Chester County South Carolina

2021 Hazard Mitigation Plan

City of Chester, Town of Fort Lawn,
Town of Great Falls, Town of Lowrys,
Town of Richburg

CHESTER COUNTY
Emergency Management Agency

Revision Draft: 11.23.2021

Photograph on cover: *The picture was taken during the Hazard Mitigation Plan Update Public Forum by Brian Garner from* The Chester News and Reporter.

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Introduction

INTRODUCTION

Chester County, South Carolina, its city, towns, and unincorporated communities consist of about 581 square miles situated in the rolling hills of South Carolina's eastern Piedmont region. Chester County is bounded on the east by the Catawba River and on the west by the Broad River. One interstate and four major rail lines run through the County. The County has 31 tier two reporting facilities that rely on trucking and rail transport of hazardous materials. The estimated population for the County is about 32,294 people (2020). Chester is a host county for the Catawba Nuclear Station and manages four reception centers within the nuclear station's Emergency Planning Zone (EPZ).

Chester County and its major municipalities—Chester, Fort Lawn, Great Falls, Lowrys, and Richburg—are threatened by a number of potential hazards. These hazards endanger the health and safety of the community, jeopardize its economic vitality, and imperil the quality of its environment. Because of the importance of avoiding or minimizing the vulnerabilities to these hazards, the public interests of Chester County and its incorporated municipalities have joined together to create the Chester County Mitigation Planning Team to undertake a comprehensive planning process that has culminated in the publication of this document: "The Chester County Multi-Jurisdictional Hazard Mitigation Plan."

The planning effort has been conducted through the coordinated, cooperative effort of several local governments, including the City of Chester, Town of Fort Lawn, Town of Great Falls, Town of Richburg, and Town of Lowrys, and County officials with assistance from the Catawba Regional Council of Governments. The Mitigation Planning Team has also made every effort available to solicit public input regarding updates to the Hazard Mitigation Plan, including providing the draft and final document for public review and critique.

The Chester County Hazard Mitigation Planning Team has also conducted detailed studies to identify the hazards threatening the jurisdictions of Chester County and to estimate the relative risks those hazards pose to the community. This information has been used by the Planning Team to prioritize its planning efforts to assess the vulnerabilities of Chester County's critical facilities to the impacts of future disasters involving those hazards. With these vulnerabilities pinpointed, the Planning Team has worked to identify, justify, and prioritize specific proposals for projects and programs that will avoid or minimize these vulnerabilities.

These proposed projects to reduce the impacts of future disasters are called "mitigation initiatives" in this document. Mitigation initiatives have been developed, and will continue to be developed, by the Planning Team for implementation whenever the resources and opportunities to do so become available. Implementation of this plan is essentially through implementation of the mitigation initiatives included in the plan, and with each implementation effort, the Planning Team will continue to help make the participating communities more resistant to the human and economic costs of future disasters.

This document details the work of the Chester County Planning Team over the past several months to develop the planning organization, to undertake the needed technical analyses, and to coordinate the mitigation initiatives that have been proposed by the participating jurisdictions and organizations. The draft plan will be submitted to the governing bodies for adoption, and details of actions to adopt the plan will be documented in Section 8: Adopt the Plan upon formal adoption by all local governments involved.

This plan will continue to be updated and expanded in the future as funding becomes available to ensure it addresses changing conditions in the participating jurisdictions, experiences with disasters that occur, and any changes in the characteristics of the hazards that threaten the involved communities. This updating process and future editions of the mitigation plan will also be used to continue to inform and involve the general public and other interested groups, encouraging full participation in making the community more resistant to the impacts of future disasters.

PURPOSE

The Chester County Multi-Jurisdictional Hazard Mitigation Plan and its underlying planning process are intended by the Planning Team to serve many purposes. These include the following:

PROVIDE A METHODICAL, SUBSTANTIVE APPROACH TO MITIGATION PLANNING

The approach utilized by the Chester County Planning Team relies on a stepwise application of soundly based planning concepts in a methodical process to identify vulnerabilities to future disasters and to propose the mitigation initiatives necessary to avoid or minimize these vulnerabilities. Each step in the process builds upon the previous step so that there is a high level of assurance that the mitigation initiatives proposed by the participants have a valid basis for both their justification and priority for implementation. One key purpose of this plan is to document that process and to present its results to the community.

CREATE A DECISION TOOL FOR MANAGEMENT

The Chester County Multi-Jurisdictional Hazard Mitigation Plan provides information needed by the managers and leaders of local government, business and industry, community associations, and other key institutions and organizations to take action to address vulnerabilities to future disasters. It also provides proposals for specific projects that are needed to eliminate or minimize vulnerabilities.

These proposals, called “mitigation initiatives” in the plan, have been justified on the basis of their economic benefits using a uniform technical analysis and have been prioritized for implementation using nine objective criteria found under the Process for Prioritization in Section 6: Mitigation Strategy. This approach is intended to provide a decision tool for the management of participating organizations and agencies regarding why the proposed mitigation initiatives should be implemented, which should be implemented first, and the economic and public welfare benefits of doing so.

PROMOTE COMPLIANCE WITH STATE AND FEDERAL PROGRAM REQUIREMENTS

There are a number of state and federal grant programs, policies, and regulations that encourage or even mandate that local governments develop and maintain a comprehensive hazard mitigation plan. This plan is specifically intended to assist the participating local governments with complying with these requirements and to enable them to more fully and quickly respond to state and federal funding opportunities for mitigation-related projects. Because the plan defines, justifies and prioritizes mitigation initiatives that have been formulated through a technically valid hazard analysis and vulnerability assessment process, the participating organizations are better prepared to more quickly and easily develop the necessary grant application materials for seeking state and federal funding.

ENHANCE LOCAL POLICIES FOR HAZARD MITIGATION CAPABILITY

A component of the hazard mitigation planning process conducted by the Chester County Mitigation Planning Team is the analysis of the existing policy, program, and regulatory basis for control of growth and development as well as the functioning of key facilities and systems. This process involves cataloging the current mitigation-related policies of a local government so that they can be compared against the hazards that threaten the jurisdiction and the relative risks these hazards pose to the community. When the risks posed to the community by a specific hazard are not adequately addressed in the community's policy or regulatory framework, the potential impacts of future disasters can be even more severe. Therefore, the planning process utilized by the Planning Team supports continual evaluation of the adequacy of the community's policies and programs in light of the level of risk posed by specific hazards. This continual evaluation supports and justifies efforts to modify policies as needed through coordination with local jurisdictions to create a more disaster-resistant future for the community.

ASSURE INTER-JURISDICTIONAL COORDINATION OF MITIGATION-RELATED PROGRAMMING

A key purpose of the planning process utilized by the Chester County Planning Team is to ensure that proposals for mitigation initiatives are reviewed and coordinated among the participating jurisdictions. In this way, there is a high level of confidence that mitigation initiatives proposed by one jurisdiction or participating organization, when implemented, will be compatible with the interests of adjacent jurisdictions and unlikely to duplicate or interfere with mitigation initiatives proposed by others. The operating procedures of the Planning Team, given in this plan, document the details of the planning process and mandate that all proposed mitigation initiatives, regardless of their origin, will be coordinated among all of the planning participants prior to their approval for incorporation into the plan.

ENHANCE PUBLIC AWARENESS AND UNDERSTANDING

The Planning Team is interested in finding ways to make the community as a whole more aware of the natural hazards that threaten public health and safety, the economic vitality of businesses, and the operational capability of important facilities and institutions. The plan identifies the hazards threatening Chester County and provides an assessment of the relative level of risk they pose. It also details the specific geographic vulnerabilities of Chester County and many of the facilities that are important to the community's daily life. Additionally, the plan includes a number of proposals of ways to avoid or minimize these vulnerabilities. This information will be very helpful to individuals that wish to understand how the community could become safer from the impacts of future disasters.

The Planning Team and its member organizations also conduct a number of community outreach and public information programs. The purpose of these is to engage the community as a whole in the local mitigation planning process, in order to shape the goals, priorities, and content of the plan, as well as to provide information and education to the public regarding ways to be more protected from the impacts of future disasters. The Planning Team has been, and will continue to be, active in communicating with the public and engaging interested members of the community in the planning process. This document, and the analyses contained herein, is both the principal information resource for this activity and the documentation of past and planned public information activities.

DOCUMENTATION OF PLAN PROGRESS

Progress in hazard mitigation planning for Chester County is documented in this plan update. Since hazard mitigation planning efforts officially began in the County with the development of the initial Hazard Mitigation Plan in 2005, several mitigation actions have been completed and continue to be updated annually in the participating jurisdictions. These actions will help reduce the overall risk to natural hazards for the people and property in Chester County. The actions that have been completed are documented in Section 6: Mitigation Strategy.

In addition, community capability continues to improve with the implementation of new plans, policies, and programs that help to promote hazard mitigation at the local level. Chester County continues to demonstrate its commitment to hazard mitigation and hazard mitigation planning and has proven this by reconvening the Mitigation Planning Team to update the plan and by continuing to involve the public in the hazard mitigation planning process.

INTRODUCTION REVISION HISTORY

Introduction REVISION HISTORY		
Date	**Section**	**Revision Detail**
7/28/2010	Section 2	Added a revision history table.
7/28/2010	Documentation of Plan Progress	Added Documentation of Plan Progress Section.
10/27/2015	Introduction Update	Added the first paragraph summarizing Chester County's planning area.
11/2/2015	Plan Restructure	Restructured the entire plan to fit the outline of the March 2013 FEMA Local Mitigation Planning Handbook.
9/13/2021	Introduction	Updated the section to include 2021 information.

Section 1: Planning Area and Resources

PLANNING AREA

Chester County, South Carolina, and its city, towns, and unincorporated communities consist of about 581 square miles situated in the rolling hills of South Carolina's eastern Piedmont. Chester County is bounded on the east by the Catawba River and on the west by the Broad River. The County has a total area of 581 square miles, of which 575.5 square miles is land and 5.5 square miles is water.

The Chester County Planning Area consists of the following:

City
- Chester (county seat)

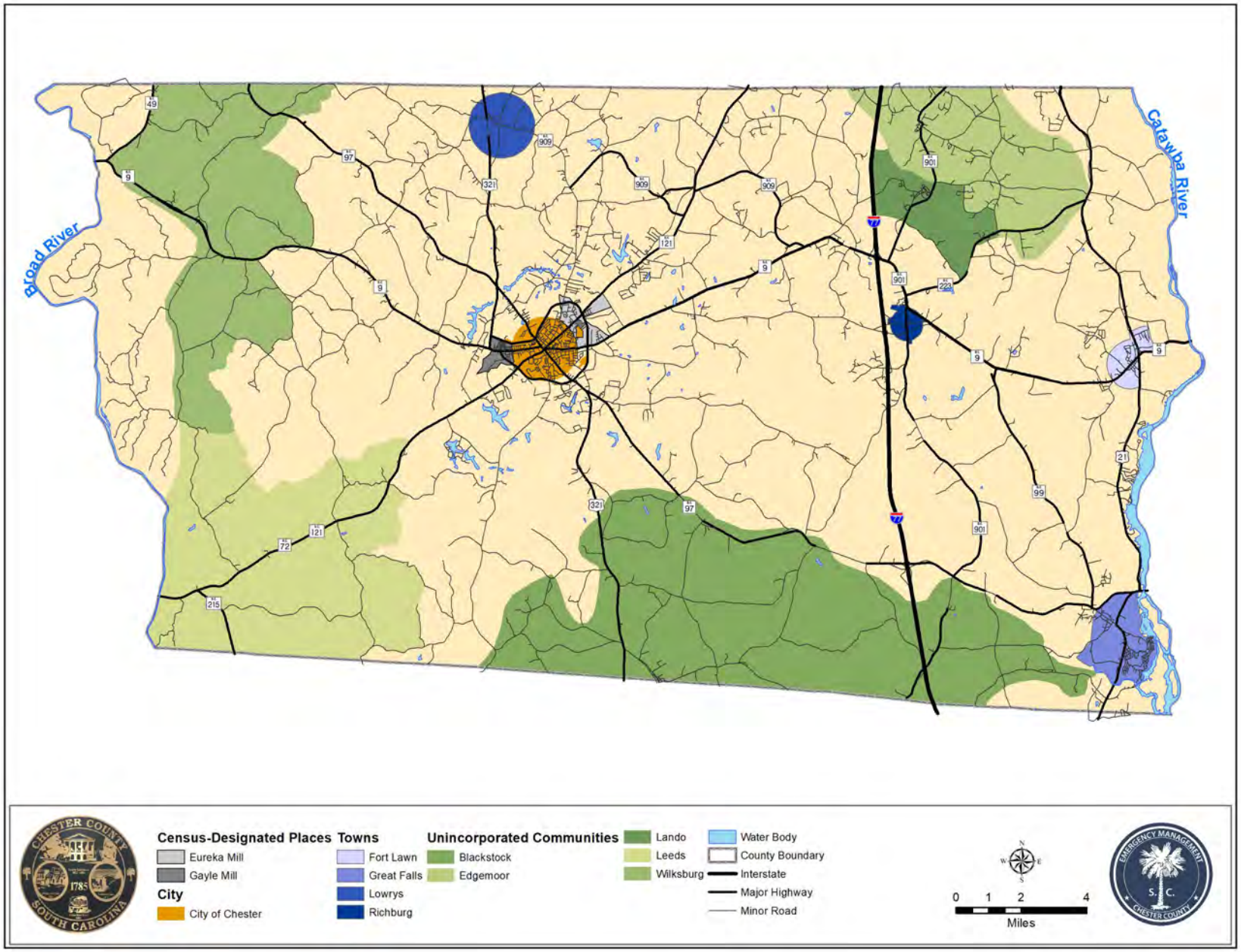
Towns
- Fort Lawn
- Great Falls
- Lowrys
- Richburg

Unincorporated Communities
- Blackstock
- Edgemoor
- Lando
- Leeds
- Wilksburg

Census-Designated Places
- Eureka Mill
- Gayle Mill

Flooding Sources
- Broad River
- Catawba River
  - Rock Creek Dam/Cedar Creek Dam (Rock Creek Lake, Cedar Creek Lake, Stumpy Pond)
  - Fishing Creek Dam (Fishing Creek Lake)
  - Great Falls Dam (Great Falls Lake)

FIGURE 1.1: CHESTER COUNTY HAZARD MITIGATION PLANNING AREA



PLANNING AREA UPDATES

Within the past year, Chester County has landed four new industrial and manufacturing companies.

NEW MANUFACTURERS TO CHESTER COUNTY

E&J Gallo Winery
California-based E&J Gallo Winery, the world's wine and spirits industry leader, will invest $423 million in Chester County, creating 496 jobs. This new facility will serve as the family-owned company's new state-of-the-art production and distribution center. At full Phase 1 buildout, the new east coast operation will provide bottling and canning capacity as well as warehousing and distribution for the company's growing portfolio of wine and spirit brands. Operations are expected to begin in 2022.

Last Step Recycling
Last Step Recycling LLC, an automotive shredder residue company will invest more than $46 million in Chester County, creating 50 jobs in the Chester Technology Park on Ballymena Road. This facility will be used to recover sellable material from ASR through a proprietary grinding process that reduces landfill waste and creates materials that can be used in other industrial sectors. Operations in Chester County are expected to begin in July 2022.

Chart Industries
Chart Industries, a global manufacturer of highly engineered cryogenic equipment, will invest $7 million in Chester County, creating 50 jobs at the Chester Research and Development Park. This facility will serve as the company's service, repair, refurbishing, and leasing facility. This facility began operations in July 2021.

Alliance DriveAway Solutions
Alliance DriveAway Solutions announced the relocation of their operations and headquarters to Chester County, investing $4.5 million and creating 10 jobs. The company will establish operations in what used to be the I-77 Speedway on Highway 9 and is a full-service provider for the moving and transportation of Class A semis throughout the United States and Canada.

EXPANSION OF EXISTING MANUFACTURERS IN CHESTER COUNTY

Specialty Polymers, Inc.
Specialty Polymers, Inc., a privately held manufacturer of water-based emulsion polymers and adhesives, has expanded its Chester County operations, which are located on 25 acres at 869 Old Richburg Road in Chester, South Carolina. The $5.5 million investment will significantly increase the plant's capacity by adding a 6,000-gallon emulsion polymer reactor system for the production of water-based polymers.

Haddon House Food Products
Haddon House Food Products, the largest privately-owned distributor, importer, and exporter of specialty, natural, organic, ethnic, and kosher foods, will invest $4.6 million to expand its operations center in Richburg, South Carolina. The investment is expected to create 55 new jobs in the region.

To expand its Chester County operations, Haddon House is constructing an addition to its existing facility. The addition will feature an expanded freezer distribution building. Located at 578B L and C Distribution Park in Richburg, the nearly 30,000-square-foot expansion will allow the company to continue to meet

the needs of new and existing customers throughout the southeastern United States and Caribbean as the frozen foods sector continues to grow at an unprecedented rate.

PLANNING RESOURCES

The planning resources used by the Chester County Hazards Mitigation Planning Team were adequate in meeting the analysis and documentation needs of the planning participants. The planning program utilized provides for the creation of this document as well as the preparation of numerous other reports regarding the technical analyses undertaken. The planning participants have also included data and information unique to their communities and planning capabilities and have utilized the Catawba Regional Council of Governments for development of a GIS-based Hazards Risk Assessment. In this way, the plan assists the Planning Team by utilizing a full range of information, including the Chester County Comprehensive Plan and zoning ordinances for Chester County, City of Chester, Town of Fort Lawn, Town of Lowrys, Town of Great Falls, and Town of Richburg, in the technical analysis and the formulation of proposed mitigation initiatives for incorporation into this plan. The Chester County Multi-Jurisdictional Hazard Mitigation Plan and its proposed mitigation initiatives will also be consulted and utilized in the development and revision of existing and future comprehensive plans and zoning ordinances.

ADDITIONAL PLANNING RESOURCES

Local Planning Resources

1. FEMA's Local Mitigation Planning Handbook
2. Flood Insurance Study Chester County

Mitigation Resources

- FEMA Mitigation Ideas pdf
- FEMA's Hazard Mitigation Planning Resources website

FEMA's HAZUS Website

The Hazards U.S. Multi-Hazard (HAZUS-MH) is a nationally applicable standardized methodology that estimates potential losses from earthquakes, hurricane winds, and floods. HAZUS-MH uses state-of-the art Geographic Information Systems (GIS) software to map hazard data and damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of earthquakes, hurricane winds, and floods on populations. Estimating losses is essential to decision-making at all levels of government, providing a basis for development of mitigation plans and policies, emergency preparedness, and response and recovery planning. HAZUS-MH can be ordered free-of-charge from FEMA.

SECTION 1: PLANNING AREA AND RESOURCES REVISION HISTORY

Section 1 – Planning Area and Resources REVISION HISTORY		
Date	**Section**	**Revision Detail**
10/30/2015	Section 1: Planning Area & Resources	Determine the Planning Area & Resources is a newly added section to the plan (80% of content is new).
11/2/2015	Section 1: Planning Area & Resources	Added Planning Area updates to include new manufacturing plants and expansion of existing plants.
5/17/2016	Section 1: Planning Area Update	Added the Exit 65 & 62 Small Area Plan narrative.
8/16/2021	Section 1: Planning Area Update	Removed the Exit 65 & 62 Small Area Plan narrative because plan has been completed.
8/16/2021	Section 1: Planning Area Update	Updated New Manufacturers to Chester County narrative.
8/16/2021	Section 1: Planning Area	Updated Figure 1.1: Chester County Hazard Mitigation Planning Area map.

Section 2: Planning Team

MULTI-JURISDICTIONAL PLAN COORDINATION

The Chester County Hazards Mitigation Planning Team has been established to make the population of the community more resistant to the impacts of future disasters. The Planning Team has been undertaking a comprehensive, detailed evaluation of the vulnerabilities of the community to all types of future natural, technological, and societal hazards in order to identify ways to make the communities of the planning area more resistant to their impacts. This document reports the results of the planning process for the current planning period, as indicated in Section 6: Mitigation Strategy.

A key purpose of the Chester County Hazard Mitigation 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. The process for formal adoption or approval of the mitigation plan is detailed herein, and evidence of such adoption by each participating jurisdiction is provided in Section 8: Adopt the Plan. This plan is also the mechanism by which all the agencies, organizations, and groups within or representing that jurisdiction can incorporate their own technical analyses and proposed mitigation initiatives.

In this way, the format of the plan and the operational concept of the planning process ensure that proposed mitigation initiatives are coordinated and prioritized effectively among jurisdictions using a consistent, valid planning process, while nonetheless allowing each jurisdiction to adopt the approved plan and work the proposed mitigation initiatives that it has the authority, responsibility, and/or capability to implement when resources are available.

In addition, the intent is to ensure that the multi-jurisdictional hazard mitigation plan is developed in accordance with Title 44 of the Federal Code of Regulations (CFR) Part 201.6; that the planning process is conducted in an open manner involving community stakeholders; that it is consistent with each participating jurisdiction's policies, programs, and authorities; and that it is an accurate reflection of the community's values.

BACKGROUND

Mitigation plans form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. The participating jurisdictions in a mitigation planning process would benefit by:

identifying cost effective actions for risk reduction;

directing resources to the greatest risks and vulnerabilities;

building partnerships by involving people, organizations, and businesses;

increasing education and awareness of hazards and risks;

aligning risk reduction with other community objectives; and

providing eligibility to receive federal hazard mitigation grant funding.

The Chester County EMA has received a grant from the Local Emergency Management Planning Grant (LEMPG) to prepare a multi-jurisdictional hazard mitigation plan in accordance with FEMA requirements from 44.C.F.R. 201.6.

PLANNING TEAM RESPONSIBILITIES

The Chester County EMA will act as the Lead and Chairperson of the Planning Team for the Chester County Hazard Mitigation Plan. The participating jurisdictions authorize the Lead to manage and facilitate the planning process in accordance with the Work Program and Schedule.

The participating jurisdictions understand that representatives must engage in the following planning process, as more fully described in the *Local Mitigation Planning Handbook* (FEMA, March 2013), including, but not limited to:

- Develop the Work Program and Schedule with the Planning Team.
- Organize and attend regular meetings of the Planning Team.
- Assist the Planning Team with developing and conducting an outreach strategy to involve other planning team members, stakeholders, and the public, as appropriate, to represent their Jurisdiction.
- Identify community resources available to support the planning effort, including meeting spaces, facilitators, and media outlets.
- Provide data and feedback to develop the risk assessment and mitigation strategy, including a specific mitigation action plan for their Jurisdiction.
- Submit the draft plan to their Jurisdiction for review.
- Work with the Planning Team to incorporate all their Jurisdiction's comments into the draft plan.
- Submit the draft plan to their respective governing body for consideration and adoption.
- After adoption, coordinate a process to monitor, evaluate, and work toward plan implementation.

PLANNING TEAM

The following points of contacts are authorized on behalf of the governing bodies to participate as members of the Planning Team for the Chester County Hazard Mitigation Plan:

TABLE 2.1: CHESTER COUNTY HAZARD MITIGATION PLANNING TEAM

NAME	TITLE	JURISDICTION	CONTACT	PARTICIPATION
PLANNING TEAM				
Ed Darby	Director, EMA	Chester County	127 Saluda St Chester, SC 29706 (803) 377-4632 emdarby@chestercounty.org	Planning Team, Chair
Laura Kunzie	Deputy Director, EMA	Chester County	127 Saluda St Chester, SC 29706 (803) 377-4632 lkunzie@chestercounty.org	Planning Team
Dr. Wylie Frederick	County Supervisor	Chester County	P.O. Box 580 Chester, SC 29706 wfrederick@chestercounty.org	Planning Team
Carlton Martin	Mayor	Town of Fort Lawn	510 Municipal Drive Fort Lawn, SC 29714 (803) 872-4724 fortlawntown@comporium.net	Planning Team
Lee Montgomery	Mayor	Town of Great Falls	810 Dearborn St Great Falls, SC 29055 (803) 482-2055 greatfalls@truvista.net	Planning Team
Glinda Coleman	Executive Director	Great Falls Town Association	gassociation@truvista.net	Planning Team
Joseph H. Wilson	Mayor	Town of Lowrys	2453 Old York Road Chester, SC 29706 (803) 377-1764 joeywilson@truvista.net	Planning Team
James O. Harris	Mayor	Town of Richburg	201 North Main Street Richburg, SC 29729 (803) 789-5484 HASS@truvista.net	Planning Team
Wanda Y. Stringfellow	Mayor	City of Chester	100 West End Street Chester, SC 29706 (803) 581-2123 wstringfellow@chester.sc.gov	Planning Team
Stephanie Jackson	City Administrator	City of Chester	100 West End Street Chester, SC 29706 (803) 581-2123 sjackson@chester.sc.gov	Planning Team
Mike Levister	Planning and Building Director/ Floodplain Adm	Chester County	P.O. Box 580 Chester, SC 29706 (803) 581-0942 mlevister@chestercounty.org	Planning Team

STAKEHOLDERS

2. Build the Planning Team ***Requirement §201.6(b)(2):***	***Requirement §201.6(b):*** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process* ***shall*** *include:* (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;

TABLE 2.2: CHESTER COUNTY HAZARD MITIGATION PLAN STAKEHOLDERS

NAME	TITLE	JURISDICTION	CONTACT	PARTICIPATION
STATE PARTNERS				
Lindsey McCoy	Mitigation Manager	South Carolina Emergency Management Division	2779 Fish Hatchery Road West Columbia, SC 29172 (803) 367-8095 lmccoy@emd.sc.gov	Stakeholder
Ryan Guerry	Emergency Manager	South Carolina Emergency Management Division	2779 Fish Hatchery Road West Columbia, SC 29172 (803) 807-8771 rguerry@emd.sc.gov	Stakeholder
ROADS AND PUBLIC WORKS				
Reggie McBeth	Director, Public Works	City of Chester	405 Ashford Street Chester, SC 29706 (803) 581-1405 rmcbeth@chestercity.com	Stakeholder
Robert Hall	Director, Facilities Maintenance	Chester County	P.O. Box 580 Chester SC, 29706 (803) 377-8188 rehall@chestercounty.org	Stakeholder
Jason P Stewart, PE	General Manager, Natural Gas Authority	Chester County	517 Ballymena Road Chester, SC 29706 (803) 385-3157 jstewart@chestergas.com	Stakeholder
Fred W. Castles, III, PE	Executive Director, Chester Metropolitan District	Chester County	155 Wylie Street, Chester, SC 29706 (803) 385-5123 fcastles@chestermetrosc.com	Stakeholder
Phillip A. Thompson-King	Executive Director, Chester County Wastewater Recovery	Chester County	3261 Lancaster Highway Richburg, SC 29729 (803 377-3541 philtk@cwr.services	Stakeholder
Neighboring Communities				
Chuck Haynes	Director, Emergency Management	York County	York County Office of Emergency Management P.O. Box 12430 Rock Hill, SC 29730 (803) 326-2300 chuck.haynes@yorkcountygov.com	Stakeholder

NAME	TITLE	JURISDICTION	CONTACT	PARTICIPATION
ECONOMIC DEVELOPMENT				
Robert Long	Director	Chester County Economic Development	Gateway Commons Business Park 3200 Commerce Dr., Ste. B, Richburg, SC 29729 (803) 377-1216 rlong@choosechester.com	Stakeholder
FIRE SERVICE				
James Jackson	Chief (Fire Department)	City of Chester	156 Columbia Street Chester, SC 29706 (803) 385-2123 jjackson@chesterfiredept.com	Stakeholder
Barkley Ramsey	Fire Coordinator	Chester County	598 Saluda Road Eureka Mill, SC 29706 (803) 581-1441 bramsey@chestercounty.gov	Stakeholder
MEDICAL & EMS				
Forrest Jones	Operations Manager	Chester Regional Medical Center	1 Medical Park Dr. Chester, SC 29706 (803) 581-9402 jonesfo@musc.edu	Stakeholder
Britt Lineberger	EMS Director	Chester County	514 A Government Drive Chester, SC 29706 (803) 377-1132 blineberger@chestercounty.org	Stakeholder
SCHOOL DISTRICT				
Dr. Antwon Sutton	Superintendent for Operations, Chester County School District	Chester County	509 District Office Dr. Chester, SC 29706 (803) 581-9537 asutton@chester.k12.sc.us	Stakeholder

WORK PROGRAM & SCHEDULE

A series of meetings were held to involve the multi-jurisdiction planning team, stakeholders, and the public. Each meeting had specific tasks to accomplish as detailed on the following pages.

The work plan and schedule were sent to Planning Team members and Stakeholders via an invitation email and follow-up email reminders prior to each meeting. A copy of the invitation email sample can be found in the plan appendix.

The Planning Team led by the Chester County Emergency Management Director was responsible for incorporating changes and input. Catawba Regional Council of Governments, the consultant, provided guidance to the update process.

MEETINGS

- March 11, 2021 – Updated Plan Initiated
- May 13, 2021 – Plan Status Meeting #1
- July 21, 2021 – Plan Status Meeting #2
- August 4, 2021 – Initial Planning Meeting
- August 18, 2021 – Public Forum
- August 25, 2021 – Final Planning Meeting
- September 2, 2021 – Plan Status Meeting #3

March 11, 2021 – Plan Update Initiated

- Contract signed between Chester County and Catawba Regional Council of Governments
- Set projected meeting dates and objectives
- Reviewed plan update requirements

May 13, 2021 – Plan Status Meeting #1

- Addressed current plan, requirements, and outline of the 2019 Local Mitigation Plan Review Guide
- Discussed work program and schedule
- Reviewed updated Planning Team and Stakeholders lists
- Discussed outreach options to engage the Planning Team and Stakeholders
- Discussed hazard data, mapping, and other information needed for the update
- Started plan updates in the planning document

Notable Changes:

1) Updated and expanded Planning Team list
2) Updated and expanded Stakeholder list
3) Discussed options for Outreach Strategy

July 12, 2021 – Plan Status Meeting #2

- Reviewed draft plan update
- Discussed section data needed
- Discussed Outreach Strategy

Notable Change:

1) Finalized Community Engagement Plan

August 4, 2021 – Initial Planning Meeting (Planning Team and Stakeholders)
A meeting was held remotely with different jurisdictions / geographical areas of the County to update the Chester County Hazard Mitigation Plan considering the following five (5) objectives:

1. Provide a clear understanding of the goal of the Hazard Mitigation Plan update
2. Complete the Hazard and Vulnerability Assessment Tool
3. Update current hazard mitigation initiatives
4. Create jurisdiction-specific mitigation initiatives
5. Share jurisdiction and exercise outcomes with the entire Planning Team and Stakeholders

Meeting Exercise and results:

Exercise:
Participants completed the Natural Hazard Identification and Analysis Tool (HIA) to rank the County's hazards in a survey following the meeting. The HIA provides a systematic approach to recognizing hazards and how they may affect demand for the County's emergency services or its ability to provide those services. The risks associated with each hazard are analyzed to prioritize planning, mitigation, response, and recovery activities. The HIA serves as a needs assessment for hazard mitigation planning.

The results from the HIA exercise are as follows:
Tornados were rated as the highest impact and potential for occurrence. Wildfires were rated the lowest risk.

Notable Changes:
1) Updated mitigation strategies
2) Updated Hazard and Vulnerability Assessment Tool table based on the Planning Team survey results

August 19, 2021 – Public Forum (Planning Team, Stakeholders, and the Public)

- Presented the plan purpose
- Presented the draft plan

Meeting Exercise and results:

Exercise:
Participants updated the mitigation initiatives' statuses for the 2021 plan update and discussed by jurisdiction.

The results from the Mitigation Initiative exercise are as follows:
One new initiative on swift water rescue was added to the Hazard Mitigation Plan. It included the following details: project description, priority rating, feasibility, cost/benefit score, who is responsible, funding, category, timeline, and status.

Notable Changes:
1) Updated mitigation strategies
2) Discussed continued outreach for the community survey

August 25, 2021 – Final Planning Meeting (Planning Team and Stakeholders)

- Reviewed community survey results to date
- Presented and reviewed new mitigation initiatives
- Presented the draft plan
- Incorporated comments

Notable Changes:

1) Discussed updates to the mitigation strategies
2) Updated mitigation strategies

September 2, 2021 – Plan Status Meeting #3

- Reviewed draft plan update

Notable Changes:

1) Updated mitigation strategies
2) Updated community engagement documentation

SECTION 2: PLANNING TEAM REVISION HISTORY

Section 2 – Planning Team REVISION HISTORY		
Date	**Section**	**Revision Detail**
11/6/2015	Section 2: Planning Team	Modified and updated Table 2.0 Planning Team
11/6/2015	Section 2: Planning Team	Newly added Table 2.1 Stakeholders
4/12/2016	Section 2: Planning Team	Updated the work program and schedule.
4/16/2016	Section 2: Planning Team	Added the May 4, 2016 – Initial Planning Meeting information
5/26/2016	Section 2: Planning Team	Updated the Public forum Meeting notable comments to include public input into the plan.
6/15/2016	Section 2: Planning Team	Updated the Final Planning Team Meeting notable comments to include input into the plan.
7/13/2021	Section 2: Planning Team	Updated Planning Team and Stakeholder Members.
9/9/2021	Section 2: Planning Team	Added 2021 Planning Meetings and Public Forum information.
9/21/2021	Section 2: Planning Team	Renumbered tables.

Section 3: Outreach Strategy

INTRODUCTION

This section of the plan describes the mitigation planning process undertaken by Chester County in the preparation of this Hazard Mitigation Plan Update. The Chester County Hazards Mitigation Planning Team is made up of a number of local government agencies and institutions. This section describes the local jurisdictions and organizations participating in the Planning Team and discusses the organizational structure used to complete the planning process. It also provides a summary of the current status of planning activities by the participants, documenting the level of participation by the jurisdictions making up the Chester County Hazard Mitigation Planning Team.

OVERVIEW OF HAZARD MITIGATION PLANNING

Local hazard mitigation planning is the process of organizing community resources, identifying and assessing hazard risks, and determining how to best minimize or manage those risks. This process results in a hazard mitigation plan that identifies specific mitigation projects, each designed to achieve both short-term planning objectives and long-term community vision. To ensure the functionality of each mitigation project, responsibility is assigned to a specific individual, department or agency along with a schedule for its implementation. Plan maintenance procedures are established for the routine monitoring of implementation progress as well as the evaluation and enhancement of the mitigation plan itself. These plan maintenance procedures ensure that Chester County's Hazard Mitigation Plan remains a current, dynamic, and effective planning document over time.

Mitigation planning offers many benefits, including the following:

- 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 grant funding; and
- Demonstrating a firm commitment to improving community health and safety.

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

The benefits of mitigation planning go beyond reducing hazard vulnerability. Measures such as the acquisition or regulation of land in known hazard areas can help achieve multiple community goals, including preserving open space, maintaining environmental health, and enhancing

recreational opportunities. Thus, it is vitally important that any local mitigation planning process be integrated with other concurrent local planning efforts, and any proposed mitigation strategies must take into account other existing community goals or initiatives that will help complement or hinder their future implementation.

PARTICIPATING JURISDICTIONS AND ORGANIZATIONS

The County of Chester is comprised of the following jurisdictions: City of Chester, Town of Fort Lawn, Town of Great Falls, Town of Lowrys, and Town of Richburg. All of these jurisdictions participated in the previous plan and are participating in this plan update.

The approach to updating the Chester County Hazard Mitigation Plan and the Chester County Hazard Mitigation Planning Team is as follows. The Chester County Emergency Management Agency, on behalf of the Planning Team, contacted each of the local governments relative to the planning process. These entities were defined as the City and County governments and any municipal jurisdiction possessing emergency response facilities, such as a police or fire department.

3. Multi-Jurisdictional Planning Participation	*Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process.*
***Requirement §201.6(a)(3)*:**	A. Does the **new or updated** plan describe **how** each jurisdiction participated in the plan's development?

MULTIJURISDICTIONAL PARTICIPATION

In order to meet the multi-jurisdictional planning participation requirements, each jurisdiction was required to perform the following tasks:

- Be a member on the Planning Team
- Participate in Planning Team meetings (See Appendix A Planning Process Documentation for a list of participants)
- Provide available risk assessment data
- Support the development of the mitigation strategy, including countywide goals and jurisdiction level projects
- Review and provide comments on the draft of the plan update
- Adopt the Chester County Hazard Mitigation Plan

Once the regional Hazard Mitigation Plan was complete, members of the committees and their elected officials were asked to review the plan for their respective jurisdiction.

	*[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.*
4. Documentation of the Planning Process ***Requirement §201.6(c)(1):***	A. Does the plan provide a narrative description of the process followed to prepare the **new or updated** plan? B. Does the **new or updated** plan indicate who was involved in the **current** planning process? (For example, who led the development at the staff level and were there any external contributors such as contractors? Who participated on the plan committee, provided information, reviewed drafts, *etc.*?)

CONTRACTOR ASSISTANCE

Catawba Regional Council of Governments served as the contractor in the development of the 2021 Plan. The contractor provided guidance for the plan update process.

PARTICIPANTS AND THE PLANNING PROCESS

The Chester County Hazard Mitigation Planning Team encourages participation by all interested local jurisdictions and agencies. When implemented, the proposed mitigation initiatives developed by the Planning Team and listed in this plan are intended to make the entire community safer from the impacts of future disasters for the benefit of every individual, neighborhood, business, and institution.

The responsibilities and duties of this organizational structure are detailed in the Defined Duties of the Planning Team, which are provided in the next section. This section summarizes the roles of the different components of the Planning Team and describes the participation that has actually occurred during the planning period covered by this document.

This organizational structure provides for oversight and coordination of the entire planning effort by the program staff, which is made up the Chester County Emergency Management staff. This committee purpose is based on the Mitigation Initiative Project 1.2 (a) Chester County EMA ensures Hazard Mitigation Plans are kept up to date.

The program staff represents all of the local jurisdictions and key organizations participating in the planning process and is the group that makes the official decisions regarding the planning process. The Chester County Emergency Management Agency serves as the official liaison of the Planning Team to the community. Most importantly for this document, however, is the program staff's role to approve proposed mitigation initiatives for incorporation into the plan, determine the priorities for implementation of those initiatives, and remove or terminate initiatives that are no longer desirable for implementation.

The program staff, consisting of representatives from the Chester County Emergency Management Agency and the Catawba Regional Council of Governments, coordinates the actual

technical analyses and planning activities that are fundamental to the development of this plan. These activities include conducting the hazard identification and vulnerability assessment processes as well as receiving and coordinating the mitigation initiatives that are proposed by the Planning Team participants for incorporation into this plan. The coordinating process undertaken between the program staff and the Planning Team constitutes a "peer review" of the proposed mitigation initiatives submitted for incorporation into the plan. Through the peer review, each proposed initiative is to be reviewed for its consistency with the goals and objectives established for the planning process and its relationship to identified hazards and defined vulnerabilities to those hazards.

Individual jurisdictions, and their agencies and local organizations, are the key to accomplishing the planning process. The effort begins with developing a community profile of each participating jurisdiction to document the basic characteristics of their community that are relevant to controlling the impacts of disasters. The program staff, in conjunction with locally appointed Planning Team representatives, then conduct vulnerability assessments of their key facilities and systems within or serving their area to define, specifically, how these may be vulnerable to the impacts of all types of disasters. Finally, the jurisdictions and their organizations use the vulnerability assessments to formulate and characterize mitigation initiatives that they could implement if the resources to do so became available. Once these proposed initiatives are reviewed and the plan has been approved by FEMA, the program staff will then formally submit the plan to the appropriate jurisdictional councils for formal adoption by resolution.

The program staff is responsible for coordinating the efforts to involve the community at large in the mitigation planning process. More detailed information regarding the public information and community outreach activities involved in the development and implementation of this plan are provided in the Public Involvement sub-section of this section.

The program staff has benefited from the assistance and support of the many members that serve on the Chester County Hazard Mitigation Planning Team and as Stakeholders and support staff. Tables 2.1 and 2.2 in Section 2: Planning Team list the Planning Team members and Stakeholders. It is important to note that participation in the Planning Committee is not limited in any manner, and all members of the community, whether representing the public or private sector, are welcome to participate in the planning process.

INVOLVEMENT AND CONSULTATION AMONG ADJACENT JURISDICTIONS

It must be emphasized that, as indicated above, this plan has been developed by the Planning Team through a coordinated effort of all the relevant local jurisdictions within Chester County. The list of participating agencies and organizations, listed within the Planning Team and Stakeholders tables in Section 2, indicates that organizations with public safety, hazard mitigation, land use planning and development, and other interests have been participants in the planning and development of this document.

2. Multi-Jurisdictional Plan Adoption ***Requirement §201.6(c)(5)*:**	*For multi-jurisdictional plans, each jurisdiction requesting approval of the plan **must** document that it has been formally adopted.* A. Does the **new or updated** plan indicate the specific jurisdictions represented in the plan?

3. Multi-Jurisdictional Planning Participation ***Requirement §201.6(a)(3)*:**	*Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process.* B. Does the updated plan identify all participating jurisdictions, including new, continuing, and the jurisdictions that no longer participate in the plan?

4. Documentation of the Planning Process ***Requirement §201.6(b):***	***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;* B. Does the **new or updated** plan indicate who was involved in the current planning process?

MULTI-JURISDICTIONAL PLANNING PARTICIPATION

Tables 2.1 and 2.2 provided in Section 2: Planning Team represent Chester County jurisdiction representatives and their participation on the Planning Team or as Stakeholders.

4. Documentation of the Planning Process ***Requirement §201.6(b):***	***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;* C. Does the **new or updated** plan indicate how the public was involved? (Was the public provided an opportunity to comment on the plan during the drafting stage and prior to the plan approval?) D. **Does the new or updated plan discuss the** opportunity for neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties to be involved in the planning process?

PUBLIC INVOLVEMENT

A fundamental component of Chester County's community-based mitigation planning process involves public participation. Individual citizen involvement provides the Mitigation Planning Team with a greater understanding of local concerns and ensures a higher degree of mitigation success by developing community "buy-in" from those directly affected by the planning decisions of the public officials. As citizens become more involved in decisions that affect their lives and safety, they are more likely to gain a greater appreciation of the natural hazards present in their

community and take personal steps to reduce their potential impact. Public awareness is a key component of an overall mitigation strategy aimed at making a home, neighborhood, school, business, or city safer from the potential effects of natural hazards.

The process for gaining public input was sought using three methods: (1) a public forum meeting, (2) an online survey, and (3) the plan was posted on the County website to solicit written feedback. The Hazard Mitigation Plan update took place during the Covid-19 pandemic, so much of the community engagement occurred remotely. For instance, the public had the option of attending the public forum virtually rather than in person.

The public, neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties were given the opportunity to comment on the content of current plan at a public forum conducted on Wednesday, August 25, 2021, at the Chester County Government Complex in the City of Chester and via Zoom. Copies of the plan were made available to the general public at the public forum at no expense to the requesting individuals. Public notice was given via newspaper advertisements, the Chester County website, and social media prior to the meetings. The newspaper notice of the public forum can be found in Section 10: Appendices.

ONLINE SURVEY

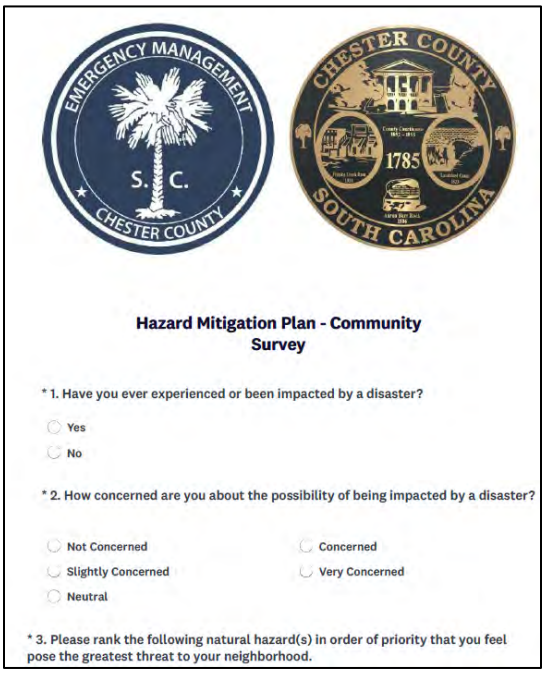
Chester County Emergency Management created an online hazard mitigation survey to gain a better understanding of the types of hazards that members of the general public feel pose a risk to the County. The survey also contained questions regarding actions that local communities can take to mitigate the impact of hazards as well as strategies that local, state, and federal governments can implement to lessen disaster losses.

Online Hazard Mitigation Survey Sample

Hazard Mitigation Plan - Community Survey

Introduction

The Chester County Hazard Mitigation Plan update is being prepared in partnership with the City of Chester and the towns of Fort Lawn, Great Falls, Lowrys, and Richburg. Hazard mitigation planning includes the community as a whole consider risks to hazards and collaborate on strategies that will reduce the impacts of disasters before they happen. Your feedback will be incorporated in the Chester County Hazard Mitigation Plan. Thank you for your time and assistance.



Hazard Mitigation Plan - Community Survey

* 1. Have you ever experienced or been impacted by a disaster?

- Yes
- No

* 2. How concerned are you about the possibility of being impacted by a disaster?

- Not Concerned
- Slightly Concerned
- Neutral
- Concerned
- Very Concerned

* 3. Please rank the following natural hazard(s) in order of priority that you feel pose the greatest threat to your neighborhood.

Survey Results -

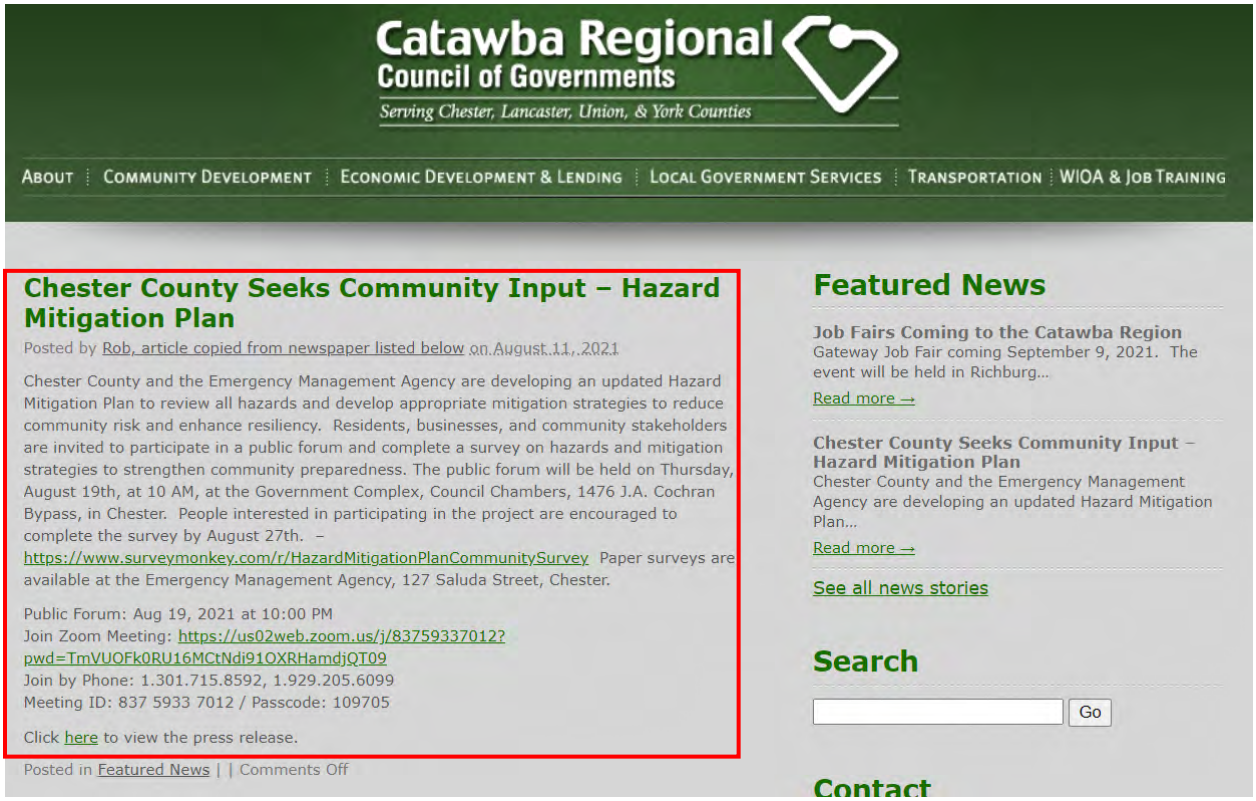
Online survey respondents included the following jurisdictions and unincorporated areas within Chester County: Chester, Fort Lawn, Great Falls, Lowrys, Richburg, and Edgemoor. Notable responses included the following unscripted comments when asked to "Share your ideas on what can be done to reduce the impact of future natural hazards in your neighborhood":

- Need to keep culverts and storm drains clear of debris that would allow stormwater to run off without flooding roadways and property.
- Place power lines underground.
- Hold community clean up events to clean off overgrown storm drain areas.
- Develop a community network to plan and react to current and potential hazards in the area.
- Do more to help mitigate the effects of beaver dams, which can lead to increased flood risk in the area.
- Do community outreach at events where information can be disseminated.

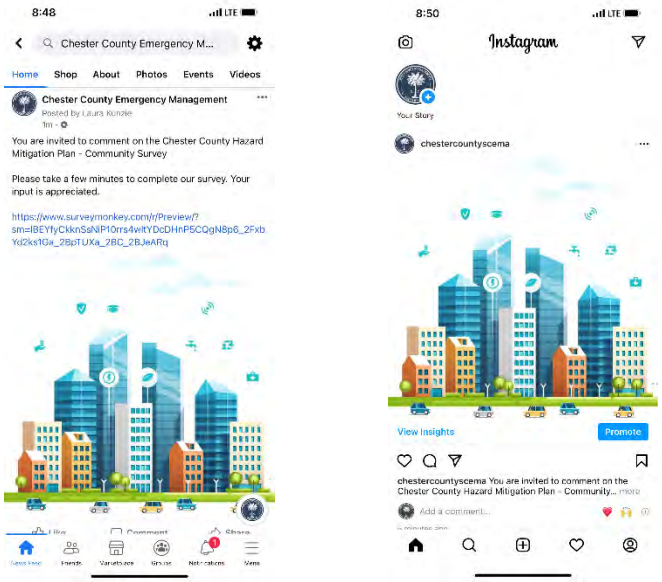
A full survey results report can be found in Appendix A.

CHESTER COUNTY WEBSITE

The community survey was posted on the Catawba Regional Council of Governments website, the Chester County website, and the EMA Facebook and Instagram pages. The survey was also sent to Chester County employees and the Local Emergency Planning Committee (LEPC).



http://catawbacog.org/featured-news/chester-county-seeks-community-input-hazard-mitigation-plan/
http://www.chestercounty.org/government/emergency-management-agency.aspx



https://www.facebook.com/ChesterCountyEmergencyManagement/
https://www.instagram.com/chestercountyscema/

TABLE 3.1: OUTREACH ACTIVITIES

Activity	Planning Team	Stakeholders	Public
Invitational Email	Date: July 2021 Planning Team information, work plan, and schedule. ⓘ	Date: July 2021 Stakeholder information, work plan, and schedule. ⓘ	
Initial Planning Meeting(s)	Date: Wednesday August 4, 2021 • Updated mitigation initiatives and added new projects. • Reviewed the plan update and changed requirements. ⓘ 🗣	Date: Wednesday, August 4, 2021 • Updated mitigation initiatives and added new projects. • Reviewed the plan update and changed requirements. ⓘ 🗣	
Public Forum	Date: Wednesday, August 18, 2021 • Reviewed the plan purpose and draft plan. • Updated mitigation initiatives. ⓘ 🗣	Date: Wednesday, August 18, 2021 • Reviewed the plan purpose and draft plan. • Updated mitigation initiatives. ⓘ 🗣	Date: Wednesday, August 18, 2021 • Reviewed the plan purpose and draft plan. • Updated mitigation initiatives. ⓘ 🗣
Final Planning Meeting	Date: Wednesday, August 25, 2021 • Reviewed the community survey results to date. • Reviewed the draft plan and the updated mitigation initiatives. • Updated mitigation initiatives based on group discussion. ⓘ 🗣	Date: Wednesday, August 25, 2021 • Reviewed the community survey results to date. • Reviewed the draft plan and the updated mitigation initiatives. • Updated mitigation initiatives based on group discussion. ⓘ 🗣	
Adoption Resolution Meetings	Date: December 2021 Specific dates and times for Adoption Resolutions will be posted by jurisdiction via local government media mechanisms. ⓘ	Date: December 2021 Specific dates and times for Adoption Resolutions will be posted by jurisdiction via local government media mechanisms. ⓘ	Date: December 2021 Specific dates and times for Adoption Resolutions will be posted by jurisdiction via local government media mechanisms. ⓘ
Online Surveys	Date: August 5, 2021 Online survey designed to collect input on the Natural Hazard Identification and Analysis Tool table from the Planning Team. Date: August 11, 2021	Date: August 5, 2021 Online survey designed to collect input on the Natural Hazard Identification and Analysis Tool table from Stakeholders. Date: August 11, 2021	Date: August 11, 2021 Online survey designed to gain a better understanding of the hazards that members of the general public feel pose a risk to their neighborhoods and of the public's preparedness for potential hazards.

Activity	Planning Team	Stakeholders	Public
	Online survey designed to collect jurisdictional hazard mitigation data, input, perspectives, priorities, and ideas from the Planning Team. 🗣	Online survey designed to collect jurisdictional hazard mitigation data, input, perspectives, priorities, and ideas from Stakeholders. 🗣	🗣
Website and Social Media (Facebook)	Date: August 2021 Posted pre-adoption plan on the Emergency Management website for comment. ⓘ 🗣	Date: August 2021 Posted pre-adoption plan on the Emergency Management website for comment. The plan will continue to be available post plan adoption and during the plan's implementation, monitoring, and evaluation. ⓘ 🗣	Date: August 2021 Posted pre-adoption plan on the Emergency Management website for comment. ⓘ 🗣
News Media	Local news media used to announce Stakeholder and Public Forum and Online Survey. ⓘ	Local news media used to announce Stakeholder and Public Forum and Online Survey. ⓘ	Local news media used to announce Stakeholder and Public Forum and Online Survey. ⓘ
Email and/or Letter	Emails sent as a secondary reminder prior to the initial planning team meeting, stakeholder and public forum, final planning team meeting, and Plan Adoption Resolution meetings. ⓘ 🗣	Emails sent as a secondary reminder prior to the initial planning team meeting, stakeholder and public forum, final planning team meeting, and Plan Adoption Resolution meetings. ⓘ 🗣	

ⓘ **Provides Data and Informs:** Provides data and information that improves overall quality and accuracy of the plan. Informs and educates about hazards and risks.

🗣 **Opportunity to Comment:** Invites interested parties to contribute their views and ideas for mitigation and a forum for the planning team, stakeholders, and the public to comment on the plan prior to adoption.

INTEGRATING THE PLAN INTO LOCAL PLANNING MECHANISMS

19. Incorporation into Existing Planning Mechanisms ***Requirement §201.6(b)(3)***	In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: C. Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

Opportunities to integrate the requirements of this plan into other local planning mechanisms shall continue to be identified through future meetings of the Planning Team and through the five-year review process described herein. These local planning mechanisms could include the County's and/or City's comprehensive plan, zoning ordinance, floodplain management ordinance, or capital improvements plan. Although it is recognized that there are many possible benefits to integrating components of this plan into other local planning mechanisms, the development and maintenance of this stand-alone Multi-Jurisdictional Hazard Mitigation Plan is deemed by the Chester County Planning Team to be the most effective and appropriate method to implement local hazard mitigation actions at this time. As such, the primary means for integrating mitigation strategies into other local planning mechanisms will be through the revision, update, and implementation of each jurisdiction's individual mitigation projects that require specific planning and administrative tasks (i.e., plan amendments, ordinance revisions, capital improvement projects, etc.).

19. Incorporation into Existing Planning Mechanisms ***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, when appropriate.* C. Does the **updated** plan explain how the local government incorporated the mitigation strategy and other information contained in the plan (*e.g.*, risk assessment) into other planning mechanisms, when appropriate?

The Chester County Emergency Management Agency will work with County officials to ensure mitigation strategies are included in planning by emailing a copy of the mitigation strategies so that everyone is aware and coordinating meetings as mitigation activities are begun. This will allow for well-organized meetings and will ensure the right people are involved at the meetings, while the Chester County Emergency Management ensures participation and commitment from key community partners. The participation that led to the plan revision was the result of existing community networks, and these networks will continue to participate as the community wide mitigation activities identified in the plan are begun.

These connections will continue for other plans and projects within the County. As development plans come into the Chester County Building and Zoning Department, reviewers will need to keep in mind potential hazard mitigation actions that may need to be implemented. The adopted building codes for the County include many standards that mitigate potential hazard damage. The County stays current in the adoption of upgraded codes, ensuring that new construction activities will meet the highest standard available for hazards such as floodplains and earthquakes.

Additionally, the County and other partners have many existing programs that will be linked to mitigation projects and the inclusion of mitigation strategies into planning mechanisms. More information regarding mitigation projects' inclusion of mitigation strategies into planning policies can be found in Section 9: Safe & Resilient Community.

