists the number of parcels and the total assessed value of improvements for Wayne County and its participating jurisdictions (study area of vulnerability assessment).

**TABLE H.24: IMPROVED PROPERTY IN WAYNE COUNTY**

| LOCATION     | Number of Improved Properties | Total Assessed Value of Improvements |
|--------------|-------------------------------|--------------------------------------|
| Wayne County | 100,269                       | \$1,501,381,000                      |

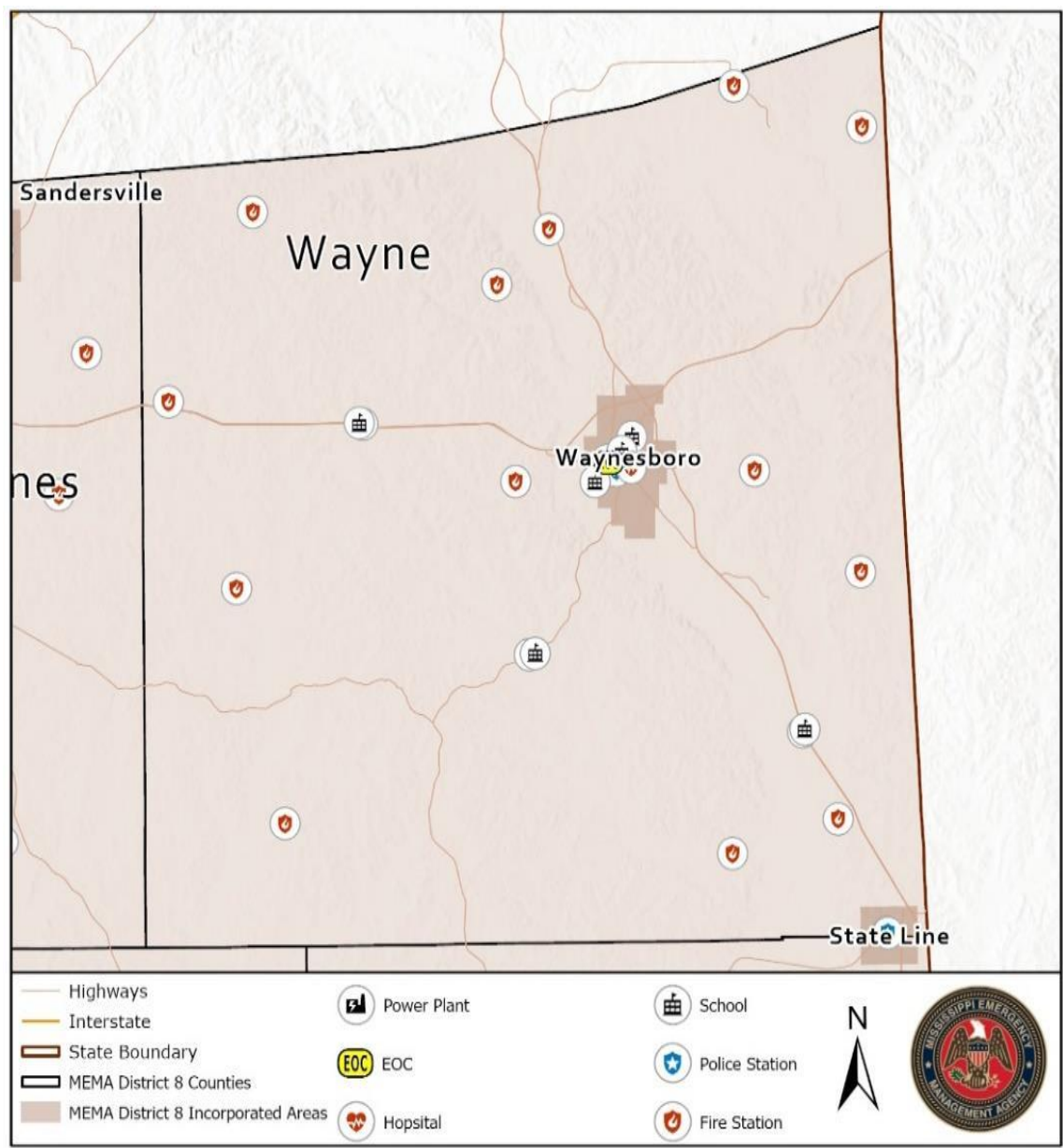
**Table H.25** lists the fire stations, police stations, emergency operations centers (EOCs), medical care facilities, and schools and other critical facilities located in Wayne County. HAZUS was used to obtain the critical facilities for the county and this data was updated to reflect recent changes. In addition, **Figure H.9** shows the locations of essential facilities in Wayne County. **Table H.26** 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 H.25: CRITICAL FACILITY INVENTORY IN WAYNE COUNTY**

| Location                   | Fire Station | Police Station | Medical Care Facility | EOC      | Schools  |
|----------------------------|--------------|----------------|-----------------------|----------|----------|
| <i>Waynesboro</i>          | 1            | 1              | 1                     | 0        | 6        |
| <i>Unincorporated Area</i> | 1            | 1              | 0                     | 1        | 3        |
| <b>Wayne County Total:</b> | <b>2</b>     | <b>2</b>       | <b>1</b>              | <b>1</b> | <b>9</b> |

**FIGURE H.9: CRITICAL FACILITY LOCATIONS IN WAYNE COUNTY**





**Table H.26** 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”).

**TABLE H.26: AT-RISK CRITICAL FACILITIES IN WAYNE COUNTY**

|                                  |                | Other        |                                      |                                       | Atmospheric |                                  |                           |         |                       | Geologic    |            | Hydrologic          |                 |                 |
|----------------------------------|----------------|--------------|--------------------------------------|---------------------------------------|-------------|----------------------------------|---------------------------|---------|-----------------------|-------------|------------|---------------------|-----------------|-----------------|
| Facility Name                    | Facility Type  | WHP Hazard   | Fixed HAZMAT 500-2500M Roads & Rails | Mobile HAZMAT 500-2500M Roads & Rails | Drought     | Thunder-storm, Lightning, & Hail | Hurricane /Tropical Storm | Tornado | Winter Storm & Freeze | Earth-quake | Land-slide | Dam & Levee Failure | 100- Year Flood | 500- Year Flood |
| Wayne County Critical Facilities |                |              |                                      |                                       |             |                                  |                           |         |                       |             |            |                     |                 |                 |
| Buckatunna Elem. School          | School         | HIGH         |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                 |                 |
| Beat Four Elem. School           | School         | HIGH         |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                 |                 |
| Clara Elem. School               | School         | Very Low     |                                      |                                       | X           | X                                | X                         |         | X                     | X           |            |                     |                 |                 |
| Wayne Academy                    | School         | Low          |                                      | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                 |                 |
| Wayne CO VOC Complex             | School         | Non-burnable | X                                    | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                 |                 |
| Wayne CO Alternative School      | School         | Non-burnable | X                                    | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                 |                 |
| Wayne County Civil Defense       | Emer. Facility | Non-burnable | X                                    | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                 |                 |
| Wayne County High School         | School         | Low          |                                      | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                 |                 |
| Wayne County Sheriff             | Police Station | Non-burnable | X                                    | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                 |                 |
| Wayne County VFD                 | Fire Station   | Non-burnable | X                                    | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                 |                 |
| Wayne General Hospital           | Care Facility  | Non-burnable | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                 |                 |
| Waynesboro Elem. School          | School         | Non-burnable |                                      | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                 |                 |
| Waynesboro Fire Dept.            | Fire Station   | Non-burnable | X                                    | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                 |                 |
| Waynesboro Middle School         | School         | Low          | X                                    | X                                     | X           | X                                | X                         |         | X                     | X           |            |                     |                 |                 |
| Waynesboro Police Clerk          | Police Station | Non-burnable | X                                    | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                 |                 |
| Waynesboro Police Dept           | Police Station | Non-burnable | X                                    | X                                     | X           | X                                | X                         | X       | X                     | X           |            |                     |                 |                 |

### H.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 H.27** lists the population by jurisdiction according to U.S. Census 2020 population estimates. These counts are presented at the county and municipal levels. The total population in Wayne County according to Census data is 19,779 persons. If the decline in population continues to decline it could lead to a decline in the population vulnerability. Additional population estimates are presented above in *Section H.1*.

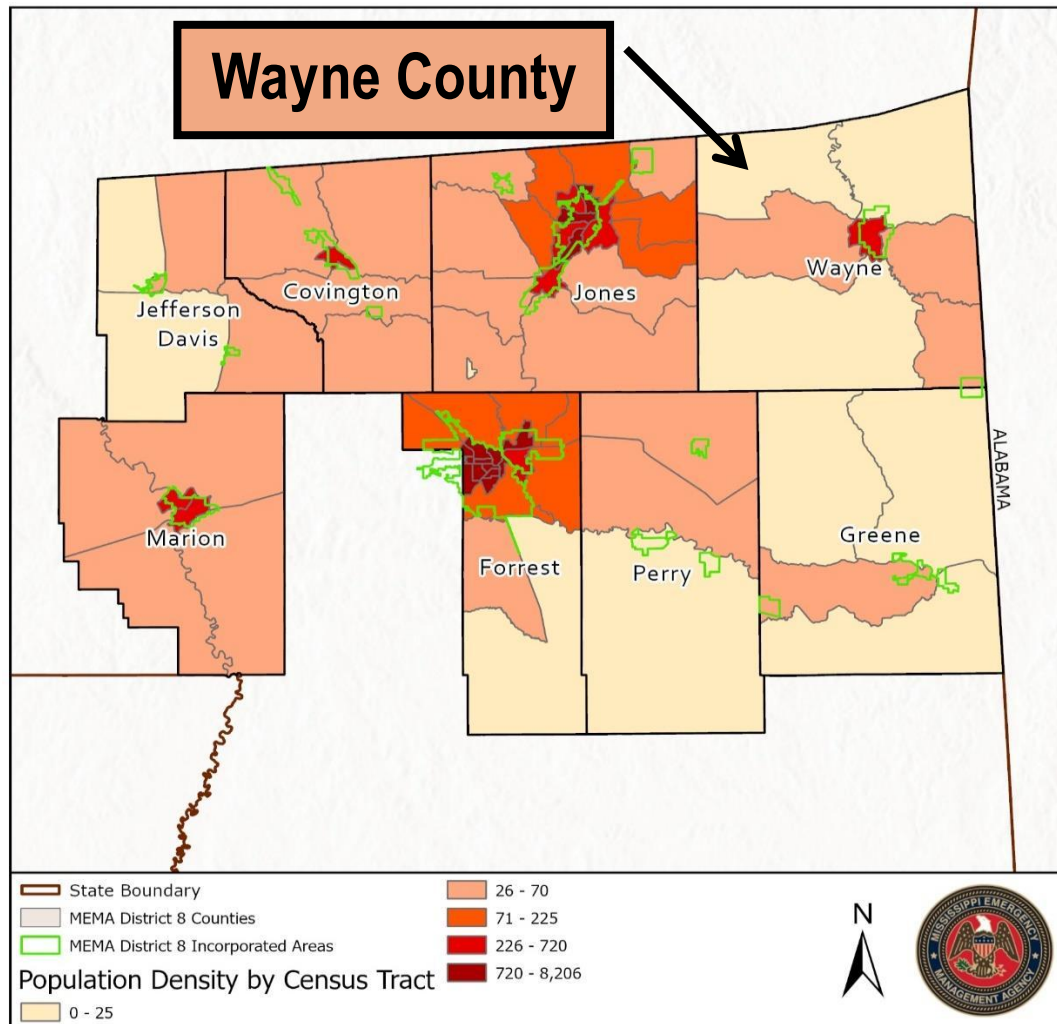
**TABLE H.27: TOTAL POPULATION IN WAYNE COUNTY**

| Jurisdiction        | 2010 Census | 2020 Census |
|---------------------|-------------|-------------|
| Wayne County        | 20,747      | 19,779      |
| Waynesboro          | 5,043       | 4,567       |
| Unincorporated Area | 15,139      | 14,760      |

Source: US Census Bureau

In addition, **Figure H.10** illustrates the population density by census tract as it was reported by the U.S. Census Bureau in 2020.

**FIGURE H.10: POPULATION DENSITY IN WAYNE COUNTY**



### H.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 H.24**.

Since the previous plan, the jurisdictions are not aware of any developments in hazard prone areas that have increased or decreased vulnerability.

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

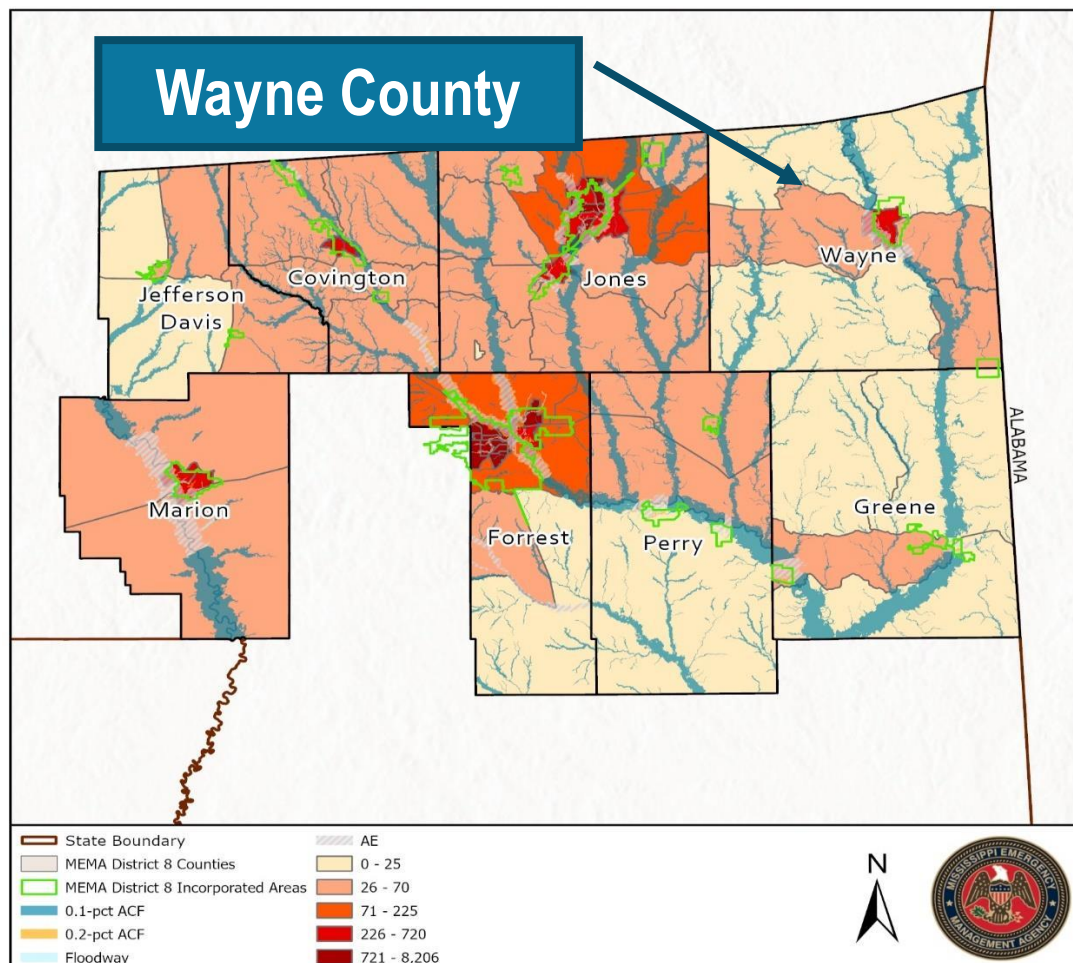
## FLOOD

Historical evidence indicates that Wayne County is susceptible to flood events. A total of 21 flood events have been reported by the National Centers for Environmental Information resulting in over \$1.2M 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 H.11** is presented to gain a better understanding of at-risk population. This information has not changed since the last plan update.

**FIGURE H.11: POPULATION DENSITY NEAR FLOODPLAINS**





## Critical Facilities

The critical facility analysis revealed that there are 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 H.26**.

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.

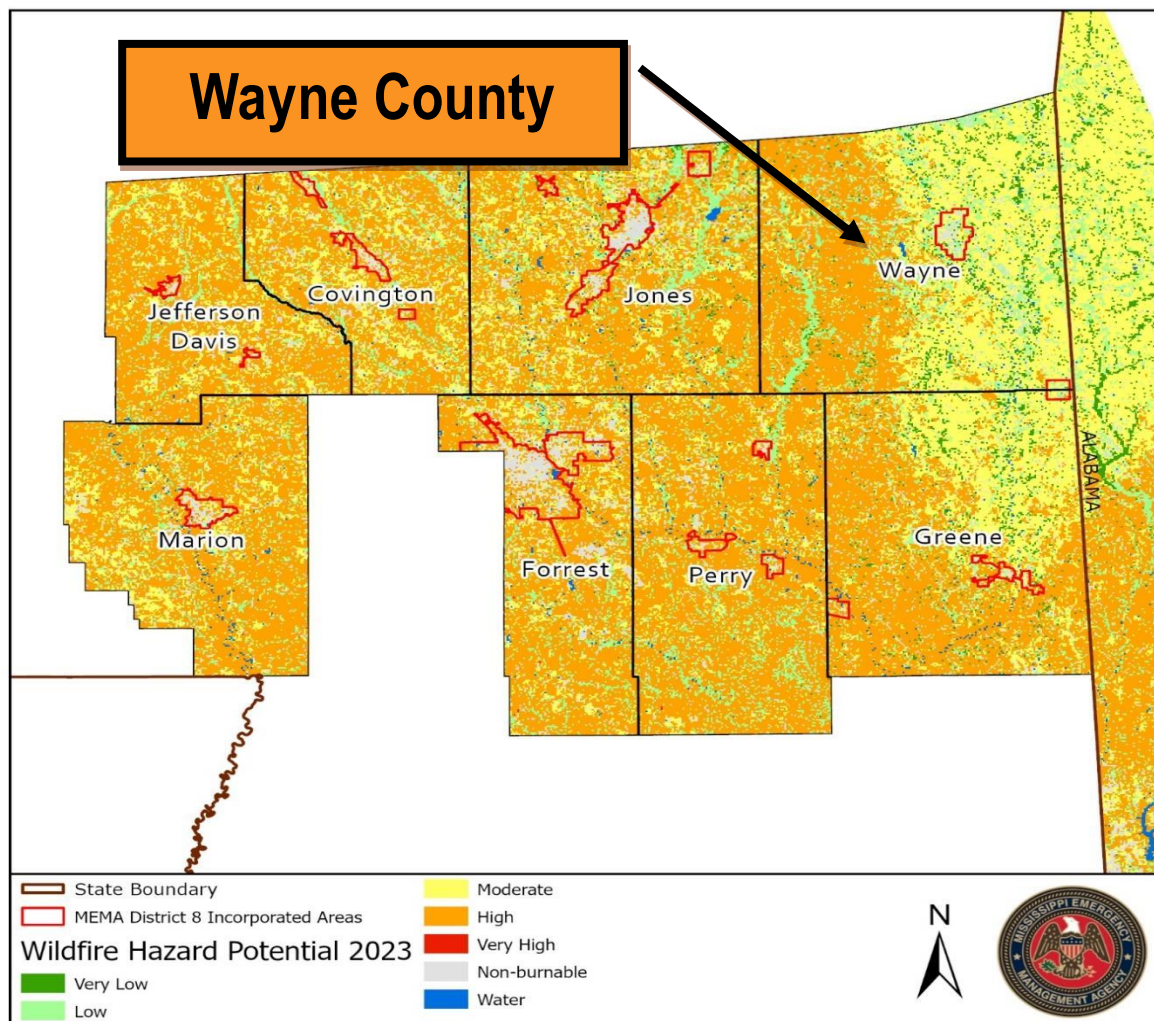
## WILDFIRE

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) 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 H.12** shows the wildfire hazard potential for Wayne County. Most of the planning areas falls within the very low to high category.

**FIGURE H.12: WILDFIRE RISK AREAS IN WAYNE COUNTY**





### **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 H.26**.

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 earthquake scenario was generated for the region only and not on an individual county basis. The HAZUS model and historical occurrences confirm, any earthquake activity in the area is likely to inflict minor damage to the county. HAZUS 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 scenario.

For the earthquake hazard vulnerability assessment, an arbitrary scenario was created to estimate damages to the planning area. HAZUS 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 arbitrary scenario.

### **Critical Facilities**

There are 15 critical facilities identified for Wayne 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 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 H.26**.

## **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 H.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 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 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 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 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 estimated the amounts 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 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 H.26**.

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.

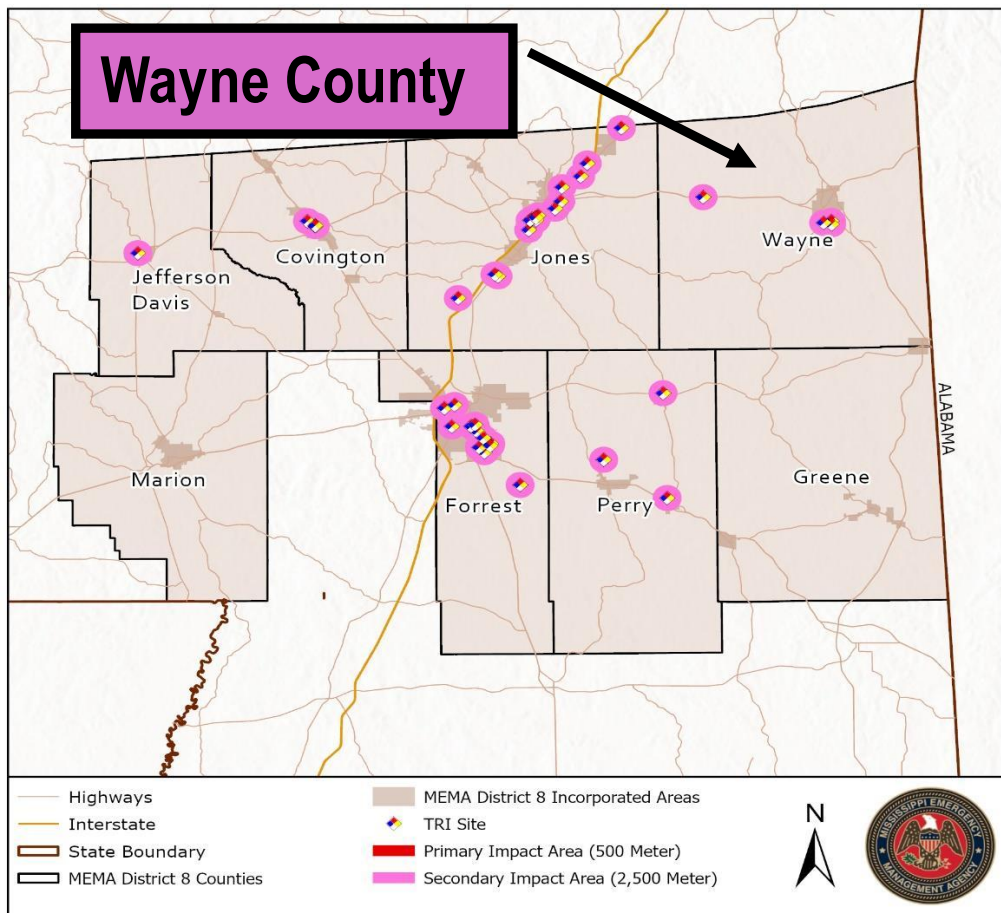
## HAZARDOUS MATERIALS INCIDENT

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.

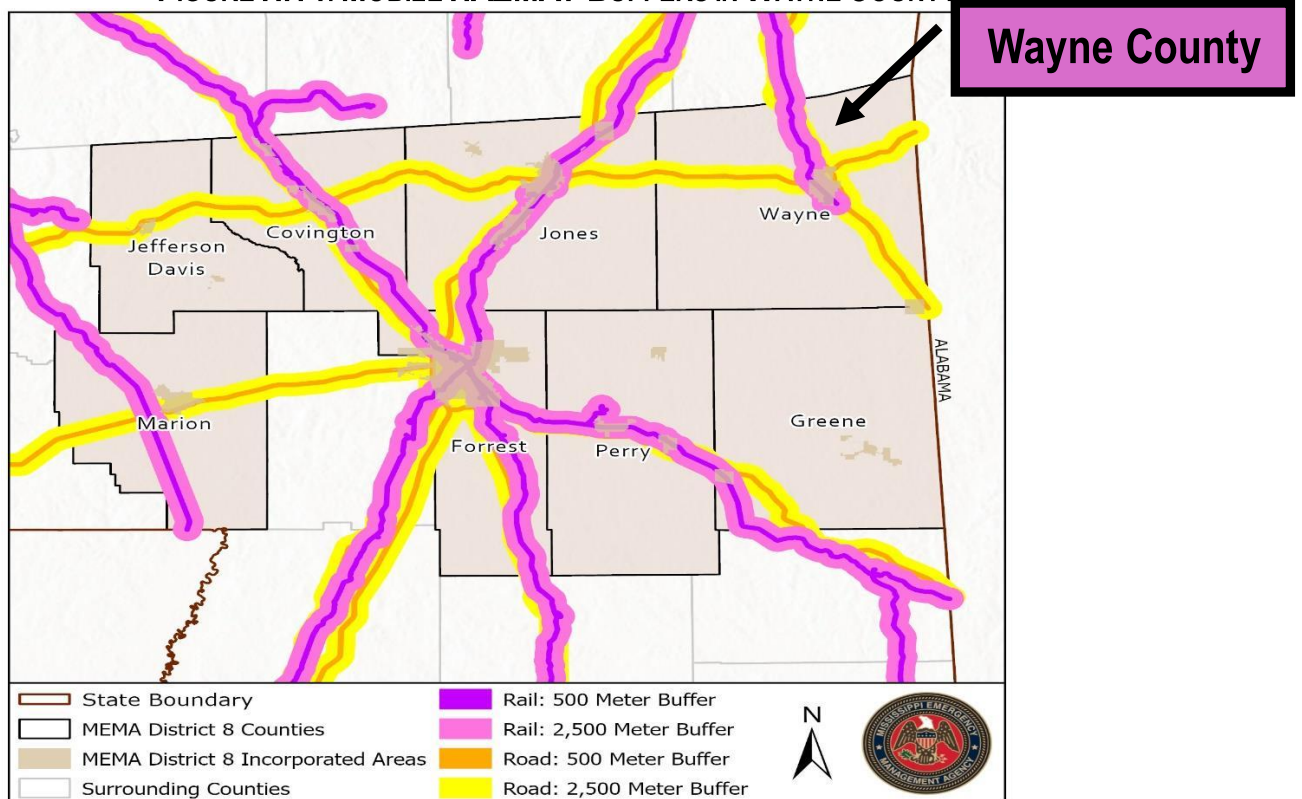
Most hazardous materials incidents that occur are contained and suppressed before destroying any property or threatening lives. However, they can have a significant negative impact. Such events can cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent 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 H.13**. 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 H.14** 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 H.13: TRI SITES WITH BUFFERS IN WAYNE COUNTY**



**FIGURE H.14: 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 H.26**.

#### **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 H.26** 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.

