Calhoun County

Hazard Mitigation Plan

2020

Prepared on behalf of Calhoun County

By Lower Savannah Council of Governments

Part One:

Introduction and Process

1.1 Introduction: Natural Hazard Mitigation Plan

After review by the Task Force Committee, this section of the plan has remained the same for the update process.

The Natural Hazard Mitigation Plan is required by the Federal Emergency Management Agency (FEMA) for all counties in the State of South Carolina. The initiation of hazard planning by local governments came into effect after the signing of the Disaster Mitigation Act of 2000 (DMA 2000). This document is the Natural Hazard Mitigation Plan for Calhoun County and its incorporated municipalities.

Following the passage of the DMA 2000, states and local governments are now required to develop and adopt a hazard mitigation plan in order to remain eligible for FEMA mitigation grant funding. Communities with an adopted plan will become "pre-positioned" and potentially more apt to receive available mitigation funds.

Natural hazards, including floods, hurricanes, earthquakes and severe winter storms, 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. Calhoun County faces a variety of these hazards, each of which is discussed in Part Two: Risk Assessment.

Through the adoption of hazard mitigation planning practices, we can minimize the impact of hazards on people and the built environment. The Calhoun County Natural Hazard Mitigation Plan is designed to be a logical, information-driven plan that systematically identifies and guides the implementation of mitigation actions, including policies or site-specific projects designed to make Calhoun County and its incorporated municipalities safer from the threat of natural hazards.

Hazard mitigation involves the use of specific measures to reduce the impact of hazards on people and the built environment. Measures may include both structural and non-structural techniques, such as protecting buildings and infrastructure from the forces of nature or wise floodplain management practices. Actions may be taken to protect both existing and/or future development. It is widely accepted that the most effective mitigation measures are implemented before an event at the local government level, where decisions on the regulation and control of development are ultimately made.

Hazard mitigation planning is the first of the four "phases of emergency management," followed by preparedness, response, and recovery. This prevention-related concept of emergency management often gets the least attention, yet it is one of the most important steps in creating a disaster-resistant community.

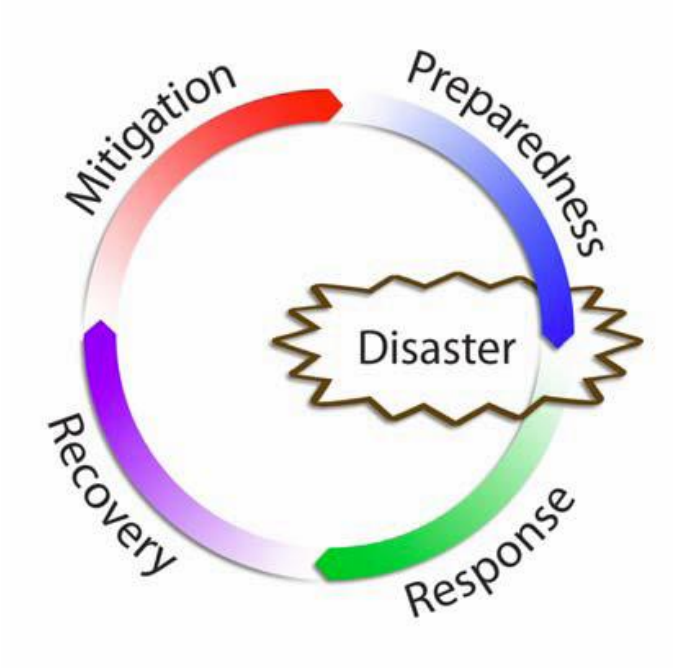


Figure 1: Phases of Emergency Management

1.2 Area Background

After review by the Task Force Committee, this section has been revised as part of the update process to include updated population and median household incomes for the County and it's incorporated municipalities, per the US Census information. Additionally, an update to the annual average temperature, rainfall and snowfall rate was included, as well updated maps

Calhoun County is located in the Midlands region of South Carolina. The total area of the county is 392.36 square miles. The county seat, which is the Town of St. Matthews, is located approximately 32 miles from the state's capital, Columbia. The elevation of St. Matthews is about 500 feet above sea level. Calhoun County experiences considerably mild weather, with average temperatures in the summer reaching 81°F and winters averaging 44.7°F.

Calhoun County is typical of southeastern areas in that it has a humid subtropical climate, characterized by ample rainfall, mild winters and hot summers. The climate is suitable for many agricultural, economical and recreational endeavors. The mean temperature for Calhoun County is 64.1 and the average yearly rainfall is 44.85 inches. Droughts are not uncommon but generally do not last long enough to cause severe crop damage. There is occasional heavy rainfall in the summer months due to tropical weather patterns and hurricanes. The growing season in Calhoun County is fairly long, accommodating a wide variety of crops. (*source: South Carolina State Climatology Office)*

The County contains two municipalities: Cameron and St. Matthews. St. Matthews serves as the County Seat. Calhoun County's population is 14,553, per the latest U.S. Census information.

Figure 2 below illustrates the area demographic background of Calhoun County and its incorporated municipalities.

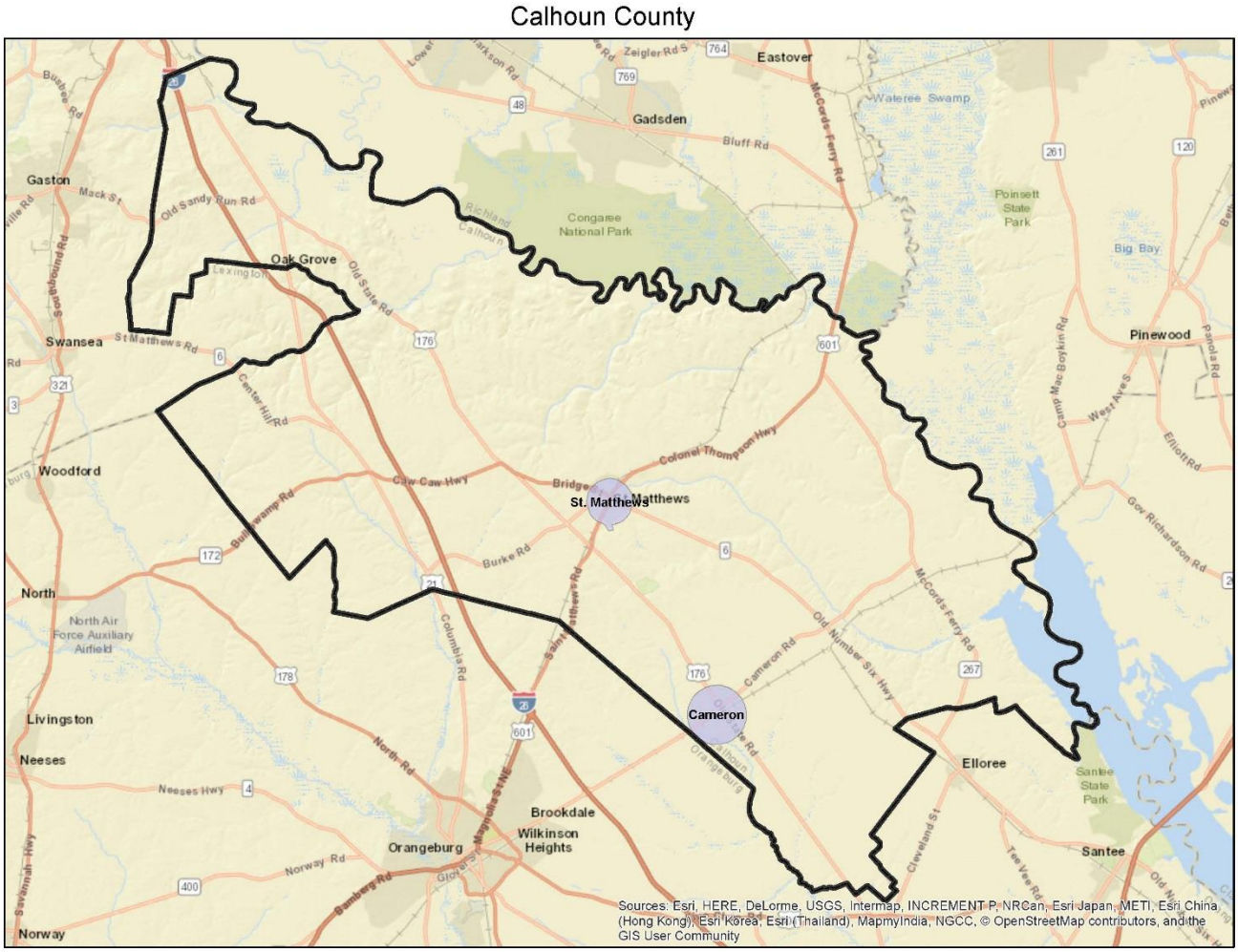
Figure 2. Area Demographic Background

	2019 Population Projected	Median Household Income Projected
Calhoun County	14,553	$44,553
Town of Cameron	398	$40,179
Town of St. Matthews	1,912	$39, 130

Source: US Census Bureau/Vintage 2019 Population Estimates/ 2014-2018 AC 5 Yr. Est.

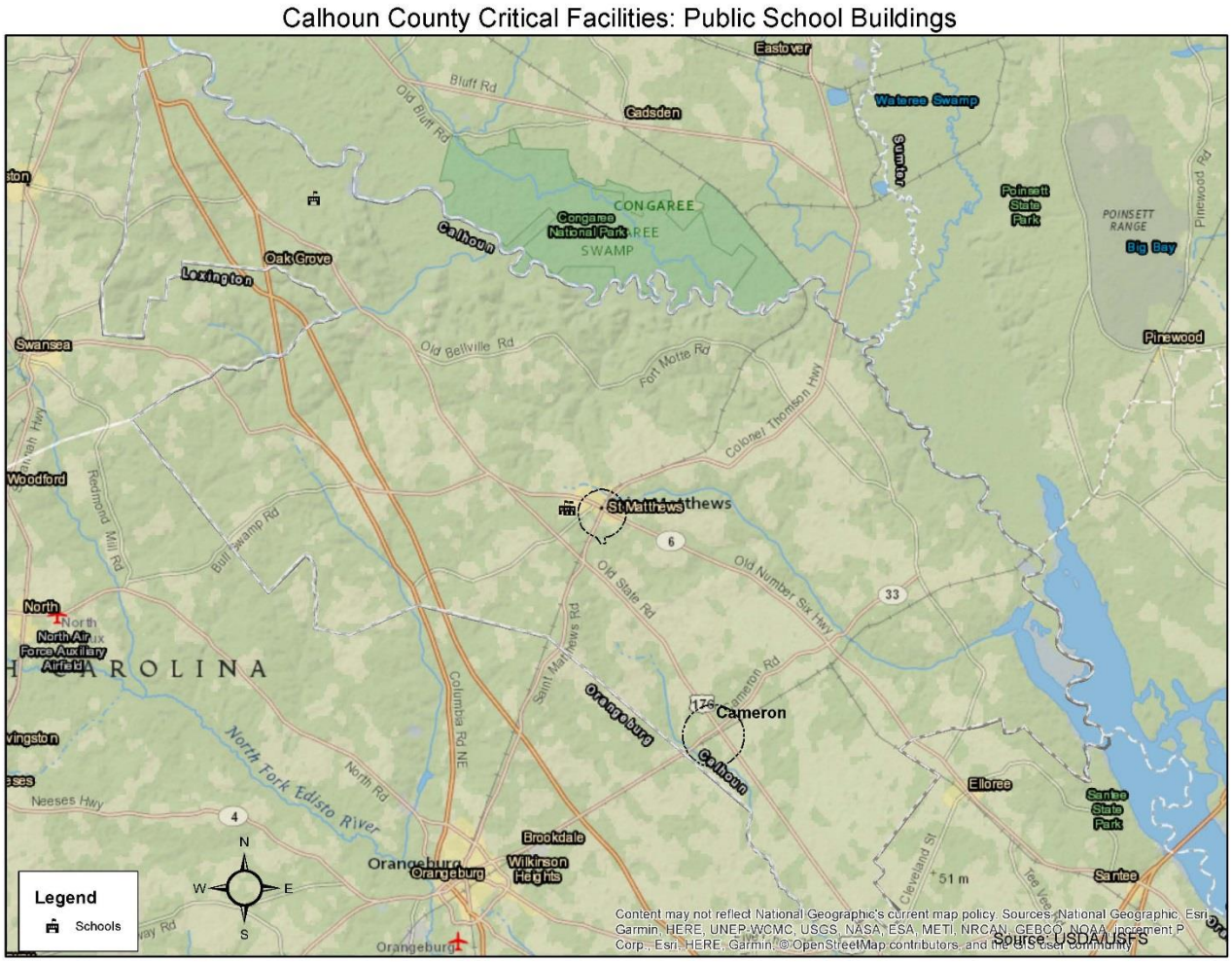
The following map reveals the area of Calhoun County, which is the focus of this plan.

Map 1: Location Map

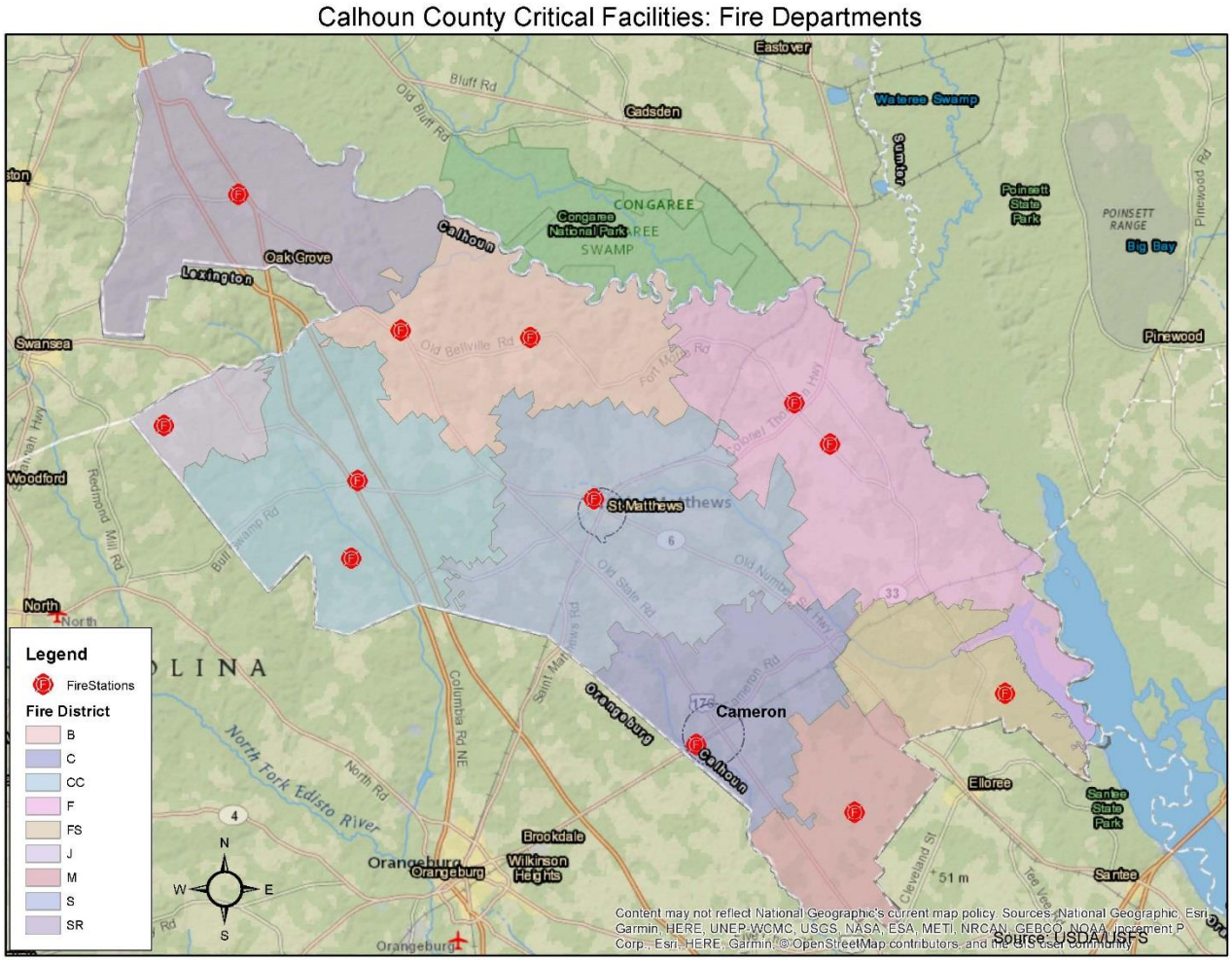


The following maps include critical facilities within Calhoun County. Critical facilities include schools, fire stations/districts, and EMS Stations/hospitals.

Map 2: Public School Map



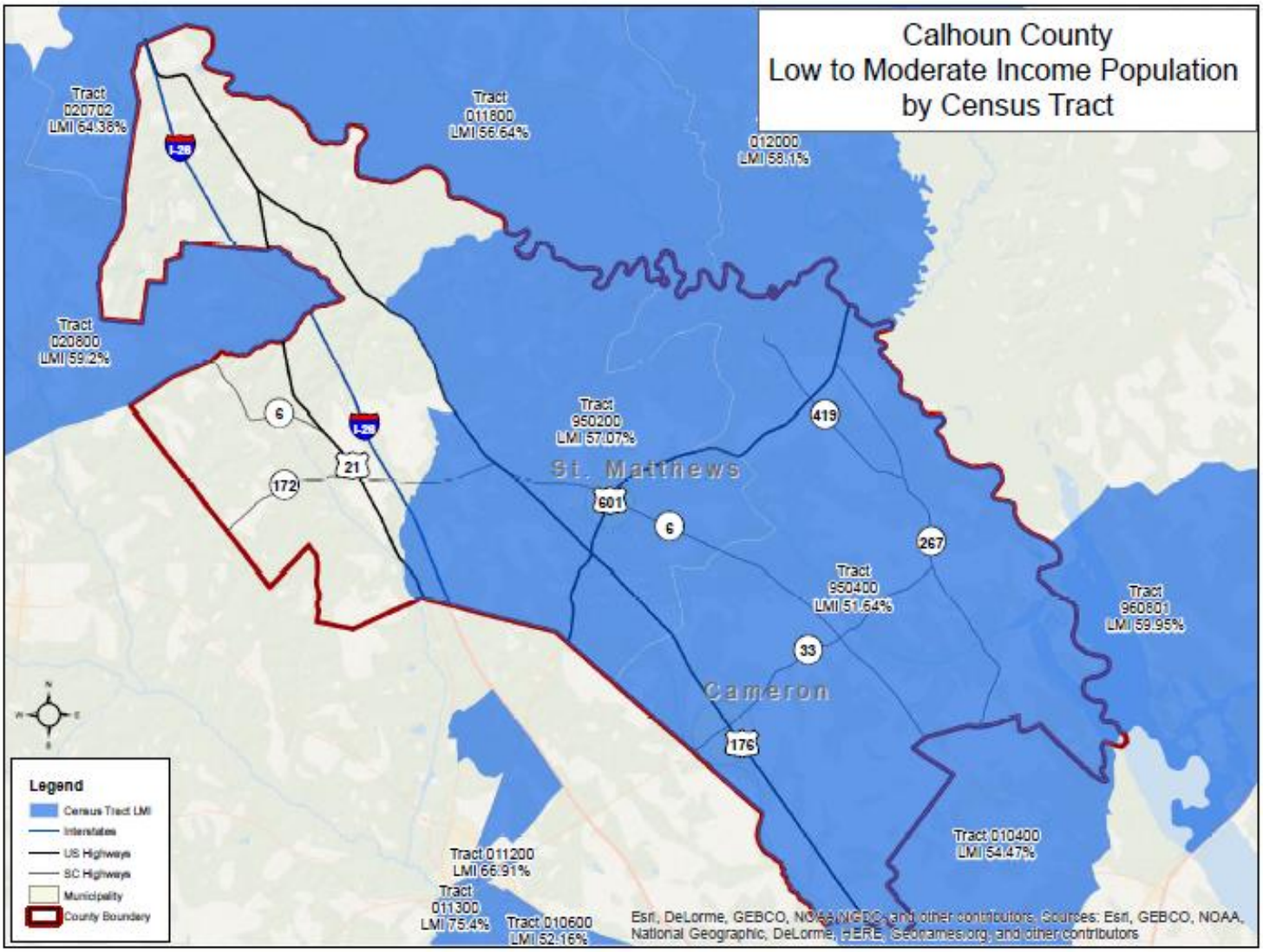
Map 3: Critical Facilities Map – Fire Districts



Calhoun County Critical Facilities: Medical Facilities

The following map includes the Low to Moderate Income (LMI) populations by Census Tract within Calhoun County.

Map 4: Low to Moderate Income Population Map



1.3 Purpose

After review by the Task Force Committee, this section of the plan was updated to reflect consistency with the State 2018 HMP to include the seven (7) principles of the South Carolina mission for mitigation, as well as an overview of goals. (Found on page 13 of the SC State 2018 HMP)

This plan is designed to be both strategic as well as comprehensive in nature, providing a long-term vision of how the county will address hazards over time. The concept of multi-objective planning is emphasized throughout this document, identifying ways to link hazard mitigation policies and programs with complimentary goals of the county related to housing, economic development, recreational opportunities, transportation improvements, environmental quality, and public health and safety.

Mitigation planning offers many benefits, including:

- Saving lives and property;
- Saving money;
- Speeding 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.

More importantly, mitigation planning has the potential to produce long-term benefits by breaking the repetitive cycle of disaster damages, injuries and loss of life. A core assumption of hazard mitigation is that a pre-disaster investment can significantly reduce the demand for post-disaster assistance. Further, the adoption of mitigation actions enables local residents, businesses and industries to more quickly recover from a disaster, getting the economy back on track sooner and with less interruption.

The benefits of mitigation planning go beyond 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.

The purpose of this Plan and mission for mitigation as described in the SC State HMP 2018 is to:

1. To protect life, safety and property by reducing the potential for future damages and economic losses that result from natural hazards;

2. Meet the requirements of the DMA 2000, and therefore qualify for additional grant funding in the following programs: Hazard Mitigation Grant Program, and Pre-Disaster Mitigation Program;

3. To speed recovery and redevelopment following future disaster events;

4. Enhance the capability of all counties and municipalities to address identified hazards by providing technical support and training;

5. Establish an effective forum for state agencies and statewide organizations to discuss and coordinate existing and future plans, programs and data, rules and regulations and expertise addressing hazard-related issue;

6. Increase the effectiveness and efficiency of hazard mitigation programs and projects sponsored, finances or managed by state agencies or statewide organizations; and

7. To demonstrate a firm local commitment to hazard mitigation planning principles.

Once adopted, the mitigation plan will help the communities of Calhoun County to take greater advantage of State and Federal funding opportunities for eligible hazard mitigation projects. For instance, to qualify for Federal aid for technical assistance and post-disaster funding, local jurisdiction must comply with the Disaster Mitigation Act of 2000 (DMA 2000) and its implementing regulations based on the *Hazard Mitigation Assistance Unified Guidance*, published by FEMA July 12, 2013. The Calhoun County Natural Hazard Mitigation Plan has been prepared to address these hazard mitigation planning requirements. The FEMA Review Criteria in the preface of the document describes each of the major planning requirements and identifies where in the plan document they are addressed.

Another key purpose of the planning process is to ensure that proposals for mitigation actions are reviewed and coordinated among the participating jurisdictions within the County, and supported by technical assistance from appropriated regional, State and Federal agencies. In this way there is a high level of confidence that mitigation actions proposed by one jurisdiction, when implemented, will be compatible with the interests of adjacent jurisdictions and unlikely to duplicate or interfere with mitigation initiatives proposed by others. The last but not the least purpose of the Calhoun County Plan is to provide each participating local jurisdiction with a plan of action that can be adopted and implemented pursuant to its own authorities and responsibilities.

1.4 The Planning Process

After review by the Task Force Committee, the following changes were made to this section as part of the update process: Figure 3 reflects more current documents and plans.

FEDERAL REQUIREMENTS FOR LOCAL HAZARD MITIGATION PLANS

Requirement 201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:

(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;

(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and

(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information

Requirement 201.6(c)(1): The plan **shall** document 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.

This plan is designed to provide a blueprint for hazard mitigation activities in the general sense of the program and is structured to serve as a basis for specific hazard mitigation efforts for any disaster. It is recognized, however, that updates may be required to address specific issues arising from a given disaster.

This plan is currently being updated to comply with State and Federal mandates. As a result of the update, new elements will be included as necessary to meet FEMA regulations.

This plan identifies hazards and considers ways to reduce vulnerability to natural hazards in Calhoun County. It encompasses a range of life- and property-saving hazard mitigation initiatives in the categories of mitigation coordination, acquisition/relocation/retrofitting, floodplain management, public safety, emergency preparedness, earthquake, tornado, drought, etc. Both short-term and long-term hazard mitigation measures are identified in order to help all state and local agencies allocate resources in a responsible manner in order to provide for the public safety, public health, and general welfare of all the people in Calhoun County.

This plan has taken into account the mitigation experience, and a variety of mitigation projects, from other counties near or surrounding Calhoun County and the State of South Carolina. It has taken advantage of the collective mitigation knowledge of many State, Federal, and Local officials, as well as representatives from both the public and private sectors, and is designed as one component to help safeguard the citizens of Calhoun County. As such, it should significantly contribute to the mitigation of future disasters.

Calhoun County utilized federal and state guidance documents, existing local plans and studies, and data to develop this plan. More specifically, the Calhoun County Comprehensive Plan provided demographical statistics that were incorporated into this plan; and the SC HMP 2018 provided a framework and was used as a guide to updating this plan. Other specific examples include:

Figure 3. Existing Plans/Studies/Guides

Plans/Studies/Guides	Author
Calhoun County Multi-Jurisdictional HMP	Calhoun County/LSCOG
Hazard Mitigation Assistance FY 2015 Unified Guidance	FEMA
FY 2013 PDM Program Guidance	FEMA
SC Floodplain Management Quick Guide 2008	SCDNR
Hazard Mitigation Planning	FEMA
Calhoun County Comprehensive Plan	Calhoun County
Calhoun County Zoning Ordinance	Calhoun County
Calhoun County EOP	Calhoun County
National Flood Insurance Program	FEMA
SC HMP 2018	SCEMD
SC Emergency Operations Plan	SCEMD

This plan utilized the process required by the Federal Emergency Management Agency to develop the plan. A Hazard Mitigation Planning Crosswalk is found in Appendix D and provides a summary of plan requirements, including where they are located. The hazard mitigation planning process included the following steps, listed in the order in which they were undertaken and will be described in greater detail throughout the plan:

- Step 1: Establish a Core Planning Team (Task Force)
- Step 2: Data collection, Risk Assessment
- Step 3: Hazard Identification
- Step 4: Create Hazard Mitigation Plan
- Step 5: Develop Goals and Mitigation Strategies
- Step 6: Adopt and Implement Plan

The planning process followed in Calhoun County was intended to enhance public awareness and understanding about how the community could become safer from the impacts of future disasters. The plan provides a decision tool for management by department staff in local governments, local elected and appointed officials, business and industry, community associations and other key institutions and organizations to take actions to address vulnerabilities to future disasters. It provides proposals for specific projects and programs that are needed to eliminate or minimize the vulnerability of the County. One component of the hazard mitigation planning process was a capability assessment of existing policies, programs and regulations for managing growth and development within the County. The study contractors reviewed relevant County and local government comprehensive plans, zoning ordinances, floodplain regulations, and building codes to gain an understanding as to how current development regulations and practices either hinder or support hazard mitigation initiatives.

This process also involved reviewing current mitigation-related policies of local and county government and comparing them to the hazards that threaten the jurisdiction and the relative risks they pose to the community. This comparison supports and justifies efforts to propose enhancement to policies, programs, and regulations that should be implemented to create a more disaster-resistant future for Calhoun County. This process was led by the Calhoun County Hazard Mitigation Task Force members and supported by the Lower Savannah Council of Governments staff.

1.5 Planning Process Documentation

As part of the update process, the Task Force Committee reviewed this section and made the necessary member additions and changes to the committee, participating municipality additions, and meeting dates and times. It should be noted that COVID 19 Pandemic impacted the nation, state and county during this update process. This inhibited much of the in-person meetings that were scheduled. From March of 2020 – through to present, review by the Task Force had to be done through conference calls and emails.

The following is documentation of the various steps of the planning process. The preparation of the plan required a series of meetings and workshops for facilitating discussion and initiating data collection efforts. More importantly, the meetings and workshops prompted continuous input and feedback throughout the planning and update process. Sign-in sheets, letters, agendas, surveys, and news releases are included in the appendix of this document.

Calhoun County Natural Hazard Mitigation Plan Task Force Committee

The plan was developed through a Task Force Committee comprised of LSCOG staff, the heads of the county emergency service offices, representatives from the incorporated municipalities, and private entities. The committee helped to guide the creation and development of the plan, and participated in the five-year update process of the plan. These committee members were chosen as a result of their expertise in hazard preparation and planning within their respective county and municipalities.

The Task Force Committee includes:

The Honorable David Summers	Town of Cameron
The Honorable Helen Carson-Peterson	Town of St. Matthews
John McLauchin	Calhoun County Administrator
Rosyl Warren	St. Matthews Town Clerk
Milton Pope	St. Matthews Town Administrator
David Chojnacki	Calhoun County Emergency Management Director
Lenessa Hawkins	Calhoun County Assistant Administrator
Kathy Wiles	Cameron Town Clerk
Elaine Golden	Calhoun County E-911 Coordinator
Woody Rucker	Calhoun County Public Works

Emory Langston	Planning Manager, Lower Savannah Council of Governments
Leslie Crawford	GIS Planner, Lower Savannah Council of Governments
Matthew Abney	Planning Intern, Lower Savannah Council of Governments

Participating Municipalities:

Town of Cameron
Town of St. Matthews

Meetings, Workshops, Trainings, Correspondence:

Memorandum of Agreement from County: October 8th, 2018
A MOA was received from the County indicating their approval of the 25% match requirement totaling $5,208.34.

SCEMD Meeting – August 5, 2019, 10:00 a.m.
LSCOG staff met with SCEMD staff to discuss the needs of the Hazardous Mitigation Plan updates for five counties in the LSCOG region.

HMP Update Kick-off Meeting County Emergency Management Directors and SCEMD Staff September 3, 2019, 10:00 – *Had to be postponed due to activation of SCEMD for Dorian.*

HMP Update Kick-off Meeting for County Emergency Management Directors and SCEMD Staff October 7, 2019, 10:00 am
Kick-off meeting to discuss upcoming update process, requirements, timelines, needs from the County Directors.

Calhoun County HMP Task Force Committee Meeting:
November 6, 2019, 10:00 a.m.
Met with the Barnwell County Task Force at the Barnwell County EOC to discuss the 5-year update process. REM was in attendance to answer any technical questions.

January 13, 2020 -Email correspondence with David Chojancki, Calhoun County EMD, and requesting updated information for the plan.

February 3rd and 4th ,2020 – Email correspondence with David Chojancki, Calhoun County EMD, requesting a meeting of the Calhoun County Taskforce to review information in early March, 2020.

March 5, 2020 – Email correspondence with David Chojancki, Calhoun County EMD, trying to find a date for taskforce.

March 30, 2020 - Email correspondence with David Chojancki, Calhoun County EMD, trying to find a date for taskforce.