INCORPORATION OF EXISTING PLANS, STUDIES, AND TECHNICAL INFORMATION

This plan was updated using a variety of technical information, local plans, studies, and reports including the following:

Technical Information:

- FEMA Bluebook (Local Mitigation Planning Handbook – March 2013)
- Local Mitigation Plan Review Guide (October 2011)
- Local Mitigation Plan Review Tool
- National Weather Service

Risk Assessment:

- Land Use Plan
- South Carolina Dam Safety Program
- South Carolina Flood Mitigation Program
- South Carolina Earthquake Plan
- DAM Report
- Floodplain Plan
- Chester Metropolitan District Drought Policy

SECTION 3: OUTREACH STRATEGY REVISION HISTORY

Section 3 – Outreach Strategy REVISION HISTORY		
Date	**Section**	**Revision Detail**
7/28/2010	Section 3	Added a revision history table.
7/28/2010	Participating Jurisdictions and Organizations	Added the following statement: The County of Chester is comprised of the following jurisdictions: City of Chester, Town of Fort Lawn, Town of Great Falls, and the Town of Richburg. All of these jurisdictions participated in the previous plan and are participating in this plan update.
7/28/2010	Multijurisdictional Participation	Added the Multijurisdictional Participation Section.
7/28/2010	Contractor Assistance	Added the Contractor Assistance section.
7/28/2010	The Planning Team Organizational Structure	Changes to the structure of the program staff organizational structure. Change from appointed members of county jurisdictions or organizations to the Chester County Emergency Management Agency. This change was in response to the 2010 Planning Team planning meeting to meet the requirements of the Mitigation Initiative Project 1.2 (a) Chester County EMA ensures Hazard Mitigation Plans are kept Up-To-Date.
7/28/2010	Mitigation Planning Team	Updated the Mitigation Planning Team membership list. Also included participant information for the program staff and Planning Committee.
7/28/2010	Public Involvement	Added paragraph: A fundamental component of Chester County's community-based mitigation planning process involves public participation. Removed paragraph regarding the forming of the Hazard Mitigation Committees based on meetings with the COG to go over GIS data for each jurisdiction. We have not continued to follow this same process since the program staff has changed from the COG to EMA.
7/28/2010	Plan Maintenance Process	Added the entire section on Plan Maintenance Process including the following subsections: • Overview • Implementation • Monitoring, Evaluating, and Updating • Continued Public Involvement • Plan Update Requirement
7/28/2010	Meeting	Added the following meetings and notable outcomes: • July 20, 2010 – Kickoff Meeting • July 21, 2010 – Plan Development Meeting • July 27, 2010 – Initial Planning Team Meeting • August 17, 2010 – Public Meeting • August 31, 2010 – Final Planning Team & Public Meeting
7/28/2010	Incorporation of Existing Plans, Studies, & Technical Information	Added the entire section of Incorporation of Existing Plans, Studies, & Technical Information.
11/11/15	Section 3: Outreach Strategy	Added Table 3.0 Outreach Activities Table.
5/26/2016	Section 3: Outreach Strategy	Added the Public Forum newspaper and Facebook announcements.

Section 3 – Outreach Strategy REVISION HISTORY		
Date	**Section**	**Revision Detail**
6/21/2016	Section 3: Outreach Strategy	Added Chester County website and EMA Facebook page postings of the draft plan made available to the public for comment prior to plan adoption by the jurisdictions.
6/21/2016	Section 3: Outreach Strategy	Added the online Hazard Mitigation Survey information.
9/8/2021	Section 3: Outreach Strategy	Updated the Public Involvement, Online Survey, and Chester County Website sections with 2021 information.
9/9/2021	Section 3: Outreach Strategy	Updated and renumbered Table 3.1: Outreach Activities.

Section 4: Community Capabilities

INTRODUCTION: COMMUNITY CAPABILITIES

The Community Capabilities section provides a comprehensive examination of Chester County and participating jurisdictions' capacity to implement meaningful mitigation strategies and identifies existing opportunities to increase and enhance that capacity. Specific capabilities addressed in this section include planning and regulatory, staff and organizational (administrative), technical, fiscal, and political capabilities. Information was obtained through use of the detailed capability assessment worksheets and an inventory and analysis of existing plans, ordinances, and relevant documents. The purpose of this assessment is to identify any existing gaps, weaknesses, or conflicts in programs and activities that may hinder mitigation efforts and to identify those activities that should be built upon in establishing a successful hazard mitigation program.

NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

Chester County, the City of Chester, and the Town of Great Falls participate in the National Flood Insurance Program. The Towns of Fort Lawn, Richburg, and Lowrys do not have any Special Flood Hazard Areas within their respective town limits and therefore do not take part in the National Flood Insurance Program. There have been no repetitive loss properties and no severe repetitive loss properties reported from any jurisdiction.

Chester County last updated their floodplain management prevention ordinance in May 2017. The City of Chester is currently in the process of updating their ordinance.

Chester County's floodplain management program ensures compliance of the NFIP by enforcing regulations and policies that require pre-construction site approval prior to any structure being built within a floodplain zone. An application with the County Planning and Zoning Department, which is also the office of the Floodplain Manager, is required to identify the property being developed and to determine if it is within an existing flood zone. Development is permitted in a floodplain but requires a permit and is enforced through inspections. All new development in the County detailed in Section 1: Planning Area Updates are in compliance with the community floodplain management ordinances.

WORKSHEET 4.1: CAPABILITY ASSESSMENT WORKSHEET

Jurisdictions: Chester County, City of Chester, Town of Fort Lawn, Town of Great Falls, Town of Lowrys, and Town of Richburg. The Town of Fort Lawn is exempt from participating in the below county level plans.

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible. Complete one worksheet for each jurisdiction.

PLANNING AND REGULATORY

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Please indicate which of the following your jurisdiction has in place.

*All the available plans below can be utilized to identify and implement mitigation initiatives.

Planning and Regulatory		
Plans	**Yes/No Year**	• Does the plan address hazards? • Does the plan identify projects to include in the mitigation strategy? • Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Yes*	This plan is required to be updated every 10 years but is updated every 5 years. It's currently being updated and is expected to be completed June 2017. The plan includes flood mitigation and strategic land ordinances which comply with the current hazard mitigation plan and can be used to develop and implement mitigation initiatives. 2021 Update: The plan should be updated and adopted in September or October 2021.
Capital Improvements Plan	Yes*	The plan is ongoing.
Economic Development Plan	Yes*	This is part of the County's Strategic Plan.
Local Emergency Operations Plan	Yes*	This plan specifically addresses hazards.
Continuity of Operations Plan	No	
Transportation Plan	Yes*	Chester County is a part of the Catawba Regional Council of Government's 2015-2040 Rural Long Range Transportation Plan, which was last updated in 2020.

Planning and Regulatory		
Plans	**Yes/No Year**	• Does the plan address hazards? • Does the plan identify projects to include in the mitigation strategy? • Can the plan be used to implement mitigation actions?
Stormwater Management Plan	No	The Department of Health and Environmental Controls manages stormwater runoff.
Community Wildfire Protection Plan	Yes*	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	Yes*	Brownfields plan.

Planning and Regulatory Continued		
Building Code, Permitting, and Inspections	Yes/No	Are codes adequately enforced?
Building Code	Yes	Version/Year: 2018
Building Code Effectiveness Grading Schedule (BCEGS) Score		Score: 3-1&2 Family Residential and 2-Commercial & Industry Property
Fire department ISO rating		By fire department, the ratings are as follows: Fort Lawn Fire Department: 4/6 Great Falls Fire Department: 4/9 Lando Fire Department: 4/10 Leeds Fire Department: 9 Lewis Fire Department: 4/10 North Chester Fire Department: 5/10 Richburg Fire Department: 4/10 Rossville Fire Department: 6/10 South Chester Fire Department: 6/10 West Chester Fire Department: 5/10 Crossroads Fire Department: 6/10
Site plan review requirements	Yes	
Land Use Planning and Ordinances	**Yes/No**	Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes	Yes to both questions above.
Subdivision ordinance	Yes	Yes to both questions above.
Floodplain ordinance	Yes	Yes to both questions above.
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes	Yes, to both questions above. Also refer to Stormwater Management Plan (DHEC)
Flood insurance rate maps	Yes	Yes to both questions above.
Acquisition of land for open space and public recreation uses	Yes	Yes, to both questions above. In the Subdivision Ordinance
Other		
How can these capabilities be expanded and improved to reduce risk?		

ADMINISTRATIVE AND TECHNICAL

Identify whether your community has the following administrative and technical capabilities. These include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments.

Administrative and Technical		
Administration	**Yes/No**	Describe capability. Is coordination effective?
Planning Commission	Yes	The planning commission has six districts and one at-large member. Together they represent all jurisdictions.
Mitigation Planning Committee	Yes	The Chester County Mitigation Planning Team has 10 members who represent all jurisdictions for the mitigation plan and either have authority to adopt the plan, provide significant expertise in developing the plan, or integrate mitigation initiatives into their local planning mechanisms.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes	
Mutual aid agreements	Yes	
Staff	**Yes/No**	Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	Yes	All staff in this section are either on the Planning Team or are stakeholders for the Chester County Hazard Mitigation Plan.
Floodplain Administrator	Yes	
Emergency Manager	Yes	
Community Planner	Yes	
Civil Engineer	No	
GIS Coordinator	Yes	Catawba Regional Council of Government (Catawba COG)
Other		
Technical	**Yes/No**	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (Reverse 911, outdoor warning signals)	No	A grant for 3 sirens around Chester was applied for.

Hazard data and information	Yes	
Grant writing	Yes	
HAZUS analysis	Yes	
Other		
How can these capabilities be expanded and improved to reduce risk?		

14. Identification and Analysis of Mitigation Actions ***Requirement §201.6(c)(3):***	The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools.

PLANNING & REGULATORY

WORKSHEET 4.2: SAFE GROWTH AUDIT

Use this worksheet to identify gaps in your community's growth guidance instruments and improvements that could be made to reduce vulnerability to future development.

Comprehensive Plan		
Land Use	**Yes**	**No**
1. Does the future land-use map clearly identify natural hazard areas?	✓	
2. Do the land-use policies discourage development or redevelopment within natural hazard areas?	✓	
3. Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas?	✓	
Transportation	**Yes**	**No**
1. Does the transportation plan limit access to hazard areas?	✓	
Chester County is part of the Catawba Regional Council of Governments' 2015-2040 Rural Long Range Transportation Plan, which was last updated in 2020.		
2. Is transportation policy used to guide growth to safe locations?	✓	
3. Are movement systems designed to function under disaster conditions (e.g., evacuation)?	✓	

Comprehensive Plan Continued		
Environmental Management	**Yes**	**No**
1. Are environmental systems that protect development from hazards identified and mapped?		✓
2. Do environmental policies maintain and restore protective ecosystems?	✓	
3. Do environmental policies provide incentives to development that is located outside protective ecosystems?		✓
Public Safety	**Yes**	**No**
1. Are the goals and policies of the comprehensive plan related to those of the FEMA Local Hazard Mitigation Plan?	✓	
2. Is safety explicitly included in the plan's growth and development policies?	✓	
3. Does the monitoring and implementation section of the plan cover safe growth objectives?	✓	

Comprehensive Plan Continued		
Zoning Ordinance	**Yes**	**No**
1. Does the zoning ordinance conform to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas?	✓	
2. Does the ordinance contain natural hazard overlay zones that set conditions for land use within such zones?	✓	
3. Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?	✓	
4. Does the ordinance prohibit development within, or filling of, wetlands, floodways, and floodplains?	✓	
Subdivision Regulations	**Yes**	**No**
1. Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?	✓	
2. Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?	✓	
3. Do the regulations allow density transfers where hazard areas exist?	✓	

Comprehensive Plan Continued		
Capital Improvement Program and Infrastructure Policies	**Yes**	**No**
1. Does the capital improvement program limit expenditures on projects that would encourage development in areas vulnerable to natural hazards?	✓	
2. Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards?	✓	
3. Does the capital improvement program provide funding for hazard mitigation projects identified in the FEMA Mitigation Plan?	✓	
Capital Improvement Program and Infrastructure Policies	**Yes**	**No**
1. Do small area or corridor plans recognize the need to avoid or mitigate natural hazards?	✓	
2. Does the building code contain provisions to strengthen or elevate construction to withstand hazard forces?	✓	
3. Do economic development or redevelopment strategies include provisions for mitigation natural hazards?	✓	
4. Is there an adopted evacuation and shelter plan to deal with emergencies from natural hazards?	✓	

Questions adapted from Godschalk, David R. Practice Safe Growth Audits, *Zoning Practice*, Issue Number 10, October 2009, American Planning Association. http://www.planning.org/zoningpractice/open/pdf/oct09.pdf.

SECTION 4: COMMUNITY CAPABILITIES REVISION HISTORY

Section 4 – Community Capabilities REVISION HISTORY		
Date	**Section**	**Revision Detail**
9/13/2021	Section 4	Added a revision history table.
9/13/2021	Section 4	Updated Worksheet 4.1: Capabilities Assessment Worksheet and Worksheet 4.2: Safe Growth Audit.

Section 5: Risk Assessment

INTRODUCTION

This section identifies, describes, and analyzes the natural hazards present in Chester County and its municipalities that can threaten human life and damage property.

For the purpose of this plan, mapping and analysis was only performed for hazards for which there was reliable and readily available GIS (Geographic Information System) based data available.

For each hazard listed, there are a description, a listing of historical occurrences, and a hazard analysis. For many items, there are no reliable and readily available data sets identifying localized occurrences. For these, maps have been provided that show the County's risk for that event in relation to the state.

POTENTIAL HAZARDS

Due to its geographical setting, Chester County is vulnerable to a wide array of natural hazards that threaten life and property. Potential hazards include the following:

1) Flooding
2) Hurricanes and Tropical Storms
3) Tornadoes
4) Severe Winter Storms
5) Severe Thunderstorms, Hail, & Lightning
6) Wildfires
7) Earthquakes
8) Droughts
9) Extreme Heat
10) Dams
11) Windstorm

Some of these hazards are interrelated (i.e., hurricanes can cause flooding and tornadoes), and some consist of hazardous elements that are not listed separately (i.e., severe thunderstorms can cause lightning). This section provides general descriptions for each of the above listed hazards along with their hazardous elements and provides information on historical hazard occurrences in Chester County. Historical records are used to help identify the level of risk, with the methodological assumption that the data sources cited are reliable and accurate.

This specific listing of hazards was decided upon by the mitigation program staff during the 2016 plan revision process. Table 5.1 documents the decision-making process as it related to those hazards that were identified, analyzed, and assessed through the development of the risk assessment.

TABLE 5.1: SELECTION OF NATURAL HAZARDS FOR INCLUSION IN RISK ASSESSMENT

Hazard	Hazard Identification	Hazard Analysis	Vulnerability Assessment
Flooding	Yes	Yes	Yes
Hurricanes & Tropical Storms	Yes	Yes	Yes
Tornadoes	Yes	Yes	Yes
Severe Winter Storms	Yes	Yes	Yes
Severe Thunderstorms, Hail, & Lightning	Yes	Yes	Yes
Wildfires	Yes	Yes	Yes
Earthquakes	Yes	Yes	Yes
Droughts	Yes	Yes	Yes
Extreme Heat	Yes	Yes	Yes
Dams	Yes	Yes	Yes
Windstorm	Yes	Yes	Yes

Risk Profile Table Data Definitions

Data Sources*:* The main data sources were "Storm Data and Unusual Weather Phenomena" by the National Climatic Data Center, information from the National Geophysical Data Center, and the Storm Prediction Center.

Previous Occurrences: The previous occurrence is represented by a range of dates which denote the start date and end date of the hazard event.

Hazard Type: The hazard type can be represented as a single hazard or a predominate hazard with additional associated hazards. For example, a severe thunderstorm can also include winds, or flooding could result from a thunderstorm. Predominate hazard types are listed as the first event in the data tables.

6. Profiling Hazards	*[The risk assessment **shall** include a] description of the … location and extent of all natural hazards that can affect the jurisdiction.*
Requirement §201.6(c)(2)(i):	*A. Does the risk assessment identify the **location** (i.e., geographic area affected) of each natural hazard addressed in the **new or updated** plan?*

Location: When information regarding the jurisdiction within the County was not available the location refers only to Chester County. There is limited hazard data available to distinguish between the jurisdictions within Chester County.

6. Profiling Hazards	*[The risk assessment **shall** include a] description of the … location and extent of all natural hazards that can affect the jurisdiction.*
Requirement §201.6(c)(2)(i):	B. Does the risk assessment identify the **extent** (*i.e.*, magnitude or severity) of each hazard addressed in the **new or updated** plan?

Extent of Damage: The extent of damage is represented using five data points: number of injuries, number of fatalities, property damage ($), crop damage ($), and magnitude. Additional information about each data point is listed below.

> **Magnitude Note**: Where data, such as storm category, wind speed, rain fall levels, hail size, and other measurable information, was available, it was included.

Injuries & Fatalities: Casualties and damage information are listed without sufficient spatial reference. For instance, the damage caused by a singular natural hazard could be listed as:

> South Carolina Catawba Region - January 20, 1988 - Snow Storm - 1 fatalities - 6 injuries - $100,000 of property damage
>
> In order to assign the damage amount to a specific county, the fatalities, injuries and dollar losses need to be divided by the number of counties affected from this event. In the snowstorm example provided above, the losses would be split between the three counties. Thus, the event would enter the database as:
>
> York - January 20, 1988 - Snow Storm - 0.33 fatality - 2 injuries - $33,333.33 property damage
> Chester - January 20, 1988 - Snow Storm - 0.33 fatality - 2 injuries - $33,333.33 property damage
> Union - January 20, 1988 - Snow Storm - 0.33 fatality - 2 injuries - $33,333.33 property damage

Property & Crop Damage: The National Climatic Data Center (NCDC) changed its reporting procedures in 1995. Starting this year, both categorical as well as exact dollar losses have been reported by NCDC. Thus, the majority of the records from 1995 onwards are exact damage figures that have been reported as such by NCDC and that have not undergone any processing (exemption: events affecting multiple counties).

In addition, NCDC has also improved its spatial reporting system. Instead of reporting affected regions and an associated damage figure that would have been distributed across the affected counties, NCDC has moved on to reporting every single county and its associated damage separately.

Thus from 1995-2000, every event that caused property or crop damages has been included. This change in methodology was necessary due to NCDC's change in reporting. Consequently, many small damage figures are involved, like $500, $1000, etc., in 1995-2000 events.

From 1960 - 1995 we have only selected events with property or crop damage higher than $50,000 (equals NCDCs logarithmic category 5=$50,000 to $500,000), whereas from 1995 onwards we have included all property or crop damage-causing events reported in NCDC's Storm Data publications.

Magnitude (Mag.): Refers to the severity of the hazard itself as it impacts the planning area and could refer to temperature, category rating, rainfall levels, or etc. There is more data available regarding the magnitude, but it is still incomplete. Where magnitude data is not available for a historical event, NA (Not Available) is used in the table. Injuries, fatalities, property damage, and crop damage are used in conjunction with Magnitude (Mag.) to determine the overall extent of damage.

CRITICAL FACILITIES AND INFRASTRUCTURE

- Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic and/or water-reactive materials;
- Hospitals, nursing homes, and housing likely to contain occupants who may not be sufficiently mobile to avoid death or injury during a flood;
- Police stations, fire stations, vehicle and equipment storage facilities, and emergency operations centers that are needed for flood response activities before, during, and after a flood; and
- Public and private utility facilities that are vital to maintaining or restoring normal services to flooded areas before, during, and after a flood.

6. Profiling Hazards ***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.* *A. Does the risk assessment identify the **location** (i.e., geographic area affected) of each natural hazard addressed in the **new or updated** plan?*

7. Assessing Vulnerability: Overview ***Requirement §201.6(c)(2)(ii):***	*[The risk assessment **shall** include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description **shall** include an overall summary of each hazard and its impact on the community.* B. Does the **new or updated** plan address the **impact** of each hazard on the jurisdiction?

Each hazard includes a map(s) detailing the geographic area, and hazard profiles tables address the impact of each hazard on the jurisdictions.

Mitigation Priority Ranking is based on GIS data mapping.

NATURAL HAZARD IDENTIFICATION AND ANALYSIS

Chester County conducts a risk assessment using the Natural Hazard Identification and Analysis Tool (HIA). The HIA provides a systematic approach to recognizing hazards that may threaten life and property within the County. The risks associated with each hazard are analyzed to prioritize planning, mitigation, response, and recovery activities. The HIA serves as a needs assessment for Hazard Mitigation. This process involves the Planning Team and Stakeholders.

5. Identifying 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.*

7. Assessing Vulnerability: Overview ***Requirement §201.6(c)(2)(ii):***	The risk assessment **shall** include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description **shall** include an overall summary of each hazard and its impact on the community. A. Does the **new or updated** plan address the **impact** of each hazard on the jurisdiction?

INSTRUCTIONS:
Evaluate potential for event and response among the following categories using the hazard specific scale. Assume each event incident occurs at the worst possible time (e.g. during peak weekday working hours).

Issues to consider for **probability** include, but are not limited to:
1 Known risk
2 Historical data

Issues to consider for **response** (quick and robust community response is the key to saving lives and property) include, but are not limited to:
1 Time to deploy an on-scene response
2 Scope of response capability
3 Historical evaluation of response success

Issues to consider for **human impact** include, but are not limited to:
1 Potential for response personnel death or injury
2 Potential for population death or injury

Issues to consider for **property impact** include, but are not limited to:
1 Cost to replace
2 Cost to set up temporary replacement
3 Cost to repair
4 Time to recover

Issues to consider for **business impact** include, but are not limited to:
1 Business interruption
2 Employees unable to report to work
3 Customers unable to reach facility
4 Company in violation of contractual agreements
5 Imposition of fines and penalties or legal costs
6 Interruption of critical supplies
7 Interruption of product distribution
9 Financial burden

Issues to consider for **preparedness** (effective response to disaster begins with effective planning) include, but are not limited to:
1 Status of current plans
2 Preparedness actions/Frequency of drills
3 Standard Operating Procedures (set out roles and specific actions to be taken when a disaster occurs)
4 Insurance
5 Availability of alternate sources for critical supplies/services
6 Early warning systems (e.g., sirens, reverse 911, etc.)
7 Mitigation actions

Issues to consider for **county response (**Manageability: the capacity to respond to needs created by a disaster) include, but are not limited to:
1 Types of supplies on hand/will they meet need?
2 Volume of supplies on hand/will they meet need?
3 Responder availability
4 Coordination within county responders and resources
5 Availability of back-up systems
6 Internal resources ability to withstand disasters/survivability (e.g., emergency supplies, etc.)
7 Emergency communications

Issues to consider for **external resources** include, but are not limited to:
1 Types of agreements with community agencies/drills
2 Coordination with local and state agencies
3 Coordination with nearby health care facilities
4 Coordination with treatment specific facilities
5 Community resources

TABLE 5.2: NATURAL HAZARD IDENTIFICATION AND ANALYSIS TOOL

NATURAL HAZARD IDENTIFICATION AND ANALYSIS TOOL
NATURALLY OCCURRING EVENTS

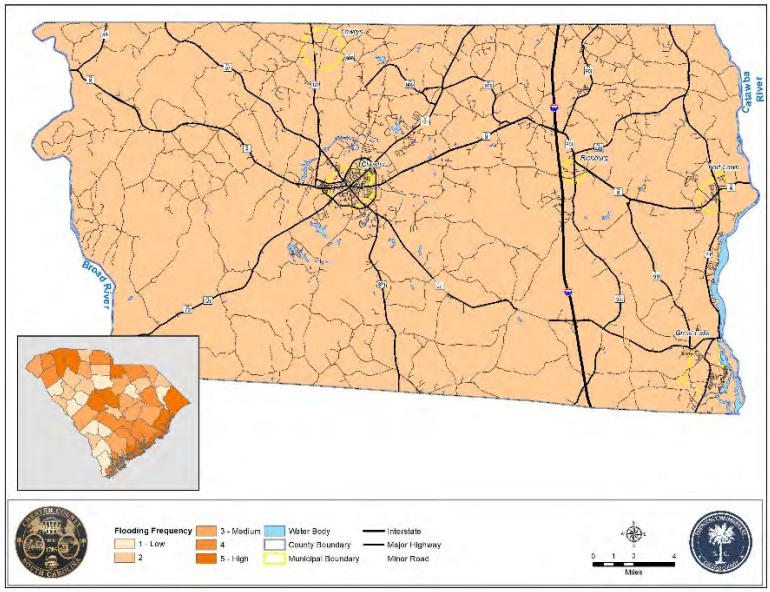
		SEVERITY = (MAGNITUDE - MITIGATION)						
EVENT	**PROBABILITY**	**HUMAN IMPACT**	**PROPERTY IMPACT**	**BUSINESS IMPACT**	**PREPAREDNESS**	**COUNTY RESPONSE**	**EXTERNAL RESOURCES**	**RISK**
	Likelihood this will occur	*Possibility of death or injury*	*Physical losses and damages*	*Interruption of services*	*Preplanning & Exercises*	*Time, effectiveness, resources*	*Community/Mutual Aid support and supplies*	*Relative threat**
SCORE	*0 = N/A 1 = Low 2 = Moderate 3 = High*	*0 = N/A 1 = Low 2 = Moderate 3 = High*	*0 = N/A 1 = Low 2 = Moderate 3 = High*	*0 = N/A 1 = Low 2 = Moderate 3 = High*	*0 = N/A 1 = High 2 = Moderate 3 = Low or none*	*0 = N/A 1 = High 2 = Moderate 3 = Low or none*	*0 = N/A 1 = High 2 = Moderate 3 = Low or none*	*0 - 100%*
Flooding	2	1	2	2	2	1	2	**37%**
Hurricanes & Tropical Storms	3	2	2	2	2	2	2	**67%**
Tornadoes	3	3	3	2	2	1	2	**72%**
Severe Winter Storms	2	2	2	2	2	1	2	**41%**
Severe Thunderstorms, Hail, & Lightening	3	2	2	2	2	1	2	**61%**
Wildfires	1	1	1	1	2	1	2	**15%**
Earthquakes	1	2	2	2	3	2	2	**24%**
Droughts	2	2	2	1	2	2	2	**41%**
Extreme Heat	2	3	1	1	2	2	2	**41%**
Dams	1	1	1	1	2	2	2	**17%**
Windstorm	2	2	2	2	2	2	2	**44%**
AVERAGE SCORE	**1.38**	**1.31**	**1.25**	**1.13**	**1.44**	**1.06**	**1.38**	**19%**

**Threat increases with percentage.*

DETAILED RISK ASSESSMENT BY HAZARD

2. Plan Content §201.6(c)(2)(iii):	*Requirement §201.6(c) A risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include:* *(2)(iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.*

FLOODING



Description:

Flooding is the most frequent and costly natural hazard in the United States. Floods are generally the result of excessive precipitation and can be classified under two categories: *flash floods*, the product of heavy localized precipitation in a short time period over a given location, and *general floods*, caused by precipitation over a longer time period and over a given river basin. The severity of a flooding event is determined by a combination of stream and river basin topography, precipitation and weather patterns, recent soil moisture conditions, and the degree of vegetative clearing.

FLOODING CONTENT

- Description
- Historical Occurrences
- Principal Flood Problems
- Stream Flood Data
- Hazard Analysis
- Flood Maps

Flash flooding events usually occur within minutes or hours of heavy amounts of rainfall, a dam or levee failure, or a sudden release of water held by an ice jam. Most flash flooding is caused by slow-moving thunderstorms in a local area or by heavy rains associated with hurricanes and tropical storms. Although flash flooding occurs often along mountain streams, it is also common in urbanized areas where much of the ground is covered by impervious surfaces. General floods are usually longer-term events and may last for several days.

The primary types of general flooding include riverine flooding, coastal flooding, and urban flooding. Riverine flooding is a function of excessive precipitation levels and water runoff volumes within the watershed of a stream or river. Coastal flooding is typically a result of storm surge, wind-driven waves, and heavy rainfall produced by hurricanes, tropical storms, nor'easters, and other large coastal storms. Urban flooding occurs where man-made development has obstructed

the natural flow of water and/or decreased the ability of natural groundcover to absorb and retain surface water runoff.

Periodic flooding of lands adjacent to rivers, streams, and shorelines is a natural and inevitable occurrence that can be expected to take place based upon established recurrence intervals. The recurrence interval of a flood is defined as the average time interval, in years, expected between a flood event of a particular magnitude and an equal or larger flood. Flood magnitude increases with increasing recurrence interval.

A "floodplain" is the lowland area adjacent to a river, lake, or ocean. Floodplains are designated by the frequency of the flood that is large enough to cover them. For example, the 10-year floodplain will be covered by the 10-year flood and the 100-year floodplain by the 100-year flood.

Flood frequencies, such as the "100-year flood," are determined by plotting a graph of the size of all known floods for an area and determining how often floods of a particular size occur. Another way of expressing the flood frequency is the chance of occurrence in a given year, which is the percentage of the probability of flooding each year. For example, the 100-year flood has a 1 percent chance of occurring in any given year.

Historical Occurrences

Chester County has rarely been impacted by significant flood events despite being bounded by two major rivers to the east and west. Most areas along these rivers determined to be in the 100-year floodplain are undeveloped or lie within National Forest areas.

According to historical flood data compiled by the Arizona State University Center for Emergency Management and Homeland Security, there were 33 floods that occurred in Chester County between the years of 1964 – 2020 that resulted in greater than $360,000 in property damage, and two individuals were injured due to flooding during that 57-year period.

FLOODING LOCATION, EXTENT, PREVIOUS OCCURENCES

NOTE: Flooding Extent is represented in Table 5.5: Stream Gage Discharge Values for Chester County, which shows annual stream discharge values in cubic feet per second.

	*[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 events.*
6. Profiling Hazards ***Requirement §201.6(c)(2)(i):***	*A. Does the risk assessment identify the **location** (i.e., geographic area affected) of each natural hazard addressed in the **new or updated** plan?* B. Does the risk assessment identify the **extent** (*i.e.*, magnitude or severity) of each hazard addressed in the **new or updated** plan? C. Does the plan provide information on **previous occurrences** of each hazard addressed in the plan?

Hazard Profile

TABLE 5.3: FLOODING HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage					
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag.	Stream Gage Discharge (ft^3/s)
3/1/1964	3/31/1964	Flooding	*Chester	0	0	$109	$109	NA	735
3/1/1966	3/5/1966	Flooding	*Chester	0	0	$1,087	$1,087	NA	1,941
12/14/1972	12/17/1972	Flooding - Severe Storm / Thunderstorm	*Chester	0	0	$227	$227	NA	2,624
2/3/1973	2/3/1973	Flooding	*Chester	0	0	$1,087	$1	NA	3,150
6/8/1973	6/25/1973	Flooding - Severe Storm / Thunderstorm	*Chester	0	0	$1,724	$172,414	NA	933
6/16/1973	6/22/1973	Flooding - Severe Storm / Thunderstorm	*Chester	0	0	$172	$17	NA	1,137
3/12/1975	3/18/1975	Flooding - Severe Storm / Thunderstorm	*Chester	0	0	$1,087	$109	NA	2,034
7/13/1975	7/18/1975	Flooding - Severe Storm / Thunderstorm	*Chester	0	0	$139	$13,889	NA	373
10/17/1975	10/17/1975	Flooding - Severe Storm / Thunderstorm	*Chester	0	0	$385	$0	NA	47
10/9/1976	10/19/1976	Flooding	*Chester	0	0	$10,870	$10,870	NA	552
1/25/1978	1/26/1978	Flooding - Wind	*Chester	0	0	$10,870	$1	NA	3,445
1/26/1978	1/31/1978	Flooding	*Chester	0	0	$1,087	$0	NA	1,317
3/15/1980	3/31/1980	Flooding	*Chester	0	0	$1,087	$1,087	NA	1,425
8/8/1980	8/8/1980	Flooding - Wind	*Chester	0	0	$1,087	$109	NA	11
1/1/1982	1/14/1982	Flooding	*Chester	0	0	$227	$22	NA	NA
3/17/1983	3/17/1983	Flooding - Severe Storm / Thunderstorm - Wind	*Chester	0	0	$10,869	$1,086	NA	NA
12/6/1983	12/6/1983	Flooding - Wind	*Chester	0	0	$1,282	$13	NA	NA
1/10/1984	1/10/1984	Flooding – Severe Storm / Thunderstorm - Wind	*Chester	0	0	$714	$71	NA	NA
2/27/1984	2/27/1984	Flooding - Severe Storm / Thunderstorm - Wind	*Chester	0	0	$1,086	$11	NA	NA
7/26/1984	7/26/1984	Flooding - Severe Storm / Thunderstorm - Wind	*Chester	0.7	0	$1,087	$11	NA	NA

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage					
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag.	Stream Gage Discharge (ft^3/s)
8/16/1985	8/18/1985	Flooding - Severe Storm / Thunderstorm	*Chester	0	0	$6,250	$6,250	NA	NA
11/22/1985	11/22/1985	Flooding – Flash Flooding	*Chester	0	0	$83	$0	NA	NA
8/19/1986	8/20/1986	Flooding – Flash Flooding	*Chester	0	0	$5,000	$0	NA	2,500
8/22/1986	8/22/1986	Flooding	*Chester	0	0	$50,000	$0	NA	463
9/11/1987	9/11/1987	Flooding – Urban Flooding	*Chester	0	0	$50	$0	NA	1,400
10/11/1990	10/31/1990	Flooding	*Chester	0	0	$13,514	$0	NA	951
1/1/1993	1/31/1993	Flooding	*Chester	0	0	$10,870	$217,397	NA	737
7/23/1997	7/24/1997	Flooding	Fort Lawn	1	0	$43,000	$0	NA	4,482
3/31/2002	3/31/2002	Flooding	*Chester	0	0	$2,000	$0	NA	261
7/11/2013	7/11/2013	Flooding – NCDC- Flash Flood	*Chester	0	0	$50,811	$0	NA	679
2/6/2020	2/6/2020	Flooding – Flash Flood	Chester	0	0	$52,608	$0	NA	3,180
2/6/2020	2/6/2020	Flooding – Flash Flood	Fort Lawn	0	0	$45,222	$0	NA	3,180
2/6/2020	2/6/2020	Flooding – Flash Flood	Richburg	0	0	$34,312	$0	NA	3,180
			Totals	**2**	**0**	$360,003	**$424,781**		

Data Source: SHELDUS™ U.S. version 19.0 – Arizona State University Center for Emergency Management and Homeland Security; United States Geological Survey (USGS)
Losses are not adjusted for inflation.
Stream gage discharge data is from USGS Rocky Creek Station daily mean data. Means were calculated from the daily mean data for each previous hazard period.
Drainage area: 194 square miles.
Gage datum 297 feet above sea level.
**Data regarding a specific jurisdiction(s) within the County is not available.*
NA: Magnitude data was not available.

Principal Flood Problems

The below table contains a description of the principal flood problems that have been noted for Chester County.

TABLE 5.4: PRINCIPAL FLOOD PROBLEMS

Flooding Source	Description of Flood Problems
Broad River	18 April 2003*; The Broad River flooded the western region of Chester County along the Chester-Union County Boundary. (NOAA 2009)
Catawba River	11 April 2003*; The Catawba River flooded the eastern lowlands of Chester County along the Chester-Lancaster County Boundary. (NOAA 2009)

All sources (City of Chester)	Severe storm events in 1993, 2001*, and 2002 resulted in substantial flood damage to commercial, industrial, and residential development. (NOAA 2009)
All sources (Town of Fort Lawn)	A severe storm event in 1997 resulted in substantial flood damage to commercial, industrial, and residential development. (NOAA 2009)
All sources (Chester County)	Significant flood problems have affected Chester County in the following years: 1994, 1997, 2003*, and 2004. (NOAA 2009)

FEMA Flood Insurance Study Volume 1 of 1: Chester County, South Carolina and Incorporated Areas.

*Flooding was in non-populated areas and did not affect people or property and therefore was not recorded in the C.1 Table.

Stream Flow Data

Stream flow data is vitally important to forecast flood magnitude and timing, operate flood control systems, and manage emergency response.

TABLE 5.5: STREAM GAGE DISCHARGE VALUES FOR CHESTER COUNTY

Water Year	Flood Extent
	Discharge, Cubic Feet per Second
1952	181.5
1953	155.6
1954	149.7
1955	104.4
1956	118.3
1957	84.8
1958	225.0
1959	230.4
1960	308.9
1961	186.0
1962	181.3
1963	175.8
1964	275.1
1965	288.9
1966	137.0
1967	203.6
1968	168.3
1969	184.0
1970	125.2
1971	258.4
1972	196.0
1973	315.2
1974	153.6
1975	245.2
1976	131.0

Water Year	Flood Extent Discharge, Cubic Feet per Second
1977	248.9
1978	250.5
1979	178.4
1980	228.7
1981	108.5
1987	248.6
1988	89.4
1989	207.7
1990	187.5
1991	307.2
1992	114.5
1993	277.5
1994	102.3
1995	157.9
1996	145.0
1997	178.7
1998	284.2
1999	89.9
2000	72.2
2001	53.3
2002	52.0
2003	308.7
2004	73.0
2005	89.0
2006	64.0
2007	118.0
2008	51.8
2009	85.2
2010	136.5
2011	30.8
2012	39.4
2013	87.2
2014	145.9
2015	104.4
2016	239.8
2017	71.4
2018	52.4
2019	183.8
2020	248.9

Data Source: United States Geological Survey (USGS)
Drainage area: 194 square miles.
Gage datum 297 feet above sea level.
**Data regarding a specific jurisdiction(s) within the County is not available.*

Hazard Analysis:

To date the extent of flood damage in property values has been $360,002 and $424,781 in crop damage. There was a maximum of 315.2 cubic feet per second of stream gage discharge values in 1973. However, events of a greater magnitude are possible in the future.

Analysis and mapping of FEMA HAZUS Data Flood Dollar Exposure maps show areas in Chester County prone to potential flooding. It should be noted that the central part of the County and the City of Chester have seen a greater historical occurrence of flooding.

For flooding, Chester County has a 58% annual chance of occurrence and a recurrence interval of 1.7 years.

Source: Annual chance (%) was calculated using the # of events/# of years on record. Recurrence interval was calculated using the # of years on record/# of events. The number of years was based on the first year the event was on record through 2020.

Full-size mapping associated with Chester County 100 and 500-year floodplains depicting the Flood Dollar Exposure by census blocks is on the following pages.

FIGURE 5.1: CHESTER COUNTY – FLOOD DOLLAR EXPOSURE (REPLACEMENT VALUE)
HAZUS Modeled 100 and 500-Year Flood

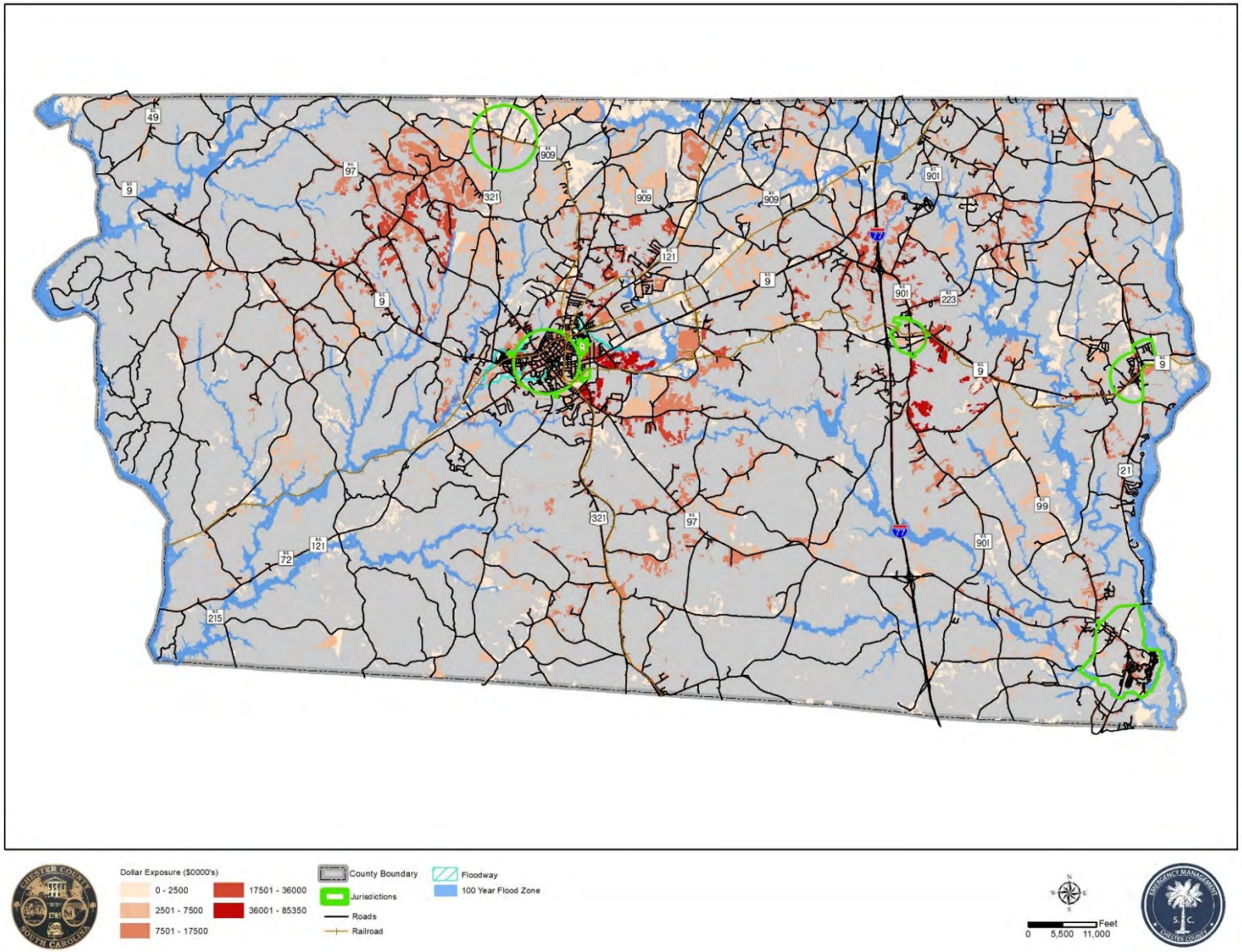


FIGURE 5.2: CITY OF CHESTER – FLOOD DOLLAR EXPOSURE (REPLACEMENT VALUE)
HAZUS Modeled 100 and 500-Year Flood

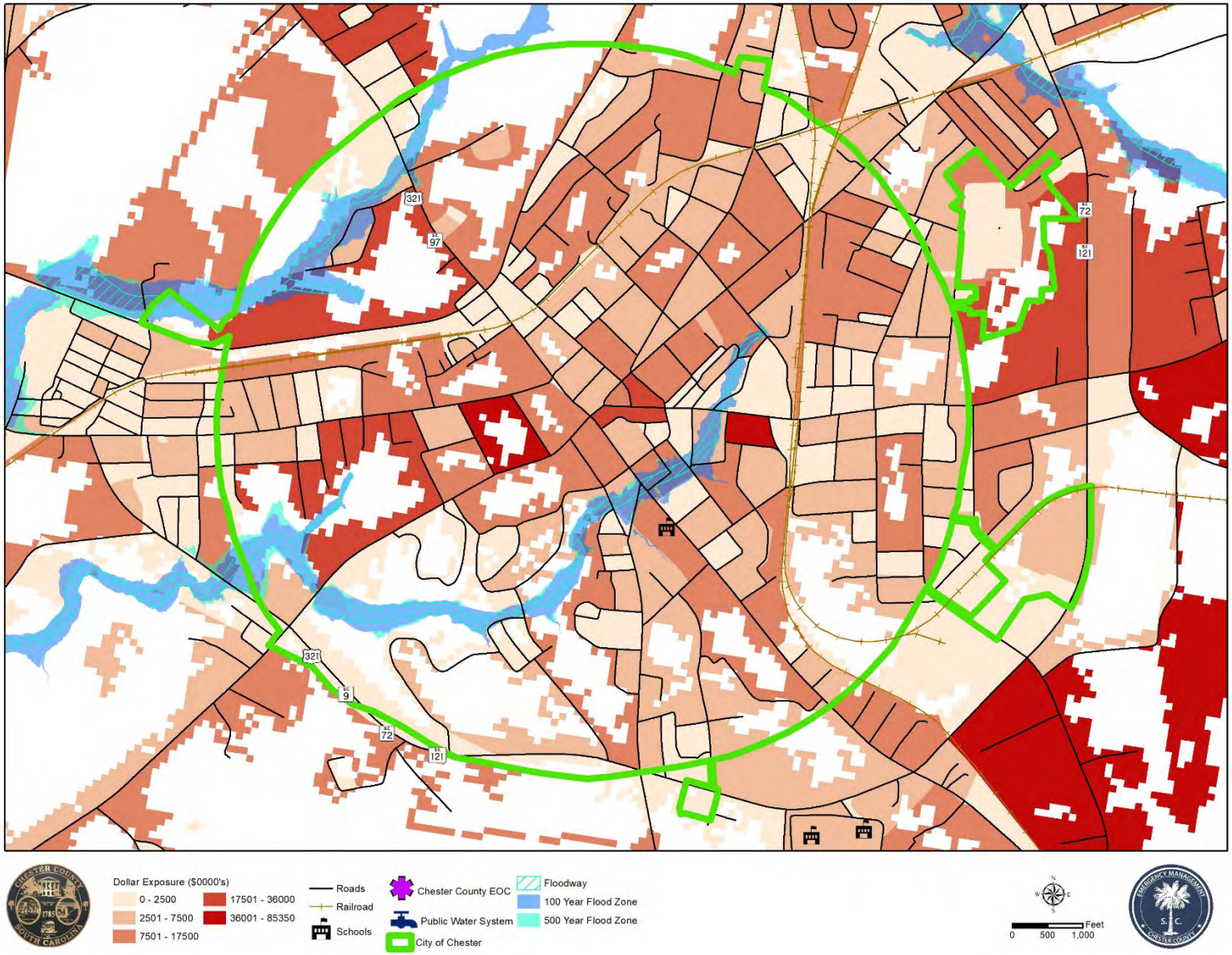


FIGURE 5.3: TOWN OF FORT LAWN – FLOOD DOLLAR EXPOSURE (REPLACEMENT VALUE)

HAZUS Modeled 100 and 500-Year Flood

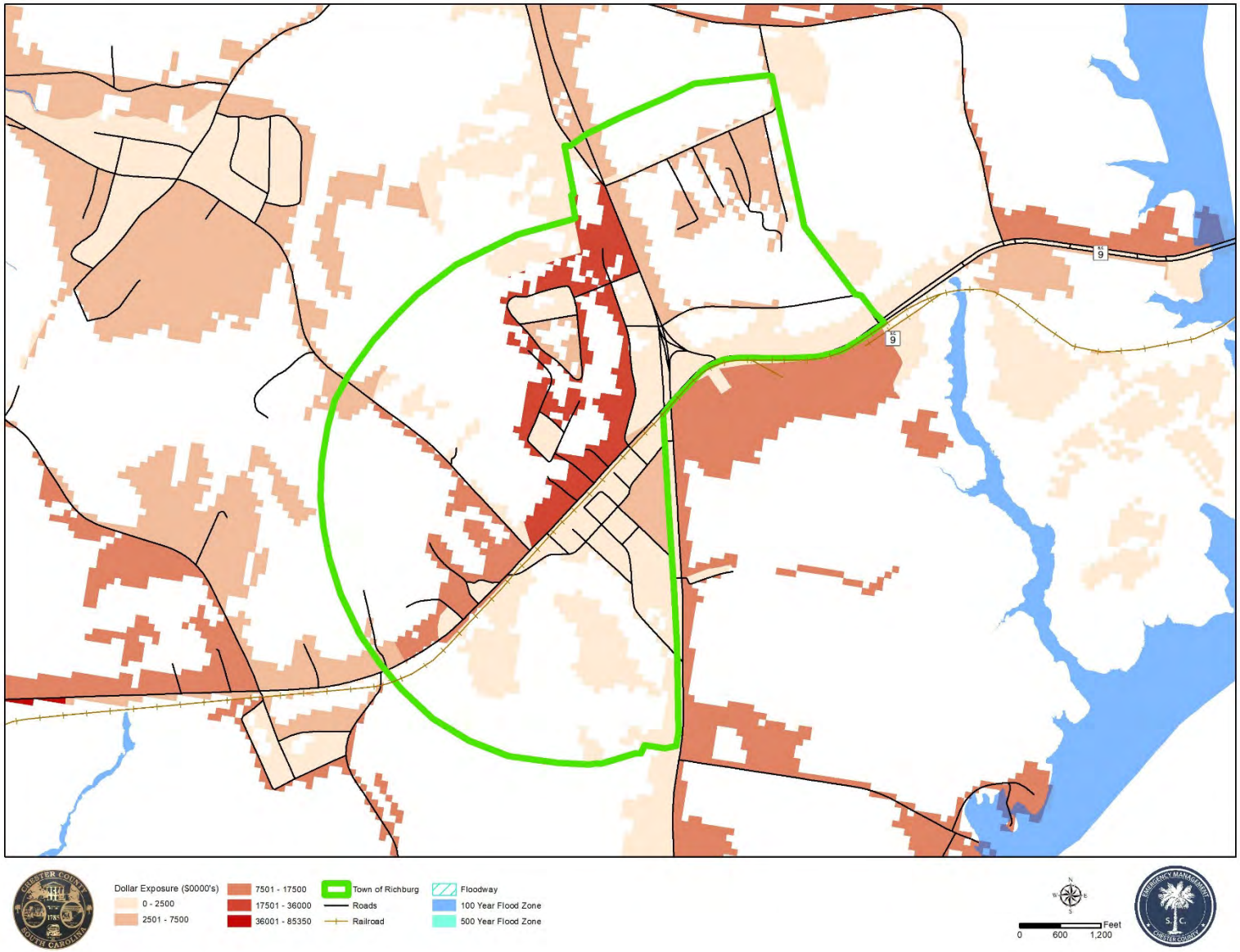


FIGURE 5.4: TOWN OF LOWRYS – FLOOD DOLLAR EXPOSURE (REPLACEMENT VALUE)
HAZUS Modeled 100 and 500-Year Flood

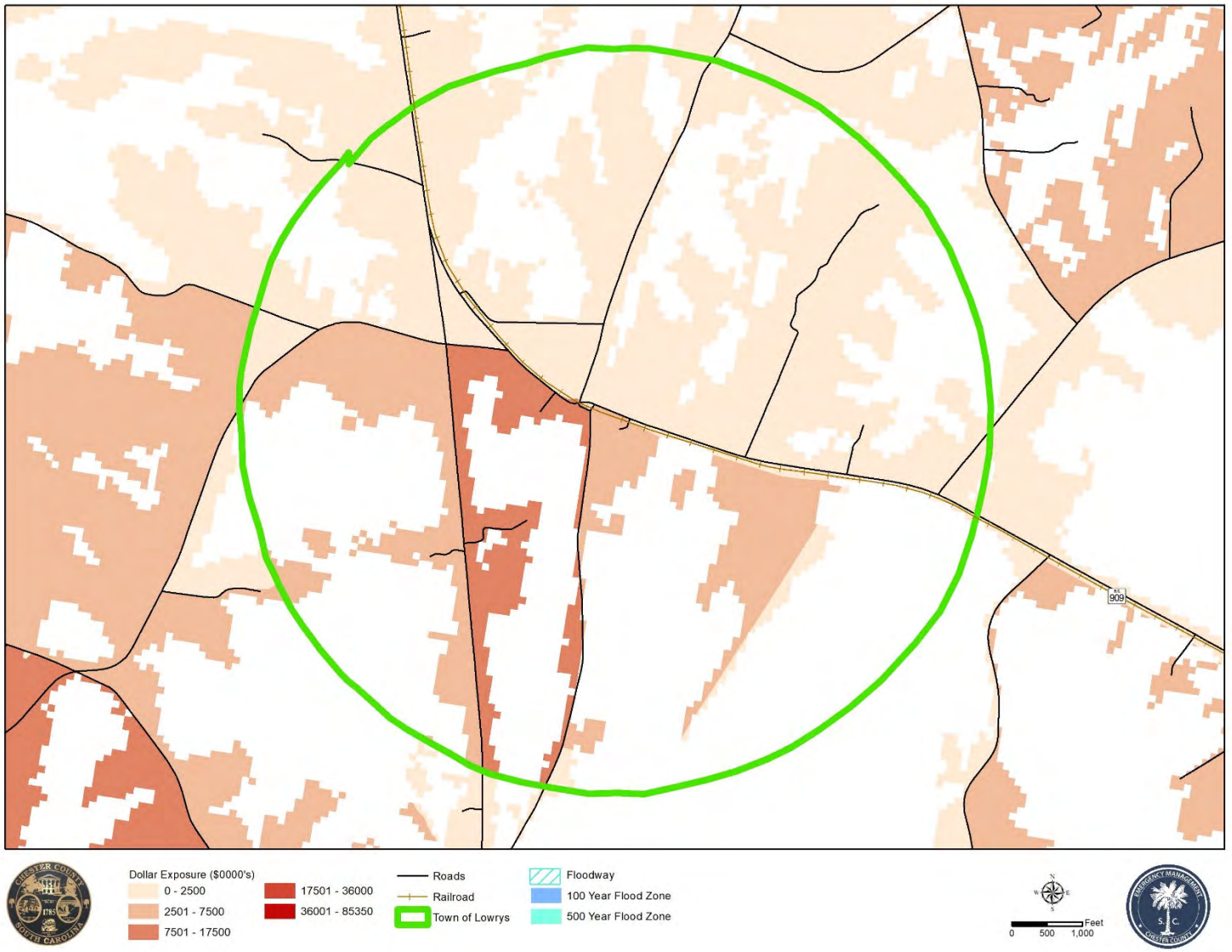


FIGURE 5.5: TOWN OF GREAT FALLS – FLOOD DOLLAR EXPOSURE (REPLACEMENT VALUE)
HAZUS Modeled 100 and 500-Year Flood

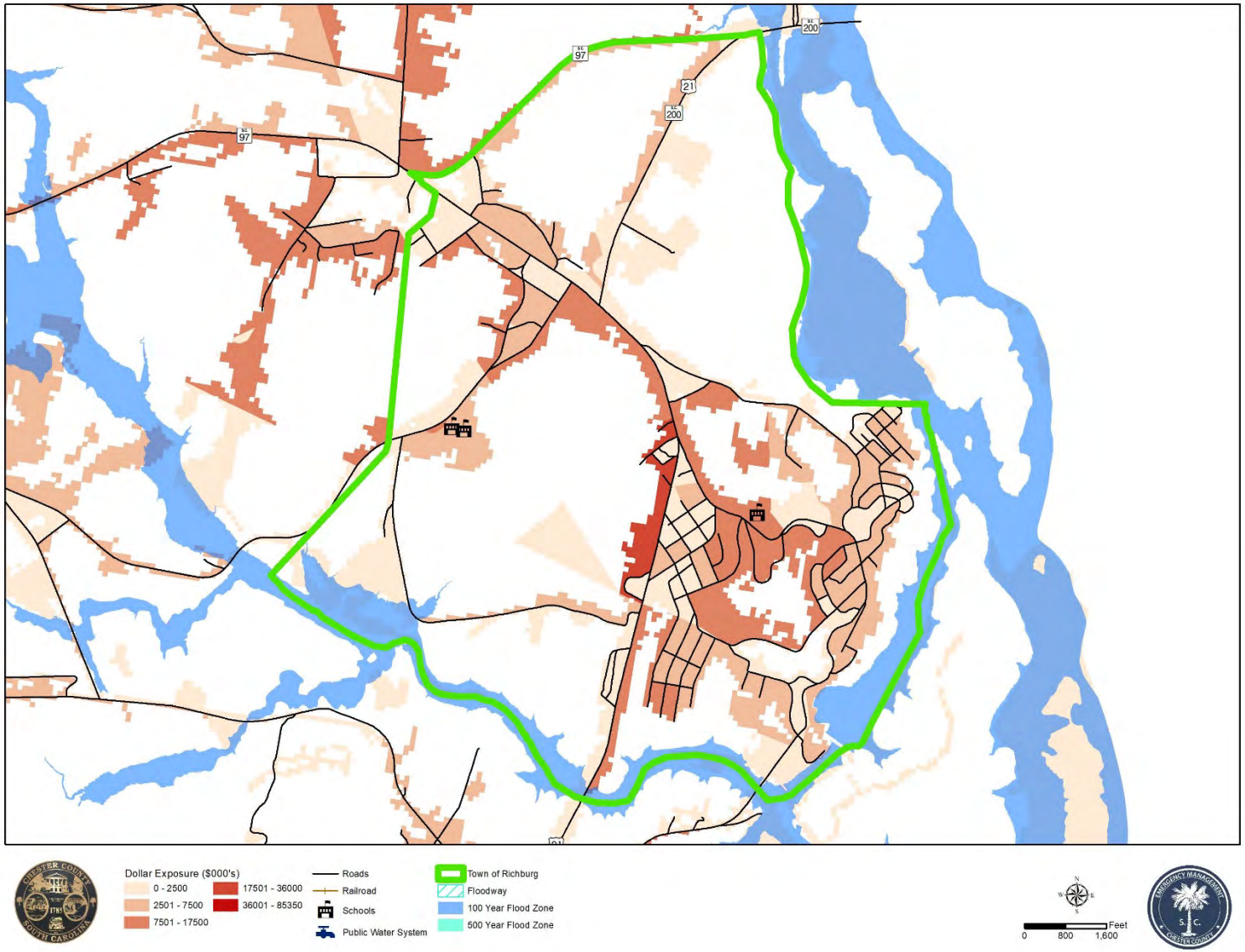
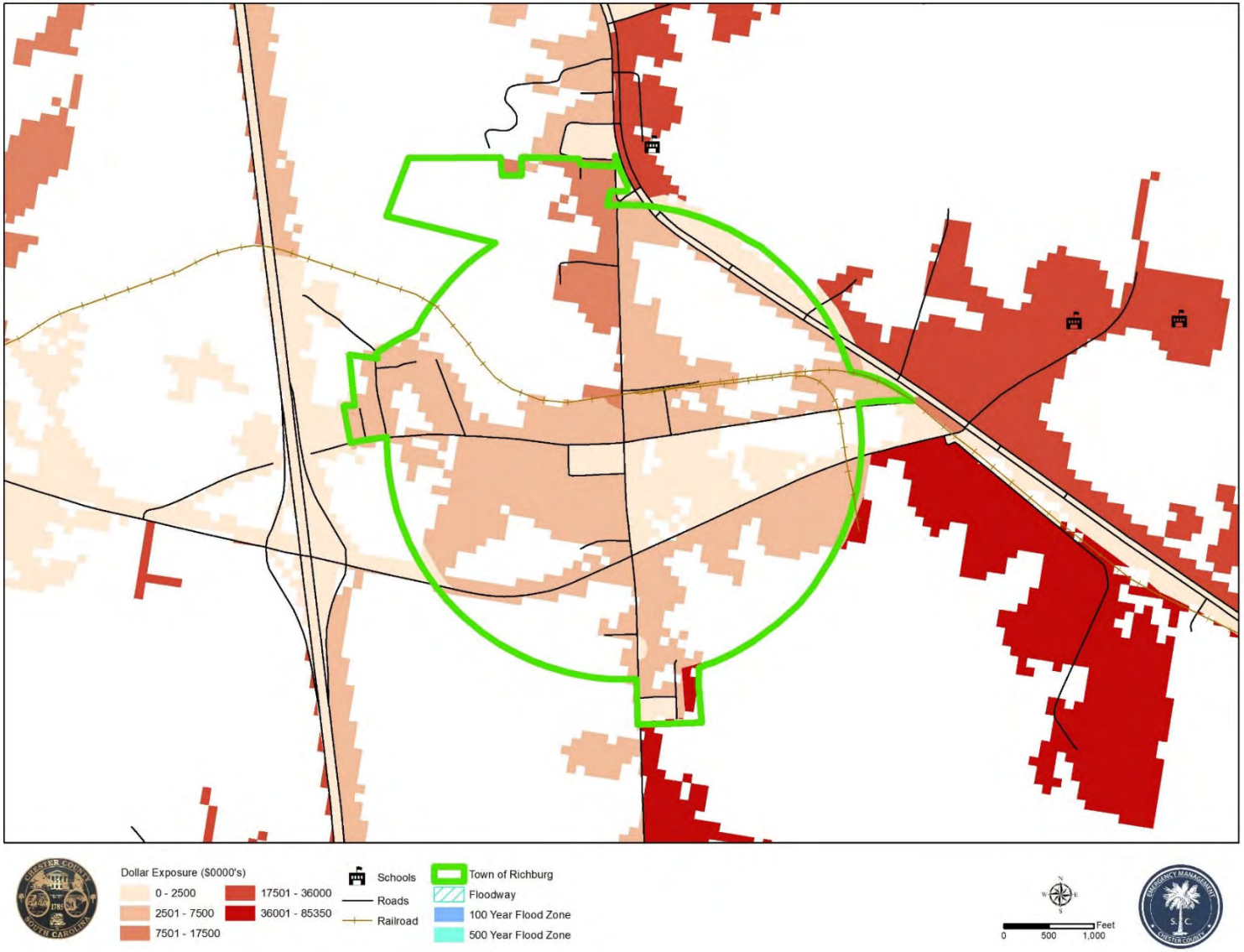
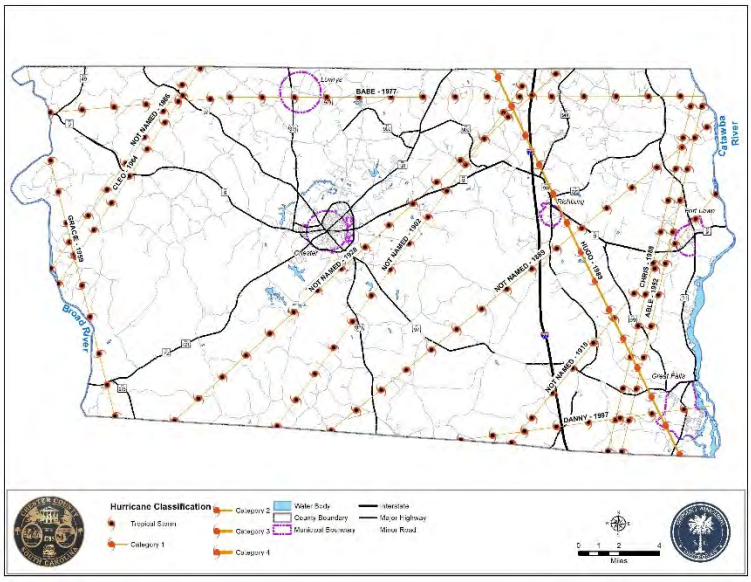


FIGURE 5.6: TOWN OF RICHBURG – FLOOD DOLLAR EXPOSURE (REPLACEMENT VALUE)
HAZUS Modeled 100 and 500-Year Flood



HURRICANES & TROPICAL STORMS



Description:

Hurricanes and tropical storms, both classified as *tropical cyclones*, are low-pressure storm systems that originate over warm ocean waters but are capable of causing immense destruction when crossing the coastline into land.