## **H.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*.

## H.4.1 Planning and Regulatory Capability

**Table H.28** 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 H.28: RELEVANT PLANS, ORDINANCES, AND PROGRAMS**

| Planning/Regulatory Tool                | Wayne County | Waynesboro |
|-----------------------------------------|--------------|------------|
| Hazard Mitigation Plan                  | ✓            | ✓          |
| Comprehensive Land Use Plan             |              | ✓          |
| Floodplain Management Plan              |              |            |
| Open Space Management Plan              | ✓            | ✓          |
| Stormwater Management Plan/Ordinance    |              | ✓          |
| National 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 Codes                          |              | ✓          |
| Fire Codes                              |              | ✓          |
| National Flood Insurance Program (NFIP) | ✓            | ✓          |
| National Community Rating System        |              |            |

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 City of Waynesboro was also included in this plan.

### **Emergency Operations Plan**

Wayne County maintains an emergency operations plan through its Emergency Management Agency. The City of Waynesboro is 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 of 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 H.29 provides NFIP policy and claim information for each participating jurisdiction in Wayne County.

**TABLE H.29: NFIP POLICY AND CLAIM INFORMATION**

| <b>Location</b>      | <b>Date Joined NFIP</b> | <b>Current Effective Map Date</b> | <b>NFIP Policies in Force</b> | <b>Insurance in Force</b> | <b>Closed Claims</b> | <b>Total Payments to Date</b> |
|----------------------|-------------------------|-----------------------------------|-------------------------------|---------------------------|----------------------|-------------------------------|
| <b>Wayne County†</b> | <b>8/16/1988</b>        | <b>7/18/2011</b>                  | <b>44</b>                     | <b>\$6,960,900</b>        | <b>6</b>             | <b>\$117,636</b>              |
| <b>Waynesboro</b>    | <b>8/16/1988</b>        | <b>7/18/2011</b>                  | <b>32</b>                     | <b>\$3,136,500</b>        | <b>17</b>            | <b>\$134,036</b>              |

†Includes unincorporated areas of county only  
(M) – No Elevation Determined, All Zone A, C and X

### **Flood Damage Prevention Ordinance**

All communities participating in the NFIP are required to adopt a local flood damage prevention ordinance. Wayne County and the City of Waynesboro all participate in the NFIP and have adopted flood damage prevention ordinances.

### **Open Space Management Plan**

Wayne County 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.

## **H.4.2 Administrative and Technical Capability**

**Table H.30** 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 H.30: RELEVANT STAFF / PERSONNEL RESOURCES**

| <b>Staff/Personal Resource</b>                                                                                 | <b>Wayne County</b> | <b>Waynesboro</b> |
|----------------------------------------------------------------------------------------------------------------|---------------------|-------------------|
| <b>Planners with knowledge of land development/ land management practices</b>                                  |                     |                   |
| <b>Engineers of professionals trained in construction practices related to buildings and/or infrastructure</b> | ✓                   | ✓                 |
| <b>Planners or engineers with an understanding of natural and/or human-caused hazards.</b>                     | ✓                   | ✓                 |
| <b>Emergency Manager</b>                                                                                       | ✓                   | ✓                 |
| <b>Floodplain Manager</b>                                                                                      | ✓                   | ✓                 |
| <b>Land Surveyors</b>                                                                                          | ✓                   | ✓                 |
| <b>Scientists familiar with the hazards of the community.</b>                                                  | ✓                   | ✓                 |
| <b>Staff with education or expertise to assess the community's vulnerability to hazards.</b>                   | ✓                   | ✓                 |
| <b>Personnel skilled in GIS and/or HAZ-US</b>                                                                  | ✓                   | ✓                 |
| <b>Resource development staff or grant writers</b>                                                             |                     |                   |

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.

### H.4.3 Fiscal Capability

**Table H.31** 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 H.31: RELEVANT FISCAL RESOURCES**

| <b>Fiscal Tool/Resource</b>                                    | <b>Wayne County</b> | <b>Waynesboro</b> |
|----------------------------------------------------------------|---------------------|-------------------|
| <b>Capital Improvement Programing</b>                          | ✓                   | ✓                 |
| <b>Community Development Block Grants (CDBG)</b>               | ✓                   | ✓                 |
| <b>Special Purchase Taxes (or taxing districts)</b>            | ✓                   | ✓                 |
| <b>Gas/ Electric Utility Fees</b>                              | ✓                   | ✓                 |
| <b>Water/ Sewer Fees</b>                                       | ✓                   | ✓                 |
| <b>Stormwater Utility Fees</b>                                 |                     |                   |
| <b>Development Impact Fees</b>                                 |                     |                   |
| <b>General Obligation, Revenue, and/or Special Tax Bonds</b>   | ✓                   | ✓                 |
| <b>Partnering Arrangements or Intergovernmental Agreements</b> | ✓                   | ✓                 |

#### H.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.

## H.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*.

H.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 H.32**.

TABLE H.32: 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. |

H.5.2 Mitigation Action Plan

The mitigation actions proposed by Wayne County 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 | Estimated Cost | Responsible Party | Completion Date (Target) | Implementation Status |

| Sources             |                                                                                                                                               |                |                |                                                      |         |                            |                    |                                                                                                                          |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|------------------------------------------------------|---------|----------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------|
| Prevention          |                                                                                                                                               |                |                |                                                      |         |                            |                    |                                                                                                                          |
| P-1                 | Identify high risk areas where hazards are most likely to occur.                                                                              | All            | High           | N/A                                                  | No cost | County                     | Annual Plan 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 | County, JDCEMA             | Annual Review      | Ongoing                                                                                                                  |
| P-3                 | Consider adoption of the flood damage prevention ordinance in Wayne County.                                                                   | FL             | High           | Self-funded                                          | No cost | County & Floodplain Admin. | Ongoing            | Implemented & Ongoing                                                                                                    |
| P-4                 | Consider adoption of subdivision regulations.                                                                                                 | TH, FL, HU, TS | Medium         | Self-funded                                          | No cost | County                     | Ongoing            | Ongoing                                                                                                                  |
| P-5                 | Monitor flood level of local rivers.                                                                                                          | FL             | High           | Grants, BRIC, HMGP                                   | Unknown | County                     | Ongoing            | Ongoing                                                                                                                  |
| P-6                 | Continue to maintain and upgrade the County's drainage facilities.                                                                            | HU, TS, FL, TS | High           | Self-funded                                          | Unknown | County                     | Annual Review      | Ongoing<br>(Some progress implemented- clean out ditches annually.)                                                      |
| P-7                 | Consider adoption of a comprehensive drainage plan.                                                                                           | FL, TS, HU     | Medium         | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.       | Unknown | County                     | Ongoing            | Deferred.<br>(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                     | Ongoing            | Ongoing                                                                                                                  |
| P-9                 | Develop a government services continuity plan.                                                                                                | All            | Medium         | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.       | Unknown | County                     | Ongoing            | Completed & Ongoing                                                                                                      |
| P-10                | Support the development of a shared geographic data system for land use and site planning.                                                    | All            | Medium to high | Self-funded                                          | Unknown | 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 | Medium         | Self-funded                                          | No cost | County                     | Ongoing            | Implemented and ongoing                                                                                                  |
| PP-2                | Ensure that structures in floodplain areas are elevated.                                                                                      | FL             | High           | Self-funded                                          | No 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 cost | County                     | Ongoing            | Deferred due to funds                                                                                                    |
| PP-4                | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                             | All            | High           | Grants, BRIC, HMGP,                                  | Unknown | County                     | Ongoing            | Deferred                                                                                                                 |
| PP-5                | Ensure secure operation of water wells, water tanks, and wastewater treatment facilities.                                                     | All            | High           | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., HMGP | Unknown | County                     | Ongoing            | Implemented and ongoing                                                                                                  |
| PP-6                | Property Acquisitions and elevations of flood prone structures                                                                                | FL             | Medium         | Grants, BRIC, HMGP, PDM                              | TBD     | County                     | Ongoing            | Ongoing                                                                                                                  |
| PP-7                | Generators and hook-ups for critical facilities                                                                                               | TH, HU, TS, TO | Medium         | HMA, Grants, BRIC, HMGP,                             | TBD     | County                     | Ongoing            | Ongoing                                                                                                                  |
| PP-8                | Warning sirens throughout planning area                                                                                                       | TH, TO         | Medium         | HMA, Grants, BRIC, HMGP,                             | TBD     | County                     | Ongoing            | Ongoing                                                                                                                  |
| PP-9                | Individual saferooms throughout planning area                                                                                                 | TO             | Medium         | HMA, Grants, BRIC, HMGP                              | TBD     | County                     | Ongoing            | Ongoing                                                                                                                  |
| PP-10               | 361 Saferooms were needed- location is TBD                                                                                                    | TO             | Medium         | HMA, Grants, BRIC, HMGP                              | TBD     | County                     | Ongoing            |                                                                                                                          |



|                                    |                                                                                                                                                                                                                 |                    |                |                         |                    |                                                        |                       |                                                               |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|-------------------------|--------------------|--------------------------------------------------------|-----------------------|---------------------------------------------------------------|
|                                    |                                                                                                                                                                                                                 |                    |                |                         |                    |                                                        |                       | Ongoing                                                       |
| PP-11                              | Elevation of critical facilities, such as pumps, and equipment                                                                                                                                                  | FL                 | Medium         | HMA, Grants, BRIC, HMGP | TBD                | County                                                 | Ongoing               | Ongoing                                                       |
| PP-12                              | Floodproofing measures for critical facilities prone to flood                                                                                                                                                   | FL                 | Medium         | HMA, Grants, BRIC, HMGP | TBD                | County                                                 | Ongoing               | Ongoing                                                       |
| <b>Natural Resource Protection</b> |                                                                                                                                                                                                                 |                    |                |                         |                    |                                                        |                       |                                                               |
| NRP-1                              | Preserve natural wetlands and riparian areas through acquisition of conversation easements.                                                                                                                     | HU, TS, FL         | Low to Medium  | Donation                | Low to no cost     | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing               | Ongoing                                                       |
| <b>Emergency Services</b>          |                                                                                                                                                                                                                 |                    |                |                         |                    |                                                        |                       |                                                               |
| 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 and MEMA    | Low to 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 | County, JDCEMA                                         | Ongoing               | Completed and ongoing                                         |
| ES-3                               | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                                         | All                | High           | Grants, BRIC, HMGP      | Unknown            | County and County EMA                                  | Ongoing               | Deferred due to funding                                       |
| ES-4                               | Explore potential sites for a new shelter and/or special needs shelter.                                                                                                                                         | TO, HU, TS, FL     | High           | Grants, BRIC, HMGP      | Unknown            | County and EMA                                         | Ongoing               | Deferred due to funding                                       |
| ES-5                               | Improve disaster communication systems within the County.                                                                                                                                                       | All                | High           | Unknown                 | Unknown            | County EMA                                             | Contingent on funding | Ongoing (MSWINN at Fire Department and all use social media.) |
| ES-7                               | Ensure that emergency sirens are in place county-wide.                                                                                                                                                          | All                | High           | Grants, BRIC, HMGP      | Unknown            | County EMA                                             | Contingent on funding | Ongoing                                                       |
| ES-8                               | Install warning informers in buildings that house vulnerable populations.                                                                                                                                       | All                | High           | Grants, BRIC, HMGP      | Unknown            | County EMA                                             | Contingent on funding | Ongoing                                                       |
| ES-9                               | Install Alert FM service at radio station.                                                                                                                                                                      | All                | High           | Grants, BRIC, HMGP      | Unknown            | County EMA                                             | Contingent on funding | Completed & Ongoing                                           |
| ES-10                              | Upgrade Emergency Broadcast System capabilities.                                                                                                                                                                | All                | High           | Grants, BRIC, HMGP      | Unknown            | County EMA                                             | Contingent on funding | Ongoing                                                       |
| 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               | 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               | Implemented / Ongoing                                         |
| ES-13                              | Ensure continuity of utility services for public buildings and other critical facilities.                                                                                                                       | All                | High           | Grants, BRIC, HMGP      | Unknown            | County                                                 | Ongoing               | Ongoing                                                       |
| ES-14                              | Host a meeting to review Wayne 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  | Unknown            | County                                                 | Ongoing               | Ongoing                                                       |
| <b>Structural Projects</b>         |                                                                                                                                                                                                                 |                    |                |                         |                    |                                                        |                       |                                                               |
| SP-1                               | Address cross-jurisdictional issues related to response, recovery and mitigation on key                                                                                                                         | HU, TS, FL, RH     | Low to Medium  | Self-funded             | No Cost            | County                                                 | Ongoing               | Ongoing                                                       |

|                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                             |                      |        |                                 |                    |            |              |                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------|---------------------------------|--------------------|------------|--------------|-------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                    | projects with overlapping boundaries.                                                                                                                       |                      |        |                                 |                    |            |              |                         |
| <b>Public Education and Awareness</b>                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                             |                      |        |                                 |                    |            |              |                         |
| <b>PEA-1</b>                                                                                                                                                                                                                                                                                                                                                                       | Explore continuing education programs/ opportunities for staff and elected officials.                                                                       | FL, TH, HU, TS       | Medium | Self-funded, Grants, BRIC, HMGP | Low Cost           | County     | Ongoing      | Ongoing                 |
| <b>PEA-2</b>                                                                                                                                                                                                                                                                                                                                                                       | Provide education and outreach materials to citizens and visitors.                                                                                          | All                  | High   | Self-funded                     | No Cost            | County EMA | Ongoing      | Implemented / Ongoing   |
| <b>PEA-3</b>                                                                                                                                                                                                                                                                                                                                                                       | Encourage development of Family Disaster Plans.                                                                                                             | All                  | High   | Self-funded, COPS, FIRE         | Low or no cost     | County EMA | Ongoing      | Implemented / Ongoing   |
| <b>PEA-4</b>                                                                                                                                                                                                                                                                                                                                                                       | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspapers. | FL, Multiple Hazards | High   | Self-funded                     | No additional cost | County EMA | Upon Request | Implemented / Ongoing   |
| <b>PEA-5</b>                                                                                                                                                                                                                                                                                                                                                                       | Encourage businesses to develop business continuity or contingency operating plans.                                                                         | CH                   | High   | DHS, SAFER, COPS, FIRE, Others  | Low or no Cost     | County     | Ongoing      | Implemented and Ongoing |
| <b>PEA-6</b>                                                                                                                                                                                                                                                                                                                                                                       | Education and outreach regarding drought and water conservation procedures                                                                                  | All                  | Medium | Self-funded                     | Low or no cost     | County     | Ongoing      | Ongoing                 |
| FL = Flood      HU = Hurricane      TS = Tropical Storm      TO = Tornado      TH = Thunderstorm<br>BH = Biological Hazards      HW = High Winds      TT = Transportation and Technological Hazards<br>RH = Roadway Hazards      CH = Civil Hazards      P = Pandemic<br>County EMA = Wayne County Emergency Management Agency      County BOS = Wayne County Board of Supervisors |                                                                                                                                                             |                      |        |                                 |                    |            |              |                         |

## The City of Waynesboro Mitigation Action Plan

| Action #                   | Description                                                                                                                                   | Hazard(s) Addressed | Relative Priority | Funding Sources                                      | Estimated Cost | Responsible Party          | Completion Date (Target) | Implementation Status                                                                                                    |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|------------------------------------------------------|----------------|----------------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Prevention</b>          |                                                                                                                                               |                     |                   |                                                      |                |                            |                          |                                                                                                                          |
| P-1                        | Identify high risk areas where hazards are most likely to occur.                                                                              | All                 | High              | N/A                                                  | No cost        | County                     | Annual Plan 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        | County, JDCEMA             | Annual Review            | Ongoing                                                                                                                  |
| P-3                        | Consider adoption of the flood damage prevention ordinance in Wayne County.                                                                   | FL                  | High              | Self-funded                                          | No cost        | County & Floodplain Admin. | Ongoing                  | Implemented & Ongoing                                                                                                    |
| P-4                        | Consider adoption of subdivision regulations.                                                                                                 | TH, FL, HU, TS      | Medium            | Self-funded                                          | No cost        | County                     | Ongoing                  | Ongoing                                                                                                                  |
| P-5                        | Monitor flood level of local rivers.                                                                                                          | FL                  | High              | Grants, BRIC, HMGP                                   | Unknown        | County                     | Ongoing                  | Ongoing                                                                                                                  |
| P-6                        | Continue to maintain and upgrade the County's drainage facilities.                                                                            | HU, TS, FL, TS      | High              | Self-funded                                          | Unknown        | County                     | Annual Review            | Ongoing<br>(Some progress implemented- clean out ditches annually)                                                       |
| P-7                        | Consider adoption of a comprehensive drainage plan.                                                                                           | FL, TS, HU          | Medium            | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.       | Unknown        | County                     | Ongoing                  | Deferred.<br>(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                     | Ongoing                  | Ongoing                                                                                                                  |
| P-9                        | Develop a government services continuity plan.                                                                                                | All                 | Medium            | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev.       | Unknown        | County                     | Ongoing                  | Completed & Ongoing                                                                                                      |
| P-10                       | Support the development of a shared geographic data system for land use and site planning.                                                    | All                 | Medium to high    | Self-funded                                          | Unknown        | County                     | Ongoing                  | Ongoing                                                                                                                  |
| <b>Property Protection</b> |                                                                                                                                               |                     |                   |                                                      |                |                            |                          |                                                                                                                          |
| 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 cost        | County                     | Ongoing                  | Implemented and ongoing                                                                                                  |
| PP-2                       | Ensure that structures in floodplain areas are elevated.                                                                                      | FL                  | High              | Self-funded                                          | No 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 cost        | County                     | Ongoing                  | Deferred due to funds                                                                                                    |
| PP-4                       | Continue to retrofit public buildings and other critical facilities to withstand natural hazards.                                             | All                 | High              | Grants, BRIC, HMGP                                   | Unknown        | County                     | Ongoing                  | Deferred                                                                                                                 |
| PP-5                       | Ensure secure operation of water wells, water tanks, and wastewater treatment facilities.                                                     | All                 | High              | CDBG, Small Muni. Grant, MSDA, USDA Rural Dev., HMGP | Unknown        | County                     | Ongoing                  | Implemented and ongoing                                                                                                  |
| PP-6                       | Property Acquisitions and elevations of flood prone structures                                                                                | FL                  | Medium            | Grants, BRIC, HMGP, PDM                              | TBD            | County                     | Ongoing                  | Ongoing                                                                                                                  |
| PP-7                       | Generators and hook-ups for critical facilities                                                                                               | TH, HU, TS, TO      | Medium            | HMA, Grants, BRIC, HMGP                              | TBD            | County                     | Ongoing                  | Ongoing                                                                                                                  |
| PP-8                       | Warning sirens throughout                                                                                                                     | TH, TO              | Medium            | HMA, Grants,                                         | TBD            | County                     | Ongoing                  | Ongoing                                                                                                                  |

|                                    |                                                                                                                                                                                                                 |                    |               |                                    |                    |                                                        |                       |                                                               |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|------------------------------------|--------------------|--------------------------------------------------------|-----------------------|---------------------------------------------------------------|
|                                    | planning area                                                                                                                                                                                                   |                    |               | BRIC, HMGP                         |                    |                                                        |                       |                                                               |
| PP-9                               | Individual saferooms throughout planning area                                                                                                                                                                   | TO                 | Medium        | HMA, Grants, BRIC, HMGP            | TBD                | County                                                 | Ongoing               | Ongoing                                                       |
| PP-10                              | 361 Saferooms were needed- location is TBD                                                                                                                                                                      | TO                 | Medium        | HMA, Grants, BRIC, HMGP            | TBD                | County                                                 | Ongoing               | Ongoing                                                       |
| PP-11                              | Elevation of critical facilities, such as pumps, and equipment                                                                                                                                                  | FL                 | Medium        | HMA, Grants, BRIC, HMGP            | TBD                | County                                                 | Ongoing               | Ongoing                                                       |
| PP-12                              | Floodproofing measures for critical facilities prone to flood                                                                                                                                                   | FL                 | Medium        | HMA, Grants, BRIC, HMGP            | TBD                | County                                                 | Ongoing               | Ongoing                                                       |
| <b>Natural Resource Protection</b> |                                                                                                                                                                                                                 |                    |               |                                    |                    |                                                        |                       |                                                               |
| NRP-1                              | Preserve natural wetlands and riparian areas through acquisition of conversation easements.                                                                                                                     | HU, TS, FL         | Low to Medium | Donation                           | Low to no cost     | MS Land Trust, Land Trust for MS Coastal Plain, County | Ongoing               | Ongoing                                                       |
| <b>Emergency Services</b>          |                                                                                                                                                                                                                 |                    |               |                                    |                    |                                                        |                       |                                                               |
| 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 and Grants, BRIC, HMGP | Low to 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 | County, JDCEMA                                         | Ongoing               | Complemented and ongoing                                      |
| ES-3                               | Survey the existing emergency shelters and study the feasibility of expanding the capacity of shelters.                                                                                                         | All                | High          | Grants, BRIC, HMGP                 | Unknown            | County and County EMA                                  | Ongoing               | Deferred due to funding                                       |
| ES-4                               | Explore potential sites for a new shelter and/or special needs shelter.                                                                                                                                         | TO, HU, TS, FL     | High          | Grants, BRIC, HMGP                 | Unknown            | County and EMA                                         | Ongoing               | Deferred due to funding                                       |
| ES-5                               | Improve disaster communication systems within the County.                                                                                                                                                       | All                | High          | Grants, BRIC, HMGP                 | Unknown            | County EMA                                             | Contingent on funding | Ongoing (MSWINN at Fire Department and all use social media.) |
| ES-7                               | Ensure that emergency sirens are in place county-wide.                                                                                                                                                          | All                | High          | Grants, BRIC, HMGP                 | Unknown            | County EMA                                             | Contingent on funding | Ongoing                                                       |
| ES-8                               | Install warning informers in buildings that house vulnerable populations.                                                                                                                                       | All                | High          | Grants, BRIC, HMGP                 | Unknown            | County EMA                                             | Contingent on funding | Ongoing                                                       |
| ES-9                               | Install Alert FM service at radio station.                                                                                                                                                                      | All                | High          | Grants, BRIC, HMGP                 | Unknown            | County EMA                                             | Contingent on funding | Completed & Ongoing                                           |
| ES-10                              | Upgrade Emergency Broadcast System capabilities.                                                                                                                                                                | All                | High          | Grants, BRIC, HMGP                 | Unknown            | County EMA                                             | Contingent on funding | Ongoing                                                       |
| 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               | 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               | Implemented / Ongoing                                         |
| ES-13                              | Ensure continuity of utility services for public buildings and other critical facilities.                                                                                                                       | All                | High          | Grants, BRIC, HMGP                 | Unknown            | County                                                 | Ongoing               | Ongoing                                                       |
| ES-14                              | Host a meeting to review Wayne County Comprehensive Emergency Management Plan.                                                                                                                                  | TT                 | Medium        | Self-funded                        | No additional cost | County                                                 | Annual Review         | Ongoing                                                       |
|                                    | Actively search for and identify                                                                                                                                                                                |                    |               |                                    |                    |                                                        |                       |                                                               |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                             |                             |                |                                       |                |                   |              |                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------|---------------------------------------|----------------|-------------------|--------------|-------------------------|
| <b>ES-15</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | funding sources for the enhancement of emergency response abilities of Fire and Sheriff's Departments.                                                      | <b>TT</b>                   | Medium to High | <b>DHS, SAFER, COPS, FIRE</b>         | Unknown        | <b>County</b>     | Ongoing      | Ongoing                 |
| <b>Structural Projects</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                             |                             |                |                                       |                |                   |              |                         |
| <b>SP-1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Address cross-jurisdictional issues related to response, recovery and mitigation on key projects with overlapping boundaries.                               | <b>HU, TS, FL, RH</b>       | Low to Medium  | Self-funded                           | No Cost        | <b>County</b>     | Ongoing      | Ongoing                 |
| <b>Public Education and Awareness</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                             |                             |                |                                       |                |                   |              |                         |
| <b>PEA-1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Explore continuing education programs/ opportunities for staff and elected officials.                                                                       | <b>FL, TH, HU, TS</b>       | Medium         | Self-funded, Grants, BRIC, HMGP       | Low Cost       | <b>County</b>     | Ongoing      | Ongoing                 |
| <b>PEA-2</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Provide education and outreach materials to citizens and visitors.                                                                                          | <b>All</b>                  | High           | Self-funded                           | No Cost        | <b>County EMA</b> | Ongoing      | Implemented / Ongoing   |
| <b>PEA-3</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Encourage development of Family Disaster Plans.                                                                                                             | <b>All</b>                  | High           | Self-funded, COPS, FIRE               | Low or no cost | <b>County EMA</b> | Ongoing      | Implemented / Ongoing   |
| <b>PEA-4</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Expand outreach information to property owners regarding retrofitting and flood-proofing techniques through community workshops, brochures, and newspapers. | <b>FL, Multiple Hazards</b> | High           | Self-funded                           | No cost        | <b>County EMA</b> | Upon Request | Implemented / Ongoing   |
| <b>PEA-5</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Encourage businesses to develop business continuity or contingency operating plans.                                                                         | <b>CH</b>                   | High           | <b>DHS, SAFER, COPS, FIRE, Others</b> | Low or no Cost | <b>County</b>     | Ongoing      | Implemented and Ongoing |
| <b>PEA-6</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Education and outreach regarding drought and water conservation procedures                                                                                  | <b>All</b>                  | Medium         | Self-funded                           | Low or no cost | <b>County</b>     | Ongoing      | Ongoing                 |
| <b>FL = Flood                      HU = Hurricane                      TS = Tropical Storm                      TO = Tornado                      TH = Thunderstorm</b><br><b>BH = Biological Hazards                      HW = High Winds                      TT = Transportation and Technological Hazards</b><br><b>RH = Roadway Hazards                      CH = Civil Hazards                      P = Pandemic</b><br><b>County EMA = Wayne County Emergency Management Agency                      County BOS = Wayne County Board of Supervisors</b> |                                                                                                                                                             |                             |                |                                       |                |                   |              |                         |