IT SHOULD BE NOTED AT THIS POINT IN THE TIMELINE, DUE TO COVID 19, MOST ALL CORRESPONDANCE WITH THE TASKFORCE HAS BEEN DONE BY TELEPHONE OR EMAIL. THIS HAS MADE THE PROCESS VERY CHALLENGING FOR ALL INVOLVED.

April 1, 2020 - Email correspondence with David Chojancki, Calhoun County EMD, with information from HMP for review and potential date for taskforce conference call.

April 16, 2020 - Email correspondence with David Chojancki, Calhoun County EMD, regarding email conference call.

April 16, 2020 - Email correspondence to municipal taskforce members regarding conference call and HMP information for review.

May 28, 2020 – Email correspondence with David Chojancki, Calhoun County EMD, regarding HMP Actions.

Jun 12, 2020 - Email correspondence to county /municipal taskforce members regarding HMP information for review.

1.6 Participants Involved in the Planning Process

The following has been review by the Task Force Committee, no major changes needed.

The plan is intended to serve as a coordinative tool through which local agencies and organizations identify complimentary objectives that systematically reduce the impact of hazards in Calhoun County. The plan also serves to coordinate and integrate the responsibilities, authorities and programs of the "participating" and "cooperating" agencies and organizations.

County and Municipality Participation

County, city, and town participation must be defined in order to create a standard for participation in order for the entities to be considered as participants in the Natural Hazard Mitigation Plan process. Invitations (by phone, email and letter/memo) were extended to mayors, administrators, and managers to attend the County Hazard Mitigation Meetings. Officials were informed through email, letter, phone and memo that LSCOG needed their input and comments in order to be considered active participants in the plan.

In order for the county to approve the plan and be an official participant of this planning process, they must satisfy the following consideration:

- The county Emergency Management Director must be a member of the Natural Hazard Plan Task Force Committee and provide input and comments to the plan.

In order for cities and towns to be official participants of the planning process, they must satisfy one of the following considerations:

- The mayor, administrator, or manager attends a county or public meeting and provides input and comments concerning the Natural Hazard Mitigation Plan.
- The mayor, administrator, or manager appoints a city or town employee to attend a county or public meeting and provides input and comments concerning the Natural Hazard Mitigation Plan.
- A LSCOG Planning staff member personally discusses the Natural Hazard Mitigation Plan with a mayor, administrator, manager, or appointed municipal representative and receives input and comments from that individual.

Calhoun County Local Government Participation

Town of Cameron

Town of St. Matthews

Non-Participating Municipalities

Calhoun County was successful in achieving 100% participation from both incorporated municipalities in the planning and update process of the Natural Hazard Mitigation Plan. Both municipalities participated in the original plan.

Local Agency Participation

At the recommendation of SCEMD, Calhoun County local school districts were encouraged and invited to participate in the update process, as well as the local Co-op. These agencies are eligible for HMPG funding, and as an active participant in the HMP update process, are able to apply for these funds independently without having to go through the County.

Calhoun County Local Agency Participation

Calhoun County School District

Tri-County Electric Cooperative

1.7 Public Participation

Due to Covid-19 adjustments had to be made to in regards to Public Participation.

The outbreak of COVID-19 has made the public participation process more challenging. In the past, through the planning and update process, there have been opportunities for public input. The process provided neighboring communities, other agencies, the private sector, non-profit, and academia an opportunity to participate in the planning process. To engage the community in the hazard mitigation planning process, the Task Force Committee held public input meetings designed to inform the participants about hazard mitigation, generate discussion, and receive feedback on the HMP; letters were sent to communities; news releases in area newspapers and other media outlets informed area residents; etc.

Public meetings were held during the drafting stage and prior to plan adoption. During the project kick-off meeting the planning process was described and initial findings of the risk assessment presented for review and comment. Each of the meetings was advertised through various types of notices, including notices in the local newspaper. In addition, copies of the risk assessment and final draft plan were made available for the public at various viewing locations in the county and the municipalities. An email address and the telephone number of Lower Savannah COG were provided with the draft plan to provide a mechanism for the public to provide comments back to plan development facilitators. The public was informed of the final draft availability and the opportunity for comment through notices placed in local newspapers. All comments that were received to date from the public were reviewed and incorporated into the final version of the plan as appropriate.

1. Public Meetings during the Drafting Stage of the Plan

The public was invited to review the Calhoun County HMP 5-year update on several websites and social platforms from _____and to comment on the drafting stage of the Hazard Mitigation Plan. The invitation was extended through websites and social platforms. The public had the opportunity to comment on the plan during its drafting stage throughout the process. In addition to the draft stage of the plan, the public was invited to make comments on the final draft plan on_____. at the Calhoun County Council Chambers. In-person meeting will be dependent of COVID-19 precautious.

2. Public Notice of Adoption of Plan

In addition, to the public comment meetings, the public will be invited to the plan adoption hearing of the governing bodies of the participating jurisdictions. A public notice of the adoption hearing will be inserted in local newspapers available within all participating jurisdictions. The public notice prior to plan adoption will take place once FEMA has formally approved the plan pending adoption. Adjustments will continue to be made, as necessary for health and safety, with regards to in-person public meeting.

Part Two:

Risk Assessment

2.1 Types of Risks

As part of the plan update process, the Task Force Committee reviewed and analyzed this section. Each hazard description was reassessed and updated to include most current and readily available data as well as updated maps and illustrations. This section also included the requirements below:

FEDERAL REQUIREMENTS FOR LOCAL HAZARD MITIGATION PLANS

Requirement 201.6(c)(2): The plan **shall** include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identifies hazards.

Requirement 201.6(c)(2)(i): The risk assessment **shall** include a description of the type of all natural hazards that can affect the jurisdiction.

Risk Assessment

The Risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from natural or man-made hazards. The results of this risk assessment assist Calhoun County and its incorporated municipalities and unincorporated areas in identifying and understanding their risks from natural hazards. This information also serves as the foundation for the development of the mitigation plan and strategies to help reduce risks from future hazard events. The Risk Assessment section answers the fundamental question that fuels the hazard mitigation planning process: *What would happen if a hazardous event occurred in Calhoun County or its incorporated municipalities*?

Risk Assessment Approach

- Determine which hazards pose a serious risk to Calhoun County.
- Describe what these hazards can do to physical, social, and economic assets of Calhoun County.
- Identify which areas of the County are most vulnerable to damage from these hazards.
- Determine damages that may result from the identified hazards.
- Use the Risk Assessment section to identify mitigation actions and set priorities for implementation.

FEMA Requirements Addressed

The Task Force Committee used a risk assessment process consistent with the procedures and steps presented in the FEMA How-To-Guide "Understanding Your Risks: Identifying Hazards and Estimating Losses." The committee used the four-step risk assessment process shown in Figure 4.

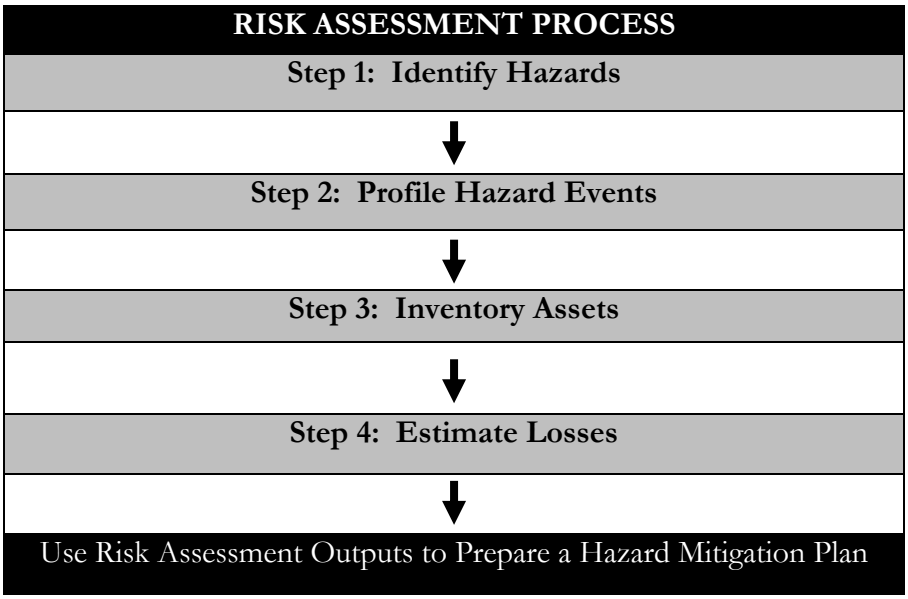


Figure 4: Risk Assessment Process

Hazard Identification

The first step in the risk assessment process was to identify each of the hazards that can occur within Calhoun County and its incorporated municipalities. This hazard identification process began with a review of previous hazard events based on historical data. Also, information was collected through general discussion at Task Force Meetings concerning hazard identification and prioritization of these risks. The USC Hazards Lab provided historical findings as well. The findings from these sources were utilized to determine the priority hazards for Calhoun County and its incorporated municipalities and unincorporated areas, which will become the focus of the mitigation strategies developed in the remainder of this plan.

The following will provide a factual basis for mitigation project proposals described later in this plan. The following points will be addressed for each natural hazard in this section:

Type

A brief description is provided for each hazard addressed in this section.

Location

The location of past events is mapped or listed in this section.

Extent

The effect and impact of past events is examined in this section for each hazard type.

Probability

To determine the probability of a natural hazard event, the number of events, total number of years those events have been recorded, and the frequency of events must be determined. The recurrence interval is also helpful in portraying how common a certain type of hazard is. Dividing the number of years by the number of events produces the recurrence interval, or how often the event will occur per year. The percentage frequency of events is determined by dividing the number of events by the total number of years and multiplying by 100. This gives a reliable sense of the chance a hazard will occur per year.

Vulnerability

The overall vulnerability of each individual hazard is discussed and analyzed for Calhoun County and its municipalities. A rating of high, mid level, and low vulnerability is given to each hazard. Vulnerability is determined by assessing the probability and extent of the hazards that affect the specific area.

Of the many types of hazards that threaten the United States, there are some that have never occurred in South Carolina. Those hazards that have threatened the Lower Savannah Region of South Carolina will be addressed. The hazards that have been examined in this plan were decided on by LSCOG staff and the Task Force Committee.

The following are the specific hazards that will be examined in this section of the Natural Hazard Mitigation Plan, in no particular order.

1. Tornadoes/Severe Windstorm
2. Hurricanes
3. Hail
4. Drought
5. Earthquakes
6. Wildfires
7. Flood
8. Winter Storm

Figure 5. Jurisdictions Affected by Hazard Type	
Hazard	**Jurisdictions Affected**
Tornadoes/Severe Windstorms	Specific Jurisdictions
Hurricanes	Countywide
Hail	Specific Jurisdictions
Drought	Countywide
Earthquakes	Specific Jurisdictions
Wildfires	Countywide
Flood	Countywide
Winter Storms	Countywide

Profiling Hazards

FEDERAL REQUIREMENTS FOR LOCAL HAZARD MITIGATION PLANS

Requirement 201.6(c)(2)(i): The risk assessment **shall** include a description of the 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.

It is important to understand the types of hazards that affect Calhoun County and its municipalities. Projects and actions will be discussed in further detail to address these natural hazards which threaten this region. The extent of the hazard and its future probability are important considerations to take when preparing for an event.

Tornado/Severe Windstorm Analysis

Hazard Description

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. They come in all shapes and sizes, and although tornadoes occur worldwide, the United States has the greatest number of tornado events. On average there are over 800 tornadoes reported nationwide, resulting in an average of 80 deaths and 1,500 injuries. Tornadoes may form at any time of the year, but in the United States, the peak of events occurs in the spring and early summer months of March through June, especially during the late afternoon and early evening. (Source SC HMP 2018)

Tornadoes are most often generated by thunderstorm activity or any situation of severe weather with high winds. High winds can cause downed trees and power lines, flying debris, and building collapses, all of which may lead to power outages, transportation disruptions, damage to buildings and vehicles, and injury or death. Flying debris is the primary cause of damage during a windstorm.

Severity

Damage from tornadoes is from extreme winds and flying debris. It is rare to be able to measure pressure changes and wind speeds of a passing tornado, but it is possible to classify its damage. Typically, tornadoes cause the greatest damages to structures of light construction such as residential homes, particularly manufactured homes, and their impacts tend to remain localized. The Enhanced Fujita Scale for Tornadoes is the standard measurement for rating the strength and associated damages of a tornado. Figure 6 details the EF-Scale below.

Figure 6: Enhanced Fujita Scale for Tornadoes

F-SCALE NUMBER	WIND SPEED (mph)	TYPE OF DAMAGE DONE
EF0	65 - 85	Minor damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees push over.
EF1	86 – 110	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111 – 135	Considerable damage. Roofs torn off well-constructed houses; foundations of frame houses shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	136 – 165	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF4	166 – 200	Devastating damage. Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF5	>200	Extreme damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m; steel reinforced concrete structure badly damaged; high-rise buildings have significant structural deformation.

Source: SC SHMP 2018/NOAA

Location

There have been 18 recorded touchdowns in Calhoun County over the past 70 recorded years. The risk assessment is based on reported tornado events. Most tornado touchdowns occur near populated areas, specifically the towns of St. Matthews and Cameron. However, other tornado touchdowns have been reported along I-28. Therefore, the occurrence of events seems to be highest in areas with higher population densities as these are often seen by more people increasing the chances of a reporting. Tornado touchdowns in rural areas frequently occur without report. A number of F2 intensity tornadoes have touched down within the county, specifically in the unincorporated areas, but they still cause immense damage and even fatalities despite being removed from urban areas.

Extent

Figure 7 below illustrates the historic occurrences and locations of tornadoes that have affected Calhoun County and its incorporated municipalities. A tornado can occur anywhere in the County. Calhoun County has experienced 18 noted tornadoes since 1950 (70 years).

These tornadoes caused a total of one (1) injury and no fatalities. The tornadoes that have touched down in Calhoun County have ranged from F0 to F2 magnitudes. Of the tornadoes, four (5) were F0, five (6) were F1, and five (7) were F2. According to Figure 6, the wind speeds of these tornadoes have ranged from 45 miles per hour to 135 miles per hour, and had the potential to cause severe damage.

Figure 8. Historic Occurrences of Tornadoes in Calhoun County

Date	Event	Location	Description
April 22, 1958	Tornado	County	· F2 magnitude · $25,000 in property damage
February 22, 1971	Tornado	County	· F1 magnitude · $25,000 in property damage
March 21, 1974	Tornado	County	· F1 magnitude · $250,000 in property damage, one injury
October 22, 1990	Tornado	County	· F2 magnitude · $250,000 in property damage, four injuries & one death
June 6, 1994	Tornado	St. Matthews	· F0 magnitude · $500 in property damage · Small tornado observed on I-26, approx. 16 miles nw of St. Matthews · Tornado damaged a shed
November 2, 1995	Tornado	County	· F2 magnitude · One home destroyed and one severely damaged · Six outbuildings and two grain bins destroyed · Farm equipment destroyed and one car overturned
November 7, 1995	Tornado	County	· F2 magnitude · $400,000 in property damage · Tornado severely damaged horse training center, track, and home
September 7, 2004	Tornado	St. Matthews	· F0 magnitude ·SCDOT reported an F0 took down trees and powerlines on SC 453
September 7, 2004	Tornado	St. Matthews	· F0 magnitude ·NWS survey along with SCDOT, found trees down across US 601 from a small tornado
December 10, 2004	Tornado	St. Matthews	· F2 magnitude · 1 injury reported · Damage survey found an F2 tornado tore most of the concrete roof off a warehouse and damaged several vehicles and other outbuildings
March 15, 2008	Tornado	County	· F1 magnitude · Path of trees down along SC 6. Several outbuildings were damaged and a few barns collapsed. Several roofs in St. Matthews were partially torn off and damage occurred to several mobile homes north of the Lone Star area.

November 14, 2008	Tornado	County	· F1 magnitude · $500,000 in property damage · $20,000 in crop damage · F1 touched down sw of Lone Star area. Most significant damage occurred near Lone Star along McCords Ferry road, just south of Tinah Road. Several homes lost portions of their roofs and numerous trees and powerlines were down. Tornado moved ne across Broomstraw Road where several outbuildings lost roofs or were destroyed.
April 28, 2011	Tornado	County	• F1 magnitude • The path length was 12 miles with intermittent touchdowns. • The width was found to be 1/8 mile wide. • Numerous trees snapped and damaged. • Large tree limbs on roofs of homes.
February 24, 2012	Tornado	County	• F0 magnitude • Accompanied my thunderstorms and hail • At least one touchdown • Trees snapped and roofs damaged
April 19, 2015	Tornado	St. Matthews	• F1 magnitude • Winds between 105-109 mph • One home destroyed and two people seriously injured • Touched down in four places • Accompanied by thunderstorms
April 3, 2017	Tornado	County	F2 magnitude -Moved east/northeast for about 6.5 miles. Heaviest damage included power poles snapped at base, several barns and metal buildings removed from ground, roof damage and snapped or uprooted trees.
May 28, 2018	Tornado	Cameron	F0 magnitude - Max. wind 80 mph - touched down near Community Center and traveled north/northeast .3 miles. Damage to trees, roof, fence and signs
April 19, 2019	Tornado	County	F1 magnitude - Traveled north/northeast for almost 8 miles. Considerable damage to trees and collapsed cinder block building.
Source: NOAA/NWS Data Center			

Probability

Figure 8. Tornado Probability for Calhoun County				
Municipality	**# of Events**	**Years in Record**	**Recurrence Interval (Years)**	**Hazard Frequency (% Chance per Year)**
St. Matthews	5	70	14.0	7.0%
Cameron	1	70	70.0	1.4%
Unincorporated	12	70	5.8	17.0%
Source: NCDC				

Though infrequent, tornadoes are not unprecedented in Calhoun County. Over the past 70 years, 18 tornadoes have touched down within the County. Based on the historic frequency, an estimate of one tornado will touch down in the unincorporated area roughly every six years. The frequency of which a tornado could hit each year in the unincorporated area is approximately 15.7%. The frequency of which a tornado could hit each year in the entire County is approximately 25%

The incorporated municipalities have experienced a range of zero to five tornadoes over the past 70 years. The Town of St. Matthews is estimated to have one tornado roughly every 14 years, with a frequency of 7% The Town of Cameron has one recorded history of tornado events in the past 70 years, therefore the recurrence would be 70 years and frequency would be 1.4% .

Vulnerability

High wind events can pose a serious threat to people and infrastructure. Calhoun County, in particular its incorporated municipalities (urban core), provides an environment where numerous objects can become flying debris and severely injure people and damage structures.

Structural vulnerability to wind is related to the building's construction type. Wood structures and manufactured homes are more susceptible to wind damage, while steel and concrete buildings are most resistant.

Based on the results from Figure 7 and Figure 8, Calhoun County has a low vulnerability to tornadoes. The percent chance a tornado will touch down in the unincorporated area of the county is 17% in a year time frame. For the Town of St. Matthews, the percent chance a tornado will touch down in a year time frame is 7%. The Town of Cameron has had one report of a tornado touch down in the past 70 years. The historical record of events shows a total of $1.917M in property damage and $32K in crop damage, with eight recorded injuries and one fatality.

Additionally, 2019 end of year figures gathered from Calhoun County Tax Assessor's office show a total market appraisal value of $1.43B; a total of 240,613 acres; total market acres of $833M; total market buildings of $595M; and a total of 5,671 lots.

Past events have not exceeded the F2 category storm and minimal damage has occurred from tornadoes in Calhoun County. The impact of tornado events on each participating jurisdiction varies, and from the tornado extent section one can see that the impact of past tornadoes on the county as a whole has been low.

Hurricane/Tropical Storm Analysis

Hazard Description

Hurricanes, including coastal storms and tropical storms can have affects on inland areas and not just coastal areas. Calhoun County has been affected by hurricanes/tropical storms in the past.

Tropical Storms and Hurricanes

A hurricane is a type of tropical cyclone, which is a generic term for a low-pressure system that generally forms in the tropics. Thunderstorms and, in the Northern Hemisphere, a counterclockwise circulation of winds near the earth's surface accompany the cyclone. Tropical cyclones are classified as follows:

- A tropical depression is an organized system of clouds and thunderstorms, with a defined surface circulation, and maximum sustained winds of 38 miles per hour or less.
- A tropical storm is an organized system of strong thunderstorms, with a defined surface circulation, and maximum sustained winds of 39 to 73 miles per hour.
- A hurricane is an intense tropical weather system of strong thunderstorms, with a well-defined surface circulation, and maximum sustained winds of 74 miles per hour or higher.

Atlantic hurricane season lasts from June to November, According to the National Hurricane Center, the Atlantic hurricane season is currently in a period of heightened activity that began around 1995, and could last at least another decade.

Heavy rain, coastal flooding, and powerful winds are commonly associated with hurricanes. Storm surge is often the greatest hurricane-related hazard. Storm surge is water that is pushed toward the shore by the force of the winds swirling around the storm. This advancing surge combines with the normal tides to create the hurricane storm tide, which can increase the mean water level fifteen (15) feet or more. In addition, wind driven waves are superimposed on the storm tide. This rise in water level can cause severe inundation in coastal areas, particularly when the storm tide coincides with the normal high tides.

Severity

The NWS uses the Saffir-Simpson Scale to classify hurricane severity. The scale categorizes a hurricane's present intensity on a one (1) to five (5) rating and provides an estimate of property damage and coastal flooding upon landfall. Wind speed determines a hurricane's Saffir-Simpson Scale rating since storm surge is greatly dependent on the coastline shape and slope of the continental shelf. Figure 9 below illustrates the Saffir-Simpson Hurricane Scale.

Hurricane winds can cause widespread destruction; even tropical storm-force winds can be very dangerous. Such high winds can pick up debris and turn them into dangerous airborne objects, knock down trees and buildings, and destroy manufactured homes. The Saffir-Simpson Scale categorizes hurricane intensity based on sustained wind speeds and correlated potential property damage.

Hurricanes are capable of generating great amounts of rainfall. Rainfall rates are related to the size and strength of the hurricane; slower moving and large storms tend to generate more rain.

Hurricanes and tropical storms may spawn tornadoes that are typically further out from the center of the system; generally embedded in the rain bands. Hurricane-spawned tornadoes also generally have a shorter lifespan but can still cause damage.

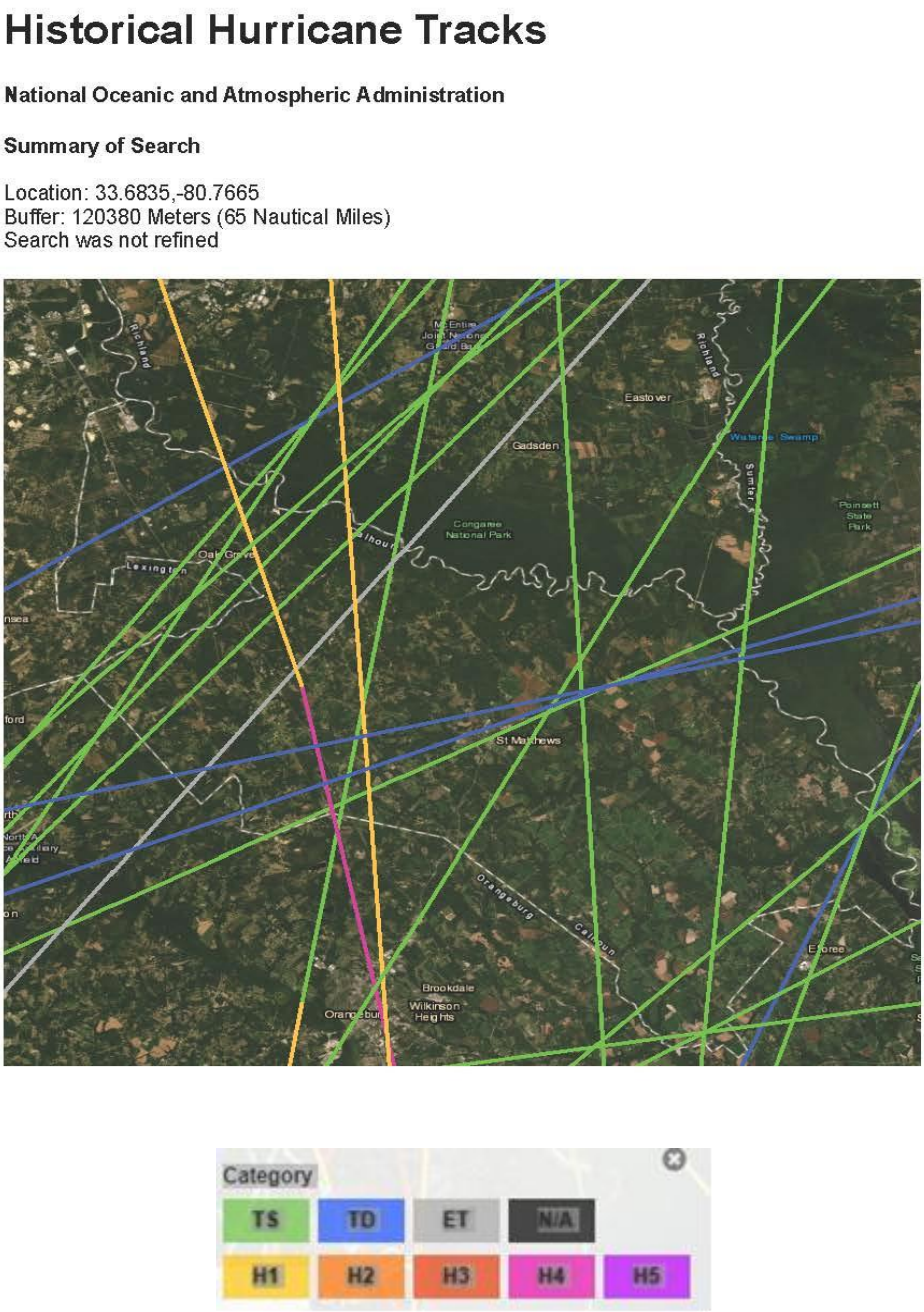
Saffir-Simpson Hurricane Scale				
Category	**Storm Surge (ft)**	**Winds (mph)**	**Damage**	**Damage Description**
1	6.1 – 10.5	74 – 95	Moderate	• Damage primarily to trees and unanchored homes • Some damage to poorly constructed signs • Coastal road flooding
2	13.0 – 10.5	96 – 110	Moderate-Severe	• Some roofing material, door, and window damage to buildings • Considerable damage to shrubbery and trees • Flooding of low-lying areas
3	14.8 – 25	111 – 130	Extensive	• Some structural damage to residences and utility buildings • Foliage blown off trees and large trees blown down • Structures close to the coast will have structural damage by floating debris
4	24.6 – 31.3	131 – 155	Extreme	• Curtainwall failures with utilities and roof structures on residential buildings • Shrubs, trees, and signs all blown down • Extensive damage to doors and windows • Major damage to lower floors of structures near the shore
5	Not predicted	>155	Catastrophic	• Complete roof failure on many residences and industrial buildings • Some complete building and utility failures • Severe, extensive window and door damage • Major damage to lower floors of all structures close to shore

Figure 9: Saffir-Simpson Hurricane Scale

Location

Although hurricanes make landfall in the coastal areas, all counties in South Carolina have experienced damage from hurricanes. Some of the most destructive hurricanes and tropical storms have originated in the Gulf of Mexico or traveled around the tip of Florida. Identification of hurricane tracks/tropical storms was based on the most recent data available from NOAA Coastal Services Center. The following map shows hurricane and tropical storm tracks in Calhoun County and its incorporated municipalities.

Map 6: Hurricane/Tropical Storm Track Map



Extent

The hurricane map above illustrates the travel patterns of the recorded hurricane tracks and tropical storms. Actual hurricane landings have not posed a true threat to Calhoun County, however, the storms aftermath have been identified as an event risk. The hurricane track map has identified 2 named and unnamed hurricane events that have been tracked through the county dating back to 1851 through 2019. Of these recorded events, one measured at an H1 and the other reached H4 magnitude before dying down to an H1. This equates to moderate to extreme damage, including damage to trees and shrubbery, damage to buildings, and flooding. In the past 168 years there have been a recorded 22 tropical storms in the county ranging in wind speeds of 35 mph to 60 mph. The aftermath of these tropical storms produces unusually heavy rains and some flash flooding in the area.

Probability

The following figures show hurricane/tropical storm probability in Calhoun County. However, because actual landings of hurricanes have not occurred in this particular area, the data is a measure of the hurricane tracks through Calhoun County according to NOAA's hurricane track map.

Figure 10. Hurricane Probability for Calhoun County

	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
Countywide	2	168	84.0	1.2%

Source: NOAA

Figure 11. Tropical Storm Probability for Calhoun County

	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
Countywide	22	168	7.6	13.1%

Source: NOAA

According to the most reliable hurricane/tropical storm data, there is a 1.2% chance a hurricane will impact the Calhoun County area during any given hurricane season, and a 13.1% chance a tropical storm will impact the county. During the recorded 168-year period, a recurrence interval of approximately every 84 years was calculated that a hurricane event could occur. During the same time period, a recurrence interval of 7.6 years was calculated for a tropical storm event to occur.

Vulnerability

Based on the results from figure 10, Calhoun County has a low vulnerability to hurricanes. Minor occurrences of unusually heavy rainfall, flooding, and excessive winds have affected the area due to the impact of a coastal hurricane. However, a hurricane landing pattern is unpredictable until the formation of the storm and until it is within a short time frame from landing. Therefore, it is not reasonable to assume that hurricane occurrences are not a foreseen threat in the future based solely on past events.

Additionally, 2019 end of year figures gathered from Calhoun County Tax Assessor's office show a total market appraisal value of $1.43B; a total of 240,613 acres; total market acres of $833M; total market buildings of $595M; and a total of 5,671 lots.

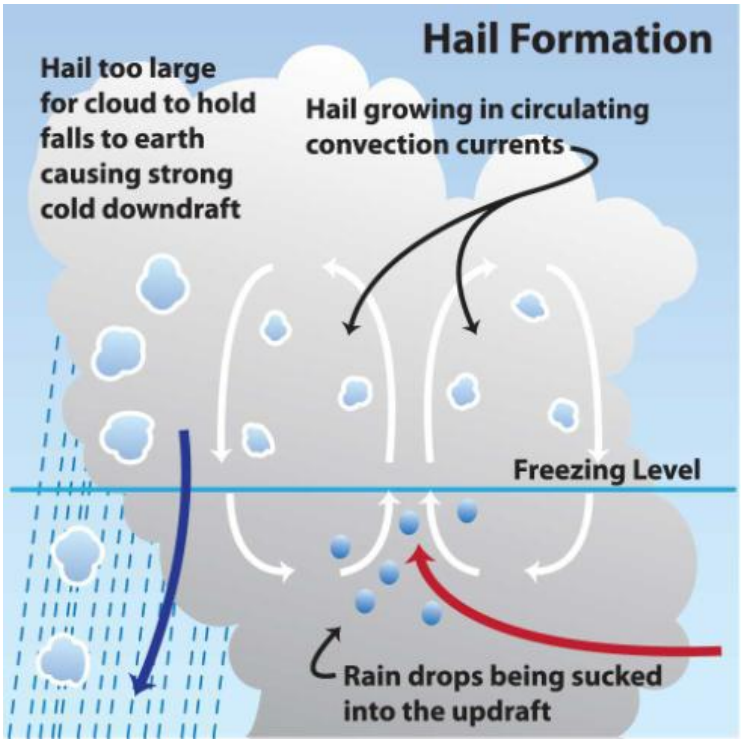
As far as tropical storm occurrences, it can be concluded that Calhoun County has a moderate vulnerability based on the results from figure 10 (13.1% hazard frequency per year).