HURRICANES & TROPICAL STORMS CONTENT

- Description
- Historical Occurrences
- Hazard Profile
- Hurricane Maps

The primary damaging forces associated with these storms are high-level sustained winds, heavy precipitation, and tornadoes. Coastal areas are also vulnerable to the additional forces of storm surge, wind-driven waves, and tidal flooding. The key energy source for a tropical cyclone is the release of latent heat from the condensation of warm water. Tropical cyclone formation requires a low-pressure disturbance, sufficiently warm sea surface temperature, rotational force from the spinning of the earth, and the absence of wind shear in the lowest 50,000 feet of the atmosphere.

Hurricanes and tropical storms can form in the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico from the months of June to November, but the peak of the Atlantic hurricane season is early to mid-September. The average number of storms that reach hurricane intensity per year in the Atlantic basin is about six.

As an incipient hurricane develops, barometric pressure at its center falls and winds increase. If the atmospheric and oceanic conditions are favorable, it can intensify into a tropical depression. When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, given a name, and closely monitored by the National Hurricane Center in Miami, Florida. When sustained winds reach or exceed 74 miles per hour, the storm is deemed a hurricane.

Hurricane intensity is further classified by the Saffir-Simpson Scale, which rates hurricane

intensity on a scale of 1 to 5, with 5 being the most intense. The Saffir-Simpson scale is shown in Table 5.6.

TABLE 5.6: SAFFIR-SIMPSON SCALE

Category	Maximum Sustained Wind Speed (MPH)	Minimum Surface Pressure (millibars)	Storm Surge (feet)
1	74-95	Greater than 980	3-5
2	96-110	979-965	6-8
3	111-130	964-945	9-12
4	131-155	944-920	13-18
5	155+	Less than 920	19+

Source: National Hurricane Center

The Saffir-Simpson scale categorizes hurricane intensity linearly based upon maximum sustained winds, barometric pressure, and storm surge potential, which are combined to estimate potential damage. Categories 3, 4, and 5 are classified as "major" hurricanes, and while hurricanes within this range comprise only 20% of total tropical cyclone landfalls, they account for over 70% of the damage in the U.S.

Table 5.7 describes the damage that could be expected for each category hurricane.

TABLE 5.7: HURRICANE DAMAGE BY CATEGORY

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

Source: National Hurricane Center

Damage during hurricanes may also result from spawned tornadoes and inland flooding associated with heavy rainfall that usually accompanies these storms. Hurricane Hugo in 1989, for example, caused massive inland flooding when it made landfall in Charleston County and proceeded inland towards Columbia and ultimately continued north through Chester and York Counties.

Historical Occurrences:

Four hurricanes occurred simultaneously in the Atlantic Ocean on two occasions. The first occasion was August 22, 1893, and one of these, the Sea Islands Hurricane, eventually killed 1,000- 2,000 people in Georgia and South Carolina. The second occurrence was September 25, 1998, and did not impact South Carolina.

On average, one to two hurricanes (or more specifically, 1.75 hurricanes) make landfall on the US East coast every year. Of those, 11% impacted South Carolina. Since 1851, 31 hurricanes have made a direct hit in South Carolina.

From 1851 to 2020, South Carolina has been hit by 30 hurricanes, of which 18 were a category 1, 6 were a category 2, 4 were a category 3 and 2 were a category 4. South Carolina has never been hit by a category 5 hurricane.

TABLE 5.8: CHRONOLOGICAL LIST OF ALL HURRICANES WHICH AFFECTED SOUTH CAROLINA

Year	Month	State	Highest Saffir-Simpson Category (U.S.)	Central Pressure	Maximum Winds	Name
1854	Sep	South Carolina	2	950	100	Great Carolina
1867	Jun	South Carolina	1	985	70	-----
1874	Sep	South Carolina	1	985	70	-----
1878	Sep	South Carolina	1	970	90	-----
1881	Aug	South Carolina	1	970	90	-----
1883	Sep	South Carolina	1	965	90	-----
1885	Aug	South Carolina	3	953	90	-----
1893	Aug	South Carolina	3	954	100	Sea Islands
1893	Oct	South Carolina	3	955	105	-----
1894	Sep	South Carolina	1	975	90	-----
1896	Sep	South Carolina	1	960	110	-----
1898	Aug	South Carolina	1	980	75	-----
1899	Oct	South Carolina	2	955	95	-----
1904	Sep	South Carolina	1	985	70	-----
1906	Sep	South Carolina	1	977	80	-----
1911	Aug	South Carolina	2	972	85	-----
1913	Oct	South Carolina	1	989	65	-----
1916	Jul	South Carolina	1	960	95	-----
1928	Sep	South Carolina	1	929	125	Lake Okeechobee
1940	Aug	South Carolina	2	972	85	-----
1947	Oct	South Carolina	2	975	80	Project Cirrus
1952	Aug	South Carolina	1	985	90	Able
1954	Oct	South Carolina	4	938	110	Hazel
1959	Jul	South Carolina	1	993	65	Cindy
1959	Sep	South Carolina	3	950	105	Gracie

Year	Month	State	Highest Saffir-Simpson Category (U.S.)	Central Pressure	Maximum Winds	Name
1979	Sep	South Carolina	2	970	80	David
1985	Jul	South Carolina	1	1002	65	Bob
1989	Sep	South Carolina	4	934	120	Hugo
2004	Aug	South Carolina	1	941	130	Charley
2004	Aug	South Carolina	1	985	65	Gaston

Source: NOAA's Hurricane Research Division (HRD)

According to NOAA's Hurricane Research Division (HRD), 30 hurricanes have made direct landfall in South Carolina or have entered via adjacent states since 1851, 24 were minor hurricanes, and 6 were major. There were 8 tropical storms and 4 tropical depressions according to the South Carolina Climatology Office.

1989 saw the costliest hurricane to ever hit South Carolina, Hurricane Hugo. Hurricane Hugo made landfall as a Category 4 storm near Charleston, and its progression inland resulted in unprecedented, widespread damage across South Carolina. Hugo passed through Chester County on September 22, 1989, as category H1 hurricane with wind speeds at 85 knots (almost 98 miles per hour).

Hazard Profile:

TABLE 5.9: MAJOR HURRICANE (CATEGORY 3, 4, & 5) DIRECT HITS ON SOUTH CAROLINA 1851-2020

State	Jun.	Jul.	Aug.	Sep.	Oct.	All
South Carolina	0	0	2	2	2	6

Source: NOAA's Hurricane Research Division (HRD)

There is no new data on Hurricanes & Tropical Storms since the 2010 plan revision.

TABLE 5.10: HURRICANES & TROPICAL STORMS HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag.
8/29/1964	8/31/1964	Hurricane/ Tropical Storm	*Chester	0	0	$1,086.96	$1,086.96	NA
9/12/1964	9/13/1964	Hurricane/ Tropical Storm	*Chester	0	0	$108.70	$108.70	NA
6/7/1968	6/8/1968	Hurricane/ Tropical Storm	*Chester	0	0	$108.70	$10.87	NA
6/20/1972	6/21/1972	Hurricane/ Tropical Storm	*Chester	0	0	$108.70	$1,086.96	NA
8/28/1988	8/28/1988	Hurricane/ Tropical Storm	*Chester	0	0	$1,562.50	$1,562.50	NA
9/22/1989	9/22/1989	Hurricane	*Chester	0	0	$5,000,000.00	$5,000,000.00	Cat 2
8/24/1995	8/28/1995	Hurricane/ Tropical Storm	*Chester	0	0	$217,391.30	$2,173.91	NA
			Totals	**0**	**0**	**$5,220,366.86**	**$5,006,029.90**	

Data Source: SHELDUS™ U.S. version 14.1 – USC Hazards & Vulnerability Research Institute and NOAA, National Climatic Data Center
Losses are not adjusted for inflation.
**Data regarding a specific jurisdiction(s) within the County is not available.*
NA: Magnitude data was not available.

Hazards Analysis:

A hurricane has the potential to affect the entire planning area. To date the extent of Hurricane and Tropical Storm damage in property values has been approximately $5 million. However, events of a greater magnitude are possible in the future.

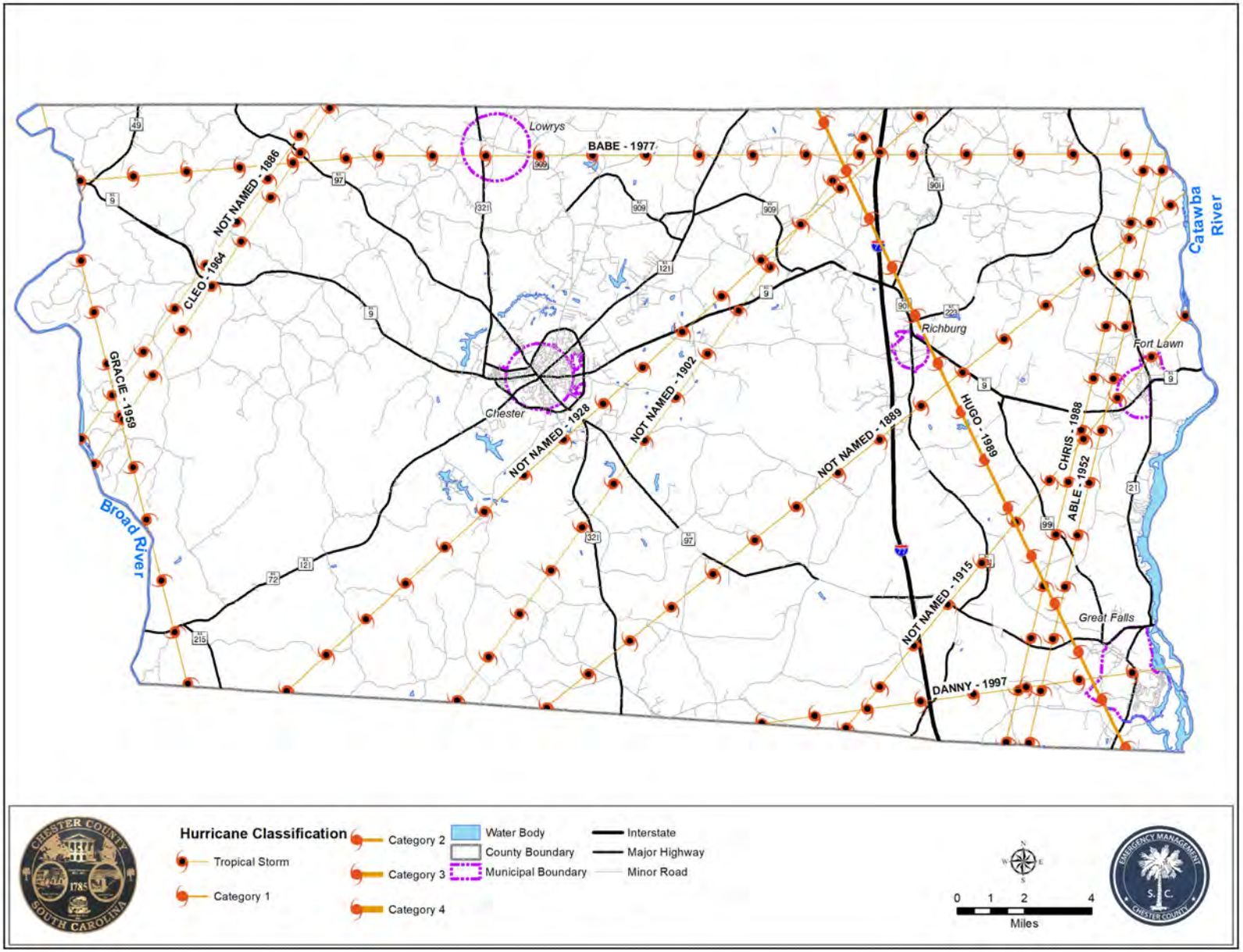
For hurricanes or tropical storms, Chester County has a 4% annual chance of occurrence and a recurrence interval of 24 years.

Source: Annual chance (%) was calculated using the # of events/# of years on record. Recurrence interval was calculated using the # of years on record/# of events. The number of years was based on the first year the event was on record through 2020.

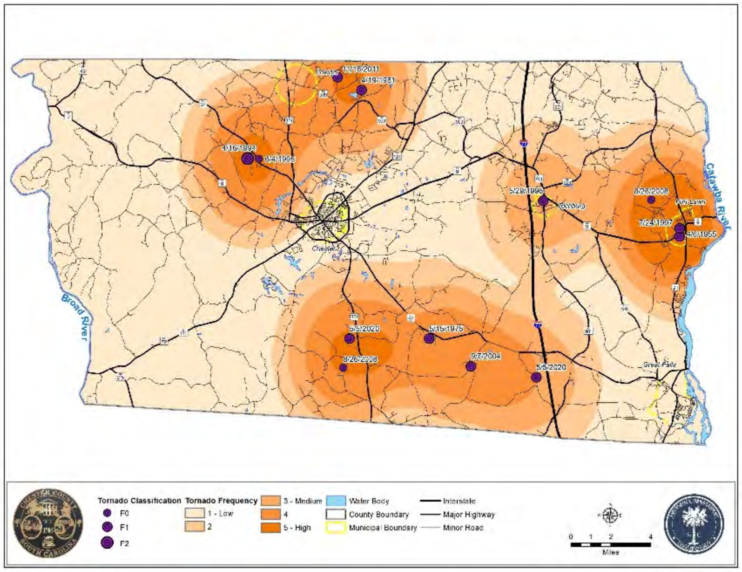
Analysis of GIS data obtained from the University of South Carolina's Hazards Lab and NOAA National Climatic Data Center indicates that the impact of hurricanes and tropical storms is fairly evenly distributed across Chester County. It should be noted that eastern portion of the County, including the Towns of Richburg and Great Falls have seen a greater historical occurrence of hurricanes and tropical storms and that the only significant hurricane event occurred in 1989 when Hurricane Hugo impacted the County.

A full-size copy of mapping associated with Chester County Hurricanes between the years of 1851-2020 can be found on the next page.

FIGURE 5.7: CHESTER COUNTY HURRICANES 1851 - 2020



TORNADOES



Description:

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. It is most often generated by a thunderstorm (but sometimes results from hurricanes) and produced when cool, dry air intersects and overrides a layer of warm, moist air forcing the warm air to rise rapidly. The damage from tornadoes is a result of the high wind velocity and wind-blown debris, although tornadoes are commonly accompanied by large hail as well. The most violent tornadoes have rotating winds of 250 miles per hour or more and are capable of causing extreme destruction.

TORNADOES CONTENT

- Description
- Historical Occurrences
- Hazard Profile
- Tornado Maps

Most tornadoes are just a few dozen yards wide and touch down only briefly, but highly destructive tornadoes may carve out a path over a mile wide and several miles long. The destruction caused by tornadoes may range from light to inconceivable depending on the intensity, size, and duration of the storm. Typically, tornadoes cause the greatest damages to structures of light construction, such as residential homes, and are quite localized in impact.

Each year an average of 800-1000 tornadoes are reported nationwide, and they are more likely to occur during the spring and early summer months of March through June. Tornadoes can occur at any time of day but are mostly likely to form in late afternoons and early evenings.

The Fujita-Pearson Scale for Tornadoes was developed to measure tornado strength and is shown in Table 5.11.

TABLE 5.11: THE FUJITA SCALE (EFFECTIVE PRIOR TO 2005)

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

Source: National Weather Service

TABLE 5.12: THE ENHANCED FUJITA SCALE (EFFECTIVE 2005 AND LATER)

F-Scale Number	Intensity Phrase	Wind Speed (MPH)	Type of Damage Done
F0	Gale	65-85	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages to sign boards.
F1	Moderate	86-110	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
F2	Significant	111-135	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
F3	Severe	136-165	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.
F4	Devastating	166-200	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
F5	Incredible	Over 200	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel re-enforced concrete structures badly damaged.

Source: National Weather Service

Historical Occurrences:

There were 731 confirmed tornado touchdown events in South Carolina between 1950 and 2019 according to the ASU Center for Emergency Management and Homeland Security that resulted in 53 deaths and 1,311 injuries. Typically, South Carolina tornadoes are less severe than in other parts of the country.

According to the NOAA National Climatic Data Center, there have been 15 tornado events in Chester County since 1955, which have resulted in 1 death and 4 injuries. The strongest tornado ever recorded in Chester County is an F2, which occurred on April 16, 1994, and resulted in the destruction and damage of seven mobile homes, three barns, one vehicle; seriously injured four people; and killed one person.

Hazard Profile:

TABLE 5.13: TORNADO HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences		Hazard Type/ Combination	Category / Magnitude	Location	Extent of Damage			
Hazard Begin Date	Hazard End Date				Injuries	Fatalities	Property Damage	Crop Damage
4/6/1955	4/6/1955	Tornado	F1	Chester	0	0	$3,000.00	$0
5/15/1975	5/15/1975	Tornado	F1	Chester	0	0	$3,000.00	$50.00
4/19/1981	4/19/1981	Tornado	F1	Chester	0	0	$2,500,000.00	$0
4/16/1994	4/16/1994	Tornado	F2	Lowry's	4	1	$500,000.00	$0
8/16/1994	8/16/1994	Tornado	F1	Chester	0	0	$0	$0
5/1/1995	5/1/1995	Tornado	F0	NW Chester	0	0	$5,000.00	$0
5/29/1996	5/29/1996	Tornado	F1	Richburg	0	0	$20,000.00	$0
7/24/1997	7/24/1997	Tornado	F1	Fort Lawn	0	0	$15,000.00	$0
6/4/1998	6/4/1998	Tornado	F1	Chester	0	0	$0	$0
9/7/2004	9/7/2004	Tornado	F1	Chester	0	0	$100,000.00	$0
8/26/2008	8/26/2008	Tornado	EF0	Fort Lawn	0	0	$0	$0
8/26/2008	8/26/2008	Tornado	EF0	Cornwell	0	0	$0	$0
11/16/2011	11/16/2011	Tornado	EF1	Dinber	0	0	$20,000.00	$0
5/5/2020	5/5/2020	Tornado	EF1	McKeown	0	0	$25,000.00	$0
5/5/2020	5/5/2020	Tornado	EF1	Beckhamville	0	0	$100,000.00	$0
				Totals	**4**	**1**	**$3,291,000.00**	**$ 50.00**

Data Source: NOAA, National Climatic Data Center, Storm Events Database
Losses are not adjusted for inflation.

Hazards Analysis:

A tornado has the potential to affect the entire planning area. To date the extent of tornado damage in property values has been greater than $3.2 million. However, events of a greater magnitude are possible in the future.

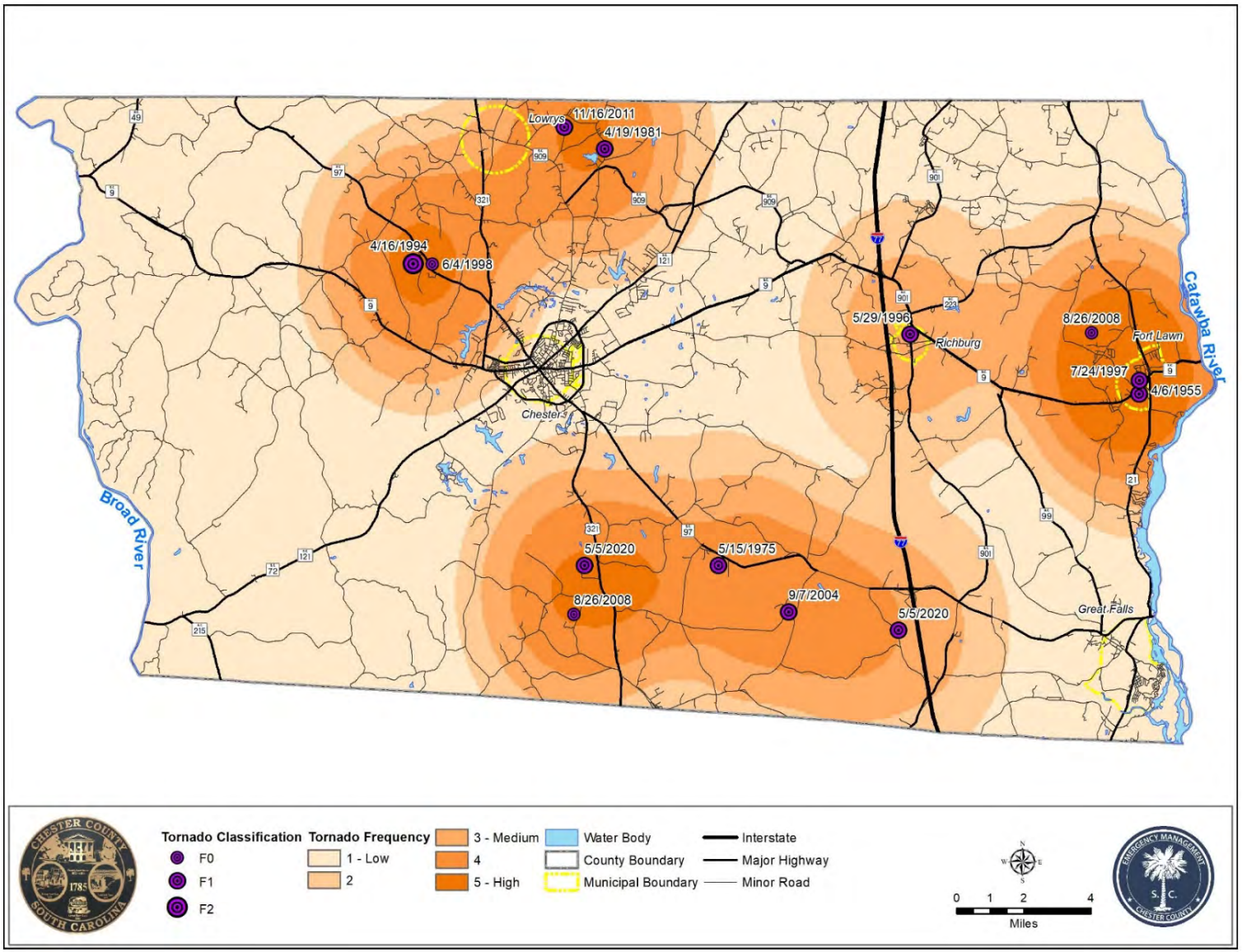
For tornados, Chester County has a 21% annual chance of occurrence and a recurrence interval of 4.7 years.

Source: Annual chance (%) was calculated using the # of events/# of years on record. Recurrence interval was calculated using the # of years on record/# of events. The number of years was based on the first year the event was on record through 2020.

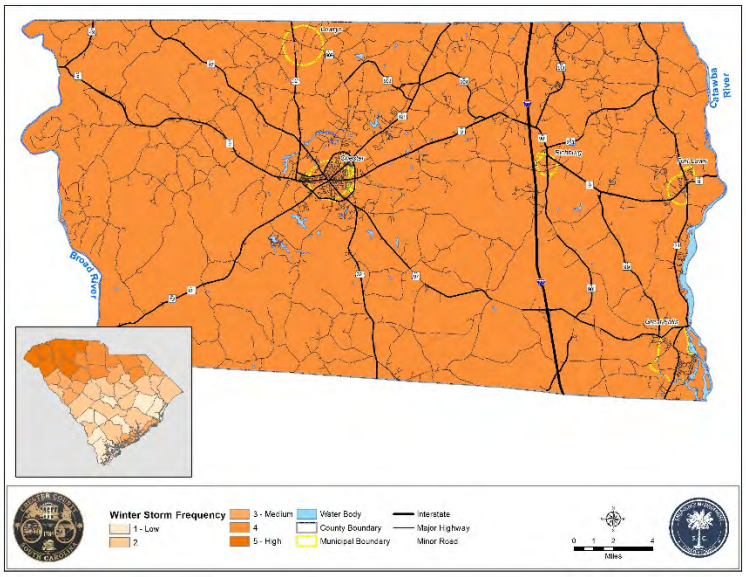
Analysis of GIS data obtained from the ASU Center for Emergency Management and Homeland Security and the NOAA National Climatic Data Center indicate that the impact of tornadoes upon Chester County has been fairly low. It should be noted that of the incorporated areas, the Towns of Richburg and Fort Lawn in the eastern portion of the County have been impacted the most.

A full-size copy of mapping associated with Chester County Tornadoes between the years of 1950-2020 can be found on the next page.

FIGURE 5.8: CHESTER COUNTY TORNADOS 1950 - 2020



SEVERE WINTER STORMS



Description:

Severe winter storms can produce an array of hazardous weather conditions, including heavy snow, freezing rain and ice pellets, high winds, and extreme cold. Severe winter storms are usually extra-tropical cyclones (storms that form outside of the warm tropics) fueled by strong temperature gradients and an active upper-level cold jet stream. Winter storms can paralyze a community by shutting down normal day-to-day operations, as accumulating snow and ice result in downed trees, power outages, and blocked or hazardous transportation routes. Heavy snow can also lead to the collapse of weak roofs or unstable structures. Frequently the loss of electric power means loss of heat for residents, which poses a significant threat to human life, particularly the elderly.

SEVERE WINTER STORMS CONTENT

- Description
- Historical Occurrences
- Hazard Profile
- Hazard Analysis
- Winter Storm Maps

TABLE 5.14: THE SPERRY-PILTZ ICE ACCUMULATION INDEX (SPIA INDEX)

ICE DAMAGE INDEX	DAMAGE AND IMPACT DESCRIPTIONS
0	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews; few outages.
1	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads bridges may become slick and hazardous.
2	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulations.
3	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1-5 days.
4	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5-10 days.
5	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.

Categories of damage are based upon combinations of precipitation totals, temperatures, and wind speeds/directions.

The level of impact severe winter weather will have on a community greatly depends on its ability to manage and control its effects, such as the rapid mobilization of snow removal equipment. Due to the rare occurrence of severe winter weather in South Carolina coupled with the expensive costs to acquire and maintain the necessary resources to combat its effects, many communities are not prepared for such events.

Historical Occurrences:

Although severe winter storms are typically associated with much colder climates, it is not uncommon for South Carolina to experience significant, even disastrous, winter weather events. Presidential major disasters for winter storms were declared in South Carolina in January 2000, January 2003, February 2004, January 2006, and March 2014, and an emergency declaration was made in February 2014.

TABLE 5.15: MAJOR DISASTER & EMERGENCY DECLARATIONS

Number	Date	State/Tribal Government	Incident Description
MAJOR DISASTER DECLARATIONS			
1313	1/31/00	South Carolina	Winter Storms
1451	1/8/03	South Carolina	Severe Ice Storm
1509	2/13/04	South Carolina	Severe Ice Storm
1625	1/20/06	South Carolina	Severe Ice Storm
4166	3/12/14	South Carolina	Severe Winter Storm
EMERGENCY DECLARATIONS			
3369	2/12/14	South Carolina	Severe Winter Storm

There have been over $9.8 million in property damage and an additional $6.4 million in crop damage. In most instances, these impacts are more likely to be felt in the mountains and Piedmont region of the state.

According to data acquired from the ASU Center for Emergency Management and Homeland Security, Chester County had 85 ice or snow events between 1960 and 2020 that resulted in no deaths or injuries with over $9.8 million in cumulative property damage.

Hazard Profile:

TABLE 5.16: SEVERE WINTER STORMS HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag.
3/2/1960	3/2/1960	Winter Weather	*Chester	0	0.06	$2,778	$0	NA
3/9/1960	3/11/1960	Winter Weather	*Chester	0	0	$1,429	$0	NA
1/25/1961	1/26/1961	Winter Weather	*Chester	0	0	$1,087	$109	NA
2/3/1961	2/4/1961	Winter Weather	*Chester	0	0	$109	$0	NA
1/1/1962	1/1/1962	Winter Weather	*Chester	0	0	$278	$0	NA
12/31/1963	1/1/1964	Winter Weather	*Chester	0.57	0	$10,870	$1,087	NA
1/12/1964	1/13/1964	Winter Weather	*Chester	0.86	0	$238	$0	NA
3/30/1964	3/31/1964	Winter Weather	*Chester	0	0	$0	$108,696	NA
1/26/1966	1/27/1966	Winter Weather	*Chester	0	0.03	$14,286	$0	NA
1/29/1966	1/30/1966	Winter Weather	*Chester	0	0.15	$0	$10,870	NA
3/29/1966	3/29/1966	Winter Weather	*Chester	0	0	$2,174	$0	NA
3/17/1967	3/19/1967	Winter Weather	*Chester	0	0	$0	$277,778	NA
1/9/1968	1/13/1968	Winter Weather	*Chester	0	0	$15,625	$1.00	NA
2/15/1969	2/17/1969	Winter Weather	*Chester	0	0	$10,638	$1,063,830	NA
11/1/1969	11/1/1969	Winter Weather	*Chester	0	0	$2	$2000	NA

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag.
12/25/1969	12/25/1969	Winter Weather	*Chester	0	0	$10	$100	NA
1/8/1970	1/9/1970	Winter Weather	*Chester	0	0	$109	$1	NA
11/24/1970	11/25/1970	Winter Weather	*Chester	0	0	$1	$1	NA
1/8/1971	1/9/1971	Winter Weather	*Chester	0	0	$385	$385	NA
3/25/1971	3/25/1971	Winter Weather	*Chester	0.67	0.39	$27,778	$28	NA
12/3/1971	12/3/1971	Winter Weather	*Chester	0	0	$10,869	$10,869	NA
4/1/1972	4/30/1972	Winter Weather	*Chester	0	0	$0	$56,818	NA
1/7/1973	1/8/1973	Winter Weather	*Chester	0	0	$10,870	$108,696	NA
2/9/1973	2/10/1973	Winter Weather	*Chester	0	0.2	$108,696	$109	NA
4/11/1973	4/12/1973	Winter Weather	*Chester	0	0	$0	$27,778	NA
12/17/1973	12/17/1973	Winter Weather	*Chester	0	0	$625	$6	NA
12/20/1973	12/20/1973	Winter Weather	*Chester	0	0	$38	$0	NA
10/3/1974	10/4/1974	Winter Weather	*Chester	0	0	$1,282	$0	NA
2/3/1975	2/4/1975	Winter Weather	*Chester	0	0	$2,778	$278	NA
3/2/1975	3/3/1975	Winter Weather	*Chester	0	0	$0	$1,087	NA
1/1/1977	1/31/1977	Winter Weather	*Chester	0	0	$108	$108	NA
1/13/1978	1/13/1978	Winter Weather	*Chester	0	0	$416	$0	NA
3/2/1978	3/3/1978	Winter Weather	*Chester	0	0	$384	$0	NA
2/17/1979	2/18/1979	Winter Weather	*Chester	0	0	$10,870	$109	NA
1/30/1980	1/31/1980	Winter Weather	*Chester	0	0	$263	$263	NA
2/5/1980	2/6/1980	Winter Weather	*Chester	0	0	$10,870	$109	NA
3/1/1980	3/2/1980	Winter Weather	*Chester	0	0.11	$1,087	$1,087	NA
2/1/1981	2/1/1981	Winter Weather	*Chester	0	0	$27	$0	NA
1/11/1982	1/11/1982	Winter Weather	*Chester	0.09	0	$109	$109	NA
1/12/1982	1/12/1982	Winter Weather	*Chester	0	0	$1,786	$176	NA
2/26/1982	2/26/1982	Winter Weather	*Chester	0	0	$1,087	$0	NA
3/27/1982	3/27/1982	Winter Weather	*Chester	0	0	$0	$108,696	NA
4/7/1982	4/7/1982	Winter Weather	*Chester	0	0	$0	$1,250,000	NA
4/23/1982	4/24/1983	Winter Weather	*Chester	0	0	$0	$10	NA
1/21/1983	1/21/1983	Winter Weather	*Chester	0	0	$1,087	$10	NA
3/24/1983	3/24/1983	Winter Weather	*Chester	0	0	$108	$1	NA
4/17/1983	4/17/1983	Winter Weather	*Chester	0	0	$0	$1,086,957	NA
12/22/1983	12/22/1983	Winter Weather	*Chester	0	0	$416	$0	NA
12/25/1983	12/25/1983	Winter Weather	*Chester	0	0.59	$10,870	$10,870	NA

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag.
12/30/1983	12/30/1983	Winter Weather	*Chester	0	0.04	$1,087	$109	NA
1/13/1984	1/13/1984	Winter Weather	*Chester	0	0	$1,786	$179	NA
2/6/1984	2/6/1984	Winter Weather	*Chester	0	0	$277	$0	NA
1/20/1985	1/24/1985	Winter Weather	*Chester	0	0.33	$10,870	$1,087	NA
1/28/1985	1/28/1985	Winter Weather	*Chester	0	0	$277	$0	NA
3/19/1985	3/19/1985	Winter Weather	*Chester	0	0	$0	$1,087	NA
12/26/1985	12/26/1985	Winter Weather	*Chester	0	0	$108	$10	NA
1/27/1986	1/28/1986	Winter Weather	*Chester	0	0	$1,087	$11	NA
3/22/1986	3/23/1986	Winter Weather	*Chester	0	0	$0	$1,087	NA
4/23/1986	4/24/1986	Winter Weather	*Chester	0	0	$0	$1,087	NA
1/22/1987	1/22/1987	Winter Weather	*Chester	0	0	$263	$26	NA
1/26/1987	1/26/1987	Winter Weather	*Chester	0	0	$2,273	$227	NA
2/16/1987	2/16/1987	Winter Weather	*Chester	0	0	$2,632	$263	NA
4/1/1987	4/1/1987	Winter Weather	*Chester	0	0	$0	$1,250	NA
1/7/1988	1/11/1988	Winter Weather	*Chester	0	0	$10,870	$0	NA
3/14/1988	3/17/1988	Winter Weather	*Chester	0	0	$108	$0	NA
4/20/1988	4/20/1988	Winter Weather	*Chester	0	0	$0	$26	NA
1/14/1989	1/14/1989	Winter Weather	*Chester	0	0	$3	$0	NA
2/17/1989	2/19/1989	Winter Weather	*Chester	0	0	$10,689	$0	NA
2/23/1989	2/23/1989	Winter Weather	*Chester	0	0	$1,086	$0	NA
4/12/1989	4/12/1989	Winter Weather	*Chester	0	0	$2,632	$0	NA
5/8/1989	5/8/1989	Winter Weather	*Chester	0	0	$0	$4,167	NA
12/22/1989	12/22/1989	Winter Weather	*Chester	0.07	0.13	$108,696	$0	NA
12/22/1989	12/22/1989	Winter Weather	*Chester	0	0	$14,286	$0	NA
12/22/1989	12/22/1989	Winter Weather	*Chester	0.09	0.15	$10,870	$0	NA
3/21/1990	3/21/1990	Winter Weather	*Chester	0	0	$0	$106,383	NA
4/3/1992	4/3/1992	Winter Weather	*Chester	0	0	$0	$384,615	NA
12/27/1992	12/28/1992	Winter Weather	*Chester	0	0	$18,519	$18,519	NA
3/13/1993	3/13/1993	Winter Weather	*Chester	0	0	$8,333	$8,333	NA
2/11/1994	2/11/1994	Winter Weather	*Chester	0	0	$26,316	$0	NA
3/8/1996	3/8/1996	Winter Weather	*Chester	0	0	$0	$1,666,667	2”
12/4/2002	12/5/2002	Winter Weather	*Chester	0	0	$9,090,909	$0	NA
2/26/2004	2/27/2004	Winter Weather	*Chester	0	0	$237,500	$0	18”
4/8/2007	4/8/2007	Winter Weather	*Chester	0	0	$0	$83,333	NA

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag.
2/16/2015	2/17/2015	Winter Weather	*Chester	0	0	$10,000	$0	NA
3/16/2017	3/16/2017	Wind - Winter Weather	*Chester	0	0	$0	$50,000,000	NA
			Totals	**2**	**2**	**$9,833,920**	**$56,407,498**	

Data Source: SHELDUS™ U.S. version 19.0 – Arizona State University Center for Emergency Management and Homeland Security
Losses are not adjusted for inflation.
**Data regarding a specific jurisdiction(s) within the County is not available*
NA: Magnitude data was not available.

TABLE 5.17: EXTENT OF SEVERE WINTER STORMS HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences		Hazard Type / Combination	Location	Extent
Hazard Begin Date	Hazard End Date			
1/7/1996	1/7/1996	Winter Weather	*Chester	Accumulations generally 1 to 3 inches.
12/29/1997	12/29/1997	Winter Weather	*Chester	1 to 3 inches across the foothills and piedmont.
1/19/1998	1/29/1998	Winter Weather	*Chester	Accumulations between 1 and 3 inches. Temperatures just above freezing.
2/16/2003	2/16/2003	Winter Weather	*Chester	Up to an inch of sleet.
1/29/2005	1/30/2005	Winter Weather	*Chester	Total accumulations of ice and sleet were generally one fourth of an inch across the area.
2/1/2007	2/1/2007	Winter Weather	*Chester	By late morning up to 3 inches of snow had accumulated across the area. By late morning, up to an eighth of an inch of ice and as much as a half inch of sleet had accumulated on top of 2 to 3 inches of snow.
1/16/2008	1/17/2008	Winter Weather	*Chester	By mid-morning on the 17th, total accumulations ranged from 1 to 2 inches.
1/29/2010	1/30/2010	Winter Weather	*Chester	Accumulations of 1 to 2 inches of sleet and snow (mainly sleet) occurred, with a tenth to a quarter inch glaze of ice occurring on top of the sleet and snow.
12/25/2010	12/25/2010	Winter Weather	*Chester	Most areas reported 1 to 3 inches of snowfall.
1/28/2014	1/28/2014	Winter Weather	*Chester	1 to 2 inches or less in most areas.
2/11/2014	2/11/2014	Winter Weather	*Chester	Total accumulations ranged from 1 to 3 inches across much of the area, although isolated 4-inch amounts were reported.
2/12/2014	2/13/2014	Winter Weather	*Chester	Most areas saw 3 to 6 inches of snow and sleet.

Data Source: National Centers for Environmental Information (NCEI) – Event Details
**Data regarding a specific jurisdiction(s) within the County is not available*

Hazard Analysis:

A severe winter storm has the potential to affect the entire planning area. To date the extent of severe winter storm damage in property values has been $9.8 million. However, events of a greater magnitude are possible in the future.

Unfortunately, there is no digital GIS data available for Chester County to delineate local areas prone to severe winter weather. Data may be available in the future, and mapping will be updated as it becomes available.

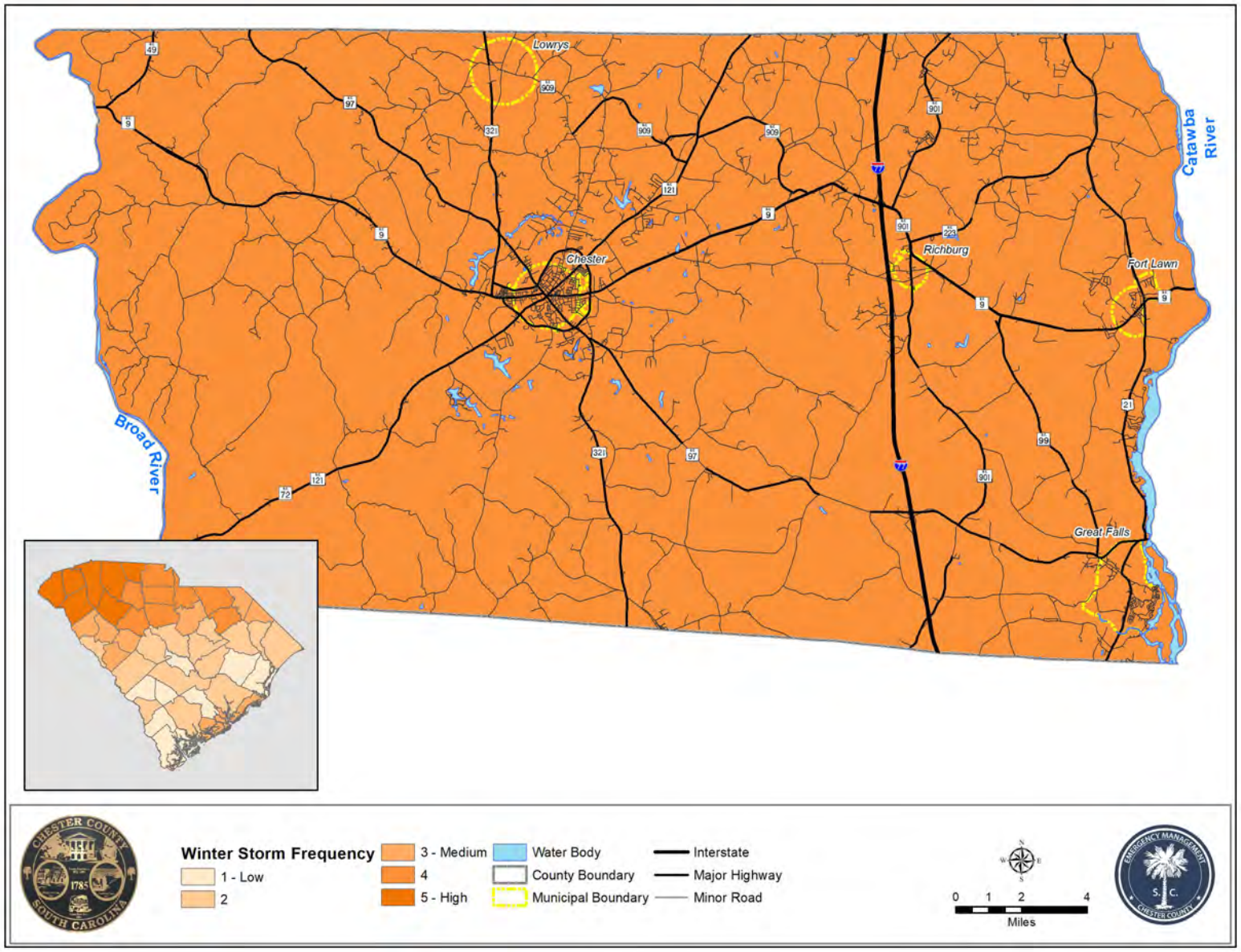
For severe winter storms, Chester County has a 100% annual chance of occurrence and a recurrence interval of 0.7 years.

Source: Annual chance (%) was calculated using the # of events/# of years on record. Recurrence interval was calculated using the # of years on record/# of events. The number of years was based on the first year the event was on record through 2019.

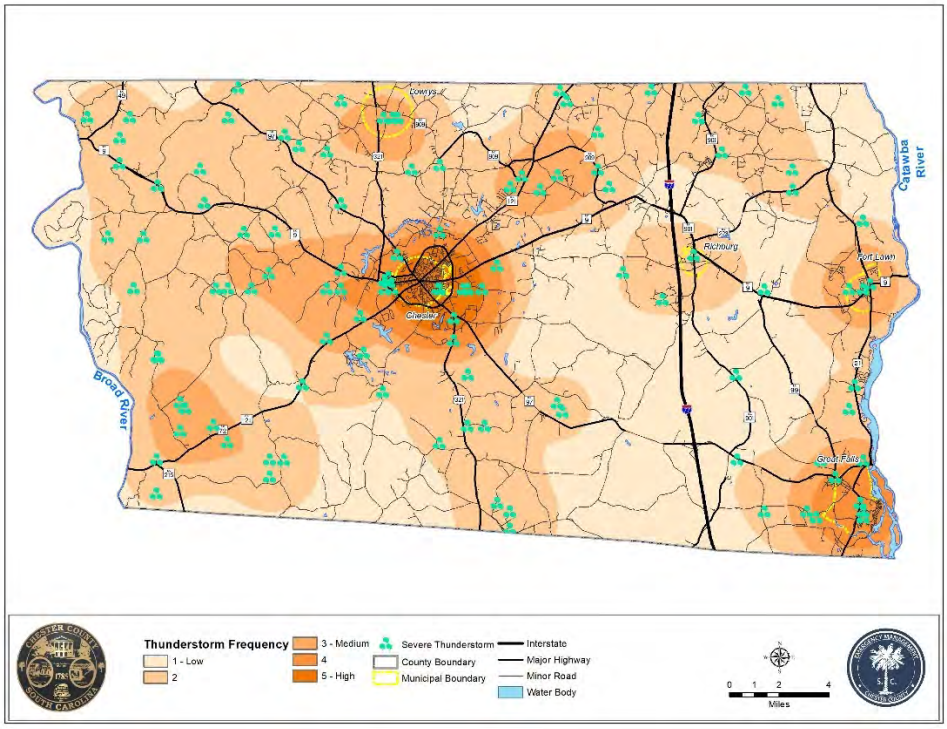
Due to the lack of detailed GIS data, it is impossible to assess winter events potential at a level finer than countywide. The assessable impact of winter events upon the City of Chester and the Towns of Fort Lawn, Richburg, Lowrys, and Great Falls is therefore identical to the assessment of Chester County with an annual frequency rating of 1.50 on a statewide scale of 0.00 – 5.63. The participating incorporated areas of Chester County are therefore currently below the statewide mean frequency of 0.99 for annual winter storm occurrences within the state.

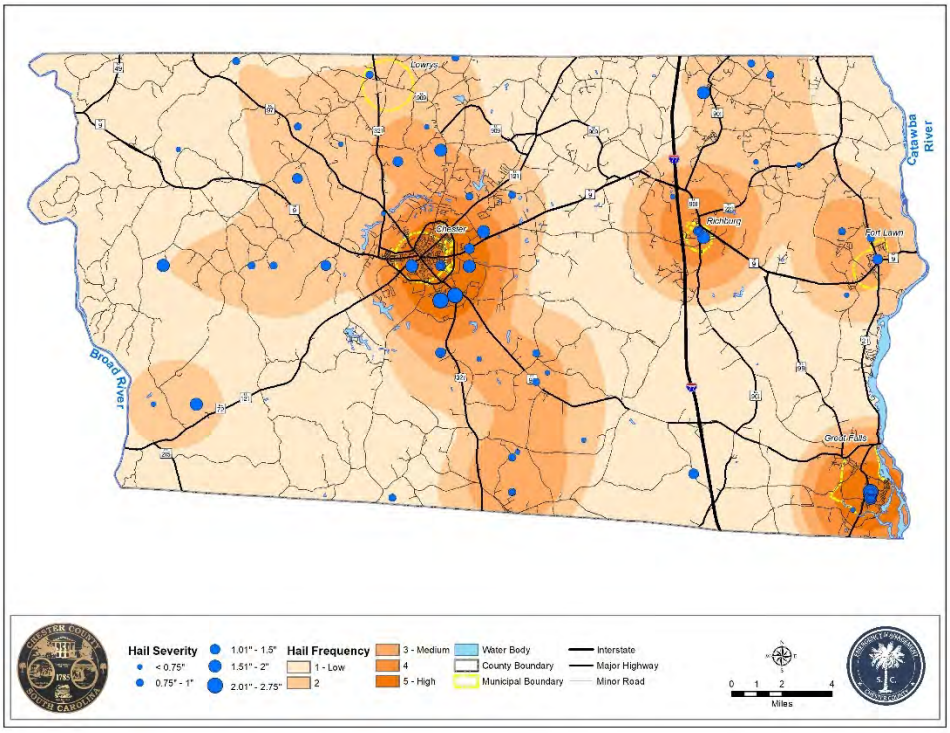
A full-size copy of mapping associated with Chester County Winter Storm Frequency between the years of 1960-2019 can be found on the next page.

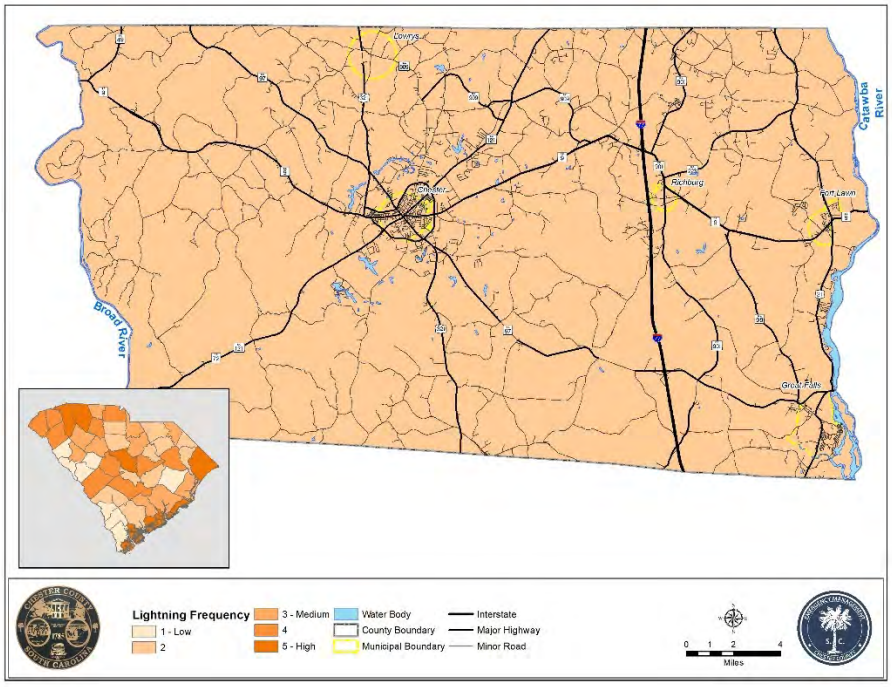
FIGURE 5.9: CHESTER COUNTY WINTER STORM FREQUENCY 1960 - 2019



SEVERE THUNDERSTORMS, HAIL, & LIGHTNING







Description:

Severe thunderstorms are defined by the National Weather Service as storms that have wind speeds of 58 miles per hour or higher, produce hail at least three quarters of an inch in diameter, or produces tornadoes. In order to form, thunderstorms simply require moisture to form clouds and rain, coupled with an unstable mass of warm air that can rise rapidly.

Thunderstorms affect relatively small areas when compared with hurricanes and winter storms, as the average storm is 15 miles in diameter and lasts an average of 30 minutes. Nearly 1,800 thunderstorms are occurring at any moment around the world; however, of the estimated 100,000 thunderstorms that occur year in the United States, only about 10% are classified as severe.

Thunderstorms are most likely to happen in the spring and summer months and during the afternoon and evening hours but can occur year-round and at all hours. Despite their small size, all thunderstorms are dangerous and capable of threatening life and property in localized areas. Every thunderstorm produces lightning, which results from the buildup and discharge of electrical energy between positively and negatively charged areas. Each year, lightning is responsible for an average of 93 deaths (more than tornadoes), 300 injuries, and several hundred million dollars in damage to property and forests.

SEVERE THUNDERSTORMS, HAIL, & LIGHTNING CONTENT

- Description
- Thunderstorms Historical Occurrences
- Hail Historical Occurrences
- Lightning Historical Occurrences
- Hazard Profile
- Hazard Analysis
- Severe Thunderstorms, Hail, & Lightning Maps

Thunderstorms can also produce large, damaging hail, which causes nearly $1 billion in damage to property and crops annually. Straight-line winds, which in extreme cases have the potential to exceed 100 miles per hour, are responsible for most thunderstorm wind damage. One type of straight-line wind, the downburst, can cause damage equivalent to a strong tornado and can be extremely dangerous to aviation. Thunderstorms are also capable of producing tornadoes and heavy rain that can lead to flash flooding.

Historical Occurrences:

Severe thunderstorms are fairly common in South Carolina, but only a small percentage actually cause damages.

According to NOAA's National Climatic Data Center, there were a total of 169 severe storm/thunderstorm events in Chester County during the period of 1956 to 2020. Of these, over $558,000 in property and $123,000 in crop damages was recorded with 1 injury and 0 deaths. (These events do not include tornadoes).