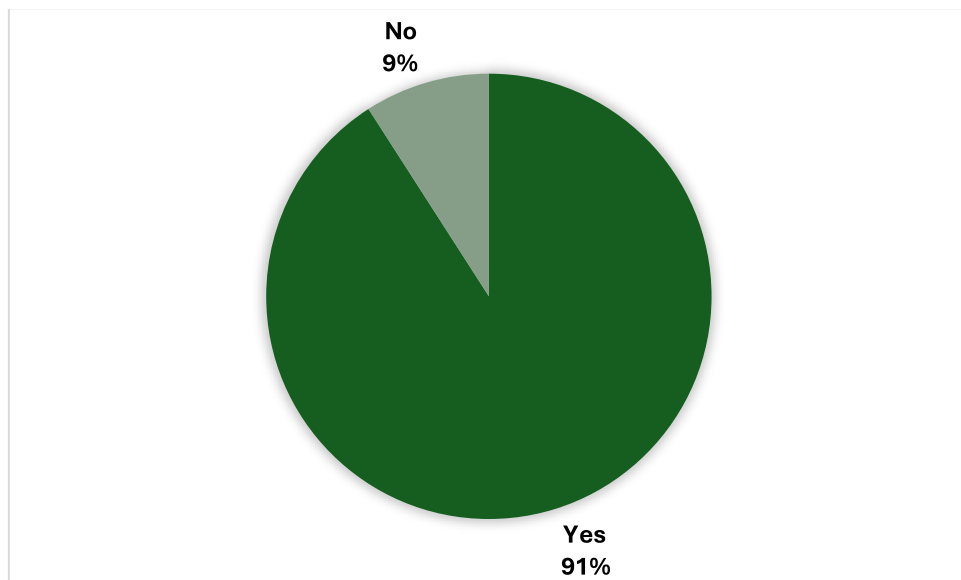


# District 8 Regional Hazard Mitigation Plan Public Participation Survey

1. What is the name of your town, city, or county?

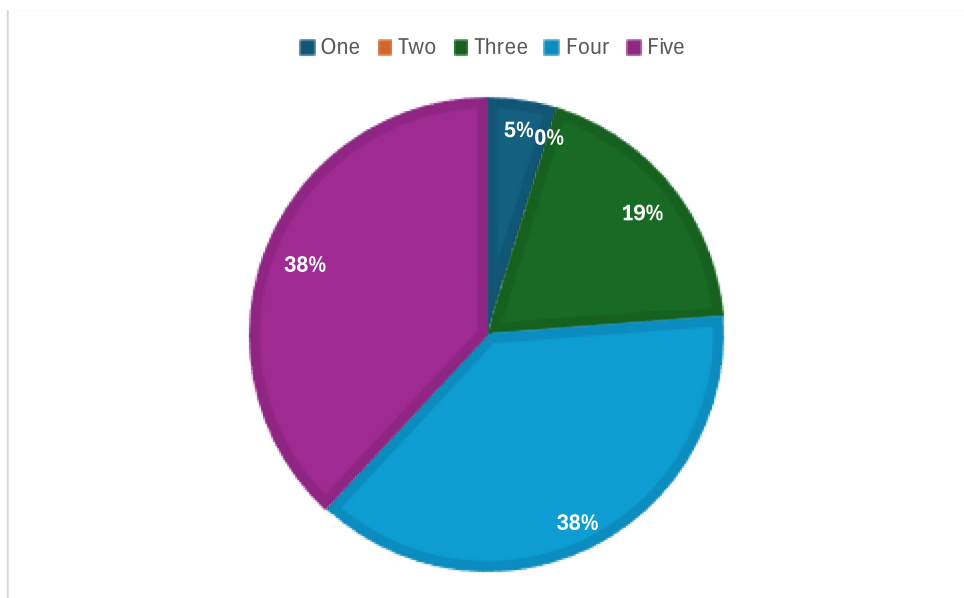
- Calhoun County
- Chickasaw County
- Choctaw County
- Clay County
- Lowndes County
- Monroe County
- Noxubee County
- Oktibbeha County
- Webster County
- Winston County

2. During the past five years, have you experienced or been impacted by a natural disaster?

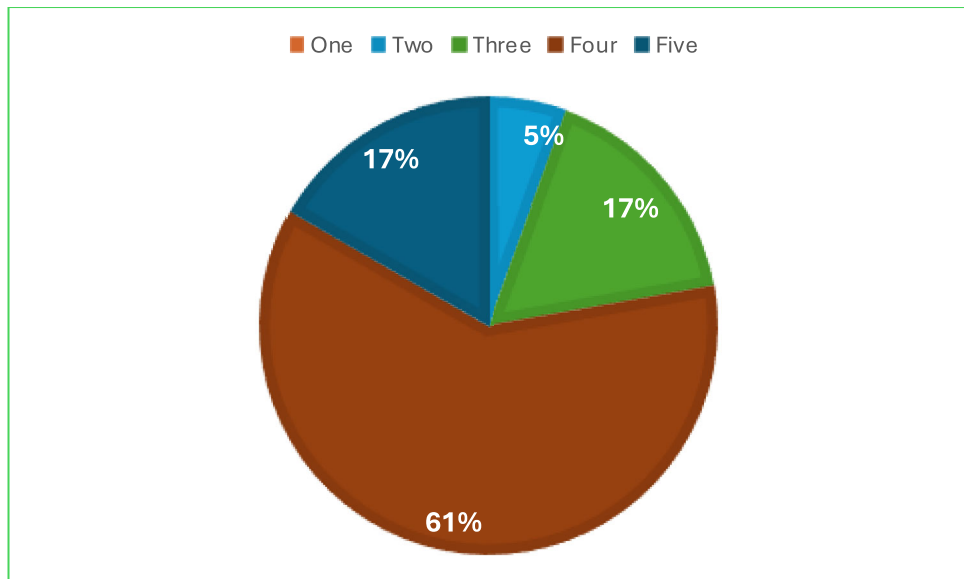


3. If yes, to question 2 explain.

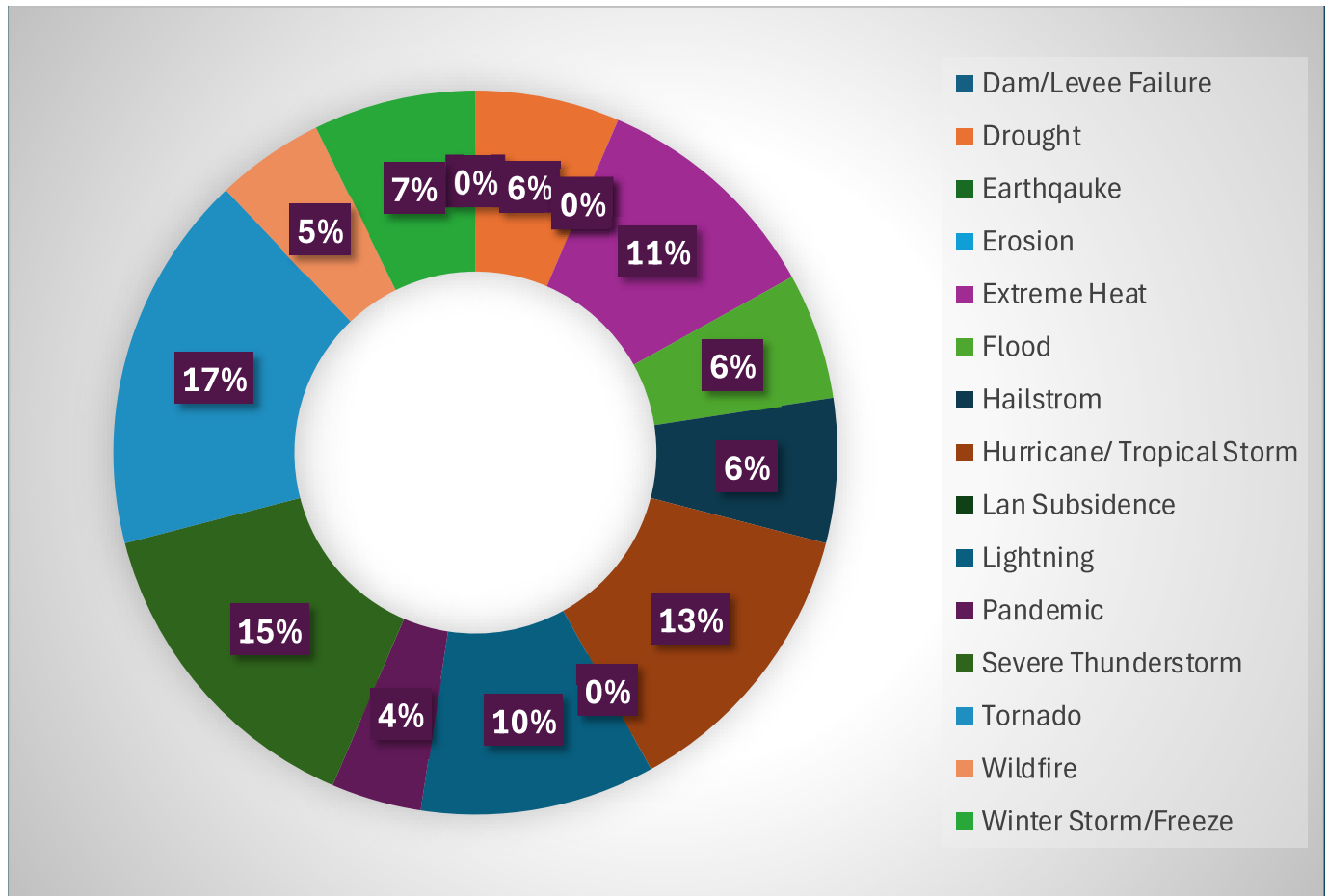
4. On a scale of 1 to 5, how concerned are you about the possibility of your community being impacted by a natural disaster? (1 – Not at all) (2 – Slightly) (3 – Moderately) (4 – Very) (5 – Extremely)



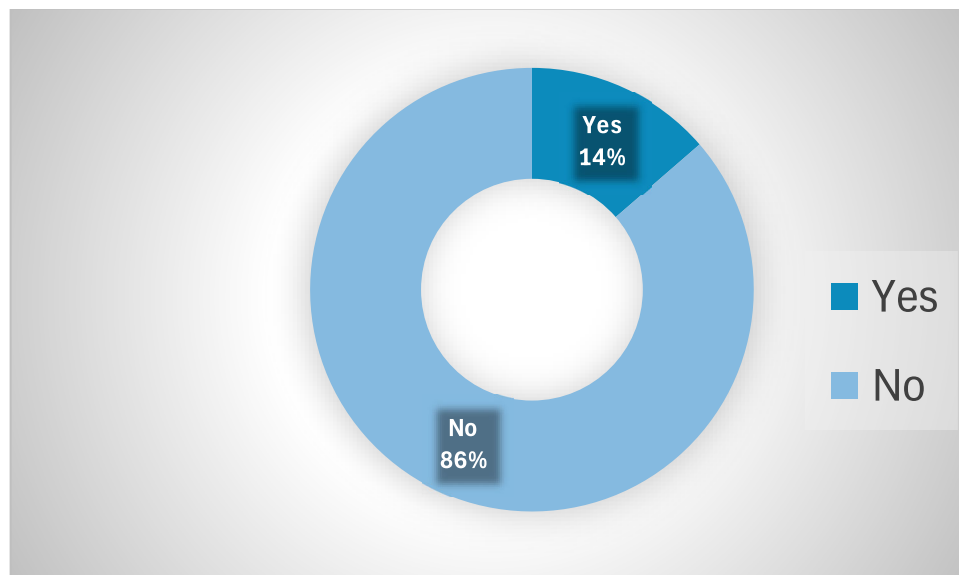
5. On a scale of 1 to 5, how prepared do you feel if a natural disaster were to occur? (1 – Not at all) (2 – Slightly) (3 – Moderately) (4 – Very) (5 – Extremely)



6. Please select hazards you think pose the greatest concern to your community:

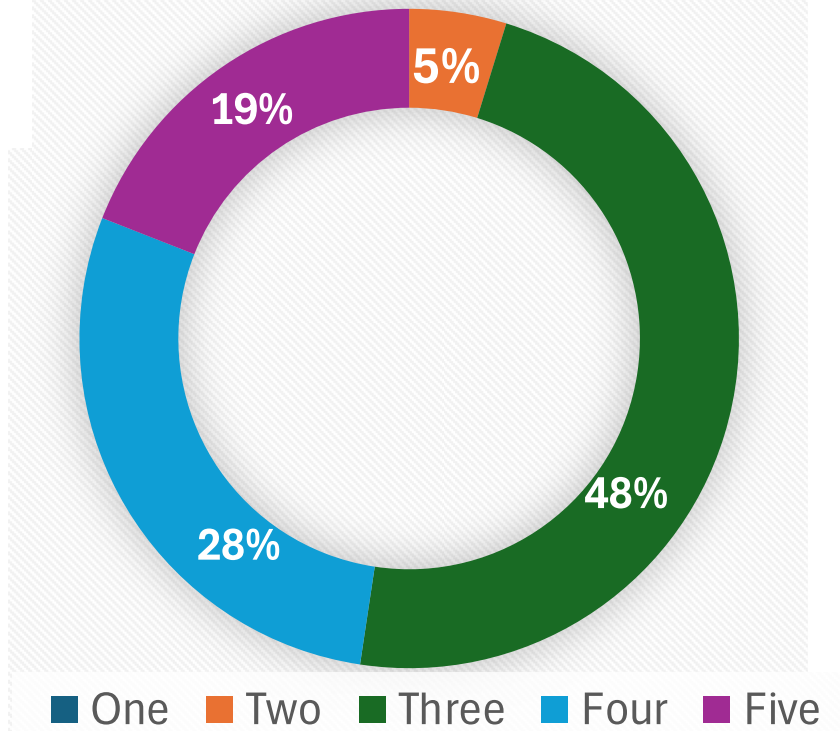


7. Is there another hazard not listed above that you think is a wide-scale threat to your community?

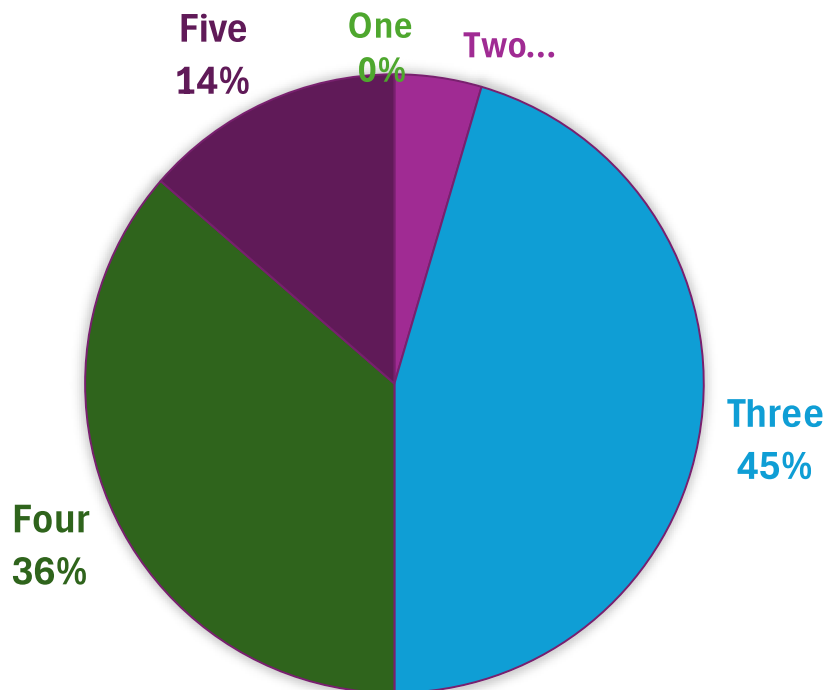


8. If yes, please explain.

9. On a scale of 1 to 5, how prepared do you feel if a natural disaster were to occur?  
(1 – N/A) (2 – Slightly) (3 – Moderately) (4 – Very) (5 – Extremely)

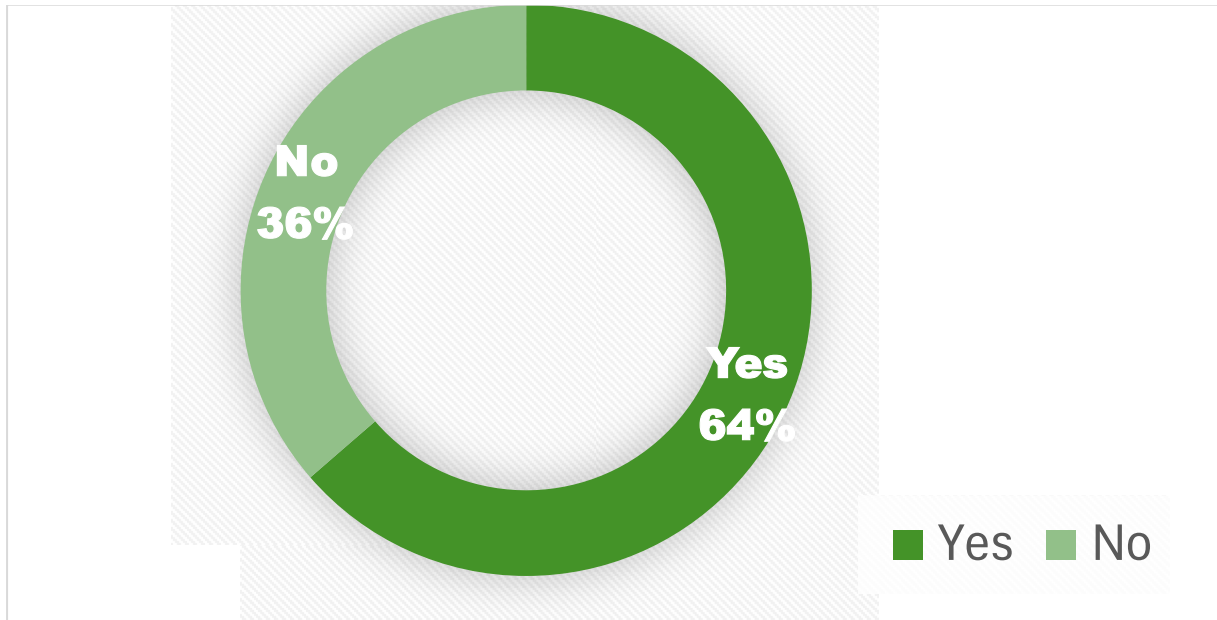


10. On a scale of 1 to 5, how informed do you feel about the risks and potential impacts of natural disasters?  
(1 – N/A) (2 – Slightly) (3 – Moderately) (4 – Very) (5 – Extremely)

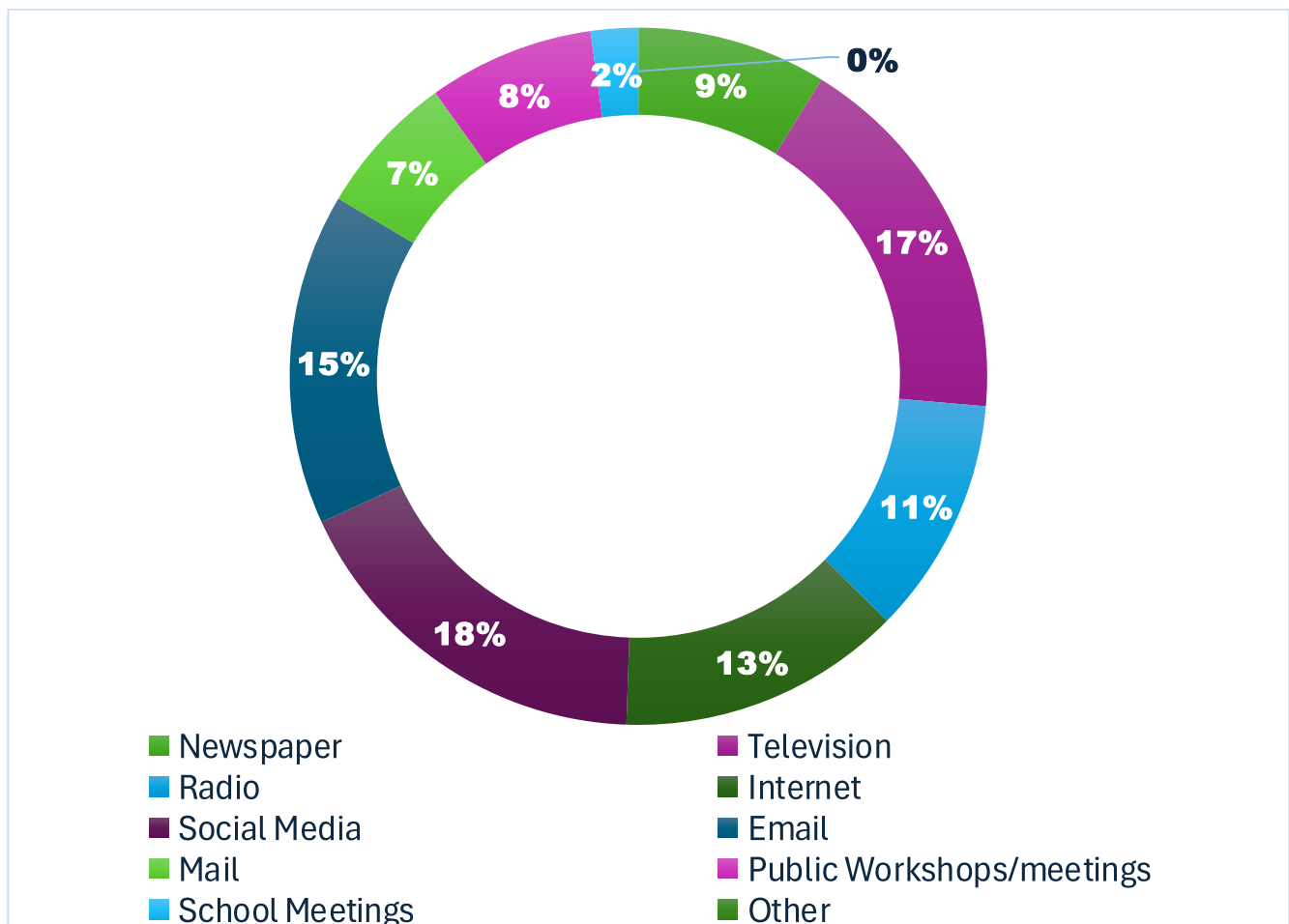


11. Do you know which government department or agency to contact regarding your risks from hazards in your

area?



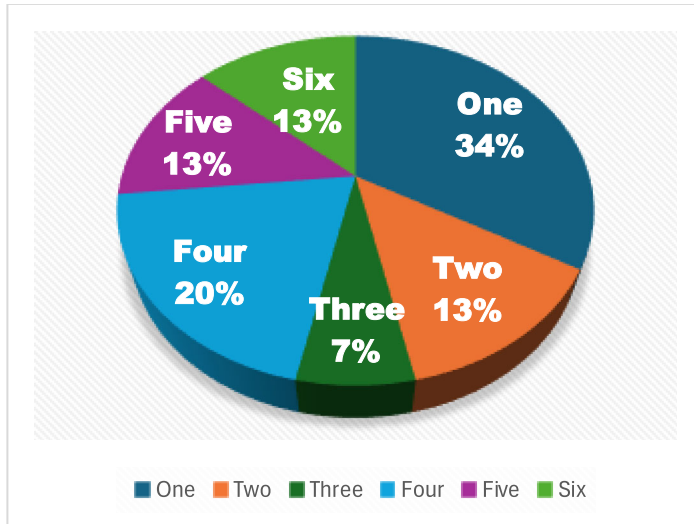
12. Please select the way (s) you prefer to receive information about how to make your home, neighborhood, or family safer from hazards:



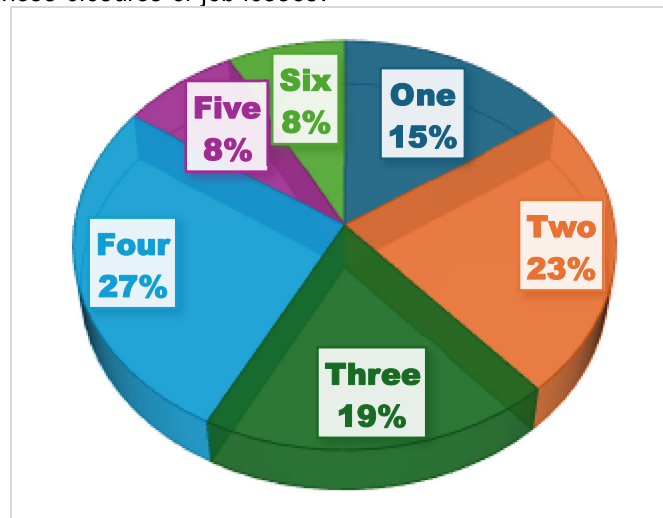


13. In your own opinion, what are some steps you local government could take to reduce the risk of future damages in your community?
14. In your opinion, which of the following assets are the most susceptible to the impacts of natural hazards in you County? Please rank the community assets in order of vulnerability, with 1 being the most vulnerable to six being the least vulnerable.