Hail Storm Analysis

Hazard Description

"Hail can occur year-round and can happen anywhere because it derives from severe thunderstorms. It is a precipitation type, consisting of ice pellets that form when updrafts of thunderstorms carry water droplets up into the freezing level of the atmosphere. Hail can be small and generally pea-sized, but hail can also be larger, capable of damaging property and killing livestock and people.

Initially, water droplets are propelled by updrafts from thunderstorms into the atmosphere, where they freeze. As the droplets collide and combine with other (supercooled) droplets in the atmosphere, it falls and gets propelled up again to the freezing level, and another layer of ice can form around the original. Eventually, when the hailstone develops sufficient weight to overcome the updraft, it falls towards the ground. The size of hail is a function of the intensity of the updraft and hence, the severity of the storm. Strong vertical motion can keep lifting hailstones so that they continue to accumulate in size. The speed when hail reaches the ground, or its terminal velocity, is a function of its size and weight. However, very rarely does hail reach its maximum terminal velocity due to friction and drag, collision with other droplets, and the hailstones irregular shape." *(Source: SC State 2018 HMP).*



Severity

Calhoun County has experienced a total of seventy-two (72) hailstorm events that have been documented in the past 45 years (1974-2019). St. Matthews has experienced twenty two (22) hail events in the same timeframe, and Cameron has experienced six (6) events. The largest recorded diameter for a hailstone was 2.00 inches, reported on March 13, 1991 and June 19, 2008.

Hail can cause serious damage, notably to automobiles, aircraft, skylights, glass-roofed structures, livestock, and most commonly, agricultural crops. Rarely, massive hailstones have been known to cause concussions or

fatal head trauma.

According to the National Climatic Data Center, the State of South Carolina has experienced 5,917 hail events from 1950 to 2019. During this time span, all the counties in the state experienced hailstorms of varying sizes, up to four inches in diameter. These events total an estimated $84,317,100 in property damage, $4,299,000 in crop damage, caused 46 reported injuries, and no reported fatalities.

Hailstone size is often reported as compared to known objects rather than reporting the actual diameter. Below in figure 11 is a list of commonly used objects for this purpose.

Hailstone Size to Object Comparison	
Object/Coin	**Hailstone size (inches)**
Pea	0.25 in
Marble	0.50 in
Penny	0.75 in
Nickel	0.88 in
Ping-pong ball	1.50 in
Golf ball	1.75 in
Tennis ball	2.50 in
Baseball	2.75 in
Grapefruit	4.00 in
Softball	4.50 in

Figure 12: Hailstone Size to Object Comparison

Location

There have been a recorded 72 hail events since 1974 in Calhoun County. Hail size recorded in the county ranges from 0.75 inches to 2.00 inches. The recorded hailstorms have caused no recorded injuries or fatalities in the county. Hail size ranged from 0.75 inches (penny) to 2.00 inches (golf ball). Property damage and crop damage has been minimal at an estimated $20,000, respectively. The Town of Cameron had six hailstorms to occur during a 21 year period (1998-2019), and The Town of St. Matthews had 22 recorded hailstorms to occur during a 22 year period (1997-2019). The unincorporated area of Calhoun County had 44 recorded events during a 45 year period (1974-2019). Multiple hail reports come from along I-26 in the unincorporated territory of the western part of the County.

Extent

Calhoun County has experienced 72 hail events that have been documented in the past 45 years (1974-2019). A list of the events and dates they occurred in each municipality and unincorporated areas of the County is shown in Figure 12 below.

Figure 13. Historic Occurrences of Hailstorms in Calhoun County

Date(s)	Event	Location	Description(s)
1974-2019	Hail (44)	County	▪ 0.75 to 2.00 inches in diameter (penny to golf ball size hail) ▪ dime size hail spotted along US Highway 176 ▪ golf ball size hail reported on Pine Plain Road ▪ nickel/quarter size hail reported at Carolina Eastman ▪ dime/nickel size hail reported on McCo
1997-2019	Hail (22)	St. Matthews	▪ 0.75 to 1.75 inches in diameter (penny to golf ball size hail) ▪ penny size hail reported on US Highway 176 and I-26 near exit 125 ▪ penny size hail reported along SC Highway 6 and US Highway 176
1998-2019	Hail (6)	Cameron	▪ 0.75 to 1.75 inches in diameter (penny to golf ball size hail) ▪ golf ball size hail reported on US Highway 176

Source: NCDC

Probability

Based on the recorded hailstorm events for Calhoun County, there is a probability that a hailstorm will occur at least once, if not more every year in the County. A hailstorm event has more than 100% likelihood of occurring every year in the County (133%).

Figure 14. Hailstorm Probability for Calhoun County

Municipality	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
St. Matthews	22	22	1.0	100.0%
Cameron	6	21	3.5	29.0%
Unincorporated	44	45	1.0	97.0%

Source: NCDC

than once per year

Vulnerability

Overall, Calhoun County has a moderate vulnerability to hail. The majority of hail events occurred in the unincorporated areas of the County. There is a 97% chance that hail may occur in Calhoun County each year.

The Town of St. Matthews also has a 100% chance that hail may occur each year; the Town of Cameron has about a 29% chance that hail may occur each year.

Additionally, 2019 end of year figures gathered from Calhoun County Tax Assessor's office show a total market appraisal value of $1.43B; a total of 240,613 acres; total market acres of $833M; total market buildings of $595M; and a total of 5,671 lots.

A range of 0.75 to 2.00 inches in hail size is common for Calhoun County and its incorporated municipalities. Property damage and crop damage are estimated at $20,000 (each) for later hail events. No injuries were reported as a result of the hailstorm events.

Drought Analysis

Hazard Description

The NWS describes four types of drought: meteorological, agricultural, hydrological, and socioeconomic.

Meteorological drought is defined in terms of the departure from a normal precipitation pattern and the duration of the drought hazard. Meteorological drought has a slow-onset that usually takes at least three months to develop and may last for several seasons or years.

Agricultural drought links the various characteristics of meteorological drought to agricultural impacts. The focus is on precipitation shortages and soil-water deficits. A plant's demand for water is dependent on prevailing weather conditions, biological characteristics of the specific plant, its stage of growth, and the physical and biological properties of the soil.

Hydrological drought refers to deficiencies in surface water and sub-surface water supplies. The frequency and severity of hydrological drought is often defined on a watershed basin scale. Although climate is a primary contributor, other factors such as changes in land use, land degradation, and the construction of dams all affect the hydrological characteristics of the basin. Hydrological droughts often lag behind meteorological and agricultural droughts.

Socioeconomic drought occurs when physical water shortage begins to affect the population, individually and collectively. Most socioeconomic definitions of drought associate it with supply, demand, and economic good.

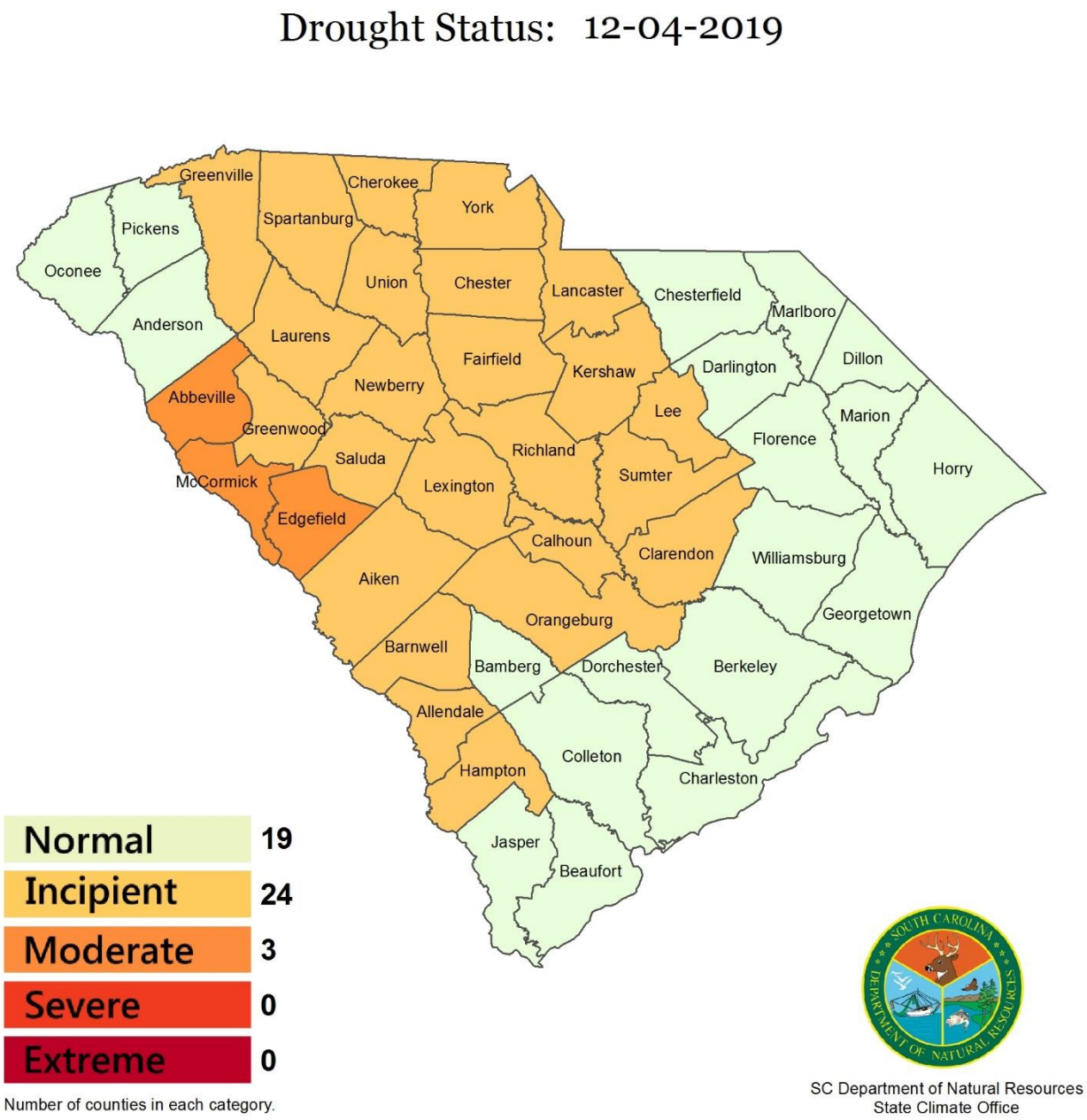
Drought differs from other hazards in many ways. First, the effects of drought take a considerable amount of time to accumulate and the extent of the hazard can linger for prolonged periods after the drought itself had ceased. Second, the absence of a definitive and universally accepted definition of drought complicates the determination of whether a drought is occurring and the level of its severity. Third, compared to other natural hazards, the geographical area, impacts, and duration of drought are difficult to quantify.

Severity

The Palmer Drought Severity Index was developed in the 1960's and uses temperature and rainfall information in a formula to determine dryness. It has become the semi-official drought index. The Palmer Index is most effective in determining long term drought. It uses a zero (0) as normal, and drought is shown in terms of minus numbers; (i.e. minus 2 is moderate drought, minus 3 is severe drought, and minus 4 is extreme drought).

The different levels of drought as assigned by the SCDNR uses seven different indicators to measure the varying stages of drought throughout the state. Incipient means that the first stages of drought are beginning to appear according to the indices that measure rain level, stream level, crop moisture, and others. The levels following incipient are upgrades in drought status based on dynamic data. (SCDNR Climatology Office)

The U.S. Drought Monitor measures drought intensity using a scale of D0 through D4; D0 being abnormally dry, D1-moderate, D2-severe, D3-extreme, D4-exceptional. Below is the U.S. Drought Monitor for South Carolina, effective December 4, 2019.



As of December 4, 2019, 19 Counties were listed as normal, 24 Counties were listed as incipient (initial stage), 3 Counties were listed as moderate and no counties were listed as severe or extreme, with regards to drought conditions. Calhoun County is listed as incipient.

Over the past eleven years (2007-2018) Calhoun County has ranged in drought status from normal to severe. Below in figure 15 a list of Calhoun County's drought status can be seen during that time.

Figure 15. Drought Status for Calhoun County

Date/Year	Status
December-19	Incipient
May-18	Normal
November-17	Normal
October-16	Incipient
September-15	Moderate
November-14	Incipient
January-13	Incipient
December-12	Moderate
June 2012 - September 2012	Incipient
June 2011 - April 2012	Moderate
July 2010 - June 2011	Incipient
December 2009 - December 2009	Normal
February 2009 - September 2008	Incipient
August 2008- June 2008	Moderate
April-08	Incipient
January 2008-September 2007	Severe
June-07	Moderate
May-07	Incipient
February 2007 - April 2006	Normal

Source: SC State Climate Office

Location

Droughts are region-wide natural disasters and will be addressed in that way. There is no specific location mapping for droughts in the Calhoun County region.

Extent

Previous research has shown that Calhoun County experienced 30 recorded droughts, specifically from 1950 – 2005. Per the SC State Climate Office, from 2007 through 2018, Calhoun County experienced periods of moderate drought with one severe in 2007/2008. More currently, in 2019, *The Columbia Business Report* reported on October 3, 2019 that portions of Calhoun County were moved to extreme drought category on October 3, 2019. *The Times and Democrat,* as well as, *The Sumter Item*, reported Calhoun County in moderate drought status in August of 2019. This data shows that not only does Calhoun County experience drought on a somewhat frequent basis, but it can be severe.

The following is a list of impacts associated with drought. Each one can directly or indirectly impact Calhoun County's economy, environment, and people.

Drought Impacts		
Economy	**Environment**	**People**
• Damage to crops • Increase in food prices • Increased transportation costs for food • Reduced dairy and livestock production • Increased fire hazard • Loss to recreational and tourism industry • Revenue loss to water reliant businesses • Loss of navigability of rivers and canals • Reduction of economic development	• Reduction and degradation of fish and wildlife habitat • Wind and water erosion of soils • Loss of wetlands • Increased number and severity of fires • Air quality effects • Damage to plant species • Lower water levels in reservoirs, lakes, and ponds • Water quality effects (i.e., salt concentration, increased water temperature, pH, dissolved oxygen, turbidity)	• Food shortages • Public dissatisfaction with government • Loss of aesthetic values • Reduction or modification of recreational activities • Health issues related to use restrictions • Increased fire hazard • Mental and physical stress • Decrease in quality of life • Increased poverty • Population migrations

Figure 16: Drought Impacts

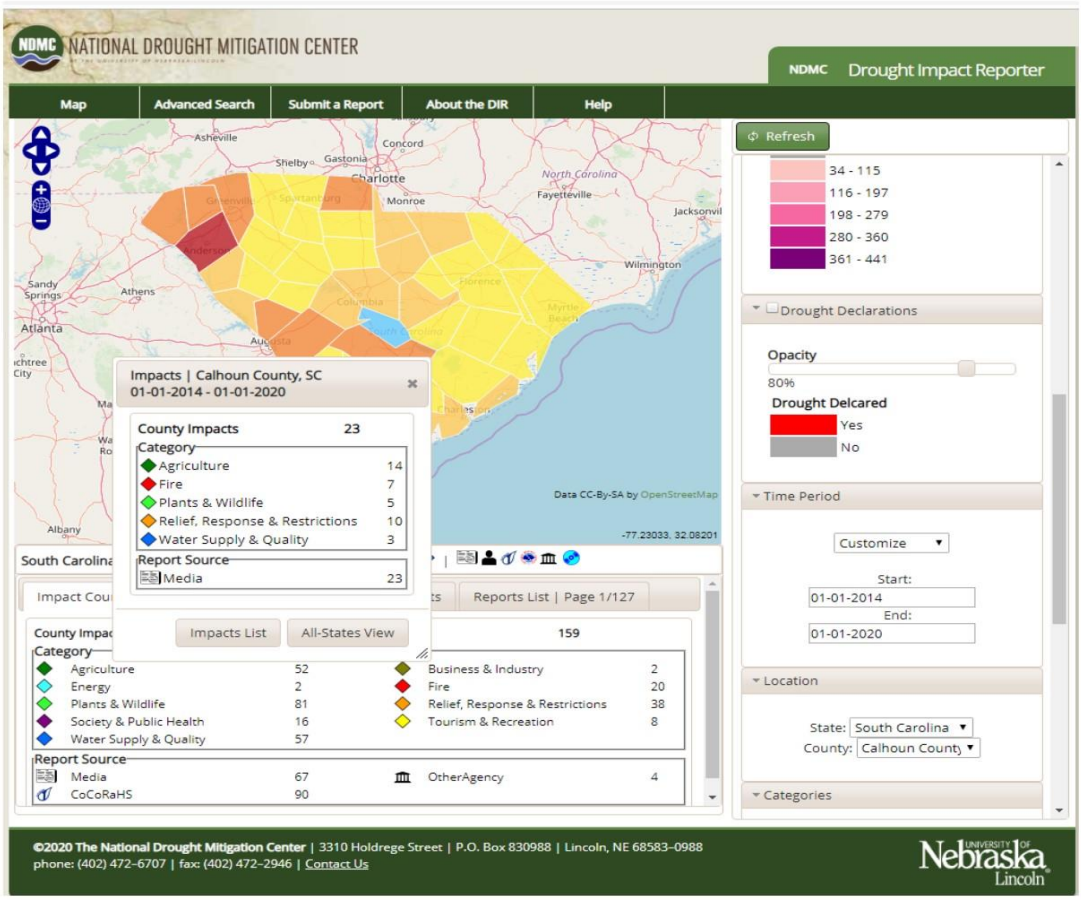


Figure 17 Impacts Calhoun County 01-01-2014 thru 01-01-2020

Probability

It should be noted that droughts are region-wide natural disasters and will be addressed in that way. There is no location mapping for droughts in the Calhoun County region. In the Calhoun County region, declarations of drought and impacts of drought occur frequently. Historical data reports that there have been 30 drought declarations from 1950 to 2013 and from 2014 through January of 2020 there have been 23 drought impacts to Calhoun County. Overall from 1950 to early 2020 there have been 53 drought related instances in Calhoun County.

Figure 18. Drought Probability for Calhoun County

	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
Drought	53	70	1.3	75.0%

Source: USC Hazards and Vulnerability Research Institute /SC Climate Office / Various periodicals (pg42)

From the above figure 18 it can be expected that the Calhoun County region will have a drought declaration approximately every one year and three months, with a 75% chance of a drought period occurring every year.

Vulnerability

Overall, the Calhoun County region is moderately affected by abnormal to severe levels of drought. Droughts cause devastating affects to agricultural production. The vulnerability of the Calhoun County region to instances of drought is moderate to high.

Each drought produces a unique set of impacts, depending not only on its severity, duration, and spatial extent, but also on ever-changing social conditions. A wide-range of factors, both physical and social, determines society's vulnerability to drought.

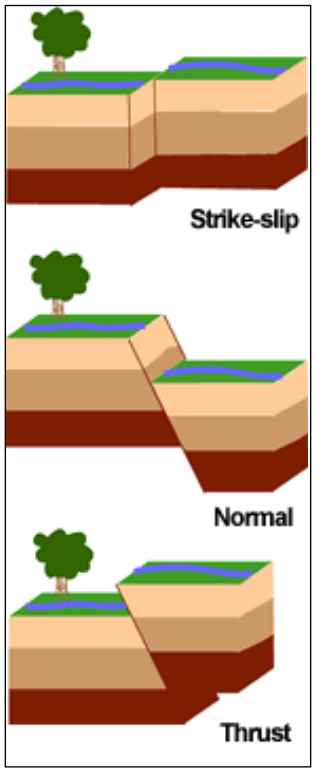
Additionally, 2019 end of year figures gathered from Calhoun County Tax Assessor's office show a total market appraisal value of $1.43B; a total of 240,613 acres; total market acres of $833M; total market buildings of $595M; and a total of 5,671 lots.

Understanding both direct and indirect impacts (see Figure 16) is one of the most significant challenges in preparing for drought. The direct impacts include loss of revenue from businesses reliant on water, such as car washes, landscapers, and manufacturers. In a drought, water use restrictions may force businesses to suspend all or a portion of their activities. The indirect impacts associated with drought may be far-reaching. The more removed the impact from the cause, the more complex the link to the cause. Indirect impacts are diffused, making it very difficult to determine financial estimates of damages.

Earthquake Analysis

Hazard Description

An earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. Stress built up in the Earth's crust causes rocks near the surface to break and slip, and when this occurs, an earthquake results. This region along which the slip occurs at the Earth's surface is called a fault. There are three types of faults: strike-slip (rock blocks move horizontally), normal (rock moves down relative to the other side), and thrust (rock moves up relative to the other side). The earthquake faults can be seen in the illustration below:



Source: USGS/SC HMP 2018

An earthquake is ground motion produced by the energy released from sudden displacement of rock in the Earth's crust. Annually in South Carolina, there are about 10 to 15 earthquakes recorded, with only 3-5 actually noticed by people58. Because of this low frequency of noticeable events, many people are unaware of the earthquake risk in South Carolina. However, all 46 counties in the state are susceptible to effects of earthquakes. About 70 percent of earthquake activity in the state is located in the Middleton Place-Summerville Seismic Zone. This zone is located about 12 miles northwest of Charleston and is the most active zone in South Carolina58, experiencing 10 to 15 earthquakes (magnitude 3 or less) a year. (Source SC HMP 2018)

Energy is released when an earthquake occurs, which results in the shaking people feel and that which is detectable by seismic instruments. The point below the surface, within the Earth's crust where an earthquake begins is called the hypocenter or focus, and the point directly above this depth on the Earth's surface is the epicenter.

Ground acceleration caused by earthquakes has the potential to destroy buildings and infrastructure and cause loss of life. Aftershocks are typically smaller than the main shock, and can continue over a period of weeks, months, or years after the initial earthquake is felt. In addition to the effects of ground acceleration, earthquakes can also cause landslides, and liquefaction under certain conditions. Liquefaction occurs when unconsolidated, saturated soils exhibit fluid-like properties due to intense shaking and vibrations experienced during an earthquake. Together, ground shaking, landslides, and liquefaction can damage and destroy buildings, disrupt utilities (i.e. gas, electric, phone, water), and trigger fires.

According to the U.S. Geological Survey (USGS) Earthquake Hazards Program, most earthquakes occur at the boundaries where the earth's tectonic plates meet, although it is possible for earthquakes to occur entirely within plates. Calhoun County and its incorporated municipalities are located well within the North American plate, far from the plate boundary located east in the Atlantic Ocean. Seismic research is ongoing with regard to causes of earthquakes in regions far from plate margins. Regardless of where they are centered, earthquakes can affect locations beyond their point of origin.

Severity

The terms magnitude and intensity are used to describe the overall severity of an earthquake. The severity of an earthquake depends on the amount of energy released at the epicenter, the distance from the epicenter, and the underlying soil type.

All these factors affect how much the ground shakes, known as Peak Ground Acceleration (PGA) and what a building experiences, known as Spectral Acceleration (SA) during an earthquake.

An earthquake's magnitude is a measurement of the total amount of energy and is expressed in terms of the Richter scale. Intensity measures the effects of an earthquake at a particular place and is expressed in terms of the Modified Mercalli scale. Figure 18 shows the approximate comparison between Richter scale magnitude and Modified Mercalli Intensity (MMI).

Figure 18: Magnitude and Intensity Comparison

Magnitude and Intensity Comparison	
Richter Magnitude Scale	**Typical Maximum MMI**
1.0 to 3.0	I
3.0 to 3.9	II to III
4.0 to 4.9	IV to V
5.0 to 5.9	VI to VII
6.0 to 6.9	VII to IX
7.0 and Higher	VIII or Higher

Source: FEMA

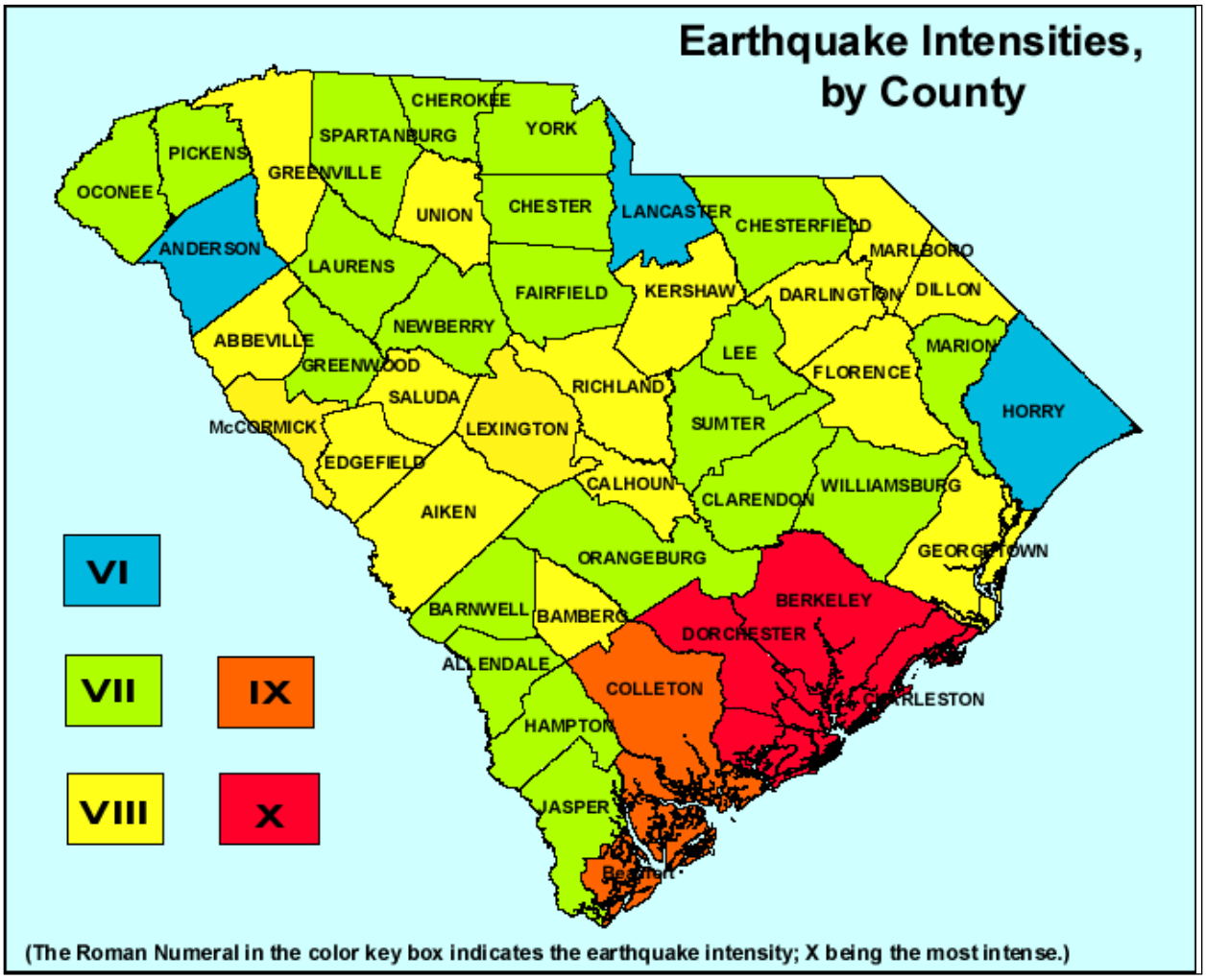
Figure 19. MMI Scale

MMI Scale Rating	
MMI	**Damage/Perception**
I	• Not felt except by a very few under especially favorable conditions
II	• Felt only by a few people at rest, especially on upper floors of buildings
III	• Felt quite noticeably by people indoors, especially on upper floors of buildings • Many people do not recognize it as an earthquake • Standing motor cars may rock slightly • Vibrations similar to the passing of a truck
IV	• Felt indoors by many, outdoors by few during the day • At night, many awakened • Dishes, windows, doors, disturbed; walls make cracking sound • Sensation like heavy truck striking building • Standing motor cars rocked noticeably
V	• Felt by nearly everyone; many awakened • Some dishes, windows broken • Unstable objects overturned • Pendulum clocks may stop
VI	• Felt by all; many frightened • Some heavy furniture moved • Few instances of fallen plaster

	• Damage slight
VII	• Damage negligible in buildings of good design and construction • Slight to moderate damage in well-built ordinary structures • Considerable damage in poorly built or badly designed structures • Some chimneys broken
VIII	• Damage slight in specially designed structures • Considerable damage in ordinary substantial buildings with partial collapse • Damage great in poorly built structures • Fall of chimneys, factory stacks, columns, monuments, walls
	• Heavy furniture overturned
IX	• Damage considerable in specially designed structures • Well-designed frame structures thrown out of plumb • Damage great in substantial buildings, with partial collapse • Buildings shifted off foundations
X	• Some well-built wooden structures destroyed • Most masonry and frame structures destroyed with foundations • Rails bent
XI	• Few, if any masonry or frame structures remain standing • Bridges destroyed • Rails bent greatly
XII	• Total damage • Lines of sight and level are distorted • Objects thrown into the air

Source: USGS

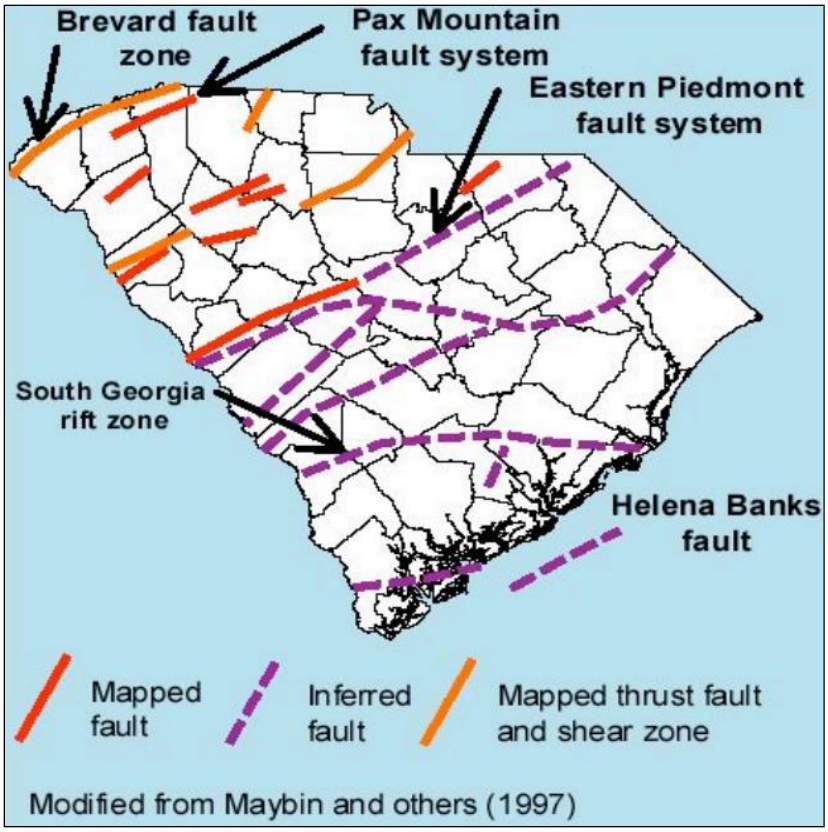
Figure 20 below illustrates the earthquake intensities by County.