In addition, there were 90 hail events recorded for Chester County during the period of 1963 to 2020 that resulted in no deaths, 1 injury, and over $333,138 in property damage. There were 41 lightning events recorded between 1960 and 2020 for Chester County that resulted in 2 injuries and over $482,559 in property damage.

Hazard Profile:

TABLE 5.18: SEVERE THUNDERSTORMS HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag. (Est.)
4/6/56	4/6/56	Thunderstorm Wind	Chester County	0	0	$0	$0	0
4/8/57	4/8/57	Thunderstorm Wind	Chester County	0	0	$0	$0	0
7/12/66	7/12/66	Thunderstorm Wind	Chester County	0	0	$0	$0	0
7/3/70	7/3/70	Thunderstorm Wind	Chester County	0	0	$0	$0	0
1/30/71	1/30/71	Thunderstorm Wind	Chester County	0	0	$0	$0	0
5/28/73	5/28/73	Thunderstorm Wind	Chester County	0	0	$987	$987	0
4/8/74	4/8/74	Thunderstorm Wind	Chester County	0	0	$0	$0	0
5/10/75	5/10/75	Thunderstorm Wind	Chester County	0	0	$12,223	$122,230	0
4/19/81	4/19/81	Thunderstorm Wind	Countywide	0	0	$26,043	$250	0
8/21/83	8/21/83	Thunderstorm Wind	Countywide	0	0	$0	$0	NA
3/28/84	3/28/84	Thunderstorm Wind	Countywide	0	0	$0	$0	NA

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag. (Est.)
5/3/84	5/3/84	Thunderstorm Wind	Countywide	0	0	$0	$0	NA
6/7/85	6/7/85	Thunderstorm Wind	Countywide	0	0	$2,391	$239	NA
7/21/86	7/21/86	Thunderstorm Wind	Countywide	0	0	$0	$0	NA
7/29/87	7/29/87	Thunderstorm Wind	Countywide	0	0	$10,419	$0	NA
5/23/88	5/23/88	Thunderstorm Wind	Countywide	0	0	$0	$0	NA
5/5/89	5/5/89	Thunderstorm Wind	Countywide	0	0	$9,545	$0	NA
6/16/89	6/16/89	Thunderstorm Wind	Countywide	0	0	$95,458	$0	NA
6/16/89	6/16/89	Thunderstorm Wind	Countywide	0	0	$9,545	$0	NA
6/20/89	6/20/89	Thunderstorm Wind	Countywide	1	0	$9,545	$0	NA
8/6/89	8/6/89	Thunderstorm Wind	Countywide	0	0	$9,545	$0	NA
6/8/90	6/8/90	Thunderstorm Wind	Countywide	0	0	$0	$0	NA
6/9/90	6/9/90	Thunderstorm Wind	Countywide	0	0	$0	$0	NA
4/29/91	4/29/91	Thunderstorm Wind	Countywide	0	0	$0	$0	NA
6/24/94	6/24/94	Thunderstorm Wind	Chester	0	0	$0	$0	NA
6/27/94	6/27/94	Thunderstorm Wind	Chester	0	0	$0	$0	NA
6/28/94	6/28/94	Thunderstorm Wind	Great Falls	0	0	$0	$0	NA
5/27/95	5/27/95	Thunderstorm Wind	North of Chester	0	0	$0	$0	NA
6/9/95	6/9/95	Thunderstorm Wind	Chester	0	0	$45,000	$0	NA
3/15/96	3/15/96	Thunderstorm Wind	Chester	0	0	$50,883	$0	NA
5/24/96	5/24/96	Thunderstorm Wind	Chester	0	0	$0	$0	50
7/15/96	7/15/96	Thunderstorm Wind	Chester	0	0	$0	$0	50
2/21/97	2/21/97	Thunderstorm Wind	Richburg	0	0	$0	$0	50
5/26/97	5/26/97	Thunderstorm Wind	Chester	0	0	$0	$0	55
6/16/98	6/16/98	Thunderstorm Wind	Chester	0	0	$0	$0	50
6/19/98	6/19/98	Thunderstorm Wind	Chester	0	0	$0	$0	55
6/21/98	6/21/98	Thunderstorm Wind	Great Falls	0	0	$0	$0	60
7/19/98	7/19/98	Thunderstorm Wind	Leeds	0	0	$0	$0	50
9/8/98	9/8/98	Thunderstorm Wind	Chester	0	0	$21,785	$0	50

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag. (Est.)
9/8/98	9/8/98	Thunderstorm Wind	Great Falls	0	0	$15,000	$0	60
4/27/99	4/27/99	Thunderstorm Wind	Chester	0	0	$0	$0	50
7/31/99	7/31/99	Thunderstorm Wind	Chester	0	0	$14,209	$0	50
7/31/99	7/31/99	Thunderstorm Wind	Lowrys	0	0	$10,000	$0	55
5/25/00	5/25/00	Thunderstorm Wind	Great Falls	0	0	$0	$0	55
5/25/00	5/25/00	Thunderstorm Wind	Chester	0	0	$0	$0	55
5/25/00	5/25/00	Thunderstorm Wind	Baton Rouge	0	0	$0	$0	60
5/25/00	5/25/00	Thunderstorm Wind	Chester	0	0	$0	$0	55
6/15/00	6/15/00	Thunderstorm Wind	Leeds	0	0	$0	$0	50
8/24/00	8/24/00	Thunderstorm Wind	Lowrys	0	0	$25,000	$0	65
8/24/00	8/24/00	Thunderstorm Wind	Chester	0	0	$0	$0	65
8/24/00	8/24/00	Thunderstorm Wind	Chester	0	0	$0	$0	55
9/25/00	9/25/00	Thunderstorm Wind	Chester	0	0	$0	$0	50
9/25/00	9/25/00	Thunderstorm Wind	Chester	0	0	$0	$0	50
4/1/01	4/1/01	Thunderstorm Wind	Ft Lawn	0	0	$0	$0	50
4/1/01	4/1/01	Thunderstorm Wind	Chester	0	0	$15,000	$0	50
6/13/01	6/13/01	Thunderstorm Wind	Edgemoor	0	0	$0	$0	50
6/15/01	6/15/01	Thunderstorm Wind	Edgemoor	0	0	$0	$0	55
6/22/01	6/22/01	Thunderstorm Wind	Chester	0	0	$0	$0	50
8/31/01	8/31/01	Thunderstorm Wind	Chester	0	0	$0	$0	50
12/17/01	12/17/01	Thunderstorm Wind	Lowrys	0	0	$0	$0	50
3/31/02	3/31/02	Thunderstorm Wind	Lowrys	0	0	$1,000	$0	50
4/18/02	4/18/02	Thunderstorm Wind	Chester	0	0	$1,000	$0	50
5/10/02	5/10/02	Thunderstorm Wind	Great Falls	0	0	$0	$0	60
5/13/02	5/13/02	Thunderstorm Wind	Chester	0	0	$1,000	$0	50
5/2/03	5/2/03	Thunderstorm Wind	Chester	0	0	$0	$0	55
5/2/03	5/2/03	Thunderstorm Wind	Chester	0	0	$0	$0	55
5/2/03	5/2/03	Thunderstorm Wind	Chester	0	0	$5,000	$0	55

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag. (Est.)
5/25/03	5/25/03	Thunderstorm Wind	Great Falls	0	0	$0	$0	50
6/27/03	6/27/03	Thunderstorm Wind	Chester	0	0	$1,000	$0	50
11/19/03	11/19/03	Thunderstorm Wind	Chester	0	0	$0	$0	50
5/22/04	5/22/04	Thunderstorm Wind	Ft Lawn	0	0	$1,000	$0	55
9/17/04	9/17/04	Thunderstorm Wind	Great Falls	0	0	$25,000	$0	65
9/27/04	9/27/04	Thunderstorm Wind	Chester	0	0	$0	$0	50
11/24/04	11/24/04	Thunderstorm Wind	Chester	0	0	$0	$0	50
3/8/05	3/8/05	Thunderstorm Wind	Countywide	0	0	$0	$0	55
7/13/05	7/13/05	Thunderstorm Wind	Chester	0	0	$3,000	$0	60
7/27/05	7/27/05	Thunderstorm Wind	Chester	0	0	$75,000	$0	65
7/28/05	7/28/05	Thunderstorm Wind	Great Falls	0	0	$5,000	$0	55
6/26/06	6/26/06	Thunderstorm Wind	Chester	0	0	$0	$0	55
7/15/06	7/15/06	Thunderstorm Wind	Leeds	0	0	$0	$0	55
7/28/06	7/28/06	Thunderstorm Wind	Edgemoor	0	0	$0	$0	50
11/15/06	11/15/06	Thunderstorm Wind	Chester	0	0	$0	$0	50
1/5/07	1/5/07	Thunderstorm Wind	Lowrys	0	0	$20,000	$0	55
4/14/07	4/14/07	Thunderstorm Wind	Chester	0	0	$0	$0	50
6/11/07	6/11/07	Thunderstorm Wind	Blackstock	0	0	$0	$0	50
6/25/07	6/25/07	Thunderstorm Wind	Great Falls	0	0	$0	$0	50
7/1/07	7/1/07	Thunderstorm Wind	Chester	0	0	$0	$0	50
8/30/07	8/30/07	Thunderstorm Wind	Chester	0	0	$0	$0	50
3/4/08	3/4/08	Thunderstorm Wind	Chester	0	0	$0	$0	50
3/4/08	3/4/08	Thunderstorm Wind	Chester	0	0	$0	$0	50
3/4/08	3/4/08	Thunderstorm Wind	Ft Lawn	0	0	$0	$0	50
6/10/08	6/10/08	Thunderstorm Wind	Chester	0	0	$0	$0	50
6/22/08	6/22/08	Thunderstorm Wind	Chester	0	0	$0	$0	50
6/22/08	6/22/08	Thunderstorm Wind	Leeds	0	0	$0	$0	50
7/31/08	7/31/08	Thunderstorm Wind	Great Falls	0	0	$0	$0	50

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag. (Est.)
8/2/08	8/2/08	Thunderstorm Wind	Wilksburg	0	0	$0	$0	60
8/31/08	8/31/08	Thunderstorm Wind	Baldwin Mills	0	0	$0	$0	50
4/10/09	4/10/09	Thunderstorm Wind	Wilksburg	0	0	$0	$0	50
4/14/09	4/14/09	Thunderstorm Wind	Great Falls	0	0	$0	$0	55
5/8/09	5/8/09	Thunderstorm Wind	Great Falls	0	0	$0	$0	50
6/2/09	6/2/09	Thunderstorm Wind	Landsford	0	0	$0	$0	50
6/16/09	6/16/09	Thunderstorm Wind	Evans	0	0	$0	$0	75
6/18/09	6/18/09	Thunderstorm Wind	Richburg	0	0	$0	$0	50
7/6/09	7/6/09	Thunderstorm Wind	Ft Lawn	0	0	$0	$0	60
8/5/09	8/5/09	Thunderstorm Wind	Baldwin Mills	0	0	$0	$0	50
8/5/09	8/5/09	Thunderstorm Wind	Ft Lawn	0	0	$0	$0	50
6/13/10	6/13/10	Thunderstorm Wind	Evans	0	0	$0	$0	50
6/25/10	6/25/10	Thunderstorm Wind	Baldwin Mills	0	0	$0	$0	50
6/27/10	6/27/10	Thunderstorm Wind	Baldwin Mills	0	0	$0	$0	50
7/9/10	7/9/10	Thunderstorm Wind	Sandy River	0	0	$0	$0	55
7/9/10	7/9/10	Thunderstorm Wind	Richburg	0	0	$0	$0	50
7/9/10	7/9/10	Thunderstorm Wind	Beckhamville	0	0	$0	$0	50
7/26/10	7/26/10	Thunderstorm Wind	Rodman	0	0	$0	$0	50
7/27/10	7/27/10	Thunderstorm Wind	Blackstock	0	0	$0	$0	50
8/5/10	8/5/10	Thunderstorm Wind	Chester	0	0	$0	$0	50
8/5/10	8/5/10	Thunderstorm Wind	Great Falls	0	0	$0	$0	50
8/12/10	8/12/10	Thunderstorm Wind	Wilksburg	0	0	$0	$0	50
8/12/10	8/12/10	Thunderstorm Wind	Sandy River	0	0	$0	$0	50
4/5/11	4/5/11	Thunderstorm Wind	Wilksburg	0	0	$0	$0	55
5/10/11	5/10/11	Thunderstorm Wind	Lowrys	0	0	$0	$0	65
6/2/11	6/2/11	Thunderstorm Wind	Wilksburg	0	0	$0	$0	50
6/15/11	6/15/11	Thunderstorm Wind	Leeds	0	0	$0	$0	50
6/18/11	6/18/11	Thunderstorm Wind	Wilksburg	0	0	$0	$0	50

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag. (Est.)
6/19/11	6/19/11	Thunderstorm Wind	Baldwin Mills	0	0	$0	$0	50
7/13/11	7/13/11	Thunderstorm Wind	McKeown	0	0	$0	$0	50
7/13/11	7/13/11	Thunderstorm Wind	Bascomville	0	0	$0	$0	50
8/9/11	8/9/11	Thunderstorm Wind	Leeds	0	0	$0	$0	55
8/29/11	8/29/11	Thunderstorm Wind	Lewis Turnout	0	0	$0	$0	50
8/29/11	8/29/11	Thunderstorm Wind	Lewis Turnout	0	0	$0	$0	50
4/2/12	4/2/12	Thunderstorm Wind	Beckhamville	0	0	$0	$0	50
4/3/12	4/3/12	Thunderstorm Wind	McKeown	0	0	$0	$0	50
7/1/12	7/1/12	Thunderstorm Wind	Wilksburg	0	0	$0	$0	55
7/1/12	7/1/12	Thunderstorm Wind	Lowrys	0	0	$0	$0	50
7/5/12	7/5/12	Thunderstorm Wind	Rowell	0	0	$0	$0	50
7/28/12	7/28/12	Thunderstorm Wind	Beckhamville	0	0	$0	$0	50
8/2/12	8/2/12	Thunderstorm Wind	McKeown	0	0	$0	$0	50
8/8/12	8/8/12	Thunderstorm Wind	Wilksburg	0	0	$0	$0	50
1/30/13	1/30/13	Thunderstorm Wind	Lewis	0	0	$0	$0	50
6/13/13	6/13/13	Thunderstorm Wind	Knox	0	0	$0	$0	50
6/25/13	6/25/13	Thunderstorm Wind	Beckhamville	0	0	$0	$0	50
7/24/13	7/24/13	Thunderstorm Wind	Chester	0	0	$0	$0	50
6/19/14	6/19/14	Thunderstorm Wind	Chester	0	0	$0	$0	50
6/18/15	6/18/15	Thunderstorm Wind	Ft Lawn	0	0	$7,000	$0	55
7/2/15	7/2/15	Thunderstorm Wind	Leeds	0	0	$0	$0	50
6/4/16	6/4/16	Thunderstorm Wind	Bascomville	0	0	$0	$0	50
6/14/16	6/14/16	Thunderstorm Wind	Chester	0	0	$0	$0	50
7/7/16	7/7/16	Thunderstorm Wind	Rodman	0	0	$0	$0	50
7/7/16	7/7/16	Thunderstorm Wind	Sandy River	0	0	$0	$0	50
7/11/16	7/11/16	Thunderstorm Wind	Baton Rouge	0	0	$0	$0	50
7/16/16	7/16/16	Thunderstorm Wind	Sandy River	0	0	$0	$0	50
3/1/17	3/1/17	Thunderstorm Wind	Great Falls	0	0	$1,000	$0	50

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag. (Est.)
4/3/17	4/3/17	Thunderstorm Wind	Baton Rouge	0	0	$0	$0	50
4/3/17	4/3/17	Thunderstorm Wind	Baldwin Mills	0	0	$20,000	$0	65
7/15/17	7/15/17	Thunderstorm Wind	Blackstock	0	0	$0	$0	50
7/23/17	7/23/17	Thunderstorm Wind	Mc Keown	0	0	$0	$0	50
9/1/17	9/1/17	Thunderstorm Wind	Lando	0	0	$0	$0	50
6/24/18	6/24/18	Thunderstorm Wind	Baldwin Mills	0	0	$0	$0	50
6/25/18	6/25/18	Thunderstorm Wind	Beckhamville	0	0	$0	$0	50
6/27/18	6/27/18	Thunderstorm Wind	Lewis	0	0	$0	$0	55
6/27/18	6/27/18	Thunderstorm Wind	Leeds	0	0	$0	$0	55
8/8/18	8/8/18	Thunderstorm Wind	Chester	0	0	$0	$0	50
7/4/19	7/4/19	Thunderstorm Wind	Landsford	0	0	$0	$0	50
7/4/19	7/4/19	Thunderstorm Wind	Lewis Turnout	0	0	$0	$0	50
1/11/20	1/11/20	Thunderstorm Wind	Baton Rouge	0	0	$10,000	$0	55
4/13/20	4/13/20	Thunderstorm Wind	Ft Lawn	0	0	$0	$0	50
5/5/20	5/5/20	Thunderstorm Wind	Lowrys	0	0	$0	$0	50
5/5/20	5/5/20	Thunderstorm Wind	Beckhamville	0	0	$0	$0	50
5/22/20	5/22/20	Thunderstorm Wind	Evans	0	0	$0	$0	50
8/9/20	8/9/20	Thunderstorm Wind	Leeds	0	0	$0	$0	50
			TOTALS	**1**	**0**	**$558,578**	**$123,706**	

Data Source: NOAA, National Climatic Data Center, Storm Events Database and Data Source: SHELDUS™ U.S. version 19.0 – Arizona State University Center for Emergency Management and Homeland Security
EST. = Estimated wind speeds
Data regarding a specific jurisdiction(s) within the County is available only where noted.
Losses are not adjusted for inflation.
NA: Magnitude data was not available.

TABLE 5.19: HAIL HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag. (Est.)
6/11/63	6/11/63	Hail	Countywide	0	0	$0	$84,092	1.5
3/17/65	3/17/65	Hail	Countywide	0	0	$0	$0	2
5/20/73	5/20/73	Hail	Countywide	0	0	$1,269	$12,694	NA
5/10/75	5/10/75	Hail	Countywide	0	0	$12,223	$122,230	1.5
7/4/75	7/4/75	Hail	Countywide	0	0	$6,286	$62,286	NA
4/18/78	4/18/78	Hail	Countywide	0	0	$1,296	$12,967	NA
5/17/82	5/17/82	Hail	Countywide	0	0	$34	$340	1
6/10/82	6/10/82	Hail	Countywide	0	0	$299,173	$299,173	NA
6/24/82	6/24/82	Hail	Countywide	0	0	$1,226	$1,226	1
3/28/84	3/28/84	Hail	Countywide	1	0	$11,392	$1,139	1
6/7/85	6/7/85	Hail	Countywide	0	0	$239	$2,391	1.75
6/24/86	6/24/86	Hail	Countywide	0	0	$0	$0	0.75
5/24/88	5/24/88	Hail	Countywide	0	0	$0	$0	0.75
6/3/88	6/3/88	Hail	Countywide	0	0	$0	$0	1
6/26/88	6/26/88	Hail	Countywide	0	0	$0	$0	1
7/1/90	7/1/90	Hail	Countywide	0	0	$0	$0	1
8/21/90	8/21/90	Hail	Countywide	0	0	$0	$0	1
6/21/92	6/21/92	Hail	Countywide	0	0	$0	$0	1.75
6/26/92	6/26/92	Hail	Countywide	0	0	$0	$0	0.75
4/1/93	4/1/93	Hail	Chester	0	0	$0	$0	1.75
6/28/94	6/28/94	Hail	Great Falls	0	0	$0	$0	0.75
8/16/94	8/16/94	Hail	Se Portion	0	0	$0	$0	0.75
5/29/96	5/29/96	Hail	Richburg	0	0	$0	$0	1.25
5/29/96	5/29/96	Hail	Leeds	0	0	$0	$0	1.75
5/29/96	5/29/96	Hail	Leeds	0	0	$0	$0	0.75
5/29/96	5/29/96	Hail	Chester	0	0	$0	$0	2.5
1/25/97	1/25/97	Hail	Richburg	0	0	$0	$0	0.75
9/8/98	9/8/98	Hail	Great Falls	0	0	$0	$0	2.75
4/27/99	4/27/99	Hail	Chester	0	0	$0	$0	1.5
5/6/99	5/6/99	Hail	Great Falls	0	0	$0	$0	1
8/19/99	8/19/99	Hail	Chester	0	0	$0	$0	0.88
5/25/00	5/25/00	Hail	Lowrys	0	0	$0	$0	1.5
5/25/00	5/25/00	Hail	Chester	0	0	$0	$0	2
5/25/00	5/25/00	Hail	Great Falls	0	0	$0	$0	0.75
6/15/00	6/15/00	Hail	Great Falls	0	0	$0	$0	1.5
7/22/00	7/22/00	Hail	Chester	0	0	$0	$0	0.75
8/26/00	8/26/00	Hail	Chester	0	0	$0	$0	1.75

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag. (Est.)
4/1/01	4/1/01	Hail	Chester	0	0	$0	$0	0.75
3/31/02	3/31/02	Hail	Chester	0	0	$0	$0	1
5/10/02	5/10/02	Hail	Great Falls	0	0	$0	$0	1.75
5/3/03	5/3/03	Hail	Edgemoor	0	0	$0	$0	1.75
5/3/03	5/3/03	Hail	Richburg	0	0	$0	$0	1.75
7/13/03	7/13/03	Hail	Chester	0	0	$0	$0	1.25
5/10/05	5/10/05	Hail	Chester	0	0	$0	$0	1
4/3/06	4/3/06	Hail	Great Falls	0	0	$0	$0	0.75
5/5/06	5/5/06	Hail	Chester	0	0	$0	$0	1
5/14/06	5/14/06	Hail	Cornwell	0	0	$0	$0	1
5/14/06	5/14/06	Hail	Great Falls	0	0	$0	$0	1
5/14/06	5/14/06	Hail	Great Falls	0	0	$0	$0	0.75
5/18/06	5/18/06	Hail	Ft Lawn	0	0	$0	$0	0.75
6/12/06	6/12/06	Hail	Chester	0	0	$0	$0	0.75
7/21/06	7/21/06	Hail	Chester	0	0	$0	$0	0.88
7/28/06	7/28/06	Hail	Edgemoor	0	0	$0	$0	0.88
4/11/07	4/11/07	Hail	Chester	0	0	$0	$0	0.88
4/14/07	4/14/07	Hail	Chester	0	0	$0	$0	0.88
6/11/07	6/11/07	Hail	Chester	0	0	$0	$0	1
6/29/07	6/29/07	Hail	Chester	0	0	$0	$0	0.75
3/15/08	3/15/08	Hail	Great Falls	0	0	$0	$0	0.75
4/4/08	4/4/08	Hail	Chester	0	0	$0	$0	0.75
4/4/08	4/4/08	Hail	Blackstock	0	0	$0	$0	0.75
6/9/08	6/9/08	Hail	Chester	0	0	$0	$0	0.75
6/9/08	6/9/08	Hail	Chester	0	0	$0	$0	0.75
6/11/08	6/11/08	Hail	Richburg	0	0	$0	$0	0.75
6/28/08	6/28/08	Hail	Richburg	0	0	$0	$0	0.88
4/6/09	4/6/09	Hail	Beckhamville	0	0	$0	$0	1.5
6/2/09	6/2/09	Hail	Landsford	0	0	$0	$0	0.75
6/16/09	6/16/09	Hail	Evans	0	0	$0	$0	2.5
7/6/09	7/6/09	Hail	Ft Lawn	0	0	$0	$0	1.5
7/6/09	7/6/09	Hail	Ft Lawn	0	0	$0	$0	0.88
4/27/10	4/27/10	Hail	Chester Muni Arpt	0	0	$0	$0	0.75
4/27/10	4/27/10	Hail	Richburg	0	0	$0	$0	0.75
6/27/10	6/27/10	Hail	Lando	0	0	$0	$0	0.75
4/9/11	4/9/11	Hail	Edgemoor	0	0	$0	$0	1
4/9/11	4/9/11	Hail	Richburg	0	0	$0	$0	1.5
4/9/11	4/9/11	Hail	Chester Muni Arpt	0	0	$0	$0	1.5

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage	Crop Damage	Mag. (Est.)
4/9/11	4/9/11	Hail	Chester	0	0	$0	$0	1.5
6/5/11	6/5/11	Hail	Richburg	0	0	$0	$0	1
6/9/11	6/9/11	Hail	Lowrys	0	0	$0	$0	1
8/29/11	8/29/11	Hail	Baldwin Mills	0	0	$0	$0	0.75
8/29/11	8/29/11	Hail	Hemlock	0	0	$0	$0	1
4/27/12	4/27/12	Hail	Blackstock	0	0	$0	$0	1
5/17/12	5/17/12	Hail	Blackstock	0	0	$0	$0	0.88
7/1/12	7/1/12	Hail	Lowrys	0	0	$0	$0	0.88
5/10/14	5/10/14	Hail	Chester	0	0	$0	$0	0.88
5/23/14	5/23/14	Hail	Chester	0	0	$0	$0	1.75
3/14/16	3/14/16	Hail	Dinber	0	0	$0	$0	0.88
5/2/16	5/2/16	Hail	Blackstock	0	0	$0	$0	1
3/1/17	3/1/17	Hail	Great Falls	0	0	$0	$0	0.75
7/15/17	7/15/17	Hail	Great Falls	0	0	$0	$0	0.75
5/5/20	5/5/20	Hail	Hemlock	0	0	$0	$0	1.75
			Totals	**1**	**0**	**$333,138**	**$598,538**	

Data Source: NOAA, National Climatic Data Center, Storm Events Database and SHELDUS™ U.S. version 19.0 – ASU Center for Emergency Management and Homeland Security
EST. = Estimated hail size.
Data regarding a specific jurisdiction(s) within the County is available only where noted.
Losses are not adjusted for inflation.
NA: Magnitude data was not available.

There is no new data for Lightning events since the 2010 plan revision.

TABLE 5.20: LIGHTNING HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage			
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage ($)	Crop Damage ($)
7/11/1965	7/11/1965	Lightning	*Chester	1	0	$375	$0
7/19/1965	7/19/1965	Lightning	*Chester	0	0	$815	$81
8/23/1965	8/23/1965	Lightning	*Chester	0	0	$9,394	$0
8/27/1965	8/27/1965	Lightning	*Chester	0	0	$816	$0
7/14/1972	7/14/1972	Lightning - Severe Storm / Thunderstorm - Wind	*Chester	1	0	$28,317	$0
5/11/1973	5/11/1973	Hail - Lightning - Severe Storm / Thunderstorm - Wind	*Chester	0	0	$1,666	$1,666
5/20/1973	5/20/1973	Hail - Lightning - Severe Storm / Thunderstorm – Wind	*Chester	0	0	$1,269	$12,694
5/28/1973	5/28/1973	Hail - Lightning - Wind	*Chester	0	0	$987	$987

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage			
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage ($)	Crop Damage ($)
8/29/1973	8/29/1973	Lightning - Severe Storm / Thunderstorm - Wind	*Chester	0	0	$133	$13
12/13/1973	12/13/1973	Hail - Lightning	*Chester	0	0	$9	$98
3/21/1974	3/21/1974	Lightning - Wind	*Chester	0	0	$5,219	$521
3/29/1974	3/29/1974	Hail - Lightning - Wind	*Chester	0	0	$5,716	$5,716
4/8/1974	4/8/1974	Lightning - Wind	*Chester	0	0	$6,669	$6
4/8/1974	4/8/1974	Lightning - Wind	*Chester	0	0	$96	$0
8/4/1974	8/4/1974	Lightning - Severe Storm / Thunderstorm	*Chester	0	0	$0	$171
3/7/1975	3/7/1975	Hail - Lightning - Wind	*Chester	0	0	$628	$0
3/24/1975	3/24/1975	Hail - Lightning - Wind	*Chester	0	0	$4,782	$478
5/10/1975	5/10/1975	Hail - Lightning - Wind	*Chester	0	0	$12,223	$122,230
5/15/1975	5/15/1975	Lightning - Wind	*Chester	0	0	$4,782	$47
6/15/1975	6/15/1975	Hail - Lightning - Wind	*Chester	0	0	$647	$647
6/18/1975	6/18/1975	Hail - Lightning - Wind	*Chester	0	0	$47	$4,782
6/19/1975	6/19/1975	Hail - Lightning - Wind	*Chester	0	0	$814	$814
7/4/1975	7/4/1975	Hail - Lightning - Wind	*Chester	0	0	$6,286	$62,861
7/24/1975	7/24/1975	Lightning	*Chester	0	0	$628	$0
8/27/1975	8/27/1975	Lightning - Severe Storm / Thunderstorm - Wind	*Chester	0	0	$5,789	$57
6/29/1976	6/29/1976	Lightning	*Chester	0	0	$11,557	$11
7/26/1976	7/26/1976	Lightning - Severe Storm / Thunderstorm - Wind	*Chester	0	0	$1,600	$160
7/29/1976	7/29/1976	Lightning - Severe Storm / Thunderstorm - Wind	*Chester	0	0	$1,600	$16
10/9/1976	10/9/1976	Lightning - Wind	*Chester	0	0	$5,778	$57
6/6/1977	6/6/1977	Hail - Lightning - Wind	*Chester	0	0	$424	$4,246
7/14/1977	7/14/1977	Lightning - Wind	*Chester	0	0	$4,246	$42
4/19/1981	4/19/1981	Hail - Lightning - Severe Storm / Thunderstorm - Wind	*Chester	0	0	$26,043	$260
4/26/1982	4/26/1982	Hail - Lightning - Severe Storm / Thunderstorm - Wind	*Chester	0	0	$26	$26
6/3/1982	6/3/1982	Lightning - Severe Storm / Thunderstorm - Wind	*Chester	0	0	$12,626	$12,266
6/10/1982	6/10/1982	Hail - Lightning - Severe Storm / Thunderstorm - Wind	*Chester	0	0	$299,173	$299,173

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage			
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage ($)	Crop Damage ($)
7/25/1983	7/25/1983	Lightning - Wind	*Chester	0	0	$2,583	$25
8/21/1983	8/21/1983	Lightning - Wind	*Chester	0	0	$2,376	$237
8/23/1983	8/23/1983	Lightning - Wind	*Chester	0	0	$3,395	$0
6/20/1984	6/20/1984	Hail - Lightning - Severe Storm / Thunderstorm - Wind	*Chester	0	0	$2,476	$247
7/21/1986	7/21/1986	Lightning	*Chester	0	0	$108	$0
8/6/1986	8/6/1986	Lightning	*Chester	0	0	$10,800	$0
			Totals	**2**	**0**	**$482,918.00**	**$530,635.00**

Data Source: SHELDUS™ U.S. version 19.0 – ASU Center for Emergency Management and Homeland Security
Data regarding a specific jurisdiction(s) within the County is available only where noted.
Losses are adjusted for inflation.
NA: Magnitude data was not available.

Hazard Analysis:

A severe thunderstorm has the potential to affect the entire planning area. To date the extent of severe thunderstorm, hail, and lightning damage in property values has been:

Severe Thunderstorm	$558,578	
Hail	$333,138	
Lightning	$482,918	(Adjusted 2014)

However, events of a greater magnitude are possible in the future.

Unfortunately, there is no digital GIS data available for Chester County to delineate local areas prone to lightning. Data may be available in the future, and mapping will be updated as it becomes available.

For severe thunderstorm, Chester County has a 100% annual chance of occurrence and a recurrence interval of 0.3 years.

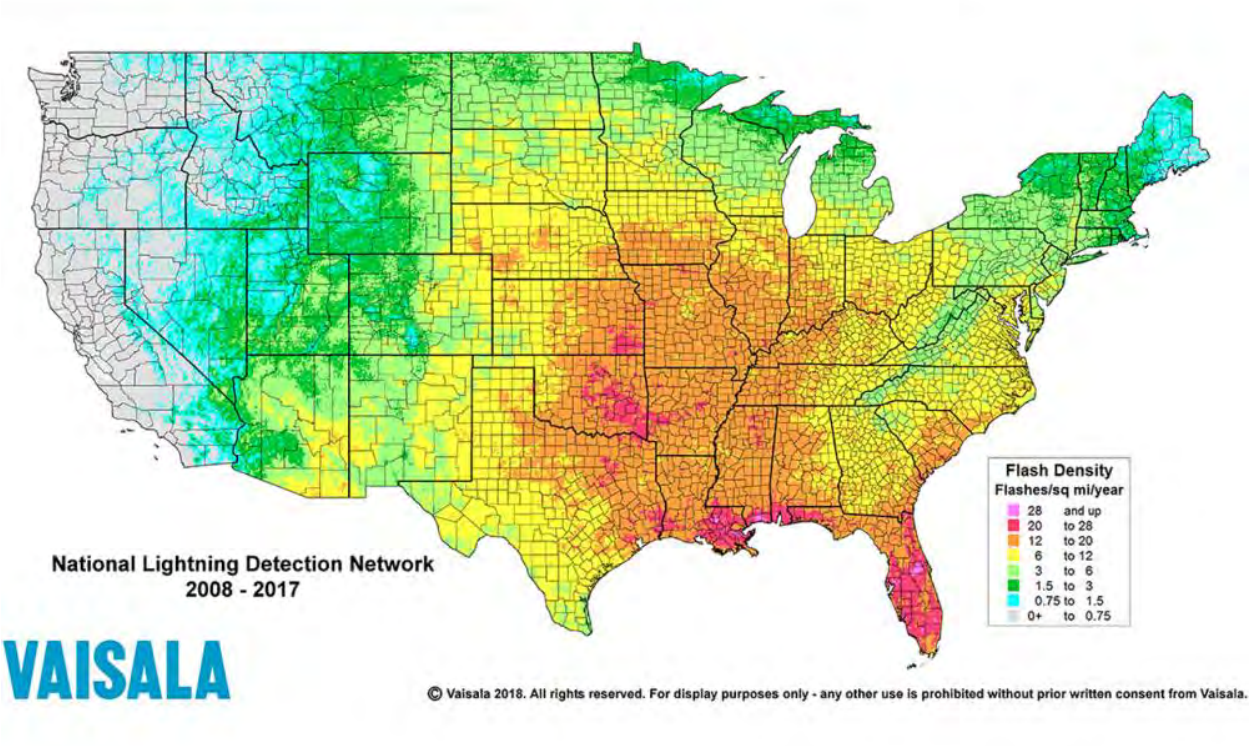
For hail, Chester County has a 100% annual chance of occurrence and a recurrence interval of 0.6 years.

For lightning, Chester County has an 67% annual chance of occurrence and a recurrence interval of 1.5 years. Lightning probability and recurrence intervals are based on the historical Figure 5.10.

Source: Annual chance (%) was calculated using the # of events/# of years on record. Recurrence interval was calculated using the # of years on record/# of events. The number of years was based on the first year the event was on record through 2020.

According to Vaisala's National Lightning Detection Network (NLDN) Chester County on average experiences 6 to 12 lightning strikes per square mile per year.

FIGURE 5.10: CHESTER COUNTY LIGHTNING EXTENT



Full-size copies of mapping associated with Chester Severe Thunderstorm Frequency between the years of 1956-2020, Hail Frequency between the years of 1963-2020, and Chester County Lightning Frequency between the years of 1960 - 2019 can be found on the following pages.

FIGURE 5.11: CHESTER COUNTY SEVERE THUNDERSTORMS 1956 - 2020

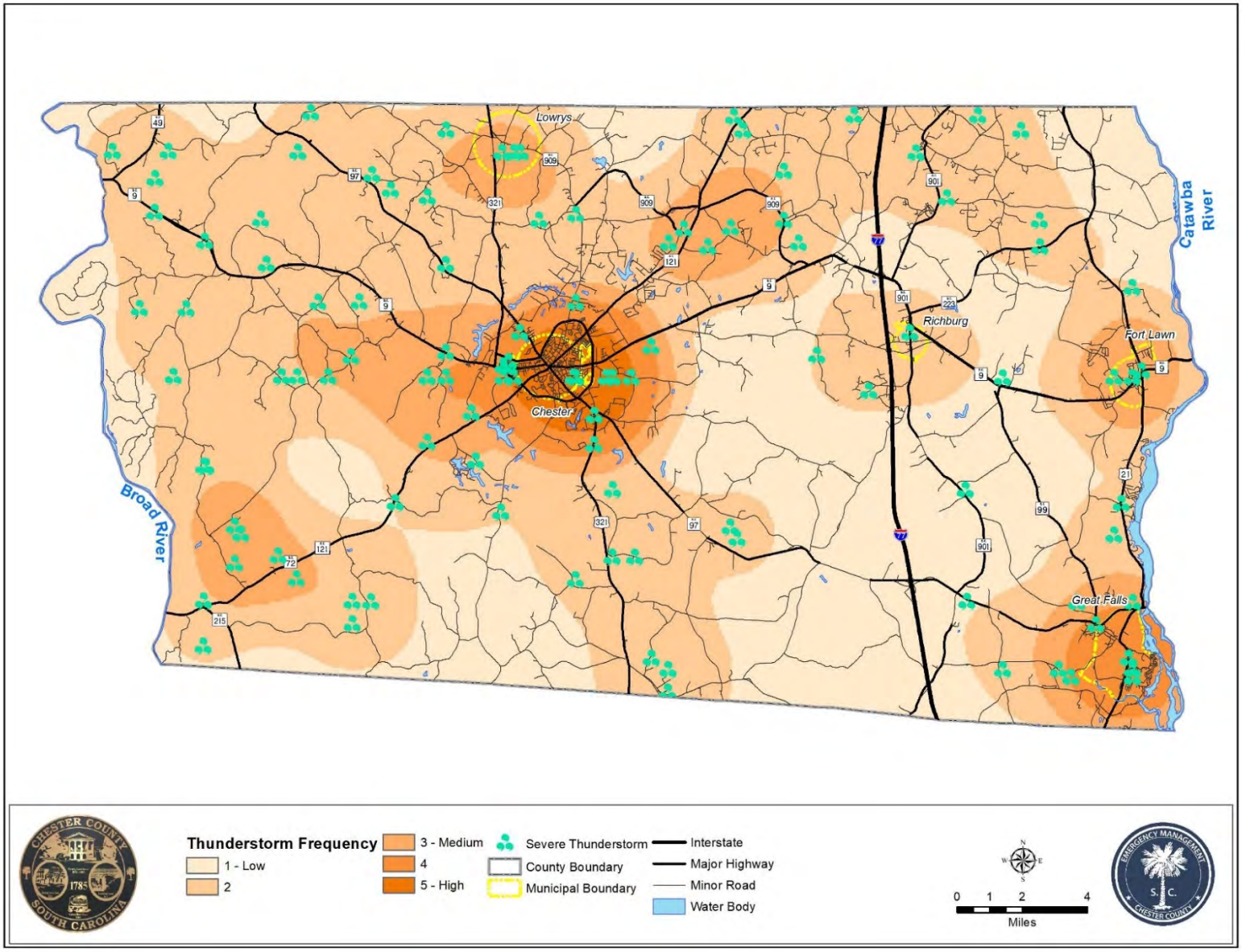


FIGURE 5.12: CHESTER COUNTY HAIL 1963 - 2020

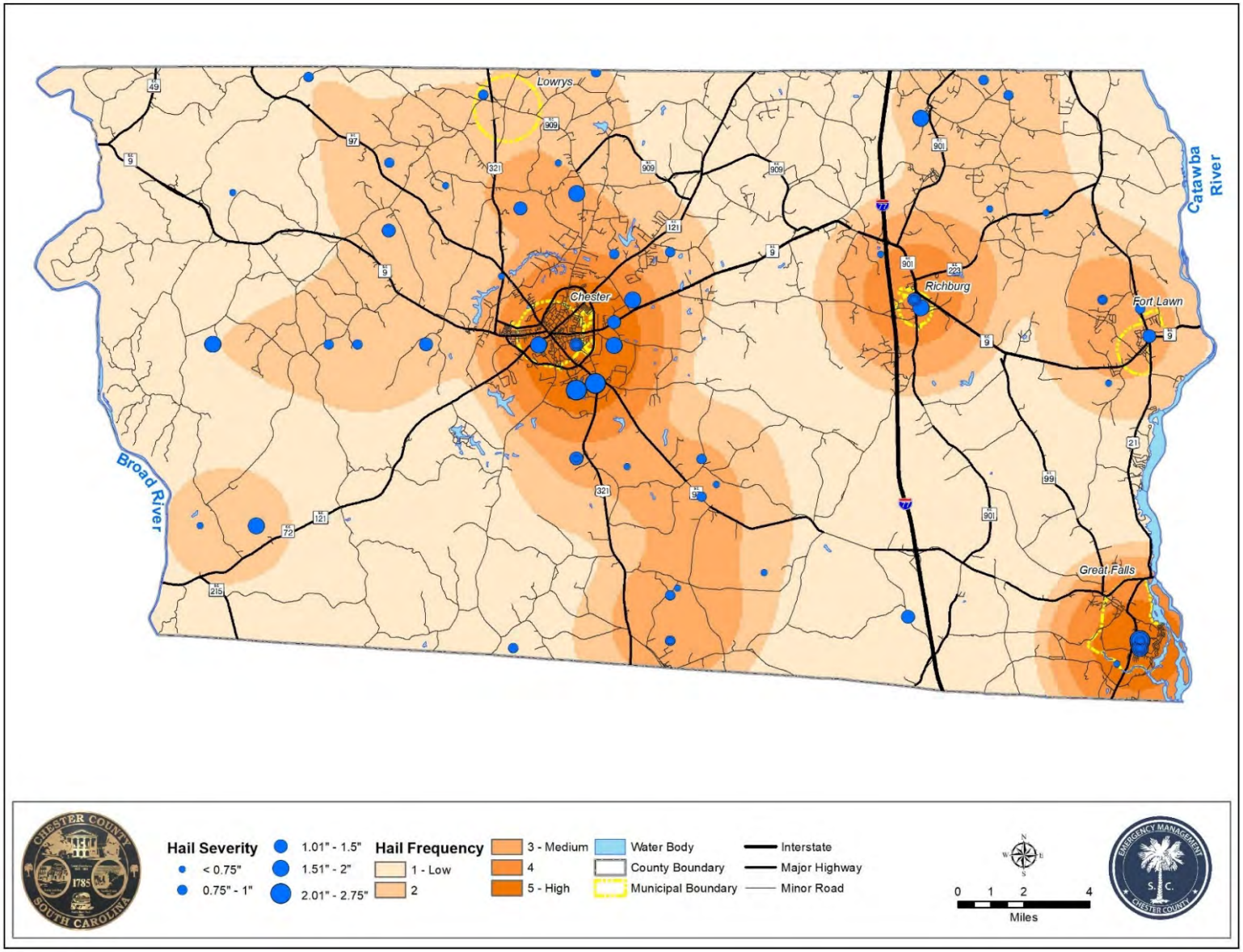
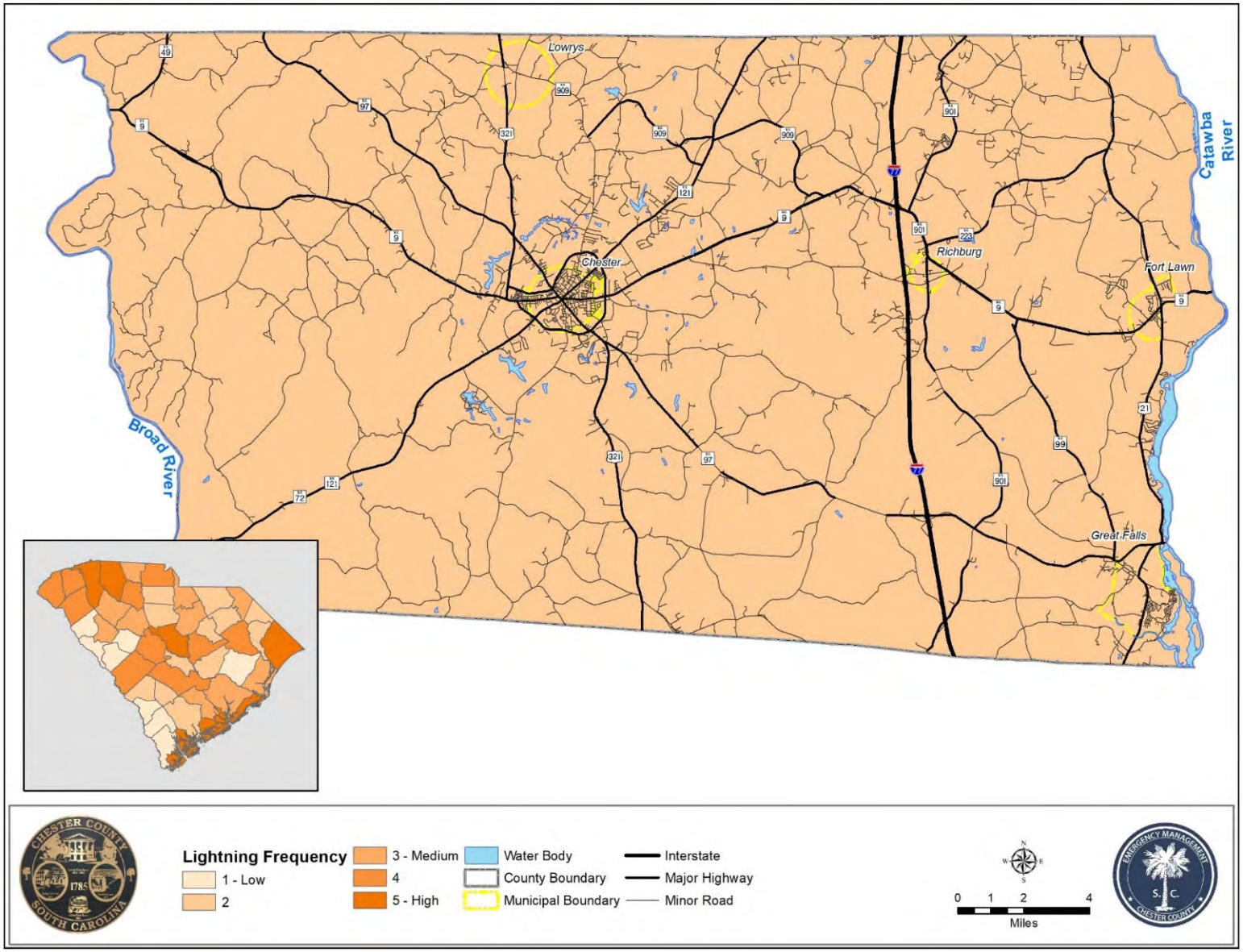
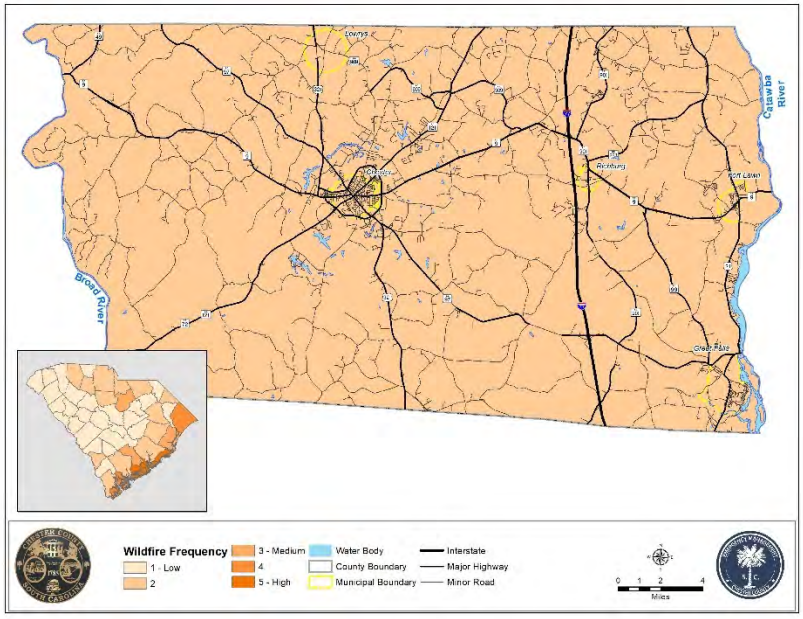


FIGURE 5.13: CHESTER COUNTY LIGHTNING FREQUENCY 1960 - 2019



WILDFIRES



Description:

A wildfire is an undesirable, uncontrolled burning of grasslands, brush, or woodlands. According to the National Weather Service, more than 100,000 wildfires occur in the United States each year. About 90% of these wildfires are started by humans (i.e., campfires, debris burning, smoking, etc.); the other 10% are started by lightning.

WILDFIRES CONTENT

The potential for wildfire depends upon surface fuel characteristics, weather conditions, recent climate conditions, topography, and fire behavior. Fuels are anything that fire can and will burn and are the combustible materials that sustain a wildfire. Typically, this is the most prevalent vegetation in a given area.

Weather is one of the most significant factors in determining the severity of wildfires. The intensity of fires and the rate with which they spread is directly connected to the wind speed, temperature, and relative humidity. Climatic conditions, such as long-term drought, also play a major role in the number and intensity of wildfires, and topography is important because the slope and shape of the terrain can change the rate of speed at which fire travels.

There are four major types of wildfires. Ground fires burn in natural litter, duff, roots, or sometimes high organic soils. Once started they are very difficult to control, and some ground fires may even rekindle after being extinguished. Surface fires burn in grasses and low shrubs (up to 4 feet tall) or in the lower branches of trees. They have the potential to spread rapidly, and

the ease of their control depends upon the fuel involved. Crown fires burn in the tops of trees, and the ease of their control depends greatly upon wind conditions. Spotting fires occur when burning embers are thrown ahead of the main fire and can be produced by crown fires as well as wind and topographic conditions.

Once spotting begins, the fire will be very difficult to control. Wildfires become significant threats to life and property along what is known as the "wildland/urban interface." The wildland/urban interface is defined as the area where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. In 2020, approximately 17,904 structures were lost to wildfires across the United States.

Historical Occurrences:

All of South Carolina is susceptible to wildfire. According to the National Interagency Fire Center, between 2002 and 2020, South Carolina has recorded over 35,000 wildfires that resulted in the damage of over 212,620 acres. That is an average of at least 1,842 fires per year. Although wildfires are possible throughout the year, normal fire season peaks for South Carolina are in the spring and late fall months.

From 1966-2020, Chester County had 134 acres of land burned by wildfire, for an average of almost 3 acres per year. Table 5.21 will only show damage in excess of $50,000 prior to 1995 and any figures under that threshold means the wildfire impacted more than one county and damages were distributed accordingly.

There were no new wildfire events since the 2010 plan revision.

TABLE 5.21: WILDFIRE HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage ($)	Crop Damage (Adj. 2014)	Mag.
3/15/1966	3/31/1966	Wildfire	Chester	0	0	$79,420	$0	42 Acres
3/1/1985	3/21/1985	Wildfire	Chester	0	0	$23,914	$239,146	25 Acres
4/1/1985	4/30/1985	Wildfire	Chester	0	0	$238	$23,914	25 Acres
12/28/1988	12/28/1988	Wildfire	Chester	0	0	$0	$14,293	42 Acres
			Totals	**0**	**0**	**$103,572**	**$277,353**	

Data Source: SHELDUS™ U.S. version 19.0 – ASU Center for Emergency Management and Homeland Security
Losses are adjusted for inflation (2014).
**Data regarding a specific jurisdiction(s) within the County is not available.*
NA: Magnitude data was not available.

Hazard Analysis:

A wildfire has the potential to affect the entire planning area. To date the extent of wildfire damage in property values has been $103,572. However, events of a greater magnitude are possible in the future.

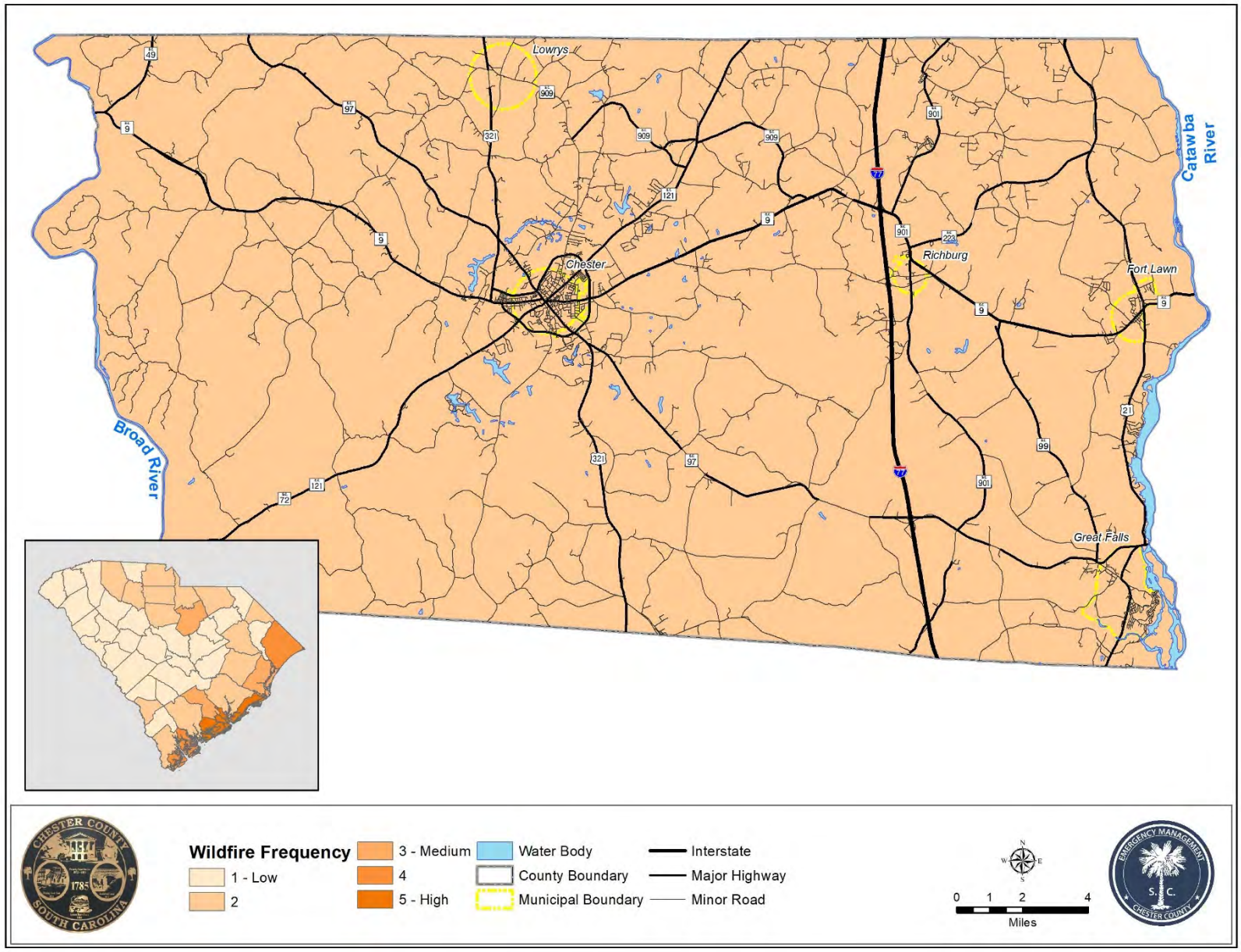
Unfortunately, there is no digital GIS data available for Chester County to delineate areas prone to wildfires. Data may be available in the future, and mapping will be updated as it becomes available.

For wildfires, Chester County has an 7% annual chance of occurrence and a recurrence interval of 14 years.

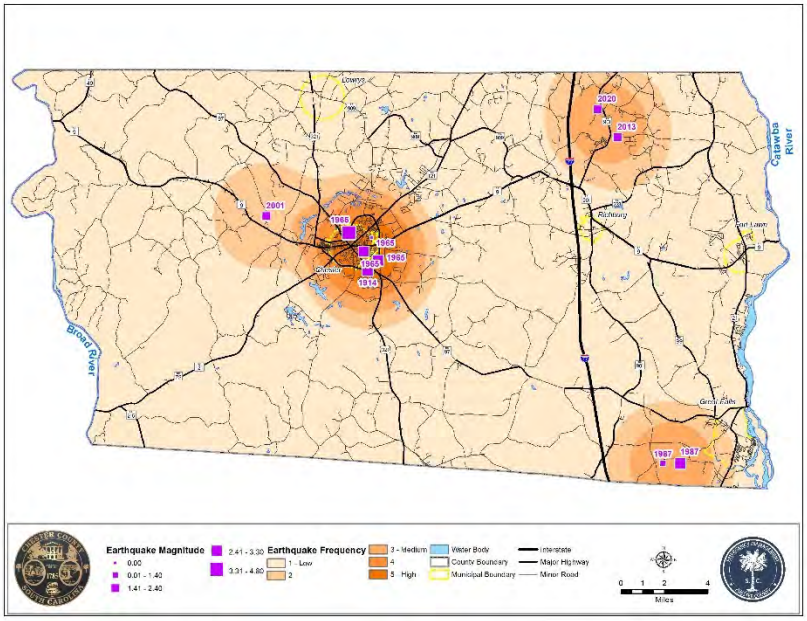
Source: Annual chance (%) was calculated using the # of events/# of years on record. Recurrence interval was calculated using the # of years on record/# of events. The number of years was based on the first year the event was on record through 2019.