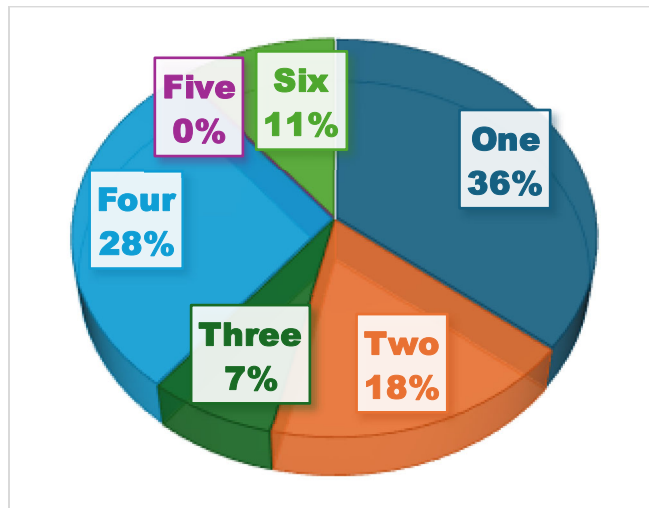
A) **Human** – Loss of life and/or injuries



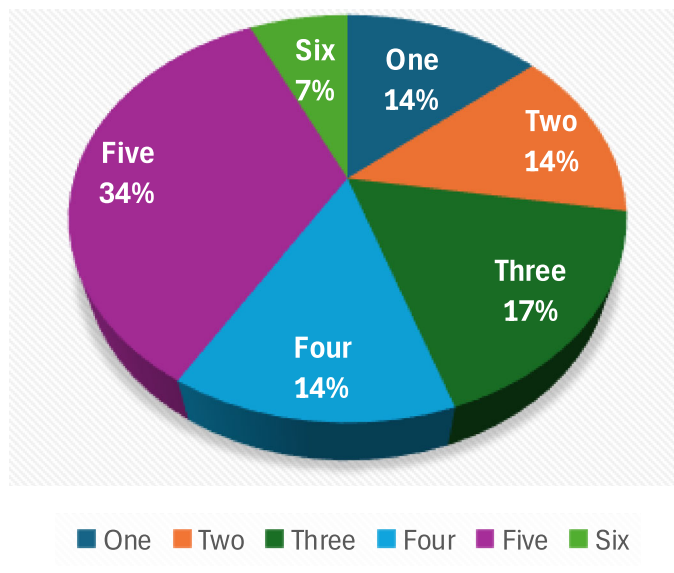
B) **Economic** – Business closures or job losses.



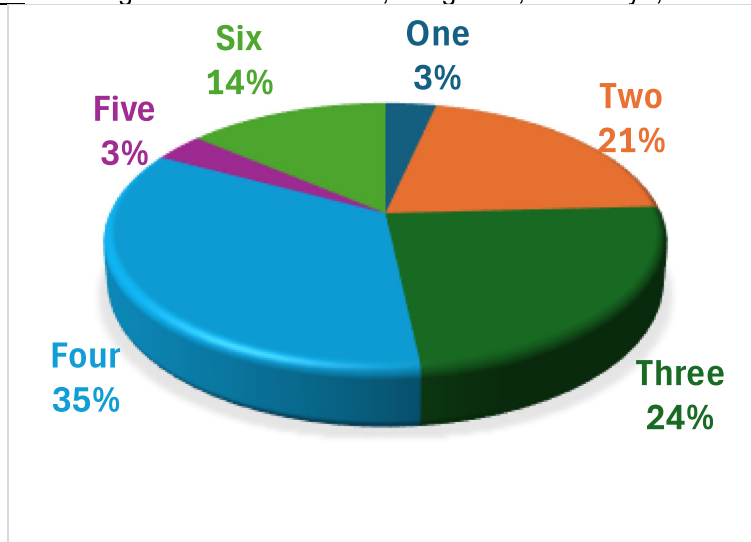
C) **Infrastructure**—Damage or loss of bridges, utilities, schools....



D) **Cultural/Historic**—Damage to or loss of Libraries, museums, landmarks, fairgrounds .



E) **Environmental**—Damage to or loss of forests, rangeland, waterways, or other natural resources .



15. A number of community-wide activities can reduce vulnerability to hazards. In general, these activities fall into

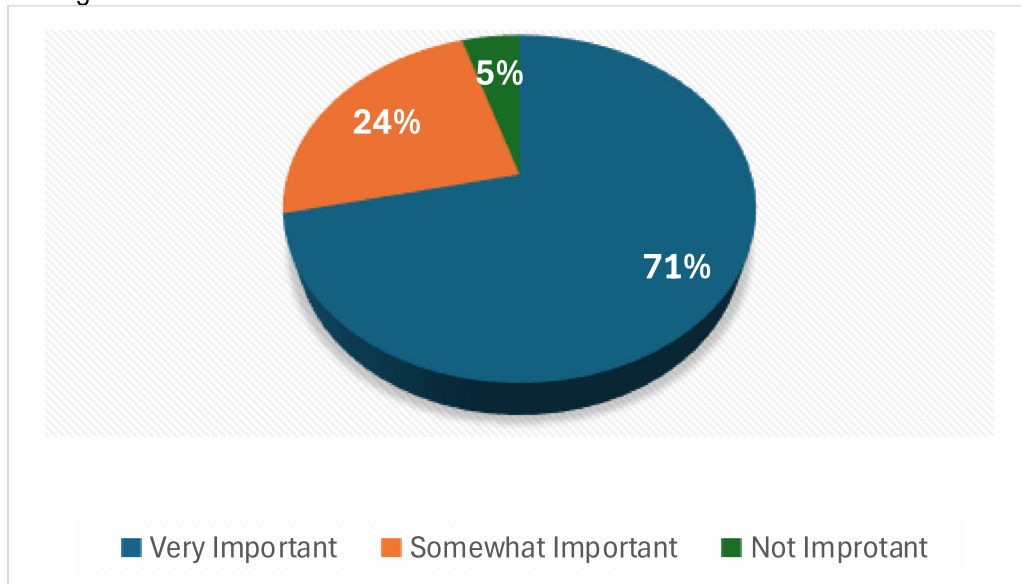
one of the following six broad categories. Tell us how important you think each category is for your community.

(**Very Important**)

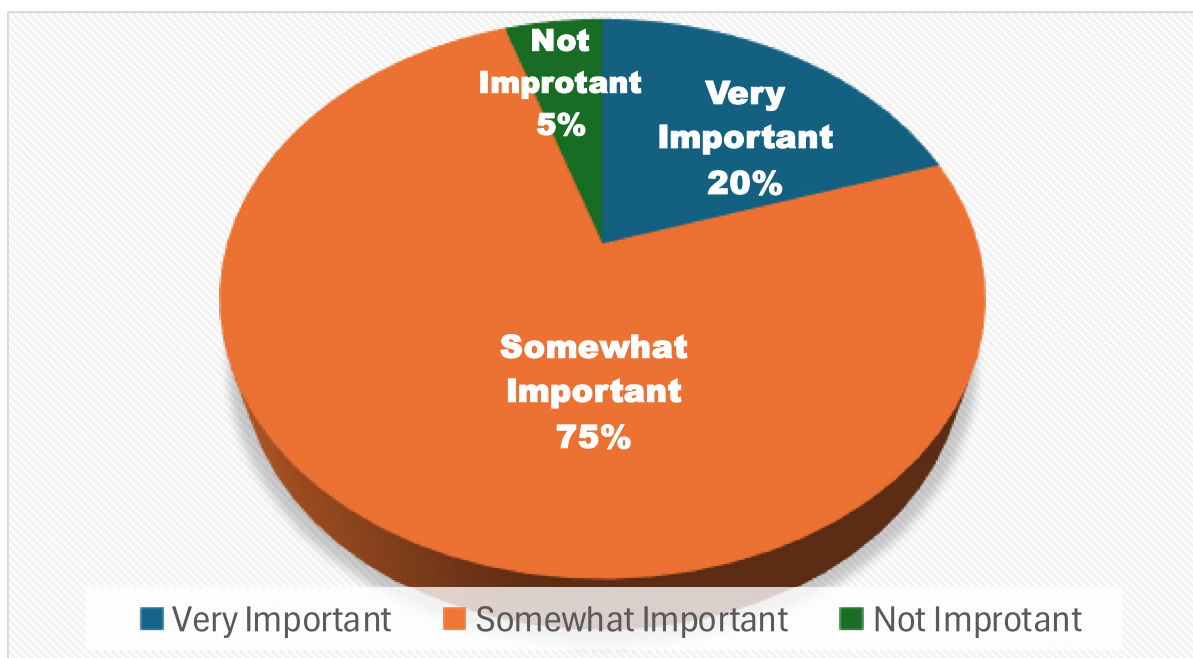
(**Somewhat Important**)

(**Not important**)

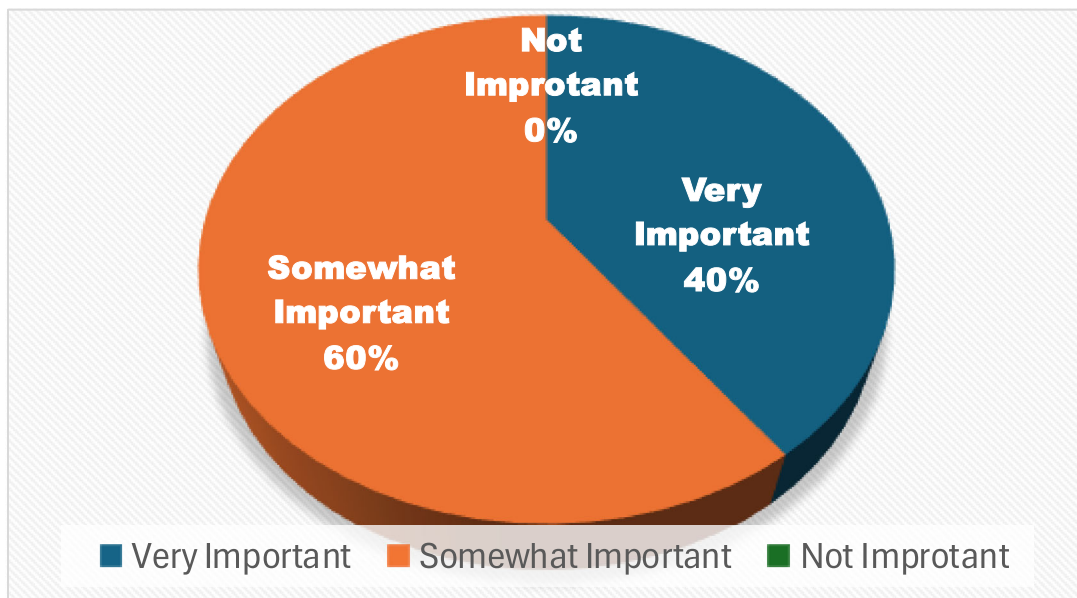
**A) Preventative**—Administrative or regulatory actions that influence the way the land is developed, and buildings are built. Examples include planning and zoning, building codes, open space, preservation, and floodplain regulations.



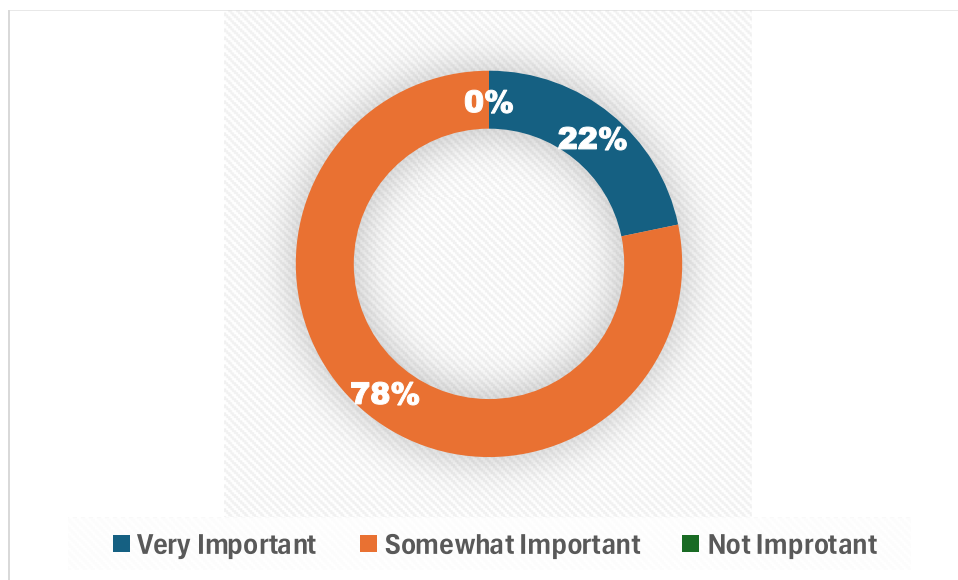
**B) Property Protection**—Actions that involve modification of existing buildings to protect them from a hazard or removal from the hazard area. Examples include



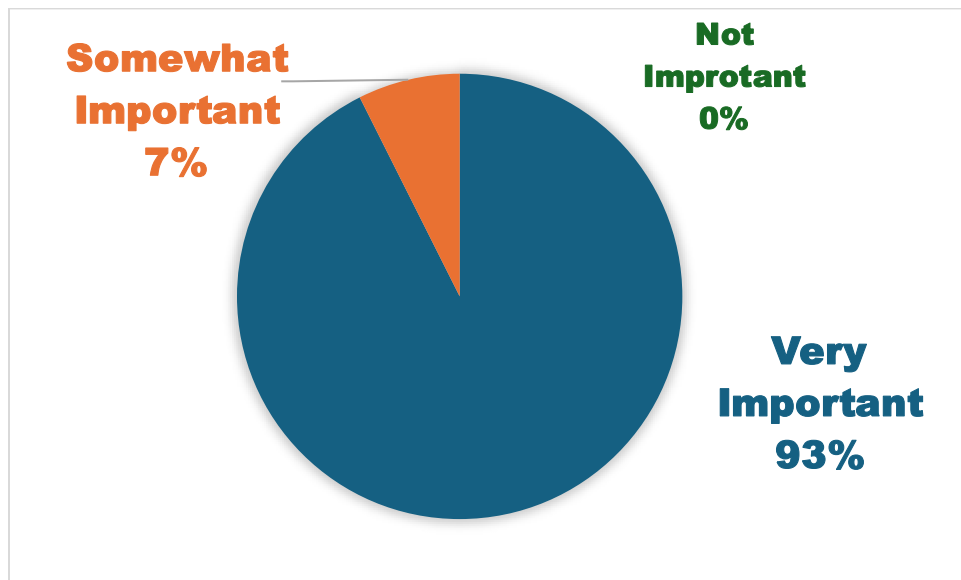
**C) Natural Resource Protection**—Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of the natural systems. Examples include floodplain protection, habitat preservation, slope stabilization, riparian buffers, and forest management.



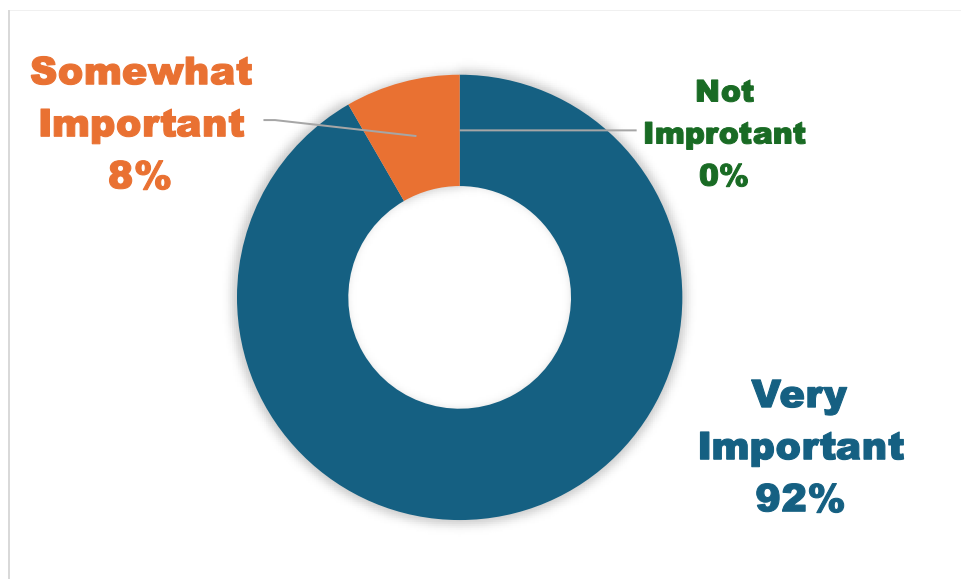
**D) Structural Projects**—Actions intended to lesson the impact of a hazard by modifying the natural progression of the hazard. Examples include dams, levees, detention/retention basins, channel modification, retaining walls, and storm sewers.



**E) Emergency Service**—Actions that protect people and property during and immediately after a hazard event. Examples include warning systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems.



**F) Public Education and Awareness**—Actions to inform citizens about hazards and the techniques they can use to protect themselves and their property, Examples include outreach projects, school education programs, library materials, and demonstration events.

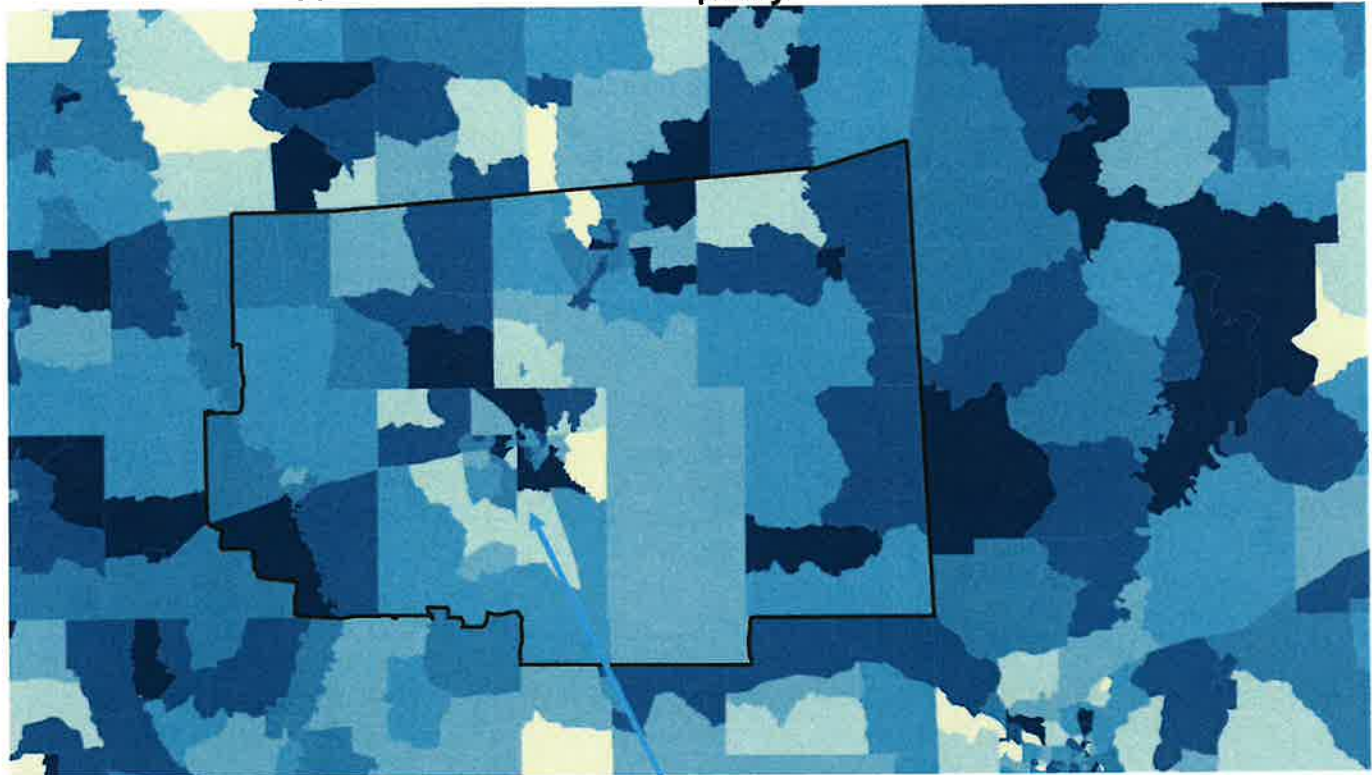




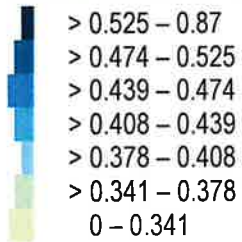
## Resilience Layers For MEMA District 8

| County          | Population Over 65 | % of Mobile Home Housing | Population Below Poverty Level | Income Inequality Index | Population Change | Community Resilience Challenges Index |
|-----------------|--------------------|--------------------------|--------------------------------|-------------------------|-------------------|---------------------------------------|
| Covington       | 13%                | 22%                      | 22%                            | 0.43                    | 0.35              | -9.0 Percentile                       |
| Forrest         | 16%                | 20%                      | 23%                            | 0.36                    | 0.50              | -9.0 Percentile                       |
| Greene          | 18%                | 30%                      | 15%                            | 0.45                    | 0.22              | -9.0 Percentile                       |
| Jefferson Davis | 21%                | 16%                      | 22%                            | 0.48                    | 0.66              | -9.0 Percentile                       |
| Jones           | 16%                | 7%                       | 22%                            | 0.46                    | 0.35              | -9.0 Percentile                       |
| Marion          | 19 %               | 21%                      | 24%                            | 0.47                    | 0.46              | -9.0 Percentile                       |
| Perry           | 15%                | 32%                      | 21%                            | 0.39                    | 0.02              | -9.0 Percentile                       |
| Wayne           | 19%                | 21%                      | 18%                            | 0.53                    | 0.63              | -9.0 Percentile                       |

### Census Tracts - Income Inequality For MEMA District 8



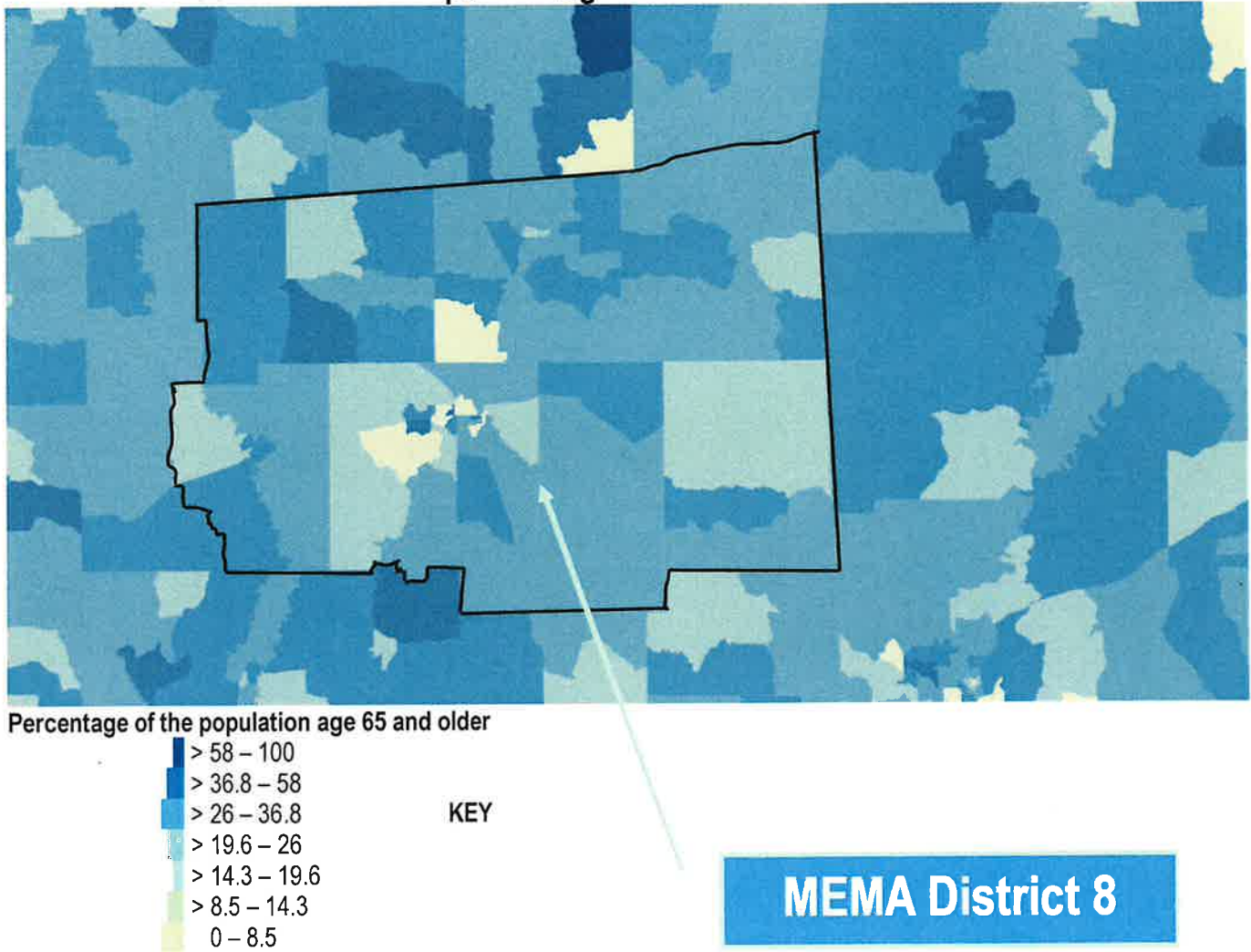
Gini Index of income inequality (income distribution across a population)