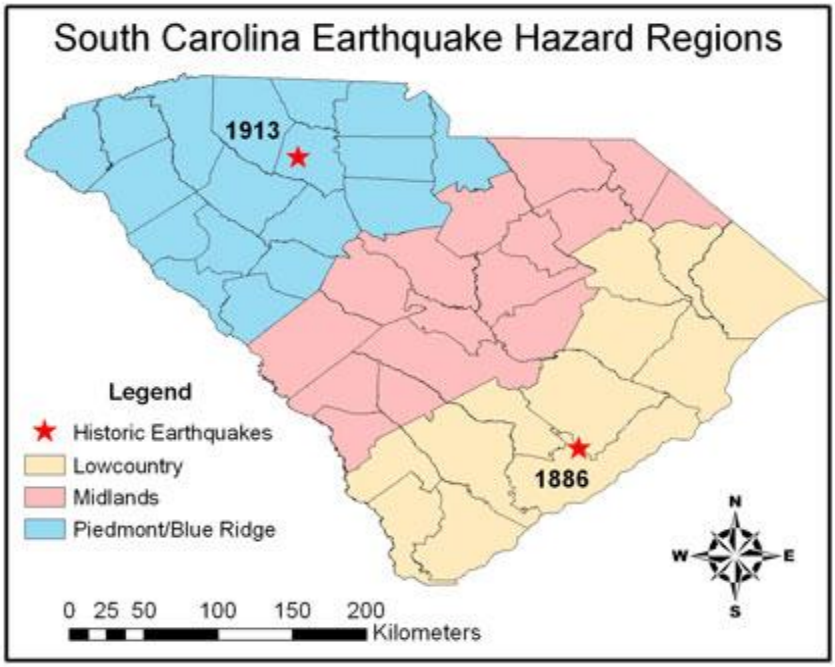
Source: SCDNR /SC HMP 2018

Location

South Carolina is located in the interior of the North American plate, and earthquakes that occur within a plate are called intraplate earthquakes. Earthquake activity in South Carolina fall under three main causes: fault activity, reservoir induced seismicity, and Appalachian rise. A map showing the fault system in South Carolina is shown on the following page.



Source: SC HMP 2018/SCDNR



Source: SC HMP 2018 / South Carolina Earthquake Education and Preparedness

Earthquakes are possible in Calhoun County and its incorporated municipalities. Calhoun County is located in the Midlands earthquake hazard region. The Midlands region includes the counties on the coastal plain with older surficial sediments (>2 million years). This region includes the Fall Line as a potential earthquake source. The Fall Line represents a change in geology makeup and is the location of a large fault system that stretches across the State. The thin layer of loose sediment in the Midlands, especially around the swampy areas can increase the amplitude of earthquake waves and increase the shaking felt. Approximately two (2) earthquakes with a Richter magnitude of 1.1 and 1.9 were recorded in the County between 1979 and 2013. Figure 20 gives the timeframe, location, and magnitude of the two (2) events.

It should be mentioned that two other earthquakes right outside the Calhoun County border; one in Lexington County and one in Orangeburg County, were recorded as well. In Orangeburg County the event was reported southeast of Calhoun County near US Highway 301. The earthquake was reported on February 7, 1972 and had a magnitude of 3.2. In Lexington County, the event was reported just north of Calhoun County near I-26 on February 6, 1986, and measured a 1.7 magnitude.

Currently, there is no updated information available regarding earthquake activity in Calhoun County since 2013. Through research, there is no indication or reports of earthquake activity in Calhoun County since 2013.

Figure 21. Historic Occurrences of Earthquakes in Calhoun County

Date	Location	Richter Magnitude	Damage Perception
December 17, 1979	County	1.1	Not felt except by a very few under especially favorable conditions
November 7, 1985	County	1.9	Not felt except by a very few under especially favorable conditions

Source: USC Hazards and Vulnerability Research Institute

The map below shows earthquakes in Calhoun County and the surrounding area. In Calhoun County there have been two documented earthquake events.

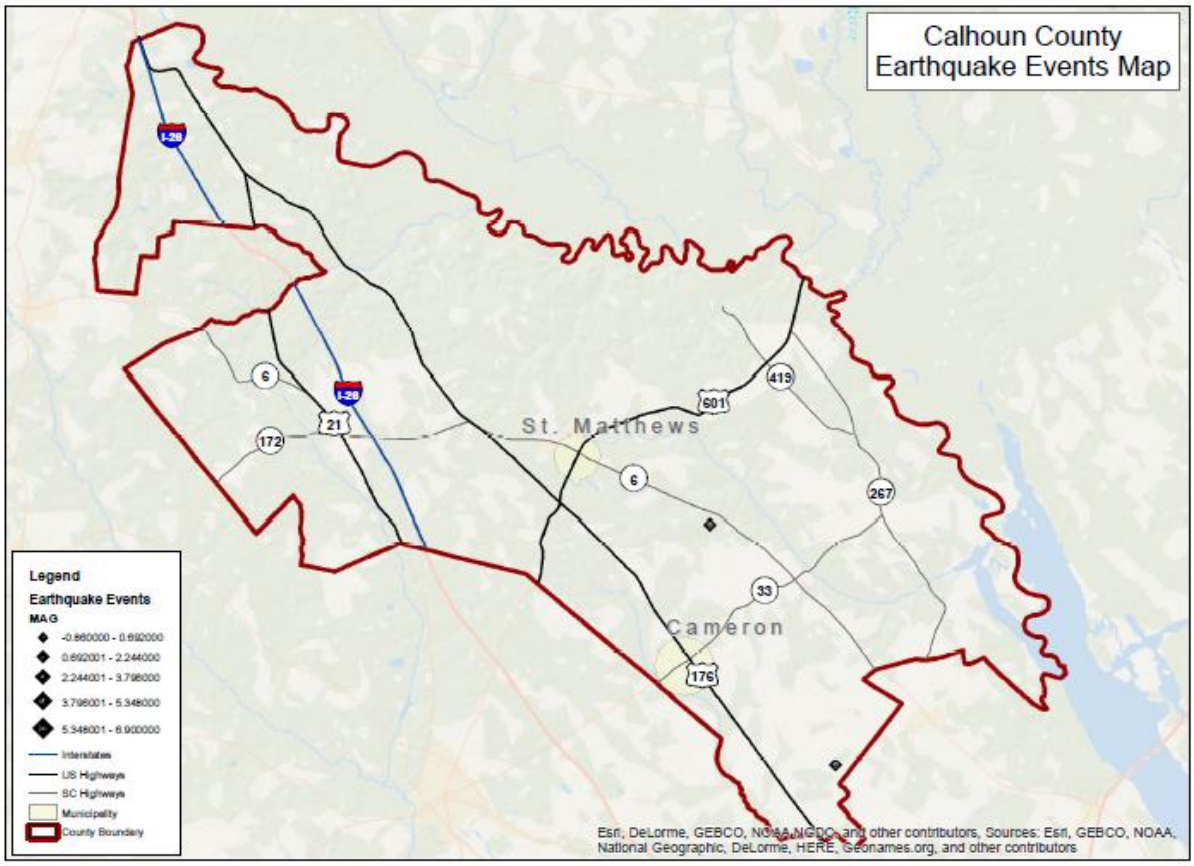
Map 8: Earthquake Map

Extent

Calhoun County has experienced two (2) recorded earthquakes since 1979. Both events were in the unincorporated area; southeast of the Town of Cameron and southeast of the Town of St. Matthews. Of the two earthquakes, neither reached a magnitude of greater than 1.9 and an intensity level of 1.

On December 17, 1979, an earthquake magnitude of 1.1 was reported outside the Town of Cameron. No damage was reported. Based on the previous intensity chart, the conditions were so mild that few people, if any, felt ground disturbance.

On November 7, 1985, an earthquake event was documented outside of the town limits of St. Matthews. The magnitude was recorded at 1.9. Again, the conditions were so mild that no one reported feeling the earthquake.



These are the only two (2) documentations of earthquake events occurring in Calhoun County within the last 41 years (1979 to 2020). Currently, there is no updated information available regarding earthquake activity in Calhoun County since 2013. Through research, there is no indication or reports of earthquake activity in Calhoun County since 2013. No further activity has been recorded.

Probability

Figure 22. Earthquake Probability for Calhoun County

Location	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
County	2	41	20.5	4.8%

In the past 41 recorded years, two (2) earthquake events have occurred in the unincorporated area of Calhoun County. Of these events, the greatest magnitude was reported in 1985 at 1.9 on the Richter scale. Based on the above figure, Calhoun County has a 4.8% probability of an earthquake occurring every year, and a recurrence interval of every 20.5 years.

Vulnerability

The infrequency of major earthquakes, coupled with low magnitude events in the past can led one to perceive that Calhoun County and its incorporated municipalities are not vulnerable to a damaging earthquake. While the towns and county do not sit on a major fault system, they are nonetheless susceptible to earthquakes. A high-magnitude earthquake could cause significant financial losses, casualties, and disruptions in critical facilities and services. Dams, bridges, and other infrastructure are also a concern and could incur serious damage from an earthquake.

A building's construction is a key factor in how well it can withstand the forces produced by earthquakes. Unreinforced masonry buildings are most at risk in an earthquake because the walls are prone to collapse outward. Steel and wood buildings have more ability to absorb the energy from an earthquake. Wood buildings with proper foundation ties have rarely collapsed in earthquakes.

Additionally, 2019 end of year figures gathered from Calhoun County Tax Assessor's office show a total market appraisal value of $1.43B; a total of 240,613 acres; total market acres of $833M; total market buildings of $595M; and a total of 5,671 lots.

Currently there is no reliable method for predicting the time, place, and size of an earthquake. Earthquakes typically occur with little or no warning. Based on the previous events and potential for great losses, Calhoun County and its incorporated municipalities have a low vulnerability to earthquakes.

Wildfire Analysis

Hazard Description

"Wildfire is often thought of as a negative thing, but it is a natural process for the environment to clear dead vegetation. According to the South Carolina Forestry Commission, any type of forest, grass, brush, or outdoor fire that is not controlled or managed is a wildfire. NOAA's National Weather Service provides daily fire weather forecasts and warnings in coordination with local, state, and federal fire agencies. Every year, fire weather forecasters issue over 8,000 Red Flag Warnings and Fire Weather Watches for the country, indicating that there is an increasing wildfire danger. In South Carolina, the average number of fires per year is 3,000 and yearly average acreage burned is 18,000. Accounting for the size and population of the state, this is one of the highest rates in the United States. Fire danger season is highest in late winter and early spring. For South Carolina, the highest danger of fire is during the winter because of dead or dormant vegetation that can act as forest fuel.

Any forest fire, brush fire, grass fire, or any other outdoor fire that is not controlled and supervised is called a wildfire. These fires cause damage to the forest resource as well as wildlife habitat, water quality, and air quality. Any material that can burn is fire fuel. In forests, these include dead leaves, grasses, branches and logs, and pine needles. Over 80 percent of forest fires are started by negligent human behavior (campfires, smoking, debris burning, arson, fireworks). The second most common cause of wildfires is lightning, but only 2% of wildfires in South Carolina are attributed to lightning. Weather is an important factor in dealing with wildfire. Wind and relative humidity affects fire spread and flammability. The most dangerous part of the fire is the head. Firefighters typically attack this part of the fire first since this is the most damaging.

There are three classes of wild fires: surface fire, ground fire, and crown fire. A surface fire is the most common of these three classes moving slowly burns along a forest floor. 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.

The majority of wildfires are human-caused or from lightning strikes, therefore they can occur anywhere in the state of South Carolina. For the purpose of this plan, all buildings and facilities are considered to be equally exposed." (Source SCHMP 2018)

Severity

The severity of a wildfire is based on the damage to the forest resource, wildlife, water and air quality, and the number of acres damaged. For this section, wildfire will be discussed on a county wide level. There is no particular event of wildfire that is illustrated on an individual jurisdiction basis.

Location

Particular events of wildfire will not be discussed on an individual jurisdiction basis, events will be understood to be county wide and presented as such. Map 8 below illustrates wildfire events as recorded by SCFC and other sources.

The areas within the county that are at a greater risk of wildfires are those areas that have a higher density of vegetation and forests. The land coverage map in the Appendix shows forested and scrub/shrub areas, largely within the unincorporated county, that are at risk due to wildfire events. Smaller county jurisdictions, Cameron, with close proximity to high risk rural areas face a higher risk than the more urbanized jurisdiction of St. Matthews. Though the outskirts of urban areas are at risk due to the proximity of forested and vegetated areas, the risk in the urban core is comparatively lower. Historic wildfire occurrences validate this claim as the vast majority start in the forested areas of the county.

Extent

The South Carolina Forestry Commission has historical data for wildfires in Calhoun County dating back to 1946 through 2019. During this 73 year period 3,020 wildfires have been documented in the county. In this 73 year timeframe 21,820 acres have been destroyed in the county.

Probability

From 1946 to 2019 there have been a recorded 3,020 wildfire events in Calhoun County. The total number of acres affected was 21,820. Figure 23 below depicts the wildfire probability for Calhoun County.

Figure 23. Wildfire Probability for Calhoun County

	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
Wildfire	3,020	73	<0.1	4136.0%
Source: SC Forestry Commission - Percentage greater than 100%, the risk is expected to occur more than once per year				

The areas within the county that are at a greater risk of wildfires are those areas that have a higher density of vegetation and forests. Though the outskirts of urban areas are at risk due to the proximity of forested and vegetated areas, the risk in the urban core is comparatively lower.

Vulnerability

Overall, Calhoun County has a moderate vulnerability to wildfires. The probability of one or more wildfires in the county per year is highly likely (greater than 100%). Unincorporated areas within the county are at an even greater risk and vulnerability to wildfires due to the fact that there is more wooded acreage compared to that of the urbanized towns. By law, the South Carolina Forestry Commission is responsible for wild land fire protection outside of corporate town or city limits. South Carolina law regulates outdoor burning in unincorporated areas. Except within town or city limits, anyone planning to burn outdoors must:

1. Notify the Forestry Commission before starting the fire
2. Clear a firebreak around the area to be burned
3. Have adequate tools, equipment, and personnel on hand to control the fire
4. Stay with the fire until it is completely safe.

Additionally, 2019 end of year figures gathered from Calhoun County Tax Assessor's office show a total market appraisal value of $1.43B; a total of 240,613 acres; total market acres of $833M; total market buildings of $595M; and a total of 5,671 lots.

After examining past events, wildfires have not caused a great amount of significant reported damage within the county. Therefore, when taking into consideration the high probability of wildfire in the county, and the past history of the event, Calhoun County has a moderate level vulnerability to wildfire.

Flood Analysis

Hazard Description

Flooding is the most frequent and costly natural hazard in the United States. About 75% of presidential disaster declarations are related to flooding. The National Flood Insurance Program defines a flood as a general and temporary condition of partial or complete inundation of normally dry land areas. South Carolina is especially vulnerable to flooding because of its low elevation and frequency of storms.

The terms used to classify floods are diverse, as are the number of subtypes. Floods may be broadly classified into two categories, as either general or flash floods.

General Floods

These floods are usually long-term events that may last for several days; riverine and coastal flooding fall under general flood types.

Flash Floods

Floods are caused by locally heavy rains in areas where water runs off quickly, moving at very high speeds. Flash floods can cause severe damage; it is able to pick up great debris, uproot trees, roll boulders, destroy buildings, and damage bridges and roads. Urban flooding, dam/levee failure, and debris or ice jam water fall under flash flooding type.

South Carolina has five major river basins and one coastal region. The State's rivers generally start in the northwest and flow southeasterly to the Atlantic Ocean, passing through three physiographic areas:

1. The Blue Ridge Mountains in the far northwestern corner of the State
2. The Piedmont Plateau
3. The Coastal Plain

There are five distinctive types of flooding in South Carolina. Flash, riverine, and coastal are related to the three physiographic areas listed above.

1. Flash flooding: rapid onset events which occur from short, heavy rainfall, accumulating in areas faster than the ground is able to absorb it. Urban flooding: occurs because of impervious surfaces (streets, roads, parking lots, residential and business areas that inhibits ground water absorption, causing runoff.

2. Riverine flooding: this occurs when an increase in water volume within a river channel causes an overflow onto the surrounding floodplain. This type of flooding is the most common in the United States and is may also be termed 'overbank flooding'.

3. Coastal flooding: water pushed inland as a result of storm surge, wind-driven waves, and heavy rainfall produced by hurricanes, tropical storms, nor'easters, and other coastal storms.

4. Local drainage problems: can occur anywhere in the State where the ground is flat, where the drainage pattern has been disrupted, or where channels or culverts have not been maintained.

5**. Dam/levee failure:** each dam in the State has the potential to fail and suddenly release its impounded water, flooding the land downstream. The threat from dam failure increases from aging dams, and when additional dams are built for retention basins and amenity ponds in new developments. Older dams may not have been built for current engineering standards. Many dams exist on smaller streams that are not mapped as floodplains or subject to floodplain regulation, leaving downstream residents unaware of potential risks. At this time DHEC is completing significant assessment & recovery work of the dams throughout the state.
(Source: SC HMP 2018)

Figure 24. Flood Classifications	
General Flood	**Flash Flood**
Riverine Coastal Local drainage	Urban Dam/levee failure Debris/ice jam

Severity
The National Weather Service (NWS) categorizes flooding as major, moderate, and minor. Figure 25 below gives a description of the three flooding categories.

NWS Flood Categories	
Category	**Description**
Major	• Extensive inundation and property damage • Often involves the evacuation of people and the closure of both primary and secondary roads
Moderate	• Inundation of secondary roads • Transfer to higher elevation necessary to save property • Some evacuation may be required
Minor	• Minimal or no property damage • Possibly some public inconvenience

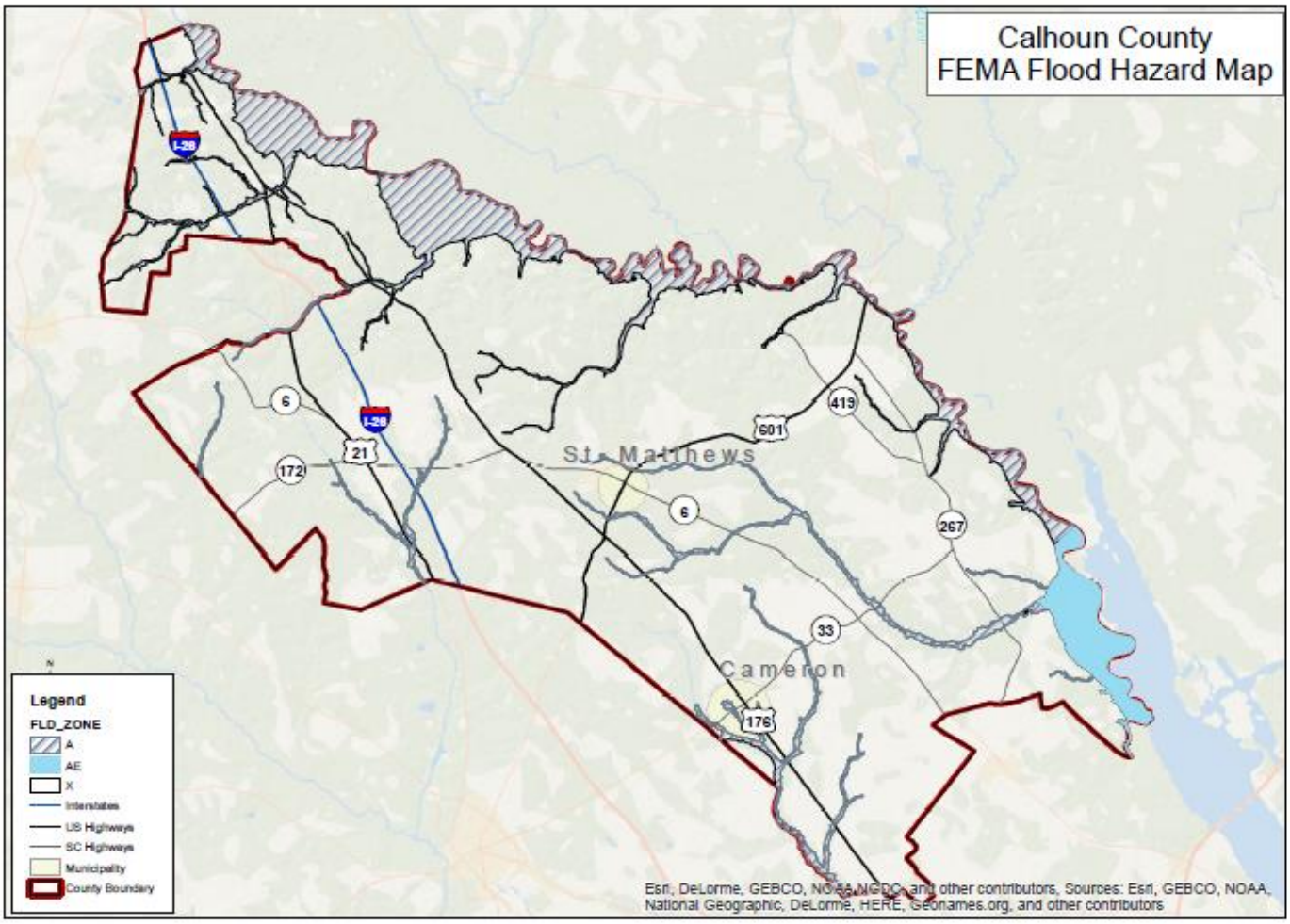
Figure 25: NWS Flood Categories

Location

Identification of floodplain areas within the county and the incorporated municipalities was based on the most recent Flood Insurance Rate Maps (FIRM) produced by FEMA. These maps display the locations of all of the major water bodies in the county and delineate the 100-year floodplain boundaries (Zone A and AE). These are areas that have a one percent (1%) chance of equaling or exceeding the recorded base flood elevation during any year. Mandatory flood insurance is required to be purchased within Zone A and flood management standards apply. Zone AE is also an area at high risk for flooding, subject to inundation by the one percent (1%) chance of a flood event annually. Base Flood Elevations (BFEs) are shown. Mandatory flood insurance is a requirement. Zone X is an area of moderate to low-risk flood hazard. These properties are outside of the high-risk zones. Although this flood risk is reduced, it is not removed. Flood insurance is not required in this zone, but is available.

Map 10 below identifies flood prone areas within Calhoun County.

Map 10: Flood Map



Extent

The following figure 26 gives specific information concerning flooding events and their location within Calhoun County.

Figure 26. Historic Occurrences of Flooding in Calhoun County

Date	Location	Type	Description
October 8, 2016	County	Flash Flooding	Heavy rainfall due to Hurricane Matthew. SCHP reported portion of Old State Rd. washed out.
October 8, 2016	County	Flash Flooding	Heavy rainfall due to Hurricane Matthew. SCHP reported roadway washed out on Good Hope Rd and Stump Hole Rd. flooded.
June 5, 2016	County	Flooding	Heavy rainfall due to stalled cold front. Reported flooding along Hwy 21 and Burke Rd.
October 4, 2015	County	Flash Flooding	Heavy rainfall in the Midlands and Pee Dee. Numerous Dams breached with bridge and roadways flooded. SCHP reported flooding on I-26 at mile marker 124.
October 3, 2015	St. Matthews	Flash Flooding	Heavy rainfall in the Midlands and Pee Dee. Numerous Dams breached with bridge and roadways flooded. Several roads closed on portions of Hwy 6 between St. Matthews and Elloree.
June 25, 2014	Cameron	Flash Flooding	-Heavy rainfall was not able to drain due to I-26 road construction sediment -Significantly slowed traffic -Urban and small stream flood advisory issued by the NWS in Columbia
August 21, 2013	Cameron	Flooding	-3 feet of water reported at the intersection of S.C. Highway 6 and S.C. 33 -Several homes flooded and vehicles stranded in various locations -Some roads blocked, rerouting vehicles
May 6, 2013	County	Flooding	-Several gage points along rivers in SC went above flood stage due to 2-4 inches of rainfall -Most flooding was confined to low lying areas but some areas has some minor

			flooding issues with recreation and other areas -The Congaree River at Carolina Eastman was over 5.7 feet over flood stage -Minor flooding along the river at the plant occurred -Total property damage for Calhoun County: $2K
September 7, 2004	County	Flash Flooding	-Secondary roads flooded with some closures reported by the Sheriff's Department
June 16, 2001	St. Matthews	Flash Flooding	-SCDOT reported SC Highways 24 and 25 flooded north of St. Matthews
October 5, 1995	St. Matthews	Flooding	-Flooding reported in St. Matthews, no further details or damages were given
January 7, 1995	County	Flooding	-Low lying areas of Calhoun County affected by excessive amounts of rainfall -Many flooded streets and roads reported -Estimated damage for Calhoun County: $1K
October 13, 1994	Statewide	Flash Flooding	-All Counties within SC were given flash flood warnings -Total property Damage for state: $2M -Total crop damage for state: $8K
Source: NCDC/NCEI			

Probability

FEMA Flood Insurance Rate Maps (FIRM's) delineate special flood-hazard areas and the risk zones in a community. These special flood-hazard areas identify locations that have a chance of experiencing coastal or river flooding in any given year. The 100-year flood designation means the area has a 1% chance of flooding in any given year.

Based on analysis of records from the National Climatic Data Center, NOAA and FEMA's FIRMs, Calhoun County and its incorporated municipalities have a history of experiencing flooding. Calhoun County had thirteen (13) reported flooding events over a 69 year period (1950 to 2019). Calhoun County a 18.8% chance of a flood occurring each year within the county, and a risk of at least one flood event to occur roughly every eleven (11) years and six month(6) years based on the documented history of flooding.

The Town of St. Matthews has had three (3) flood events to be recorded in the past 69 years. This equates to a yearly flood frequency of 4.3% and a recurrence interval of every 23 years. FEMA FIRMs illustrate SFHAs in Zone A around Antley Spring Branch and Halfway Swamp Creek.

The Town of Cameron has also had two (2) flood events recorded in the past 69 years, with a flood frequency of 2.8% and a recurrence interval of every 34.5 years. FEMA FIRM's indicates special flood hazard areas (SFHAs) subject to inundation by the 1% annual chance of flood in Zone A. This flooding would primarily be caused by excessive rains which could potentially overflow Four Hole Swamp Tributary, Four Hole Creek, and Four Hole Swamp in several areas in the town. Also, overflow of Flea Bite Creek located just south of the town limits could impact the town.

In the unincorporated area of the county, eight (8) events have been recorded in the past 69 years. There is a 8.6% frequency per year that a flood will occur, with one flood occurring every 11.6 years in the unincorporated areas of the county. However, there are numerous SFHAs indicated on the FEMA FIRM's subject to inundation by the 1% annual chance of flood in Zone A. Calhoun County has many creeks (Savany Hunt, Big Beaver, Little Bull, Murph Mill, Caw Caw, High Hill, Bates Mill, Buckhead, etc.), swamps, and is bordered to the north by the Congaree River; all of these water bodies could cause damage should overflowing occur during unusual rainfall.

Figure 27. Flood Probability for Calhoun County

Location	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
Cameron	2	69	34.5	2.8%
St. Matthews	3	69	23	4.3%
Unincorporated	8	69	11.6	8.6%
County	*13*	*69*	*5.3*	*18.8%*

Sources: NCDC; NCEI

Vulnerability

Overall, based on the figure above, Calhoun County has a moderate vulnerability to flooding. Severe rainstorms can cause area drainage systems to overflow, resulting in flooded roads. This excessive flooding of the highway network can eventually cause permanent damage to the road infrastructure.

Additionally, 2019 end of year figures gathered from Calhoun County Tax Assessor's office show a total market appraisal value of $1.43B; a total of 240,613 acres; total market acres of $833M; total market buildings of $595M; and a total of 5,671 lots.

FEDERAL REQUIREMENTS FOR LOCAL HAZARD MITIGATION PLANS

Requirement 201.6(c)(2)(ii): The risk assessment **must** also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged by floods.

Repetitive Loss Properties

Repetitive loss properties are those for which two or more losses of at least $1,000 each have been paid under the National Flood Insurance Program within any 10-year period since 1978. After reviewing such properties and structures within the plan area of Calhoun County and its incorporated municipalities, no such repetitive loss properties have been recorded at this time.

NFIP Participation

The National Flood Insurance Program (NFIP) enables property owners in participating communities to purchase insurance protection from the government against losses from flooding. Participation in the NFIP is based on an agreement between local communities and the federal government which states that if a community will adopt and enforce a floodplain management ordinance to reduce future flood risks to new construction in SFHAs, the federal government will make flood insurance available within the community as a financial protection against flood losses. After reviewing FEMA's "Community Status Book Report for Communities Participating in the National Flood Program," Calhoun County is an active participant in the National Flood Insurance Program (NFIP) and have continued compliance with NFIP requirements and objectives. The Town of Cameron is also an active participant in the NFIP.

One of the primary objectives of the NFIP is to guide development away from high-flood risk areas. NFIP regulations minimize the impact of structures that are built in SFHAs by requiring them not to cause obstructions to the natural flow of floodwaters. As a condition of Calhoun County's participation in the NFIP, those structures built within SFHAs must adhere to strict floodplain management regulations enforced by the community.

Calhoun County's floodplain management program ensures compliance by enforcing regulations and policies that require pre-construction site approval prior to any structure being built within a floodplain or zone. An application with the County's Building Inspector, who is also the Floodplain Manager, is required to identify the property being developed and to determine if it is within an existing flood zone. According to the Building Inspector, there have been no new residential or commercial development, and some limited industrial development within the past five (5) years in all of Calhoun County. Should any new development occur, Calhoun County will utilize the revised flood maps adopted in 2007. Calhoun County oversees the floodplain management compliance for the Town of Cameron in the same way as it ensures the compliance and enforcement for the County. Kevin Hodges is the County Building Inspector and Floodplain Manager who oversees this compliance.

The Town of St. Matthews is not an active participant in the NFIP. After speaking with Mr. Hodges about this, the reasoning is that, as of 2015, there are not a lot of flood zones or areas affected within the town limits by the floodplain. This status is unchanged from the previous Plan.

Winter Storm Analysis

Hazard Description

Winter storms are often thought of as a snowstorm. While this can be true, there are also other types of weather associated with winter storms that can be extremely hazardous.

Ice Storms

Heavy accumulations of ice can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days while utility companies work to repair the extensive damage. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians.

Heavy Snow Storms

Heavy snow can immobilize a region and paralyze a city, stranding commuters, stopping the flow of supplies, and disrupting emergency and medical services. In rural areas, homes and farms bay be isolated for days, and unprotected livestock may be lost. The cost of snow removal, repairing damages, and loss of business can have large economic impacts on cities and towns.

A winter storm develops from three basic elements: cold air, moisture, and lift. Below freezing temperatures in the clouds and near the ground are necessary to make snow and/or ice; moisture is needed to form clouds and precipitation; and something to raise the moist air to form the clouds and cause precipitation is required (i.e. warm air colliding with cold air and being forced to rise over the cold dome).