A full-size copy of mapping associated with Chester County Wildfire Frequency between the years of 1966-2019 can be found on the following page.

FIGURE 5.14: CHESTER COUNTY WILDFIRE FREQUENCY 1966 - 2019



EARTHQUAKES



Description:

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

EARTHQUAKES CONTENT

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

Most earthquakes are caused by the release of stresses accumulated as a result of the rupture of rocks along opposing fault planes in the Earth's outer crust. These fault planes are typically found along borders of the earth's ten tectonic plates. These plate borders generally follow the outlines of the continents, with the North American plate following the continental border with the Pacific Ocean in the west but following the mid-Atlantic trench in the east. As earthquakes occurring in

the mid-ocean trench usually pose little threat to humans, the greatest earthquake threat in North America is along the Pacific coast.

The areas of greatest tectonic instability occur at the perimeters of the slowly moving plates, as these locations are subjected to the greatest strains from plates traveling in opposite directions and at different speeds. Deformation along plate boundaries causes strain in the rock and the consequent buildup of stored energy. When the built-up stress exceeds the rocks' strength, a rupture occurs. The rock on both sides of the fracture is snapped, which releases the stored energy and produces seismic waves, generating an earthquake.

Earthquakes are measured in terms of their magnitude and intensity. Magnitude is measured using the Richter Scale, an open-ended logarithmic scale that describes the energy release of an earthquake through a measure of shock wave amplitude. Each unit increase in magnitude on the Richter Scale corresponds to a 10-fold increase in wave amplitude, or a 32-fold increase in energy. Intensity is most commonly measured using the Modified Mercalli Intensity (MMI) Scale. It is a twelve-level scale based on direct and indirect measurements of seismic effects. The scale levels are typically described using roman numerals, with a I corresponding to imperceptible (instrumental) events, IV corresponding to moderate (felt by people awake), to XII for catastrophic (total destruction).

A detailed description of the Modified Mercalli Scale of Earthquake Intensity and its correspondence to the Richter Scale is given in Table 5.22.

TABLE 5.22: MODIFIED MERCALLI INTENSITY SCALE FOR EARTHQUAKES

Intensity	Scale Intensity Description of Effects	Corresponding Richter Scale Magnitude
I	Detected only on seismographs	< 3.5
II	Feeble; Some people feel it	3.4
III	Slightly felt by people resting; like a truck rumbling by	4.2
IV	Moderate; Felt by people walking	4.5
V	Slightly Strong; Sleepers awake; church bells ring	4.8
VI	Strong; Trees sway; suspended objects swing, objects fall off shelves	5.4
VII	Very Strong Mild Alarm; walls crack; plaster falls	6.1
VIII	Destructive; Moving cars uncontrollable; masonry fractures; poorly constructed buildings damaged	6.5
IX	Ruinous; Some houses collapse; ground cracks; pipes break open	6.9
X	Disastrous; Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread	7.3
XI	Very Disastrous; Most buildings and bridges collapse; roads, railways, pipes, and cables destroyed; general triggering of other hazards	8.1
XII	Catastrophic; Total destruction; trees fall; ground rises and falls in waves	>8.1

Source: U. S. Geological Survey

Historical Occurrences:

Earthquakes are relatively infrequent but not uncommon in South Carolina. From 1698 to 2001, 20 earthquakes occurred in South Carolina with a Richter Scale magnitude equal to greater than 4. The most property damage in South Carolina ever attributed to an earthquake was caused by the August 31, 1886, Charleston, South Carolina shock. The quake left about 65 people dead in Charleston.

Chester County has very little history with earthquakes. There are 8 historical earthquake events that have been recorded within Chester County between 1698 and 2020 with the greatest magnitude being a 3.9 on September 9, 1965. However, there is no Extent of Damage data available for Chester County for any of these earthquake events.

TABLE 5.23: EARTHQUAKE HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences	Location			
Year	LAT	LONG	Depth	Magnitude
1914	34.7000	-81.2000		2.70
1965	34.7000	-81.2000		3.90
1965	34.7000	-81.2000		3.00
1965	34.7000	-81.2000		2.90
1987	34.5600	-80.9480	3 km	3.10
1987	34.5600	-80.9620	2.5 km	1.20
2013	34.778	-80.998	0.6 km	2.0
2020	34.79583	-81.0143	0.87 km	2.32

Source: USGS - Earthquake Hazards Program

Hazards Analysis:

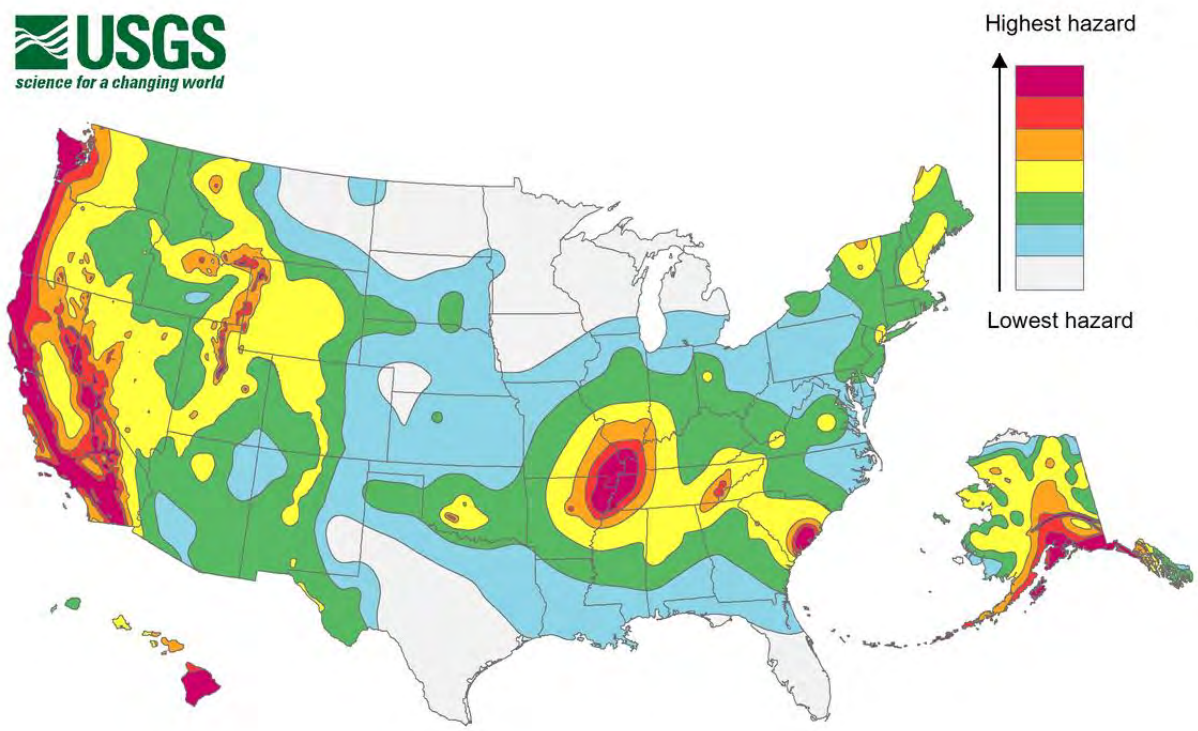
To date the extent of earthquake damage has been a 3.9 magnitude. However, events of a greater magnitude are possible in the future.

For earthquakes, Chester County has a 2% annual chance of occurrence and a recurrence interval of 40 years.

Source: Annual chance (%) was calculated using the # of events/# of years on record. Recurrence interval was calculated using the # of years on record/# of events. The number of years was based on the first year the event was on record through 2020.

Figure 5.15 shows the peak acceleration (%g) with 2% Probability of Exceedance in 50 years for the United States (U.S. Geological Survey, National Seismic Hazard Mapping Project, 2018). Chester County is located in an area with less than 10%g (peak acceleration), which means it faces a median seismic risk.

FIGURE 5.15: 2018 Long-term National Seismic Hazard Map (PGA, 2% in 50 years)

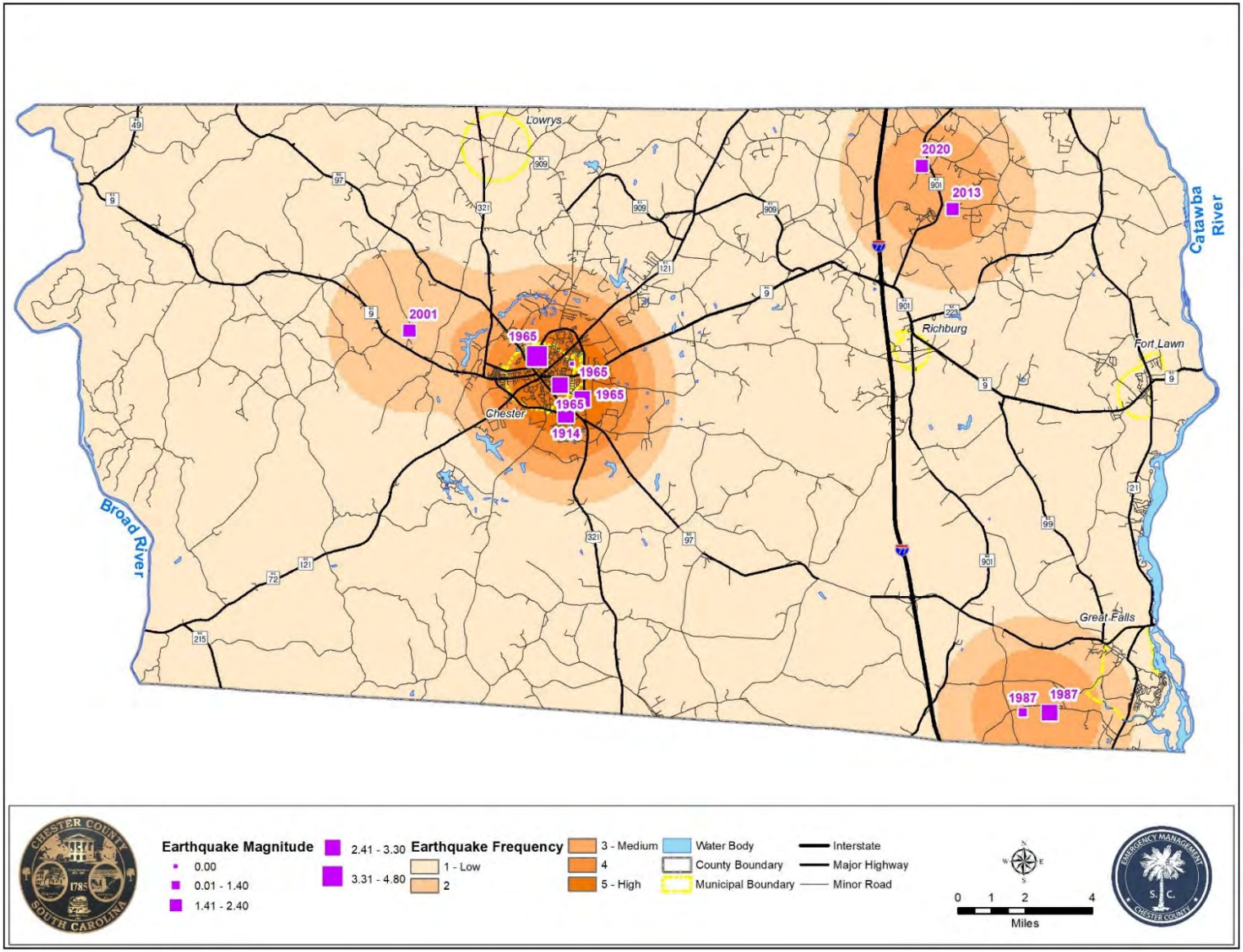


Source: United States Geological Survey (http://earthquake.usgs.gov)

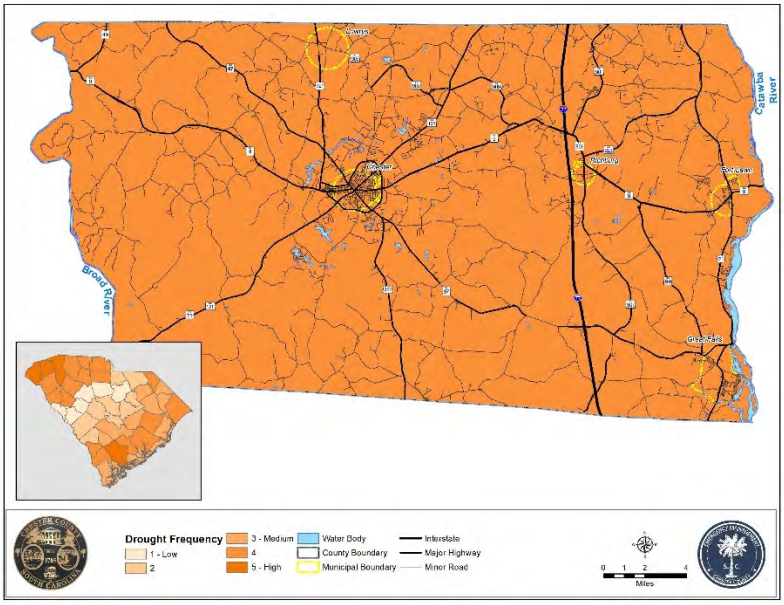
Additional analysis of GIS data obtained from the Arizona State University Center for Emergency Management and Homeland Security indicates that the impact of earthquakes upon Chester County has been very low. It should be noted that of the incorporated areas, the City of Chester and the Town of Great Falls have been impacted the most although neither has sustained any serious economic or social impact from earthquake events.

A full-size copy of mapping associated with Chester County Earthquakes between the years of 1698-2020 can be found on the following page.

FIGURE 5.16: CHESTER COUNTY EARTHQUAKES 1698 - 2020



DROUGHTS



Description:

A simple definition of a drought is a period of prolonged dryness. However, a drought can have a wide range of impact that can affect a population in regards to the resulting water shortage that affects some activity, group, or environmental sector. Drought should be considered relative to some long-term average condition of balance between precipitation and evapotranspiration (i.e., evaporation + transpiration) in a particular area, a condition often perceived as "normal". It is also related to the timing (i.e., principal season of occurrence, delays in the start of the rainy season, occurrence of rains in relation to principal crop growth stages) and the effectiveness (i.e., rainfall intensity, number of rainfall events) of the rains. Other climatic factors such as high temperature, high wind, and low relative humidity are often associated with it in many regions of the world and can significantly aggravate its severity.

DROUGHT CONTENT

- Description
- Historical Occurrences
- Hazard Profile
- Hazard Analysis
- Drought Map

To better understand droughts, it can be useful to sub-classify them into the following groups:

- **Agricultural Drought**, defined by soil moisture deficiencies
- **Hydrological Drought**, defined by declining surface and groundwater supplies
- **Meteorological Drought**, defined by a lack of precipitation
- **Hydrological Drought & Land Use**, defined by a meteorological drought in one area that has hydrological drought impact in another area

- **Socioeconomic Drought**, defined as drought that impacts supply and demand of some economic activity

Agricultural Drought

Agricultural drought links various characteristics of meteorological (or hydrological) drought to agricultural impacts, focusing on precipitation shortages, differences between actual and potential evapotranspiration, soil water deficits, reduced ground water or reservoir levels, and so forth. Plant water demand depends on prevailing weather conditions, biological characteristics of the specific plant, its stage of growth, and the physical and biological properties of the soil. A good definition of agricultural drought should be able to account for the variable susceptibility of crops during different stages of crop development, from emergence to maturity. Deficient topsoil moisture at planting may hinder germination, leading to low plant populations per hectare and a reduction of final yield. However, if topsoil moisture is sufficient for early growth requirements, deficiencies in subsoil moisture at this early stage may not affect final yield if subsoil moisture is replenished as the growing season progresses or if rainfall meets plant water needs.

Hydrological Drought

Hydrological drought is associated with the effects of periods of precipitation (including snowfall) shortfalls on surface or subsurface water supply (i.e., streamflow, reservoir and lake levels, ground water). The frequency and severity of hydrological drought is often defined on a watershed or river basin scale. Although all droughts originate with a deficiency of precipitation, hydrologists are more concerned with how this deficiency plays out through the hydrologic system. Hydrological droughts are usually out of phase with or lag the occurrence of meteorological and agricultural droughts. It takes longer for precipitation deficiencies to show up in components of the hydrological system such as soil moisture, streamflow, and ground water and reservoir levels. As a result, these impacts are out of phase with impacts in other economic sectors. For example, a precipitation deficiency may result in a rapid depletion of soil moisture that is almost immediately discernible to agriculturalists, but the impact of this deficiency on reservoir levels may not affect hydroelectric power production or recreational uses for many months. Also, water in hydrologic storage systems (e.g., reservoirs, rivers) is often used for multiple and competing purposes (e.g., flood control, irrigation, recreation, navigation, hydropower, wildlife habitat), further complicating the sequence and quantification of impacts. Competition for water in these storage systems escalates during drought and conflicts between water users increase significantly.

Meteorological Drought

Meteorological drought is defined usually on the basis of the degree of dryness (in comparison to some “normal” or average amount) and the duration of the dry period. Definitions of meteorological drought must be considered as region specific since the atmospheric conditions that result in deficiencies of precipitation are highly variable from region to region. For example, some definitions of meteorological drought identify periods of drought on the basis of the number of days with precipitation less than some specified threshold. This measure is only appropriate for regions characterized by a year-round precipitation regime such as a tropical rainforest, humid subtropical climate, or humid mid-latitude climate.

Hydrological Drought and Land Use

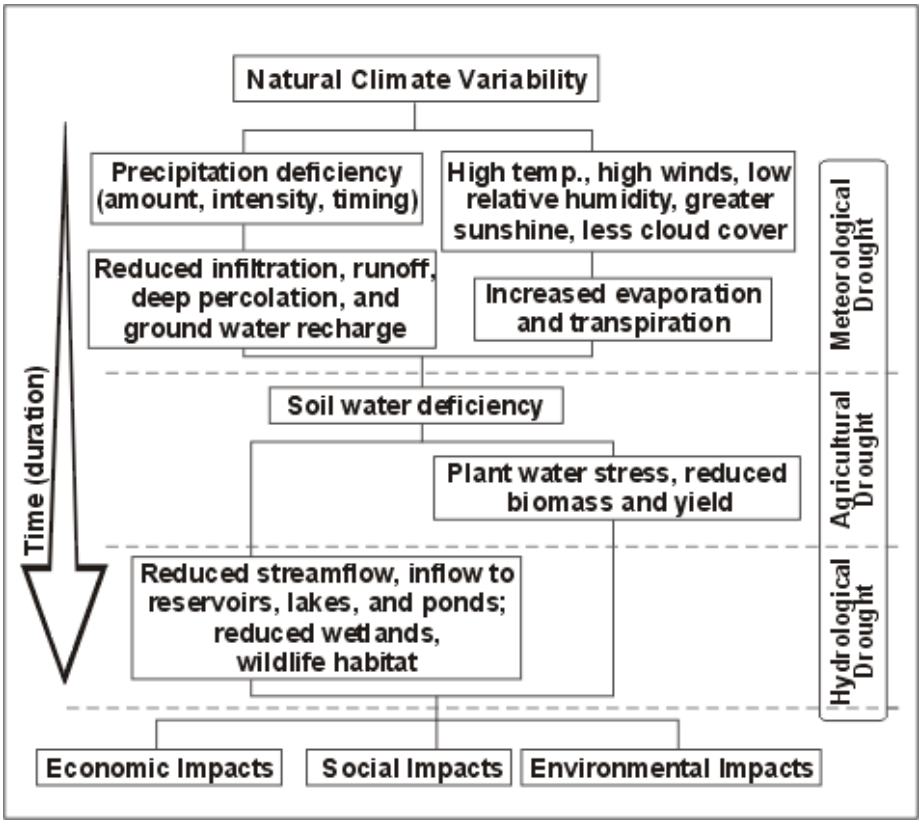
Although climate is a primary contributor to hydrological drought, other factors such as changes in land use (e.g., deforestation), land degradation, and the construction of dams all affect the hydrological characteristics of the basin. Because regions are interconnected by hydrologic systems, the impact of meteorological drought may extend well beyond the borders of the precipitation-deficient area. Land use change is one of the ways human actions alter the frequency of water shortage even when no change in the frequency of meteorological drought has been observed.

Socioeconomic Drought

Socioeconomic definitions of drought associate the supply and demand of some economic good with elements of meteorological, hydrological, and agricultural drought. It differs from the aforementioned types of drought because its occurrence depends on the time and space processes of supply and demand to identify or classify droughts. The supply of many economic goods, such as water, forage, food grains, fish, and hydroelectric power, depends on weather. Because of the natural variability of climate, water supply is ample in some years but unable to meet human and environmental needs in other years. Socioeconomic drought occurs when the demand for an economic good exceeds supply as a result of a weather-related shortfall in water supply.

Figure 5.17 shows how climatic factors interact with one another and contribute to drought conditions, which can impact social, environmental, and economic conditions.

FIGURE 5.17: NATURAL CLIMATE VARIABILITY



Source: The National Drought Mitigation Center

The most commonly used indicator of drought and drought severity is the Palmer Drought Severity Index (PDSI), which is published jointly by the National Oceanic and Atmospheric Administration (NOAA) and the US Department of Agriculture (USDA). The PDSI measures the difference between water supply (in terms of precipitation and stored soil moisture) and demand (the amount of water required to recharge soil and keep rivers, lakes, and reservoirs at normal levels). The result is a scale from +4 to -4, at 1.0 and 0.5 intervals.

The SPI is a drought index based on the probability of an observed precipitation deficit occurring over a given prior time period. The assessment periods considered range from 1 to 36 months. The variable time scale allows the SPI to describe drought conditions important for a range of meteorological, agricultural, and hydrological applications. For example, soil moisture conditions respond to precipitation deficits occurring on a relatively short time scale, whereas groundwater, streamflow, and reservoir storage respond to precipitation deficits arising over many months.

TABLE 5.24: DROUGHT SEVERITY CLASSIFICATION

Drought Severity	Return Period (Years)	Description of Possible Impacts	Drought Monitoring Indices	
			Standardized Precipitation	Palmer Drought Index
Minor Drought	3 to 4	Going into drought; short-term dryness slowing growth of crops or pastures; fire risk above average. Coming out of drought; some lingering water deficits; pastures or crops not fully recovered.	-0.5 to -0.7	-1.0 to -1.9
Moderate Drought	5 to 9	Some damage to crops or pastures; fire risk high; steams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-0.8 to -1.2	-2.0 to -2.9
Severe Drought	10 to 17	Crop or pasture losses likely; fire risky very high; water shortages common; water restrictions imposed.	-1.3 to -1.5	-3.0 to -3.9
Extreme Drought	18 to 43	Major crop and pasture losses; extreme fire danger; widespread water shortages or restrictions.	-1.6 to -1.9	-4.0 to -4.9
Exceptional Drought	44+	Exceptional and widespread crop and pasture losses; exceptional fire risk; shortages of water in reservoirs; streams; and wells creating water emergencies.	Less than -2	-5.0 or less

Source: NDMC – National Drought Mitigation Center

Measuring Severity of Drought

Keetch-Byram Drought Index – Table D-3. A soil/duff drought index that ranges from 0 (no drought) to 800 (extreme drought) and is based on 8 inches of available moisture in the upper soil layers that can be used by vegetation for evapotranspiration. The index indicates deficit inches of available water in the soil. A KBDI reading of 450 means there is a deficit of 4.5 inches of ground water available to the vegetation. Factors in the index are maximum daily temperature, daily precipitation, antecedent precipitation, and annual precipitation.

TABLE 5.25: KEETCH-BYRAM DROUGHT INDEX

Groundwater Deficit	Description
0-150	The fuels and ground are quite moist. Drying is generally limited to the fine surface fuels and the organic layers retain sufficient moisture to resist burning. Most of the heavy fuels (100 and 1000 hour) are too wet to ignite. Typical of spring dormant season following winter precipitation.
150-300	Scattered parches of surface litter remain in damp areas following a fire, and the organic layer remains basically undisturbed. Both pine and hardwood stumps may ignite, but seldom burn below ground. Snags a major threat for potential fire escape. Spotting usually minimal. Large acreages (500+) ignited can create intense conditions. Fire behavior is predictable. Typical of late spring, early growing season.
300-500	Fire consumes most surface litter along with a significant loss in organic soil material. Site preparation burns expose mineral soil, producing areas causing erosion problems. 100- and 1000-hour fuels contribute to fire intensity. Stumps and snags ignite. Spotting occurs. Escaped fire is difficult to control. Fire behavior is still predictable. Increased mop-up and petrol activities are required. This is typical in the late spring, early growing season at a K/B level below 400 KBDI. Above 400 KBDI, typical of late summer, early fall.
500-700	All surface litter and most of the organic layer is consumed by fire leaving excessive site damage. 1000-hour fuels contribute readily to fire intensity. Spotting is difficult to control. Above 600 KBDI, fire suppression is a major problem. Expect fire escape the nest day. Summer site preparations should be canceled when the KBDI surpasses 550. Near 700, understory vegetation wilts and is consumed by fire. Fire behavior is predictable, but often underpredicted. Extensive mop-up to fire suppression. The levels above 600 are associated with severe drought.
700 Plus	Expect the same as the previous levels, only worse! Extreme fire behavior. Delay burning until the K/B index falls below 500

Source: South Carolina Drought Response Unit of the Department of Natural Resources

Historical Occurrences:

The state has high inter-annual and seasonal variability of precipitation. The main cause of this is the strength and geographic placement of the Bermuda High Pressure System. As the high pressure continues its grip over the area, solar radiation increases, which in turn increases the temperature, which then decreases the cloud cover, thereby reducing the probability of substantial precipitation.

Droughts are sometimes alleviated by a tropical cyclone. During 1954 Hurricane Hazel ended an extreme drought in eastern South Carolina, although drought conditions continued in western sections. In 1990, the remnants of Hurricane Klaus and Tropical Storm Marco ended an extreme drought.

Precipitation occurs during periods of drought; however, it is highly localized, inconsequential, and generally evaporates within 24 hours after falling. Periods of insufficient rainfall for crop growth occur during some summers. There is approximately a one in four probability of a drought somewhere in South Carolina at any time (Guttman and Plantico, 1987). Field crops, such as corn, cotton, and soybeans, are greatly stressed when drought conditions extend over several weeks during the growing season because only 9% of all farms in the state have irrigated acres, as compared to 26% nationwide. However, the state has a similar proportion of irrigated acres when compared to Alabama, North Carolina, and Virginia. Only Florida and Georgia have higher percentages of irrigated land in the Southeast United States (U.S. Department of Commerce, 1993).

Severe droughts have been documented at intervals of roughly every 30 years, with some exceptions, since the early 19th century. Documented severe droughts have occurred statewide in 1818, 1845, 1890, 1925, 1933, 1954, 1977, 1983, 1986, 1988, 1990, and 1993.

TABLE 5.26: DROUGHT HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage (Adj. 2014)	Crop Damage (Adj. 2014)	Mag.
7/1/1977	7/31/1977	Drought - Heat	Chester	0	0	$4,246	$424,623	NA
4/1/1978	4/13/1978	Drought	Chester	0	0	$39	$3,946	NA
10/1/1978	10/31/1978	Drought - Heat	Chester	0	0	$394	$3,946	NA
6/1/1984	6/20/1984	Drought	Chester	0	0	$0	$2,476	NA
4/1/1986	4/30/1986	Drought	Chester	0	0	$0	$276	NA
5/1/1986	5/31/1986	Drought	Chester	0	0	$0	$23,478	NA
6/1/1986	6/30/1986	Drought	Chester	0	0	$2,347	$23,478	NA
7/1/1986	7/31/1986	Drought	Chester	0	0	$234,782	$2,347,826	NA
2/1/1988	2/28/1988	Drought	Chester	0	0	$21	$2,175	NA
6/1/1988	6/30/1988	Drought	Chester	0	0	$2,175	$21,751	NA
7/1/1988	7/31/1988	Drought	Chester	0	0	$217	$2,175	NA
8/1/1988	8/31/1988	Drought	Chester	0	0	$2	$2,779	NA

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage (Adj. 2014)	Crop Damage (Adj. 2014)	Mag.
7/1/1993	7/31/1993	Drought - Heat	Chester	0	0	$9,402,482	-	NA
8/1/1993	8/31/1993	Drought - Heat	Chester	0	0	$0	$9,402,482	NA
5/1/1994	5/31/1994	Drought	Chester	0	0	$0	$1,736,314	NA
5/1/1995	5/31/1995	Drought	Chester	0	0	$0	$675,385	NA
			Totals	**0**	**0**	**$9,646,705**	**$11,814,181**	

Data Source: SHELDUS™ U.S. version 19.0 – ASU Center for Emergency Management and Homeland Security
Losses are adjusted for inflation (2014).
**Data regarding a specific jurisdiction(s) within the County is not available*
Rainfall and water level data deficits were not available.

DROUGHT EXTENT

Drought Extent can be found on Table 5.27: CHESTER 1 SE (381633) Station at the 1 Month TIMESTEP with a minimum drought class of -1.5.

TABLE 5.27: CHESTER 1 SE (381633) STATION AT THE 1 MONTH TIMESTEP WITH A MINIMUM DROUGHT CLASS OF -1.5 BETWEEN 1/1/1938 AND 12/31/2013

Drought Magnitude	Years in Record			Maximum Duration (Weeks)	Number of Droughts	Average Duration (Weeks)
	Start	End	Total Years			
-4.0	5/14/47	6/11/47	1	4	1	4
-3.5	1941	2002	61	11	7	6
-3.0	1941	2002	61	19	10	5
-2.5	1938	2007	69	20	27	6
-2.0	1938	2012	74	21	59	5
-1.5	1938	2012	74	22	123	6
-1.0	1938	2012	74	25	191	5

Data Source: National Drought Mitigation Center Drought Atlas – http://droughtatlas.unl.edu

Hazard Analysis:

A drought has the potential to affect the entire planning area. To date the extent of drought damage in property values has been $9,649,705. However, events of a greater magnitude are possible in the future.

Unfortunately, there is no digital GIS data available for Chester County to delineate localized areas of the County prone to drought. Data may be available in the future, and mapping will be updated as it becomes available.

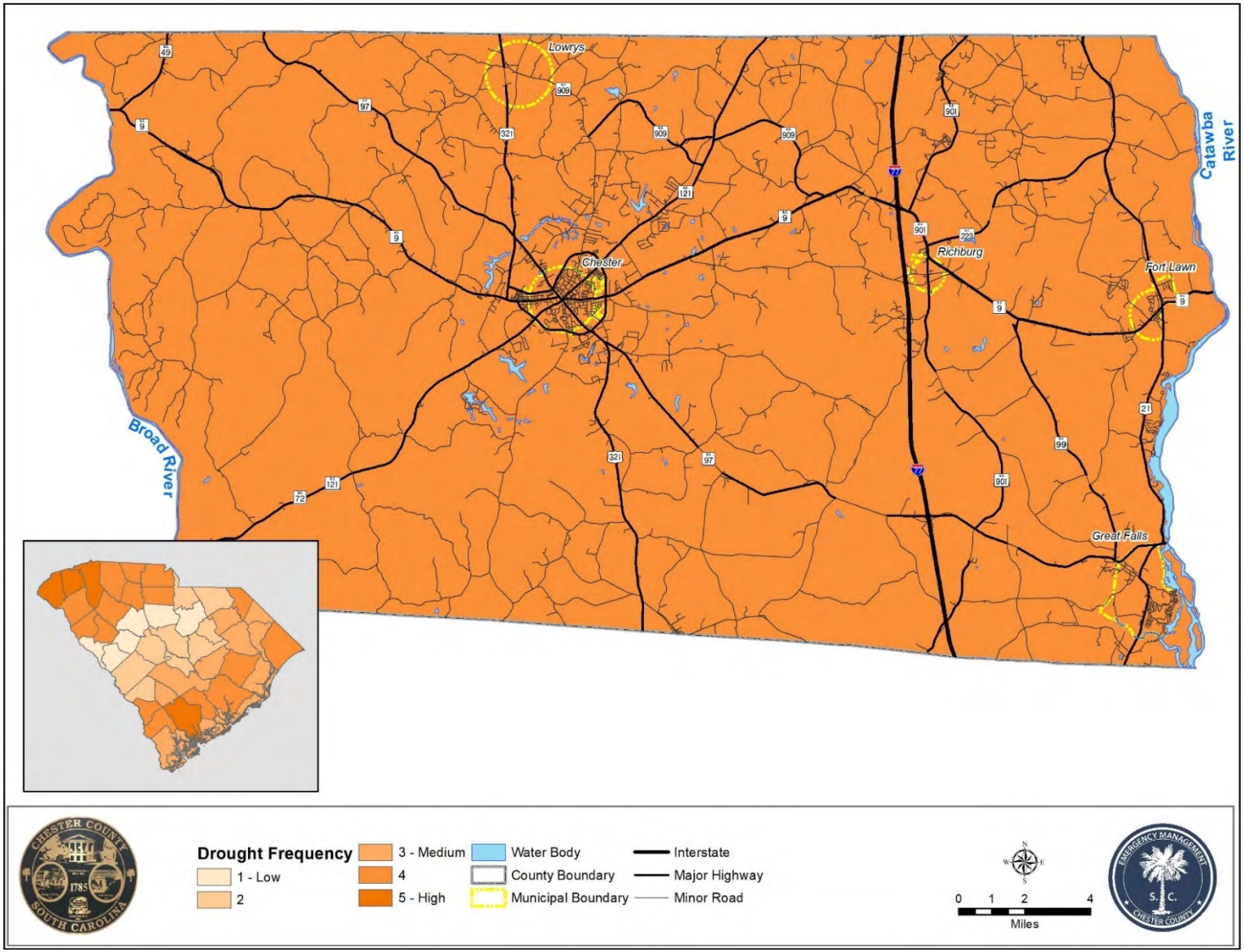
For drought, Chester County has a 27% annual chance of occurrence and a recurrence interval of 3.8 years.

Source: Annual chance (%) was calculated using the # of events/# of years on record. Recurrence

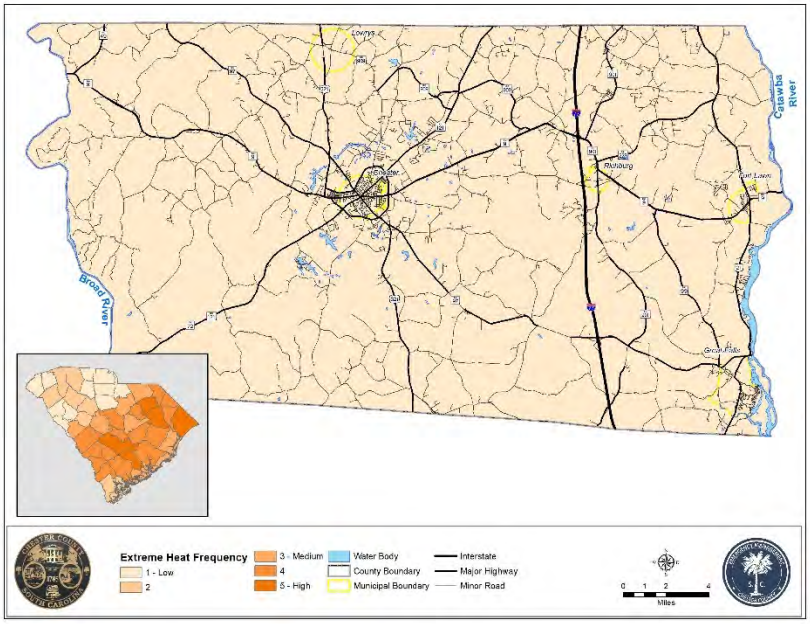
interval was calculated using the # of years on record/# of events. The number of years was based on the first year the event was on record through 2019.

A full-size copy of mapping associated with Chester County Drought Frequency between the years of 1960-2019 can be found on the following page.

FIGURE 5.18: CHESTER COUNTY DROUGHT FREQUENCY 1960 - 2019



EXTREME HEAT



Description:

Heat is the number one weather-related killer in the United States. The National Weather Service statistical data shows that heat causes more fatalities per year than floods, lightning, tornadoes and hurricanes combined.

EXTREME HEAT CONTENT

- Description
- Historical Occurrences
- Hazard Profile
- Hazard Analysis
- Extreme Heat Map

Extreme heat can be defined as temperatures that hover 10 degrees or more above the average high temperature for the region, last for prolonged periods of time, and are often accompanied by high humidity. Under normal conditions, the human body's internal thermostat produces perspiration that evaporates and cools the body. However, in extreme heat and high humidity, evaporation is slowed, and the body must work much harder to maintain a normal temperature. Elderly persons, young children, persons with respiratory difficulties, and those who are sick or overweight are more likely to become victims of extreme heat. Because men sweat more than women, they are more susceptible to heat-related illness because they become more quickly dehydrated. Studies have shown that a significant rise in heat-related illness occurs when excessive heat persists for more than two days. Spending at least two hours per day in air conditioning can significantly reduce the number of heat-related illnesses.

Long periods of extreme heat in urban areas can create health concerns when stagnant atmospheric conditions trap pollutants, thus adding unhealthy air to excessively hot temperatures. In addition, the "urban heat island effect" can produce significantly higher nighttime temperatures because asphalt and concrete (which stores heat longer) gradually release heat at night.

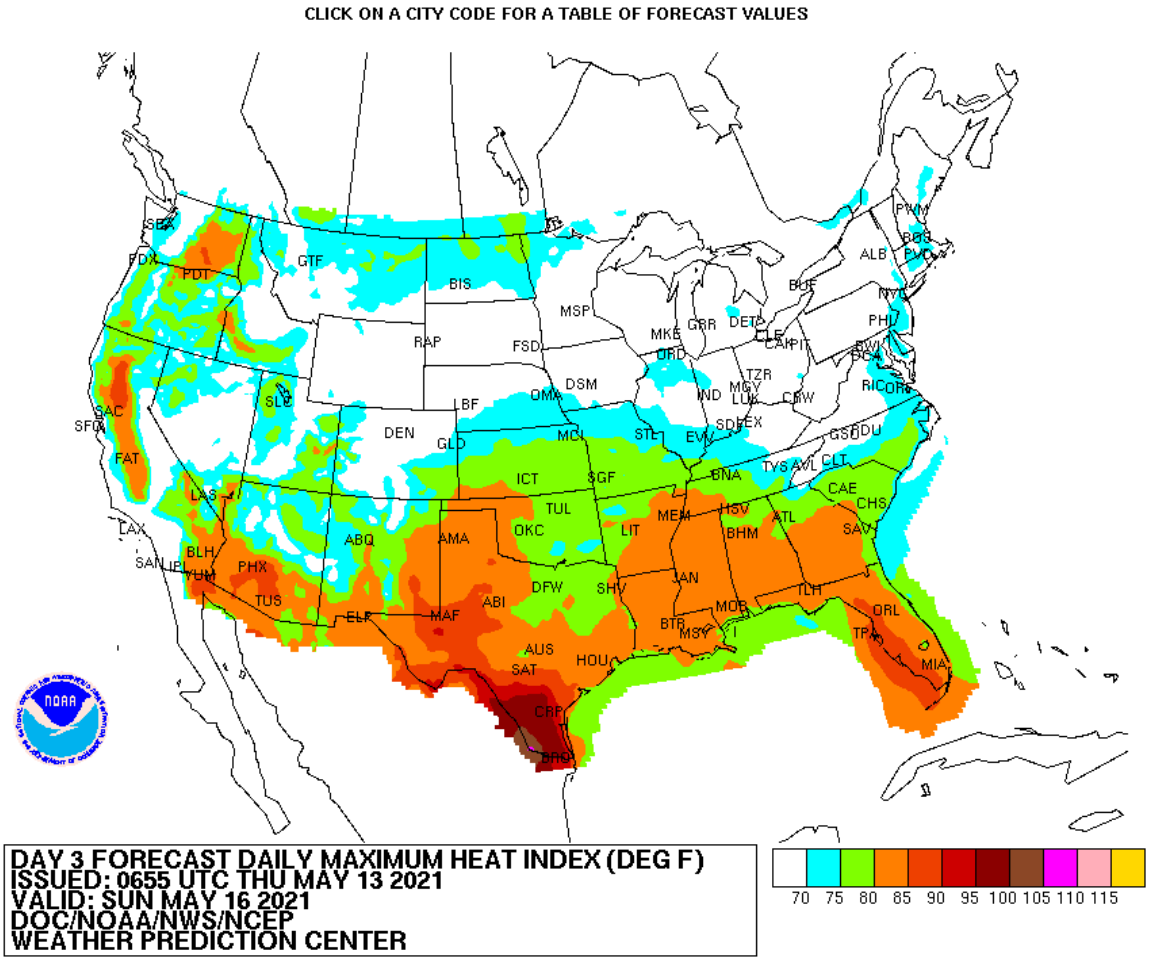
NOAA'S OUTLOOK, WATCH, WARNING, AND ADVISORY PRODUCTS FOR EXTREME HEAT

Excessive Heat Outlook is issued when the potential exists for an excessive heat event in the next three to seven days. An Outlook provides information to those who need considerable lead time to prepare for the event, such as public utilities, emergency management and public health officials.

Excessive Heat Watch is issued when conditions are favorable for an excessive heat event in the next 12 to 48 hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain. A Watch provides enough lead time so those who need to prepare can do so, such as cities that have excessive heat event mitigation plans.

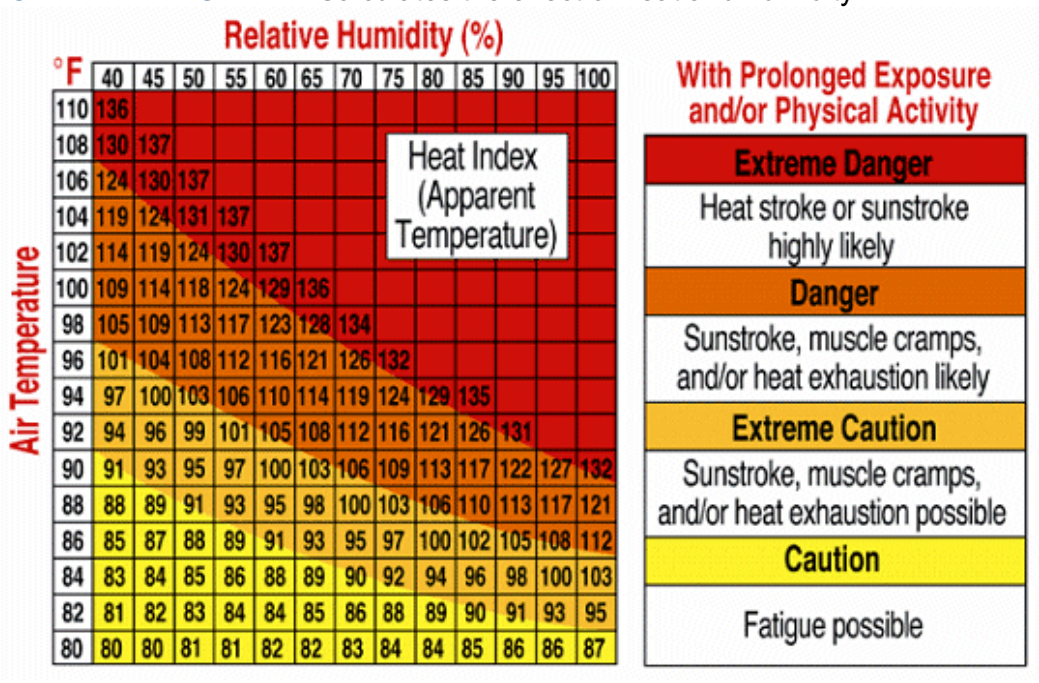
Excessive Heat Warning/Advisory is issued when an excessive heat event is expected in the next 36 hours. These products are issued when an excessive heat event is occurring, is imminent, or has a very high probability of occurring. The warning is used for conditions posing a threat to life or property. An advisory is for less serious conditions that cause significant discomfort or inconvenience and, if caution is not taken, could lead to a threat to life and/or property.

TABLE 5.28: FORECAST DAILY MAXIMUM HEAT INDEX



Data Source: National Oceanic and Atmospheric Administration

TABLE 5.29: HEAT INDEX CHART -- Calculates the effect of heat and humidity



Data Source: National Oceanic and Atmospheric Administration

Historical Occurrences:

Extreme heat is defined as temperatures which hover 10 degrees or more above the average high temperature for a region and last for several weeks, and though the event may not be as notable as other hazards that affect Chester County, its effects can have devastating consequences. While it is hard to quantify the exact total number of deaths which are advanced by heat wave weather, in a normal year about 170 Americans succumb to the demands of summer heat.

According to the ASU Center for Emergency Management and Homeland Security, there were seven extreme heat events between 1976 and 1993 in Chester County resulting in $11,855,492 in property damage and $9,407,574 in crop damages. The National Climatic Data Center at NOAA lists no additional records of extreme heat for Chester County between 1950 and 2010.

TABLE 5.30: EXTREME HEAT HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage (Adjusted 2014)	Crop Damage (Adjusted 2014)	Mag.
2/1/1976	2/29/1976	Heat	Chester	0	0	$452	$4,522	NA
7/1/1977	7/31/1977	Drought - Heat	Chester	0	0	$4,246	$424,623	NA
10/1/1978	10/31/1978	Drought - Heat	Chester	0	0	$394	$3,946	NA
6/1/1985	6/7/1985	Heat	Chester	0	0	$0	$239,146	NA
6/1/1993	6/30/1993	Heat	Chester	0	0	$0	$1,780,773	NA
7/1/1993	7/31/1993	Drought - Heat	Chester	0	0	$9,402,482	$0	NA
8/1/1993	8/31/1993	Drought - Heat	Chester	0	0	$0	$9,402,482	NA
			Totals	**0**	**0**	**$9,407,574**	**$11,855,492**	

Data Source: SHELDUS™ U.S. version 19.0 – ASU Center for Emergency Management and Homeland Security
Losses are adjusted for inflation (2014).
**Data regarding a specific jurisdiction(s) within the County is not available*
NA: Magnitude data was not available.

TABLE 5.31: EXTENT OF HEAT HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences		Hazard Type / Combination	Location	Extent
Hazard Begin Date	Hazard End Date			
7/8/2012	7/8/2012	Heat	*Chester	Heat index values between 105 and 109 degrees.

Data Source: National Centers for Environmental Information (NCEI), Storm Events Database, Event Details

Hazard Analysis:

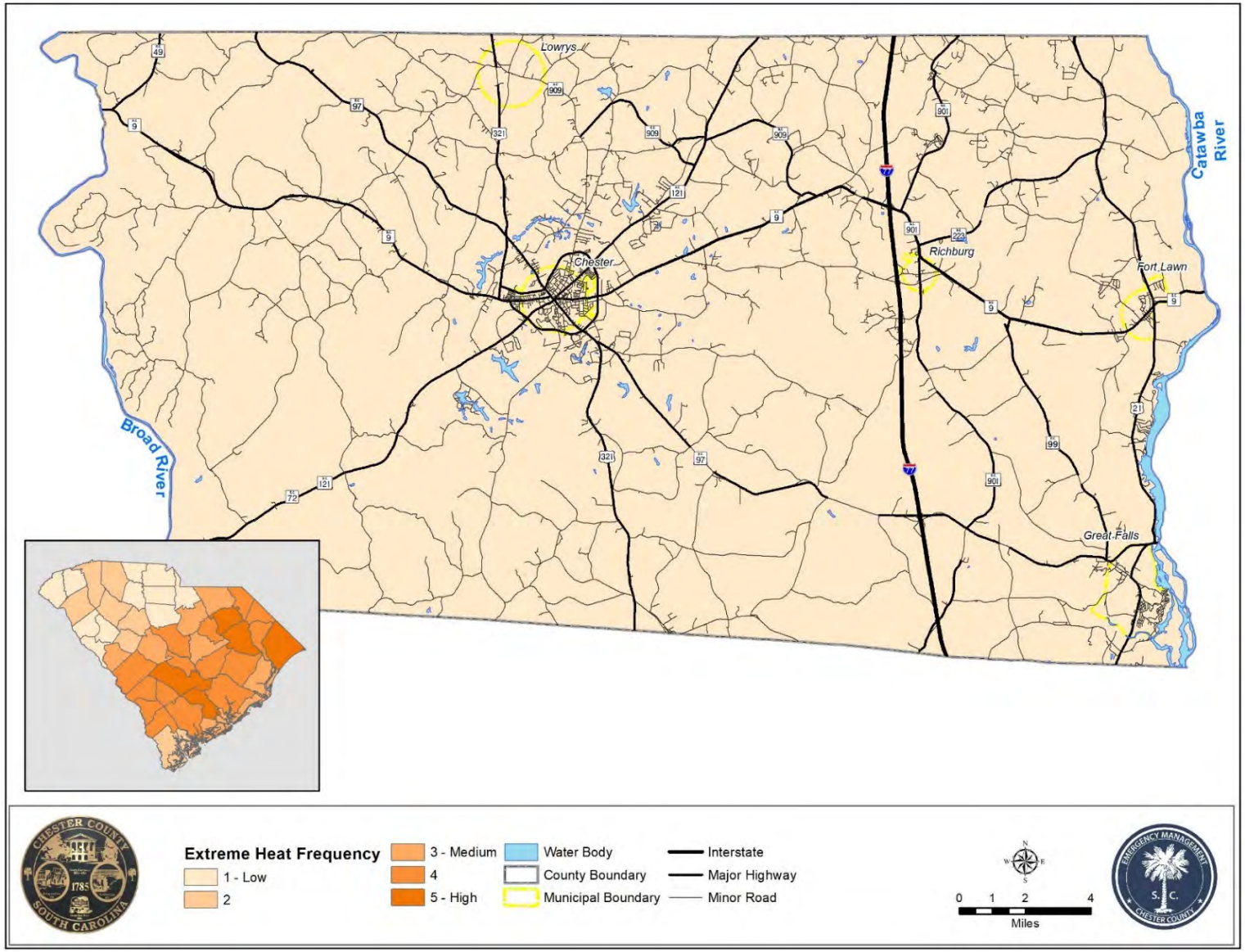
Extreme heat has the potential to affect the entire planning area. To date the extent of extreme heat damage in property values has been $9,407,574. However, events of a greater magnitude are possible in the future.

For extreme heat, Chester County has a 16% annual chance of occurrence and a recurrence interval of 6.3 years. Chester County's record maximum temperature was 106 degrees Fahrenheit in 1983.

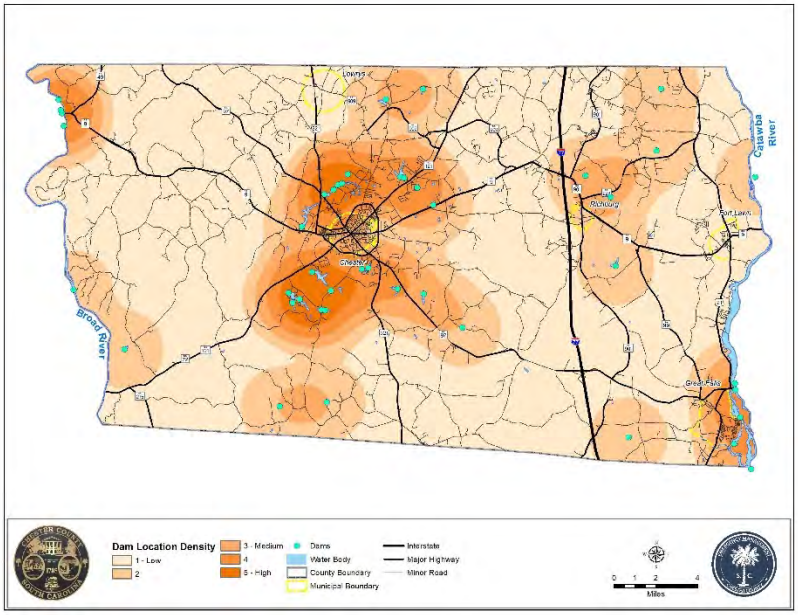
Source: Annual chance (%) was calculated using the # of events/# of years on record. Recurrence interval was calculated using the # of years on record/# of events. The number of years was based on the first year the event was on record through 2019.

Unfortunately, there is no digital GIS data available for Chester County to delineate localized areas of the county prone to extreme heat or to determine Chester County's propensity for extreme heat events in relation to the rest of the state. Data may be available in the future, and mapping will be updated as it becomes available.

FIGURE 5.19: CHESTER COUNTY EXTREME HEAT FREQUENCY 1976 - 2019



DAMS



Description:

Dams are manmade structures built to impound water. Dams are built for many purposes including water storage for potable water supply, livestock water supply, irrigation, or fire suppression. Other dams are built for flood control, recreation, navigation, hydroelectric power, or to contain mine tailings. Dams may also be multifunctional, serving two or more of these purposes.

DAMS CONTENT

- Description
- Historical Occurrences
- Hazard Analysis
- Dams Map

The South Carolina Department of Health and Environmental Control (SCDHEC) is the permitting agency in charge of the Dams and Reservoirs Safety Program. Dams which are either 25 feet or more in height or impound (hold back) 50-acre feet or more are regulated by the Department unless exempted by state law.

The National Inventory of Dams (NID), which is maintained by the United States Army Corps of Engineers, is a database of approximately 76,000 dams in the United States. The NID does not include all dams in the United States. Rather, the NID includes dams that are deemed to have a high or significant hazard potential and dams deemed to pose a low hazard if they meet inclusion criteria based on dam height and storage volume. Low hazard potential dams are included if they meet either of the following selection criteria: 1) exceeds 25 feet in height and 15 acre-feet of storage, or 2) exceeds 6 feet in height and 50-acre feet of storage. There are many thousands of dams too small to meet the NID selection criteria. However, these small dams are generally too small to have significant impacts if they fail and thus are generally not considered for purposes of risk assessment or mitigation planning.

This NID potential hazard classification is solely a measure of the probable impacts if a dam fails. Thus, a dam classified as High Potential Hazard does not mean that the dam is unsafe or likely to fail. The level of risk (probability of failure) of a given dam is not even considered in this classification scheme. Rather, the

High Potential Hazard classification simply means that there are people at risk downstream from the dam in the inundation area, if the dam were to fail.

NID POTENTIAL HAZARD CLASSIFICATION SYSTEM

This hazard potential classification system categorizes dams based on the probable loss of human life and the impacts on economic, environmental, and lifeline interests. Improbable loss of life exists where persons are only temporarily in the potential inundation area. For instance, this hazard potential classification system does not contemplate the improbable loss of life of the occasional recreational user of the river and downstream lands, passerby, or non-overnight outdoor user of downstream lands. It should be understood that in any classification system, all possibilities cannot be defined. High usage areas of any type should be considered appropriately. Judgment and common sense must ultimately be a part of any decision on classification. Further, no allowances for evacuation or other emergency actions by the population should be considered because emergency procedures should not be a substitute for appropriate design, construction, and maintenance of dam structures.

Dam Class 1: HIGH HAZARD POTENTIAL
Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life. Failure of dams in the high classification will generally also result in economic, environmental, or lifeline losses, but the classification is based solely on probable loss of life.