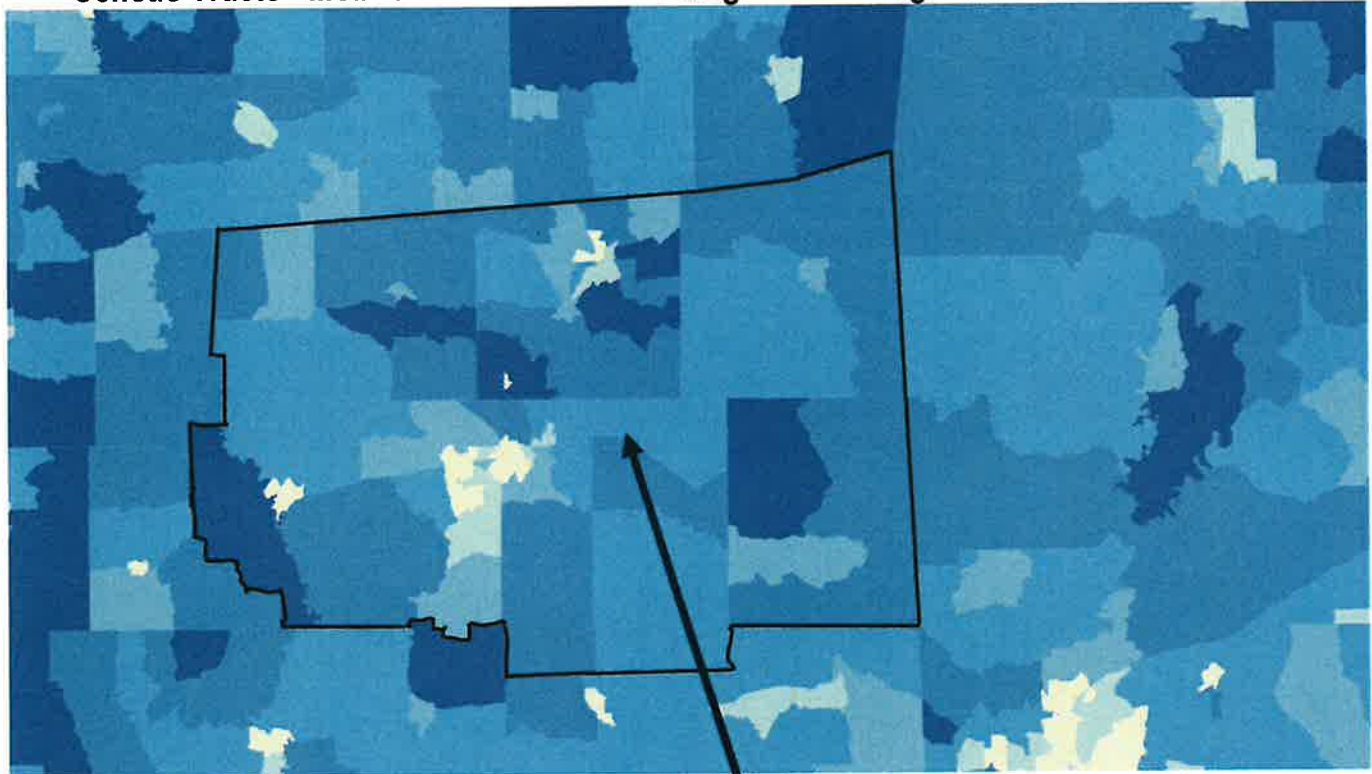
Key

**MEMA District 8**

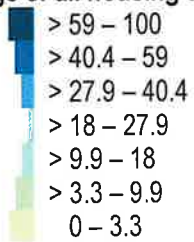
### Census Tracts - Population Age 65 and Older For MEMA District 8



### Census Tracts - Mobile Homes as a Percentage of Housing Units for MEMA District 8



Percentage of all housing units that are mobile homes

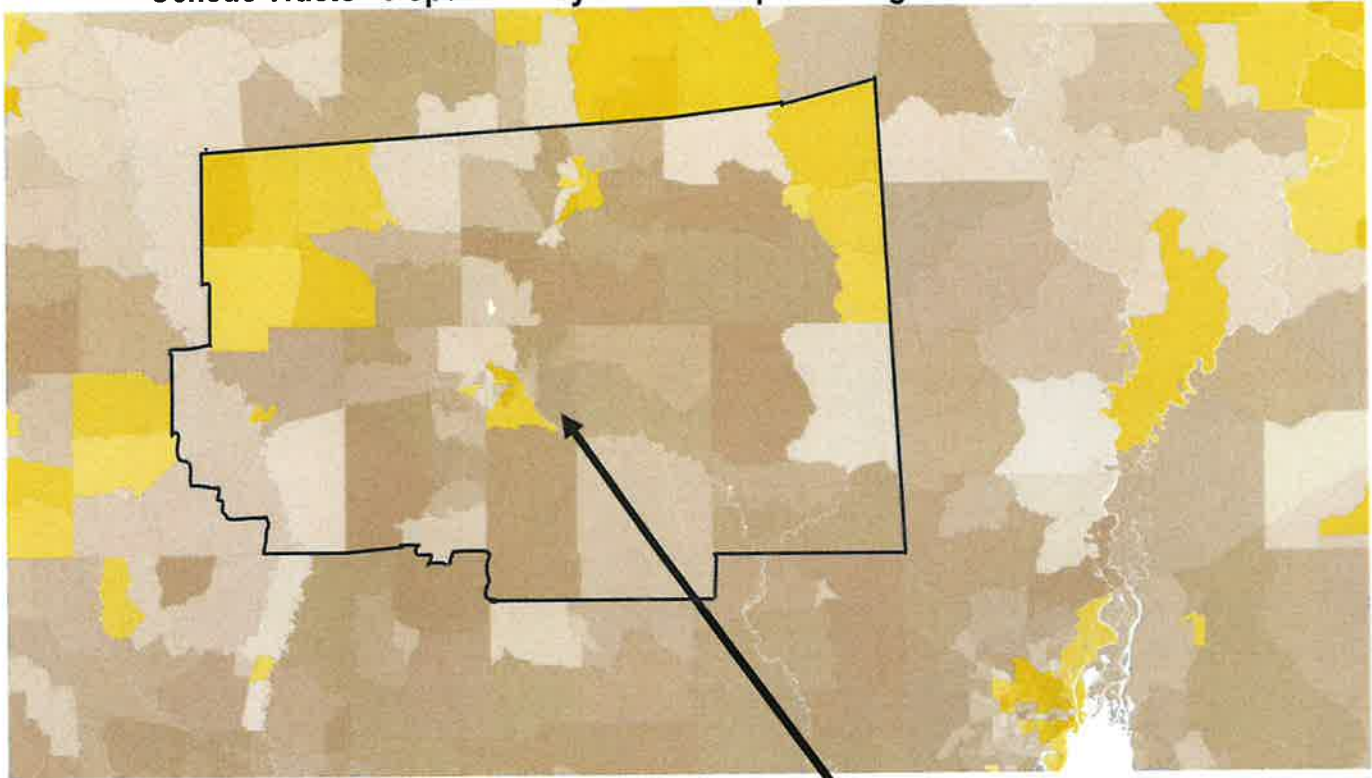


Key

**MEMA District 8**



### Census Tracts - Population by Race & Hispanic Origin for MEMA District 8



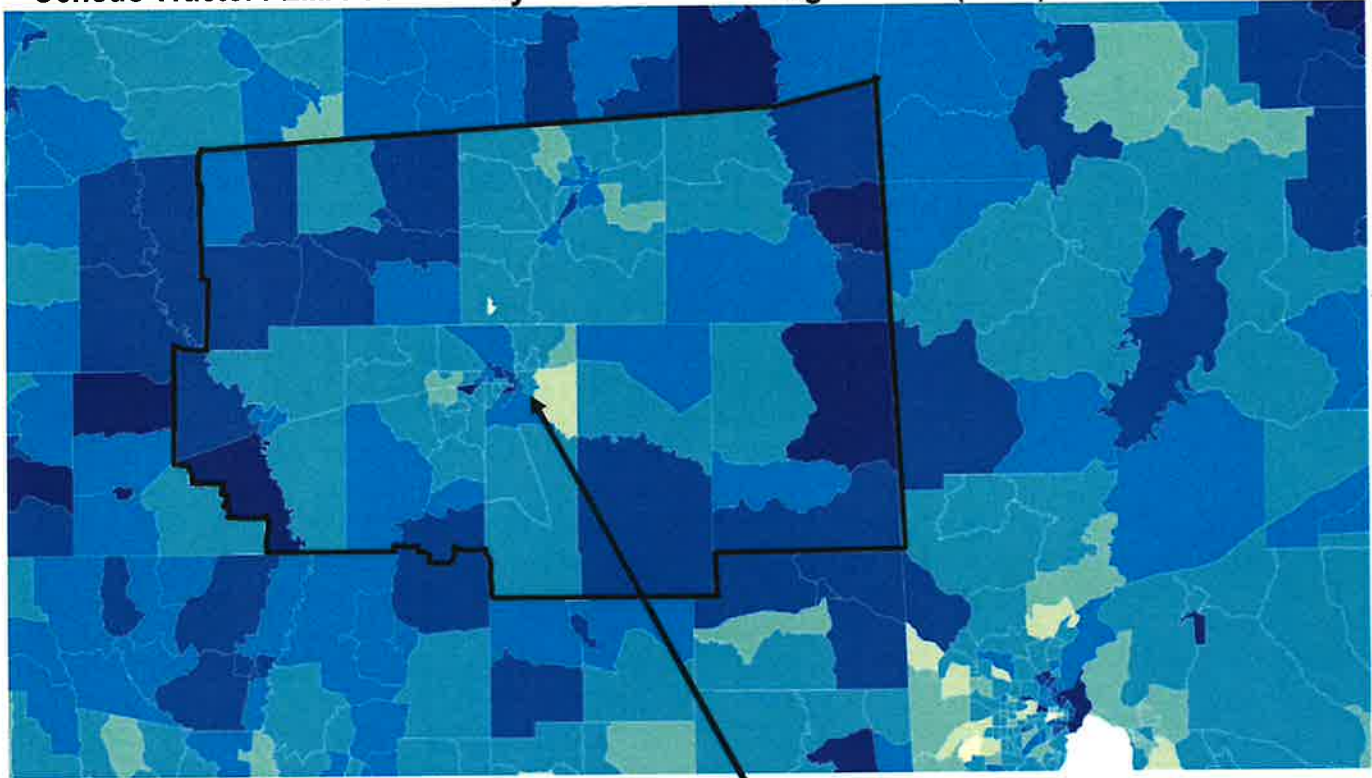
**Predominant category**

- White alone, not Hispanic or Latino
- Hispanic or Latino
- Black or African American alone, not Hispanic or Latino
- Asian alone, not Hispanic or Latino
- American Indian and Alaska Native alone, not Hispanic or Latino
- Two or more races, not Hispanic or Latino
- Native Hawaiian and other Pacific Islander alone, not Hispanic or Latino
- Some other race alone, not Hispanic or Latino

**MEMA District 8**



## Census Tracts: FEMA Community Resilience Challenges Index (CRCI) for MEMA District 8



FEMA Community Resilience Challenges Index (CRCI) - Percentile. Composite of 22 CRCI Indicators

- Highest challenges (95th – 100th percentile)
- High challenges (85th – 95th percentile)
- Medium-high challenges (70th – 85th percentile)
- Medium challenges (30th to 70th percentile)
- Medium-low challenges (15th to 30th percentile)
- Low challenges (5th to 15 percentile)
- Lowest challenges (up to 5th percentile)

**MEMA District 8**

# Temperature Projections

## Covington County, Mississippi



### Info

Temperature is the measure of the average heat or thermal energy in the air at the Earth's surface.

**Degree Days:** Degree days measure how cold or warm a location is by comparing the daily average temperature to a reference temperature, usually 65°F (18.33°C).

For ClimRR, we used each day's maximum temperature (the daily high) and minimum temperature (the daily low) to estimate the daily average temperature. This daily average was used to calculate that day's HDD (if the average temperature was below 65°F) or CDD (if the average temperature was above 65°F). Daily HDD or CDD were aggregated to produce seasonal averages or annual averages, using ensemble means for each climate scenario.

**Mid-Century Temperature Analysis:** The historical annual minimum temperature is **56.07** (F). Under RCP 4.5 the annual minimum temperature at mid-century is **57.76** (F) which represents a **1.68** (F) change from the baseline. Under RCP 8.5 the annual minimum temperature at mid-century is **58.22** (F) which represents a **2.15** (F) change from the baseline.

**Historical Temperature Analysis:** The historical annual maximum temperature is **72.39** (F). Under RCP 4.5 the annual maximum temperature at mid-century is **75.23** (F) which represents a **2.84** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at mid-century is **74.89** (F) which represents a **2.49** (F) change from the baseline.

**End-of-Century Temperature Analysis:** The historical annual minimum temperature is **56.07** (F). Under RCP 4.5 the annual minimum temperature at end-of-century is **59.16** (F) which represents a **3.09** (F) change from the baseline. Under RCP 8.5 the annual minimum temperature at end-of-century is **63.57** (F) which represents a **7.49** (F) change from the baseline.

Under RCP 4.5 the annual maximum temperature at end-of-century is **76.37** (F) which represents a **3.98** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at end-of-century is **80.09** (F) which represents a **7.69** (F) change from the baseline.

### Climate Stats

| Temperature                         | Hist.    | Mid-Century |          | End-Of-Century |         |
|-------------------------------------|----------|-------------|----------|----------------|---------|
|                                     |          | RCP 4.5     | RCP 8.5  | RCP 4.5        | RCP 8.5 |
| ANNUAL                              |          |             |          |                |         |
| Heating Degree Days                 | 4,232.27 | -           | 4,386.71 | -              | -       |
| Cooling Degree Days                 | 2,192.44 | -           | 2,907.79 | -              | -       |
| Maximum Avg Temperature (Degrees F) | 72.39    | 75.23       | 74.89    | 76.37          | 80.09   |
| Minimum Avg Temperature (Degrees F) | 56.07    | 57.76       | 58.22    | 59.16          | 63.57   |
| AUTUMN                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 74.44    | -           | 78.66    | -              | 83.31   |
| Minimum Avg Temperature (Degrees F) | 58.63    | -           | 62.48    | -              | 67.5    |
| WINTER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 59.25    | -           | 61.57    | -              | 65.25   |
| Minimum Avg Temperature (Degrees F) | 43.28    | -           | 44.97    | -              | 48.85   |
| SPRING                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 73.66    | -           | 77.61    | -              | 81.67   |
| Minimum Avg Temperature (Degrees F) | 56.07    | -           | 59.48    | -              | 64.13   |
| SUMMER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 85.82    | -           | 90.69    | -              | 95.34   |
| Minimum Avg Temperature (Degrees F) | 71.14    | -           | 75.39    | -              | 79.84   |

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# Precipitation Projections

## Covington County, Mississippi



### Info

Precipitation is any liquid or frozen water that forms in the atmosphere and falls back to the Earth. All values are calculated as 24-hour periods.

**Mid-Century Precipitation Analysis:** The historical annual total precipitation is **43.99** inches. Under RCP 8.5 the annual minimum precipitation at mid-century is **46.36** inches which represents a **2.37** inch change from the baseline.

**Mid-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **22.45** days. Under RCP 8.5 the longest stretch of days without precipitation at mid-century is **21.55** days which represents a **-0.91** day change from the baseline.

**End-Century Precipitation Analysis:** The historical annual total precipitation is **43.99** inches. Under RCP 8.5 the annual minimum precipitation at end-century is **51.55** inches which represents a **7.56** inch change from the baseline.

**End-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **22.45** days. Under RCP 8.5 the longest stretch of days without precipitation at end-century is **25.35** days which represents a **2.89** day change from the baseline.

### Climate Stats

| Precipitation                        | Hist. | Mid-Century |         | End-Of-Century |         |
|--------------------------------------|-------|-------------|---------|----------------|---------|
|                                      |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL                               |       |             |         |                |         |
| Days Without Precipitation (Days)    | 22.45 | 30.64       | 21.55   | 27             | 25.35   |
| Annual Precipitation (Inches)        | 43.99 | 44.97       | 46.36   | 45.87          | 51.55   |
| AUTUMN                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.08  | -           | 0.09    | -              | 0.08    |
| Maximum Daily Precipitation (Inches) | 1.55  | -           | 1.59    | -              | 1.28    |
| WINTER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.12  | -           | 0.12    | -              | 0.13    |
| Maximum Daily Precipitation (Inches) | 1.96  | -           | 1.97    | -              | 1.93    |
| SPRING                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.13  | -           | 0.14    | -              | 0.16    |
| Maximum Daily Precipitation (Inches) | 1.8   | -           | 1.91    | -              | 2.2     |
| SUMMER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.18  | -           | 0.17    | -              | 0.19    |
| Maximum Daily Precipitation (Inches) | 1.57  | -           | 1.81    | -              | 1.83    |

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# Wildfire Projections

## Covington County, Mississippi



### Info

The Fire Weather Index (FWI) estimates weather-related wildfire danger using daily readings of weather conditions that influence the spread of wildfires, including the dryness of fuel sources and high winds. Higher FWI values represent greater danger of wildfires due to weather conditions; the index does not account for land cover or potential ignition sources. FWI values signal different levels of relative fire danger across regions. Values above 25 typically represent a high level of danger in the northern regions, whereas values above 40-45 often represent a high level of danger in the Southwest.

**Relative Fire Danger:** FWI classes show fire weather-related danger relative to nationwide patterns and are based on 95th percentile FWI values. This location's historical FWI class is and its mid-century RCP8.5 class is . By end-of-century, the FWI class will be .

**Summer FWI Analysis:** The historical average FWI value in summer is **6.05**. At mid-century under RCP 8.5, the summer FWI value will change to **8.44**, representing a change of **2.39** and a percentage change of **39.43%**. By end-of-century, the summer FWI value is projected to be **10.54**, representing a change of **4.49** and a percent change of **74.13%**.

**Autumn FWI Analysis:** The historical average FWI value in autumn is **8.82**. At mid-century under RCP 8.5, the summer FWI value will change to **8.81**, representing a change of **-0.01** and a percentage change of **-0.11%**. By end-of-century, the autumn FWI value is projected to be **9.85**, representing a change of **1.03** and a percent change of **11.70%**.

### Climate Stats

| Wildfire                 | Historical | Mid-Century | End-of-Century |
|--------------------------|------------|-------------|----------------|
| ANNUAL                   |            |             |                |
| Fire Weather Index       | 11.85      | 13.75       | 15.67          |
| Fire Weather Index Class | -          | -           | -              |
| AUTUMN                   |            |             |                |
| Fire Weather Index       | 13.5       | 14.15       | 16.08          |
| Fire Weather Index Class | -          | -           | -              |
| WINTER                   |            |             |                |
| Fire Weather Index       | 4.24       | 3.86        | 6.34           |
| Fire Weather Index Class | -          | -           | -              |
| SPRING                   |            |             |                |
| Fire Weather Index       | 9.53       | 9.39        | 9.83           |
| Fire Weather Index Class | -          | -           | -              |
| SUMMER                   |            |             |                |
| Fire Weather Index       | 9.49       | 12.58       | 15.15          |
| Fire Weather Index Class | -          | -           | -              |

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# Wind Speed Projections

## Covington County, Mississippi



### Info

Wind is the movement of air across Earth's surface caused by differences in atmospheric pressure. All values are calculated as 24-hour periods.

**Mid-Century Wind Analysis:** The historical annual average wind speed is **5.74** mph. Under RCP 4.5 the annual average wind speed at mid-century is **5.66** mph which represents a **-0.08** mph change from the baseline. Under RCP 8.5 the annual average wind speed at mid-century is **5.79** mph which represents a **0.05** mph change from the baseline.

**End-Century Wind Analysis:** The historical annual average wind speed is **5.74** mph. Under RCP 4.5 the annual average wind speed at end-century is **5.88** mph which represents a **0.14** mph change from the baseline. Under RCP 8.5 the annual average wind speed at end-century is **5.74** mph which represents a **-0.00** mph change from the baseline.

### Climate Stats

| Wind_Speed       | Hist. | Mid-Century |         | End-Of-Century |         |
|------------------|-------|-------------|---------|----------------|---------|
|                  |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL           |       |             |         |                |         |
| Wind Speed (Mph) | 5.74  | 5.66        | 5.79    | 5.88           | 5.74    |

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AT&T



GDO



FEMA



CENTER FOR  
CLIMATE RESILIENCE  
AND DECISION SCIENCE



# Heat Index Projections

## Covington County, Mississippi



### Info

Heat index is a measure of how hot weather feels to humans when factoring in both relative humidity and the actual temperature. Heat index is an important gauge of heat-related risks. Readings above 105°F typically represent dangerous conditions, with readings above 125°F being extremely dangerous to humans.

Since extreme heat is the concern of this report, all values represent those calculated for the Summer months (June, July, August).

**Mid-Century Heat Analysis** The average daily maximum heat index in summer over the historical period is **91.82** (F). Under RCP 8.5, the average daily max heat index at mid-century is **99.74** (F), which represents a **7.92** (F) change from the baseline. The single highest heat index measured in Summer months is **103.86** (F) in the historical period and **122.35** (F) at mid-century (RCP8.5), representing an increase of **18.48** (F).

Historically, the number of summer days with a heat index above 95°F was **27.07** (F). By mid-century under RCP8.5, **60.62** summer days are projected to have a heat index above 95°F, representing an increase of **33.56**. Summer days with heat index above 115°F have been more rare, with **0.02** such days in the historical period and a projected **5.61** by mid-century (RCP8.5), representing a change of **5.59** days.

**End-Century Heat Analysis:** The average daily maximum heat index in summer over the historical period is **91.82** (F). Under RCP 8.5, the average daily max heat index at end-century is **110.92** (F), which represents a **19.11** (F) change from the baseline. The single highest heat index measured in Summer months is **103.86** (F) in the historical period and **139.40** (F) at end-century (RCP8.5), representing an increase of **35.54** (F).

Historically, the number of summer days with a heat index above 95°F was **27.07** (F). By end-century under RCP8.5, **84.67** summer days are projected to have a heat index above 95°F, representing an increase of **57.60**. Summer days with heat index above 115°F have been more rare, with **0.02** such days in the historical period and a projected **24.13** by end-century (RCP8.5), representing a change of **24.11** days.

### Climate Stats

| Heat_Index                               | Historical | Mid-Century | End-of-Century |
|------------------------------------------|------------|-------------|----------------|
| SUMMER                                   |            |             |                |
| Daily Max Heat Index (Degrees F)         | 91.82      | 99.74       | 110.92         |
| Seasonal Max Heat Index (Degrees F)      | 103.86     | 122.35      | 139.4          |
| Days with Max Heat Index Over 95 (Days)  | 27.07      | 60.62       | 84.67          |
| Days with Max Heat Index Over 105 (Days) | 2.19       | 16.23       | 55.49          |
| Days with Max Heat Index Over 115 (Days) | 0.02       | 5.61        | 24.13          |
| Days with Max Heat Index Over 125 (Days) | 0          | 4.19        | 14.85          |

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# Temperature Projections

## Forrest County, Mississippi



### Info

Temperature is the measure of the average heat or thermal energy in the air at the Earth's surface.

**Degree Days:** Degree days measure how cold or warm a location is by comparing the daily average temperature to a reference temperature, usually 65°F (18.33°C).

For ClimRR, we used each day's maximum temperature (the daily high) and minimum temperature (the daily low) to estimate the daily average temperature. This daily average was used to calculate that day's HDD (if the average temperature was below 65°F) or CDD (if the average temperature was above 65°F). Daily HDD or CDD were aggregated to produce seasonal averages or annual averages, using ensemble means for each climate scenario.

**Mid-Century Temperature Analysis:** The historical annual minimum temperature is **57.04** (F). Under RCP 4.5 the annual minimum temperature at mid-century is **58.71** (F) which represents a **1.68** (F) change from the baseline. Under RCP 8.5 the annual minimum temperature at mid-century is **59.17** (F) which represents a **2.13** (F) change from the baseline.

**Historical Temperature Analysis:** The historical annual maximum temperature is **72.95** (F). Under RCP 4.5 the annual maximum temperature at mid-century is **75.66** (F) which represents a **2.70** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at mid-century is **75.40** (F) which represents a **2.44** (F) change from the baseline.

**End-of-Century Temperature Analysis:** The historical annual minimum temperature is **57.04** (F). Under RCP 4.5 the annual minimum temperature at end-of-century is **59.91** (F) which represents a **2.87**(F) change from the baseline. Under RCP 8.5 the annual minimum temperature at end-of-century is **64.38**(F) which represents a **7.35**(F) change from the baseline.

Under RCP 4.5 the annual maximum temperature at end-of-century is **76.77** (F) which represents a **3.82** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at end-of-century is **80.53** (F) which represents a **7.58** (F) change from the baseline.

### Climate Stats

| Temperature                         | Hist.    | Mid-Century |          | End-Of-Century |         |
|-------------------------------------|----------|-------------|----------|----------------|---------|
|                                     |          | RCP 4.5     | RCP 8.5  | RCP 4.5        | RCP 8.5 |
| ANNUAL                              |          |             |          |                |         |
| Heating Degree Days                 | 4,157.98 | -           | 4,359.99 | -              | -       |
| Cooling Degree Days                 | 2,301.14 | -           | 3,022.16 | -              | -       |
| Maximum Avg Temperature (Degrees F) | 72.95    | 75.66       | 75.4     | 76.77          | 80.53   |
| Minimum Avg Temperature (Degrees F) | 57.04    | 58.71       | 59.17    | 59.91          | 64.38   |
| AUTUMN                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 74.75    | -           | 78.93    | -              | 83.53   |
| Minimum Avg Temperature (Degrees F) | 59.59    | -           | 63.24    | -              | 68.29   |
| WINTER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 60.54    | -           | 62.85    | -              | 66.27   |
| Minimum Avg Temperature (Degrees F) | 44.46    | -           | 46.06    | -              | 49.81   |
| SPRING                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 74.44    | -           | 78.26    | -              | 82.22   |
| Minimum Avg Temperature (Degrees F) | 57.07    | -           | 60.45    | -              | 64.98   |
| SUMMER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 85.94    | -           | 90.65    | -              | 95.3    |
| Minimum Avg Temperature (Degrees F) | 71.94    | -           | 76.04    | -              | 80.38   |

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# Precipitation Projections

## Forrest County, Mississippi



### Info

Precipitation is any liquid or frozen water that forms in the atmosphere and falls back to the Earth. All values are calculated as 24-hour periods.