Winter storms and winter weather kill dozens of Americans each year, from exposure to cold, from vehicle accidents, from the improper use of heaters, and other winter related incidents. Winter storms are regular occurrences that happen across the country and can take place during spring and fall as well. Many hazards are associated with winter storms and weather including strong winds, extreme cold, coastal flooding, heavy snow and ice storms. Other concerns related to winter weather is power, heat, and communication outages. (Source SCHMP 2018)

Severity

The severity of a winter storm depends on several factors including temperature, wind speed, type of precipitation, rate of deposition, and time of day and/or year the storm occurs. Everyone is potentially at risk during winter storms. The actual threat to the individual depends on the specific situation. Observations indicate the following:

- Related to ice and snow:
    - About 70% occur in automobiles
    - About 25% are people caught out in the storm
    - Majority are males over 40 years old
- Related to exposure to cold:
    - 50% are people over 60 years old
    - Over 75% are males
    - About 20% occur in the home

Dangers associated with exposure to cold include frostbite, hypothermia, and wind chill. Most deaths associated with winter weather and storms are indirectly related, such as fatalities from traffic accidents due to icy conditions, or hypothermia from prolonged exposure.

Location

There have been eleven (11) significant winter storms recorded in Calhoun County within the past 69 years. The most recent storm took place on January 3, 2018. The following figure 27 details the eleven storms that affected the County. Individual jurisdictions are not discussed in detail because the events were part of a county wide and statewide disaster. The participating jurisdictions are assumed to be incorporated in the winter event report.

Figure 28. Historic Occurrences of Winter Storms in Calhoun County [CL2]

Date	Location	Type	Description
January 2, 2002	Statewide	Winter Storm	▪ Ice accumulations ranged from 1/4 to 1 inch ▪ Snow accumulations ranged from 2 to 8 inches ▪ Trees and power lines down ▪ Numerous auto accidents ▪ Driving conditions were treacherous
January 23, 2003	Statewide	Winter Storm	▪ Power outages for 3,500 homes ▪ Snow accumulations ranged from 2 to 7 inches ▪ Trees and power lines down ▪ Numerous auto accidents ▪ Driving conditions were treacherous
January 25, 2004	Statewide	Ice Storm	▪ Ice accumulations of 1/2 to 3/4 of an inch ▪ Six people were injured in traffic related accidents ▪ Trees and power lines down ▪ Numerous auto accidents ▪ Driving conditions were treacherous ▪ Total damage estimates were $28.5M Statewide
December 26, 2004	Statewide	Ice Storm	▪ Ice accumulations of 1/4 to 3/4 of an inch ▪ Trees and power lines down ▪ Numerous auto accidents ▪ Driving conditions were treacherous ▪ Several power outages reported ▪ Accumulation of sleet up to an inch
January 29, 2005	Statewide	Ice Storm	▪ Ice accumulations of 1/4 to 1/2 of an inch on trees and other structures ▪ Numerous auto accidents ▪ Overpasses and bridges iced over ▪ Several power outages reported
February 12, 2010	Statewide	Heavy Snow Event	• Roadways treacherous • Several thousand homes lost power • Average total snowfall across the region was around 4-6 inches but ranged from 3 to 8 inches with a couple of locations reporting near 9 inches.
December 26, 2010	County	Winter Storm	Reported snow depths of 1-2 inches across the County.
January 10, 2011	County	Winter Storm	Snow accumulations of 1 -3 inches with heaviest amounts in the west portion of the County. Freezing rain followed the snow and ice acculumaltions of 1/4 inch.
January 28, 2014	County	Winter Storm	Winter Storm produced freezing rain, sleet and snow across the County with accumulations from 2 - 4 inches. Power outages throughout the Midlands and CSRA.
February 12, 2014	Statewide	Winter Storm	• Several thousand homes lost power • Average total snowfall across the region was around 4-6 inches but ranged from 3 to 8 inches with a couple of locations reporting near 9 inches.
January 3, 2018	Multiple County	Heavy Snow Event	Southern and Eastern Midlands were affected with up to seven (7) inches of snow accomulation.

Source: NCDC/ NCEI

Extent

The eleven (11) significant winter storms/ice storms that affected Calhoun County as part of a statewide event caused minor damages; auto accidents, downed power lines and trees, power outages, ice accumulations.

Probability

Figure 29. Winter Storm Probability for Calhoun County

Location	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
County/Statewide	11	69	6.3	15.9%

Source: NCDC /NCEI

Based on the data from the above figure, it is estimated that a winter storm event may occur every 6.3 years, with a 15.9% chance of a storm occurring every year in Calhoun County. However, mild winter storm events are common in this region of the State. Typically Calhoun County experiences some ice, sleet, or snow event annually. During the months of December to March these events are more likely to occur.

Vulnerability

Heavy accumulations of snow can distress a community; standing commuters, closing vital businesses and facilities, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can also result in downed trees and power lines. The cost of snow removal, repairing damages, and the loss of business can have a severe economic impact on Calhoun County and its communities.

Ice storms can also have a significant impact on the County. Heavy accumulations of ice can bring down trees and topple utility poles and communication towers. Ice can disrupt communication and power for days while utility companies repair extensive damage. Even small accumulations of ice can be extremely dangerous to motorists and pedestrians. Bridges and overpasses are particularly dangerous because they freeze before other surfaces.

Additionally, 2019 end of year figures gathered from Calhoun County Tax Assessor's office show a total market appraisal value of $1.43B; a total of 240,613 acres; total market acres of $833M; total market buildings of $595M; and a total of 5,671 lots

Overall, Calhoun County has a moderate vulnerability to major winter storms. In examining these eight documented events, it is evident that such winter storms can cause much damage to a community that is not prepared for such hazardous conditions involving heavy ice, sleet, and snow.

2.2 Overall Risk Probability and Frequency

The Task Force Committee reviewed this section for the update process and made the necessary changes to Figure 30 to reflect the updated statistics described in Section 2.1.

To determine the probability of a natural hazard event, the number of events, total number of years those events have been recorded, and the frequency of events must be determined. The recurrence interval is also helpful in portraying how common a certain type of hazard is. Dividing the number of years by the number of events produces the recurrence interval, or how often the event will occur per year. The percentage frequency of events is determined by dividing the number of events by the total number of years and multiplying by 100. This gives a reliable sense of the chance a hazard will occur per year.

Figure 30 below is necessary in determining overall hazard vulnerability. The figure also helps to define what types of events are more frequent in Calhoun County.

Figure 30. All Hazards Probability for Calhoun County

Hazard	# of Events	Years in Record	Recurrence Interval (in years)	Hazard Frequency % (chance per year)
Tornado	18	70	15.7	25.0%
Hurricane/Tropcial Storm	24	168	7.0	14.3%
Hail	72	45	0.6	160.0%
Drought	53	70	1.3	75.0%
Earthquake	2	41	20.5	4.8%
Wildfire	3,020	73	<0.1	4136.0%
Flood	13	69	5.3	10.8%
Winter Storm (Snow & Ice)	11	69	6.3	15.9%

Data Sources: National Climatic Data Center, NCEI/USC Hazards and Vulnerability Research Institute, SC State Climate Office, SC Forestry Commission

2.3 Overall Vulnerability Assessment

No changes were made to the mathematical methodology for prioritizing hazards, after review by the Task Force Committee. The Analysis Worksheets remain largely the same. However, on a very few total score figures have changed due to the updated hazard data as part of the update process.

Prioritization of Hazards for Calhoun County

Based on these findings and the results of technical research the following hazards were selected as priority hazards for Calhoun County: Tornadoes, Hurricanes/Tropical Storms, Hail, Drought, Earthquakes, Wildfires, Flooding, and Winter Storms.

To assess and evaluate hazards, four criteria have been established by the task force committee and each has been given a rating of low, medium, or high risk.

1. History – A record of occurrences
2. Vulnerability – The number of people and the value of property that could be affected
3. Impact – Assuming the greatest event possible and the worst case scenario.
4. Probability – The likelihood an event will occur (chances per year)
5. Priority Score- Composite score value for each hazard weighing priority attention to planning

In the scoring system, each of the four criteria identified for describing and analyzing potential hazards is assigned a rating and their respective number.

Low	1 point
Medium	5 points
High	10 points

Since some criteria are judged to be more important than others, a weighting factor was established to balance out the total scoring. The following weights are used:

History	2
Vulnerability	5
Impact	10
Probability	7

A composite score for each hazard is arrived at by multiplying the score value assigned to each criterion by its weight and then summing the four totals. For example:

Hazard: Flood

History	Medium	5pts x 2 (weighting factor) = 10 pts
Vulnerability	Medium	5pts x 5 (weighting factor) = 25 pts
Impact	High	10pts x 10 (weighting factor) = 100 pts
Probability	Medium	5pts x 7 (weighting factor) = 35 pts
		Total = 160 pts

All information has been compiled and created as to the various hazards in the County. Those hazards with the highest numerical scores will receive priority attention for planning and mitigation purposes. The methods used for determining the rating of High, Medium, and Low risks are as follows:

History: Risk determined by past occurrences in each participating jurisdiction, where available, and by county wide occurrences.

Vulnerability: Based on the total population from the jurisdiction and an estimated projection on property values and facilities within the jurisdiction.

Impact: Risk determination was established by taking into account the vulnerability of the jurisdiction/county as well as past history of occurrence. Determination was also based on the extent of the event located in previous hazard profile section of the plan.

Probability: Determined by hazard frequency percentage located in the previous section of overall risk probability and frequency.

The following figure 30 and figure 31 are the overall vulnerability summaries for hazards within Calhoun County and its incorporated jurisdictions. Plan goals and objectives are prioritized according to these two figures.

Figure 31. Calhoun County Hazard Identification and Analysis Worksheet

Calhoun County Hazards					
Type of Hazard	**Probability**	**Vulnerability**	**Impact**	**History**	**Total Score**
Tornado	Low	Low	Medium	Medium	
Priority Score:	7	5	50	10	**72**
Hurricane/Tropical Storm	Low	Low	High	Medium	
Priority Score:	7	5	100	10	**122**
Hail	High	Medium	Medium	High	
Priority Score:	70	25	50	20	**165**
Drought	Medium	High	High	Medium	
Priority Score:	70	50	100	10	**230**
Earthquake	Low	Low	Low	Low	
Priority Score:	7	5	10	2	**24**
Wildfire	High	High	High	High	
Priority Score:	70	50	100	20	**240**
Flood	Low	Low	Medium	Low	
Priority Score:	7	5	50	2	**64**
Winter Storms	Low	Medium	Medium	Low	
Priority Score:	7	25	50	2	**84**

Figure 32 Calhoun County: Incorporated Jurisdictions Hazard Identification and Analysis Worksheet						
Municipality	**Type of Hazard**	**Probability**	**Vulnerability**	**Impact**	**History**	**Total Score**
Cameron	Tornado	Low	Low	Low	Low	
	Priority Score:	7	5	10	2	**24**
	Hurricane/Tropical Storm	Low	Low	Low	Low	
	Priority Score:	7	5	10	2	**24**
	Hail	Medium	Medium	Low	Medium	
	Priority Score:	35	25	10	10	**80**
	Drought	Medium	Low	Low	Medium	
	Priority Score:	35	5	10	10	**60**
	Earthquake	Low	Low	Low	Low	
	Priority Score:	7	5	10	2	**24**
	Wildfire	Medium	Medium	Low	High	
	Priority Score:	35	25	10	20	**90**
	Flood	Low	Medium	Low	Low	
	Priority Score:	7	25	10	2	**44**
	Winter Storms	Low	Medium	Medium	Low	
	Priority Score:	7	25	50	2	**84**
St. Matthews	Tornado	Low	Medium	Low	Low	
	Priority Score:	7	25	10	2	**44**
	Hurricane/Tropical Storm	Low	Low	Low	Low	
	Priority Score:	7	5	10	2	**24**
	Hail	High	Medium	Medium	High	
	Priority Score:	70	25	50	20	**165**
	Drought	Medium	Low	Low	Medium	
	Priority Score:	35	5	10	10	**60**
	Earthquake	Low	Low	Low	Low	
	Priority Score:	7	5	10	2	**24**
	Wildfire	Medium	Medium	Medium	Medium	
	Priority Score:	35	25	50	10	**120**
	Flood	Low	Medium	Medium	Low	
	Priority Score:	7	25	50	2	**84**
	Winter Storms	Low	Medium	Medium	Low	
	Priority Score:	7	25	50	2	**84**

2.4 Community Mitigation Capability Assessment

The taskforce reviewed and informaiton was added to reflect any development, residential, commercial or industrial growth that had occurred since the previous 5-year update.

Purpose

The main purpose of this section is to examine the policies, ordinances, and codes that have been put in place to reduce the impacts of natural hazards. In some instances, especially in the more rural jurisdictions, such existing plans do not exist. In these cases, the town is typically covered underneath the county's plans. The following is a collection of policies concerning natural hazards, mitigation, and emergency preparedness, reviewed by the Lower Savannah Council of Governments. This section is essential for the examination of current natural hazard mitigation. The review of the following plans aided the development of this hazard mitigation by allowing the plan developers to see what is already in place to deal with natural hazards.

Calhoun County's Emergency Management Division provides overall coordination during major emergencies, such as hurricanes, tornados, and other natural and manmade disasters. The EMD is responsible for all hazards planning, natural and technological, hazard mitigation, preparedness for, response to, and recovery from disasters, and the coordination of the Emergency Preparedness Committee.

Calhoun County has an Emergency Operations Plan that was developed for use by Calhoun County Government Officials to ensure mitigation and preparedness, appropriated response, and timely recovery from hazards that may affect Calhoun County. The plan has three major parts: letter of promulgation approves the plan and assigns responsibilities, basic plan outlines polices and general procedures that provide a common basis for joint county and municipal governments operations in a natural, technological, or purposeful harm disaster, and Emergency Support Functions (ESFs) providing guidelines for the development of appropriate mechanisms to facilitate the prompt and efficient application of resources in any emergency or disaster situation.

Comprehensive plans and zoning ordinances exist in Calhoun County and St. Matthews. Integrating mitigation concepts and policies with existing comprehensive plans provides and expanded means for implementing initiatives through established, legal frameworks. The foundation of these plans lies in the promotion of health, safety, efficiency, and well being for all segments of the population. Some of the primary plan objectives include preservation of the County's unique natural environment and historic heritage, creation of a stable and diverse economy, and promoting sustainable developments. A local hazard mitigation initiative can be strengthened by finding opportunities where the implementation of other County goals and policies also supports the mitigation recommendations presented in this plan.

Zoning ordinances cover the unincorporated areas of the county and some municipalities. Zoning can be used to restrict growth in high risk areas, allow low density development or designate only certain uses in hazard prone areas. All the zoning ordinances require erosion control practices for ground disturbing activities, protection of existing waterways, and revegetation. These practices and others promote best management practices and reduce the risk of flooding hazard in particular.

Calhoun County has land development regulations that provide policy for infrastructure for new development. Like zoning regulations, these regulations provide best management practices to reduce the risk of flooding hazards. Over the last five years Calhoun County has seen limited industrial growth and development along the I-26 corridor near exit 125 in the "horse's neck" area of Calhoun County. Over the past few years growth and growth potential has been seen in the Sandy Run area of Calhoun County. In 2019, the Sandy Run Area Plan Report was conducted and released. The comprehensive report shows the projected increased population rate through 2045 along with the need for improvements to transportation systems and other infrastructure. The reports also addresses current and future land use maps, showing the potential development (residential or commercial) within the area. After reviewing the County's existing policies, development regulations and growth projections from the current Calhoun County Comprehensive Plan and the Sandy Run Plan, the existing regulations are viewed as sufficient, and portray an accurate reflection of Calhoun County's land use growth and development.

Building codes are important in mitigation because codes are developed for areas of the state in consideration of types, frequency and intensity of hazards present in that geographic region. Consequently, structures that are built to applicable codes are inherently resistant to many hazards like strong wind, floods, and earthquakes. Additionally, Calhoun County has a mobile and manufactured home ordinance that provides separate standards for those types of housing

Intergovernmental cooperation is a great asset to the implementation of hazard mitigation actions. This way local, county, and State agencies can act as resources for each other. Interaction between the County, towns, and regional planning organizations occurs in areas such as plan development and grant writing.

The major conclusion reached after conducting the capability assessment is that Calhoun County will need to rely on technical and financial assistance from various resources to effectively implement hazard mitigation actions over the next five years. The constraints facing the County and especially the municipalities include both limited staff resources and extremely limited funding.

During this planning process, it is apparent that the County has a strong capability to bring together various groups to work together in crafting better communities of the future. The same cooperative effort, if joined with the appropriate technical and financial assistance from regional, state, and federal resources, can be harnessed to implement the priority hazard mitigation actions. A sustained effort by citizens, staff, and local officials can create a more sustainable and disaster resistant future.

Each of the local governments has the capacity to handle mitigation issues, but are limited due to funding and limited staff. The results of the capability assessment help to provide the framework for developing recommendation for specific mitigation actions. It also helps to identify shortfalls in the local government capabilities as well as draw attention to existing successes. The capability assessment was analyzed then used to rank the mitigation strategies according to the capability of the county or the municipalities to implement the actions.

Incorporation of the requirements of the mitigation plan into existing planning mechanisms

Existing Planning Mechanisms

Jurisdiction	Comprehensive Plan	Capital Improvement Plan	Building Code/LDR	Flood Hazard Ordinance	Zoning Ordinance	Emergency Operations Plan
Calhoun County	Yes	Yes	Yes	No	Yes	Yes
St. Matthews	Yes	No	Yes*	No	Yes	Yes**
Cameron	No	No	Yes*	Yes	No	Yes**

*Enforced by County **Incorporated in County EOP

There are several ways to incorporate the hazard mitigation plan requirements into the existing planning processes. First, the comprehensive plans are updated every five years and cover features of the jurisdictions such as natural resources and community facilities. Planning commissions within each jurisdiction revise the plans then recommend the revised plan to the local governing bodies for approval. Using this process, hazard mitigation elements can be included in plan updates.

Calhoun County and the Town of St. Matthews have capital improvement plans, and, capital improvement activities are usually included as part of the comprehensive plans. The zoning ordinances are built from the findings of the comprehensive plan, so changes to the zoning ordinances can be made after the comprehensive plan is updated.

Updating the comprehensive plan would cover areas such as economic development, land use, natural resources, road construction and community facilities. From that, the zoning ordinance could reflect needed changes for issues such as development, land uses, storm water retention or road grading activities.

Building codes are standard across the county and can be updated with hazard mitigation findings by the governing body of each local government. In addition, the state has adopted the Southern Building Code. As changes are made to the state building code by the state legislature local jurisdictions may adopt those changes and incorporate them into local building codes.

Public hearings, which provide an opportunity for public comment, are required prior to adoption of any of the above planning mechanisms.

Part Three:

Mitigation Strategy

3.1 Mitigation Strategy

After review and analysis from the Task Force Committee, the Mitigation Strategy section has remained unchanged for the update process.

The Mitigation Strategy section describes how Calhoun County and its incorporated municipalities will reduce or eliminate potential losses from hazards identified in the Natural Hazard Risk Assessment section. The strategy focuses on existing and potential mitigation actions that will mitigate the effects of a natural hazard event on Calhoun County's population, economy, and property. The Mitigation Strategy is a coordinated effort by various agencies and partners to develop and implement a comprehensive range of inventive and effective natural hazard mitigation actions.

Mitigation Strategy Approach

- Establish mitigation goals and objectives that aim to reduce or eliminate Calhoun County's long-term vulnerability to natural-hazard events
- Identify and analyze a comprehensive range of hazard-specific mitigation actions that aim to achieve the goals and objectives of the Mitigation Strategy
- Describe how Calhoun County will prioritize, implement, and administer mitigation actions

FEMA Requirements

The Task Force Committee developed the mitigation strategy consistent with the process and steps presented in the Federal Emergency Management Agency's (FEMA) How-To-Guide: Developing the Mitigation Plan. This section satisfies the following requirements:

- **Requirement §201.6(c)(3)(i):** The hazard mitigation strategy ***shall*** include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.
- **Requirement §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 effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. The mitigation strategy must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.
- **Requirement §201.6(c)(3)(iii):** The mitigation strategy ***shall*** include an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization ***shall*** include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

Process

Using the findings from the risk assessment and the capabilities assessment as a guide the task force developed the following mitigation goals, objectives, and strategies for implementation. Goals and objectives were developed by the Task Force, Lower Savannah Council of Government representatives, and FEMA representatives and included a period provided for comment and revision. Once the final goals and objectives were determined the Task Force developed the mitigation strategies that would aid the county and participating jurisdictions in meeting the goals and objectives identified in the plan. Strategies were selected using the information obtained from the capabilities assessment, which identified existing programs and shortfalls related to mitigation activities.

The first step in the mitigation actions and prioritization process was the county Task Force reviewed a broad range of potential mitigation actions. From these proposed actions, the Task Force developed a prioritization method based on a number of different factors. The projects were ranked based on a cost-benefit review that showed which projects were most needed, which of these projects was the most likely to be accomplished, and which would most effectively address mitigation needs. Those projects that required minimal funds were considered higher in priority because of the high likelihood that they could be accomplished as well as having a maximum cost-benefit ratio.

In addition to reviewing potential monetary costs, the team considered the social impact of each potential project, the technical capabilities of the local government to carry through the project, impact on the environment, ability of the local government to maintain the project, and any political or legal effects of the decision. Actions that can immediately aid in the mitigation of the most likely and dangerous natural hazards are higher in priority under each of the goals for Calhoun County and the participating municipalities. This cost-benefit review was the basis for each of the project feasibility rankings.

Each action and project includes the following: a priority rank, project name, description, responsible party, and timeframe. The participating municipalities will rely on grants and other sources in order to fund mitigation projects.

Based on the recommendations of the Task Force the following implementation schedule has been developed. Projects have been listed by priority according to the ranking assigned by the Task Force (High, Medium, or Low). Feasibility to implement the projects is also ranked High, Medium or Low based on the results of the capability assessment.

Cost Benefit Review

A key criterion for mitigation projects to be eligible for funding is that they must be cost-effective. If the project benefits are higher than the project costs, then the project is cost-effective. In order to ensure a consistent approach in determining the cost-effectiveness of all mitigation projects, Calhoun County will use the FEMA Benefit Cost Analysis (BCA) module and process. A Benefit-Cost Analysis (BCA) is a method for determining the potential positive effects of a specific mitigation action and comparing them to the cost of the action. To assess and demonstrate the cost-effectiveness of mitigation actions, FEMA has developed a suite of BCA software, including hazard-specific modules. Agencies seeking funding under one of FEMA's

mitigation grant programs will perform a detailed BCA using this software prior to the submission of the grant application.

Calhoun County will weigh the effectiveness of the mitigation actions based on the implementation timeframe, the history of occurrences for specific hazards, and the cost of the project.

Implementation and Administration

The following categories have been identified as information for each action that will guide Calhoun County and its participating municipalities in the implementation and administration of the actions: description, agencies, timeframe, cost, funding source, and priority. It also serves to coordinate the various agencies involved to avoid duplicating or conflicting efforts. The mitigation strategies contain a wide variety of actions that mitigate the effects of natural hazards on the population, economy, and property of Calhoun County.

Implementation Key	
Column Header	**Description**
Mitigation Action & Description	Contains the title and description of the action
Agency	Lists the agency that has primary jurisdiction over the mitigation action and any supporting entities that will assist in the implementation, funding, or maintenance of the mitigation action
Project Timeframe/Duration	Estimates when the project will begin and approximately how long it will take to complete. "Ongoing" refers to actions that are either underway or have no definitive end date
Estimated Project Cost	Estimates costs associated with implementing each mitigation action
Possible Funding Source(s)	Identifies possible sources of funding including capital funding, grants, bonds, and other types of funding
FEMA Category	Identifies the associated FEMA mitigation action category (Prevention, Property Protection, Public Education and Awareness, Natural Resource Protection, Emergency Services, and Structural Projects)
Goals and Objectives	Identifies the hazard mitigation goals and objectives addressed by the mitigation action
Priority	Lists the results of the mitigation action prioritization

3.2 Calhoun County Goals and Objectives

The Task Force Committee reviewed and analyzed the County's goals and objectives in Figure 33 as part of the update process.

Developing Goals and Objectives

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate Calhoun County's long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the County and its participating municipalities want to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce Calhoun County's overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. Calhoun County will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

Hazard Mitigation Goals and Objectives	
Goal 1: Protect public health and safety	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
Objective 1.3	Train emergency responders.
Objective 1.4	Strengthen local building code enforcement.
Goal 2: Increase public preparedness and awareness for natural disasters	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
Goal 3: Protect property	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.
Objective 3.5	Educate public officials, developers, realtors, contractors, building owners, and the public about hazard risks and building requirements.

Hazard Mitigation Goals and Objectives	
Goal 4: Enhance Emergency Services	
Objective 4.1	Improve upon the immediate actions taken in response to a hazard event, which can minimize the impact of hazard incidents on people and property.
Goal 5: Reduce the potential effects of flooding on homes and buildings in Calhoun County	
Objective 5.1	Continue the implementation of zoning codes.
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
Goal 6: Ensure protection and emergency shelters	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 33: Calhoun County Hazard Mitigation Goals and Objectives

3.3 Calhoun County Mitigation Actions

The Task Force Committee review and updated mitigation actions. Those updates can be found in Figure 34

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within Calhoun County, and also the protection of the citizens.

Identification

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

Mitigation Action Categories

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building and construction code revisions, zoning regulation changes, and computer-hazard modeling.
2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss properties and vulnerable populations.
4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that

provide advanced warning and redundant communications.

6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

Summary of Mitigation Actions

The final list of Calhoun County's mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the County's programs, plans, projects, or policies that the county may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions based on the hazard vulnerability, historical occurrence of the hazard, cost effectiveness, and compliance with NFIP. They prioritized the actions on a high, medium and low scale defined as the following:

- **High Priority:** A project that meets multiple plan objectives, benefits exceed cost, is grant-eligible, can be completed in a short-term period once project is funded.
- **Medium Priority:** A project that meets at least one plan objective, benefits exceed costs, funding not secured, grant eligibility is questionable, and can be completed within 1 to 5 years once project is funded
- **Low Priority:** A project that will mitigate the risk of a hazard, benefits may exceed costs, funding is not secured, project may not be grant-eligible and/or timeline for completion is considered long-term

As a side note, it should be mentioned that these priority definitions are considered to be dynamic and can change from one category to another based on changes to a parameter such as availability of funding. For example, a project might be assigned a medium priority because of the uncertainty of a funding source. This priority could be changed to high once a funding source has been identified such as a grant. The prioritization schedule for this plan will be reviewed and updated as needed through the plan maintenance strategy described in section 4.1 of this Plan.

Status on Strategies

After reviewing the mitigation actions for the plan update, strides have been made with regards to milestones achieved and work being done, specifically with community education, emergency shelters, generator need, flood mitigation, notification systems and communication tower. There are several strategies that are still being held due to the lack of funding sources. The County continues to actively look for suitable funding sources for the noted mitigation actions. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis rations, or other concerns

Calhoun County Hazard Mitigation Actions											
Mitigation Action and Description	**Agency**	**Hazard(s)**	**Timeframe**	**Estimated Project Cost**	**Possible Funding Source(s)**	**FEMA Category**	**Goals and Objectives**	**Prioritization**	**Implementation Status**	**Implementation Schedule**	**Milestones Achieved, Impediments to Implementation**
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	Calhoun County/Emergency Services	ALL	Ongoing	N/A	PDM, HMGP	Public Education and Awareness	2.1, 2.2, 2.3	High	Dependant on Funding	***End of 2020-over a 3-year term***	**Ongoing, teach classes in schools, public speaking churches, crimewatch**
Implement and enforce zoning codes and building codes to ensure no new structures are built within the floodplains.	Calhoun County/Building and Planning	Flood	Ongoing	N/A	N/A	Prevention	1.4, 3.2, 3.3	Medium	Fully implemented	July of 2006	International Building Codes adopted.
Establishment and identification of emergency shelters during times of natural hazards.	Calhoun County/ Emergency Services	ALL	Ongoing	N/A	N/A	Emergency Services/Property Protection	1.2, 2.3, 6.1, 6.2, 6.3	Low	Dependant on Funding	***End of 2024***	**Schools are Hurricane shelters, 1 church could be used as shelter**
Install generators in select critical governmental buildings to provide power during blackouts and emergency operations.	Calhoun County/ Administration	ALL	Ongoing	N/A	N/A	Emergency Services/Property Protection	3.1	Low	Dependant on funding	***End of 2024***	**All critical buildings and Emergency Services have gen. except Creston EMS-requested in 2021 budget**
Install backup generator in John Ford Center, an identified warming shelter for citizens.	Calhoun County/Emergency Services	ALL	Ongoing	N/A	PDG/HMGP	Emergency Services/Property Protection	3.1	Medium	Dependant on funding	***End of 2024***	Dependant on funding
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Calhoun County/ SCDNR/SCDOT	Flood	Ongoing	N/A	Federal and State Grants	Property Protection	2.1, 2.2, 5.2	Low	Dependant on Funding	***End of 2024***	Lack of Funding
Identify options to alleviating flooding issues on Old Swamp Road and Banks Lane. Both areas within the Zone A floodplains.	Calhoun County/Emergency Management/SCDOT/SCDNR	Flood	Ongoing	N/A	PDM/HMGP	Property Protection	2.1,2,2,5.2	Medium	Dependant on Funding	End of 2019	**Added to SC flood mitigation**
**Develop an enhanced notification system for the citizens using a variety of communication media to simultaneously notify, alert,	Calhoun County/Emergency Services	ALL	Ongoing	N/A	PDM/HMGP	Emergency Services/Public Education and Awareness	1.1, 2.3, 4.1	Medium	Dependant on Funding	End of 2019	**Use Code Red through SCEMD, social media**

and/or instruct citizens prior to and during an emergency											
Installation of 60ft self standing aluminum radio communications tower at EOC	Calhoun County/Emergency Services	ALL	Ongoing	N/A	PDM/HMGP	Emergency Services/Public Education and Awareness	1.1,2.3,4.1	Medium	Dependant on Funding	***End of 2024***	**Have tower, requested funds for new EOC. Will be installed there**
Retrofit Critical Facilities	Emergency Management	ALL	Ongoing	N/A	PDM/HMGP	Emergency Services/Property Protection	1.1,1.3,2.3,3.1,3.3,3.4,3.5,4.1,6.1,6.2	Medium	Dependant on Funding	***End of 2024***	**Requested funds for new EOC.**

Figure 34: Calhoun County Hazard Mitigation Actions

*Ongoing is defined as continuing without termination or interruption

** New Communications Radio Tower has been located in the lower portion of the County for EMS, EMD and Fire
The County is looking for funding for installing another radio communications tower between St. Matthews and Sandy Run **New repeater installed on water tower on 176 between SR and St. Matthews**

3.4 Town of Cameron Goals and Objectives

The Task Force Committee reviewed and analyzed the Town of Cameron's goals and objectives and revised Figure 35 as part of the update process.

Developing Goals and Objectives

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate the Town of Cameron's long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the Town wants to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce Cameron's overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. The Town of Cameron will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

Hazard Mitigation Goals and Objectives	
Goal 1: Protect public health and safety	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
Objective 1.3	Train emergency responders.
Objective 1.4	Strengthen local building code enforcement.
Goal 2: Increase public preparedness and awareness for natural disasters	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
Goal 3: Protect property	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.
Objective 3.5	Educate public officials, developers, realtors, contractors, building owners, and the public about hazard risks and building requirements.