Dam Class 2: SIGNIFICANT HAZARD POTENTIAL
Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

Dam Class 3: LOW HAZARD POTENTIAL
Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

TABLE 5.32: HAZARD POTENTIAL CLASSIFICATION SYSTEM

Dam Class	Hazard Potential	Loss of Human Life	Economic, Environmental, Lifeline Losses
C3	Low	None Expected	Low and generally limited to owner
C2	Significant	None Expected	Yes
C1	High	Probable. One or more expected	Yes (but not necessary for this classification)

TABLE 5.33: C1, C2, & C3 DAMS IN CHESTER COUNTY

Dam Name	NIDID	Inspection Date	Owner Type	Owner Name	NID Height (Ft.)	NID Storage	Dam Class	Primary Purpose	Dam Type	River
ATKINSON POND	SC01159	10/19/2017	Private	CHESTER WOOD PRODUCTS LLC	10	96	C1	Debris Control	Earth	TR-ROCKY CREEK
CHESTER RES DAM	SC01181	10/16/2017	Private	SEVEN EAGLES INVESTMENTS LLC	40	4130	C1	Recreation	Earth	SANDY RIVER
FISHING CREEK*	SC01072	4/9/2018	Public Utility	DUKE ENERGY CAROLINAS, LLC	105	60000	C1	Hydroelectric	-	CATAWBA RIVER
LAKE ASHLEY DAM	SC01170	10/18/2017	Private	LAKE ASHLEY LANDOWNERS ASSOCIATION	28	1100	C1	Recreation	Earth	BEAR BRANCH
LAKE OLIPHANT DAM	SC01167	10/17/2017	State	SC DEPARTMENT OF NATURAL RESOURCES	29	345	C1	Recreation	Earth	TR-CONRAD CREEK
LARGE UPPER MTN LAKE	SC01169	10/18/2017	State	SC DEPARTMENT OF NATURAL RESOURCES	20	780	C1	Recreation	Earth	BEAR BRANCH
PINEVIEW LAKES DAM 1	SC01155	4/20/2016	Private	PINEVIEW LAKES HOMEOWNERS ASSOCIATION, INC.	39	139	C1	Recreation	Earth	TWO MILE BRANCH
SMALL UPPER MTN LAKE	SC01162	10/18/2017	State	SC DEPARTMENT OF NATURAL RESOURCES	24	144	C1	Recreation	Earth	TR-BEAR BRANCH
CHESTER STATE PARK DAM	SC01171	12/16/2014	Private	CHESTER STATE PARK	26	1200	C2	Recreation	Earth	CARNEY FORK CREEK
DAM NO. 6 D-0213*	SC01163	-	Local Government	ROCKY CREEK WCD	39	3500	C2	Flood Control	Earth	ROCKY CREEK
EVERGREEN TIMBERLAND DAM**	SC01177	12/16/2014			0	72	C2	Recreation	Earth	THREE MILE BRANCH
JAMES A THOMPSON DAM 1	SC01712	10/17/2017	Private	TAMMY H RAYFIELD	23	58	C2	Recreation	Earth	BEAR BRANCH
JAMES A THOMPSON DAM 2	SC01161	10/17/2017	Private	TAMMY H RAYFIELD	12	58	C2	Recreation	Earth	BEAR BRANCH
LOBLOLLY TIMBER DAM 1	SC01175	5/29/2018	Private	ROBERT E LANIER	20	184	C2	Recreation	Earth	TR-SANDY RIVER
LOBLOLLY TIMBER DAM 2	SC01174	10/16/2017	Private	ROBERT E LANIER	30	182	C2	Recreation	Earth	TR-SANDY RIVER
LOGANS POND DAM	SC01156	10/17/2017	Private	BOYD FARMS LAND COMPANY LLC	10	88	C2	Recreation	Earth	TR-CONRAD CREEK

Dam Name	NIDID	Inspection Date	Owner Type	Owner Name	NID Height (Ft.)	NID Storage	Dam Class	Primary Purpose	Dam Type	River
MIRROR LAKES DAM 1	SC01173	10/16/2017	Private	JAMES EDWARD HUBERT SR; ROBERT E LANIER; MIRROR LAKES INC.	16	88	C2	Recreation	Earth	TR-SANDY RIVER
MIRROR LAKES DAM 2	SC01172	5/1/2001	Private	JAMES W AUSTIN; HUBERT JAMES EDWARD SR; BRANCH BANKING AND TRUST	14	88	C2	Recreation	Earth	TR-SANDY RIVER
PINEVIEW LAKES DAM 2	SC01711	10/17/2017	Private	PINEVIEW LAKES HOMEOWNERS ASSOCIATION, INC.	28	1200	C2	Recreation	Earth	TR-TWO MILE BRANCH
ROCKY CREEK WCD DAM 6	SC02826	10/19/2017	Local Government; Private	ROCKY CREEK WCD; BOBBY BUTLER	43	3919	C2	Flood Control	Earth	ROCKY CREEK
ROCKY CREEK WCD DAM 8	SC01157	10/19/2017	Local Government; Private	ROCKY CREEK WCD; DAVID P WHITE JR & MARSHA WHITE SURVIVORSHIP	37	1100	C2	Flood Control	Earth	BULL RUN CREEK
BOLINS POND	SC01179	10/19/2017	Private	MALLARD LAKE HOMEOWNERS ASSOCIATION INC	23	132	C3	Recreation	Earth	TR-ROCKY CREEK
CLAVIANT CORP DAM	SC01160	9/18/2017	Private	CHEMTRADE PERFORMANCE CHEMICALS US LLC	20	76	C3	Other	Earth	MINERAL CREEK
CRISLER POND DAM	SC01178	10/20/2017	Private	GEORGE KEITH & DEBORAH S HAYWORTH	27	47	C3	Recreation	Earth	TR-BULL SKIN CREEK
G STANLEY ROSE DAM	SC02295	10/18/2017	Private	FORREST C FAULKNER	28	67	C3	Recreation	Earth	TR-TINKERS CREEK
ISABEL FANNING DAM	SC01176	10/17/2017	Private	EUGENE D CROYLE	30	144	C3	Recreation	Earth	TR-THREE MILE BRANCH
JAKE ALVAREZ POND DAM	SC02297	10/18/2017	Private	ST KATHERINE PROPERTIES LLC; J C	30	117	C3	Recreation	Earth	TR-FISHING CREEK

Dam Name	NIDID	Inspection Date	Owner Type	Owner Name	NID Height (Ft.)	NID Storage	Dam Class	Primary Purpose	Dam Type	River
				ALVAREZ III & BILLIE JEAN D ALVAREZ						
JEFF EFIRD DAM	SC02296	10/19/2017	Private	RONALD M BOST	25	96	C3	Recreation; Other	Earth	TR-MOBLEY CREEK
LARRY HOOPAUGH DAM	SC03526	10/19/2017	Private	LARRY HOOPAUGH	30	148	C3	Irrigation	Earth	TR-LITTLE SANDY RIVER
LOCKHART DAM*	SC01059	4/17/2018	Private	LOCKHART POWER COMPANY	16	2400	C3	Hydroelectric	Gravity	BROAD
NEAL SHOALS*	SC01058	4/21/2016	Public Utility	SOUTH CAROLINA ELECTRIC AND GAS COMPANY	32	1492	C3	Hydroelectric	Concrete	BROAD RIVER
ROCKY CREEK WCD DAM 1	SC01166	10/20/2017	Local Government; Private	ROCKY CREEK WCD; TELEDYNE INDUSTRIES	39	2100	C3	Flood Control	Earth	BEAVER DAM CREEK
ROCKY CREEK WCD DAM 9	SC01164	10/19/2017	Local Government; Private	ROCKY CREEK WCD; K-FARM LLC C/O GENE A KASPAREK	49	1400	C3	Flood Control	Earth	TR-BULL RUN CREEK
SHEPHERDS POND DAM	SC01158	10/18/2017	Private	J + G SC INVESTMENTS LLC	34	295	C3	Recreation	Earth	TR-FISHING CREEK
TINKERS CREEK WCD DAM 21	SC01165	10/18/2017	Private	LYNDA CAULDER BREWER	53	4000	C3	Flood Control	Earth	TINKERS CREEK

Source: National Inventory of Dams (NID) and Department of Health and Environmental Control (DHEC)

** Not a state regulated dam*

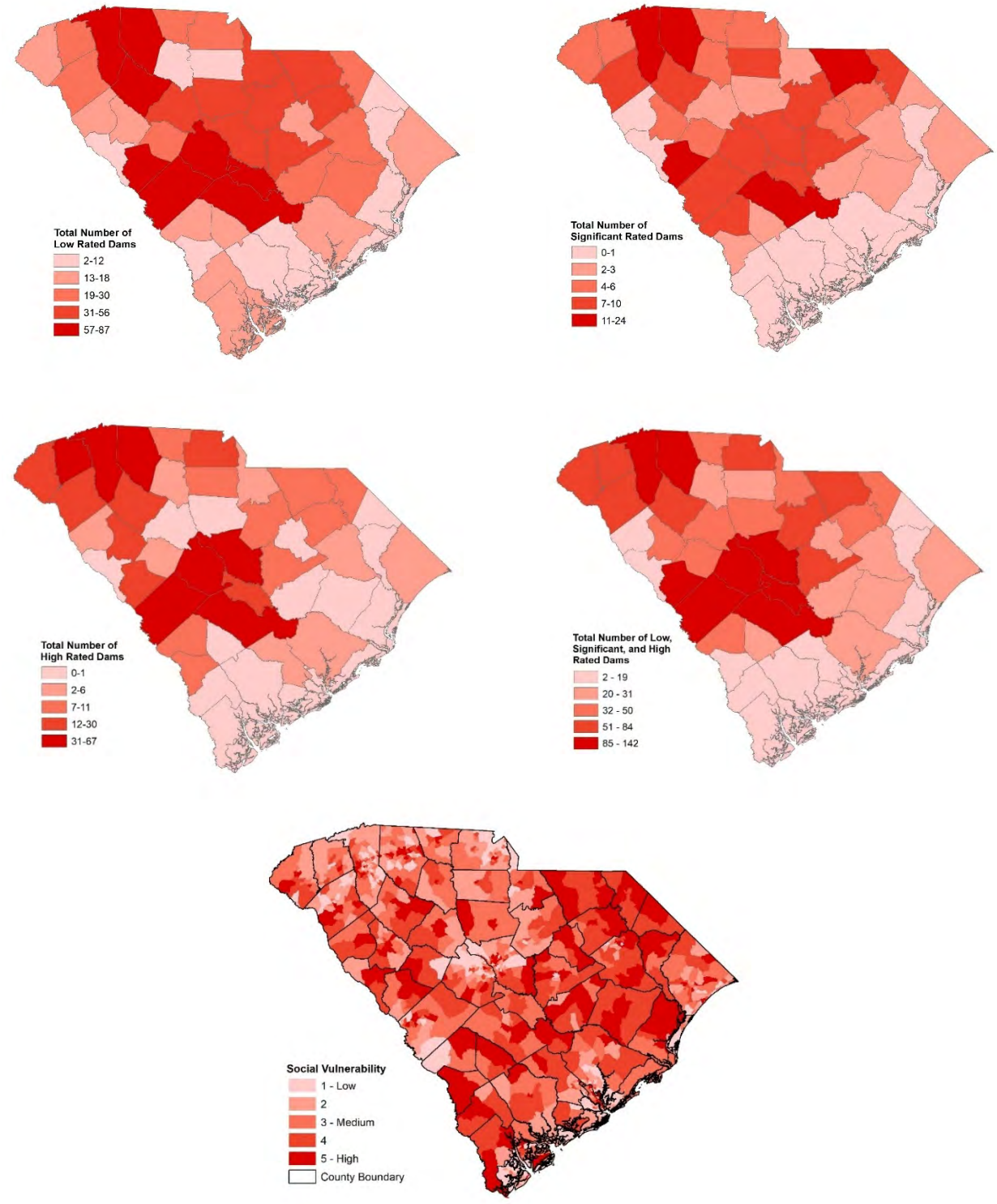
*** Evergreen Timberland Dam does not meet the hazard mitigation planning inclusion criteria, but it was previously included in the 2016 Chester County Hazard Mitigation Plan.*

The above Chester County dams meet the following hazard mitigation planning inclusion criteria:

1) Exceeds 25 feet in height and 15 acre-feet of storage, or
2) Exceeds 6 feet in height and 50-acre feet of storage, or
3) Classified as a Class 1: High Hazard Potential Dam.

DHEC REGULATED DAMS

FIGURE 5.20: DHEC REGULATED DAMS (RATED LOW, SIGNIFICANT, OR HIGH HAZARD) SOCIAL VULNERABILITY SCORES



Data Source: DHEC and CDC

Historical Occurrences:

The South Carolina Department of Health and Environmental Control (SCDHEC) is the permitting agency in charge of the Dams and Reservoirs Safety Program which was established in 1977 with the passage of the SC Dams and Reservoirs Safety Act. Dams that either are 25 feet or more in height or impound (hold back) 50 acre feet or more are regulated by the Department unless exempted by state law.

According to the NID, there are 31 regulated dams within Chester County. There is no historical information available in regards to dam failures.

Non-Levee Flood Protection Measures

Table 5.34 contains information about non-levee flood protection measures within Chester County such as dams, jetties, and/or dikes.

TABLE 5.34: NON-LEVEE FLOOD PROTECTION MEASURES

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Catawba River	Rocky Creek Dam/Cedar Creek Dam (Rocky Creek Lake, Cedar Creek Lake, Stumpy Pond)	Hydroelectric Station Dam	Immediately south of Chester- Fairfield-Lancaster County Boundary	Mainly for purposes of electric power production and recreation but occasionally utilized for rainfall-runoff retention
Catawba River	Fishing Creek Dam (Fishing Creek Lake)	Hydroelectric Station Dam	Near State Highway 97	Mainly for purposes of electric power production and recreation but occasionally utilized for rainfall-runoff retention
Catawba River	Great Falls Dam (Great Falls Lake)	Hydroelectric Station Dam	Near State Highway 141	Mainly for purposes of electric power production and recreation but occasionally utilized for rainfall-runoff retention

Data Source: FEMA Flood Insurance Study Volume 1 of 1: Chester County, South Carolina and Incorporated Areas

Hazard Analysis:

There has never been a historical occurrence but if dams did fail it would cause significant damage in the Towns of Fort Lawn and Great Falls. For dam failure, Chester County has a 0% annual chance of occurrence based on historical events.

Point locations for DHEC regulated dams within Chester County were acquired from SCDHEC and NID.

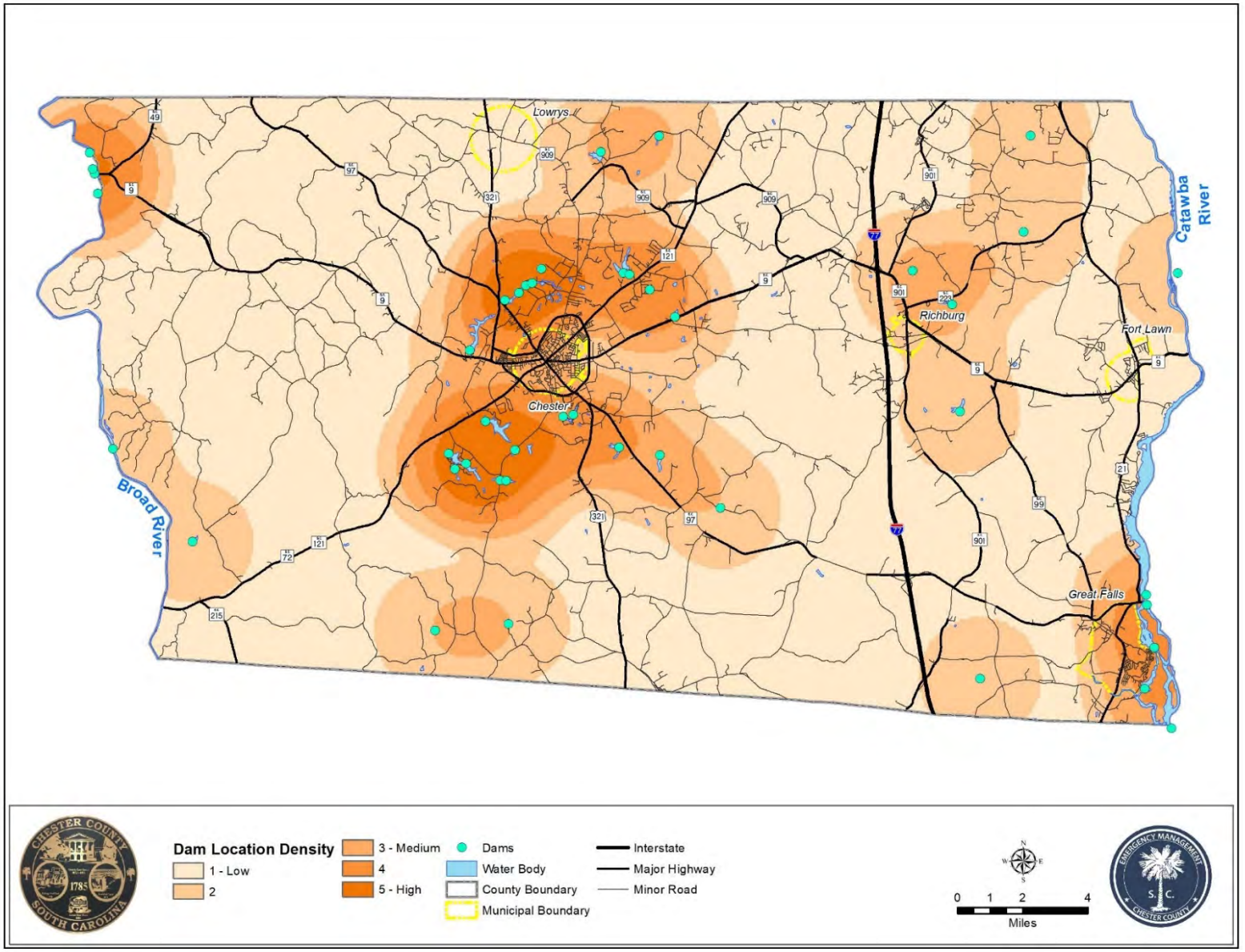
A density calculation was performed on those points within the GIS program utilizing the Spatial Analyst Extension. Essentially, Spatial Analyst allows a user to create a grid (raster image) by the density or occurrence of points. In this example, it provides a density map of dams to add to the risk assessment.

Calculation of Density for Dams:

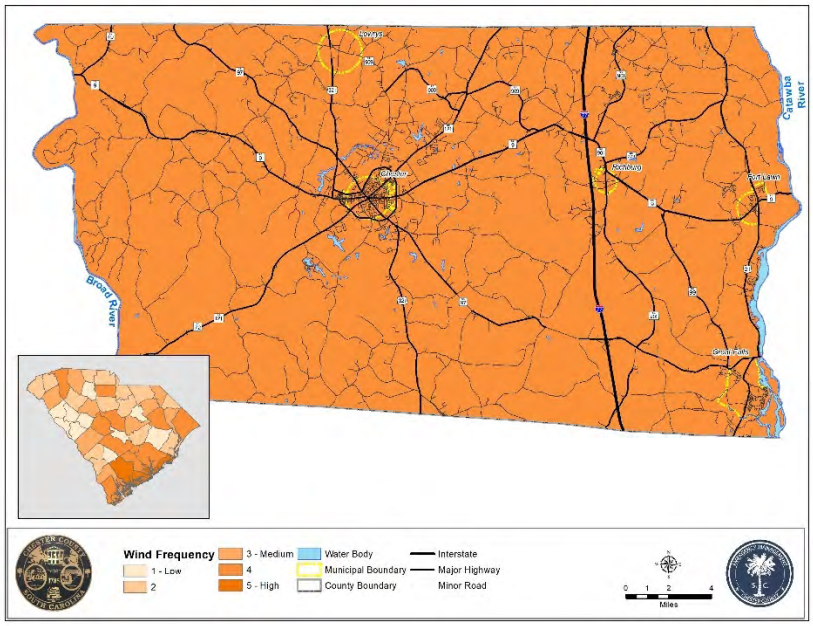
1. When Spatial Analyst calculates density, it assigns a "GRIDCODE" to each cell of the grid. Spatial Analyst classifies the codes into 9 classes, numbered 1-9, following natural breaks. The higher the number, the higher the density of points within a specified proximity of that given cell.
2. Since the GRIDCODES are classified 1-9, it was necessary to standardize those codes to better conform to frequency analysis performed for other hazards. This was done by utilizing the following formula:
    a. Standardized GRIDCODE = GRIDCODE / Maximum GRIDCODE

A full-size copy of mapping associated with Chester County Dam Density can be found on the following page.

FIGURE 5.21: CHESTER COUNTY DAMS



WINDSTORMS



Description:

Windstorms are exceptionally strong winds; they can occur as sharp gusts or as sustained winds. Hurricanes and tornados (also twisters or funnel clouds) are commonly associated with windstorms. However, windstorms can occur without such noticeable visual displays.

When a strong windstorm strikes a community, it leaves behind a distinctive trail. Trees toppled over on buildings and cars, downed power lines crisscrossing the roads, and widespread power outages are a few of the signs that a windstorm has struck. After such an event, it can take communities days, weeks, or longer to return to normal activities. In addition to costly structural damages, windstorms can cause injury or even death.

WINDSTORMS CONTENT

Windstorms have the ability to cause damage over 100 miles from the center of storm activity. Winds impacting walls, doors, windows, and roofs may cause structural components to fail. Wind pressure can create a direct and frontal assault on a structure, pushing walls, doors, and windows inward. Conversely, passing currents can create lift and suction forces that act to pull building components and surfaces outward. The effects of winds are magnified in the upper levels of multi-story structures. As positive and negative forces impact the building's protective envelope (doors, windows, and walls), the result can be roof or building component failures and considerable structural damage.

Debris carried along by extreme winds can directly contribute to loss of life and indirectly to the failure of protective building envelopes, siding, or walls of buildings. When severe windstorms strike a community, downed trees, power lines, and damaged property can be major hindrances to emergency response and disaster recovery.

Storm winds can damage buildings, power lines, and other property and infrastructure due to falling trees and branches. During wet winters, saturated soils cause trees to become less stable and more vulnerable to uprooting from high winds.

Windstorms can result in collapsed or damaged buildings; damaged or blocked roads and bridges; and damaged traffic signals, streetlights, and parks, among others. Roads blocked by fallen trees during a windstorm may have severe consequences to people who need access to emergency services. Emergency response operations can be complicated when roads are blocked or when power supplies are interrupted. Industry and commerce can suffer losses from interruptions in electric service and from extended road closures. They can also sustain direct losses to buildings, personnel, and other vital equipment. There are direct consequences to the local economy resulting from windstorms related to both physical damages and interrupted services.

Windstorms can cause flying debris and downed utility lines. For example, tree limbs breaking in winds of only 45 mph can be thrown over 75 feet. As such, overhead power lines can be damaged even in relatively minor windstorm events. Utility lines brought down by summer thunderstorms have also been known to cause fires, which start in dry roadside vegetation. Falling trees can bring electric power lines down to the pavement, creating the possibility of lethal electric shock. Rising population growth and new infrastructure in the County creates a higher probability for damage to occur from windstorms as more life and property are exposed to risk.

Based on the above potential windstorm effects and a review of historical events, the following areas are likely to be more vulnerable to the effects of high winds:

- Areas with large trees
- Areas dependent upon aboveground power distribution systems
- Areas with older homes or other structures
- Areas with large open agricultural fields or rangeland

National Oceanic and Atmospheric Administration Wind Advisories

High winds are defined by the National Oceanic and Atmospheric Administration as sustained wind speeds of 40 mph or greater lasting for 1 hour or longer, or winds of 58 mph or greater for any duration.

The National Weather Service (NWS) will issue high wind watches, warnings or advisories:

> **High Wind Watches** are issued when the risk of a high wind event (≥40 mph, sustained for 1 hour or more, or ≥58 mph of any duration), is significant in the 12 to 48-hour time frame, *but occurrence, location, severity, or timing is uncertain*.

High Wind Warnings are issued when winds of ≥40 mph, sustained for 1 hour or more; or ≥58 mph of any duration, *is occurring, imminent, or has a significant probability of occurrence within 36 hours*.

Advisories are issued for wind events not quite as strong as the high wind thresholds and have a significant probability of occurrence in the first 36 hours. Wind advisory criteria is 31-39 mph sustained for 1 hour or more or 46-57 mph of any duration. These events are defined as non-life-threatening by themselves, but they could become life-threatening if caution is not exercised.

In the U.S., the Beaufort Scale is commonly used to categorize the effects of wind speed (Table 5.35).

TABLE 5.35: BEAUFORT SCALE

THE EFFECT OF WIND SPEED				
BEAUFORT NUMBER	NAME	WIND SPEED		DESCRIPTION
		MPH	KPH	
0	calm	<1	<1	calm; smokes rises vertically
1	light air	1-3	1-5	direction of wind shown by smoke but not by wind vanes
2	light breeze	4-7	6-11	wind felt on face; leaves rustle; wind vane moves
3	gentle breeze	8-12	12-19	leaves and small twigs in constant motion; wind extends light flag
4	moderate breeze	13-18	20-28	wind raises dust and loose paper; small branches move
5	fresh breeze	19-24	29-38	small-leaved trees begin to sway; crested wavelets form on inland waters
6	strong breeze	25-31	39-49	large branches move; overhead wires whistle; umbrellas difficult to control
7	moderate gale *or* near gale	32-38	50-61	whole trees sway; walking against wind is difficult
8	fresh gale *or* gale	39-46	62-74	twigs break off trees; moving cars veer
9	strong gale	47-54	75-88	slight structural damage occurs; shingles may blow away
10	whole gale *or* storm	55-63	89-102	trees uprooted; considerable structural damage occurs
11	storm *or* violent storm	64-72	103-117	widespread damage occurs
12	hurricane	>72	>117	widespread damage occurs

Source: Merriam-Webster Dictionary (www.m-w.com)

Historical Occurrences:

Windstorms are fairly common in South Carolina, but only a small percentage actually causes damages.

According to the ASU Center for Emergency Management and Homeland Security and NCEI, there were a total of 223 significant wind events in Chester County during the period of 1956 to 2019. Of these, nearly $815,000 in property and $50,994,869 in crop damages were recorded. (These events do not include tornadoes).

TABLE 5.36: WINDSTORMS HISTORICAL OCCURRENCES FOR CHESTER COUNTY

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage ($)	Crop Damage ($)	Mag.
4/6/56	4/6/56	Thunderstorm Wind	Chester*	0	0	$0	$0	NA
4/8/57	4/8/57	Thunderstorm Wind	Chester*	0	0	$0	$0	NA
2/18/60	2/18/60	Hail - Wind	Chester*	0	0	$142	$0	NA
2/24/61	2/24/61	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$142	$0	NA
2/25/61	2/25/61	Wind	Chester*	0	0	$108	$0	NA
11/23/61	11/23/61	Wind	Chester*	0	0	$108	$0	NA
4/12/62	4/12/62	Hail - Wind	Chester*	0	0	$200	$0	NA
5/16/63	5/16/63	Hail - Wind	Chester*	0	0	$0	$2,777	NA
1/20/64	1/20/64	Wind	Chester*	0	0	$108	$0	NA
7/1/65	7/31/65	Hail - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$108	$0	NA
7/19/65	7/19/65	Hail - Lightning - Wind	Chester*	0	0	$108	$10	NA
2/13/66	2/13/66	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$108	$0	NA
7/12/66	7/12/66	Thunderstorm Wind	Chester*	0	0	$0	$0	NA
11/1/69	11/1/69	Wind - Winter Weather	Chester*	0	0	$2,000	$2	NA
7/3/70	7/3/70	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$5,000	$0	NA
1/30/71	1/30/71	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$50,000	$0	NA
3/15/71	3/15/71	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$108	$0	NA
12/3/71	12/3/71	Severe Storm / Thunderstorm - Wind - Winter Weather	Chester*	0	0	$10,869	$10,869	NA
7/14/72	7/14/72	Lightning - Severe Storm / Thunderstorm - Wind	Chester*	1	0	$5,000	$0	NA
8/19/72	8/19/72	Severe Storm / Thunderstorm - Wind	Chester*	1	0	$5,000	$0	NA
5/11/73	5/11/73	Hail - Lightning - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$312	$312	NA
5/20/73	5/20/73	Hail - Lightning - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$238	$2,380	NA

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage ($)	Crop Damage ($)	Mag.
5/28/73	5/29/73	Hail - Lightning - Wind	Chester*	0	0	$185	$185	NA
8/29/73	8/29/73	Lightning - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$25	$2	NA
11/21/73	11/21/73	Wind	Chester*	0	0	$147	$0	NA
3/21/74	3/21/74	Lightning - Wind	Chester*	0	0	$1,086	$108	NA
3/29/74	3/29/74	Hail - Lightning - Wind	Chester*	0	0	$1,190	$1,190	NA
3/30/74	3/30/74	Hail - Wind	Chester*	0	0	$0	$38	NA
4/8/74	4/8/74	Lightning - Wind	Chester*	0	0	$1,388	$1	NA
7/16/74	7/16/74	Hail - Wind	Chester*	0	0	$192	$192	NA
11/20/74	11/20/74	Wind	Chester*	0	0	$238	$0	NA
3/7/75	3/7/75	Hail - Lightning - Wind	Chester*	0	0	$142	$0	NA
3/24/75	3/24/75	Hail - Lightning - Wind	Chester*	0	0	$1,086	$10	NA
5/10/75	5/10/75	Hail - Lightning - Wind	Chester*	0	0	$2,777	$27,777	NA
5/15/75	5/15/75	Lightning - Wind	Chester*	0	0	$1,086	$10	NA
6/5/75	6/5/75	Hail - Wind	Chester*	0	0	$384	$38	NA
6/15/75	6/15/75	Hail - Lightning - Wind	Chester*	0	0	$147	$147	NA
6/18/75	6/18/75	Hail - Lightning - Wind	Chester*	0	0	$10	$1,086	NA
6/19/75	6/19/75	Hail - Lightning - Wind	Chester*	0	0	$185	$185	NA
7/4/75	7/4/75	Hail - Lightning - Wind	Chester*	0	0	$1,428	$14,285	NA
7/14/75	7/14/75	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$14	$1	NA
8/27/75	8/27/75	Lightning - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$1,315	$13	NA
12/31/75	12/31/75	Wind	Chester*	0	0	$108	$0	NA
2/18/76	2/18/76	Wind	Chester*	0	0	$384	$38	NA
7/26/76	7/27/76	Lightning - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$384	$38	NA
7/29/76	7/29/76	Lightning - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$384	$3	NA
10/9/76	10/9/76	Lightning - Wind	Chester*	0	0	$1,388	$13	NA
3/18/77	3/18/77	Wind	Chester*	0	0	$10	$10	NA
3/31/77	3/31/77	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$10	$0	NA
4/4/77	4/4/77	Wind	Chester*	0	0	$108	$10	NA
6/6/77	6/6/77	Hail - Lightning - Wind	Chester*	0	0	$108	$1,086	NA
7/14/77	7/14/77	Lightning - Wind	Chester*	0	0	$1,086	$10	NA
9/7/77	9/7/77	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$108	$10	NA
1/25/78	1/26/78	Flooding - Wind	Chester*	0	0	$10,869	$1	NA
2/25/80	2/25/80	Wind	Chester*	0	0	$1,087	$0	NA

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage ($)	Crop Damage ($)	Mag.
8/8/80	8/8/80	Flooding - Wind	Chester*	0	0	$1,086	$108	NA
3/16/81	3/16/81	Wind	Chester*	0	0	$1,086	$1	NA
4/19/81	4/19/81	Hail - Lightning - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$10,000	$100	NA
4/19/81	4/19/81	Thunderstorm Wind	Chester*	0	0	$0	$0	NA
1/4/82	1/4/82	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$1,250	$0	NA
4/26/82	4/27/82	Hail - Lightning - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$10	$10	NA
5/17/82	5/17/82	Hail - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$13	$138	NA
6/3/82	6/3/82	Lightning - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$5,000	$5,000	NA
6/10/82	6/10/82	Hail - Lightning - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$121,951	$121,951	NA
3/17/83	3/17/83	Coastal - Flooding - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$10,869	$1,086	NA
3/24/83	3/24/83	Wind - Winter Weather	Chester*	0	0	$108	$1	NA
7/25/83	7/25/83	Lightning - Wind	Chester*	0	0	$1,086	$10	NA
8/21/83	8/21/83	Lightning - Wind	Chester*	0	0	$1,000	$100	NA
8/23/83	8/23/83	Lightning - Wind	Chester*	0	0	$1,428	$0	NA
12/6/83	12/6/83	Flooding - Wind	Chester*	0	0	$1,282	$12	NA
2/27/84	2/27/84	Flooding - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$1,086	$10	NA
3/8/84	3/8/84	Wind	Chester*	0	0	$108	$10	NA
3/28/84	3/28/84	Hail - Wind	Chester*	1	0	$5,000	$500	NA
4/14/84	4/14/84	Hail - Wind	Chester*	0	0	$178	$178	NA
5/3/84	5/3/84	Wind	Chester*	0	0	$500	$0	NA
6/20/84	6/20/84	Hail - Lightning - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$1,086	$108	NA
7/26/84	7/26/84	Flooding - Severe Storm / Thunderstorm - Wind	Chester*	0	0	$1,086	$10	NA
2/11/85	2/12/85	Hail - Severe Storm / Thunderstorm - Wind - Winter Weather	Chester*	0	0	$1,086	$1	NA
6/5/85	6/5/85	Hail - Wind	Chester*	0	0	$500	$50	NA
6/7/85	6/7/85	Hail - Wind	Chester*	0	0	$1,086	$108	NA
7/21/86	7/21/86	Wind	Chester*	0	0	$50	$0	NA
8/3/86	8/3/86	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$5,000	$0	NA

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage ($)	Crop Damage ($)	Mag.
7/29/87	7/29/87	Severe Storm / Thunderstorm - Wind	Chester	0	0	$5,000	$0	NA
2/27/88	2/27/88	Wind	Chester*	0	0	$10	$0	NA
5/10/88	5/10/88	Severe Storm / Thunderstorm - Wind	Fort Lawn	0	0	$50	$0	NA
5/23/88	5/23/88	Thunderstorm Wind	Chester*	0	0	$0	$0	NA
11/5/88	11/5/88	Wind	Chester*	0	0	$161	$0	NA
1/3/89	1/3/89	Wind	Chester*	0	0	$1,086	$1	NA
2/21/89	2/21/89	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$10,000	$0	NA
5/5/89	5/5/89	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$5,000	$0	NA
6/16/89	6/16/89	Severe Storm / Thunderstorm - Wind	Great Falls	0	0	$50,000	$0	NA
6/16/89	6/16/89	Severe Storm / Thunderstorm - Wind	Chester	0	0	$5,000	$0	NA
6/20/89	6/20/89	Severe Storm / Thunderstorm - Wind	Chester	1	0	$5,000	$0	NA
8/6/89	8/6/89	Severe Storm / Thunderstorm - Wind	Blackstock	0	0	$5,000	$0	NA
8/6/89	8/6/89	Severe Storm / Thunderstorm - Wind	Chester	0	0	$500	$0	NA
6/8/90	6/8/90	Severe Storm / Thunderstorm - Wind	Chester	0	0	$5,000	$0	NA
6/9/90	6/9/90	Thunderstorm Wind	Chester*	0	0	$0	$0	NA
4/29/91	4/29/91	Thunderstorm Wind	Chester*	0	0	$0	$0	NA
3/13/93	3/13/93	Wind - Winter Weather	Chester*	0	0	$8,333	$8,333	NA
6/24/94	6/24/94	Thunderstorm Wind	Chester	0	0	$0	$0	NA
6/27/94	6/27/94	Thunderstorm Wind	Lockhart And Chester	0	0	$0	$0	NA
6/28/94	6/28/94	Thunderstorm Wind	Great Falls	0	0	$0	$0	NA
5/27/95	5/27/95	Thunderstorm Wind	North Of Chester	0	0	$0	$0	NA
6/9/95	6/9/95	Severe Storm / Thunderstorm - Wind	Chester	0	0	$45,000	$0	NA
3/15/96	3/15/96	Thunderstorm Wind	Chester*	0	0	$100,000	$0	NA
3/19/96	3/19/96	High Wind	Chester*	0	0	$0	$0	NA
5/24/96	5/24/96	Thunderstorm Wind	Chester*	0	0	$0	$0	50 kts.
7/15/96	7/15/96	Thunderstorm Wind	Chester*	0	0	$0	$0	50 kts.
2/21/97	2/21/97	Thunderstorm Wind	Richburg	0	0	$0	$0	50 kts.
5/26/97	5/26/97	Thunderstorm Wind	Chester	0	0	$0	$0	55 kts.
2/22/98	2/22/98	Strong Wind	Chester*	0	0	$1,500	$0	NA
6/16/98	6/16/98	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts.
6/19/98	6/19/98	Thunderstorm Wind	Chester	0	0	$0	$0	55 kts.
6/21/98	6/21/98	Thunderstorm Wind	Great Falls	0	0	$0	$0	60 kts.
7/19/98	7/19/98	Thunderstorm Wind	Leeds	0	0	$0	$0	50 kts.

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage ($)	Crop Damage ($)	Mag.
9/8/98	9/8/98	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$15,000	$0	NA
9/8/98	9/8/98	Thunderstorm Wind	Great Falls	0	0	$15,000	$0	60 kts.
4/27/99	4/27/99	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts.
7/31/99	7/31/99	Severe Storm / Thunderstorm - Wind	Lowrys	0	0	$10,000	$0	NA
7/31/99	7/31/99	Thunderstorm Wind	Chester	0	0	$10,000	$0	55 kts.
5/25/00	5/25/00	Thunderstorm Wind	Great Falls	0	0	$0	$0	55 kts. E
5/25/00	5/25/00	Thunderstorm Wind	Chester	0	0	$0	$0	55 kts. E
6/15/00	6/15/00	Thunderstorm Wind	Leeds	0	0	$0	$0	50 kts. E
8/24/00	8/24/00	Severe Storm / Thunderstorm - Wind	Lowrys	0	0	$25,000	$0	65 kts. E
8/24/00	8/24/00	Thunderstorm Wind	Chester	0	0	$0	$0	65 kts. E
8/24/00	8/24/00	Thunderstorm Wind	Chester	0	0	$0	$0	55 kts. E
9/25/00	9/25/00	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. E
11/9/00	11/9/00	Strong Wind	Chester*	0	0	$0	$0	NA
3/20/01	3/20/01	High Wind	Chester*	0	0	$0	$0	55 kts. E
4/1/01	4/1/01	Thunderstorm Wind	Fort Lawn	0	0	$0	$0	50 kts. E
4/1/01	4/1/01	Thunderstorm Wind	Chester	0	0	$15,000	$0	50 kts. E
6/13/01	6/13/01	Thunderstorm Wind	Edgemoor	0	0	$0	$0	50 kts. E
6/15/01	6/15/01	Thunderstorm Wind	Edgemoor	0	0	$0	$0	55 kts. E
6/22/01	6/22/01	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. E
8/31/01	8/31/01	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. E
12/17/01	12/17/01	Thunderstorm Wind	Lowrys	0	0	$0	$0	50 kts. E
2/4/02	2/4/02	High Wind	Chester*	0	0	$0	$0	50 kts. E
3/31/02	3/31/02	Thunderstorm Wind	Lowrys	0	0	$1,000	$0	50 kts. E
4/18/02	4/18/02	Thunderstorm Wind	Chester	0	0	$1,000	$0	50 kts. E
5/10/02	5/10/02	Thunderstorm Wind	Great Falls	0	0	$0	$0	60 kts. E
5/13/02	5/13/02	Thunderstorm Wind	Chester	0	0	$1,000	$0	50 kts. E
5/2/03	5/2/03	Thunderstorm Wind	Chester	0	0	$5,000	$0	55 kts. EG
5/25/03	5/25/03	Thunderstorm Wind	Great Falls	0	0	$0	$0	50 kts. EG
6/27/03	6/27/03	Thunderstorm Wind	Chester	0	0	$1,000	$0	50 kts. EG
11/19/03	11/19/03	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. EG
3/7/04	3/7/04	Wind	Chester*	0	0	$10,909	$0	60 kts. EG
3/7/04	3/7/04	High Wind	Chester*	0	0	$20,000	$0	60 kts. EG
5/22/04	5/22/04	Thunderstorm Wind	Fort Lawn	0	0	$1,000	$0	55 kts. EG
9/17/04	9/17/04	Thunderstorm Wind	Great Falls	0	0	$25,000	$0	65 kts. EG
9/27/04	9/27/04	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. EG
11/24/04	11/24/04	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. EG
3/8/05	3/8/05	Thunderstorm Wind	Chester*	0	0	$0	$0	55 kts. EG

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage ($)	Crop Damage ($)	Mag.
7/13/05	7/13/05	Thunderstorm Wind	Chester	0	0	$3,000	$0	60 kts. EG
7/27/05	7/27/05	Thunderstorm Wind	Chester	0	0	$75,000	$0	65 kts. EG
7/28/05	7/28/05	Thunderstorm Wind	Great Falls	0	0	$5,000	$0	55 kts. EG
6/26/06	6/26/06	Thunderstorm Wind	Chester	0	0	$0	$0	55 kts. EG
7/15/06	7/15/06	Thunderstorm Wind	Leeds	0	0	$0	$0	55 kts. EG
7/28/06	7/28/06	Thunderstorm Wind	Edgemoor	0	0	$0	$0	50 kts. EG
11/15/06	11/15/06	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. EG
1/5/07	1/5/07	Thunderstorm Wind	Lowrys	0	0	$20,000	$0	55 kts. EG
4/14/07	4/14/07	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. EG
6/11/07	6/11/07	Thunderstorm Wind	Blackstock	0	0	$0	$0	50 kts. EG
6/25/07	6/25/07	Thunderstorm Wind	Great Falls	0	0	$0	$0	50 kts. EG
7/1/07	7/1/07	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. EG
8/30/07	8/30/07	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. EG
3/4/08	3/4/08	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. EG
3/4/08	3/4/08	Thunderstorm Wind	Fort Lawn	0	0	$0	$0	50 kts. EG
6/10/08	6/10/08	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. EG
6/22/08	6/22/08	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. EG
6/22/08	6/22/08	Thunderstorm Wind	Leeds	0	0	$0	$0	50 kts. EG
7/31/08	7/31/08	Thunderstorm Wind	Great Falls	0	0	$0	$0	50 kts. EG
8/2/08	8/2/08	Thunderstorm Wind	Wilksburg	0	0	$0	$0	60 kts. EG
8/31/08	8/31/08	Thunderstorm Wind	Baldwin Mills	0	0	$0	$0	50 kts. EG
12/10/08	12/10/08	High Wind	Chester*	0	0	$0	$0	50 kts. EG
4/10/09	4/10/09	Thunderstorm Wind	Wilksburg	0	0	$0	$0	50 kts. EG
4/14/09	4/14/09	Thunderstorm Wind	Great Falls	0	0	$0	$0	55 kts. EG
5/8/09	5/8/09	Thunderstorm Wind	Great Falls	0	0	$0	$0	50 kts. EG
6/2/09	6/2/09	Thunderstorm Wind	Landsford	0	0	$0	$0	50 kts. EG
6/16/09	6/16/09	Thunderstorm Wind	Evans	0	0	$0	$0	75 kts. EG
6/18/09	6/18/09	Thunderstorm Wind	Richburg	0	0	$0	$0	50 kts. EG
7/6/09	7/6/09	Thunderstorm Wind	Fort Lawn	0	0	$0	$0	60 kts. EG
8/5/09	8/5/09	Thunderstorm Wind	Baldwin Mills	0	0	$0	$0	50 kts. EG
8/5/09	8/5/09	Thunderstorm Wind	Fort Lawn	0	0	$0	$0	50 kts. EG
6/13/10	6/13/10	Thunderstorm Wind	Evans	0	0	$0	$0	50 kts. EG
6/25/10	6/25/10	Thunderstorm Wind	Baldwin Mills	0	0	$0	$0	50 kts. EG
6/27/10	6/27/10	Thunderstorm Wind	Baldwin Mills	0	0	$0	$0	50 kts. EG
7/9/10	7/9/10	Thunderstorm Wind	Sandy River	0	0	$0	$0	55 kts. EG
7/9/10	7/9/10	Thunderstorm Wind	Richburg	0	0	$0	$0	50 kts. EG
7/9/10	7/9/10	Thunderstorm Wind	Beckhamville	0	0	$0	$0	50 kts. EG
7/26/10	7/26/10	Thunderstorm Wind	Rodman	0	0	$0	$0	50 kts. EG

Previous Occurrences		Hazard Type / Combination	Location	Extent of Damage				
Hazard Begin Date	Hazard End Date			Injuries	Fatalities	Property Damage ($)	Crop Damage ($)	Mag.
7/27/10	7/27/10	Thunderstorm Wind	Blackstock	0	0	$0	$0	50 kts. EG
8/5/10	8/5/10	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. EG
8/5/10	8/5/10	Thunderstorm Wind	Great Falls	0	0	$0	$0	50 kts. EG
8/12/10	8/12/10	Thunderstorm Wind	Wilksburg	0	0	$0	$0	50 kts. EG
8/12/10	8/12/10	Thunderstorm Wind	Sandy River	0	0	$0	$0	50 kts. EG
4/5/11	4/5/11	Thunderstorm Wind	Wilksburg	0	0	$0	$0	55 kts. EG
5/10/11	5/10/11	Thunderstorm Wind	Lowrys	0	0	$0	$0	65 kts. EG
6/2/11	6/2/11	Thunderstorm Wind	Wilksburg	0	0	$0	$0	50 kts. EG
6/15/11	6/15/11	Thunderstorm Wind	Leeds	0	0	$0	$0	50 kts. EG
6/18/11	6/18/11	Thunderstorm Wind	Wilksburg	0	0	$0	$0	50 kts. EG
6/19/11	6/19/11	Thunderstorm Wind	Baldwin Mills	0	0	$0	$0	50 kts. EG
7/13/11	7/13/11	Thunderstorm Wind	Mc Keown	0	0	$0	$0	50 kts. EG
7/13/11	7/13/11	Thunderstorm Wind	Bascomville	0	0	$0	$0	50 kts. EG
8/9/11	8/9/11	Thunderstorm Wind	Leeds	0	0	$0	$0	55 kts. EG
8/29/11	8/29/11	Thunderstorm Wind	Lewis Turnout	0	0	$0	$0	50 kts. EG
4/2/12	4/2/12	Thunderstorm Wind	Beckhamville	0	0	$0	$0	50 kts. EG
4/3/12	4/3/12	Thunderstorm Wind	Mc Keown	0	0	$0	$0	50 kts. EG
7/1/12	7/1/12	Thunderstorm Wind	Wilksburg	0	0	$0	$0	55 kts. EG
7/1/12	7/1/12	Thunderstorm Wind	Lowrys	0	0	$0	$0	50 kts. EG
7/5/12	7/5/12	Thunderstorm Wind	Rowell	0	0	$0	$0	50 kts. EG
7/28/12	7/28/12	Thunderstorm Wind	Beckhamville	0	0	$0	$0	50 kts. EG
8/2/12	8/2/12	Thunderstorm Wind	McKeown	0	0	$0	$0	50 kts. EG
8/8/12	8/8/12	Thunderstorm Wind	Wilksburg	0	0	$0	$0	50 kts. EG
1/30/13	1/30/13	Thunderstorm Wind	Lewis	0	0	$0	$0	50 kts. EG
6/13/13	6/13/13	Thunderstorm Wind	Knox	0	0	$0	$0	50 kts. EG
6/25/13	6/25/13	Thunderstorm Wind	Beckhamville	0	0	$0	$0	50 kts. EG
7/24/13	7/24/13	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. EG
6/19/14	6/19/14	Thunderstorm Wind	Chester	0	0	$0	$0	50 kts. EG
6/18/15	6/18/15	Thunderstorm Wind	Fort Lawn	0	0	$7,000	$0	55 kts. EG
7/2/15	7/2/15	Thunderstorm Wind	Leeds	0	0	$0	$0	50 kts. EG
3/1/17	3/1/17	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$1,000	$0	NA
3/16/17	3/16/17	Wind - Winter Weather	Chester*	0	0	$0	$50,000,000	NA
4/3/17	4/3/17	Severe Storm / Thunderstorm - Wind	Chester*	0	0	$20,000	$0	NA
			Totals	**4**	**0**	**$815,206**	**$50,994,869**	

Data Source: SHELDUS™ U.S. version 19.0 – ASU Center for Emergency Management and Homeland Security and National Centers for Environmental Information (NCEI), Storm Events Database
Losses are not adjusted for inflation.
**Data regarding a specific jurisdiction(s) within the County is not available*
NA: Magnitude data was not available.

Hazard Analysis:

Windstorms have the potential to affect the entire planning area. To date the extent of Windstorm damage in property values has been approximately $815,000 (not adjusted for inflation). However, events of a greater magnitude are possible in the future.

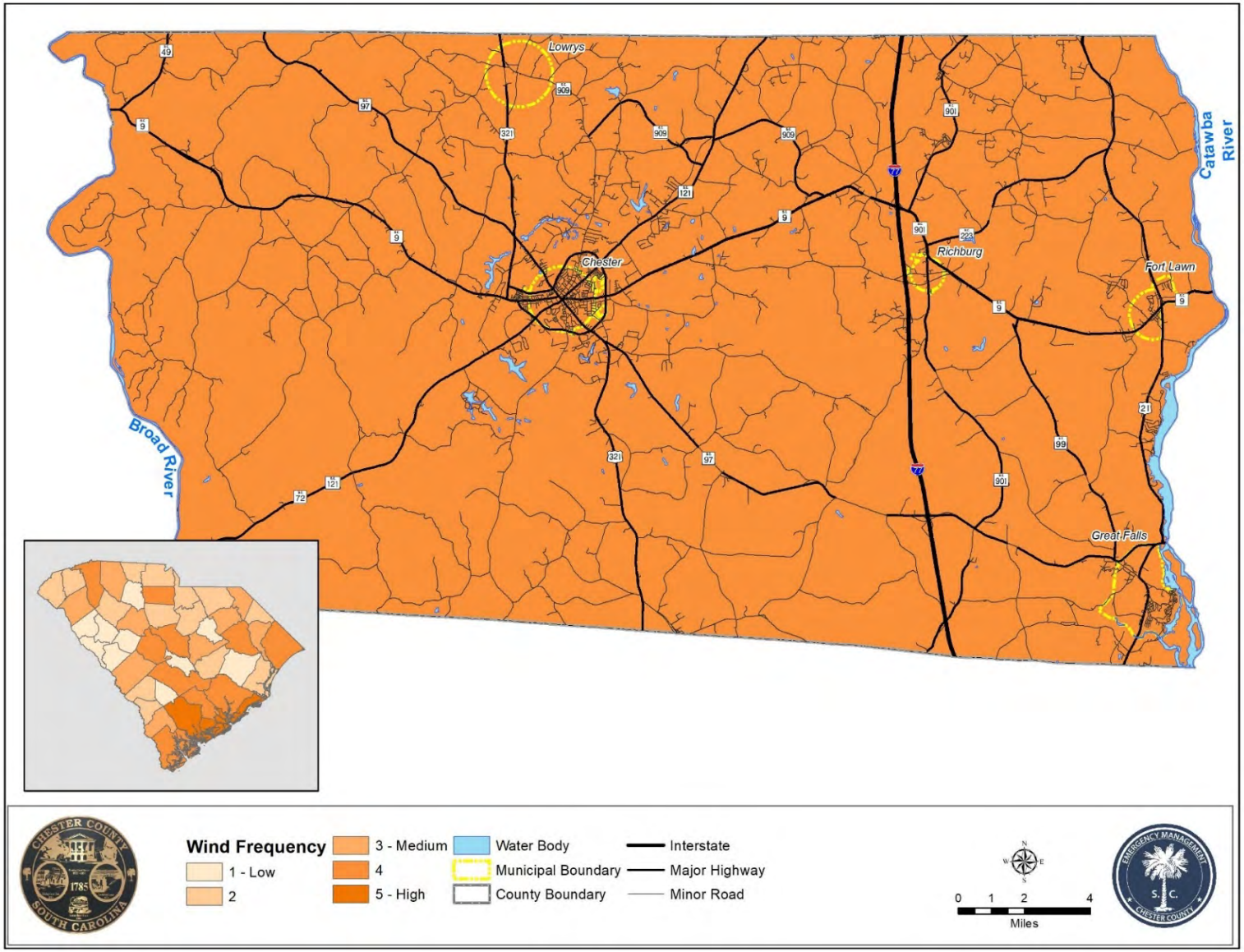
Unfortunately, there is no digital GIS data available for Chester County to delineate local areas prone to windstorms. Data may be available in the future and mapping will be updated as it becomes available.

For windstorms, Chester County has a 100% annual chance of occurrence and a recurrence interval of 0.3 years.

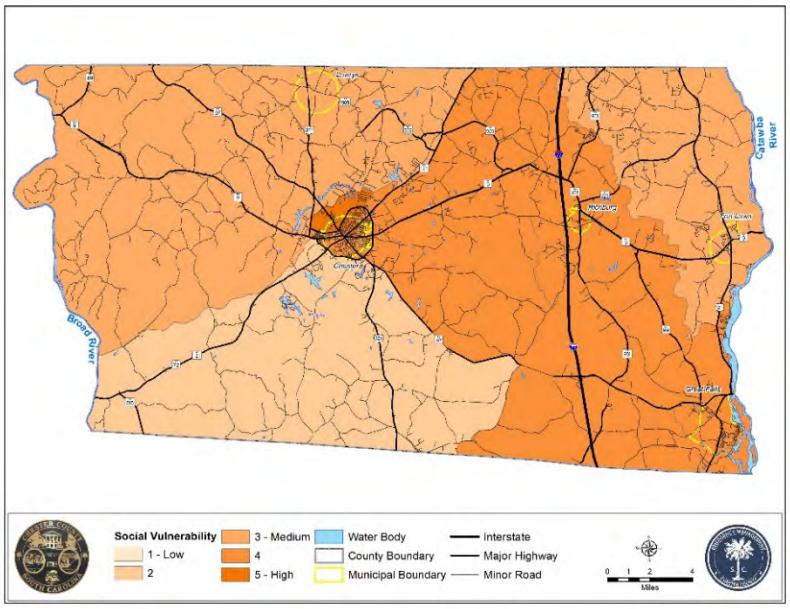
Source: Annual chance (%) was calculated using the # of events/# of years on record. Recurrence interval was calculated using the # of years on record/# of events. The number of years was based on the first year the event was on record through 2019.

Full-size copies of mapping associated with Chester County Wind Frequency between the years of 1960 - 2019 can be found on the following page.

FIGURE 5.22: CHESTER COUNTY WIND FREQUENCY 1960 - 2019



SOCIAL VULNERABILITY IDENTIFICATION AND ANALYSIS



INTRODUCTION

This section identifies, describes, and analyzes the social demographics present in Chester County and its municipalities.

For the purpose of this plan, mapping and analysis were only performed for hazards for which there was reliable and readily available GIS-based data available.

For each hazard listed, there are a description, a listing of historical occurrences, and a hazard analysis. For many items, there are no reliable and readily available data sets identifying localized occurrences. For those, maps have been provided that show the County's risk for that event in relation to the state.

SOCIAL VULNERABILITY ASSESSMENT METHODOLOGY

1) Demographic and Economic Data

In order to determine the social vulnerability of areas within Chester County, the Centers for Disease Control and Prevention Social Vulnerability Index (SVI) data was mapped. The 2018 SVI used the following statistics from the 2014-2018 (5-year) American Community Survey on the census tract level:

- **Socioeconomic Status**
  - **Below Poverty**
  - **Unemployed**
  - **Income**
  - **No High School Diploma**

- **Household Composition & Disability**
  - **Aged 65 or Older**
  - **Aged 17 or Younger**
  - **Civilian with a Disability**
  - **Single-Parent Households**
- **Minority Status & Language**
  - **Minority**
  - **Aged 5 or Older who Speaks English "Less than Well"**
- **Housing Type & Transportation**
  - **Multi-Unit Structures**
  - **Mobile Homes**
  - **Crowding**
  - **No Vehicle**
  - **Group Quarters**

Two additional variables were included as well, namely 2014-2018 ACS estimates for persons without health insurance and an estimate of daytime population derived from LandScan 2018 estimates.

2) SVI Methodology

Using the data from the American Community Survey, census tracts were ranked between states and within states based on percentiles for the individual variables listed above, the four themes, and the tract's overall position. Each percentile was between 0 and 1, with 1 representing the greatest vulnerability. The four themes are socioeconomic status, household composition and disability, minority status and language, and housing type and transportation. To determine the themes' percentiles, the percentiles of the individual variables within each theme were summed and ordered. The themes' percentiles were summed and ordered by tract to calculate overall percentile rankings.

3) Overall Social Vulnerability

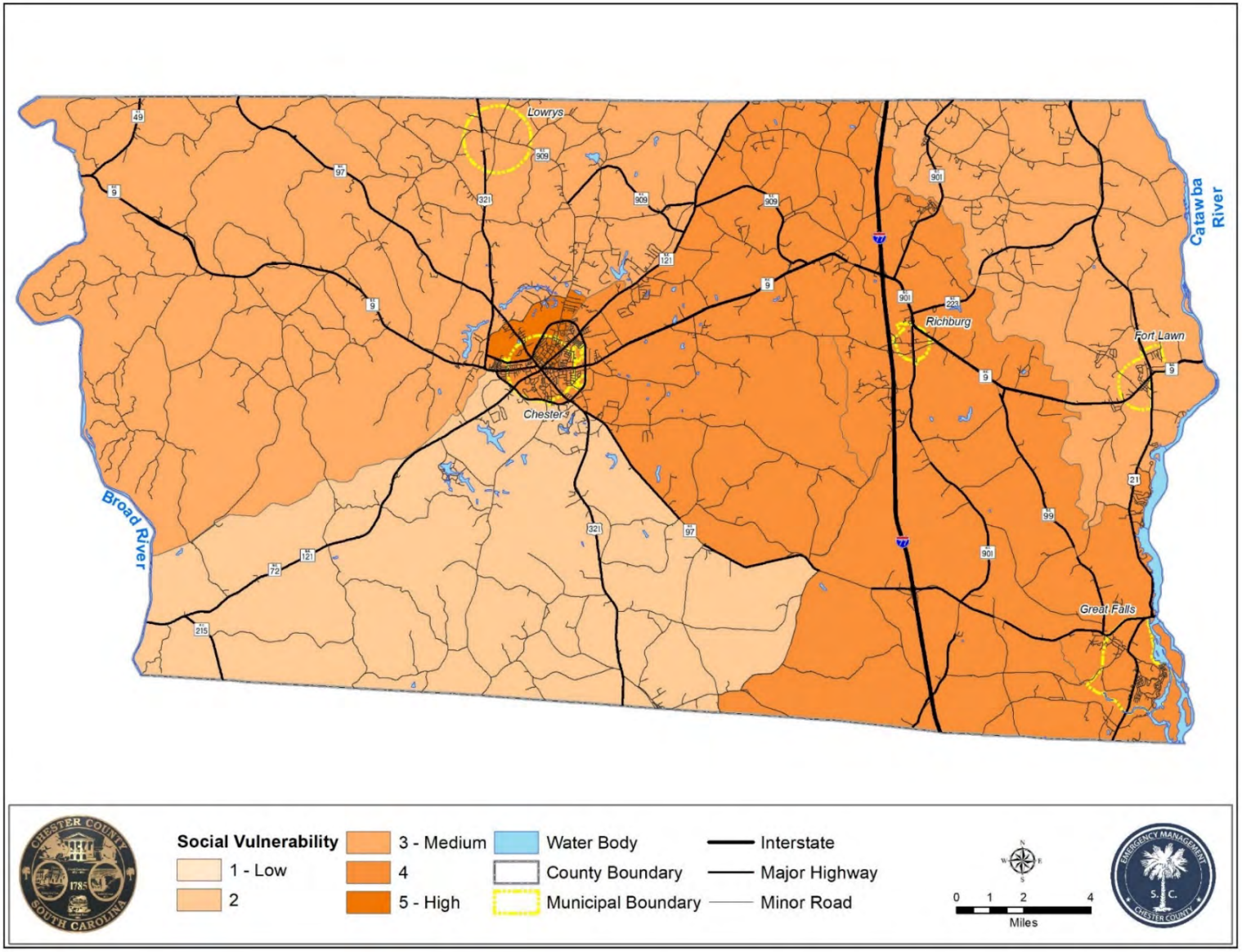
This SVI data was thematically mapped to display those areas of the county which were shown to be most socially vulnerable according to the outlined criteria.