**Mid-Century Precipitation Analysis:** The historical annual total precipitation is **45.22** inches. Under RCP 8.5 the annual minimum precipitation at mid-century is **46.96** inches which represents a **1.74** inch change from the baseline.

**Mid-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **19.48** days. Under RCP 8.5 the longest stretch of days without precipitation at mid-century is **23.20** days which represents a **3.72** day change from the baseline.

**End-Century Precipitation Analysis:** The historical annual total precipitation is **45.22** inches. Under RCP 8.5 the annual minimum precipitation at end-century is **52.32** inches which represents a **7.09** inch change from the baseline.

**End-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **19.48** days. Under RCP 8.5 the longest stretch of days without precipitation at end-century is **19.31** days which represents a **-0.17** day change from the baseline.

### Climate Stats

| Precipitation                        | Hist. | Mid-Century |         | End-Of-Century |         |
|--------------------------------------|-------|-------------|---------|----------------|---------|
|                                      |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL                               |       |             |         |                |         |
| Days Without Precipitation (Days)    | 19.48 | 27.04       | 23.2    | 26.35          | 19.31   |
| Annual Precipitation (Inches)        | 45.22 | 45.46       | 46.96   | 46.5           | 52.32   |
| AUTUMN                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.09  | -           | 0.09    | -              | 0.08    |
| Maximum Daily Precipitation (Inches) | 1.77  | -           | 1.45    | -              | 1.2     |
| WINTER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.1   | -           | 0.12    | -              | 0.12    |
| Maximum Daily Precipitation (Inches) | 1.75  | -           | 1.99    | -              | 1.93    |
| SPRING                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.13  | -           | 0.15    | -              | 0.17    |
| Maximum Daily Precipitation (Inches) | 1.9   | -           | 2.07    | -              | 2.29    |
| SUMMER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.19  | -           | 0.18    | -              | 0.19    |
| Maximum Daily Precipitation (Inches) | 1.83  | -           | 1.72    | -              | 1.77    |

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# Wildfire Projections

## Forrest County, Mississippi



### Info

The Fire Weather Index (FWI) estimates weather-related wildfire danger using daily readings of weather conditions that influence the spread of wildfires, including the dryness of fuel sources and high winds. Higher FWI values represent greater danger of wildfires due to weather conditions; the index does not account for land cover or potential ignition sources. FWI values signal different levels of relative fire danger across regions. Values above 25 typically represent a high level of danger in the northern regions, whereas values above 40-45 often represent a high level of danger in the Southwest.

**Relative Fire Danger:** FWI classes show fire weather-related danger relative to nationwide patterns and are based on 95th percentile FWI values. This location's historical FWI class is and its mid-century RCP8.5 class is . By end-of-century, the FWI class will be .

**Summer FWI Analysis:** The historical average FWI value in summer is **5.46**. At mid-century under RCP 8.5, the summer FWI value will change to **7.59**, representing a change of **2.13** and a percentage change of **39.15%**. By end-of-century, the summer FWI value is projected to be **9.90**, representing a change of **4.44** and a percent change of **81.59%**.

**Autumn FWI Analysis:** The historical average FWI value in autumn is **7.83**. At mid-century under RCP 8.5, the summer FWI value will change to **7.86**, representing a change of **0.04** and a percentage change of **0.49%**. By end-of-century, the autumn FWI value is projected to be **8.81**, representing a change of **0.98** and a percent change of **12.44%**.

### Climate Stats

| Wildfire                 | Historical | Mid-Century | End-of-Century |
|--------------------------|------------|-------------|----------------|
| ANNUAL                   |            |             |                |
| Fire Weather Index       | 10.8       | 11.79       | 14.48          |
| Fire Weather Index Class | -          | -           | -              |
| AUTUMN                   |            |             |                |
| Fire Weather Index       | 11.72      | 12.41       | 14.68          |
| Fire Weather Index Class | -          | -           | -              |
| WINTER                   |            |             |                |
| Fire Weather Index       | 4.2        | 3.93        | 6.23           |
| Fire Weather Index Class | -          | -           | -              |
| SPRING                   |            |             |                |
| Fire Weather Index       | 9.83       | 9.31        | 10.33          |
| Fire Weather Index Class | -          | -           | -              |
| SUMMER                   |            |             |                |
| Fire Weather Index       | 8.8        | 11.03       | 14.43          |
| Fire Weather Index Class | -          | -           | -              |

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# Wind Speed Projections

Forrest County, Mississippi



## Info

Wind is the movement of air across Earth's surface caused by differences in atmospheric pressure. All values are calculated as 24-hour periods.

**Mid-Century Wind Analysis:** The historical annual average wind speed is **5.73** mph. Under RCP 4.5 the annual average wind speed at mid-century is **5.65** mph which represents a **-0.07** mph change from the baseline. Under RCP 8.5 the annual average wind speed at mid-century is **5.76** mph which represents a **0.03** mph change from the baseline.

**End-Century Wind Analysis:** The historical annual average wind speed is **5.73** mph. Under RCP 4.5 the annual average wind speed at end-century is **5.88** mph which represents a **0.15** mph change from the baseline. Under RCP 8.5 the annual average wind speed at end-century is **5.71** mph which represents a **-0.01** mph change from the baseline.

## Climate Stats

| Wind_Speed       | Hist. | Mid-Century |         | End-Of-Century |         |
|------------------|-------|-------------|---------|----------------|---------|
|                  |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL           |       |             |         |                |         |
| Wind Speed (Mph) | 5.73  | 5.65        | 5.76    | 5.88           | 5.71    |

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CLIMATE RESILIENCE  
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# Heat Index Projections

## Forrest County, Mississippi



### Info

Heat index is a measure of how hot weather feels to humans when factoring in both relative humidity and the actual temperature. Heat index is an important gauge of heat-related risks. Readings above 105°F typically represent dangerous conditions, with readings above 125°F being extremely dangerous to humans.

Since extreme heat is the concern of this report, all values represent those calculated for the Summer months (June, July, August).

**Mid-Century Heat Analysis** The average daily maximum heat index in summer over the historical period is **92.42** (F). Under RCP 8.5, the average daily max heat index at mid-century is **100.67** (F), which represents a **8.25** (F) change from the baseline. The single highest heat index measured in Summer months is **104.17** (F) in the historical period and **122.17** (F) at mid-century (RCP8.5), representing an increase of **17.99** (F).

Historically, the number of summer days with a heat index above 95°F was **29.16** (F). By mid-century under RCP8.5, **64.16** summer days are projected to have a heat index above 95°F, representing an increase of **35.00**. Summer days with heat index above 115°F have been more rare, with **0.03** such days in the historical period and a projected **6.28** by mid-century (RCP8.5), representing a change of **6.24** days.

**End-Century Heat Analysis:** The average daily maximum heat index in summer over the historical period is **92.42** (F). Under RCP 8.5, the average daily max heat index at end-century is **112.99** (F), which represents a **20.57** (F) change from the baseline. The single highest heat index measured in Summer months is **104.17** (F) in the historical period and **141.05** (F) at end-century (RCP8.5), representing an increase of **36.87** (F).

Historically, the number of summer days with a heat index above 95°F was **29.16** (F). By end-century under RCP8.5, **86.42** summer days are projected to have a heat index above 95°F, representing an increase of **57.26**. Summer days with heat index above 115°F have been more rare, with **0.03** such days in the historical period and a projected **28.73** by end-century (RCP8.5), representing a change of **28.70** days.

### Climate Stats

| Heat_Index                               | Historical | Mid-Century | End-of-Century |
|------------------------------------------|------------|-------------|----------------|
| SUMMER                                   |            |             |                |
| Daily Max Heat Index (Degrees F)         | 92.42      | 100.67      | 112.99         |
| Seasonal Max Heat Index (Degrees F)      | 104.17     | 122.17      | 141.05         |
| Days with Max Heat Index Over 95 (Days)  | 29.16      | 64.16       | 86.42          |
| Days with Max Heat Index Over 105 (Days) | 2.59       | 17.91       | 60.37          |
| Days with Max Heat Index Over 115 (Days) | 0.03       | 6.28        | 28.73          |
| Days with Max Heat Index Over 125 (Days) | 0          | 4.66        | 18.72          |

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# Temperature Projections

## Greene County, Mississippi



### Info

Temperature is the measure of the average heat or thermal energy in the air at the Earth's surface.

**Degree Days:** Degree days measure how cold or warm a location is by comparing the daily average temperature to a reference temperature, usually 65°F (18.33°C).

For ClimRR, we used each day's maximum temperature (the daily high) and minimum temperature (the daily low) to estimate the daily average temperature. This daily average was used to calculate that day's HDD (if the average temperature was below 65°F) or CDD (if the average temperature was above 65°F). Daily HDD or CDD were aggregated to produce seasonal averages or annual averages, using ensemble means for each climate scenario.

**Mid-Century Temperature Analysis:** The historical annual minimum temperature is **57.21** (F). Under RCP 4.5 the annual minimum temperature at mid-century is **58.94** (F) which represents a **1.73** (F) change from the baseline. Under RCP 8.5 the annual minimum temperature at mid-century is **59.43** (F) which represents a **2.22** (F) change from the baseline.

**Historical Temperature Analysis:** The historical annual maximum temperature is **73.00** (F). Under RCP 4.5 the annual maximum temperature at mid-century is **75.57** (F) which represents a **2.58** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at mid-century is **75.35** (F) which represents a **2.35** (F) change from the baseline.

**End-of-Century Temperature Analysis:** The historical annual minimum temperature is **57.21** (F). Under RCP 4.5 the annual minimum temperature at end-of-century is **59.94** (F) which represents a **2.74** (F) change from the baseline. Under RCP 8.5 the annual minimum temperature at end-of-century is **64.61** (F) which represents a **7.41** (F) change from the baseline.

Under RCP 4.5 the annual maximum temperature at end-of-century is **76.65** (F) which represents a **3.65** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at end-of-century is **80.42** (F) which represents a **7.42** (F) change from the baseline.

### Climate Stats

| Temperature                         | Hist.    | Mid-Century |          | End-Of-Century |         |
|-------------------------------------|----------|-------------|----------|----------------|---------|
|                                     |          | RCP 4.5     | RCP 8.5  | RCP 4.5        | RCP 8.5 |
| ANNUAL                              |          |             |          |                |         |
| Heating Degree Days                 | 4,121.03 | -           | 4,354.67 | -              | -       |
| Cooling Degree Days                 | 2,306.11 | -           | 3,032.69 | -              | -       |
| Maximum Avg Temperature (Degrees F) | 73       | 75.57       | 75.35    | 76.65          | 80.42   |
| Minimum Avg Temperature (Degrees F) | 57.21    | 58.94       | 59.43    | 59.94          | 64.61   |
| AUTUMN                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 74.76    | -           | 78.82    | -              | 83.4    |
| Minimum Avg Temperature (Degrees F) | 59.93    | -           | 63.52    | -              | 68.55   |
| WINTER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 60.73    | -           | 62.91    | -              | 66.27   |
| Minimum Avg Temperature (Degrees F) | 44.68    | -           | 46.21    | -              | 49.94   |
| SPRING                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 74.46    | -           | 78.28    | -              | 82.2    |
| Minimum Avg Temperature (Degrees F) | 57.31    | -           | 60.65    | -              | 65.13   |
| SUMMER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 85.88    | -           | 90.51    | -              | 95.07   |
| Minimum Avg Temperature (Degrees F) | 72.03    | -           | 76.14    | -              | 80.41   |

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# Precipitation Projections

Greene County, Mississippi



## Info

Precipitation is any liquid or frozen water that forms in the atmosphere and falls back to the Earth. All values are calculated as 24-hour periods.

**Mid-Century Precipitation Analysis:** The historical annual total precipitation is **45.59** inches. Under RCP 8.5 the annual minimum precipitation at mid-century is **48.75** inches which represents a **3.16** inch change from the baseline.

**Mid-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **21.62** days. Under RCP 8.5 the longest stretch of days without precipitation at mid-century is **21.28** days which represents a **-0.33** day change from the baseline.

**End-Century Precipitation Analysis:** The historical annual total precipitation is **45.59** inches. Under RCP 8.5 the annual minimum precipitation at end-century is **53.75** inches which represents a **8.16** inch change from the baseline.

**End-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **21.62** days. Under RCP 8.5 the longest stretch of days without precipitation at end-century is **19.25** days which represents a **-2.36** day change from the baseline.

## Climate Stats

| Precipitation                        | Hist. | Mid-Century |         | End-Of-Century |         |
|--------------------------------------|-------|-------------|---------|----------------|---------|
|                                      |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL                               |       |             |         |                |         |
| Days Without Precipitation (Days)    | 21.62 | 26.37       | 21.28   | 27.35          | 19.25   |
| Annual Precipitation (Inches)        | 45.59 | 47.02       | 48.75   | 48.3           | 53.75   |
| AUTUMN                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.08  | -           | 0.1     | -              | 0.09    |
| Maximum Daily Precipitation (Inches) | 1.38  | -           | 1.68    | -              | 1.28    |
| WINTER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.1   | -           | 0.12    | -              | 0.13    |
| Maximum Daily Precipitation (Inches) | 1.78  | -           | 1.89    | -              | 2.07    |
| SPRING                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.13  | -           | 0.15    | -              | 0.16    |
| Maximum Daily Precipitation (Inches) | 2.05  | -           | 2.1     | -              | 2.14    |
| SUMMER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.2   | -           | 0.19    | -              | 0.21    |
| Maximum Daily Precipitation (Inches) | 1.9   | -           | 1.82    | -              | 1.92    |

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# Wildfire Projections

## Greene County, Mississippi



### Info

The Fire Weather Index (FWI) estimates weather-related wildfire danger using daily readings of weather conditions that influence the spread of wildfires, including the dryness of fuel sources and high winds. Higher FWI values represent greater danger of wildfires due to weather conditions; the index does not account for land cover or potential ignition sources. FWI values signal different levels of relative fire danger across regions. Values above 25 typically represent a high level of danger in the northern regions, whereas values above 40-45 often represent a high level of danger in the Southwest.

**Relative Fire Danger:** FWI classes show fire weather-related danger relative to nationwide patterns and are based on 95th percentile FWI values. This location's historical FWI class is and its mid-century RCP8.5 class is . By end-of-century, the FWI class will be .

**Summer FWI Analysis:** The historical average FWI value in summer is **5.11**. At mid-century under RCP 8.5, the summer FWI value will change to **6.82**, representing a change of **1.71** and a percentage change of **33.52%**. By end-of-century, the summer FWI value is projected to be **9.02**, representing a change of **3.91** and a percent change of **76.53%**.

**Autumn FWI Analysis:** The historical average FWI value in autumn is **7.63**. At mid-century under RCP 8.5, the summer FWI value will change to **7.55**, representing a change of **-0.08** and a percentage change of **-1.09%**. By end-of-century, the autumn FWI value is projected to be **8.57** , representing a change of **0.94** and a percent change of **12.32%**.

### Climate Stats

| Wildfire                 | Historical | Mid-Century | End-of-Century |
|--------------------------|------------|-------------|----------------|
| ANNUAL                   |            |             |                |
| Fire Weather Index       | 10.57      | 10.81       | 13.93          |
| Fire Weather Index Class | -          | -           | -              |
| AUTUMN                   |            |             |                |
| Fire Weather Index       | 11.25      | 11.54       | 14.76          |
| Fire Weather Index Class | -          | -           | -              |
| WINTER                   |            |             |                |
| Fire Weather Index       | 4.27       | 4.02        | 6.2            |
| Fire Weather Index Class | -          | -           | -              |
| SPRING                   |            |             |                |
| Fire Weather Index       | 9.52       | 9.15        | 10.6           |
| Fire Weather Index Class | -          | -           | -              |
| SUMMER                   |            |             |                |
| Fire Weather Index       | 8.61       | 9.9         | 13.7           |
| Fire Weather Index Class | -          | -           | -              |

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# Wind Speed Projections

Greene County, Mississippi



## Info

Wind is the movement of air across Earth's surface caused by differences in atmospheric pressure. All values are calculated as 24-hour periods.

**Mid-Century Wind Analysis:** The historical annual average wind speed is **5.77** mph. Under RCP 4.5 the annual average wind speed at mid-century is **5.68** mph which represents a **-0.08** mph change from the baseline. Under RCP 8.5 the annual average wind speed at mid-century is **5.80** mph which represents a **0.03** mph change from the baseline.

**End-Century Wind Analysis:** The historical annual average wind speed is **5.77** mph. Under RCP 4.5 the annual average wind speed at end-century is **5.90** mph which represents a **0.14** mph change from the baseline. Under RCP 8.5 the annual average wind speed at end-century is **5.74** mph which represents a **-0.03** mph change from the baseline.

## Climate Stats

| Wind_Speed       | Hist. | Mid-Century |         | End-Of-Century |         |
|------------------|-------|-------------|---------|----------------|---------|
|                  |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL           |       |             |         |                |         |
| Wind Speed (Mph) | 5.77  | 5.68        | 5.8     | 5.9            | 5.74    |

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# Heat Index Projections

## Greene County, Mississippi



### Info

Heat index is a measure of how hot weather feels to humans when factoring in both relative humidity and the actual temperature. Heat index is an important gauge of heat-related risks. Readings above 105°F typically represent dangerous conditions, with readings above 125°F being extremely dangerous to humans.

Since extreme heat is the concern of this report, all values represent those calculated for the Summer months (June, July, August).

**Mid-Century Heat Analysis** The average daily maximum heat index in summer over the historical period is **92.52** (F). Under RCP 8.5, the average daily max heat index at mid-century is **100.93** (F), which represents a **8.41** (F) change from the baseline. The single highest heat index measured in Summer months is **104.61** (F) in the historical period and **122.16** (F) at mid-century (RCP8.5), representing an increase of **17.55** (F).

Historically, the number of summer days with a heat index above 95°F was **30.15** (F). By mid-century under RCP8.5, **64.83** summer days are projected to have a heat index above 95°F, representing an increase of **34.68**. Summer days with heat index above 115°F have been more rare, with **0.02** such days in the historical period and a projected **6.66** by mid-century (RCP8.5), representing a change of **6.63** days.

**End-Century Heat Analysis:** The average daily maximum heat index in summer over the historical period is **92.52** (F). Under RCP 8.5, the average daily max heat index at end-century is **113.82** (F), which represents a **21.30** (F) change from the baseline. The single highest heat index measured in Summer months is **104.61** (F) in the historical period and **142.08** (F) at end-century (RCP8.5), representing an increase of **37.47** (F).

Historically, the number of summer days with a heat index above 95°F was **30.15** (F). By end-century under RCP8.5, **86.49** summer days are projected to have a heat index above 95°F, representing an increase of **56.34**. Summer days with heat index above 115°F have been more rare, with **0.02** such days in the historical period and a projected **31.05** by end-century (RCP8.5), representing a change of **31.03** days.

### Climate Stats

| Heat_Index                               | Historical | Mid-Century | End-of-Century |
|------------------------------------------|------------|-------------|----------------|
| SUMMER                                   |            |             |                |
| Daily Max Heat Index (Degrees F)         | 92.52      | 100.93      | 113.82         |
| Seasonal Max Heat Index (Degrees F)      | 104.61     | 122.16      | 142.08         |
| Days with Max Heat Index Over 95 (Days)  | 30.15      | 64.83       | 86.49          |
| Days with Max Heat Index Over 105 (Days) | 2.75       | 18.84       | 61.64          |
| Days with Max Heat Index Over 115 (Days) | 0.02       | 6.66        | 31.05          |
| Days with Max Heat Index Over 125 (Days) | 0          | 4.75        | 20.41          |

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# Temperature Projections

## Jefferson Davis County, Mississippi



### Info

Temperature is the measure of the average heat or thermal energy in the air at the Earth's surface.

**Degree Days:** Degree days measure how cold or warm a location is by comparing the daily average temperature to a reference temperature, usually 65°F (18.33°C).

For ClimRR, we used each day's maximum temperature (the daily high) and minimum temperature (the daily low) to estimate the daily average temperature. This daily average was used to calculate that day's HDD (if the average temperature was below 65°F) or CDD (if the average temperature was above 65°F). Daily HDD or CDD were aggregated to produce seasonal averages or annual averages, using ensemble means for each climate scenario.

**Mid-Century Temperature Analysis:** The historical annual minimum temperature is **56.25** (F). Under RCP 4.5 the annual minimum temperature at mid-century is **57.92** (F) which represents a **1.66** (F) change from the baseline. Under RCP 8.5 the annual minimum temperature at mid-century is **58.36** (F) which represents a **2.11** (F) change from the baseline.

**Historical Temperature Analysis:** The historical annual maximum temperature is **72.37** (F). Under RCP 4.5 the annual maximum temperature at mid-century is **75.16** (F) which represents a **2.79** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at mid-century is **74.90** (F) which represents a **2.53** (F) change from the baseline.

**End-of-Century Temperature Analysis:** The historical annual minimum temperature is **56.25** (F). Under RCP 4.5 the annual minimum temperature at end-of-century is **59.24** (F) which represents a **2.99** (F) change from the baseline. Under RCP 8.5 the annual minimum temperature at end-of-century is **63.65** (F) which represents a **7.40** (F) change from the baseline.

Under RCP 4.5 the annual maximum temperature at end-of-century is **76.29** (F) which represents a **3.92** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at end-of-century is **80.08** (F) which represents a **7.71** (F) change from the baseline.

### Climate Stats

| Temperature                         | Hist.    | Mid-Century |          | End-Of-Century |         |
|-------------------------------------|----------|-------------|----------|----------------|---------|
|                                     |          | RCP 4.5     | RCP 8.5  | RCP 4.5        | RCP 8.5 |
| ANNUAL                              |          |             |          |                |         |
| Heating Degree Days                 | 4,213.98 | -           | 4,364.59 | -              | -       |
| Cooling Degree Days                 | 2,189.49 | -           | 2,906.13 | -              | -       |
| Maximum Avg Temperature (Degrees F) | 72.37    | 75.16       | 74.9     | 76.29          | 80.08   |
| Minimum Avg Temperature (Degrees F) | 56.25    | 57.92       | 58.36    | 59.24          | 63.65   |
| AUTUMN                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 74.43    | -           | 78.71    | -              | 83.33   |
| Minimum Avg Temperature (Degrees F) | 58.92    | -           | 62.79    | -              | 67.76   |
| WINTER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 59.27    | -           | 61.61    | -              | 65.28   |
| Minimum Avg Temperature (Degrees F) | 43.46    | -           | 45.18    | -              | 49.1    |
| SPRING                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 73.58    | -           | 77.53    | -              | 81.57   |
| Minimum Avg Temperature (Degrees F) | 56.26    | -           | 59.69    | -              | 64.29   |
| SUMMER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 85.65    | -           | 90.56    | -              | 95.2    |
| Minimum Avg Temperature (Degrees F) | 71       | -           | 75.19    | -              | 79.57   |

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# Precipitation Projections

## Jefferson Davis County, Mississippi



### Info

Precipitation is any liquid or frozen water that forms in the atmosphere and falls back to the Earth. All values are calculated as 24-hour periods.

**Mid-Century Precipitation Analysis:** The historical annual total precipitation is **42.82** inches. Under RCP 8.5 the annual minimum precipitation at mid-century is **45.20** inches which represents a **2.38** inch change from the baseline.

**Mid-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **24.70** days. Under RCP 8.5 the longest stretch of days without precipitation at mid-century is **20.72** days which represents a **-3.98** day change from the baseline.

**End-Century Precipitation Analysis:** The historical annual total precipitation is **42.82** inches. Under RCP 8.5 the annual minimum precipitation at end-century is **49.73** inches which represents a **6.91** inch change from the baseline.

**End-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **24.70** days. Under RCP 8.5 the longest stretch of days without precipitation at end-century is **25.02** days which represents a **0.33** day change from the baseline.

### Climate Stats

| Precipitation                        | Hist. | Mid-Century |         | End-Of-Century |         |
|--------------------------------------|-------|-------------|---------|----------------|---------|
|                                      |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL                               |       |             |         |                |         |
| Days Without Precipitation (Days)    | 24.7  | 31.88       | 20.72   | 27.16          | 25.02   |
| Annual Precipitation (Inches)        | 42.82 | 43.6        | 45.2    | 44.2           | 49.73   |
| AUTUMN                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.08  | -           | 0.08    | -              | 0.08    |
| Maximum Daily Precipitation (Inches) | 1.5   | -           | 1.51    | -              | 1.29    |
| WINTER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.12  | -           | 0.12    | -              | 0.13    |
| Maximum Daily Precipitation (Inches) | 1.93  | -           | 1.92    | -              | 1.84    |
| SPRING                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.13  | -           | 0.14    | -              | 0.16    |
| Maximum Daily Precipitation (Inches) | 1.77  | -           | 2.12    | -              | 2.1     |
| SUMMER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.18  | -           | 0.17    | -              | 0.18    |
| Maximum Daily Precipitation (Inches) | 1.69  | -           | 1.73    | -              | 1.85    |

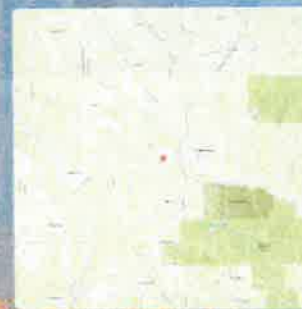
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# Wildfire Projections

## Jefferson Davis County, Mississippi



### Info

The Fire Weather Index (FWI) estimates weather-related wildfire danger using daily readings of weather conditions that influence the spread of wildfires, including the dryness of fuel sources and high winds. Higher FWI values represent greater danger of wildfires due to weather conditions; the index does not account for land cover or potential ignition sources. FWI values signal different levels of relative fire danger across regions. Values above 25 typically represent a high level of danger in the northern regions, whereas values above 40-45 often represent a high level of danger in the Southwest.