Hazard Mitigation Goals and Objectives	
Goal 4: Enhance Emergency Services	
Objective 4.1	Improve upon the immediate actions taken in response to a hazard event, which can minimize the impact of hazard incidents on people and property.
Goal 5: Reduce the potential effects of flooding on homes and buildings in the Town of Cameron	
Objective 5.1	Continue the implementation of zoning codes.
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
Goal 6: Ensure protection and emergency shelters	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 35: Town of Cameron Hazard Mitigation Goals and Objectives

3.5 Town of Cameron Mitigation Actions

The Task Force Committee review and updated mitigation actions. Those updates can be found in Figure 36

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within the Town of Cameron, and also the protection of the citizens.

Identification

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

Mitigation Action Categories

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that

influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building and construction code revisions, zoning regulation changes, and computer-hazard modeling.

2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss properties and vulnerable populations.
4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that provide advanced warning and redundant communications.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

Summary of Mitigation Actions

The final list of the Town of Cameron's mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the town's programs, plans, projects, or policies that the town may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions. The Task Force identified, analyzed, and prioritized all actions based on the hazard vulnerability, historical occurrence of the hazard, cost effectiveness, and compliance with NFIP. They prioritized the actions on a high, medium and low scale defined as the following:

- **High Priority:** A project that meets multiple plan objectives, benefits exceed cost, is grant-eligible, can be completed in a short-term period once project is funded.
- **Medium Priority:** A project that meets at least one plan objective, benefits exceed costs, funding not secured, grant eligibility is questionable, and can be completed within 1 to 5 years once project is funded
- **Low Priority:** A project that will mitigate the risk of a hazard, benefits may exceed costs, funding is not secured, project may not be grant-eligible and/or timeline for completion is considered long-term

As a side note, it should be mentioned that these priority definitions are considered to be dynamic and can change from one category to another based on changes to a parameter such as availability of funding. For example, a project might be assigned a medium priority because of the uncertainty of a funding source. This priority could be changed to high once a funding source has been identified such as a grant. The prioritization schedule for this plan will be reviewed and updated as needed through the plan maintenance strategy described in section 4.1 of this Plan.

Status on Strategies

After reevaluating and reviewing the mitigation actions for the plan update several actions were able to be implemented. These include improvements to flood prone areas, retrofitting crucial facilities. However, several more strategies for the Town of Cameron were not implemented due to the lack of funding sources. The Town continues to actively look for suitable funding sources for the noted mitigation actions. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis rations, or other concerns

Figure 36: Town of Cameron Hazard Mitigation Actions

Town of Cameron Hazard Mitigation Actions											
Mitigation Action and Description	**Agency**	**Hazard(s)**	**Timeframe**	**Estimated Project Cost**	**Possible Funding Source(s)**	**FEMA Category**	**Goals and Objectives**	**Prioritization**	**Implementation Status**	**Implementation Schedule**	**Milestones Achieved, Impediments to Implementation**
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	County/Emergency Management	ALL	Immediate	N/A	PDM, HMGP	Public Education and Awareness	2.1, 2.2, 2.3	High	Dependant on Funding	***End of 2024-over a 3-year term***	Dependant on Funding
Implement and enforce zoning codes and building codes to ensure no new structures are built within the floodplains.	County/Building and Planning	Flood	Ongoing	N/A	N/A	Prevention	1.4, 3.2, 3.3	Medium	Fully implemented	July of 2006	International Building Codes adopted.
Establishment and identification of emergency shelters during times of natural hazards.	County/Emergency Management	ALL	Immediate	N/A	N/A	Emergency Services/ Property Protection	1.2, 2.3, 6.1, 6.2, 6.3	Low	Dependant on funding	***End of 2024***	Lack of local funding
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Town of Cameron	Flood	**Complete**	**$750,000**	Federal Grant	Property Protection	2.1, 2.2, 5.2	Low	Complete	**Complete Dec. 2017**	**Upgraded largest impact areas of outdated town drainage system**
Develop an enhanced notification system for the citizens using a variety of communication media to simultaneously notify, alert, and/or instruct citizens prior to and during an emergency	County/Emergency Management	ALL	Ongoing	N/A	PDM/HMGP	Emergency Services/ Public Education and Awareness	1.1, 2.3, 4.1	Medium	Dependant on Funding	***End of 2024***	Lack of Funding
Retrofit Critical Facilities	Town of Cameron	ALL	Ongoing	**Less than $5000**	**Town's FD Budget**	Emergency Services/Property Protection	1.1,1.3,2.3,3.1,3.3,3.4,3.5,4.1,6.1,6.2	Medium	**Fire Department Improvements complete**	**Complete for now**	**Generator, Heat/AC capabilities increased. Can now perform as a shelter if needed**

3.6 Town of St. Matthews Goals and Objectives

The Task Force Committee review and updated mitigation actions. Those updates can be found in Figure 37

Developing Goals and Objectives

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate the Town of St. Matthews' long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the Town wants to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce St. Matthews' overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. The Town of St. Matthews will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

Hazard Mitigation Goals and Objectives	
Goal 1: Protect public health and safety	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
Objective 1.3	Train emergency responders.
Objective 1.4	Strengthen local building code enforcement.
Goal 2: Increase public preparedness and awareness for natural disasters	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
Goal 3: Protect property	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.
Objective 3.5	Educate public officials, developers, realtors, contractors, building owners, and the public about hazard risks and building requirements.

Hazard Mitigation Goals and Objectives

Goal 4: Enhance Emergency Services	
Objective 4.1	Improve upon the immediate actions taken in response to a hazard event, which can minimize the impact of hazard incidents on people and property.
Goal 5: Reduce the potential effects of flooding on homes and buildings in the Town of St. Matthews	
Objective 5.1	Continue the implementation of zoning codes.
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
Goal 6: Ensure protection and emergency shelters	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 37: Town of St. Matthews Hazard Mitigation Goals and Objectives

3.7 Town of St. Matthews Mitigation Actions

The Task Force Committee review and updated mitigation actions. Those updates can be found in Figure 38

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within the Town of St. Matthews, and also the protection of the citizens.

Identification

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

Mitigation Action Categories

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building

and construction code revisions, zoning regulation changes, and computer-hazard modeling.

2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss properties and vulnerable populations.
4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that provide advanced warning and redundant communications.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

Summary of Mitigation Actions

The final list of the Town of St. Matthews' mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the town's programs, plans, projects, or policies that the town may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions. The Task Force identified, analyzed, and prioritized all actions based on the hazard vulnerability, historical occurrence of the hazard, cost effectiveness, and compliance with NFIP. They prioritized the actions on a high, medium and low scale defined as the following:

- **High Priority:** A project that meets multiple plan objectives, benefits exceed cost, is grant-eligible, can be completed in a short-term period once project is funded.
- **Medium Priority:** A project that meets at least one plan objective, benefits exceed costs, funding not secured, grant eligibility is questionable, and can be completed within 1 to 5 years once project is funded
- **Low Priority:** A project that will mitigate the risk of a hazard, benefits may exceed costs, funding is not secured, project may not be grant-eligible and/or timeline for completion is considered long-term

As a side note, it should be mentioned that these priority definitions are considered to be dynamic and can change from one category to another based on changes to a parameter such as availability of funding. For

example, a project might be assigned a medium priority because of the uncertainty of a funding source. This priority could be changed to high once a funding source has been identified such as a grant. The prioritization schedule for this plan will be reviewed and updated as needed through the plan maintenance strategy described in section 4.1 of this Plan.

Status on Strategies

After reevaluating and reviewing the mitigation actions for the plan update, it was evident that a large majority of the previous strategies for the Town of St. Matthews were not implemented due to the lack of funding sources. The Town has created the Town of St. Matthews website and Facebook page to help with communication and education. Both platforms have been successful. The Town continues to actively look for suitable funding sources for the noted mitigation actions. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis rations, or other concerns

Town of St. Matthews Hazard Mitigation Actions											
Mitigation Action and Description	**Agency**	**Hazard(s)**	**Timeframe**	**Estimated Project Cost**	**Possible Funding Source(s)**	**FEMA Category**	**Goals and Objectives**	**Prioritization**	**Implementation Status**	**Implementation Schedule**	**Milestones Achieved, Impediments to Implementation**
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	County/Emergency Management	ALL	Immediate	N/A	PDM, HMGP	Public Education and Awareness	2.1, 2.2, 2.3	High	**Creation of a Town Web-site and Town Facebook Page** Other dependent on Funding	**Website/Facebook in place** ***End of 2024- over a 3-year term***	Dependant on Funding
Implement and enforce zoning codes and building codes to ensure no new structures are built within the floodplains.	County/Building and Planning	Flood	Ongoing	N/A	N/A	Prevention	1.4, 3.2, 3.3,5.1	Medium	Fully implemented	July of 2006	International Building Codes adopted.
Establishment and identification of emergency shelters during times of natural hazards.	County/Emergency Management	ALL	Immediate	N/A	N/A	Emergency Services/ Property Protection	1.2, 2.3, 6.1, 6.2, 6.3	Low	Dependant on funding	***End of 2024***	Lack of local funding
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Emergency Management/ SCDNR	Flood	Ongoing	N/A	Federal and State Grants	Property Protection	2.1, 2.2, 5.2	Medium	Dependant on funding	***End of 2024***	Lack of local funding
Develop an enhanced notification system for the citizens using a variety of communication media to simultaneously notify, alert, and/or instruct citizens prior to and during an emergency	County/Emergency Management	ALL	Ongoing	N/A	PDM/HMGP	Emergency Services/ Public Education and Awareness	1.1, 2.3, 4.1	Medium	Dependant on Funding	***End of 2024***	Lack of Funding
Retrofit Critical Facilities	Emergency Management	ALL	Ongoing	N/A	PDM/HMGP	Emergency Services/Property Protection	1.1,1.3,2.3, 3.1,3.3,3.4, 3.5,4.1,6.1, 6.2	Medium	Dependant on Funding	***End of 2024***	Dependent on Funding

Figure 38: Town of St. Matthews Hazard Mitigation Actions

Part Four:

Plan Maintenance

4.1 Plan Maintenance and Update

As part of the update process, the Task Force Committee reviewed and analyzed this section and Figure 50 that gives a new plan update timeframe, incorporation of the plan into existing planning mechanisms, and the continued public involvement.

The Plan Maintenance section of Calhoun County's Natural Hazard Mitigation Plan (HMP) describes the formal process that will ensure the Plan remains an effective and relevant document. This section establishes the method and schedule for monitoring, evaluating, and updating the HMP during a five-year plan-update cycle. It also established how Calhoun County will maintain community involvement in the Plan.

Plan Maintenance Approach

- Incorporate hazard mitigation actions into existing planning mechanisms
- Determine how mitigation projects and actions will be monitored
- Establish indicators of effectiveness or success
- Develop an evaluation and revision schedule to ensure the Plan is up-to-date at the end of the five-year cycle
- Establish a process for public input and community involvement during the planning cycle

FEMA Requirements Addressed

The Task Force Committee created a plan maintenance strategy consistent with the process and steps presented in the FEMA How-To-Guide: Bringing the Plan to Life (FEMA 386-4). The following FEMA requirements are addressed in this section:

- **Requirement §201.6(c)(4)(i):** The plan maintenance process ***shall*** include a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.
- **Requirement §201.6(c)(4)(ii):** The plan ***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, where appropriate.
- **Requirement §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.

Monitoring

Calhoun County will monitor the implementation of mitigation actions identified in the Plan. During the five-year planning cycle, the following initiatives will be undertaken.

- Collect reports from the agencies involved in implementing mitigation projects or activities identified in the Mitigation Strategy section of this Plan
- Maintain and update the mitigation action table
- Conduct site visits and obtain reports of completed or initiated mitigation actions to incorporate in the plan revision as needed

- Research and document new natural disaster information pertaining to Calhoun County and its incorporated municipalities during the planning cycle and incorporate into a revised Risk Assessment section as needed
- Organize meetings on an as needed basis with the Task Force Committee to discuss relevant hazard mitigation issues, provide status updates, and discuss available grant opportunities
- Coordinate, compile, and disseminate hazard mitigation funding information and applications
- Convene a meeting of the Task Force Committee following a natural disaster or when funding is announced to prioritize and submit potential mitigation actions for funding

The above activities outline plan maintenance during the four years leading up to the fifth year of the planning cycle. The Task Force Committee will be responsible for compiling, documenting, and incorporating all changes derived from the activities listed above into a revised plan document.

Evaluation

The Calhoun County HMP will be evaluated on an as needed basis to determine the effectiveness of its projects, programs, and policies. The Task Force Committee will be responsible for scheduling and organizing the meetings, collecting, analyzing and incorporating reports, and providing revised drafts. The Task Force Committee members will assess the current version of the Plan and determine the improvements necessary for the plan update.

A thorough examination of the Plan will take place during the fifth year of the process to ensure Calhoun County has an updated HMP at the end of the planning cycle. The Task Force Committee will review the goals and action items to determine their relevance to changing situations in the County and incorporated municipalities, as well as changes in State or Federal policy, and to ensure they are addressing current and expected conditions. The Committee will look at any changes in County resources that may influence the plan implementation (such as funding) and program changes to determine need for reassignment. The Committee will also review all portions of the Plan to determine if this information should be updated or modified, given any new available data. The Committee will evaluate the content of the Plan using the following criteria:

- Are the mitigation actions effective?
- Are there any changes in land development that affect mitigation priorities?
- Are the goals, objectives, and mitigation actions relevant given any changes in the County?
- Are the goals, objectives, and mitigation actions relevant given any changes to State or Federal regulations or policy?
- Is there any new data that affects the Risk Assessment portion of the Plan?

Update

The Task Force Committee will update the HMP every five years to reflect the results of the reports and on-going plan evaluation. Throughout the planning cycle, the Committee will compile new information and incorporate it into the Plan. The Committee will also assess and incorporate recommended comments expressed by FEMA in the initial review into the plan revision. At the end of the planning cycle, the

Committee will submit the updated Plan to the State Emergency Management Office (SCEMD) and FEMA for review. After FEMA has approved the Calhoun County HMP, the County and its incorporated municipalities will formally adopt the Plan. The following figure is an outline of how the Plan will be updated after the 2020 FEMA approval.

Plan Update Schedule		
Timeframe	**Participants**	**Outcome**
First quarter 2021	Task Force Committee	Discuss mitigation action progress and possible plan improvements
Fourth quarter 2022	Task Force Committee	Reconvene to discuss mitigation action progress and plan improvements
First quarter 2023	Calhoun County	Apply for plan update grant funding
First quarter 2024	Task Force Committee	Reconvene and begin plan update
Third quarter 2024	Task Force Committee, SCEMD	Submit draft plan update to SCEMD for review and comments
Fourth quarter 2024	FEMA, Task Force Committee, SCEMD	Submit plan to FEMA for final approval
First quarter 2025	Calhoun County, participating municipalities	Re-adopt the FEMA-approved HMP

Figure 39: Plan Update Schedule

Incorporation into Existing Planning Mechanisms

As part of the local capability assessment conducted during the planning process, the Task Force Committee identified current plans, programs, policies/ordinances, and studies/reports that will augment or help support mitigation planning efforts. The Committee, which will meet on an as needed basis, will be the mechanism for ensuring the County and the participating municipalities integrates hazard mitigation into their future planning activities. Following the HMP approval and adoption, the Committee will work to incorporate, where applicable, the HMP into the planning mechanisms identified on page 79 under Section 2.4: Community Mitigation Capability Assessment. Incorporating the hazard mitigation strategies into these identified planning mechanisms is a fairly simple process. For example, the comprehensive plans include natural resources, land usage, and community facilities information that could easily include hazard mitigation elements into the plan.

Throughout the plan maintenance cycle, the Committee will work to integrate hazard mitigation goals and actions into the general operations of Calhoun County agencies and the participating municipalities. The Committee will work with agencies to identify opportunities as outlined below:

- Update work plans, policies, or procedures to include hazard mitigation concepts
- Establish mitigation funding within capital and operational budgets
- Issue plans, policies, executive orders, regulations, or other directives to carry out mitigation actions
- Add hazard mitigation elements to all applicable plans

Continued Public Involvement

Calhoun County is dedicated to continued public involvement in the hazard mitigation planning and review process. During all phases of plan maintenance, the public will have the opportunity to provide feedback. The 2020 Plan will be maintained and available for review through 2024. Individuals will have an opportunity to submit comments for the Plan update at any time. The Task Force Committee will compile all comments and present them at the meetings where members will consider them for incorporation into the revision. To help publicize the revised plan, a notice will be posted requesting feedback on an updated draft HMP. The Committee will hold community involvement meetings as determined, with representatives from various agencies, to be held at the County governmental facilities or other designated area and/or format (in-person, call-in or virtual format).

Part Five:

Plan Adoption

5.1 Overview

Formal plan adoption is a required part of the planning process and demonstrates Calhoun County, the Town of Cameron, and the Town of St. Matthews commitment to fulfilling the mitigation goals and objectives outlined in the Plan. In addition to fulfilling the requirements of the Disaster Mitigation Act of 2000, the County Council and Town Council adoption of the Hazard Mitigation Plan (HMP) will establish the Plan as a policy for Calhoun County and the participating municipalities, which will define the actions the various agencies should take to comply with or implement the HMP.

Following a formal plan review by the Federal Emergency Management Agency (FEMA) and the South Carolina Emergency Management Division (SCEMD), FEMA will issue an "Approval Pending Adoption" to Calhoun County. Upon review and approval of the HMP, Calhoun County Council, Cameron Town Council, and St. Matthews Town Council will then formally adopt the HMP.

Plan Adoption Process

- Obtain "Approval Pending Adoption" status from FEMA
- Draft an adoption resolution or and ordinance to meet plan requirements and demonstrate Calhoun County's, Cameron's, and St. Matthews' commitment to protect its residents and built environment from the effects of natural hazards
- Adopt HMP

FEMA Requirements Addressed

Calhoun County and the Task Force Committee created a plan adoption strategy consistent with the process steps presented in FEMA's How-To-Guide: Bringing the Plan to Life (FEMA 386-4). This section satisfies the following FEMA requirement:

- **Requirement §201.6(c)(5):** The local hazard mitigation plan ***shall*** include documentation that the plan had been formally adopted by the governing body of the jurisdiction requesting approval of the plan.

5.2 Adoption Resolution/Ordinance

5.3 SCEMD Approval Letter

5.4 FEMA Approval Letter

Part Six:

Appendices

Appendix A: Acronym List

Acronym List	
Acronym	**Definition**
BCA	Benefit-Cost Analysis
BFE	Base Flood Elevation
BMP	Best Management Practices
DMA 2000	Disaster Mitigation Act of 2000
DOT	Department of Transportation
EF-Scale	Enhanced Fujita Scale
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance
F-Scale	Fujita Scale
Ft	Feet
FTA	Federal Transit Administration
FY	Fiscal Year
GIS	Geographic Information System
HAZUS-MH	Hazards U.S. Multi-Hazard
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
MMI	Modified Mercalli Intensity
Mph	Miles Per Hour
N/A	Not Applicable
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
PDM	Pre-Disaster Mitigation
SRL	Severe Repetitive Loss
STAPLEE	Social, Technical, Administrative, Political, Legal, Economical, Environmental
TBD	To Be Determined

Appendix B: Glossary

Glossary	
Term	**Definition**
100-Year Flood	The term "100-year flood" can be misleading. The 100-year flood does not necessarily occur once every 100 years. Rather, it is the flood that has a 1 % chance of being equaled or exceeded in any given year. Thus, the 100-year flood could occur more than once in a relatively short period of time. The Federal Emergency Management Agency (FEMA) defines it as the 1 % annual chance flood, which is now the standard definition used by most federal and state agencies and by the National Flood Insurance Program (NFIP).
Agricultural Drought	Links the various characteristics of meteorological drought to agricultural impacts, while focusing on precipitation shortages and soil-water deficits.
Annualized Capital Stock Losses	Long-term average losses in a given year
Base Flood Elevation (BFE)	The water surface elevation of a 100-year flood event (a flood that has a 1 % chance of occurring in any given year as defined by the NFIP). The base flood is a statistical concept used to ensure that all properties
Beaufort Wind Scale	A simplified scale to aid in the estimation of wind speed and corresponding typical effects.
Benefit-Cost Analysis	A systematic, quantitative method of comparing projected benefits to projected costs of a project or policy. It is used as a measure of cost
Capability Assessment	Provides a description and analysis of a community's current capacity to address threats associated with hazards. The assessment includes two components: an inventory of an agency's mission, programs, and policies, and an analysis of its capacity to carry them out. A capability assessment is an integral part of the planning process in which a community's actions to reduce losses are identified, reviewed, and analyzed, and the framework for implementation is identified.
Coastal Storms	Tropical cyclones formed in the atmosphere over warm ocean areas. Wind speeds reach 74 miles per hour or more and blow in a large spiral around a relatively calm center or "eye. Circulation is counterclockwise in the Northern Hemisphere.
Community Rating System	A voluntary program under the NFIP that rewards participating communities (provides incentives) for exceeding the minimum requirements of the NFIP and completing activities that reduce flood hazard risk by providing flood insurance premium discounts.

Cultural Facilities	A critical facility is vital to the City's ability to provide essential services and protect life and property. Loss of a critical facility would result in a severe economic or catastrophic impact.
Dam Failure	An uncontrolled release of impounded water resulting in downstream flooding.
Debris	The scattered remains of assets broken or destroyed during the occurrence of a hazard. Debris caused by wind or water hazards can cause additional damage to other assets.
Disaster Mitigation Act of 2000 (DMA 2000)	The latest federal legislation enacted to encourage and promote proactive, pre-disaster planning as a condition of receiving financial assistance under the Robert T. Stafford Act. The DMA emphasizes planning for disasters before they occur. Under the DMA, a pre-disaster hazard mitigation program and new requirements for the national post-disaster hazard mitigation grant program (HMGP) were established.
Drought	A prolonged period with no rain. Limited winter precipitation accompanied by moderately dry periods during the spring and summer months can also lead to drought conditions.
Earthquakes	The sudden motion or trembling of the ground produced by abrupt displacement of rock masses, usually within the upper 10–20 miles of the earth's surface.
Enhanced Fujita Scale	National Weather Service's revised Fujita-scale, which is a complex, systematic approach to measuring the strength of a tornado.
Federal Emergency Management Agency (FEMA)	An independent federal agency (now part of the Department of Homeland Security) created in 1978 to provide a single point of accountability for all federal activities related to disaster mitigation and emergency preparedness, response, and recovery.
Flash Flooding	Caused by short-term, high-intensity rainfall that occurs in inland areas
Flood Insurance Rate Map (FIRM)	The official map of a community for which FEMA has delineated the special flood hazard area (SFHA) and the risk premium zones applicable to the community.
Floodplain	Any land area that becomes inundated with water during a flood
Floods	A general and temporary condition of partial or complete inundation on normally dry land. Flooding can be categorized as coastal, riverine, or flash.
Fujita Scale (F-Scale)	Standard measurement for rating the strength of a tornado.
Geographic Information Systems (GIS)	A computer software application that relates data regarding physical and other features on the earth to a database for mapping and analysis.
Goal	A general guideline that explains what is to be achieved. Goals are usually broad-based, long-term, policy-type statements and represent global visions. Goals help define the benefits that a plan is trying to
Ground Acceleration	Shaking of the ground resulting from seismic waves caused by an earthquake.

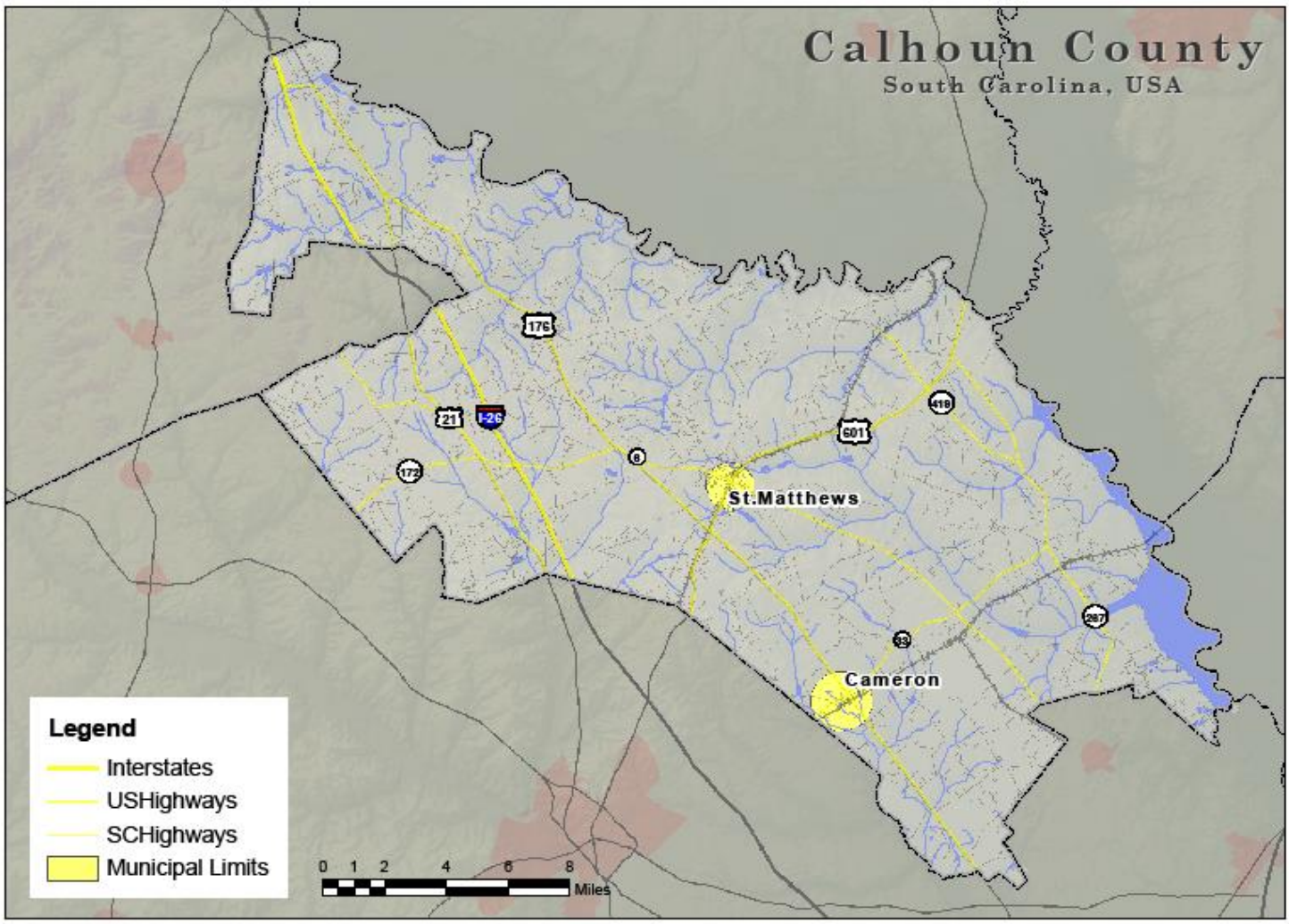
Hailstorms	Shower-like precipitation in the form of irregular pellets, or balls of ice more than five millimeters in diameter, falling from a cumulonimbus
Hazard	A source of potential danger or adverse condition that could harm people and/or cause property damage.
Hazard Mitigation	Reduction or alleviation of the loss of life, personal injury, and property damage that could result from a disaster through long- and short-term strategies. Hazard mitigation involves strategies such as planning, policy changes, programs, projects, and other activities that could mitigate the impacts of hazards.
Hazard Mitigation Grant Program (HMGP)	Authorized under Section 202 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the HMGP is administered by FEMA and provides grants to states, tribes, and local governments to implement hazard mitigation actions after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to disasters and to enable mitigation activities to be implemented as a community recovers from a disaster.
Hazard Mitigation Plan (HMP)	A collaborative document that identifies hazards that could affect a community, assesses vulnerability to hazards, and represents consensus decisions reached on how to minimize or eliminate the
Hazards U.S. Multi-Hazard (HAZUS-MH)	A nationally applicable standardized methodology and software program, developed by FEMA, which is under contract with the National Institute of Building Sciences. The program estimates potential losses from earthquakes, hurricane winds, and floods. In HAZUS-MH, current scientific and engineering knowledge is coupled with Geographic Information Systems (GIS) technology to produce estimates of hazard-
Hurricane	A tropical storm with winds that have reached a constant speed of 74
Intensity (earthquakes)	Measures the effects of an earthquake at a particular place and is
Magnitude (earthquakes)	Measurement of the total amount of energy and is expressed in terms of the Richter scale
Mitigation Actions	Specific projects, plans, or policies that achieve goals and objectives that minimize the effects from a disaster and reduce the loss of life and
Mitigation Strategy	A systematic process for analyzing, prioritizing, and implementing the identified mitigation actions in the Hazard Mitigation Plan.
Modified Mercalli Intensity	A scale used for measuring the intensity of an earthquake. The scale quantifies the effects of an earthquake on the Earth's surface, humans, objects of nature, and man-made structures on a scale of I through XII
National Flood Insurance Program (NFIP)	The three components of the NFIP are flood insurance, floodplain management, and flood hazard mapping. Nearly 20,000 communities across the United States and its territories participate

	in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes Federally backed flood insurance available to homeowners, renters, and business owners in these communities. Community participation in the NFIP is voluntary
Objective	A short-term aim that, when combined with other objectives, forms a strategy or course of action to meet a goal. Unlike goals, objectives are specific and measurable.
Peak Ground Acceleration (PGA)	Measures the rate of change in motion of the earth's surface and expresses it as a percent of the established rate of acceleration due to
Preparedness	Actions that strengthen the capability of government, citizens, and communities to respond to disasters.
Presidential Disaster Declaration	Typically made for events that cause more damage than state and local governments and resources can handle without federal government assistance. Generally, no specific dollar loss threshold has been established for such declarations. A Presidential Disaster Declaration puts into motion long-term federal recovery programs, some of which are matched by state programs, designed to help disaster victims, businesses, and public entities.
Recovery	Recovery refers to actions taken by an individual or community after a catastrophic event to restore order and community lifelines.
Repetitive Loss Property	Any NFIP-insured property that, since 1978 and regardless of any change(s) of ownership during that period, has experienced any of the following:1) Four or more paid flood losses exceeding $1,000 each 2) Two paid flood losses exceeding $1,000 each within any 10-year period since 1978 3)Three or more paid losses that equal or exceed the current value of the insured property
Richter Scale	A logarithmic scale used to express the total amount of energy released by an earthquake. Its values typically fall between 0 and 9, with each increase of 1 representing a 10-fold increase in energy.
Risk	The estimated impact that a hazard would have on people, services, facilities, and structures in a community. Risk measures the likelihood of a hazard occurring and resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate, or low hazard. Risk also can be expressed in terms of potential monetary losses associated with the intensity of likelihood of sustaining damage above a particular threshold due to occurrence of a specific type of the hazard.
Risk Assessment	The process of measuring potential loss of life, personal injury, economic injury, and property damage resulting from hazards. This process assesses the vulnerability of people, buildings, and infrastructure to hazards and focuses on 1) hazard description 2) severity 3) probability 4) location 5) historic occurrences 6) impact to NYC 7) structural vulnerability and 8) potential loss estimates.
River Flooding	Caused when rivers and streams overflow their banks.