According to the data used, the most socially vulnerable areas of the County were determined to be to the City of Chester and the area east of the City between US-321 and the County line.

It is significant to note that many of the census tracts for Chester County cover large unpopulated areas, and therefore it is imperative that those analyzing this data focus upon the major population centers within each of these census tracts.

A full-size copy of mapping associated with Chester County Social Vulnerability can be found on the following page.

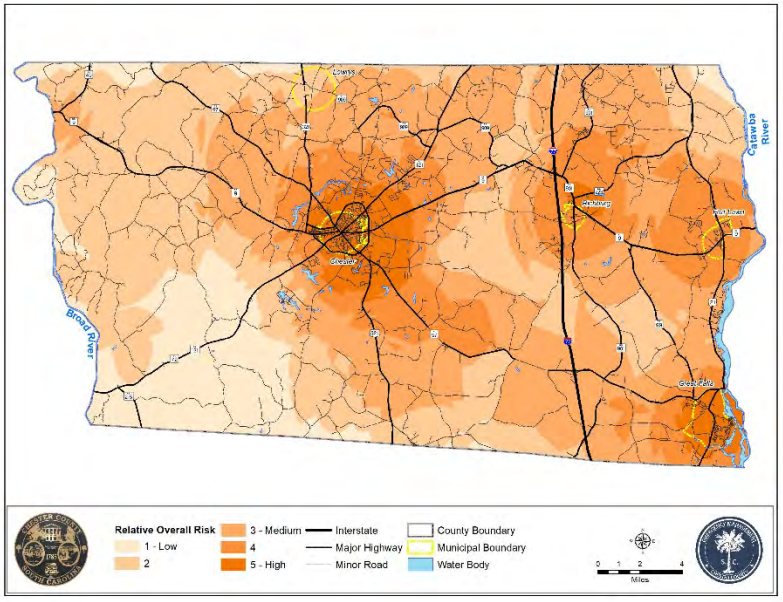
FIGURE 5.23: CHESTER COUNTY SOCIAL VULNERABILITY



OVERALL HAZARDS VULNERABILITY ANALYSIS

INTRODUCTION

7. Assessing Vulnerability: Overview	*[The risk assessment **shall** include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description **shall** include an overall summary of each hazard and its impact on the community.*
Requirement §201.6(c)(2)(ii):	A. Does the **new or updated** plan include an **overall summary** description of the jurisdiction's **vulnerability** to each hazard?



The final step in Arizona State University's procedures for risk assessment involved using the same GIS "union" procedure used on the natural hazards data. In this case, the GIS products created from the descriptions of the social vulnerability analysis and the natural hazards analysis is combined to form an overall vulnerability map.

In essence, this map merges the information, so that areas with both socially vulnerable populations and high incidences of natural hazards are indicated.

METHODOLOGY

Overall Natural Hazards Vulnerability

Once all the hazards identified by the Arizona State University Center for Emergency Management and Homeland Security were gathered and their corresponding frequency ratios calculated, an Overall Natural Hazards Map was created to show the geographic relation to the combined threat that these hazards presented to the County.

Social vulnerability and natural hazards data were standardized on a scale of one to five based on frequency or density of events that is calculated in the GIS software based on a natural breaks classification method.

In order to combine these layers of information in a geographic format, yet retain all of the data, a series of "unions" (this operation is performed on two layers at a time) were performed on each layer representing a natural hazard. A union combines two GIS layers together into one feature, and the data contained in each layer (attributes) are retained in a combined database (attribute table).

The most important aspect of this combining process is that as two polygon features are brought together and intersect one another, areas of overlap *will have attributes of both features*. This is the key concept to this methodology because as the frequency ratios are added, the sum total will yield an overall composite frequency score.

As the map shows, the overall risk is a combination of the geographically specific hazards, and the map should be seen as a comparison between the different areas within the County. In the case of Chester County, the areas at the most risk due to historical occurrences of natural hazards are the following:

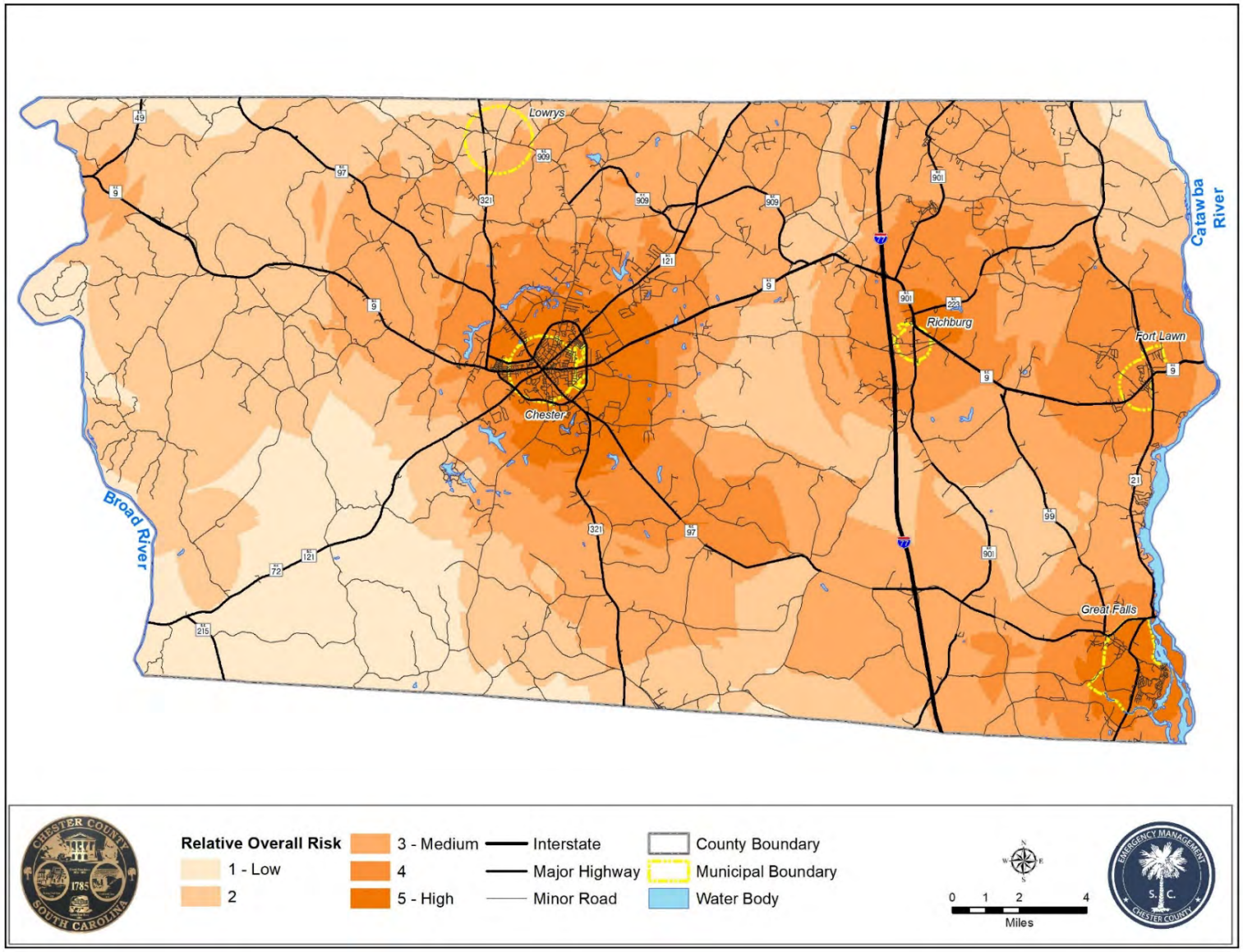
- The area north of the City of Chester, due to historical tornado density
- The eastern portion of the County, due to both tornado and hurricane density

CONCLUSION

In the case of Chester, the overall hazards analysis indicates the following "at-risk" areas:

- The area immediately surrounding the City of Chester and from US 321 east to the County line are the areas at most risk.
- The entire area surrounding and including the Town of Fort Lawn is indicated as being at high risk.

FIGURE 5.24: CHESTER COUNTY OVERALL RISK ASSESSMENT



Data Sources

National Oceanic and Atmospheric Administration (National Weather Service Weather Forecast Office)
Website: www.crh.noaa.gov

State of South Carolina Hazards Assessment 2005 (South Carolina Emergency Management Division Office of the Adjutant General)
Website: www.scemd.org

Hazards & Vulnerability Research Institute, Department of Geography, University of South Carolina
Website: http://webra.cas.sc.edu/hvri/

SHELDUS™ | Spatial Hazard Events and Losses Database for the United States
Website: https://sheldus.asu.edu/SHELDUS/

U. S. Geological Survey
Website: www.usgs.gov

U.S. Department of Energy
Website: www.windpoweringamerica.gov

NOAA: National Environmental Satellite, Data, and Information Service (NESDIS)
Website: www.ncdc.noaa.gov

Merriam-Webster Dictionary
Website: www.m-w.com

Corps Maps: Inventory of National Dams
Website: http://geo.usace.army.mil

Federal Guidelines for Dam Safety: Hazard Potential Classification System for Dams
Website: www.ferc.gov

National Climatic Data Center
Website: http://www.ncdc.noaa.gov/

NOAA Hurricane Research Division: Atlantic Oceanographic & Meteorological Laboratory
Website: http://www.aoml.noaa.gov

FEMA's HAZUS Program GIS Software
Website: http://www.fema.gov/hazus

South Carolina Department of Health and Environmental Control
Website: https://scdhec.gov/

Centers for Disease Control and Prevention Social Vulnerability Index
Website: https://www.atsdr.cdc.gov/placeandhealth/svi/documentation/SVI_documentation_2018.html

National Interagency Coordination Center Wildland Fire Summary and Statistics Annual Report 2020
Website: https://www.predictiveservices.nifc.gov/intelligence/2020_statssumm/annual_report_2020.pdf

National Interagency Fire Center
Website: https://www.nifc.gov/fire-information/statistics

SECTION 5: RISK ASSESSMENT REVISION HISTORY

Section 5 – Risk Assessment *(*This was previously Section 4: Natural Hazard Identification and Analysis)* REVISION HISTORY		
Date	**Section**	**Revision Detail**
8/2/2010	Section 4*	Added a revision history table.
8/2/2010	Section 4*	Added Table T-2: The Enhanced Fujita Scale.
8/2/2010	Section 5: Overall Hazards Vulnerability Analysis	Added this revision table.
8/3/2010	Section 4*	Added Extreme Heat Hazard
8/4/2010	Section 4: 4.2* Tornados	Added a Hazard Profile Table including Location, Extent of Damage, and Previous Occurrences for the years between 1950-2008.
8/4/2010	Section 4*: 4.5 Flooding	Added a Hazard Profile Table including Location, Extent of Damage, and Previous Occurrences for the years between 1950-2008.
8/4/2010	Section 4*: Table 4.6 Hurricanes & Tropical Storms	Added a Hazard Profile Table including Location, Extent of Damage, and Previous Occurrences for the years between 1950-2008.
8/4/2010	Section 4*: Table 4.7 Severe Winter Storms	Added a Hazard Profile Table including Location, Extent of Damage, and Previous Occurrences for the years between 1950-2008.
8/4/2010	Section 4*: Risk Profile Data Definitions	Added a definitions section for the Risk Profile Tables.
8/4/2010	Section 4*: Data Sources	Added a Data Sources list to the end of section 4.
8/4/2010	Section 4*: Table 4.8 Severe Thunderstorms	Added a Hazard Profile Table including Location, Extent of Damage, and Previous Occurrences for the years between 1950-2008.
8/4/2010	Section 4*: Table 4.9 Severe Thunderstorms	Added a Hazard Profile Table including Location, Extent of Damage, and Previous Occurrences for the years between 1950-2008.
8/4/2010	Section 4*: Table 4.10 Severe Thunderstorms	Added a Hazard Profile Table including Location, Extent of Damage, and Previous Occurrences for the years between 1950-2008.
8/9/2010	Section 4*: Table 4.12 Modified Mercalli Intensity Scale	Updated Table 4.12 modified Mercalli Intensity Scale for Earthquakes to include color coding and resource reference.
8/9/2010	Section 4*: Table 4.11 Wildfire Hazard Profile for Chester County	Added a Hazard Profile Table including Location, Extent of Damage, and Previous Occurrences for the years between 1950-2008.
8/9/2010	Section 4*: Table 4.14: Drought Severity Classification	Added Table 4.14: Drought Severity Classification including, description of possible impacts, and Drought Monitoring Indices using Standardized Precipitation and the Palmer Drought Index models.
8/9/2010	Section 4*: Table 4.16 Drought Hazard Profile for Chester County	Added a Hazard Profile Table including Location, Extent of Damage, and Previous Occurrences for the years between 1950-2008.
8/9/2010	Section 4*: Table 4.17 Windstorms Hazard Profile for Chester County	Added a Hazard Profile Table including Location, Extent of Damage, and Previous Occurrences for the years between 1950-2008.
8/23/2010	Section 8	Updated the Over Hazard Vulnerability at the front of this section.
8/23/2010	Section 7: Social Vulnerability Identification and Analysis	Updated Social Vulnerability map at the front of the section.
8/30/2010	Section 4*	Added Magnitude column to all the Chester County Historical Occurrences tables.
8/30/2010	Section 4* Page 90	Added Table 4.23 Extent of Chester County Hazards
2/8/2011	Section 5 Flooding	Added Table 4.3 Stream Gage Discharge Values for Chester County.
10/28/2015	Section 5 Flooding	Added the 7/11/2013 Flooding – NCDC- Flash Flood information to Table 4.2.
10/28/2015	Section 5: Flooding	Updated Table 4.3 Stream Gage Discharge Values for Chester County. Added the years between 2010-2014.
10/28/2015	Section 5: Flooding	Pg. 18 Updated Historical Occurrences
10/28/2015	Section 5: Flooding	Pg. 73 Updated Table 5.23 Hydrologic Hazards for Flooding
10/28/2015	Section 5: Flooding	Added Table 5.3 Principal Flood Problems
10/28/2015	Section 5: Flooding	Added Table 5.4 Levee Flood Protection Measures
11/4/2015	Section 5: Flooding	Table 5.2: Added 1/1/1982 – 1/14/1982 Flood Data
11/4/2015	Section 5: Flooding	Table 5.2: Added 3/17/1982 Flood Data
11/4/2015	Section 5: Flooding	Table 5.2: Added 1/10/1984 Flash Flooding Data
11/4/2015	Section 5: Flooding	Table 5.2: Added 8/19/1986 – 8/20/1986 Flash Flooding Data
11/4/2015	Section 5: Flooding	Table 5.2: Added Urban Flooding Data

Section 5 – Risk Assessment *(*This was previously Section 4: Natural Hazard Identification and Analysis)* REVISION HISTORY		
Date	**Section**	**Revision Detail**
11/4/2015	Section 5: Flooding	Table 5.2: Added Updated Property & Crop Damage and Totals Data
11/4/2015	Section 5: Dams	Added nearly 20 C1 & C2 Dams to the Dams in Chester County table.
11/15/2015	Section 5: Flooding	Added Maps 5.6 through 5.12 representing each participating jurisdiction's Flood Dollar Exposure from the FEAM HAZUS software.
12/1/2015	Section 5: Tornados	Updated historical tornado events for Chester County to include 3 new events between 2008 and 2011.
12/2/2015	Section 5: Severe Winter Storms	Updated the severe winter storms table to include 26 new events.
3/3/2016	Section 5: Hurricanes	Added Table: Chronological List of All Hurricanes Which Affected South Carolina
3/3/2016	Section 5: Hurricanes	Updated Historical Occurrences
3/3/2016	Section 5: Hurricanes	Added Table: Major Hurricane (Category 3-5) Direct Hits on South Carolina 1851-2014
3/4/2016	Section 5: Critical Facilities	Added hazard impacts to the critical facilities table.
3/4/2016	Section 5	Added critical facilities and infrastructure table summary.
3/8/2016	Section 5	Updated Stream Gauge Discharge values
3/8/2016	Section 5	Updated Hurricanes Map to include year's 1851-2014
3/8/2016	Section 5	Updated Tornados map.
3/8/2016	Section 5	Added Major Disaster & Emergency Declarations table.
3/8/2016	Section 5	Updated Severe Winter Storms map.
3/8/2016	Section 5	Added severe thunderstorm events to Table 5.28
3/8/2016	Section 5	Adjusted severe thunderstorms crop and property damage to reflect 2014 dollars.
3/9/2016	Section 5	Added hail events and adjusted crop and property damage to 2014 dollars.
3/9/2016	Section 5	Added lightning events and adjusted crop and property damage to 2014 dollars.
3/10/2016	Section 5	Added wildfire events and adjusted crop and property damage to 2014 dollars.
3/10/2016	Section 5	Added an earthquake event.
3/10/2016	Section 5	Added Extreme Heat events.
3/10/2016	Section 5	Added new drought data.
3/25/2016	Section 5	Added Extent to severe winter weather.
4/7/2016	Section 5	Updated Social Vulnerability County Map
4/7/2016	Section 5	Updated Overall Risk Analysis Map
4/8/2016	Section 5	Lightning Extent: Added the Cloud-to-Ground Lightning Incidence in the Continental US (1997-2011) Map.
5/5/2016	Section 5	Updated the Hazard Vulnerability and Assessment Tool with data from the Initial Planning Meeting
5/5/2016	Section 5	Updated the Windstorm data to include nearly 200 more events.
5/16/2016	Section 5	Updated the TABLE 5.3: NATURAL HAZARD IDENTIFICATION AND ANALYSIS Tool based on the Initial Planning meeting.
5/16/2016	Section 5	Added annual chance of occurrence and a recurrence interval to the Hazard Analysis area of all eleven hazards.
5/26/2016	Section 5	Updated Historical table totals for injuries, fatalities, property damage and crop damage.
5/26/2016	Section 5	Updated critical infrastructure to include facilities with and without generators.
5/26/2016	Section 5	Updated Hazard and Vulnerability Assessment Tool table with corrected formulas as per the Public Forum Meeting.
5/26/2016	Section 5	Updated Hazard and Vulnerability Assessment Tool table new values for Property and Business Impacts for Dams and Droughts as per the Public Forum Meeting.
8/17/2021	Section 5	Updated all maps to include up-to-date data.
8/17/2021	Section 5	Renumbered figures and tables.

Section 5 – Risk Assessment *(*This was previously Section 4: Natural Hazard Identification and Analysis)* REVISION HISTORY		
Date	**Section**	**Revision Detail**
8/17/2021	Section 5	Updated data tables and narrative to include recent data concerning hazards in Chester County.
9/2/2021	Section 5: Critical Facilities	Moved critical infrastructure table and narrative to Appendix B.
9/2/2021	Section 5	Updated Hazard and Vulnerability Assessment Tool table with new values based on Planning Team Survey.
9/20/2021	Section 5	Updated data sources.
9/22/2021	Section 5	Updated Social Vulnerability Identification and Analysis and Overall Hazards Vulnerability Analysis to reflect the methodology used.

Section 6: Mitigation Strategy

INTRODUCTION

This section outlines critical facilities for the County and each of the participating communities and also indicates hazard mitigation goals and projects to meet those defined goals. In addition, a priority and feasibility assessment is included for each of the projects as well.

As a part of the plan update the Planning Team reviewed and updated existing goals and added new goals and associated projects.

IMPLEMENTATION AND ADMINISTRATION

To ensure the functionality of each mitigation project, responsibility is assigned to a specific individual, department, or agency along with a schedule for its implementation and administration. The responsible agency(s) is listed next to the "Responsible" heading under each mitigation initiative project. Project resources, i.e. funding, are listed following the "Funding" heading, and the timeframe can be found following the "Timeline heading.

The Emergency Management Director will take the lead in monitoring the progress of proposed mitigation actions against the estimated timeline for each project's completion; evaluating the effectiveness of each action with regard to loss reduction, cost effectiveness, etc.; and seeing that the action plan is updated in general when necessary.

16. Implementation of Mitigation Actions ***Requirement: §201.6(c)(3)(iii):***	*[The mitigation strategy section **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.* *C.* Does the **new or updated** prioritization process include an emphasis on the use of a **cost-benefit review** to maximize benefits?

COST / BENEFIT PRIORITY SCORE

Mitigation initiatives have been prioritized through an extensive cost/benefit analysis conducted by members of the Planning Team. This cost/benefit analysis has yielded a "Cost / Benefit Priority Score" based on the following criteria:

COST	BENEFIT
Low – 3	Low – 1
Medium – 2	Medium – 2
High – 1	High – 3

The "Cost / Benefit Priority Score" is identified by summing the cost and benefit scores. For example, a Low Cost / High Benefit initiative would have a score of "6" where a High Cost / Low Benefit initiative would have a score of "2"

16. Implementation of Mitigation Actions ***Requirement: §201.6(c)(3)(iii):***	*[The mitigation strategy section **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.* *A.* Does the **new or updated** mitigation strategy include how the actions are **prioritized**? (For example, is there a discussion of the process and criteria used?)

PROCESS FOR PRIORITIZATION

In preparing the mitigation initiative projects, each participating jurisdiction considered their overall hazard risk and capability to mitigate natural hazards, ability to meet the adopted countywide mitigation goals, and the unique needs of their community. A process for prioritization of identified hazard mitigation projects was performed. The Planning Team used the following criteria for prioritization for each mitigation initiative project:

1.) Cost-Benefit Review
2.) Results of Hazard Identification and Hazard Analysis
3.) Results of Overall Vulnerability Assessment
4.) Effectiveness in meeting hazard mitigation goals and objectives
5.) Feasibility
6.) Effect on overall risk to life and property
7.) Ease of implementation
8.) Political and community support
9.) Funding availability

14. Identification and Analysis of Mitigation Actions ***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. *A.* Does the **new or updated** plan identify and analyze a **comprehensive range** of specific mitigation actions and projects for each hazard?

COMPREHENSIVE RANGE: PROJECT CATEGORIES

In order to meet the comprehensive range requirements, six categories were identified to classify each mitigation project. In general, all projects considered by the committee can be classified under one of the following six broad categories of mitigation techniques. These categories are defined below.

1.) Prevention
2.) Property Protection
3.) Natural Resource Protection

4.) Structural Projects
5.) Emergency Services
6.) Public Education & Awareness

1.) **Prevention:** Preventative activities are intended to keep hazard problems from getting worse and are typically administered through government programs or regulatory actions that influence the way land is developed and buildings are built. They are particularly effective in reducing a community's future vulnerability, especially in areas where development has not occurred or capital improvements have not been substantial. Examples of preventative activities include:
    - Planning and zoning
    - Building codes
    - Open space preservation
    - Floodplain regulations
    - Stormwater management regulations
    - Drainage system maintenance
    - Capital improvements programming

2.) **Property Protection:** Proper protection measures involve the modification of existing buildings and structures to help them better withstand the forces of a hazard or removal of the structures from hazardous locations. Examples include:
    - Acquisition
    - Relocation
    - Building elevation
    - Critical facilities protection
    - Retrofitting (i.e., wind-proofing, flood-proofing, seismic design techniques, etc.)
    - Safe rooms, shutters, shatter-resistant glass
    - Insurance

3.) **Natural Resource Protection:** Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas and their protective function. Such areas include floodplains, wetlands, and steep slopes. Parks, recreation, or conservation agencies and organizations often implement these protective measures. Examples include:
    - Floodplain protection
    - Watershed management
    - Riparian buffers

4.) **Structural Projects:** Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard even through construction. They are usually designed by engineers and managed or maintained by public works staff. Examples include:
    - Reservoirs
    - Dams/levees/dikes/floodwalls
    - Diversions/detention/retention
    - Storm sewers

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

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

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

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

The layout for this section is as follows:

16. Implementation of Mitigation Actions ***Requirement: §201.6(c)(3)(iii):***	*[The mitigation strategy section **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.* *B.* Does the **new or updated** mitigation strategy address how the actions will be implemented and administered, including the responsible department, existing and potential resources and the timeframe to complete each action?

MITIGATION INITIATIVES OUTLINE

Goal: A short description of the goal

Objective: Specific objective to assist in meeting the stated goal.

Project: A short description of the project to assist in meeting the goal and objective.

Priority:	Priority of the project: low, medium, high
Feasibility:	Feasibility of the project: low, medium, high
C/B Score:	Cost / benefit score: 2-6
Responsible:	Agency or agencies responsible for initiative
Funding:	Potential funding sources
Category:	Assigned classification to identify projects by type
Timeline:	Project schedule showing key events
Status:	The state or condition of the project
Hazards Addressed:	Lists which of the eleven identified Chester County Hazard Risks the initiative addresses.

13. Local Hazard Mitigation Goals ***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.* *A.* Does the **new or updated** plan include a description of mitigation **goals** to reduce or avoid long-term vulnerabilities to the identified hazards?

17. Multi-Jurisdictional Mitigation Actions ***Requirement §201.6(c)(3)(iv):***	*For multi-jurisdictional plans, there **must** be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.* *C.* Does the **new or updated** plan include identifiable **action items** for each jurisdiction requesting FEMA approval of the plan?

TABLE 6.1: MITIGATION INITIATIVES

No.	Section	Status	Mitigation Initiative Project	Status
1	1.1 (a)	Chester County	GIS Based Digital Flood Mapping.	Completed
2	1.1 (b)	Chester County	GIS Based Digital Winter Storm Mapping	GIS Data not available
3	1.1 (c)	Chester County	GIS Based Digital Severe Thunderstorm, Hail, and Lightning Mapping	Complete for Thunderstorms and Hail
4	1.1 (d)	Chester County	GIS Based Digital Wildfire Mapping	GIS Data not available
5	1.1 (e)	Chester County	GIS Based Digital Drought Mapping	GIS Data not available
6	1.2 (a)	Chester County	Chester County EMA ensures Hazard Mitigation Plans are kept Up To Date	Updated
7	1.2 (b)	Chester County	*Updating Current and Future Building and Zoning Ordinances for all jurisdictions in Chester County.	Updated
8	1.2 (c)	Chester County	Create a Countywide Disaster Mitigation Planning Team	Completed
9	2.1 (a)	Edgemoor	Funding for Raxter Road Bridge	Completed
10	2.1 (b)	Chester County	Chester County to prohibit or limit floodplain development	Updated
11	2.1 (c)	City of Chester	The City of Chester to prohibit or limit floodplain development	Updated
12	2.1 (d)	Town of Fort Lawn	The Town of Fort Lawn to prohibit or limit floodplain development	Updated
13	2.1 (e)	Town of Richburg	The Town of Richburg to prohibit or limit floodplain development	Updated
14	2.1 (f)	Town of Great Falls	The Town of Great Falls to prohibit or limit floodplain development	Completed
15	2.1 (g)	Town of Lowrys	The Town of Lowrys to prohibit or limit floodplain development	Updated
16	2.1 (h)	Town of Fort Lawn	Stormwater management plan for existing and new development areas in the Town of Fort Lawn	Updated
17	2.1 (i)	Town of Richburg	Phased study of stormwater management for future development in the Town of Richburg	Updated
18	3.1 (a)	Town of Fort Lawn	Town of Fort Lawn to develop School Programs for All Hazard awareness & preparedness	Completed

19	3.1 (b)	City of Chester	City of Chester to develop School Programs for All Hazard awareness & preparedness	Completed
20	3.1 (c)	Town of Richburg	Town of Richburg to develop School Programs for All Hazard awareness & preparedness	Completed
21	3.1 (d)	Town of Great Falls	Town of Great Falls to develop School Programs for All Hazard awareness & preparedness	Completed
22	3.1 (e)	Chester County	Chester County to develop School Programs for All Hazard awareness & preparedness	Completed
23	3.1 (f)	Chester County	Local Media to foster pre-disaster planning and training	Updated
24	3.1 (g)	Chester County	Create a Chester County Drought Task Force	Updated
25	3.1 (h)	Chester County	Swift water rescue team and equipment to handle water emergencies	New
26	4.1 (a)	Chester County	Inventory of Critical Facilities Lacking Back-up power	Completed
27	4.1 (b)	Chester County	Retro-Fit Critical Infrastructure with wiring for Portable Generators	Updated
28	4.1 (c)	Chester County	*Critical structures are able to sustain impact of significant natural disaster	Updated
29	4.1 (d)	Chester County	*Retro-Fit Deficient Critical Infrastructure Facilities	Updated
30	4.1 (e)	Chester County	Review of Emergency Shelters capabilities ensuring they are meeting current County needs	Completed
31	4.1 (f)	Chester County	*Chester County Government Buildings sustain maximum winds	Updated
32	4.1 (g)	Lowrys	Backup power to critical facilities in Lowrys	Updated
33	4.1 (h)	Chester County	Emergency generator for the Roddey Government Complex (County seat)	Completed
34	4.2 (a)	Chester County	Inventory Emergency Response Equipment needs	Completed
35	4.2 (b)	Town of Great Falls	Early Warning System for natural hazards	Updated
36	4.3 (a)	Chester County	Study to identify Communication Problems before, during, and after Disasters	Completed
37	4.3 (b)	Chester County	Purchase Emergency Response Communications Equipment	Completed
38	4.3 (c)	Chester County	Inventory of Emergency Response Communications Equipment	Completed
39	5.1 (a)	City of Chester	Stormwater Improvement Plan for the City of Chester	Updated

*Mitigation Goals to reduce or avoid long-term vulnerabilities to the identified hazards.

16. Implementation of Mitigation Actions ***Requirement: §201.6(c)(3)(iii):***	*[The mitigation strategy section **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.

D. Does the **updated** plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress, and if activities are unchanged (*i.e.*, deferred), does the updated plan describe why no changes occurred?

1 Goal: Local government will have the capability to develop, implement, and maintain effective mitigation programs.

1.1 Objective: Data and information needed for defining hazards, risk areas, and vulnerabilities in the community will be obtained.

1.1 (a) Project: Obtain detailed GIS-based digital flood mapping for the County and the City of Chester and the Towns of Fort Lawn, Lowrys, Richburg, and Great Falls. Currently the only available flood mapping for Chester County is FEMA FIRM maps which are not suitable for GIS based hazards analysis.

Priority: High
Feasibility: Medium
C/B Score: 4
Responsible: Chester County; SC DNR; SC GIS Coordinator
Funding: SC DNR, Federal or State Grant
Category: Prevention
Timeline: Completed in 2016 with ongoing updates
Status: This project was completed, but the data continues to be updated when the Hazard Mitigation Plan is updated. GIS based digital flood mapping is available through the FEMA Hazus-MH 3.1 software application. The data and mapping were used in the development of the 2016 Chester County Hazard Mitigation Plan. 2021 Update: Updated GIS data was used in the 2021 Chester County Hazard Mitigation Plan Update.
Hazards Addressed: Flooding

1.1(b) Project: Obtain more detailed GIS based digital winter storm mapping for the County and the City of Chester and the Towns of Fort Lawn, Lowrys, Richburg, and Great Falls. Currently the available winter storm mapping for Chester County incorporates only the County as a whole. More detailed winter storm mapping would enable a higher degree of GIS-based hazards analysis.

Priority: Low
Feasibility: Low
C/B Score: 3
Responsible: Chester County; SC DNR; NOAA; SC GIS Coordinator
Funding: Federal or State grant
Category: Prevention
Timeline: Ongoing evaluation

Status: Monitoring. Changed priority level to low in the 2010 plan update. As of April 2016, there was still no GIS data available for winter storms. 2021 Update: There was no GIS data available for winter storms more specific than that reported on a county level.

Hazards Addressed: Winter Storms

1.1(c) Project: Obtain more detailed GIS based digital severe thunderstorm, hail, and lightning mapping for the County and the City of Chester and the Towns of Fort Lawn, Lowrys, Richburg, and Great Falls. Currently the available severe thunderstorm, hail, and lightning mapping for Chester County incorporates only the County as a whole. More detailed severe thunderstorm, hail, and lightning mapping would enable a higher degree of GIS-based hazards analysis.

Priority: Low
Feasibility: Low
C/B Score: 3
Responsible: Chester County; SC DNR; NOAA; SC GIS Coordinator
Funding: Federal or State grant
Category: Prevention
Timeline: Ongoing evaluation
Status: GIS data for thunderstorms and hail was available and used in the development of the 2016 Chester County Hazard Mitigation Plan. We will continue to monitor GIS sources for lightning. 2021 Update: Updated GIS data was used in the 2021 Chester County Hazard Mitigation Plan Update. The County will pursue additional data from the National Weather Service for weather-based mapping.
Hazards Addressed: Thunderstorm, hail, and lightning

1.1(d) Project: Obtain more detailed GIS-based digital wildfire mapping for the County and the City of Chester and the Towns of Fort Lawn, Lowrys, Richburg, and Great Falls. Currently the available wildfire mapping for Chester County incorporates only the County as a whole. More detailed wildfire mapping would enable a higher degree of GIS-based hazards analysis.

Priority: Medium
Feasibility: Low
C/B Score: 3
Responsible: Chester County; SC DNR; Forestry Commission
Funding: SC DNR, Federal or State grant
Category: Prevention
Timeline: Ongoing evaluation and monitoring for GIS data source
Status: As of September 2021, there was still no GIS data available for wildfires.
Hazards Addressed: Wildfires

1.1(e) Project: Obtain more detailed GIS-based digital drought mapping for the County and the City of Chester and the Towns of Fort Lawn, Lowrys, Richburg, and Great Falls. Currently the available drought mapping for Chester County incorporates only the County as a whole. More detailed drought mapping would enable a higher degree of GIS-based hazards analysis.

Priority: Low
Feasibility: Low
C/B Score: 3
Responsible: Chester County; SC DNR; NOAA
Funding: Federal or State grant
Category: Prevention
Timeline: Ongoing monitoring for GIS data sources
Status: As of April 2016, there was still no GIS data available for droughts. 2021 Update: There was no GIS data available for droughts more specific than that reported on a county level.
Hazards Addressed: Droughts

1.2 Objective: The capability to effectively utilize and update available data and information related to mitigation planning will be implemented.

1.2 (a) Project: The County Emergency Management Division will assure that Hazard Mitigation Plans are kept up to date and disseminated to all relevant county and municipal offices.

Priority: High
Feasibility: High
C/B Score: 5
Responsible: Chester County
Funding: Chester County
Category: Prevention
Timeline: Revised Mitigation Plan to be delivered September 2021.
Status: The County EMD is utilizing the Mitigation Planning Team, Stakeholders, and public input to update the 2016 Hazard Mitigation Plan for the 5-year plan update cycle.
Hazards Addressed: All

1.2 (b) Project: The County building and zoning department and building and zoning departments for the City of Chester and the Towns of Fort Lawn, Richburg, and Great Falls will utilize the Hazard Mitigation Plan and its hazards analysis to assist in developing and updating current and future Land Development and Zoning ordinances.

Priority: High
Feasibility: High
C/B Score: 6
Responsible: Chester County

Funding: Chester County, City of Chester, and the Towns of Fort Lawn, Richburg, and Great Falls
Category: Prevention
Timeline: Expected date of completion June 2022
Status: The Floodplain Management/Stormwater Management Ordinances, Zoning and Land Development Ordinances, and Comprehensive Plans are all currently being updated. At least every three years, the Building Codes are updated through the adoption of the International Building Codes; Zoning and Land Development Ordinances and Floodplain Management/Stormwater Management Ordinances are updated as needed and from time to time; and Hazard Mitigation plan/initiatives for Chester County are updated at least every five years. 2021 Update: Chester County last updated its Floodplain Management Ordinance in 2017, updated its Sediment Control and Storm Drainage Ordinance in 1991, and is currently updating its Comprehensive Plan. The County Zoning Ordinance was adopted in 1998. The City of Chester is in the process of updating its Floodplain Management Ordinance, and the City adopted the County's current Sediment Control and Storm Drainage Ordinance. The City of Chester Zoning Ordinance has not been updated in its entirety since its adoption in 1997, but the City adopted an updated Comprehensive Land Use Ordinance and the Comprehensive Plan in 2019. The Town of Great Falls Code of Ordinances was last updated in 2017, and the Town does not have a Comprehensive Plan. The Town of Fort Lawn's Zoning Ordinance was adopted in 1999, and the Town does not have Floodplain Management/Stormwater Management Ordinances or a Comprehensive Plan. The Town of Richburg adopted a Comprehensive Plan in 2019 and the Planning and Zoning Ordinance in May 2021.
Hazards Addressed: All

1.2 (c) Project: A countywide disaster Planning Team will be developed to include not only County officials, but also representatives from the City of Chester and the Towns of Fort Lawn, Lowrys, Richburg, and Great Falls. This group will meet on a regular basis to ensure that data and documentation related to hazards mitigation is kept up to date.

Priority: High
Feasibility: High
C/B Score: 6
Responsible: Chester County
Funding: Chester County, City of Chester, and the Towns of Fort Lawn, Richburg, and Great Falls
Category: Prevention, Emergency Services, & Public Education & Awareness
Timeline: Planning Team Meeting to update 2021 Plan.

Status: Planning Team Meetings held on August 4 and August 25, 2021. Plan changes are in progress.

Hazards Addressed: All

2 Goal: All jurisdictions will have the capability to sustain a safe community during and after moderate or severe rains and flooding.

2.1 Objective: The public who reside in this area will not be affected by flooding conditions that caused an inconvenience and loss of work days.

2.1 (a) Project: The County of Chester and the Town of Richburg will work with Chester County EMA to achieve proper funding to replace the current bridge on Raxter Road with a 130 F pre-stressed concrete bridge. This will eliminate the flooding problems that occur in this area during moderate to heavy rainfall.

Priority: High
Feasibility: High
C/B Score: 4
Responsible: Chester County
Funding: Chester County and FEMA Grant
Category: Structural Project
Timeline: Completed
Status: Grant closed out. Project completed in August 2014.
Hazards Addressed: Flooding

15. Identification and Analysis of Mitigation Actions: National Flood Insurance Program (NFIP) Compliance ***Requirement: §201.6(c)(3)(ii):***	*[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.* *A.* Does the new or updated plan describe the jurisdiction (s) participation in the NFIP?

2.1 (b) Project: Chester County to prohibit or limit floodplain development through regulatory and/or incentive – based measures.

Priority: High
Feasibility: High
C/B Score: 3
Responsible: Chester County
Funding: Chester County and FEMA Grant
Category: Prevention
Timeline: Expected date of completion 2023
Status: 2021 Update: The ordinance was last updated in May 2017. Where possible the County is seeking funding to mitigate flood problem areas.
Hazards Addressed: Flooding

2.1 (c) Project: The City of Chester to prohibit or limit floodplain development through regulatory and/or incentive – based measures.

Priority: High
Feasibility: High
C/B Score: 3
Responsible: City of Chester
Funding: Chester County and FEMA Grant
Category: Prevention
Timeline: Expected date of completion 2023
Status: The Flood Mitigation Plan is currently being updated. 2021 Update: The City is currently adopting the Floodplain Management Prevention Ordinance. The City has undergone studies for flood prone areas and is applying for grant funds for needed infrastructure improvements. Specifically, the City has applied and is applying for Rural Infrastructure Authority and Chester County One Cent Sales Tax funds to make improvements in the Joe Collins Stadium area and other parts of the City.
Hazards Addressed: Flooding

2.1 (d) Project: The Town of Fort Lawn to prohibit or limit floodplain development through regulatory and/or incentive – based measures.

Priority: High
Feasibility: High
C/B Score: 3
Responsible: Town of Fort Lawn
Funding: Chester County and FEMA Grant
Category: Prevention
Timeline: Expected date of completion 2023
Status: The Flood Mitigation Plan is currently being updated. 2021 Update: The benefits of the National Flood Insurance Program will be provided to Fort Lawn in an effort to encourage participation in the National Flood Insurance Program.
Hazards Addressed: Flooding

2.1 (e) Project: The Town of Richburg to prohibit or limit floodplain development through regulatory and/or incentive – based measures.

Priority: High
Feasibility: High
C/B Score: 3
Responsible: Town of Richburg
Funding: Chester County and FEMA Grant
Category: Prevention
Timeline: Expected date of completion 2023

Status: The Flood Mitigation Plan is currently being updated. 2021 Update: The benefits of the National Flood Insurance Program will be provided to Richburg in an effort to encourage participation in the National Flood Insurance Program.

Hazards Addressed: Flooding

2.1 (f) Project: The Town of Great Falls to prohibit or limit floodplain development through regulatory and/or incentive – based measures.

Priority: High
Feasibility: High
C/B Score: 3
Responsible: Town of Great Falls
Funding: Chester County and FEMA Grant
Category: Prevention
Timeline: Completed
Status: The Flood Mitigation Plan is currently being updated. 2021 Update: The Town of Great Falls Code of Ordinances was updated in 2017 and still incudes an adoption of federal regulations of the National Flood Insurance Program.
Hazards Addressed: Flooding

2.1 (g) Project: The Town of Lowrys to prohibit or limit floodplain development through regulatory and/or incentive – based measures.

Priority: High
Feasibility: High
C/B Score: 3
Responsible: Town of Lowrys
Funding: Chester County and FEMA Grant
Category: Prevention
Timeline: Expected date of completion 2023
Status: The Flood Mitigation Plan is currently being updated. 2021 Update: The benefits of the National Flood Insurance Program will be provided to Lowrys in an effort to encourage participation in the National Flood Insurance Program.
Hazards Addressed: Flooding

2.1 (h) Project: Stormwater management plan for existing and new development areas in the Town of Fort Lawn.

Priority: High
Feasibility: Low
C/B Score: 6
Responsible: Town of Fort Lawn
Funding: State and Federal Grants

Category: Prevention & Environment & Property Protection
Timeline: Expected date of completion 2026
Status: 2021 Update: The Town has been working on the stormwater management plan and will continue to do so. A large company has committed to locating in Fort Lawn which may impact stormwater and thus will be considered in stormwater plans moving forward.
Hazards Addressed: Flooding

2.1 (i) Project: A phased study of stormwater management for future development in the Town of Richburg.
Priority: High
Feasibility: High
C/B Score: 4/5
Responsible: Town of Richburg
Funding: State and Federal Grants
Category: Prevention & Environment & Property Protection
Timeline: Pending funding.
Status: 2021 Update: No progress has been made on this phased study. There is no development going on currently. Until development comes through, there is no need for a stormwater runoff study. Because the Town is so small, the Town is not eligible for a federal grant. There is only one low-lying area in the Town, and building is not allowed in that area.
Hazards Addressed: Flooding

3 Goal: The community will have the capability to initiate and sustain emergency response operations during and after a disaster.

3.1 Objective: The public will be well informed of potential hazards and actions they can take to minimize damage and personal injury.

17. Multi-Jurisdictional Mitigation Actions ***Requirement §201.6(c)(3)(iv):***	*For multi-jurisdictional plans, there **must** be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.* *D.* Does the **new or updated** plan include identifiable **action items** for each jurisdiction requesting FEMA approval of the plan?

3.1 (a) Project: The Town of Fort Lawn will work with local school districts to develop programs aimed at teaching school children safety and disaster awareness.
Priority: High
Feasibility: High

C/B Score: 6
Responsible: Town of Fort Lawn, Chester County School, and Chester County Emergency Services.
Funding: Towns of Fort Lawn
Category: Public Education & Awareness
Timeline: Ongoing
Status: Developed Planning Team groups with the school district to provide training of how to respond to various hazards. Local media work with the community on how to respond to hazards i.e. storms, etc. Applied for grant to produce an all-hazards brochure. 2016 Update: The project was completed, and the grant was closed out in 2010 post Mitigation Plan adoption. 2021 Update: EMA has met with the new COO. School Resource Officers provide drug awareness and general safety education on an ongoing basis. Planned exercises and drills are performed by emergency services along with the school district at certain locations. EMA and the Sheriff's Office are in discussion with the school district to hold Joint Emergency Services Exercises, but a date has not been set.
Hazards Addressed: All.

3.1 (b) Project: The City of Chester will work with local school districts to develop programs aimed at teaching school children safety and disaster awareness.
Priority: High
Feasibility: High
C/B Score: 6
Responsible: City of Chester, Chester County School Superintendent, and Chester County Emergency Services
Funding: City of Chester
Category: Public Education & Awareness
Timeline: Ongoing
Status: Developed Planning Team groups with the school district to provide training of how to respond to various hazards. Local media work with school children on how to respond to hazards i.e. storms, etc. Applied for grant to produce an all-hazards brochure. 2016 Update: The project was completed, and the grant was closed out in 2010 post Mitigation Plan adoption. 2021 Update: EMA has met with the new COO. School Resource Officers provide drug awareness and general safety education on an ongoing basis. Planned exercises and drills are performed by emergency services along with the school district at certain locations. EMA and the Sheriff's Office are in discussion with the school district to hold Joint Emergency Services Exercises, but a date has not been set.
Hazards Addressed: All.

3.1 (c) Project: The Town of Richburg will work with local school districts to develop programs aimed at teaching school children safety and disaster awareness.

Priority: High
Feasibility: High
C/B Score: 6
Responsible: Town of Richburg, Chester County School Superintendent, and Chester County Emergency Services
Funding: Town of Richburg
Category: Public Education & Awareness
Timeline: Ongoing
Status: Developed Planning Team groups with the school district to provide training of how to respond to various hazards. Local media work with school children on how to respond to hazards i.e. storms, etc. Applied for grant to produce an all-hazards brochure. 2016 Update: The project was completed, and the grant was closed out in 2010 post Mitigation Plan adoption. 2021 Update: EMA has met with the new COO. School Resource Officers provide drug awareness and general safety education on an ongoing basis. Planned exercises and drills are performed by emergency services along with the school district at certain locations. EMA and the Sheriff's Office are in discussion with the school district to hold Joint Emergency Services Exercises, but a date has not been set.
Hazards Addressed: All.

3.1 (d) Project: The Town of Great Falls will work with local school districts to develop programs aimed at teaching school children safety and disaster awareness.

Priority: High
Feasibility: High
C/B Score: 6
Responsible: Town of Great Falls, Chester County School Superintendent, and Chester County Emergency Services
Funding: Town of Great Falls
Category: Public Education & Awareness
Timeline: Ongoing
Status: Developed Planning Team groups with the school district to provide training of how to respond to various hazards. Local media work with school children on how to respond to hazards i.e. storms, etc. Applied for grant to produce an all-hazards brochure. 2016 Update: The project was completed, and the grant was closed out in 2010 post Mitigation Plan adoption. 2021 Update: EMA has met with the new COO. School Resource Officers provide drug awareness and general safety education on an ongoing basis. Planned exercises and drills are performed by emergency services along with the school district at certain

locations. EMA and the Sheriff's Office are in discussion with the school district to hold Joint Emergency Services Exercises, but a date has not been set.

Hazards Addressed: All.

3.1 (e) Project: The County will work with local school districts to develop programs aimed at teaching school children safety and disaster awareness.

Priority: High
Feasibility: High
C/B Score: 6
Responsible: Chester County School Superintendent and Chester County Emergency Services
Funding: Chester County, City of Chester, and the Towns of Fort Lawn, Richburg, and Great Falls
Category: Public Education & Awareness
Timeline: Ongoing
Status: Developed Planning Team groups with the school district to provide training of how to respond to various hazards. Local media work with school children on how to respond to hazards i.e. storms, etc. Applied for grant to produce an all-hazards brochure. 2016 Update: The project was completed, and the grant was closed out in 2010 post Mitigation Plan adoption. 2021 Update: EMA has met with the new COO. School Resource Officers provide drug awareness and general safety education on an ongoing basis. Planned exercises and drills are performed by emergency services along with the school district at certain locations. EMA and the Sheriff's Office are in discussion with the school district to hold Joint Emergency Services Exercises, but a date has not been set.

Hazards Addressed: All.

3.1 (f) Project: The County and the City of Chester and the Towns of Fort Lawn, Richburg, and Great Falls will work with local media to distribute and publicize hazard information and foster community-based pre-disaster planning.

Priority: High
Feasibility: High
C/B Score: 6
Responsible: Chester County
Funding: Chester County, City of Chester, and the Towns of Fort Lawn, Richburg, and Great Falls
Category: Public Education & Awareness
Timeline: Ongoing
Status: Local media is currently working with the community on how to respond to natural hazards. Applied for grant to produce an all-hazards brochure for use in schools. 2016 Update: An

all-hazards brochure was produced by the Chester County Emergency Management Agency and distributed to County residences during hurricane season. *The Chester News and Reporter* published the following pre-disaster planning resources; 'A new disaster preparedness mobile app' from the Insurance Institute for Business & Home Safety (IBHS) App on August 28, 2012, 'Basic emergency response training available' to the public on July 19-21, 2013, 'Fort Lawn is "disaster ready"' on April 4, 2013, 'Chester County Red Cross Prepare before disaster strikes' on July 21, 2001, and 'County holds mock disaster drill' February 2, 2012. *The News and Reporter* is notified of and reports on disaster exercises conducted in the County. 2021 Update: The County has a Reverse 911 program called Code Red to alert residents to emergencies in the community. The County and the localities within it will continue to publicize the Code Red program and encourage citizens to register. Also, Chester County EMA has a Facebook and Instagram page where alerts are posted, and *The Chester News and Reporter* publishes articles one to two times a month. All are avenues by which the public can be made aware of hazard information and encouraged to participate in pre-disaster planning.

Hazards Addressed: All.

3.1 (g) Project: The County and the City of Chester and the Towns of Fort Lawn, Richburg, and Great Falls will be able to maintain drought task force as represented to monitor drought status changes. This group will be activated upon status change conditions.

Priority: High
Feasibility: High
C/B Score: 6
Responsible: Chester County; Chester Metropolitan District
Funding: Chester County; City of Chester; and the Towns of Fort Lawn, Richburg, and Great Falls
Category: Public Education & Awareness & Natural Resource Protection
Timeline: SCDRC monitors drought conditions. When conditions begin to deteriorate, the SCDNR will convene a meeting (see 2016 and 2021 update below).
Status: Activated Task Force in 2007. 2016 Update: The South Carolina Drought Response Committee (SCDRC) met on June 19, 2015, to upgrade drought status for 28 counties to level one drought. Chester County was one of the 28 in level one drought conditions. The SCDRC has a website hosted by the Department of Natural Resources (DNR) at http://www.dnr.sc.gov/climate/sco/Drought. 2021 Update: The County and City of Chester and the Towns of Fort Lawn, Richburg, and Great Falls continue to maintain a drought task force to be activated when needed.

Hazards Addressed: Drought

Add New 3.1 (h) Swift water rescue team and equipment to handle water emergencies inside the County and to deploy to other parts of South Carolina.

3.1 (h) Project: Swift water rescue team and equipment to handle water emergencies inside the County and to deploy to other parts of South Carolina.

Priority: Medium
Feasibility: High
C/B Score: 4
Responsible: Chester County Fire Service
Funding: Chester County Fire Service, Duke Energy, federal and state grants
Category: Emergency Services
Timeline: Estimated completion 2023
Status: The Chester County Fire Marshal's office is fully equipped for 8 rescuers. There will be continued efforts to obtain needed equipment and training for the swift water rescue team.
Hazards Addressed: Flooding and flash flooding

4 Goal: The continuity of local government operations will not be significantly disrupted in the event of a disaster, and the local government will be able to effectively meet the needs of the community in the event of a disaster.

14. Identification and Analysis of Mitigation Actions ***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. C. Do the identified actions and projects address reducing the effects of hazards on existing buildings and infrastructure?

4.1 Objective: Buildings and facilities used for routine and emergency response within the County and its municipalities will be able to withstand the impact of disasters.

4.1 (a) Project: An inventory / study will be conducted to identify facilities within the County and the City of Chester and the Towns of Fort Lawn, Lowrys, Richburg, and Great Falls lacking proper back-up power needed to sustain critical operations during a disaster.

Priority: High
Feasibility: High
C/B Score: 5
Responsible: Chester County, Catawba Regional COG
Funding: Chester County, Federal or State grant

Category: Emergency Services & Prevention
Timeline: Completed
Status: Updated in the 2016 plan revision. Chester County critical infrastructure list includes all jurisdictions and identifies facilities without back-up power. 2021 Update: One critical facility, the Fort Lawn Fire Sub Station, was added to the list, and it does not have back-up power.
Hazards Addressed: All.

4.1 (b) Project: Facilities identified as deficient in having proper back-up power will be fitted with equipment necessary to keep critical operations running in the event of a disaster. This would include, but is not limited to, such items as retro-fitting wiring for portable generator use or the acquisition of on-site back-up generators.

Priority: High
Feasibility: Low
C/B Score: 4
Responsible: Chester County
Funding: Federal or State grant
Category: Emergency Services & Prevention
Timeline: Working
Status: 3 critical facilities were awarded grants for switch gears and shorelines. 2021 Update: Switch Gears, shorelines, and generators have been installed in the Chester County Government Complex, Lando Fire Department, and Great Falls Fire Department. Two facilities have been applied for and received tentative approval for generators at the Chester County Airport and the Fort Lawn Fire Department. County will continue to apply for grants moving forward.
Hazards Addressed: All.

4.1 (c) Project: An inventory / study will be conducted to identify emergency response and critical facilities within the County and the City of Chester and the Towns of Fort Lawn, Lowrys, Richburg, and Great Falls whose structures are not capable of sustaining the impact of a significant natural disaster.

Priority: High
Feasibility: High
C/B Score: 4
Responsible: Chester County; Catawba Regional COG
Funding: Chester County; City of Chester; and the Towns of Fort Lawn, Richburg, and Great Falls
Category: Emergency Services & Prevention
Timeline: Completed
Status: Chester County Critical infrastructures list was updated for the 2016 plan to include hazards and portable generators. The information for capabilities of sustaining the impact of a

significant natural disaster is in progress. 2021 Update: Critical infrastructure has been identified with capabilities. Any deficiencies at each critical infrastructure will be addressed as mitigation grant funding is applied for and awarded. The County is considering conducting a traffic study to incorporate community lifelines, signage, routes, and other types of technology systems.

Hazards Addressed: All.

4.1 (d) Project: Facilities identified as deficient in having the necessary structural integrity to sustain a significant disaster will be either retro-fitted or relocated so as to be able to sustain such disasters. This would include, but is not limited to, such items as retro-fitting shingles, windows, and doors for higher wind tolerances.

Priority: High
Feasibility: Low
C/B Score: 4
Responsible: Chester County; City of Chester; and the Towns of Fort Lawn, Richburg, and Great Falls
Funding: Federal or State grant
Category: Property Protection
Timeline: Review of infrastructure complete.
Status: Only two of the critical infrastructure facilities in Chester County meet the requirements for the necessary structural integrity to sustain a significant disaster. The Chester County Career Center and Chester High School meet the hurricane shelter safety criteria of the American Red Cross' Standards for Hurricane Evacuation Shelter Selection (ARC 4496). The Chester County Emergency Operations Command Center needs to be relocated and is currently pursuing retrofitting an existing building or building a new facility in order to meet the above guidelines. The Chester County Government Complex is currently undergoing a roof enhancement which will ultimately provide two roof systems, the existing and the new. 2021 Update: Critical infrastructure has been identified with capabilities. Any deficiencies at each critical infrastructure will be addressed as mitigation grant funding is applied for and awarded.

Hazards Addressed: All.

4.1 (e) Project: A regular review of existing emergency shelters will take place to determine if they are sufficient to meet the needs of the County and the City of Chester and the Towns of Fort Lawn, Richburg, and Great Falls in the event of a disaster. If they are not, potential additional shelters will be sought out.

Priority: High
Feasibility: High

C/B Score: 4
Responsible: Chester County, Catawba Regional COG
Funding: Chester County, Federal or State grant
Category: Prevention
Timeline: Original project completed, see 2021 Update
Status: Shelters are inspected annually and categorized for use based on specific hazards including population, capacity, resources, etc. 2016 Update: The County shelters were updated on March 15, 2016, during a state-wide earthquake exercise. The updated list is included on the Critical Infrastructure List in this plan and includes nine additional American Red Cross supported shelters. 2021 Update: The jurisdictions of the Town of Great Falls and City of Chester are considering recreational park shelters (community safe rooms) for park visitors.
Hazards Addressed: All.