**Relative Fire Danger:** FWI classes show fire weather-related danger relative to nationwide patterns and are based on 95th percentile FWI values. This location's historical FWI class is and its mid-century RCP8.5 class is . By end-of-century, the FWI class will be .

**Summer FWI Analysis:** The historical average FWI value in summer is **6.15**. At mid-century under RCP 8.5, the summer FWI value will change to **8.72**, representing a change of **2.57** and a percentage change of **41.79%**. By end-of-century, the summer FWI value is projected to be **10.83**, representing a change of **4.68** and a percent change of **76.15%**.

**Autumn FWI Analysis:** The historical average FWI value in autumn is **9.18**. At mid-century under RCP 8.5, the summer FWI value will change to **9.13**, representing a change of **-0.06** and a percentage change of **-0.58%**. By end-of-century, the autumn FWI value is projected to be **10.11**, representing a change of **0.92** and a percent change of **10.11%**.

### Climate Stats

| Wildfire                 | Historical | Mid-Century | End-of-Century |
|--------------------------|------------|-------------|----------------|
| ANNUAL                   |            |             |                |
| Fire Weather Index       | 12.24      | 13.9        | 16.38          |
| Fire Weather Index Class | -          | -           | -              |
| AUTUMN                   |            |             |                |
| Fire Weather Index       | 13.68      | 14.48       | 16.22          |
| Fire Weather Index Class | -          | -           | -              |
| WINTER                   |            |             |                |
| Fire Weather Index       | 4.27       | 3.87        | 6.32           |
| Fire Weather Index Class | -          | -           | -              |
| SPRING                   |            |             |                |
| Fire Weather Index       | 9.43       | 9.34        | 9.73           |
| Fire Weather Index Class | -          | -           | -              |
| SUMMER                   |            |             |                |
| Fire Weather Index       | 9.53       | 13.01       | 15.58          |
| Fire Weather Index Class | -          | -           | -              |

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# Wind Speed Projections

Jefferson Davis County, Mississippi



## Info

Wind is the movement of air across Earth's surface caused by differences in atmospheric pressure. All values are calculated as 24-hour periods.

**Mid-Century Wind Analysis:** The historical annual average wind speed is **5.91** mph. Under RCP 4.5 the annual average wind speed at mid-century is **5.82** mph which represents a **-0.09** mph change from the baseline. Under RCP 8.5 the annual average wind speed at mid-century is **5.94** mph which represents a **0.04** mph change from the baseline.

**End-Century Wind Analysis:** The historical annual average wind speed is **5.91** mph. Under RCP 4.5 the annual average wind speed at end-century is **6.05** mph which represents a **0.14** mph change from the baseline. Under RCP 8.5 the annual average wind speed at end-century is **5.88** mph which represents a **-0.03** mph change from the baseline.

## Climate Stats

| Wind_Speed       | Hist. | Mid-Century |         | End-Of-Century |         |
|------------------|-------|-------------|---------|----------------|---------|
|                  |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL           |       |             |         |                |         |
| Wind Speed (Mph) | 5.91  | 5.82        | 5.94    | 6.05           | 5.88    |

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# Heat Index Projections

## Jefferson Davis County, Mississippi



### Info

Heat index is a measure of how hot weather feels to humans when factoring in both relative humidity and the actual temperature. Heat index is an important gauge of heat-related risks. Readings above 105°F typically represent dangerous conditions, with readings above 125°F being extremely dangerous to humans.

Since extreme heat is the concern of this report, all values represent those calculated for the Summer months (June, July, August).

**Mid-Century Heat Analysis** The average daily maximum heat index in summer over the historical period is **91.58** (F). Under RCP 8.5, the average daily max heat index at mid-century is **99.47** (F), which represents a **7.89** (F) change from the baseline. The single highest heat index measured in Summer months is **103.38** (F) in the historical period and **121.48** (F) at mid-century (RCP8.5), representing an increase of **18.11** (F).

Historically, the number of summer days with a heat index above 95°F was **26.05** (F). By mid-century under RCP8.5, **59.88** summer days are projected to have a heat index above 95°F, representing an increase of **33.83**. Summer days with heat index above 115°F have been more rare, with **0.02** such days in the historical period and a projected **5.40** by mid-century (RCP8.5), representing a change of **5.38** days.

**End-Century Heat Analysis:** The average daily maximum heat index in summer over the historical period is **91.58** (F). Under RCP 8.5, the average daily max heat index at end-century is **110.46** (F), which represents a **18.88** (F) change from the baseline. The single highest heat index measured in Summer months is **103.38** (F) in the historical period and **138.22** (F) at end-century (RCP8.5), representing an increase of **34.85** (F).

Historically, the number of summer days with a heat index above 95°F was **26.05** (F). By end-century under RCP8.5, **84.57** summer days are projected to have a heat index above 95°F, representing an increase of **58.52**. Summer days with heat index above 115°F have been more rare, with **0.02** such days in the historical period and a projected **23.22** by end-century (RCP8.5), representing a change of **23.20** days.

### Climate Stats

| Heat_Index                               | Historical | Mid-Century | End-of-Century |
|------------------------------------------|------------|-------------|----------------|
| SUMMER                                   |            |             |                |
| Daily Max Heat Index (Degrees F)         | 91.58      | 99.47       | 110.46         |
| Seasonal Max Heat Index (Degrees F)      | 103.38     | 121.48      | 138.22         |
| Days with Max Heat Index Over 95 (Days)  | 26.05      | 59.88       | 84.57          |
| Days with Max Heat Index Over 105 (Days) | 1.92       | 15.8        | 54.13          |
| Days with Max Heat Index Over 115 (Days) | 0.02       | 5.4         | 23.22          |
| Days with Max Heat Index Over 125 (Days) | 0          | 4.05        | 14.17          |

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# Temperature Projections

## Jones County, Mississippi



### Info

Temperature is the measure of the average heat or thermal energy in the air at the Earth's surface.

**Degree Days:** Degree days measure how cold or warm a location is by comparing the daily average temperature to a reference temperature, usually 65°F (18.33°C).

For ClimRR, we used each day's maximum temperature (the daily high) and minimum temperature (the daily low) to estimate the daily average temperature. This daily average was used to calculate that day's HDD (if the average temperature was below 65°F) or CDD (if the average temperature was above 65°F). Daily HDD or CDD were aggregated to produce seasonal averages or annual averages, using ensemble means for each climate scenario.

**Mid-Century Temperature Analysis:** The historical annual minimum temperature is **56.33** (F). Under RCP 4.5 the annual minimum temperature at mid-century is **57.95** (F) which represents a **1.62** (F) change from the baseline. Under RCP 8.5 the annual minimum temperature at mid-century is **58.51** (F) which represents a **2.18** (F) change from the baseline.

**Historical Temperature Analysis:** The historical annual maximum temperature is **72.66** (F). Under RCP 4.5 the annual maximum temperature at mid-century is **75.41** (F) which represents a **2.74** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at mid-century is **75.00** (F) which represents a **2.34** (F) change from the baseline.

**End-of-Century Temperature Analysis:** The historical annual minimum temperature is **56.33** (F). Under RCP 4.5 the annual minimum temperature at end-of-century is **59.24** (F) which represents a **2.91** (F) change from the baseline. Under RCP 8.5 the annual minimum temperature at end-of-century is **63.81** (F) which represents a **7.48** (F) change from the baseline.

Under RCP 4.5 the annual maximum temperature at end-of-century is **76.56** (F) which represents a **3.90** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at end-of-century is **80.22** (F) which represents a **7.55** (F) change from the baseline.

### Climate Stats

| Temperature                         | Hist.    | Mid-Century |          | End-Of-Century |         |
|-------------------------------------|----------|-------------|----------|----------------|---------|
|                                     |          | RCP 4.5     | RCP 8.5  | RCP 4.5        | RCP 8.5 |
| ANNUAL                              |          |             |          |                |         |
| Heating Degree Days                 | 4,209.82 | -           | 4,391.65 | -              | -       |
| Cooling Degree Days                 | 2,228.01 | -           | 2,943.96 | -              | -       |
| Maximum Avg Temperature (Degrees F) | 72.66    | 75.41       | 75       | 76.56          | 80.22   |
| Minimum Avg Temperature (Degrees F) | 56.33    | 57.95       | 58.51    | 59.24          | 63.81   |
| AUTUMN                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 74.57    | -           | 78.72    | -              | 83.38   |
| Minimum Avg Temperature (Degrees F) | 58.94    | -           | 62.7     | -              | 67.74   |
| WINTER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 59.6     | -           | 61.84    | -              | 65.46   |
| Minimum Avg Temperature (Degrees F) | 43.59    | -           | 45.17    | -              | 49.01   |
| SPRING                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 73.95    | -           | 77.83    | -              | 81.88   |
| Minimum Avg Temperature (Degrees F) | 56.34    | -           | 59.72    | -              | 64.31   |
| SUMMER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 86.02    | -           | 90.81    | -              | 95.47   |
| Minimum Avg Temperature (Degrees F) | 71.34    | -           | 75.54    | -              | 79.98   |

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# Precipitation Projections

## Jones County, Mississippi



### Info

Precipitation is any liquid or frozen water that forms in the atmosphere and falls back to the Earth. All values are calculated as 24-hour periods.

**Mid-Century Precipitation Analysis:** The historical annual total precipitation is **45.19** inches. Under RCP 8.5 the annual minimum precipitation at mid-century is **47.83** inches which represents a **2.64** inch change from the baseline.

**Mid-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **22.17** days. Under RCP 8.5 the longest stretch of days without precipitation at mid-century is **21.91** days which represents a **-0.26** day change from the baseline.

**End-Century Precipitation Analysis:** The historical annual total precipitation is **45.19** inches. Under RCP 8.5 the annual minimum precipitation at end-century is **52.84** inches which represents a **7.65** inch change from the baseline.

**End-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **22.17** days. Under RCP 8.5 the longest stretch of days without precipitation at end-century is **22.83** days which represents a **0.66** day change from the baseline.

### Climate Stats

| Precipitation                        | Hist. | Mid-Century |         | End-Of-Century |         |
|--------------------------------------|-------|-------------|---------|----------------|---------|
|                                      |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL                               |       |             |         |                |         |
| Days Without Precipitation (Days)    | 22.17 | 29.42       | 21.91   | 27.82          | 22.83   |
| Annual Precipitation (Inches)        | 45.19 | 45.98       | 47.83   | 46.98          | 52.84   |
| AUTUMN                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.08  | -           | 0.09    | -              | 0.08    |
| Maximum Daily Precipitation (Inches) | 1.57  | -           | 1.66    | -              | 1.31    |
| WINTER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.11  | -           | 0.12    | -              | 0.13    |
| Maximum Daily Precipitation (Inches) | 1.92  | -           | 1.91    | -              | 2.02    |
| SPRING                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.13  | -           | 0.14    | -              | 0.16    |
| Maximum Daily Precipitation (Inches) | 1.87  | -           | 1.79    | -              | 2.18    |
| SUMMER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.19  | -           | 0.18    | -              | 0.2     |
| Maximum Daily Precipitation (Inches) | 1.75  | -           | 1.93    | -              | 2.01    |

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# Wildfire Projections

## Jones County, Mississippi



### Info

The Fire Weather Index (FWI) estimates weather-related wildfire danger using daily readings of weather conditions that influence the spread of wildfires, including the dryness of fuel sources and high winds. Higher FWI values represent greater danger of wildfires due to weather conditions; the index does not account for land cover or potential ignition sources. FWI values signal different levels of relative fire danger across regions. Values above 25 typically represent a high level of danger in the northern regions, whereas values above 40-45 often represent a high level of danger in the Southwest.

**Relative Fire Danger:** FWI classes show fire weather-related danger relative to nationwide patterns and are based on 95th percentile FWI values. This location's historical FWI class is and its mid-century RCP8.5 class is . By end-of-century, the FWI class will be .

**Summer FWI Analysis:** The historical average FWI value in summer is **5.72**. At mid-century under RCP 8.5, the summer FWI value will change to **7.93**, representing a change of **2.20** and a percentage change of **38.43%**. By end-of-century, the summer FWI value is projected to be **10.02**, representing a change of **4.30** and a percent change of **75.06%**.

**Autumn FWI Analysis:** The historical average FWI value in autumn is **8.46**. At mid-century under RCP 8.5, the summer FWI value will change to **8.48**, representing a change of **0.01** and a percentage change of **0.16%**. By end-of-century, the autumn FWI value is projected to be **9.64**, representing a change of **1.18** and a percent change of **13.98%**.

### Climate Stats

| Wildfire                 | Historical | Mid-Century | End-of-Century |
|--------------------------|------------|-------------|----------------|
| ANNUAL                   |            |             |                |
| Fire Weather Index       | 11.56      | 12.53       | 14.49          |
| Fire Weather Index Class | -          | -           | -              |
| AUTUMN                   |            |             |                |
| Fire Weather Index       | 12.98      | 13.11       | 16.24          |
| Fire Weather Index Class | -          | -           | -              |
| WINTER                   |            |             |                |
| Fire Weather Index       | 4.17       | 4.13        | 6.25           |
| Fire Weather Index Class | -          | -           | -              |
| SPRING                   |            |             |                |
| Fire Weather Index       | 9.74       | 9.33        | 9.88           |
| Fire Weather Index Class | -          | -           | -              |
| SUMMER                   |            |             |                |
| Fire Weather Index       | 9.37       | 11.46       | 14.68          |
| Fire Weather Index Class | -          | -           | -              |

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# Wind Speed Projections

Jones County, Mississippi



## Info

Wind is the movement of air across Earth's surface caused by differences in atmospheric pressure. All values are calculated as 24-hour periods.

**Mid-Century Wind Analysis:** The historical annual average wind speed is **5.68** mph. Under RCP 4.5 the annual average wind speed at mid-century is **5.60** mph which represents a **-0.08** mph change from the baseline. Under RCP 8.5 the annual average wind speed at mid-century is **5.72** mph which represents a **0.04** mph change from the baseline.

**End-Century Wind Analysis:** The historical annual average wind speed is **5.68** mph. Under RCP 4.5 the annual average wind speed at end-century is **5.82** mph which represents a **0.14** mph change from the baseline. Under RCP 8.5 the annual average wind speed at end-century is **5.67** mph which represents a **-0.01** mph change from the baseline.

## Climate Stats

| Wind_Speed       | Hist. | Mid-Century |         | End-Of-Century |         |
|------------------|-------|-------------|---------|----------------|---------|
|                  |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL           |       |             |         |                |         |
| Wind Speed (Mph) | 5.68  | 5.6         | 5.72    | 5.82           | 5.67    |

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# Heat Index Projections

## Jones County, Mississippi



### Info

Heat index is a measure of how hot weather feels to humans when factoring in both relative humidity and the actual temperature. Heat index is an important gauge of heat-related risks. Readings above 105°F typically represent dangerous conditions, with readings above 125°F being extremely dangerous to humans.

Since extreme heat is the concern of this report, all values represent those calculated for the Summer months (June, July, August).

**Mid-Century Heat Analysis** The average daily maximum heat index in summer over the historical period is **92.20** (F). Under RCP 8.5, the average daily max heat index at mid-century is **100.24** (F), which represents a **8.04** (F) change from the baseline. The single highest heat index measured in Summer months is **104.59** (F) in the historical period and **123.30** (F) at mid-century (RCP8.5), representing an increase of **18.71** (F).

Historically, the number of summer days with a heat index above 95°F was **28.95** (F). By mid-century under RCP8.5, **62.57** summer days are projected to have a heat index above 95°F, representing an increase of **33.62**. Summer days with heat index above 115°F have been more rare, with **0.02** such days in the historical period and a projected **5.96** by mid-century (RCP8.5), representing a change of **5.94** days.

**End-Century Heat Analysis:** The average daily maximum heat index in summer over the historical period is **92.20** (F). Under RCP 8.5, the average daily max heat index at end-century is **111.90** (F), which represents a **19.70** (F) change from the baseline. The single highest heat index measured in Summer months is **104.59** (F) in the historical period and **140.80** (F) at end-century (RCP8.5), representing an increase of **36.20** (F).

Historically, the number of summer days with a heat index above 95°F was **28.95** (F). By end-century under RCP8.5, **85.23** summer days are projected to have a heat index above 95°F, representing an increase of **56.28**. Summer days with heat index above 115°F have been more rare, with **0.02** such days in the historical period and a projected **26.52** by end-century (RCP8.5), representing a change of **26.50** days.

### Climate Stats

| Heat_Index                               | Historical | Mid-Century | End-of-Century |
|------------------------------------------|------------|-------------|----------------|
| SUMMER                                   |            |             |                |
| Daily Max Heat Index (Degrees F)         | 92.2       | 100.24      | 111.9          |
| Seasonal Max Heat Index (Degrees F)      | 104.59     | 123.3       | 140.8          |
| Days with Max Heat Index Over 95 (Days)  | 28.95      | 62.57       | 85.23          |
| Days with Max Heat Index Over 105 (Days) | 2.64       | 17.18       | 58             |
| Days with Max Heat Index Over 115 (Days) | 0.02       | 5.96        | 26.52          |
| Days with Max Heat Index Over 125 (Days) | 0          | 4.4         | 16.42          |

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# Temperature Projections

## Marion County, Mississippi



### Info

Temperature is the measure of the average heat or thermal energy in the air at the Earth's surface.

**Degree Days:** Degree days measure how cold or warm a location is by comparing the daily average temperature to a reference temperature, usually 65°F (18.33°C).

For ClimRR, we used each day's maximum temperature (the daily high) and minimum temperature (the daily low) to estimate the daily average temperature. This daily average was used to calculate that day's HDD (if the average temperature was below 65°F) or CDD (if the average temperature was above 65°F). Daily HDD or CDD were aggregated to produce seasonal averages or annual averages, using ensemble means for each climate scenario.

**Mid-Century Temperature Analysis:** The historical annual minimum temperature is **56.86** (F). Under RCP 4.5 the annual minimum temperature at mid-century is **58.56** (F) which represents a **1.70** (F) change from the baseline. Under RCP 8.5 the annual minimum temperature at mid-century is **59.01** (F) which represents a **2.16** (F) change from the baseline.

**Historical Temperature Analysis:** The historical annual maximum temperature is **73.01** (F). Under RCP 4.5 the annual maximum temperature at mid-century is **75.74** (F) which represents a **2.73** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at mid-century is **75.54** (F) which represents a **2.53** (F) change from the baseline.

**End-of-Century Temperature Analysis:** The historical annual minimum temperature is **56.86** (F). Under RCP 4.5 the annual minimum temperature at end-of-century is **59.81** (F) which represents a **2.95**(F) change from the baseline. Under RCP 8.5 the annual minimum temperature at end-of-century is **64.18**(F) which represents a **7.32**(F) change from the baseline.

Under RCP 4.5 the annual maximum temperature at end-of-century is **76.93** (F) which represents a **3.92** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at end-of-century is **80.69** (F) which represents a **7.68** (F) change from the baseline.

### Climate Stats

| Temperature                         | Hist.    | Mid-Century |          | End-Of-Century |         |
|-------------------------------------|----------|-------------|----------|----------------|---------|
|                                     |          | RCP 4.5     | RCP 8.5  | RCP 4.5        | RCP 8.5 |
| ANNUAL                              |          |             |          |                |         |
| Heating Degree Days                 | 4,181.14 | -           | 4,360.32 | -              | -       |
| Cooling Degree Days                 | 2,291.3  | -           | 3,015.14 | -              | -       |
| Maximum Avg Temperature (Degrees F) | 73.01    | 75.74       | 75.54    | 76.93          | 80.69   |
| Minimum Avg Temperature (Degrees F) | 56.86    | 58.56       | 59.01    | 59.81          | 64.18   |
| AUTUMN                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 74.97    | -           | 79.24    | -              | 83.83   |
| Minimum Avg Temperature (Degrees F) | 59.43    | -           | 63.21    | -              | 68.25   |
| WINTER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 60.37    | -           | 62.77    | -              | 66.29   |
| Minimum Avg Temperature (Degrees F) | 44.32    | -           | 46       | -              | 49.82   |
| SPRING                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 74.37    | -           | 78.24    | -              | 82.21   |
| Minimum Avg Temperature (Degrees F) | 56.82    | -           | 60.27    | -              | 64.85   |
| SUMMER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 85.94    | -           | 90.76    | -              | 95.41   |
| Minimum Avg Temperature (Degrees F) | 71.56    | -           | 75.67    | -              | 80.04   |

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# Precipitation Projections

## Marion County, Mississippi



### Info

Precipitation is any liquid or frozen water that forms in the atmosphere and falls back to the Earth. All values are calculated as 24-hour periods.

**Mid-Century Precipitation Analysis:** The historical annual total precipitation is **44.71** inches. Under RCP 8.5 the annual minimum precipitation at mid-century is **47.21** inches which represents a **2.50** inch change from the baseline.

**Mid-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **22.58** days. Under RCP 8.5 the longest stretch of days without precipitation at mid-century is **27.86** days which represents a **5.28** day change from the baseline.

**End-Century Precipitation Analysis:** The historical annual total precipitation is **44.71** inches. Under RCP 8.5 the annual minimum precipitation at end-century is **51.83** inches which represents a **7.11** inch change from the baseline.

**End-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **22.58** days. Under RCP 8.5 the longest stretch of days without precipitation at end-century is **24.74** days which represents a **2.16** day change from the baseline.

### Climate Stats

| Precipitation                        | Hist. | Mid-Century |         | End-Of-Century |         |
|--------------------------------------|-------|-------------|---------|----------------|---------|
|                                      |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL                               |       |             |         |                |         |
| Days Without Precipitation (Days)    | 22.58 | 27.55       | 27.86   | 30.64          | 24.74   |
| Annual Precipitation (Inches)        | 44.71 | 45.83       | 47.21   | 46.23          | 51.83   |
| AUTUMN                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.08  | -           | 0.09    | -              | 0.08    |
| Maximum Daily Precipitation (Inches) | 1.43  | -           | 1.52    | -              | 1.29    |
| WINTER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.11  | -           | 0.12    | -              | 0.13    |
| Maximum Daily Precipitation (Inches) | 1.79  | -           | 2.03    | -              | 2.03    |
| SPRING                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.13  | -           | 0.15    | -              | 0.16    |
| Maximum Daily Precipitation (Inches) | 1.74  | -           | 2.11    | -              | 2.24    |
| SUMMER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.18  | -           | 0.17    | -              | 0.18    |
| Maximum Daily Precipitation (Inches) | 1.69  | -           | 1.74    | -              | 1.92    |

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# Wildfire Projections

## Marion County, Mississippi



### Info

The Fire Weather Index (FWI) estimates weather-related wildfire danger using daily readings of weather conditions that influence the spread of wildfires, including the dryness of fuel sources and high winds. Higher FWI values represent greater danger of wildfires due to weather conditions; the index does not account for land cover or potential ignition sources. FWI values signal different levels of relative fire danger across regions. Values above 25 typically represent a high level of danger in the northern regions, whereas values above 40-45 often represent a high level of danger in the Southwest.

**Relative Fire Danger:** FWI classes show fire weather-related danger relative to nationwide patterns and are based on 95th percentile FWI values. This location's historical FWI class is and its mid-century RCP8.5 class is . By end-of-century, the FWI class will be .

**Summer FWI Analysis:** The historical average FWI value in summer is **5.67**. At mid-century under RCP 8.5, the summer FWI value will change to **8.30**, representing a change of **2.63** and a percentage change of **46.39%**. By end-of-century, the summer FWI value is projected to be **10.73**, representing a change of **5.06** and a percent change of **89.37%**.

**Autumn FWI Analysis:** The historical average FWI value in autumn is **8.60**. At mid-century under RCP 8.5, the summer FWI value will change to **8.53**, representing a change of **-0.07** and a percentage change of **-0.80%**. By end-of-century, the autumn FWI value is projected to be **9.26**, representing a change of **0.66** and a percent change of **7.65%**.

### Climate Stats

| Wildfire                 | Historical | Mid-Century | End-of-Century |
|--------------------------|------------|-------------|----------------|
| ANNUAL                   |            |             |                |
| Fire Weather Index       | 11.4       | 13.04       | 15.47          |
| Fire Weather Index Class | -          | -           | -              |
| AUTUMN                   |            |             |                |
| Fire Weather Index       | 13.36      | 13.7        | 15.33          |
| Fire Weather Index Class | -          | -           | -              |
| WINTER                   |            |             |                |
| Fire Weather Index       | 4.25       | 3.98        | 6.27           |
| Fire Weather Index Class | -          | -           | -              |
| SPRING                   |            |             |                |
| Fire Weather Index       | 9.15       | 9.2         | 9.94           |
| Fire Weather Index Class | -          | -           | -              |
| SUMMER                   |            |             |                |
| Fire Weather Index       | 8.98       | 12.34       | 15.62          |
| Fire Weather Index Class | -          | -           | -              |

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# Wind Speed Projections

Marion County, Mississippi



## Info

Wind is the movement of air across Earth's surface caused by differences in atmospheric pressure. All values are calculated as 24-hour periods.

**Mid-Century Wind Analysis:** The historical annual average wind speed is **5.73** mph. Under RCP 4.5 the annual average wind speed at mid-century is **5.64** mph which represents a **-0.08** mph change from the baseline. Under RCP 8.5 the annual average wind speed at mid-century is **5.76** mph which represents a **0.03** mph change from the baseline.

**End-Century Wind Analysis:** The historical annual average wind speed is **5.73** mph. Under RCP 4.5 the annual average wind speed at end-century is **5.89** mph which represents a **0.16** mph change from the baseline. Under RCP 8.5 the annual average wind speed at end-century is **5.71** mph which represents a **-0.02** mph change from the baseline.

## Climate Stats

| Wind_Speed       | Hist. | Mid-Century |         | End-Of-Century |         |
|------------------|-------|-------------|---------|----------------|---------|
|                  |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL           |       |             |         |                |         |
| Wind Speed (Mph) | 5.73  | 5.64        | 5.76    | 5.89           | 5.71    |

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# Heat Index Projections

## Marion County, Mississippi



### Info

Heat index is a measure of how hot weather feels to humans when factoring in both relative humidity and the actual temperature. Heat index is an important gauge of heat-related risks. Readings above 105°F typically represent dangerous conditions, with readings above 125°F being extremely dangerous to humans.