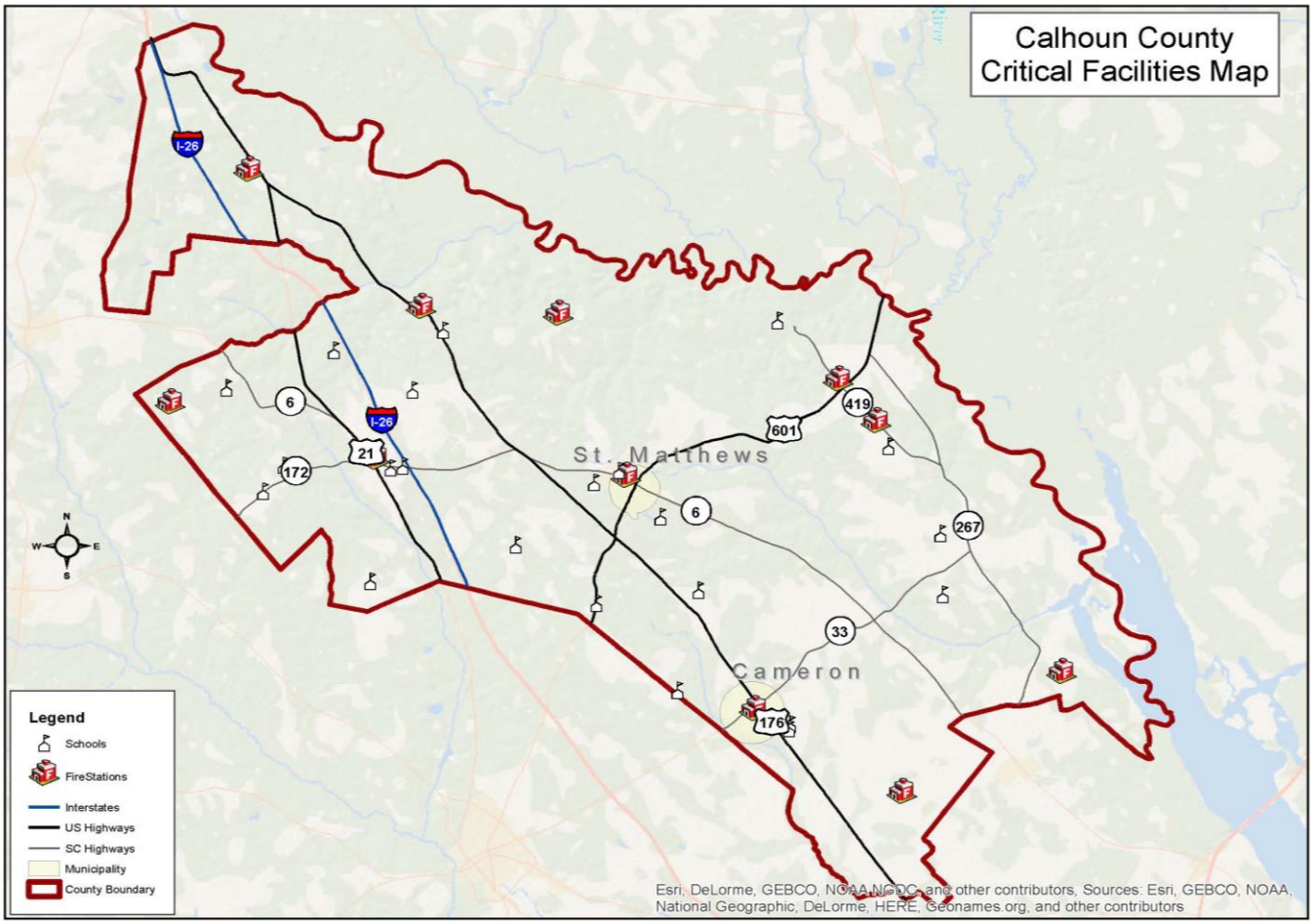
Saffir-Simpson Scale	Use by the National Weather Service, this scale uses wind speed to determine the category strength of a hurricane on a scale of 1 to 5.
STAPLEE	A set of criteria used to examine the Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) opportunities and constraints of implementing a particular mitigation measure using a consistent framework.
Storm Surge	An offshore rise of water associated with a low-pressure weather system, typically a tropical cyclone. Storm surge is caused primarily by high winds pushing on the ocean's surface. The wind causes the water to pile up higher than the ordinary sea level.
Tornadoes	A local atmospheric storm, generally of short duration, formed by winds rotating at very high speeds, usually in a counterclockwise direction. The vortex, up to several hundred yards wide, is visible to the observer as a whirlpool-like column of winds rotating about a hollow cavity or funnel.
Tropical Depression	An organized system of clouds and thunderstorms, with a defined surface circulation, and maximum sustained winds of 38 miles per hour or less.
Tropical Storms	An organized system of strong thunderstorms, with a defined surface circulation, and maximum sustained winds of 39 to 73 miles per hour.
Wildfires	Any instance of uncontrolled burning in grasslands, brush, or woodlands.
Windstorms	Short-duration events involving straight-line winds or gusts exceeding 50 mph. These gusts can produce winds of sufficient strength to cause property damage. Windstorms are especially dangerous in areas with significant tree stands, exposed property, poorly constructed buildings, mobile homes (manufactured housing units), major infrastructure, and aboveground utility lines. A windstorm can topple trees and power lines; cause damage to residential, commercial, critical facilities; and leave tons of debris in its wake.
Winter Storms	Includes ice storms and blizzards. Extreme cold often accompanies winter storms. The National Weather Service (NWS) characterizes blizzards as being combinations of winds in excess of 35 mph with considerable falling or blowing snow, which frequently reduces visibility.

Appendix C: Hazard Maps

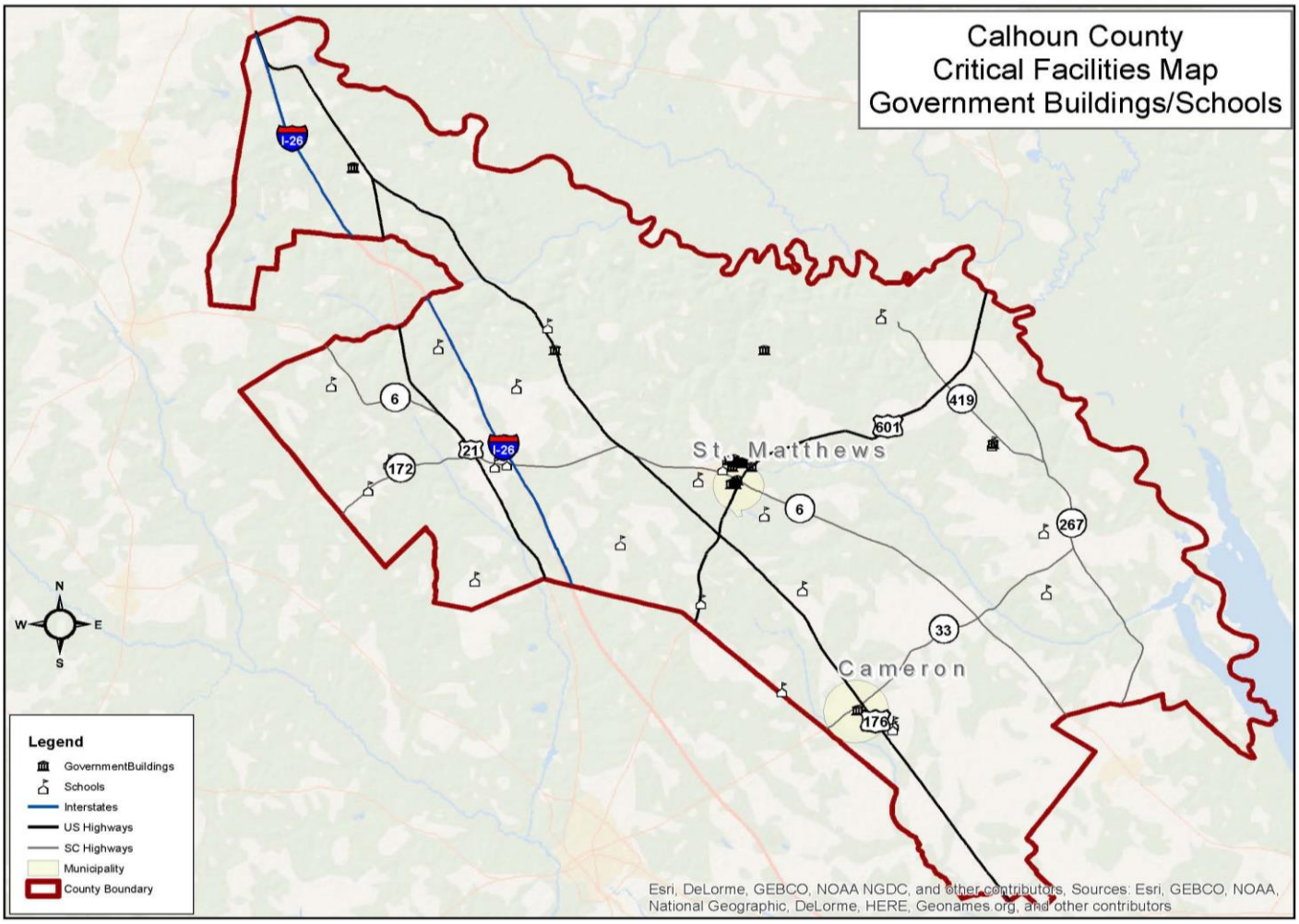
Map 1: Location Map



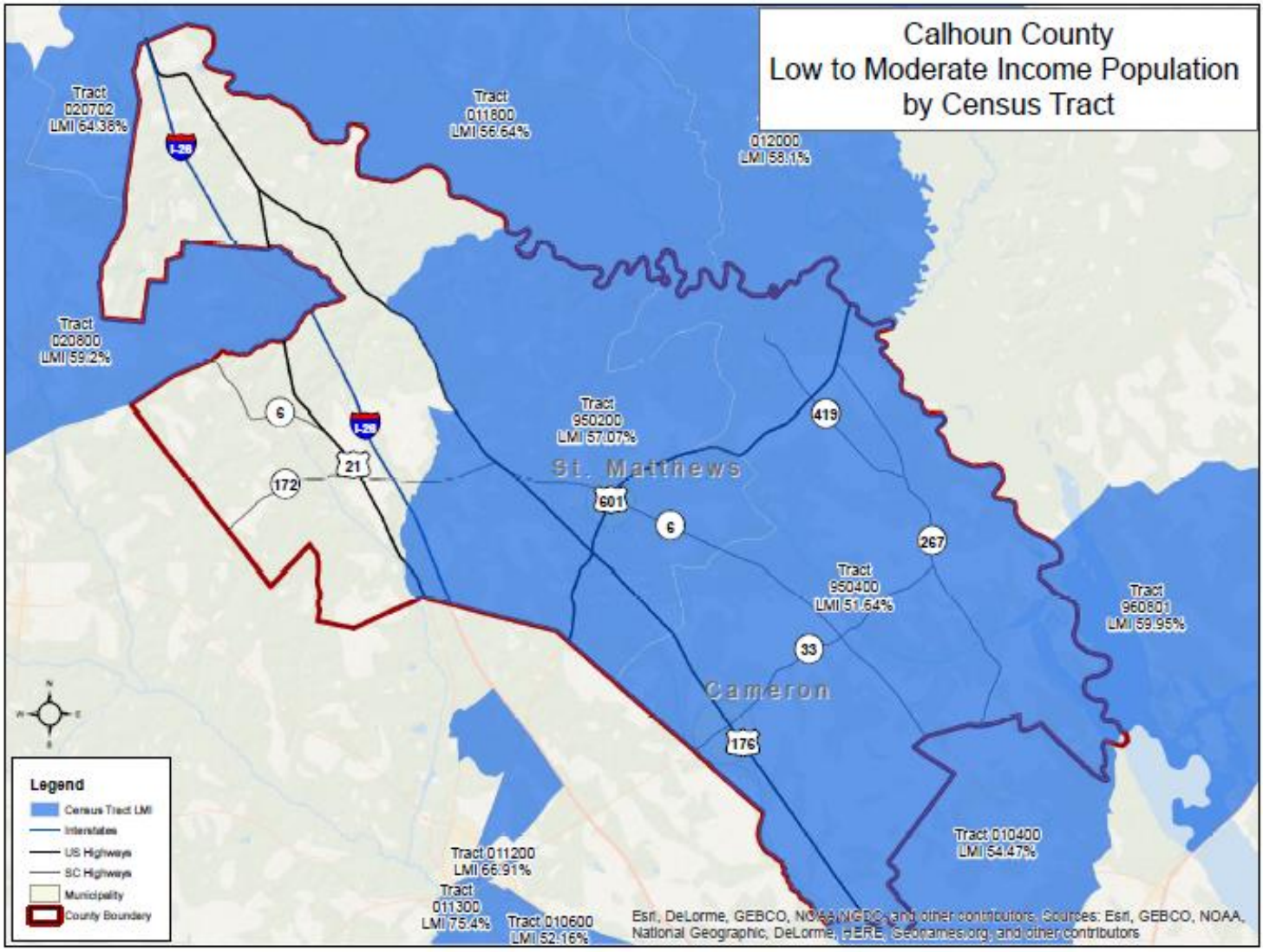
Map 2: Critical Facilities Map



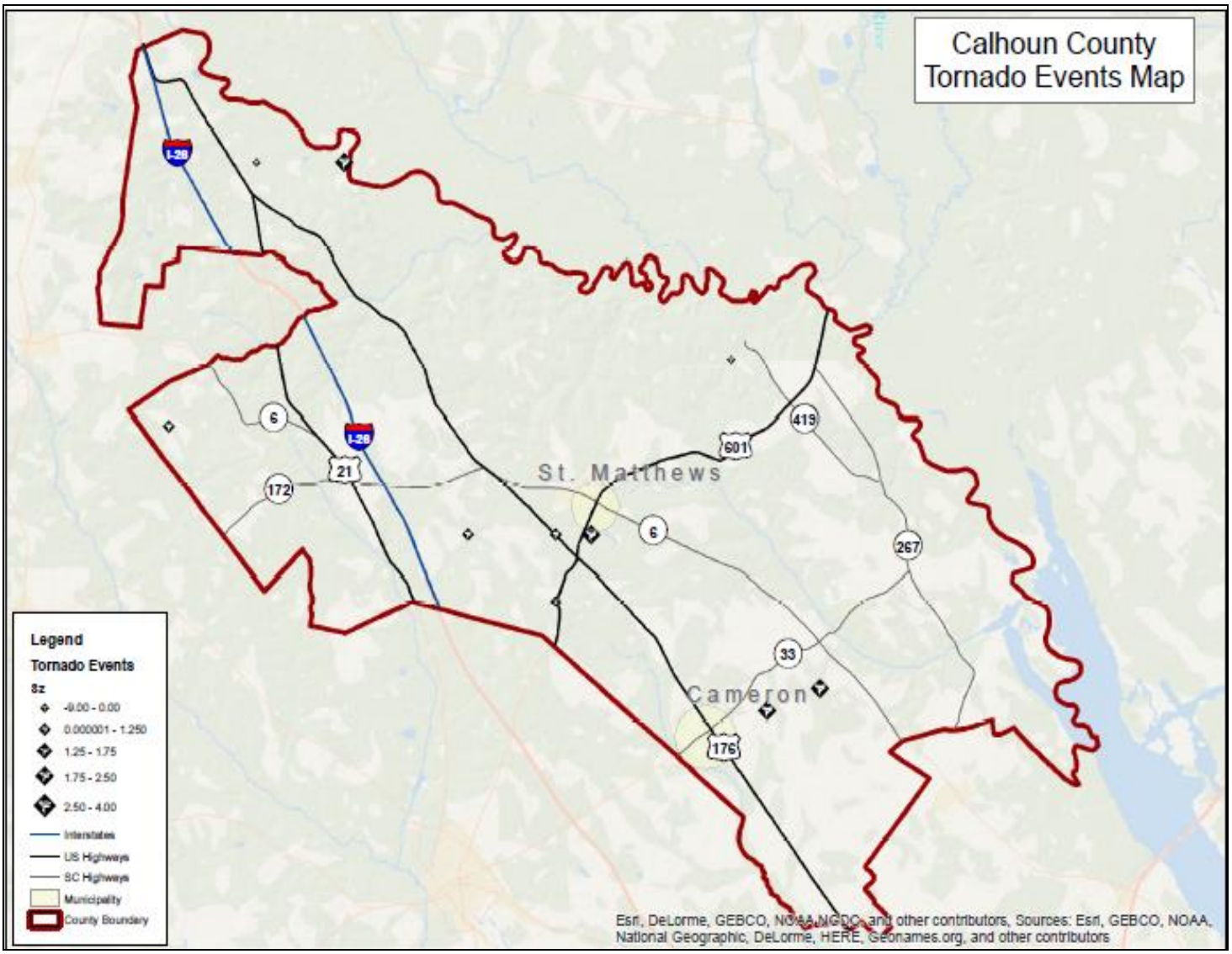
Map 3: Critical Facilities Map – Government Buildings/Schools



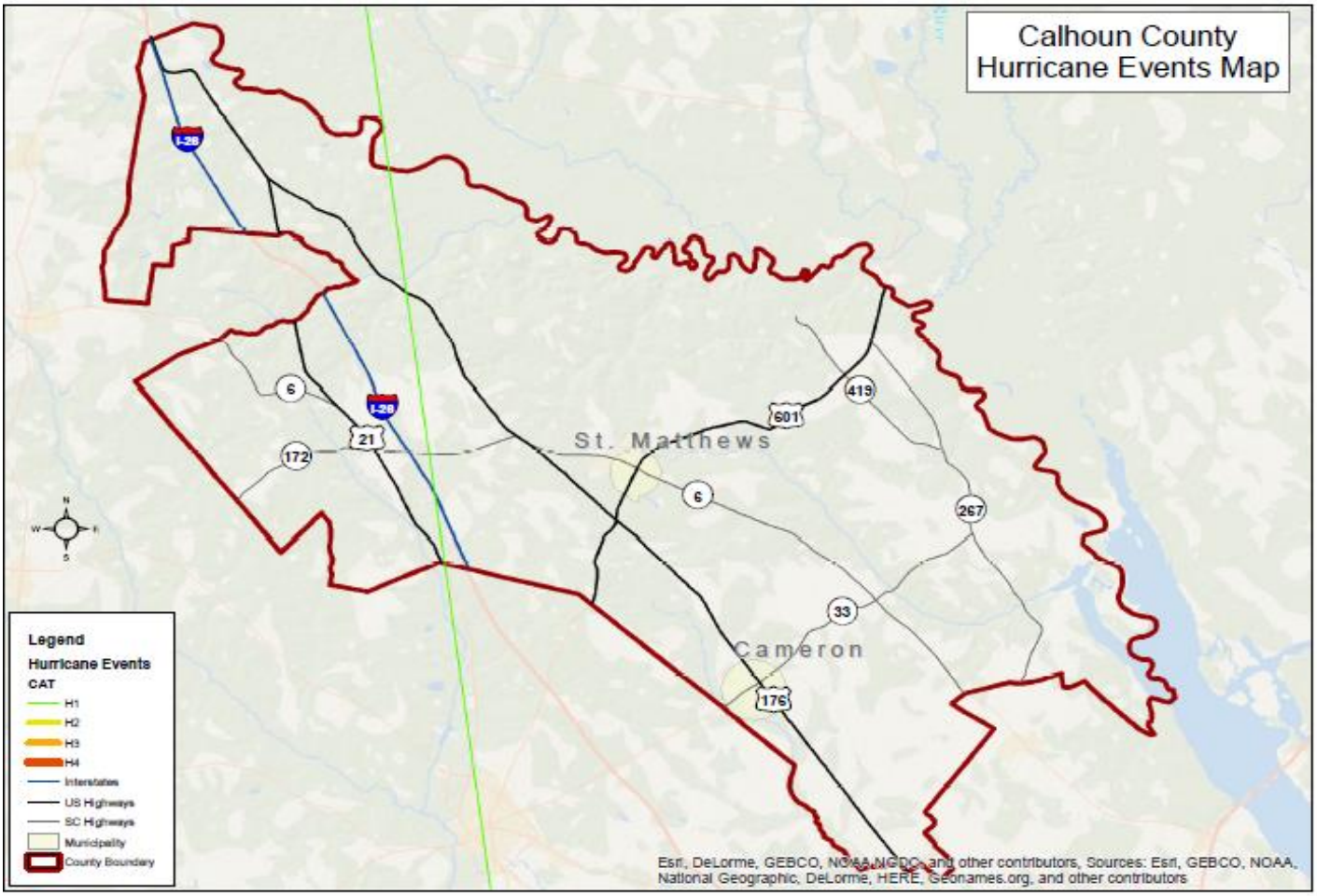
Map 4: Low to Moderate Income Population Map



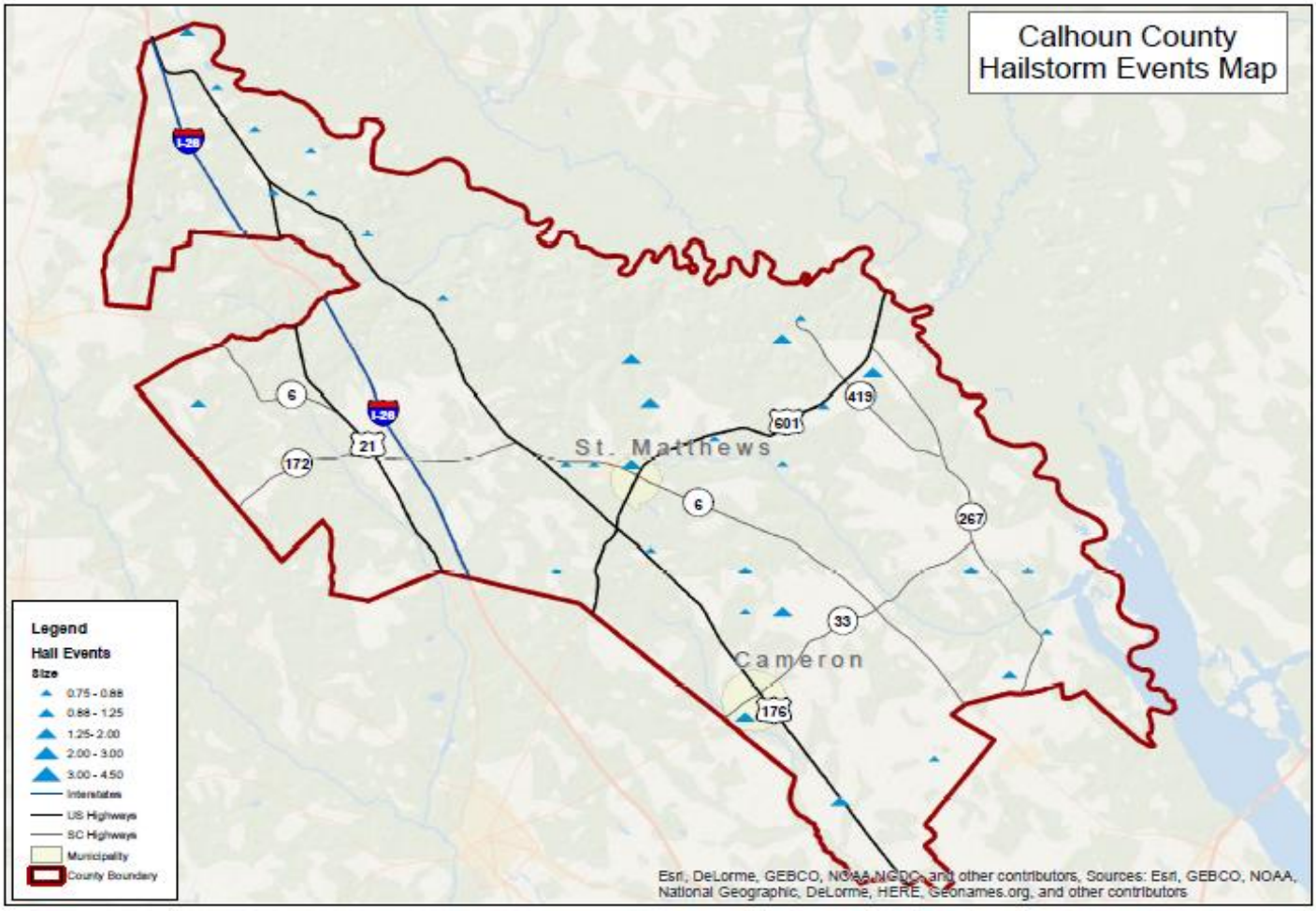
Map 5: Tornado Map



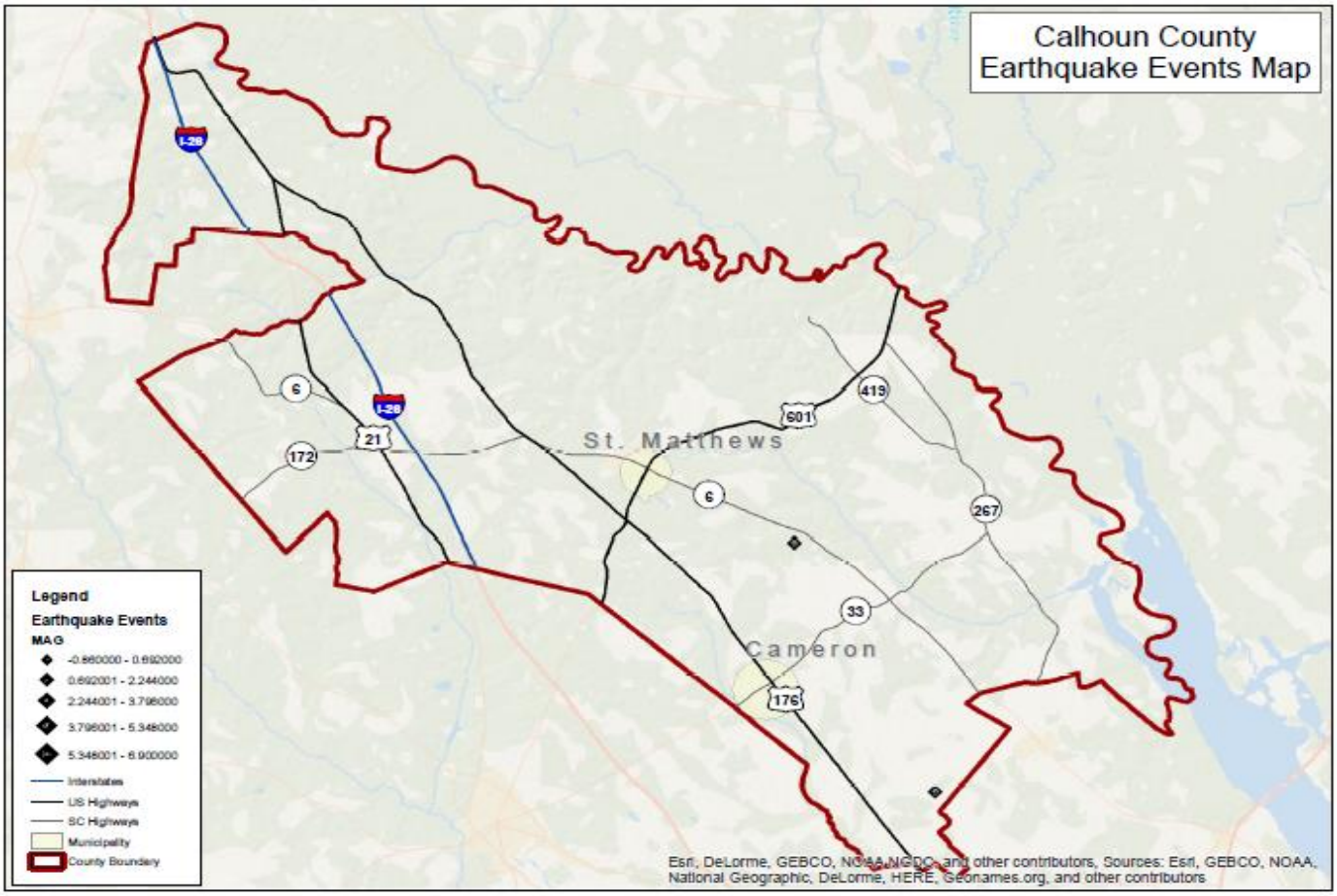
Map 6: Hurricane/Tropical Storm Map



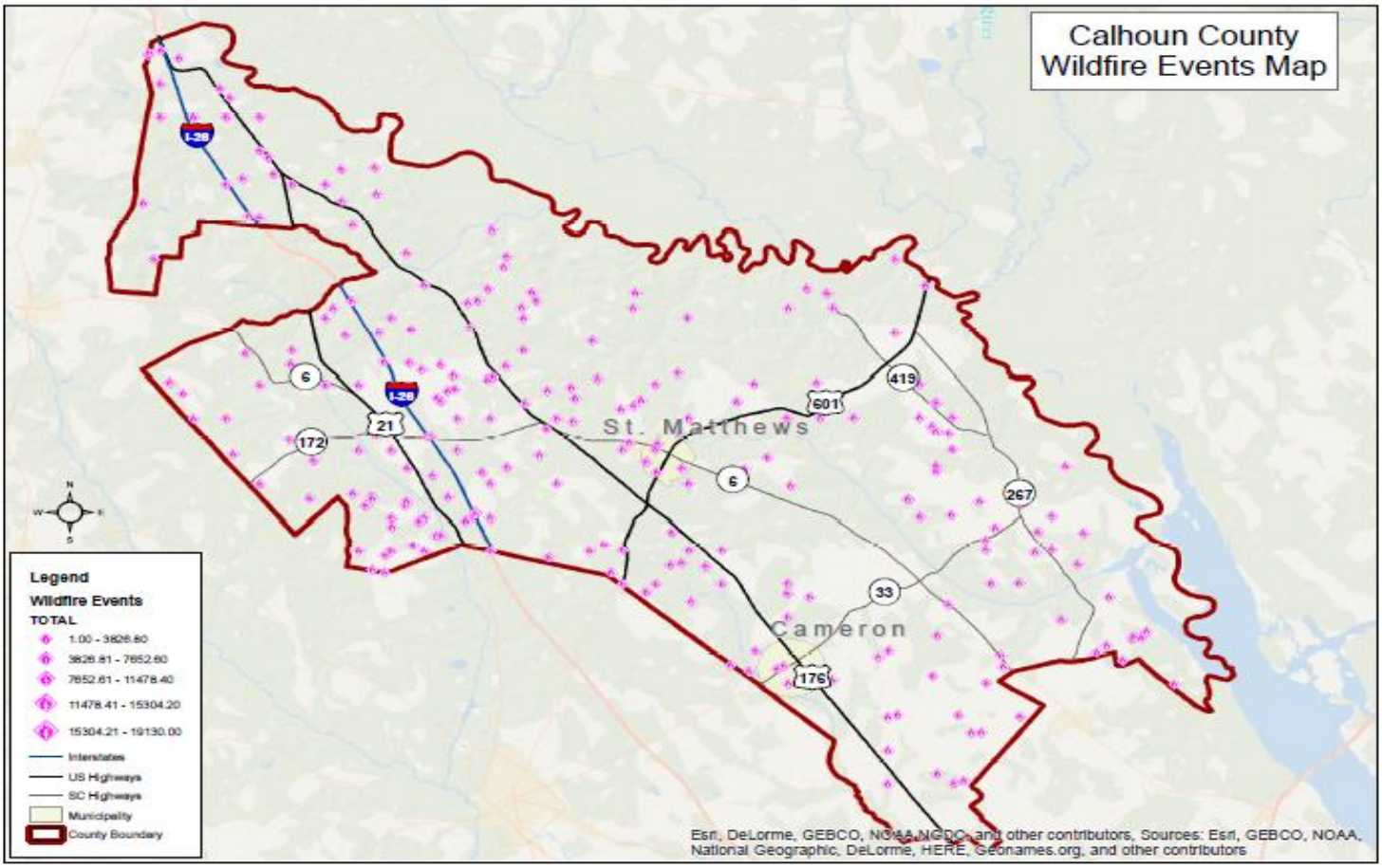
Map 7: Hail Storm Map



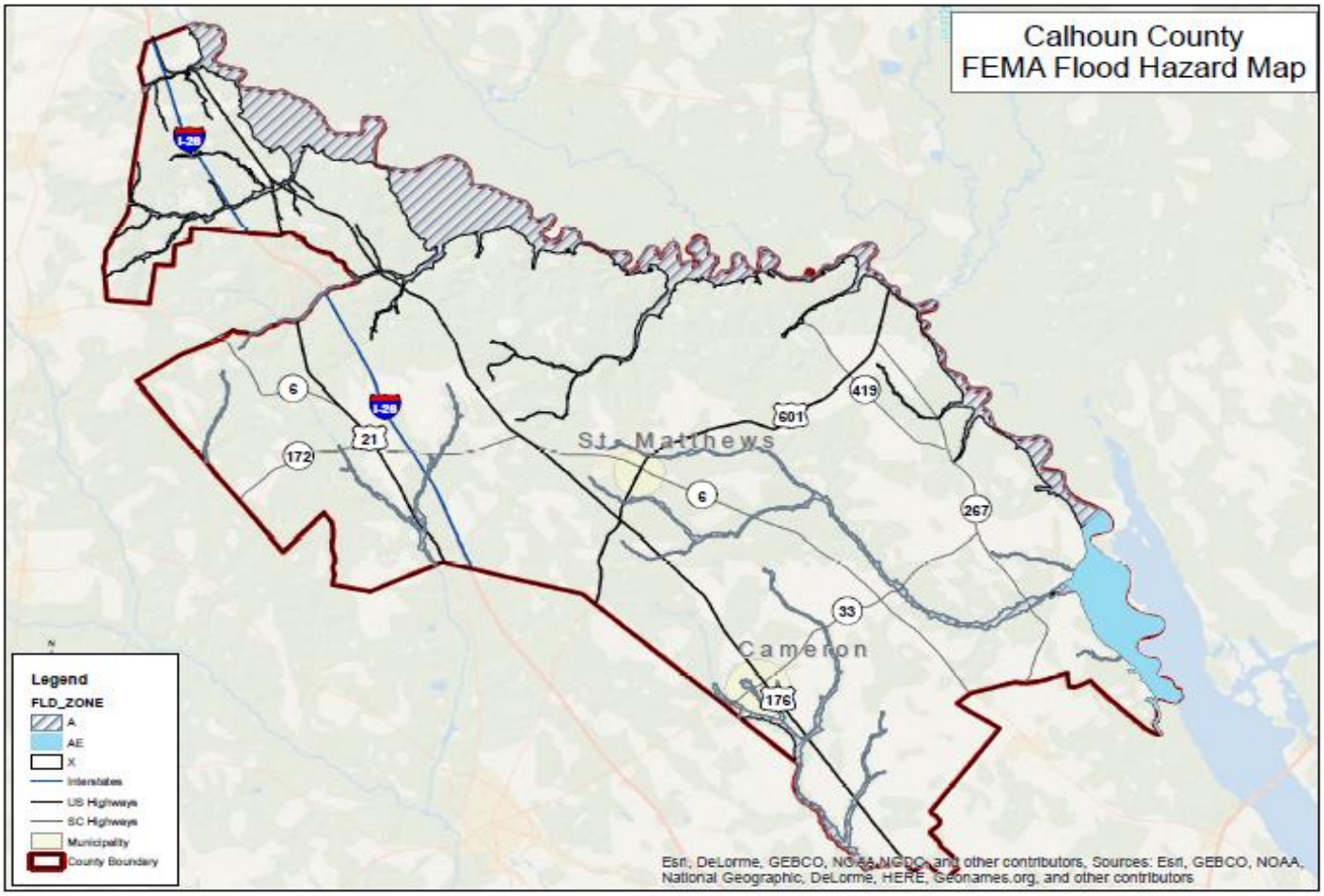
Map 8: Earthquake Map



Map 9: Wildfire Map



Map 10: Flood Map


Calhoun County
FEMA Flood Hazard Map
I-26
I-26
6
21
172
St. Matthews
601
419
6
267
33
Cameron
176
Legend
FLD_ZONE
A
AE
X
Interstates
US Highways
SC Highways
Municipality
County Boundary
Esri, DeLorme, GEBCO, NOAA, NGDC, and other contributors, Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, HERE, GeoNames.org, and other contributors

Appendix D: Meetings, Notices, Sign-in Sheets

CALHOUN COUNTY COUNCIL

David K. Summers, Jr., Chairman
James L. Haigler, Vice Chairman
John D. Nelson
Cecil M. Thornton, Jr.
Ken Westbury

F. Lee Pickett, Jr., County Administrator
Theodore B. Felder, Assistant County Administrator
Vickie B. Steudemire, Clerk to Council

October 9, 2018

Amanda J. Sievers
Lower Savannah Council of Governments
Planning Manager
Post Office Box 850
Aiken, South Carolina 29802

Dear Amanda:

At the regular Council meeting on October 8, 2018, Calhoun County Council approved having the Lower Savannah Council of Governments update the hazard mitigation plan for Calhoun County. Council approved the 25% match of $5,208.34 per county with the total match for all counties being $31,250.00.

Please let us know if you need anything further from Calhoun County.

Yours truly,

F. Lee Prickett, Jr.
Administrator

FLP,jr/vbs

102 Courthouse Drive, Suite 108, St. Matthews, South Carolina 29135 • Phone 803-874-2435 • Fax 803-874-1242

Emory Langston

From: McCoy, Lindsey <lmccoy@emd.sc.gov>
Sent: Wednesday, August 07, 2019 10:43 AM
To: Emory Langston; Albertina Young
Cc: Foster, Charlotte
Subject: Lower Savannah COG HMP Update
Attachments: Hazard Mitigation Assistance Guidance.pdf; Local Plan Review Tool updated with Optional HNPD.docx; LSCOG Contact Information Sheet.docx; LHMP Detailed Regulation Checklist.pdf; Plan Review Guide.pdf; LSCOG LHMP Update Timeline.xls

Emory and Tina,

It was great to meet you both on Monday! We're looking forward to working with you both to update LSCOG Hazard Mitigation Plan.

I've uploaded the most current versions of each County's plan and associated Plan Review Tools to our FTP site for your review and download. You may access it here:

URL: https://ftp.emd.sc.gov
Username: ftpuser
Password: 3arth-Qu@ke
Folder: Lower Savannah COG HMP

If you have any trouble accessing the site or finding the files, let me know and I can provide some more detailed instructions.

I've also attached electronic copies of the documents we discussed, including the Update Timeline, Regulation Checklist, and Local Plan Review Tool. A couple of others as well that we briefly discussed – the Hazard Mitigation Assistance (HMA) Guidance, which will cover specifics of the PDM grant as well as the other potential grant funding options available; and the full version of the FEMA Local Mitigation Plan Review Guide.

One more attachment: I compiled all of the contact information for each County's Emergency Manager, along with their corresponding State Regional Emergency Managers (REM).

Please don't hesitate to reach out to myself or Charlotte for any questions or concerns you have going forward regarding either the Plan or the PDM grant. Hopefully you will be hearing from us soon regarding a grant award, and we can get started on the update process.

Have a great day!

Lindsey McCoy, SC CEM
Hazard Mitigation Planning Coordinator
South Carolina Emergency Management Division

2779 Fish Hatchery Road
West Columbia, SC 29172
Mobile: (803) 357-8095
lmccoy@emd.sc.gov

1

Emory Langston

From: McCoy, Lindsey <lmccoy@emd.sc.gov>
Sent: Friday, August 30, 2019 11:42 AM
To: Emory Langston
Subject: RE: Back-up date

Hi Emory,

I know that you are out of the office for the holiday weekend, but I wanted to let you know that I am going to postpone our meeting. Once things calm down, we'll establish a new date and time.

Stay safe!

Lindsey McCoy, SC CEM
Hazard Mitigation Planning Coordinator
South Carolina Emergency Management Division

2779 Fish Hatchery Road
West Columbia, SC 29172
Mobile: (803) 367-8095
lmccoy@emd.sc.gov

From: Emory Langston <elangston@lscog.org>
Sent: Thursday, August 29, 2019 8:33 AM
To: McCoy, Lindsey <lmccoy@emd.sc.gov>
Subject: RE: Back-up date

Sounds good ☺

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

From: McCoy, Lindsey <lmccoy@emd.sc.gov>
Sent: Wednesday, August 28, 2019 3:08 PM
To: Emory Langston <elangston@lscog.org>
Subject: RE: Back-up date

Hi Emory,

Emory Langston

From: McCoy, Lindsey <lmccoy@emd.sc.gov>
Sent: Thursday, October 03, 2019 2:35 PM
To: Emory Langston
Subject: RE: LSCOG HMP Meeting Monday

No problem! I'll put something together and have it ready to go for Monday. If there's anything special included I will keep you in the loop.

Thanks again! Have a great weekend.

Lindsey McCoy, SC CEM
Hazard Mitigation Planning Coordinator
South Carolina Emergency Management Division

2779 Fish Hatchery Road
West Columbia, SC 29172
Mobile: (803) 367-8095
lmccoy@emd.sc.gov

From: Emory Langston <elangston@lscog.org>
Sent: Thursday, October 03, 2019 10:08 AM
To: McCoy, Lindsey <lmccoy@emd.sc.gov>
Subject: Re: LSCOG HMP Meeting Monday

Hi Lindsey,

I am ready to go for Monday in the sense I have timelines for all the Counties and want to loosely discuss them and getting their committees together so we can meet soon to get started.

If you don't mind facilitating since this is my first rodeo, I would greatly appreciate. Go over expectations and things of that nature.

Let me know if there is anything I need to say or know :)

Thanks,
Emory

Sent from my iPhone

On Oct 3, 2019, at 9:57 AM, McCoy, Lindsey <lmccoy@emd.sc.gov> wrote:

> Good Morning Emory,
>
> Hope all is well

1

Emory Langston

From: Emory Langston
Sent: Wednesday, October 30, 2019 3:10 PM
To: 'DChojnacki@calhouncounty.sc.gov'
Subject: Proposed Agenda for HMP Meeting 11-6-19
Attachments: HMP Calhoun County Mtg Agenda 11-6-19.pdf

Hi there!

Please see the proposed agenda attached for the meeting next week. Let me know if this is o.k. or if there needs to be any changes, additions, or corrections ☹

I will bring a sign-in sheet and copies of the timeline for the discussion as well. Just as a "for your information", we had the Barnwell County Taskforce meeting in Barnwell this morning and hitting the highlights, going over the process, and questions, we were done in about 30 minutes. I know all Counties will be a bit different but as a gauge, should be done in 30/45 minutes.

Best-
Emory

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

LOWER SAVANNAH COG Council of Governments

LOWER SAVANNAH REGION
NATURAL HAZARD MITIGATION PLAN UPDATE

SIGN-IN SHEET

Date: November 6, 2019 **Place:** Calhoun County –Council Chambers

Time: 10:00 AM

Name	Agency	Phone	Email
1. Elaine Golden	E911	803-874-2679	egolden@calhouncounty.sc.gov
2. Woody Rucker	Public Works	803-857-0113	wrucker@calhouncounty.sc.gov
3. Mac Brigman	Building + Grounds	803-308-2665	MBrigman@calhouncounty.sc.gov
4. Teresa E Hawkins	Calhoun County	803 874-2435	thawkins@calhouncounty.sc.gov
5. Ted Felder	Calhoun County	"	tfelder@ "
6. Emory Langston	LSCOG	803-649-7981	elangston@lscog.org
7. Eric Carrier	LSCOG	803-649-7951	ecarrier@lscog.org
8. David Chojnacki	CCEMA	803-874-3042	dchojnacki@calhouncounty.sc.gov
9.			
10.			
11.			
12.			

Emory Langston

From: Emory Langston
Sent: Monday, January 13, 2020 10:27 AM
To: Chojnacki, David (dchojnacki@calhouncounty.sc.gov)
Subject: Hazardous Mitigation Information

Good morning,

Hope this finds you well ☺

I am working on the Haz Mit grants and need a few things from you. Below is the list in the grant of Taskforce Members. Would you update and get back to me?

Also I need an assessed value of property for the County. In the last plan is was noted as; "Calhoun County Tax Assessor's office show a total market appraisal value of $1.6B; a total of 240,733 acres; total market acres of $912M; total market buildings of $620M; and a total of 5,615 lots". Another example is Barnwell County; they use a break out of "total market value assessments of land and buildings by classification for the tax year was reported as follows: Residential: $616,023,496 Commercial: $96,616,790 Agricultural: $353,226,803. There are also a total of 18,756 parcels recorded for the County.

Either way is fine These are just general figures. Using tax year 2019, if possible. No huge rush in getting this back to me, in the next few weeks will be fine.

Let me know if you have any questions.

Much thanks!

Emory

The Honorable David Summers	Town of Cameron
The Honorable Joe Sikes	Town of St. Matthews
Lee Prickett	Calhoun County Administrator
Tammy Carson	St. Matthews Town Clerk
Chris Hales	Town of Cameron Police Chief
Dick Whetstone	St. Matthews Town Administrator
Bill Minikiewicz	Calhoun County Emergency Management Director
Ted Felder	Calhoun County Assistant Administrator
Kathy Wiles	Cameron Town Clerk
Elaine Golden	Calhoun County E-911 Coordinator
Woody Rucker	Calhoun County Public Works

Amanda Sievers	Planning Manager, Lower Savannah Council of Governments
Leslie Crawford	GIS Planner, Lower Savannah Council of Governments
Heather Warren	Planning Intern, Lower Savannah Council of Governments

Participating Municipalities:

Town of Cameron
Town of St. Matthews

Emory M. Langston

1

Emory Langston

From: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>
Sent: Monday, February 03, 2020 3:08 PM
To: Emory Langston
Subject: Re: [External] Hazardous Mitigation Information

Hi Emory,

How about we skip the meeting on Wednesday as some of the players will not be able to attend and reschedule for the end of this month or next month. I will be at a conference the first week in March, so anytime after that will work for me.

David Chojnacki, SC CEM

Director
Calhoun County
Emergency Management Agency
201 Mill St.
St. Matthews SC 29135

Ph 803-874-3042
Cell 803-456-0860

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From: Emory Langston <elangston@lscog.org>
Sent: Monday, February 3, 2020 11:20 AM
To: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>
Cc: Felder, Ted <TFelder@calhouncounty.sc.gov>
Subject: [External] Hazardous Mitigation Information

Good morning,

Hope this finds you well starting off February 2020! To give you a snapshot update on the Haz. Mt. Plan, we are in the process of updating the risks (storm) with current information. This process has gone slower than we had anticipated as some sources of information used in the last plan have not been update as well as some GIS information from SCEMD; nonetheless, we are progressing.

I have a placeholder date from this Wednesday to come to the County and meet with the taskforce. I am very willing to come and share with you what we have to date. I would propose that we would be in a better place toward the end of the month with regards to having the data complied on the risk side going into the mitigation strategies with the taskforce.

Again, I am good either way, just let me know what you prefer.

Best-
Emory

1

Emory Langston

From: Emory Langston
Sent: Tuesday, February 04, 2020 9:01 AM
To: Chojnacki, David
Subject: RE: [External] Hazardous Mitigation Information

I am available 2/26, 2/27 or 3/9 or 3/10

Just let me know what works best for you. My plan will be to have all the updated weather events with risk assessments for review (can send that out via email prior to the meeting) so that we can then look at mitigation strategies and what needs to be added/changed/deleted/stay the same, etc...

Thanks!

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

From: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>
Sent: Monday, February 03, 2020 3:08 PM
To: Emory Langston <elangston@lscog.org>
Subject: Re: [External] Hazardous Mitigation Information

Hi Emory,

How about we skip the meeting on Wednesday as some of the players will not be able to attend and reschedule for the end of this month or next month. I will be at a conference the first week in March, so anytime after that will work for me.

David Chojnacki, SC CEM

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Cell 803-456-0860

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1

Emory Langston

From: Emory Langston
Sent: Thursday, March 05, 2020 9:20 AM
To: Chojnacki, David (dchojnacki@calhouncounty.sc.gov)
Subject: FW: [External] Hazardous Mitigation Information

Good morning,

Hope this finds you well. Just trying to nail down a time we can come and give you an update with the Haz. Mit. Plan and come up with some paths forward. Let me know what you have available the week of March 16 -20 or March 24.

Thanks!

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

From: Emory Langston
Sent: Tuesday, February 04, 2020 9:01 AM
To: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>
Subject: RE: [External] Hazardous Mitigation Information

I am available 2/26, 2/27 or 3/9 or 3/10

Just let me know what works best for you. My plan will be to have all the updated weather events with risk assessments for review (can send that out via email prior to the meeting) so that we can then look at mitigation strategies and what needs to be added/changed/deleted/stay the same, etc..

Thanks!

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

From: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>
Sent: Monday, February 03, 2020 3:08 PM
To: Emory Langston <elangston@lscog.org>
Subject: Re: [External] Hazardous Mitigation Information

Hi Emory,

1

Emory Langston

From: Emory Langston
Sent: Monday, March 30, 2020 3:17 PM
To: Chojnacki, David (dchojnacki@calhouncounty.sc.gov)
Subject: Hazardous Mitigation Information

Importance: High

Good afternoon,

I have tried to reach you a few times. Please let me know a good time that we can catch up by phone to talk about some potential paths to take the plan forward during these crazy times.

I will be available all week. Let me know what works for you.

Much thanks!
Emory

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

From: Emory Langston
Sent: Thursday, March 05, 2020 9:20 AM
To: Chojnacki, David (dchojnacki@calhouncounty.sc.gov) <dchojnacki@calhouncounty.sc.gov>
Subject: FW: [External] Hazardous Mitigation Information

Good morning,

Hope this finds you well. Just trying to nail down a time we can come and give you an update with the Haz. Mit. Plan and come up with some paths forward. Let me know what you have available the week of March 16 -20 or March 24.

Thanks!

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

From: Emory Langston
Sent: Tuesday, February 04, 2020 9:01 AM

1

Emory Langston

From: Emory Langston
Sent: Monday, March 30, 2020 3:29 PM
To: Chojnacki, David
Subject: RE: [External] Hazardous Mitigation Information

Perfect! Talk to you then ☺

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

From: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>
Sent: Monday, March 30, 2020 3:28 PM
To: Emory Langston <elangston@lscog.org>
Subject: Re: [External] Hazardous Mitigation Information

Sound great. Please call my cell, 803-456-0860.

I will talk to you then!

David Chojnacki, SC CEM

Director
Calhoun County
Emergency Management Agency
201 Mill St.
St. Matthews SC 29135

Ph 803-874-3042
Cell 803-456-0860

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From: Emory Langston <elangston@lscog.org>
Sent: Monday, March 30, 2020 3:26 PM
To: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>
Subject: RE: [External] Hazardous Mitigation Information

3:00 tomorrow works great! I will be happy to call you. Is 803-874-3042 the best number?

Emory M. Langston
Planning, Community and Economic Development Administrator

1

Emory Langston

From: Emory Langston
Sent: Wednesday, April 01, 2020 11:34 AM
To: Chojnacki, David (dchojnacki@calhouncounty.sc.gov)
Cc: Matthew Abney
Subject: Hazardous Mitigation Information
Attachments: Risk Assessment.pdf; Calhoun County Hazard Mitigation Actions(Fig34).pdf; Cameron Hazard Mitigation Actions(Fig36).pdf; Hazardous Mitigation Goals and Objectives.pdf; St. Matt Hazard Mitigation Actions(Fig38).pdf

Hi Dave,

See attached:

1. Risk Assessment – the update of Part 2 of the overall plan. You will notice a highlighted yellow section at the end of each hazard. This is the financial assessment of the County. Please get the updated information from your Tax Assessor and send that to us.
   Section 2.3/2.4 has not been updated and we will need input from the County and both municipalities. This is something we can discuss on the upcoming call.
2. Mitigation Actions for the County, Cameron and St. Matthews. These are from the 2015 update.
3. Mitigation Goals and Objectives. This is a "key" for the mitigation action tables. You will notice that there is a column labeled "Goals and Objects". In that column there will be a series of numbers. The numbers correlate to the action.

Review and let me know if you have any questions, concerns, changes, additions or edits at this point. Did you want to look at April 20th at 3:00 to have a call? I am fairly wide open, so just let me know what works for you.

Again, if you have any questions, let me know!

Thanks!

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

1

Emory Langston

From: Emory Langston
Sent: Thursday, April 16, 2020 9:37 AM
To: Chojnacki, David (dchojnacki@calhouncounty.sc.gov)
Subject: Hazardous Mitigation Information
Attachments: Risk Assessment.pdf; Calhoun County Hazard Mitigation Actions(Fig34).pdf; Cameron Hazard Mitigation Actions(Fig36).pdf; Hazardous Mitigation Goals and Objectives.pdf, St. Matt Hazard Mitigation Actions(Fig38).pdf

Hi Dave-

Let me know if you still want me to schedule this call-in meeting. I do have a webinar on Monday that ends at 3:00, so a 3:30 would be great, if that works for you.

Thanks!

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

From: Emory Langston
Sent: Wednesday, April 01, 2020 11:34 AM
To: Chojnacki, David (dchojnacki@calhouncounty.sc.gov) <dchojnacki@calhouncounty.sc.gov>
Cc: Matthew Abney <mabney@lscog.org>
Subject: Hazardous Mitigation Information

Hi Dave,

See attached:

1. Risk Assessment – the update of Part 2 of the overall plan. You will notice a highlighted yellow section at the end of each hazard. This is the financial assessment of the County. Please get the updated information from your Tax Assessor and send that to us.
   Section 2.3/2.4 has not been updated and we will need input from the County and both municipalities. This is something we can discuss on the upcoming call.
2. Mitigation Actions for the County, Cameron and St. Matthews. These are from the 2015 update.
3. Mitigation Goals and Objectives. This is a "key" for the mitigation action tables. You will notice that there is a column labeled "Goals and Objects". In that column there will be a series of numbers. The numbers correlate to the action.

Review and let me know if you have any questions, concerns, changes, additions or edits at this point. Did you want to look at April 20th at 3:00 to have a call? I am fairly wide open, so just let me know what works for you.

Again, if you have any questions, let me know!

1

Emory Langston

From: Emory Langston
Sent: Thursday, April 16, 2020 9:53 AM
To: Chojnacki, David
Subject: RE: [External] Hazardous Mitigation Information

Sounds good. Please let me know the contact for Cameron.

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

From: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>
Sent: Thursday, April 16, 2020 9:49 AM
To: Emory Langston <elangston@lscog.org>
Subject: Re: [External] Hazardous Mitigation Information

Yes, please. Let's go with 3:30 PM on April 20th.

David Chojnacki, SC CEM

Director
Calhoun County
Emergency Management Agency
201 Mill St
St. Matthews SC 29135

Ph 803-874-3042
Cell 803-456-0860

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From: Emory Langston <elangston@lscog.org>
Sent: Thursday, April 16, 2020 9:36 AM
To: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>
Subject: [External] Hazardous Mitigation Information

Hi Dave-

Let me know if you still want me to schedule this call-in meeting. I do have a webinar on Monday that ends at 3:00, so a 3:30 would be great, if that works for you.

Thanks!

1

Emory Langston

From: Emory Langston
Sent: Thursday, April 16, 2020 5:04 PM
To: 'Pope, Milton'; townofcameron@windstream.net; townofstmatthews@windstream.net; Chojnacki, David (dchojnacki@calhouncounty.sc.gov)
Subject: Calhoun County Hazardous Mitigation Plan Update/Review Meeting
Attachments: Taskforce Meeting Memo 4-2020.docx; Calhoun County Hazard Mitigation Actions(Fig34).pdf; Cameron Hazard Mitigation Actions(Fig36).pdf; St. Matt Hazard Mitigation Actions(Fig38).pdf; Hazard Mitigation Goals and Objectives.docx; Section 2.2 -2.3 Overall Risk Probability .docx

Good afternoon,

Hope this find everyone well and healthy.

We need to have a quick update and input session with you in an effort to keep the Hazardous Mitigation Plan Grant for Calhoun County on track. Due to CoVID 19, we will have a conference call on Monday, April 20th at 3:30. I do not anticipate this to last any longer than 45 minutes. *I will send instructions for the call in a separate email, to follow this email.*

Please find the attached memo for your review. It outlines the additional attachments and what you need to review. If possible, please review the information prior to the call and me know if you have any questions.

Best regards-
Emory

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

1

Emory Langston

From: Emory Langston
Sent: Monday, April 20, 2020 4:16 PM
To: Hamilton, Steve; Chojnacki, David
Subject: RE: Assessor

Good afternoon,

I need the information below updated to reflect values from FY2019. The statement below was in the 2015 Hazardous Mitigation Plan, just need to update the figure for the 2020 update.

Additionally, 2014 end of year figures gathered from Calhoun County Tax Assessor's office show a total market appraisal value of $1.6B; a total of 240,733 acres; total market acres of $912M; total market buildings of $620M; and a total of 5,615 lots.

Much thanks!

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

From: Hamilton, Steve <SHamilton@calhouncounty.sc.gov>
Sent: Monday, April 20, 2020 4:09 PM
To: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>; Emory Langston <elangston@lscog.org>
Subject: RE: Assessor

Got it!

Steve Hamilton
Calhoun County Assessor
102 Courthouse Drive
Suite 107
St. Matthews, SC 29135
Office: 803-874-3613
Fax: 803-874-1242 Fax
Email: shamilton@calhouncounty.sc.gov
Website: www.calhouncounty.sc.gov
Mapping site: http://calhounscmaps.com

From: Chojnacki, David
Sent: Monday, April 20, 2020 4:06 PM
To: Hamilton, Steve; Emory Langston
Subject: Re: Assessor

Steve,

Emory Langston

From: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>
Sent: Thursday, May 28, 2020 10:47 AM
To: Emory Langston
Subject: Re: [External] Mitigation Actions
Attachments: Calhoun County Hazard Mitigation Actions(Fig34).doc

Emory,

Attached is the updated county information you requested. I hope all is well and everyone is healthy.

Best,

Dave

David Chojnacki, SC CEM

Director
Calhoun County
Emergency Management Agency
201 Mill St.
St. Matthews SC 29135

Ph 803-874-3042
Cell 803-468-0860

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From: Emory Langston <elangston@lscog.org>
Sent: Monday, April 20, 2020 4:20 PM
To: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>; 'Pope, Milton' <milton@parkerpoeconsulting.com>; townofstmatthews@windstream.net <townofstmatthews@windstream.net>; townofcameron@windstream.net <townofcameron@windstream.net>
Subject: [External] Mitigation Actions

All,

Thanks again for your time on the conference call this afternoon. Please see the attached Mitigation Action in a more editable form.

Let me know if you have any questions.

Much thanks!
Emory

Emory M. Langston
Planning, Community and Economic Development Administrator

1

Emory Langston

From: Emory Langston
Sent: Friday, June 12, 2020 3:13 PM
To: Chojnacki, David (dchojnacki@calhouncounty.sc.gov); 'Pope, Milton'; townofstmatthews@windstream.net; dsummers@cfevans.com
Subject: For approval - HMP Section 4
Attachments: Draft HMP -Plan Maintenance and Update.pdf

Good afternoon,

Hope this finds you all doing well. Slowly but surely, I am plugging away at the HMP updates☺. Please see the attached 4.1 for your review and blessing. I have highlighted the changes in yellow and just need the taskforce's approval. If you have something that you see needs to be changed, edited, concerns, issues, etc.. let me know. Feel free to pass this onto anyone who you think would need to have input. Please let me know by June 18th.

On a side note I have completed the updates to Part 2- the Risk Assessment and Part 3- Mitigation Strategies. I am working on Part 1 currently. We are well over half way through. Next steps will include some type of public hearing/comment. I received the following from SCEMD...

Public meetings/hearings can be held online. You can choose to host a conference call or WebEx type event, or simply post documents for review to social media and document any input received. As long as proof is provided for whichever you choose, the requirement will be met.

I was thinking that once we have the completed draft, each of you could post on your Facebook page for a day or two to satisfy the public comment. Hoping we can do this in mid-July. Let me know your thoughts...

Much thanks and have a great weekend!
Emory

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

1

Emory Langston

From: townofstmatthews@windstream.net
Sent: Tuesday, June 16, 2020 1:10 PM
To: Emory Langston
Cc: townofstmatthews@windstream.net
Subject: RE: For approval - HMP Section 4

Good afternoon, everything looks fine to me....

J. Milton Pope

From: Emory Langston <elangston@lscog.org>
Sent: Friday, June 12, 2020 3:13 PM
To: Chojnacki, David (dchojnacki@calhouncounty.sc.gov) <dchojnacki@calhouncounty.sc.gov>; 'Pope, Milton' <milton@parkerpoeconsulting.com>; townofstmatthews@windstream.net; dsummers@cfevans.com
Subject: For approval - HMP Section 4

Good afternoon,

Hope this finds you all doing well. Slowly but surely, I am plugging away at the HMP updates☺. Please see the attached 4.1 for your review and blessing. I have highlighted the changes in yellow and just need the taskforce's approval. If you have something that you see needs to be changed, edited, concerns, issues, etc.. let me know. Feel free to pass this onto anyone who you think would need to have input. Please let me know by June 18th.

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Much thanks and have a great weekend!
Emory

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981

1

Emory Langston

From: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>
Sent: Tuesday, June 30, 2020 11:02 AM
To: Emory Langston
Subject: Re: [External] For approval - HMP Section 4

Hi Emory,

Please broberson@calhouncounty.sc.gov, Brandy Roberson to your email list. Brandy is our HR Director and Risk Manager. Everything looks good to me in section 4. Brandy suggested that we add all dates for future meetings so as not to skip over them.

Thanks,

Dave

David Chojnacki, SC CEM

Director
Calhoun County
Emergency Management Agency
201 Mall St.
St. Matthews SC 29135

Ph 803-874-3042
Cell 803-456-0860

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From: Emory Langston <elangston@lscog.org>
Sent: Friday, June 12, 2020 3:24 PM
To: Chojnacki, David <DChojnacki@calhouncounty.sc.gov>; 'Pope, Milton' <milton@parkerpoeconsulting.com>; townofstmatthews@windstream.net <townofstmatthews@windstream.net>; dsummers@cfevans.com <dsummers@cfevans.com>; McLauchlin, John <JMcLauchlin@calhouncounty.sc.gov>
Subject: RE: [External] For approval - HMP Section 4

No problem. Thanks!

Emory M. Langston
Planning, Community and Economic Development Administrator
Lower Savannah Council of Governments
2748 Wagener Rd.
Aiken, SC 29802
803-649-7981