Since extreme heat is the concern of this report, all values represent those calculated for the Summer months (June, July, August).

**Mid-Century Heat Analysis** The average daily maximum heat index in summer over the historical period is **92.34** (F). Under RCP 8.5, the average daily max heat index at mid-century is **100.54** (F), which represents a **8.20** (F) change from the baseline. The single highest heat index measured in Summer months is **103.98** (F) in the historical period and **123.27** (F) at mid-century (RCP8.5), representing an increase of **19.29** (F).

Historically, the number of summer days with a heat index above 95°F was **28.86** (F). By mid-century under RCP8.5, **63.60** summer days are projected to have a heat index above 95°F, representing an increase of **34.74**. Summer days with heat index above 115°F have been more rare, with **0.03** such days in the historical period and a projected **6.22** by mid-century (RCP8.5), representing a change of **6.19** days.

**End-Century Heat Analysis:** The average daily maximum heat index in summer over the historical period is **92.34** (F). Under RCP 8.5, the average daily max heat index at end-century is **112.69** (F), which represents a **20.35** (F) change from the baseline. The single highest heat index measured in Summer months is **103.98** (F) in the historical period and **139.88** (F) at end-century (RCP8.5), representing an increase of **35.90** (F).

Historically, the number of summer days with a heat index above 95°F was **28.86** (F). By end-century under RCP8.5, **86.17** summer days are projected to have a heat index above 95°F, representing an increase of **57.31**. Summer days with heat index above 115°F have been more rare, with **0.03** such days in the historical period and a projected **28.01** by end-century (RCP8.5), representing a change of **27.98** days.

### Climate Stats

| Heat_Index                               | Historical | Mid-Century | End-of-Century |
|------------------------------------------|------------|-------------|----------------|
| <b>SUMMER</b>                            |            |             |                |
| Daily Max Heat Index (Degrees F)         | 92.34      | 100.54      | 112.69         |
| Seasonal Max Heat Index (Degrees F)      | 103.98     | 123.27      | 139.88         |
| Days with Max Heat Index Over 95 (Days)  | 28.86      | 63.6        | 86.17          |
| Days with Max Heat Index Over 105 (Days) | 2.7        | 17.93       | 60.02          |
| Days with Max Heat Index Over 115 (Days) | 0.03       | 6.22        | 28.01          |
| Days with Max Heat Index Over 125 (Days) | 0          | 4.52        | 18.3           |

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# Temperature Projections

## Perry County, Mississippi



### Info

Temperature is the measure of the average heat or thermal energy in the air at the Earth's surface.

**Degree Days:** Degree days measure how cold or warm a location is by comparing the daily average temperature to a reference temperature, usually 65°F (18.33°C).

For ClimRR, we used each day's maximum temperature (the daily high) and minimum temperature (the daily low) to estimate the daily average temperature. This daily average was used to calculate that day's HDD (if the average temperature was below 65°F) or CDD (if the average temperature was above 65°F). Daily HDD or CDD were aggregated to produce seasonal averages or annual averages, using ensemble means for each climate scenario.

**Mid-Century Temperature Analysis:** The historical annual minimum temperature is 57.21 (F). Under RCP 4.5 the annual minimum temperature at mid-century is 58.91 (F) which represents a 1.70 (F) change from the baseline. Under RCP 8.5 the annual minimum temperature at mid-century is 59.40 (F) which represents a 2.19 (F) change from the baseline.

**Historical Temperature Analysis:** The historical annual maximum temperature is 73.08 (F). Under RCP 4.5 the annual maximum temperature at mid-century is 75.74 (F) which represents a 2.66 (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at mid-century is 75.49 (F) which represents a 2.41 (F) change from the baseline.

**End-of-Century Temperature Analysis:** The historical annual minimum temperature is 57.21 (F). Under RCP 4.5 the annual minimum temperature at end-of-century is 60.02 (F) which represents a 2.82(F) change from the baseline. Under RCP 8.5 the annual minimum temperature at end-of-century is 64.58(F) which represents a 7.38(F) change from the baseline.

Under RCP 4.5 the annual maximum temperature at end-of-century is 76.80 (F) which represents a 3.72 (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at end-of-century is 80.59 (F) which represents a 7.51 (F) change from the baseline.

### Climate Stats

| Temperature                         | Hist.    | Mid-Century |          | End-Of-Century |         |
|-------------------------------------|----------|-------------|----------|----------------|---------|
|                                     |          | RCP 4.5     | RCP 8.5  | RCP 4.5        | RCP 8.5 |
| ANNUAL                              |          |             |          |                |         |
| Heating Degree Days                 | 4,141.32 | -           | 4,363.36 | -              | -       |
| Cooling Degree Days                 | 2,322.43 | -           | 3,047.39 | -              | -       |
| Maximum Avg Temperature (Degrees F) | 73.08    | 75.74       | 75.49    | 76.8           | 80.59   |
| Minimum Avg Temperature (Degrees F) | 57.21    | 58.91       | 59.4     | 60.02          | 64.58   |
| AUTUMN                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 74.84    | -           | 78.97    | -              | 83.57   |
| Minimum Avg Temperature (Degrees F) | 59.85    | -           | 63.46    | -              | 68.51   |
| WINTER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 60.77    | -           | 63.03    | -              | 66.41   |
| Minimum Avg Temperature (Degrees F) | 44.68    | -           | 46.23    | -              | 49.96   |
| SPRING                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 74.55    | -           | 78.35    | -              | 82.3    |
| Minimum Avg Temperature (Degrees F) | 57.26    | -           | 60.62    | -              | 65.12   |
| SUMMER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 86       | -           | 90.68    | -              | 95.3    |
| Minimum Avg Temperature (Degrees F) | 72.09    | -           | 76.18    | -              | 80.5    |

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# Precipitation Projections

## Perry County, Mississippi



### Info

Precipitation is any liquid or frozen water that forms in the atmosphere and falls back to the Earth. All values are calculated as 24-hour periods.

**Mid-Century Precipitation Analysis:** The historical annual total precipitation is **46.36** inches. Under RCP 8.5 the annual minimum precipitation at mid-century is **48.26** inches which represents a **1.91** inch change from the baseline.

**Mid-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **20.46** days. Under RCP 8.5 the longest stretch of days without precipitation at mid-century is **22.94** days which represents a **2.49** day change from the baseline.

**End-Century Precipitation Analysis:** The historical annual total precipitation is **46.36** inches. Under RCP 8.5 the annual minimum precipitation at end-century is **53.82** inches which represents a **7.46** inch change from the baseline.

**End-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **20.46** days. Under RCP 8.5 the longest stretch of days without precipitation at end-century is **19.66** days which represents a **-0.80** day change from the baseline.

### Climate Stats

| Precipitation                        | Hist. | Mid-Century |         | End-Of-Century |         |
|--------------------------------------|-------|-------------|---------|----------------|---------|
|                                      |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL                               |       |             |         |                |         |
| Days Without Precipitation (Days)    | 20.46 | 26.68       | 22.94   | 26.2           | 19.66   |
| Annual Precipitation (Inches)        | 46.36 | 47.03       | 48.26   | 47.65          | 53.82   |
| AUTUMN                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.09  | -           | 0.09    | -              | 0.09    |
| Maximum Daily Precipitation (Inches) | 1.5   | -           | 1.56    | -              | 1.25    |
| WINTER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.1   | -           | 0.12    | -              | 0.13    |
| Maximum Daily Precipitation (Inches) | 1.73  | -           | 2.02    | -              | 1.97    |
| SPRING                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.14  | -           | 0.15    | -              | 0.16    |
| Maximum Daily Precipitation (Inches) | 2.02  | -           | 2.13    | -              | 2.1     |
| SUMMER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.2   | -           | 0.19    | -              | 0.2     |
| Maximum Daily Precipitation (Inches) | 2     | -           | 1.74    | -              | 1.84    |

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# Wildfire Projections

## Perry County, Mississippi



### Info

The Fire Weather Index (FWI) estimates weather-related wildfire danger using daily readings of weather conditions that influence the spread of wildfires, including the dryness of fuel sources and high winds. Higher FWI values represent greater danger of wildfires due to weather conditions; the index does not account for land cover or potential ignition sources. FWI values signal different levels of relative fire danger across regions. Values above 25 typically represent a high level of danger in the northern regions, whereas values above 40-45 often represent a high level of danger in the Southwest.

**Relative Fire Danger:** FWI classes show fire weather-related danger relative to nationwide patterns and are based on 95th percentile FWI values. This location's historical FWI class is and its mid-century RCP8.5 class is . By end-of-century, the FWI class will be .

**Summer FWI Analysis:** The historical average FWI value in summer is **5.18**. At mid-century under RCP 8.5, the summer FWI value will change to **7.20**, representing a change of **2.02** and a percentage change of **38.97%**. By end-of-century, the summer FWI value is projected to be **9.44**, representing a change of **4.26** and a percent change of **82.36%**.

**Autumn FWI Analysis:** The historical average FWI value in autumn is **7.56**. At mid-century under RCP 8.5, the summer FWI value will change to **7.62**, representing a change of **0.06** and a percentage change of **0.79%**. By end-of-century, the autumn FWI value is projected to be **8.56**, representing a change of **1.00** and a percent change of **13.17%**.

### Climate Stats

| Wildfire                 | Historical | Mid-Century | End-of-Century |
|--------------------------|------------|-------------|----------------|
| <b>ANNUAL</b>            |            |             |                |
| Fire Weather Index       | 10.64      | 11.41       | 14.06          |
| Fire Weather Index Class | -          | -           | -              |
| <b>AUTUMN</b>            |            |             |                |
| Fire Weather Index       | 11.27      | 11.86       | 14.66          |
| Fire Weather Index Class | -          | -           | -              |
| <b>WINTER</b>            |            |             |                |
| Fire Weather Index       | 4.19       | 3.83        | 6.04           |
| Fire Weather Index Class | -          | -           | -              |
| <b>SPRING</b>            |            |             |                |
| Fire Weather Index       | 9.94       | 9.11        | 10.41          |
| Fire Weather Index Class | -          | -           | -              |
| <b>SUMMER</b>            |            |             |                |
| Fire Weather Index       | 8.64       | 10.55       | 14.31          |
| Fire Weather Index Class | -          | -           | -              |

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# Wind Speed Projections

Perry County, Mississippi



## Info

Wind is the movement of air across Earth's surface caused by differences in atmospheric pressure. All values are calculated as 24-hour periods.

**Mid-Century Wind Analysis:** The historical annual average wind speed is **5.69** mph. Under RCP 4.5 the annual average wind speed at mid-century is **5.61** mph which represents a **-0.08** mph change from the baseline. Under RCP 8.5 the annual average wind speed at mid-century is **5.72** mph which represents a **0.03** mph change from the baseline.

**End-Century Wind Analysis:** The historical annual average wind speed is **5.69** mph. Under RCP 4.5 the annual average wind speed at end-century is **5.83** mph which represents a **0.15** mph change from the baseline. Under RCP 8.5 the annual average wind speed at end-century is **5.66** mph which represents a **-0.02** mph change from the baseline.

## Climate Stats

| Wind_Speed       | Hist. | Mid-Century |         | End-Of-Century |         |
|------------------|-------|-------------|---------|----------------|---------|
|                  |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL           |       |             |         |                |         |
| Wind Speed (Mph) | 5.69  | 5.61        | 5.72    | 5.83           | 5.66    |

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# Heat Index Projections

## Perry County, Mississippi



### Info

Heat index is a measure of how hot weather feels to humans when factoring in both relative humidity and the actual temperature. Heat index is an important gauge of heat-related risks. Readings above 105°F typically represent dangerous conditions, with readings above 125°F being extremely dangerous to humans.

Since extreme heat is the concern of this report, all values represent those calculated for the Summer months (June, July, August).

**Mid-Century Heat Analysis** The average daily maximum heat index in summer over the historical period is **92.65** (F). Under RCP 8.5, the average daily max heat index at mid-century is **101.09** (F), which represents a **8.44** (F) change from the baseline. The single highest heat index measured in Summer months is **104.47** (F) in the historical period and **122.38** (F) at mid-century (RCP8.5), representing an increase of **17.91** (F).

Historically, the number of summer days with a heat index above 95°F was **30.43** (F). By mid-century under RCP8.5, **65.47** summer days are projected to have a heat index above 95°F, representing an increase of **35.04**. Summer days with heat index above 115°F have been more rare, with **0.02** such days in the historical period and a projected **6.84** by mid-century (RCP8.5), representing a change of **6.82** days.

**End-Century Heat Analysis:** The average daily maximum heat index in summer over the historical period is **92.65** (F). Under RCP 8.5, the average daily max heat index at end-century is **113.81** (F), which represents a **21.16** (F) change from the baseline. The single highest heat index measured in Summer months is **104.47** (F) in the historical period and **141.71** (F) at end-century (RCP8.5), representing an increase of **37.24** (F).

Historically, the number of summer days with a heat index above 95°F was **30.43** (F). By end-century under RCP8.5, **86.61** summer days are projected to have a heat index above 95°F, representing an increase of **56.18**. Summer days with heat index above 115°F have been more rare, with **0.02** such days in the historical period and a projected **30.82** by end-century (RCP8.5), representing a change of **30.80** days.

### Climate Stats

| Heat_Index                               | Historical | Mid-Century | End-of-Century |
|------------------------------------------|------------|-------------|----------------|
| SUMMER                                   |            |             |                |
| Daily Max Heat Index (Degrees F)         | 92.65      | 101.09      | 113.81         |
| Seasonal Max Heat Index (Degrees F)      | 104.47     | 122.38      | 141.71         |
| Days with Max Heat Index Over 95 (Days)  | 30.43      | 65.47       | 86.61          |
| Days with Max Heat Index Over 105 (Days) | 2.95       | 19.11       | 62.23          |
| Days with Max Heat Index Over 115 (Days) | 0.02       | 6.84        | 30.82          |
| Days with Max Heat Index Over 125 (Days) | 0          | 4.92        | 20.21          |

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# Temperature Projections

## Wayne County, Mississippi



### Info

Temperature is the measure of the average heat or thermal energy in the air at the Earth's surface.

**Degree Days:** Degree days measure how cold or warm a location is by comparing the daily average temperature to a reference temperature, usually 65°F (18.33°C).

For ClimRR, we used each day's maximum temperature (the daily high) and minimum temperature (the daily low) to estimate the daily average temperature. This daily average was used to calculate that day's HDD (if the average temperature was below 65°F) or CDD (if the average temperature was above 65°F). Daily HDD or CDD were aggregated to produce seasonal averages or annual averages, using ensemble means for each climate scenario.

**Mid-Century Temperature Analysis:** The historical annual minimum temperature is **56.30** (F). Under RCP 4.5 the annual minimum temperature at mid-century is **57.98** (F) which represents a **1.68** (F) change from the baseline. Under RCP 8.5 the annual minimum temperature at mid-century is **58.54** (F) which represents a **2.24** (F) change from the baseline.

**Historical Temperature Analysis:** The historical annual maximum temperature is **72.46** (F). Under RCP 4.5 the annual maximum temperature at mid-century is **75.07** (F) which represents a **2.61** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at mid-century is **74.71** (F) which represents a **2.25** (F) change from the baseline.

**End-of-Century Temperature Analysis:** The historical annual minimum temperature is **56.30** (F). Under RCP 4.5 the annual minimum temperature at end-of-century is **59.15** (F) which represents a **2.85** (F) change from the baseline. Under RCP 8.5 the annual minimum temperature at end-of-century is **63.80** (F) which represents a **7.50** (F) change from the baseline.

Under RCP 4.5 the annual maximum temperature at end-of-century is **76.27** (F) which represents a **3.81** (F) change from the baseline. Under RCP 8.5 the annual maximum temperature at end-of-century is **79.88** (F) which represents a **7.42** (F) change from the baseline.

### Climate Stats

| Temperature                         | Hist.    | Mid-Century |          | End-Of-Century |         |
|-------------------------------------|----------|-------------|----------|----------------|---------|
|                                     |          | RCP 4.5     | RCP 8.5  | RCP 4.5        | RCP 8.5 |
| ANNUAL                              |          |             |          |                |         |
| Heating Degree Days                 | 4,178.77 | -           | 4,368.96 | -              | -       |
| Cooling Degree Days                 | 2,191.57 | -           | 2,903.3  | -              | -       |
| Maximum Avg Temperature (Degrees F) | 72.46    | 75.07       | 74.71    | 76.27          | 79.88   |
| Minimum Avg Temperature (Degrees F) | 56.3     | 57.98       | 58.54    | 59.15          | 63.8    |
| AUTUMN                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 74.25    | -           | 78.32    | -              | 82.97   |
| Minimum Avg Temperature (Degrees F) | 58.88    | -           | 62.58    | -              | 67.61   |
| WINTER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 59.49    | -           | 61.66    | -              | 65.21   |
| Minimum Avg Temperature (Degrees F) | 43.53    | -           | 45.08    | -              | 48.9    |
| SPRING                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 73.77    | -           | 77.62    | -              | 81.63   |
| Minimum Avg Temperature (Degrees F) | 56.37    | -           | 59.7     | -              | 64.29   |
| SUMMER                              |          |             |          |                |         |
| Maximum Avg Temperature (Degrees F) | 85.79    | -           | 90.49    | -              | 95.09   |
| Minimum Avg Temperature (Degrees F) | 71.37    | -           | 75.58    | -              | 79.95   |

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# Precipitation Projections

## Wayne County, Mississippi



### Info

Precipitation is any liquid or frozen water that forms in the atmosphere and falls back to the Earth. All values are calculated as 24-hour periods.

**Mid-Century Precipitation Analysis:** The historical annual total precipitation is **44.45** inches. Under RCP 8.5 the annual minimum precipitation at mid-century is **47.58** inches which represents a **3.13** inch change from the baseline.

**Mid-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **20.89** days. Under RCP 8.5 the longest stretch of days without precipitation at mid-century is **25.17** days which represents a **4.27** day change from the baseline.

**End-Century Precipitation Analysis:** The historical annual total precipitation is **44.45** inches. Under RCP 8.5 the annual minimum precipitation at end-century is **52.37** inches which represents a **7.92** inch change from the baseline.

**End-Century Precipitation Analysis, Days Without Measurable Precipitation:** The historical longest consecutive number of days without precipitation **20.89** days. Under RCP 8.5 the longest stretch of days without precipitation at end-century is **19.59** days which represents a **-1.30** day change from the baseline.

### Climate Stats

| Precipitation                        | Hist. | Mid-Century |         | End-Of-Century |         |
|--------------------------------------|-------|-------------|---------|----------------|---------|
|                                      |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL                               |       |             |         |                |         |
| Days Without Precipitation (Days)    | 20.89 | 29.49       | 25.17   | 27.62          | 19.59   |
| Annual Precipitation (Inches)        | 44.45 | 45.23       | 47.58   | 46.63          | 52.37   |
| AUTUMN                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.08  | -           | 0.09    | -              | 0.08    |
| Maximum Daily Precipitation (Inches) | 1.44  | -           | 1.63    | -              | 1.34    |
| WINTER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.11  | -           | 0.12    | -              | 0.13    |
| Maximum Daily Precipitation (Inches) | 1.71  | -           | 1.84    | -              | 1.95    |
| SPRING                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.13  | -           | 0.14    | -              | 0.16    |
| Maximum Daily Precipitation (Inches) | 1.91  | -           | 1.9     | -              | 2.15    |
| SUMMER                               |       |             |         |                |         |
| Daily Precipitation (Inches)         | 0.19  | -           | 0.18    | -              | 0.2     |
| Maximum Daily Precipitation (Inches) | 1.87  | -           | 1.92    | -              | 2.08    |

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# Wildfire Projections

## Wayne County, Mississippi



### Info

The Fire Weather Index (FWI) estimates weather-related wildfire danger using daily readings of weather conditions that influence the spread of wildfires, including the dryness of fuel sources and high winds. Higher FWI values represent greater danger of wildfires due to weather conditions; the index does not account for land cover or potential ignition sources. FWI values signal different levels of relative fire danger across regions. Values above 25 typically represent a high level of danger in the northern regions, whereas values above 40-45 often represent a high level of danger in the Southwest.

**Relative Fire Danger:** FWI classes show fire weather-related danger relative to nationwide patterns and are based on 95th percentile FWI values. This location's historical FWI class is and its mid-century RCP8.5 class is . By end-of-century, the FWI class will be .

**Summer FWI Analysis:** The historical average FWI value in summer is **5.65**. At mid-century under RCP 8.5, the summer FWI value will change to **7.46**, representing a change of **1.81** and a percentage change of **32.11%**. By end-of-century, the summer FWI value is projected to be **9.53**, representing a change of **3.88** and a percent change of **68.89%**.

**Autumn FWI Analysis:** The historical average FWI value in autumn is **8.03**. At mid-century under RCP 8.5, the summer FWI value will change to **8.07**, representing a change of **0.04** and a percentage change of **0.48%**. By end-of-century, the autumn FWI value is projected to be **9.51**, representing a change of **1.48** and a percent change of **18.40%**.

### Climate Stats

| Wildfire                 | Historical | Mid-Century | End-of-Century |
|--------------------------|------------|-------------|----------------|
| <b>ANNUAL</b>            |            |             |                |
| Fire Weather Index       | 11.23      | 11.83       | 14.53          |
| Fire Weather Index Class | -          | -           | -              |
| <b>AUTUMN</b>            |            |             |                |
| Fire Weather Index       | 11.92      | 12.02       | 16.37          |
| Fire Weather Index Class | -          | -           | -              |
| <b>WINTER</b>            |            |             |                |
| Fire Weather Index       | 4.16       | 4.22        | 5.94           |
| Fire Weather Index Class | -          | -           | -              |
| <b>SPRING</b>            |            |             |                |
| Fire Weather Index       | 9.91       | 9.19        | 10.08          |
| Fire Weather Index Class | -          | -           | -              |
| <b>SUMMER</b>            |            |             |                |
| Fire Weather Index       | 9.78       | 10.8        | 14.24          |
| Fire Weather Index Class | -          | -           | -              |

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# Wind Speed Projections

Wayne County, Mississippi



## Info

Wind is the movement of air across Earth's surface caused by differences in atmospheric pressure. All values are calculated as 24-hour periods.

**Mid-Century Wind Analysis:** The historical annual average wind speed is **5.78** mph. Under RCP 4.5 the annual average wind speed at mid-century is **5.70** mph which represents a **-0.08** mph change from the baseline. Under RCP 8.5 the annual average wind speed at mid-century is **5.82** mph which represents a **0.04** mph change from the baseline.

**End-Century Wind Analysis:** The historical annual average wind speed is **5.78** mph. Under RCP 4.5 the annual average wind speed at end-century is **5.92** mph which represents a **0.14** mph change from the baseline. Under RCP 8.5 the annual average wind speed at end-century is **5.76** mph which represents a **-0.02** mph change from the baseline.

## Climate Stats

| Wind_Speed       | Hist. | Mid-Century |         | End-Of-Century |         |
|------------------|-------|-------------|---------|----------------|---------|
|                  |       | RCP 4.5     | RCP 8.5 | RCP 4.5        | RCP 8.5 |
| ANNUAL           |       |             |         |                |         |
| Wind Speed (Mph) | 5.78  | 5.7         | 5.82    | 5.92           | 5.76    |

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# Heat Index Projections

## Wayne County, Mississippi



### Info

Heat index is a measure of how hot weather feels to humans when factoring in both relative humidity and the actual temperature. Heat index is an important gauge of heat-related risks. Readings above 105°F typically represent dangerous conditions, with readings above 125°F being extremely dangerous to humans.

Since extreme heat is the concern of this report, all values represent those calculated for the Summer months (June, July, August).

**Mid-Century Heat Analysis** The average daily maximum heat index in summer over the historical period is **91.95** (F). Under RCP 8.5, the average daily max heat index at mid-century is **99.97** (F), which represents a **8.02** (F) change from the baseline. The single highest heat index measured in Summer months is **104.42** (F) in the historical period and **121.97** (F) at mid-century (RCP8.5), representing an increase of **17.54** (F).

Historically, the number of summer days with a heat index above 95°F was **28.01** (F). By mid-century under RCP8.5, **61.48** summer days are projected to have a heat index above 95°F, representing an increase of **33.47**. Summer days with heat index above 115°F have been more rare, with **0.01** such days in the historical period and a projected **5.78** by mid-century (RCP8.5), representing a change of **5.77** days.

**End-Century Heat Analysis:** The average daily maximum heat index in summer over the historical period is **91.95** (F). Under RCP 8.5, the average daily max heat index at end-century is **111.81** (F), which represents a **19.86** (F) change from the baseline. The single highest heat index measured in Summer months is **104.42** (F) in the historical period and **140.56** (F) at end-century (RCP8.5), representing an increase of **36.14** (F).

Historically, the number of summer days with a heat index above 95°F was **28.01** (F). By end-century under RCP8.5, **84.92** summer days are projected to have a heat index above 95°F, representing an increase of **56.91**. Summer days with heat index above 115°F have been more rare, with **0.01** such days in the historical period and a projected **26.47** by end-century (RCP8.5), representing a change of **26.46** days.

### Climate Stats

| Heat_Index                               | Historical | Mid-Century | End-of-Century |
|------------------------------------------|------------|-------------|----------------|
| SUMMER                                   |            |             |                |
| Daily Max Heat Index (Degrees F)         | 91.95      | 99.97       | 111.81         |
| Seasonal Max Heat Index (Degrees F)      | 104.42     | 121.97      | 140.56         |
| Days with Max Heat Index Over 95 (Days)  | 28.01      | 61.48       | 84.92          |
| Days with Max Heat Index Over 105 (Days) | 2.1        | 16.71       | 57.32          |
| Days with Max Heat Index Over 115 (Days) | 0.01       | 5.78        | 26.47          |
| Days with Max Heat Index Over 125 (Days) | 0          | 4.26        | 16.43          |

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