14. Identification and Analysis of Mitigation Actions ***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. B. Do the identified actions and projects address reducing the effects of hazards on **new** buildings and infrastructure?

4.1 (f) Project: Ensure that new government buildings are built to sustain maximum winds.
Priority: High
Feasibility: High
C/B Score: 5
Responsible: Chester County, Catawba Regional COG
Funding: Chester County, Federal or State grant
Category: Structural & Property Protection
Timeline: 2 fire station complete, 2 in progress
Status: Three new fire stations in Chester County are Risk Category II Buildings and are able to withstand wind speeds up to 170 mph. 2021 Update: Richburg and West Chester Fire Stations have been constructed. North Chester and Lewis Fire Departments are proposing to build two new stations that will meet the wind speeds of 170 mph.
Hazards Addressed: Windstorms.

4.1 (g) Project: Backup power for critical facilities in Lowrys.
Priority: High
Feasibility: Medium

C/B Score: 5
Responsible: Chester County EMA, Chester County Facilities Management, Town of Lowrys
Funding: Federal or State grant HMGP
Category: Emergency Services & Prevention
Timeline: In progress – Volunteer fire department
Status: Complete. 2021 Update: The North Chester Fire Department in Lowrys does have backup generator power.
Hazards Addressed: All.

4.1 (h) Project: Backup power for the Chester County Government Complex (seat of county government) – Roddey Building.
Priority: High
Feasibility: High
C/B Score: 4/5
Responsible: Chester County
Funding: Federal or State grant HMGP, Chester County
Category: Emergency Services & Prevention
Timeline: Grant applied for. Start pending funding.
Status: Complete
Hazards Addressed: All.

4.2 Objective: Equipment used for routine and emergency response within the County and its municipalities will be able to withstand the impact of disasters.

4.2 (a) Project: An inventory / study will be conducted to identify emergency response equipment needs throughout the County and the City of Chester and the Towns of Fort Lawn, Richburg, and Great Falls. Funding for meeting those needs will be explored through potential grant avenues.
Priority: High
Feasibility: High
C/B Score: 5
Responsible: Chester County; Catawba Regional COG
Funding: Chester County; City of Chester; and the Towns of Fort Lawn, Richburg, and Great Falls
Category: Emergency Services & Prevention
Timeline: Inventory complete
Status: In process of conducting inventory of all fire service stations. Plan for replacement/repairs is in place. All emergency service plans are reviewed annually. 2016 Update: The County conducted and inventory of all station/facility and rolling equipment. All new equipment purchases meet National Fire Protection Association (NFPA) standards. 2021 Update: Grant funding is up to the individual departments and has been obtained by the following fire departments:

Fort Lawn, Richburg, Lando, North Chester, South Chester, West Chester, and Lewis.

Hazards Addressed: All.

4.2 (b) Project: Early warning system for natural hazards.

Priority: High
Feasibility: High
C/B Score: 5
Responsible: Chester County, Town of Great Falls
Funding: Duke Energy & Federal and State grants
Category: Emergency Services & Prevention
Timeline: Expected date of completion 2026
Status: Four sirens installed, future potential sites will be considered and evaluated based on population growth. 2021 Update: The possibility of adding a siren in the Town of Great Falls is still under evaluation in conjunction with the promotion of Code Red. The County will provide information on Code Red to the Town in 2021 and on an ongoing basis to encourage participation.
Hazards Addressed: All

4.3 Objective: Communication between relevant emergency response personnel within the County and municipalities will be open and uninhibited before, during, and after a disaster.

4.3 (a) Project: An inventory / study will be conducted to identify communication problems throughout the County; the City of Chester and the Towns of Fort Lawn, Lowrys, Richburg, and Great Falls. This would include the inability for adjacent jurisdictions to communicate before, during, and after a disaster as well as areas within the County and its municipalities where communication is not possible.

Priority: High
Feasibility: High
C/B Score: 4
Responsible: Chester County; Catawba Regional COG
Funding: Chester County, City of Chester, and the Towns of Fort Lawn, Richburg, and Great Falls, Federal or State grant
Category: Prevention
Timeline: Completed
Status: Applied for a grant to upgrade County radio equipment. Inventory of radio equipment for EMS, Sheriff, Fire Service, and Rescue Squad has been completed. 2016 Update: the above inventory was completed and resulted in Project 4.3 (b) purchases and installations.
Hazards Addressed: All

4.3 (b) Project: Equipment will be purchased to ensure that communication between relevant emergency response personnel within the County and municipalities will be open and uninhibited before, during, and after a disaster.

Priority: High
Feasibility: Low
C/B Score: 4
Responsible: Chester County
Funding: Federal or State grant
Category: Prevention & Emergency Services
Timeline: In Progress, expected completion date 2023
Status: Installing a new Simulcast System designed for simultaneous transmission of the same radio broadcast on two or more channels. This system will ensure that Fire, EMS, and Law enforcement have the capability to communicate with one another. Repeaters will also be installed in weak radio communications areas. Mutual Aid agreements with adjacent County fire departments are in place. Simulcast radios are placed in key emergency response vehicles in adjacent counties to communicate across county lines. 2021 Update: The County is going to update to an 800 MHz Radio System for all Emergency Services and the school district. This will allow interoperability within the County and the State.
Hazards Addressed: All.

4.3 (c) Project: Inventory of Emergency Response Communications Equipment.

Priority: High
Feasibility: Low
C/B Score: 4
Responsible: Chester County
Funding: Federal or State grant
Category: Prevention & Emergency Services
Timeline: Complete
Status: New Simulcast System for Emergency Response Communications Equipment inventory is complete.
Hazards Addressed: All.

5 Goal: The City of Chester will have the capability to sustain a safe community during and after moderate or severe rains and flooding.

5.1 Objective: The public who resides in the City will not be affected by flooding. Stormwater improvement plan.

5.1 (a) Project: East Chester - replace and redesign drainage system and improve existing culverts (Carr Street, Mobley Street, and Saluda Street)

Priority: High
Feasibility: High
C/B Score: 4/5
Responsible: SC Department of Transportation, City of Chester
Funding: CDBG and Federal or State grant
Category: Prevention
Timeline: Phase 1 – 2017; Phase 2 – Mobley Street & Saluda Street
Status: Current CDBG Grant to solve some issues in East Chester. Searching for additional funding. 2021 Update: This strategy was combined with 2.1(c).
Hazards Addressed: Flooding.

SECTION 6: MITIGATION STRATEGY REVISION HISTORY

Section 6 - Mitigation Strategy REVISION HISTORY		
Date	**Section**	**Revision Detail**
1/15/2010	Section 9 – 2 Goal Raxter Road	Added the following Goal: The Raxter Road residents will have the capability to sustain a safe community during and after moderate or severe rains and flooding.
1/15/2010	Section 9 – 2.1 Objective Raxter Road	Add the following Objective: The public who reside in this area will not be affected by flooding conditions that caused an inconvenience and loss of work days. This is accomplished by building a bridge that will eliminate the flooding problems on Raxter Road.
7/21/2010	Section 9 – Mitigation Projects	Added Timeline, category & status to all mitigation projects.
7/28/2010	Section 9 – Mitigation Projects	Added a numbering index to the Mitigation Initiative Goals, Objectives, & Projects.
7/27/2010	1.1 (a) Project: GIS Based Digital Flood Mapping Obtain detailed GIS based digital flood mapping	Added the following information to the mitigation project: Responsible: SC GIS Coordinator Category: Prevention Timeline: Expected completion - 2015 Status: SC DNR is actively pursuing the completion of this project.
7/27/2010	1.1 (b) Project: GIS Based Digital Winter Storm Mapping	Added the following information to the mitigation project: Priority: Changed from Medium to Low Responsible: SC GIS Coordinator Category: Prevention Timeline: Ongoing evaluation Status: Changed priority level to low. No new data available.
7/27/2010	1.1 (c) Project: GIS Based Digital Severe Thunderstorm, Hail, and Lightning Mapping	Added the following information to the mitigation project: Priority: Changed from Medium to Low Responsible: SC GIS Coordinator Category: Prevention Timeline: Updates to be included in the Augus 2015 revision of the plan. Status: Updating lightning data including injury and/or property damage.
7/27/2010	1.1 (d) Project: GIS Based Digital Wildfire Mapping	Added the following information to the mitigation project: Responsible: Forestry Commission Category: Prevention Timeline: Maintaining current data. Status: Unchanged from 2005 Hazard Mitigation Plan
7/27/2010	1.1 (e) Project: GIS Based Digital Drought Mapping	Added the following information to the mitigation project: Category: Prevention Timeline: Expected completion August 2010 Status: Updating current data with 2005-2010 events.
7/27/2010	1.2 (a) Hazard Mitigation Plans are kept Up-To-Date	Changed the following information: From: Emergency Management Division will take a lead role in assuring that Hazard Mitigation Plans are kept up to date. To: Emergency Management Division will assure that Hazard Mitigation Plans are kept up to date Added the following information to the mitigation project: Category: Prevention Timeline: Revised Mitigation Plan to be delivered September 2010. Status: Updating 2005 Plan for the 5 Year plan update cycle. Utilizing Mitigation Planning Team & Public input.
7/27/2010	1.2 (b) Project: Updating Current and Future Building and Zoning Ordinances	Added the following information to the mitigation project: Category: Prevention Timeline: Ongoing Status: Every three years Building Codes, Zoning Ordinances and Floodplain plans are updated and include Hazard Mitigation initiatives for Chester County
7/27/2010	1.2 (c) Project: Countywide Disaster Planning Team	Added the following information to the mitigation project: Category: Prevention, Emergency Services, & Public Education & Awareness

Section 6 - Mitigation Strategy REVISION HISTORY		
Date	**Section**	**Revision Detail**
		Timeline: Planning Team Meeting to update 2005 Plan. Status: Planning Team Meetings held on July 27 & Aug. 24. 2005 Plan changes in progress.
7/27/2010	Mitigation Initiative Project List	Added a table of Mitigation Initiative Projects.
7/27/2010	2.1 (a) Project: Funding for Raxter Road Bridge	Added the following new project: The County of Chester and the Town of Richburg will work with Chester County EMA to achieve proper funding to replace the current bridge on Raxter Road with a 130 F pre-stressed concrete bridge. This will eliminate the flooding problems that occur in this area during moderate to heavy rainfall. Priority: High Feasibility: High C/B Score: 4 Responsible: Chester County Funding: Chester County and FEMA Grant Category: Structural Project Timeline: Second level review expected completion by Aug. 2011. Status: Grant application under FEMA review.
7/27/2010	2.1 (b) Project: Chester County to Prohibit or Limit Floodplain Development	Added the following new NFIP Mitigation Initiative to Chester County: Prohibit or limit floodplain development through regulatory and/or incentive – based measures. Priority: High Feasibility: High C/B Score: 3 Responsible: Chester County – All jurisdictions Funding: Chester County and FEMA Grant Category: Prevention Timeline: Ongoing Status: New
7/27/2010	2.1 (c) Project: The City of Chester to Prohibit or limit floodplain development.	Added the following new NFIP Mitigation Initiative to the City of Chester: Prohibit or limit floodplain development through regulatory and/or incentive – based measures. Priority: High Feasibility: High C/B Score: 3 Responsible: City of Chester Funding: Chester County and FEMA Grant Category: Prevention Timeline: Ongoing Status: New
7/27/2010	Section 9: Critical Infrastructure	Updated the Chester County Critical Infrastructure list to include all facilities in all jurisdictions.
7/27/2010	2.1 (d) Project: The Town of Fort Lawn to Prohibit or limit floodplain development.	Added the following new NFIP Mitigation Initiative to the Town of Fort Lawn: Prohibit or limit floodplain development through regulatory and/or incentive – based measures. Priority: High Feasibility: High C/B Score: 3 Responsible: Town of Fort Lawn Funding: Chester County and FEMA Grant Category: Prevention Timeline: Ongoing Status: New
7/27/2010	2.1 (e) Project: The Town of Richburg to Prohibit or limit floodplain development.	Added the following new NFIP Mitigation Initiative to the Town of Richburg: Prohibit or limit floodplain development through regulatory and/or incentive – based measures. Priority: High Feasibility: High

Section 6 - Mitigation Strategy REVISION HISTORY		
Date	**Section**	**Revision Detail**
		C/B Score: 3 Responsible: Town of Richburg Funding: Chester County and FEMA Grant Category: Prevention Timeline: Ongoing Status: New
7/27/2010	2.1 (f) Project: The Town of Great Falls to Prohibit or limit floodplain development.	Added the following new NFIP Mitigation Initiative to the Town of Great Falls: Prohibit or limit floodplain development through regulatory and/or incentive – based measures. Priority: High Feasibility: High C/B Score: 3 Responsible: Town of Great Falls Funding: Chester County and FEMA Grant Category: Prevention Timeline: Ongoing Status: New
7/27/2010	3.1 (a) Project: Develop School Programs	Changed the Following information: Responsible: Added: Chester County School Superintendent and Chester County Emergency Services Removed: Chester County Added the following information to the mitigation project: Category: Public Education & Awareness Timeline: Ongoing Status: Developed Planning Team groups within the schools training of how to respond to various hazards. Local media work with school children on how to respond to hazards i.e. storms, etc. Applied for grant to produce an all-hazards brochure.
7/27/2010	3.1 (b) Project: Local Media foster pre-disaster planning	Added the following information to the mitigation project: Category: Public Education & Awareness Timeline: Ongoing Status: Local media is currently working with the community on how to respond to natural hazards. Applied for grant to produce an all hazards brochure for use in schools.
7/27/2010	3.1 (c) Project: Drought Task Force	Added the following information to the mitigation project: Responsible: Chester Metropolitan District Category: Public Education & Awareness and Natural Resource Protection Timeline: Ongoing Status: Activated Task Force in 2007
7/27/2010	4.1 (a) Project: Inventory of Critical Facilities Lacking Back-up power.	Added the following information to the mitigation project: Category: Emergency Services & Prevention Timeline: To be included in 2015 Plan revision. Status: Updated Chester County critical infrastructure list to include all jurisdictions. Still need to identify facilities without back-up power.
7/27/2010	4.1 (b) Retro-Fitting Wiring for Portable Generator	Added the following information to the mitigation project: Category: Emergency Services & Prevention Timeline: Project to begin following 2015 Plan revisions Status: Critical facilities without back-up power have not been identified.
7/27/2010	4.1 (c) Project: Structures able to sustain impact of significant natural disaster	Added the following information to the mitigation project: Category: Emergency Services & Prevention Timeline: Not required for the 2010 revision. To be include on the 2015 revision. Status: Chester County Critical infrastructures have be identified.
7/27/2010	4.1 (d) Project: Retro-Fitting Deficient Critical Infrastructure Facilities	Added the following information to the mitigation project: Category: Property Protection Timeline: To begin following 2015 Plan revision Status: Start pending 2015 Plan revision.
7/27/2010	4.1 (e) Project: Review of Emergency Shelters	Added the following information to the mitigation project: Category: Prevention

Section 6 - Mitigation Strategy REVISION HISTORY		
Date	**Section**	**Revision Detail**
	capabilities meeting current needs.	Timeline: Ongoing Status: Shelters are inspected annually and categorized for use based on specific hazards including population, capacity, resources, etc.
7/27/2010	4.1 (f) Project: Government Buildings sustain maximum winds.	Added the following new project: Ensure that new government buildings are build to sustain maximum winds. Priority: High Feasibility: High C/B Score: 5 Responsible: Chester County, Catawba Regional COG Funding: Chester County, Federal or State grant Category: Structural & Property Protection Timeline: Ongoing; as new buildings government buildings are planned. Status: New
7/27/2010	4.2 (a) Project: Inventory Emergency Response Equipment needs.	Added the following information to the mitigation project: Category: Emergency Services & Prevention Timeline: Ongoing Status: In process of conducting inventory of all fire service stations. Plan for replacement/repairs is in place. All emergency service plans are reviewed annually.
7/27/2010	4.3 (a) Project: Study to identify Communication Problems before, during and after Disasters	Added the following information to the mitigation project: Category: Prevention Timeline: Ongoing Status: Applied for a grant to upgrade county radio equipment. Inventory of radio equipment for EMS, Sheriff, Fire Service, and Rescue Squad has been completed.
7/27/2010	4.3 (b) Project: Purchase Emergency Response Communications Equipment	Added the following information to the mitigation project: Category: Prevention & Emergency Response Timeline: Ongoing Status: Pending grant application approval. Additional grants to be applied for.
7/27/201	4.4 Objective: Communication	Deleted the following objective: Objective**:** Communication between relevant emergency response personnel within the county and municipalities will be open and uninhibited before, during, and after a disaster. Combined with 4.3 Objective.
7/27/2010	4.4 (a) Project: Inventory of Emergency Response Communications Equipment	Deleted the following objective and combined with 4.2 (a). An inventory / study will be conducted to identify emergency response equipment and communication needs throughout the county and the City of Chester, and the Towns of Fort Lawn, Richburg, and Great Falls. Funding for meeting those needs will be explored through potential grant avenues.
7/27/2010	2 Goal: Raxter Road	Change to Goals and Projects: 1. Changed from Raxter Road Goal from safe passage of residents across Tinkers Creek during and after disasters to Raxter Road residents will have the capability to sustain a safe community during and after moderate or severe rains and flooding.
7/27/2010	Section 9: Introduction	Removed the following paragraphs from the Section 9 Introduction: Due to the overall rural nature of the county and the history of emergency response cooperation between the county and municipalities, it is assumed that all projects would be joint efforts between the county and relevant municipal areas. In keeping with that spirit of historical cooperation, Mitigation Initiatives have not been broken down by individual jurisdictions. Rather, broad initiatives have been developed that include a wide range of project possibilities that do not restrict or confine projects to any particular geographic area or facility. Projects are conducive to all participating jurisdictions.
11/30/2015	Section 6: Mitigation Strategy	Table 6.0: Added Jurisdiction column and participating jurisdiction to the table.

Section 6 - Mitigation Strategy REVISION HISTORY		
Date	**Section**	**Revision Detail**
11/30/2015	Section 6: Mitigation Strategy	Table 6.0 Mitigation Initiatives – Added mitigation initiatives status column and updated status.
11/30/2015	Section 6: Mitigation Strategy	Added 2.1 (g) Town of Lowrys floodplain development initiative.
11/30/2015	Section 6: Mitigation Strategy	Added 2.1 (h) Flooding Feasibility Study for the City of Chester.
11/30/2015	Section 6: Mitigation Strategy	Added 2.1 (i) Flooding Feasibility Study for the County of Chester on Hopps Road.
4/27/2016	Section 6: Mitigation Strategy	Updated status of mitigation initiatives. Still waiting on Department of Education Grand update.
4/27/2016	Section 6: Mitigation Strategy	Imitative 3.1(e) Corrected the wording to say “Chester County” not the local media.
5/5/2016	Section 6: Mitigation Strategies	As per the Initial Planning Meeting all mitigation initiative statuses were updated to completed or updated except 3.1 a-e. All update details are included in the status and timeline section for each initiative. 11 mitigation initiatives have been completed since the 2010 plan revision.
5/5/2016	Section 6: Mitigation Strategies	Added 6 new mitigation initiatives. One for each participating jurisdiction.
5/26/2016	Section 6: Mitigation Strategies	Updated initiatives 3.1 a-e to completed with detail in the status section for each initiative. 4 additional mitigation initiatives have been completed bringing the total completed initiatives to 15 since the 2010 plan revision.
6/15/2016	Section 6: Mitigation Strategies	Added Hazards Addressed to all mitigation initiatives.
9/2/2021	Section 6: Mitigation Strategies	Added 1 new mitigation strategy.
9/8/2021	Section 6: Mitigation Strategies	Added a 2021 update to the ongoing strategies.
9/13/2021	Section 6: Mitigation Strategies	Removed “This is accomplished by building a bridge that will eliminate the flooding problems on Raxter Road.” from Objective 2.1.
9/15/2021	Section 6: Mitigation Strategies	Clarified language of 1.2 (b) Project description.
9/21/2021	Section 6: Mitigation Strategies	Renumbered table.
2/1/2022	Section 6: Mitigation Strategies Pg. 194, 4.1 (g)	Found post FEMA review and approval, pending jurisdiction adoption. Changed status to remove the word NOT. The project was complete. 2021 Update: The North Chester Fire Department in Lowrys does ~~not~~ have backup generator power.

Section 7: Plan Maintenance

PLAN MAINTENANCE PROCESS

This section discusses how the mitigation projects will be implemented by participating jurisdictions and how the overall Hazard Mitigation Plan will be evaluated and enhanced over time. This section also discusses how the public will continue to be involved in the hazard mitigation planning process. This section consists of the following subsections:

- Implementation
- Monitoring, Evaluating, and Updating
- Continued Public Involvement
- Plan Update Requirement

Each jurisdiction participating in this plan is responsible for implementing specific mitigation actions as prescribed in their locally adopted mitigation projects. In each mitigation project every proposed action is assigned a responsible jurisdiction in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation projects as needed without altering the broader focus of the multi-jurisdictional plan.

It will be the responsibility of each participating jurisdiction to determine additional implementation procedures beyond those listed within their mitigation project. This includes integrating the requirements of the Hazard Mitigation Plan into other local planning documents, processes, or mechanisms when appropriate. Chester County intends to create a process by which the requirements of this plan will be incorporated into other local plans. During the planning process for new and updated local planning documents, such as a comprehensive plan, capital improvements plan, or emergency management plan, to name a few examples, emergency management officials will provide a copy of the plan to each respective Planning Team member. The members of the Planning Team will remain charged with ensuring that the goals and strategies of new and updated local planning documents for their jurisdictions or agencies are consistent with the goals and actions of the Hazard Mitigation Plan and will not contribute to increased vulnerability in Chester County.

	*[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, when appropriate.*
19. Incorporation into Existing Planning Mechanisms ***Requirement §201.6(c)(4)(ii)***	A. Does the **new or updated** plan identify other local planning mechanisms available for incorporating the mitigation requirements of the mitigation plan? B. Does the **new or updated** plan include a process by which the local government will incorporate the mitigation strategy and other information contained in the plan (*e.g.*, risk assessment) into other planning mechanisms, when appropriate?

4. Documentation of the Planning Process ***Requirement §201.6(b):***	***Requirement §201.6(b):*** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process* ***shall*** *include:* A. Does the plan provide a narrative description of the process followed to prepare the **new or updated** plan?

Beginning in March of 2021, this plan was updated as required by SCEM and FEMA. After a review of FEMA's requirements for local hazard mitigation plan updates, the Planning Team reviewed and analyzed each section of the plan and determined that each section needed to be updated to some degree to meet the requirements. Notable revisions are listed at the end of each section.

18. Monitoring, Evaluating, and Updating the Plan ***Requirement §201.6(c)(4)(i)***	***Requirement §201.6(b):*** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process [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.* A. Does the **new or updated** plan describe the method and schedule for **monitoring** the plan, including the responsible department? B. Does the **new or updated** plan describe the method and schedule for **evaluating** the plan, including how, when and by whom (*i.e.* the responsible department)? C. Does the **new or updated** plan describe the method and schedule for **updating** the plan within the five-year cycle?

Periodic revisions and updates of the plan are required to ensure that the goals of the plan are kept current, taking into account potential changes in hazard vulnerability and mitigation priorities. In addition, revisions may be necessary to ensure that the plan is in full compliance with applicable federal and state regulations. Periodic evaluation of the plan will also ensure that specific mitigation actions are being reviewed and carried out according to each jurisdiction's individual mitigation projects.

Regular meetings of the Chester County Planning Team will take place on an annual basis, facilitated by **Ed Darby the Chester County Emergency Management Interim Director**, during the first week in June—on or around June 1—current with the Atlantic hurricane season. Additional meetings will be held following any disaster events warranting a re-examination of the mitigation actions being implemented or proposed by the participating jurisdictions. Specifically, the Emergency Management Director will take the lead in maintaining plan document files, monitoring the progress of proposed mitigation actions against the estimated timeline for each project's completion, evaluating the effectiveness of each action with regard to loss reduction, cost effectiveness, etc., and seeing that the action plan is updated in general when necessary. This will ensure that the plan is continuously updated to reflect the changing conditions and needs within Chester County. A report will be presented by the Emergency Management Director to local governing bodies of participating jurisdictions in order to report progress on the actions identified in the plan and to provide information on the latest legislative requirements and/or changes to those requirements.

4. Documentation of the Planning Process ***Requirement §201.6(b):***	***Requirement §201.6(b):*** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process* ***shall*** *include:* *(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.* B. *Does the updated plan document how the planning team reviewed and analyzed each section of the plan and whether each section was revised as part of the update process?*

FIVE (5) YEAR PLAN REVIEW

At a minimum, the plan will continue to be reviewed by the Mitigation Planning Team within a five-year cycle to determine whether there have been any significant changes in Chester County that may, in turn, necessitate change in the types of mitigation actions proposed. New development in identified hazards areas, an increased exposure to hazards, the increase or decrease in capability to address hazards, and changes to federal or state legislation are examples of factors that may affect the necessary content of the plan.

As determined by this update process, the plan review provides community officials with an opportunity to evaluate those actions that have been successful and to explore the possibility of documenting potential losses avoided due to the implementation of specific mitigation measures. The plan review also provides the opportunity to address mitigation actions that may not have been successfully implemented as assigned. Chester County Emergency Management will be responsible for reconvening the Mitigation Planning Team and conducting the five-year review.

During the five-year plan review process, the following questions will be considered as criteria for assessing the effectiveness and appropriateness of the plan:

- Do the goals address current and expected conditions?
- Has the nature of magnitude of risk changed?
- Are the current resources appropriate for implementing the plan?
- Are there implementation problems, such as technical, political, legal or coordination issues with other agencies?
- Have the outcomes occurred as expected?
- Did the jurisdictions, agencies and other partners participate in the plan implementation process as proposed?

Following the five-year review, any revisions deemed necessary will be summarized and implemented according to the reporting procedures and plan amendment process outline herein. Upon completion of the review and update/amendment process, the Chester County Multi-Jurisdictional Hazard Mitigation Plan will be submitted to the State Hazard Mitigation Officer for final review and approval in coordination with the Federal Emergency Management Agency.

PLAN AMENDMENT PROCESS

Upon the initiation of the amendment process, Chester County will forward information on the proposed change(s) to all interested parties including, but not limited to, all affected County and municipal departments, residents, and businesses. Information will also be forwarded to the South Carolina Division of Emergency Management. This information will be disseminated in order to seek input on the proposed amendment(s) for not less than a 45-day review and comment period.

At the end of the 45-day review and comment period, the proposed amendment(s) and all comments will be forwarded to the Mitigation Planning Team for final consideration. The Planning Team will review the proposed amendment along with the comments received from other parties, and if acceptable, the Planning Team will submit a recommendation for the approval and adoption of changes to the plan to each appropriate governing body within 60 days.

In determining whether to recommend approval or denial of a plan amendment, the following factors will be considered by the Mitigation Planning Team:

- There are errors, inaccuracies, or omissions made in the identification of issues or needs in the plan;
- New issues or needs have been identified which are not adequately addressed in the plan;
- There has been a change in information, data, or assumptions from those upon which the plan is based.

Upon receiving the recommendation from the Mitigation Planning Team and prior to adoption of the plan, each local governing body will hold a public meeting. The governing body will review the recommendation from the Mitigation Planning Team (including factors listed above) and any oral or written comments received at the public hearing. Following that review, the governing body will take one of the following actions:

- Adopt the proposed amendments as presented;
- Adopt the proposed amendments with modifications;
- Refer the amendments request back to the Mitigation Planning Team for further revision; or
- Defer the amendment request back to the Mitigation Planning Team for further consideration and/or additional hearings.

Continued Involvement ***Requirement §201.6(c)(4)(iii):***	**Public**	*[The plan maintenance process **shall** include a] discussion on how the community will continue public participation in the plan maintenance process.* B. Does the **new or updated** plan explain how **continued public participation** will be obtained? (For example, will there be public notices, an on-going mitigation plan committee, or annual review meetings with stakeholders?)

CONTINUED PUBLIC INVOLVEMENT

Public participation is an integral component of the mitigation planning process and will continue to be essential as the plan evolves over time. As described above, significant changes or amendments to the plan shall require a public hearing prior to any adoption procedures.

Other efforts to involve the public in the maintenance, evaluation and revision process will be made as necessary. These efforts may include the following:

- Advertising meetings of the Mitigation Planning Team in the local newspaper, public bulletin boards, and/or City and County buildings;
- Designating willing and voluntary citizens and private sector representatives as official members of the Mitigation Advisory Committee;

- Utilizing local media to update the public of any maintenance and/or periodic review activities taking place;
- Utilizing City and County websites to advertise any maintenance and/or periodic review activities taking place; and
- Keeping copies of the plan in public libraries.

SECTION 7: PLAN MAINTENANCE REVISION HISTORY

Section 7 – Plan Maintenance REVISION HISTORY		
Date	**Section**	**Revision Detail**
5/31/2016	Section 7: Plan Maintenance	This is a newly added section of the plan, but the content was moved from an existing section.
5/31/2016	Section 7: Plan Maintenance	Eddie Murphy the Chester County Emergency Management Director was added as the meeting facilitator for Planning Team meetings.
9/20/2021	Section 7: Plan Maintenance	Ed Darby the Chester County Emergency Management Interim Director was added as the meeting facilitator for Planning Team meetings.

Section 8: Adopt the Plan

PLAN ADOPTIONS

This section of the plan includes a copy of the local adoption resolution passed by Chester County and the participating jurisdictions of the City of Chester, Town of Fort Lawn, Town of Great Falls, Town of Lowrys, and Town of Richburg.

1. Adoption by the Local Governing Body ***Requirement §201.6(c)(5)*:**	*[The local hazard mitigation plan **shall** include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council).* A. Has the local governing body adopted **new or updated** plan? B. Is supporting documentation, such as a resolution, included?
2. Multi-Jurisdictional Plan Adoption ***Requirement §201.6(c)(5)*:**	*For multi-jurisdictional plans, each jurisdiction requesting approval of the plan **must** document that it has been formally adopted.* B. For each jurisdiction, has the local governing body adopted the **new or updated** plan? C. Is supporting documentation, such as a resolution, included for each participating jurisdiction?

Jurisdiction	Governing Body	Documentation	Adoption Status
Chester County	Board of Commissioners	Sample Resolution	Pending FEMA Plan approval.
City of Chester	Board of Supervisors	Sample Resolution	Pending FEMA Plan approval.
Town of Fort Lawn	Town Council	Sample Resolution	Pending FEMA Plan approval.
Town of Great Falls	Town Council	Sample Resolution	Pending FEMA Plan approval.
Town of Lowrys	Town County	Sample Resolution	Pending FEMA Plan approval.
Town of Richburg	Town Council	Sample Resolution	Pending FEMA Plan approval.

Resolutions for Chester County and jurisdictions within the County are provided on the following pages.

SAMPLE RESOLUTION FOR CHESTER COUNTY TO ADOPT THE CHESTER COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, Chester County is vulnerable to an array of natural hazards that can cause loss of life and damages to public and private property; and

WHEREAS, the County desires to seek ways to mitigate situations that may aggravate such circumstances; and

WHEREAS, the development and implementation of a hazard mitigation plan can result in actions that reduce the long-term risk to life and property from natural hazards; and

WHEREAS, it is the intent of the Board of Commissioners to protect its citizens and property from the effects of natural hazards by preparing and maintaining a local hazard mitigation plan; and

WHEREAS, it is also the intent of the Board of Commissioners to fulfill its obligation under Section 3: Planning Process, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act to remain eligible to receive state and federal assistance in the event of a declared disaster affecting the County; and

WHEREAS, Chester County has prepared a multi-jurisdictional hazard mitigation plan with input from the appropriate local and state officials; and

WHEREAS, the South Carolina Department of Emergency Management has reviewed the hazard mitigation plan prepared for Chester County for compliance and has approved the plan pending the completion of local adoption procedures;

NOW, THEREFORE, BE IT RESOLVED that the Board of Commissioners of Chester County hereby:

1. Adopts the Chester County Multi-Jurisdictional Hazard Mitigation Plan; and

1. Agrees to take such other official action as may be reasonably necessary to carry out the proposed actions of the Plan.

Adopted on _____, 2021.

_____

, Chair
Chester County Board of Commissioners

ATTEST:

_____

, Clerk

SAMPLE RESOLUTION FOR THE CITY OF CHESTER TO ADOPT THE CHESTER COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the City of Chester is vulnerable to an array of natural hazards that can cause loss of life and damages to public and private property; and

WHEREAS, the City desires to seek ways to mitigate situations that may aggravate such circumstances; and

WHEREAS, the development and implementation of a hazard mitigation plan can result in actions that reduce the long-term risk to life and property from natural hazards; and

WHEREAS, it is the intent of the City Council to protect its citizens and property from the effects of natural hazards by preparing and maintaining a local hazard mitigation plan; and

WHEREAS, it is also the intent of the City Council to fulfill its obligation under Section 3: Planning Process, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act to remain eligible to receive state and federal assistance in the event of a declared disaster affecting the County; and

WHEREAS, the Chester County has prepared a multi-jurisdictional hazard mitigation plan with input from the appropriate local and state officials; and

WHEREAS, the South Carolina Department of Emergency Management has reviewed the hazard mitigation plan prepared for Chester County for compliance and has approved the plan pending the completion of local adoption procedures;

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Chester hereby:

1. Adopts the Chester County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Agrees to take such other official action as may be reasonably necessary to carry out the proposed actions of the Plan.

Adopted on _____, 2021.

_____

, Chair

City of Chester City Council

ATTEST:

_____

SAMPLE RESOLUTION FOR THE TOWN OF FORT LAWN TO ADOPT THE CHESTER COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the Town of Fort Lawn is vulnerable to an array of natural hazards that can cause loss of life and damages to public and private property; and

WHEREAS, the Town desires to seek ways to mitigate situations that may aggravate such circumstances; and

WHEREAS, the development and implementation of a hazard mitigation plan can result in actions that reduce the long-term risk to life and property from natural hazards; and

WHEREAS, it is the intent of the Town Council to protect its citizens and property from the effects of natural hazards by preparing and maintaining a local hazard mitigation plan; and

WHEREAS, it is also the intent of the Town Council to fulfill its obligation under Section 3: Planning Process, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act to remain eligible to receive state and federal assistance in the event of a declared disaster affecting the County; and

WHEREAS, Chester County has prepared a multi-jurisdictional hazard mitigation plan with input from the appropriate local and state officials; and

WHEREAS, the South Carolina Department of Emergency Management has reviewed the hazard mitigation plan prepared for Chester County for compliance and has approved the plan pending the completion of local adoption procedures;

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Fort Lawn hereby:

1. Adopts the Chester County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Agrees to take such other official action as may be reasonably necessary to carry out the proposed actions of the Plan.

Adopted on _____, 2021.

_____

, Chair
Town of Fort Lawn Town Council

ATTEST:

_____

SAMPLE RESOLUTION FOR THE TOWN OF LOWRYS TO ADOPT THE CHESTER COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the Town of Lowrys is vulnerable to an array of natural hazards that can cause loss of life and damages to public and private property; and

WHEREAS, the Town desires to seek ways to mitigate situations that may aggravate such circumstances; and

WHEREAS, the development and implementation of a hazard mitigation plan can result in actions that reduce the long-term risk to life and property from natural hazards; and

WHEREAS, it is the intent of the Town Council to protect its citizens and property from the effects of natural hazards by preparing and maintaining a local hazard mitigation plan; and

WHEREAS, it is also the intent of the Town Council to fulfill its obligation under Section 3: Planning Process, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act to remain eligible to receive state and federal assistance in the event of a declared disaster affecting the County; and

WHEREAS, Chester County has prepared a multi-jurisdictional hazard mitigation plan with input from the appropriate local and state officials; and

WHEREAS, the South Carolina Department of Emergency Management has reviewed the hazard mitigation plan prepared for Chester County for compliance and has approved the plan pending the completion of local adoption procedures;

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Lowrys hereby:

1. Adopts the Chester County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Agrees to take such other official action as may be reasonably necessary to carry out the proposed actions of the Plan.

Adopted on _____, 2021.

_____

, Chair
Town of Lowrys Town Council

ATTEST:

_____

SAMPLE RESOLUTION FOR THE TOWN OF GREAT FALLS TO ADOPT THE CHESTER COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the Town of Great Falls is vulnerable to an array of natural hazards that can cause loss of life and damages to public and private property; and

WHEREAS, the Town desires to seek ways to mitigate situations that may aggravate such circumstances; and

WHEREAS, the development and implementation of a hazard mitigation plan can result in actions that reduce the long-term risk to life and property from natural hazards; and

WHEREAS, it is the intent of the Town Council to protect its citizens and property from the effects of natural hazards by preparing and maintaining a local hazard mitigation plan; and

WHEREAS, it is also the intent of the Town Council to fulfill its obligation under Section 3: Planning Process, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act to remain eligible to receive state and federal assistance in the event of a declared disaster affecting the County; and

WHEREAS, Chester County has prepared a multi-jurisdictional hazard mitigation plan with input from the appropriate local and state officials; and

WHEREAS, the South Carolina Department of Emergency Management has reviewed the hazard mitigation plan prepared for Chester County for compliance and has approved the plan pending the completion of local adoption procedures;

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Great Falls hereby:

3. Adopts the Chester County Multi-Jurisdictional Hazard Mitigation Plan; and

4. Agrees to take such other official action as may be reasonably necessary to carry out the proposed actions of the Plan.

Adopted on _____, 2021.

_____

, Chair
Town of Great Falls Town Council

ATTEST:

_____

SAMPLE RESOLUTION FOR THE TOWN OF RICHBURG TO ADOPT THE CHESTER COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the Town of Richburg is vulnerable to an array of natural hazards that can cause loss of life and damages to public and private property; and

WHEREAS, the Town desires to seek ways to mitigate situations that may aggravate such circumstances; and

WHEREAS, the development and implementation of a hazard mitigation plan can result in actions that reduce the long-term risk to life and property from natural hazards; and

WHEREAS, it is the intent of the Town Council to protect its citizens and property from the effects of natural hazards by preparing and maintaining a local hazard mitigation plan; and

WHEREAS, it is also the intent of the Town Council to fulfill its obligation under Section 3: Planning Process, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act to remain eligible to receive state and federal assistance in the event of a declared disaster affecting the County; and

WHEREAS, Chester County has prepared a multi-jurisdictional hazard mitigation plan with input from the appropriate local and state officials; and

WHEREAS, the South Carolina Department of Emergency Management has reviewed the hazard mitigation plan prepared for Chester County for compliance and has approved the plan pending the completion of local adoption procedures;

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Richburg hereby:

1. Adopts the Chester County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Agrees to take such other official action as may be reasonably necessary to carry out the proposed actions of the Plan.

Adopted on _____, 2021.

_____

, Chair
Town of Richburg, Town Council

ATTEST:

_____

SECTION 8: ADOPT THE PLAN REVISION HISTORY

Section 8 – Adopt the Plan REVISION HISTORY		
Date	**Section**	**Revision Detail**
5/31/2016	Section 8: Adopt the Plan	This is a newly added section of the plan, but the content was moved from the appendix section of the 2010 plan.
5/31/2016	Section 8: Adopt the Plan	Lowrys was added as a jurisdiction and included in the plan adoption process.
9/20/2021	Section 8: Adopt the Plan	Updated sample resolutions for 2021 adoption.

Section 9: Safe & Resilient Community

INTRODUCTION

Resilience is the ability to adapt to changing conditions and prepare for, withstand, and rapidly recover from disruption. The County and other partners have many existing programs that have been or will be linked to mitigation projects to create a safer and more resilient community.

STORMREADY CERTIFIED COMMUNITY

The National Weather Service has certified Chester County, SC, as "Storm Ready," and the County's "Storm Ready" certification has been renewed for 2021. "Storm Ready" is a national program encouraging local communities to take a proactive approach to improving hazardous weather operations.

In order to qualify for StormReady designation, communities with a population of 2,500 to 14,999 must adhere to six guidelines set by the National Weather Service (NWS). Chester County has a population of nearly 33,000 and adheres to all six below guidelines.

Guideline 1: Community must establish a 24-hour warning point and establish an emergency operations center.

Guideline 2: A community with a population this size must establish at least four different ways to receive NWS warnings. Chester County meets this guideline for both their warning point and emergency operation command center through NOAA Weather Radios, Law Enforcement Teletypes (LETS), Television, Radio Station, Hurrevac, Pagers, and the Internet.

Guideline 3: The community must have at least two ways to monitor hydrometerological data. Chester County meets this guideline for both their warning point and emergency operation command center through River Gauge, Internet Radar Source, Internet Radar Source, Internet Weather Station, TV Radar Source, and Anemometer (wind gauge).

Guideline 4: Standard for local warning dissemination. The guideline states the community must have at least two ways to disseminate warnings to the public. Chester County meets this guideline for both their warning point and emergency operation command center through outdoor warning sirens, local pager system, coordinated area-wide radio network, and a plan for sirens on emergency vehicles.

Guideline 5: Community must host at least two annual weather safety talks. Safety talks were held at the Community PACC Meeting, Fire Chief's Association Meeting, and the

Lando Fire Department Meeting. Other preparedness activities include rebuilding siren for Great Falls, assisting Richburg FD with new siren, and a Richburg siren test.

Guideline 6: The StormReady community must have a formal hazardous weather operations strategy, plan biennial visits by the emergency manager to the NWS, and host one annual visit by an NWS official to the community. The County has a formal Hazardous Weather Operations Plan with spotter roaster and training record, emergency manager visits to the NWS office, visits from the NWS officials to the community, and exercises.

MAP MODERNIZATION PROGRAM FOR CHESTER COUNTY

On April 8, 2010, The S.C. Department of Natural Resources (DNR) Flood Mitigation Program conducted the Post Preliminary DFIRM Community Coordination Meeting (PDCC) as part of the Map Modernization Program for Chester County and its municipalities. FEMA, the National Service Provider, DNR, and local governments are working together to successfully accomplish the goals of the Map Modernization Initiative, which is to produce an accurate picture of the flood risk, to promote responsible growth and sound floodplain management. **Update:** The program in now managed by SCDHEC's Watershed Program whose role is to help facilitate solutions to water quality issues within the State. The program has traditionally shared extensive water quality information through the published Watershed Water Quality Assessments. The assessments are now replaced by the SC Watershed Atlas.
Source: https://scdhec.gov/environment/your-water-coast/watersheds-program

The application brings the Agency's most current and comprehensive watershed and water quality information into a user-friendly, statewide application. This searchable atlas includes watershed descriptions, base maps, water quality assessments and trends, use support, monitoring sites, permitted facilities, MS4s, TMDLs and much more.
Source: http://gis.dhec.sc.gov/watersheds/

RAXTER ROAD BRIDGE CONSTRUCTION

In 2007 the Chester County Emergency Management Division and Chester County Government applied for a Phase 1 Feasibility Study grant through the Hazard Mitigation Grant Program (HMGP) for the construction of a bridge on Raxter Road. The grant was awarded and Phase 1 was completed. In December of 2009 the County applied for a Phase 2 Build & Construction HMGP Grant which is currently an active application. The project cost will total approximately $750,000 including both Phases 1 and 2. The Chester County Emergency Manager was a member of the project committee and participated in the development/exchange of ideas on Chapter 4 - Natural Hazard Identification and Analysis, Chapter 5 – Natural Hazards Vulnerability, and Chapter 7 – Social Vulnerability to be utilized in the planning for the construction of the bridge. The project committee consisted of Chester County EMA, Chester County Government, Keck & Wood

Contractor, DHEC, DNR, Army Corp of Engineers, National Historical Preservation, and the State EMD. **Update**: In April 2011 a grant proposal worth $770,000 was approved. In August 2014 the grant was closed out, and the project was completed.

DROUGHT TASK FORCE

In 2007 Chester County assembled their Drought Task Force during the Catawba River basin drought. Regional and local meetings were convened on October 31, 2007, November 13, 2007, and December 31, 2007, to discuss and plan for communicating with the public and establish a 20% water usage reduction for personal and industrial usage. The local Chester County Drought Task Force was comprised of Chester County EMD, Chester Metropolitan Water District, Local Law Enforcement, County, City & Town Government representatives, the Catawba River Keeper, Clemson University Extension, and a State Climatologist. The subsection on Droughts in Chapter 4 - Natural Hazard Identification and Analysis of the Hazard Mitigation Plan was used in planning processes. **Update:** The Chester County Drought Task Force became members of the SC Drought Committee. The S.C. Drought Response Committee held a meeting via conference call on June 19, upgraded the drought status to the first level of drought, incipient, for 28 counties which included Chester County. When conditions begin to deteriorate, SCDNR will convene a South Carolina Drought Response Committee meeting. The committee consists of representatives from the SC Department of Natural Resources (SCDNR), SC Department of Environmental Control (DHEC), SC Forestry Commission (SCFC), SC Department of Agriculture (SCDOA), South Carolina Emergency Management (SCEMD) and other weather and hydrology experts. The purpose is to discuss current observations, and eventually determine whether or not to put certain portions (Drought Management Areas) of SC into one of the following four categories: Incipient, Moderate, Severe, or Extreme Drought. Generally, this helps to provide leverage or “ammo” for water providers to impose water use reduction or restriction strategies.

CHESTER COUNTY DEPARTMENT OF EDUCATION – READINESS AND EMERGENCY MANAGEMENT GRANT

In October of 2009 the Chester County Department of Education received a $96,700 grant for Readiness and Emergency Management to assist with the review of school emergency plans and to develop crisis action teams for response to emergencies based on the NIMS structure. The county involvement included Chester County EMA, County Government, City and County Fire Departments, City and County Law Enforcement, DHEC, Mental Health, and School Staff. This project was completed, and the grant was closed out in 2010 post Mitigation Plan adoption. The “Crisis Management Plan for Schools” was developed by J. Berra Engineering, Inc. Crisis covered in the plan include medical, violence and crime, lockdown and evacuation, facility emergencies, weather, student welfare, and terrorism.

CHESTER COUNTY FLOOD MITIGATION TEAM

In 2015 Chester County called together a Chester County Flood Mitigation Team. They met on Wednesday, November 18, 2015, to discuss reoccurring flooding problems in the County including Hopps Road, West Chester area, Wylie Park area (Bird Street, Saluda Street, and Mobley Street), and the Chester County Emergency Operations Command Center (EOC). Significant concerns include increased Hopps Road flooding which would impact major roads incorporating Highway 9, Highway 321 Business, and Highway 97. The group discussed utilizing an HMGP grant to conduct a phased project approach Feasibility Study on drainage. Additional solutions discussed also included constructing a new Chester County EOC, obtaining debris removal equipment, and installing backup generator systems. Moving forward the team discussed regional meetings to capture the scope of reoccurring flood problems countywide.

LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)

The Chester County Local Emergency Planning Committee (LEPC) works to understand the hazards in the community, develop emergency plans in case of an accidental release or natural disaster, and find ways to prevent accidents. The role of LEPC is to form a partnership between local government and industries to enhance chemical hazards preparedness. Although not specifically designated for natural disasters, the Chester County LEPC is an integral part of the emergency response and local business community and includes Hazard Mitigation Plan Stakeholders and Planning Team members. They meet quarterly and are actively involved in public outreach, HAZMAT exercises, hazardous materials transport studies, and identifying County resources in the event of a chemical hazard.

SECTION 9: SAFE & RESILIENT COMMUNITY REVISION HISTORY

Section 9 – Safe & Resilient Community REVISION HISTORY		
Date	**Section**	**Revision Detail**
5/31/2016	Section 9: Safe & Resilient Community	This is a newly added section of the plan. Some of the content was moved from another section of the 2010 plan.
5/31/2016	Section 9: Safe & Resilient Community	Updated.
5/31/2016	Section 9: Safe & Resilient Community	Added Chester County Flood Mitigation Team.
5/31/2016	Section 9: Safe & Resilient Community	Updated the Drought Task Force.
5/31/2016	Section 9: Safe & Resilient Community	Updated the Raxter Road Bridge construction.
5/31/2016	Section 9: Safe & Resilient Community	Updated the Map Modernization Program for Chester County.
5/31/2016	Section 9: Safe & Resilient Community	Added StormReady Certified Community.
9/22/2021	Section 9: Safe & Resilient Community	Updated StormReady recertification date.

Section 10: Appendices

CHESTER COUNTY
Emergency Management Agency

APPENDIX A: PLANNING PROCESS DOCUMENTATION

1.) Initial Planning Meeting Invitation Email to Planning Team and Stakeholders
2.) Initial Planning Meeting Summary
3.) Public Forum Meeting Newspaper Announcement (*The Chester News and Reporter*)
4.) Public Forum Meeting Newspaper Review (*The Chester News and Reporter*)
5.) Public Forum Meeting Images
6.) Public Forum Meeting Summary
7.) Final Planning Meeting Summary
8.) Online Hazard Mitigation Survey Results

2021 Initial Planning Team Meeting Invitation Email to Planning Team and Stakeholders

From: Kara Drane
To:

Cc:
Subject: Hazard Mitigation Plan Update - Community Stakeholder Meetings
Date: Tuesday, July 13, 2021 3:23:00 PM
Attachments:

Dear Community Stakeholder:

Chester County Emergency Management is updating the Chester County Hazard Mitigation Plan in accordance with the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988. On behalf of Ed Darby, Emergency Management Director, and Laura Kunzie, Emergency Management Deputy Director, you are invited to participate as a key stakeholder for the update of the Hazard Mitigation Plan.

Hazard mitigation planning is important for communities as it reduces the loss of life and property by decreasing the impact of disasters. The Hazard Mitigation Plan update will be reviewed and approved by the South Carolina Emergency Management Agency and the Federal Emergency Management Agency as is required in order to receive post-disaster recovery and mitigation funding. Your input is vital as we work to ensure that all hazards affecting Chester County are identified and addressed with appropriate mitigation strategies.

You may reach me at 803.327.9041 or at kdrane@catawbacog.org to confirm whether you will be able to participate in the following meetings:

Meeting Schedule:

Initial Planning Team Meeting
Wednesday, August 4th, 10 AM – Noon
Chester County EMD, Zoom

Public Forum
Thursday, August 19th, 10 AM – Noon
Chester County Government Complex, Council Chambers

Final Planning Team Meeting
Wednesday, August 25th, 10 AM – Noon
Chester County EMD, Zoom

If you are unable to attend, please designate a representative from your organization to attend in your place and let us know who will be participating. Additional information will be provided to you in advance of the meetings. We appreciate your time and assistance with the Chester County Hazard Mitigation Plan update project.

Thank you,
Kara Drane

Kara W. Drane, AICP
Senior Planner

Catawba Regional
Council of Governments

PO Box 450 · 215 Hampton Street
Rock Hill, South Carolina 29731
(803) 327-9041 · Fax (803) 327-1912
www.catawbacog.org

Initial Planning Meeting Summary – August 4, 2021

Attendance List

Planning Team Members

Ed Darby, Chester County EMA Director
Laura Kunzie, Chester County EMA Deputy Director
David Dutton, Town of Fort Lawn Fire Chief
Glenn Smith, Town of Great Falls Town Council
Glinda Coleman, Great Falls Town Association Executive Director
Marilyn Pressley, Town of Lowrys Clerk
Tommy McMinn, Town of Richburg Planning
Stephanie Jackson, City of Chester Administrator
Mike Levister, Chester County Planning and Building Director / Floodplain Administrator
Phillip Thompson-King, Chester County Wastewater Recovery Executive Director
Robert Long, Chester County Economic Development Director
James Jackson, City of Chester Fire Chief
Forrest Jones, Chester Regional Medical Center Div. Operations Manager
Britt Lineberger, Chester County EMS Director
Thomas Barr, Chester County School District Director of Maintenance
Dr. Calvin Carter, Chester County School District Director of Safety
Adam Davis, Chester County School District COO
Ryan Guerry, South Carolina Emergency Management Division Emergency Manager
Jason Romlein, South Carolina Emergency Management Division Planner

Others in Attendance

Kara W. Drane, AICP, Catawba Regional Council of Governments Senior Planner
Eleanor Mixon, Catawba Regional Council of Governments Community Development Associate

Meeting Summary

The Initial Planning Team Meeting was held via Zoom due to the ongoing pandemic. During the meeting, the attendees responded to the following four questions:

- QUESTION 1: Based on your experiences with your jurisdiction, agency, or organization, what natural hazards concern you the most? Describe the proposed threat to the public and/or property and possible mitigation activities to minimize or reduce the threat.
- QUESTION 2: Based on your experiences with your jurisdiction, agency, or organization, are there hazard mitigation goals and strategies you feel need to be included in the Chester County Hazard Mitigation Plan update?
- QUESTION 3: Are there any aspects of the community / built environment in Chester County that you feel need to be improved to better protect against flash flooding and flooding events? Describe the location, jurisdictions, and how you think the area can improve.
- QUESTION 4: What are two or three goals/projects the County should strive to achieve to protect the community against hazards over the next three years?

Feedback from the Stakeholders and Planning Team was incorporated into the Hazard Mitigation Plan.

Public Forum Meeting Newspaper Announcement (*The Chester News and Reporter*)

Chester County Seeks Community Input

From release

Chester County and the Emergency Management Agency are developing an updated Hazard Mitigation Plan to review all hazards and develop appropriate mitigation strategies to reduce community risk and enhance resiliency.

The Hazard Mitigation Plan includes the City of Chester and the towns of Fort Lawn, Great Falls, Lowrys, and Richburg and is intended to lessen the loss of life and property by decreasing the impact of disasters.

"The community input provided by our residents will help shape the updated Hazard Mitigation Plan and our mitigation strategies," said Ed Darby, Chester County Emergency Management Director.

Chester County, with assistance from the Catawba Regional Council of Governments, seeks community input on natural hazards and mitigation strategies.

Residents, businesses, and community stakeholders are encouraged to participate in a public forum and complete a survey on hazards and mitigation strategies to strengthen community preparedness.

The public forum will be held on Thursday, August 19th, at 10 AM, at the Government Complex, Council Chambers, 1476 J.A. Cochran Bypass, in Chester.

"We hope everyone will take a few minutes to complete the survey and provide their input and share their ideas on improving community preparedness, resilience, and sustainability," said Ed Darby, Chester County Emergency Management Director. "This is an opportunity for everyone to get involved and increase community awareness of hazards and mitigation strategies needed to protect our County."

People interested in participating in the project are encouraged to complete the survey by August 27th. Links to the survey and opportunities to participate in the public forum remotely can be found on Chester County's website, www.chestercounty.org, and Catawba Regional Council of Governments' website, www.catawbacog.org. For those residents who would like to submit paper surveys, printed surveys are available at the Emergency Management Agency, 17 Saluda Street, Chester.

Hazard mitigation plans are prepared in accordance with the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 and must be approved by the South Carolina Emergency Management Agency and the Federal Emergency Management Agency to receive post-disaster recovery and mitigation funding.

For More Information, Contact County Staff and Consultant Team:

Ed Darby, Chester County Emergency Management Director, 803.377.4632 emdarby@chestercounty.org

Laura Kunzie, Chester County Emergency Management Deputy Dir., 803.377.4632 lkunzie@chestercounty.org

Kara W. Drane, AICP, Catawba Regional Council of Governments, 803-327-9041 kdrane@catawbacog.org

PHOTO PROVIDED
Ed Darby, CHESTER COUNTY EMA Director and Chris Eifert, EMA Planner review hazard areas.

PHOTO PROVIDED

Public Forum Meeting Newspaper Review (*The Chester News and Reporter*)

Public, emergency officials comment on county's Hazard Mitigation Plan

BY BRIAN GARNER
bgarner@onlinechester.com

Members of the Hazard Mitigation Plan planning team met recently to receive comments from the public and other emergency officials on the updated Hazard Mitigation Plan. FEMA requires the Hazard Mitigation Plan (HMP) be updated every five years.

The HMP is being updated to reflect the changes that have taken place and are taking place in Chester County, such as an increase in industries and manufacturing facilities, and the new and proposed housing developments that are showing up in the county, explained Chester County EMA Director Ed Darby.

The purpose of the HMP is to "identify natural hazards that would affect Chester County. We rate those hazards as the likelihood of what would happen and at the same time, we work on community projects and issues that we could do, and suggestions that would eliminate or minimize the harm of those natural disasters on Chester County," Darby said.

Drane then opened up the floor to planning team members for their comments on areas of concern that the HMP should address.

Chester County Economic Development Director Robert Long pointed out that most of the industrial development is happening along the Highway 9 corridor, as is most of the residential growth, although a planned unit development is proposed for Village Drive nearer to Chester and the JA Cochran Bypass. He said there are some industries that are also near Fishing Creek and some areas with wetlands that back up to the creek. He predicts residential growth in the Fort Lawn area, which will be attracted to that area by the building of the E&J Gallo winery facility.

The 2021 plan builds on the bones of the 2016 plan. A good active HMP is one of the requirements for applying for any FEMA funds, said Darby.

A component of the HMP is a community survey, which accepted public comment through the end of August, said Kara Drane with the Catawba COG, the organization that has been tasked with helping craft the updated HMP.

As of the time of the meeting, 31 citizens had responded to the survey. Some interesting data was the response to the question asking survey respondents to rank natural disasters in the order of priority that they felt posed the greatest threat to their neighborhoods. (See related chart). Survey answers indicated that some of the recent weather events were uppermost on the minds of the citizens as severe thunderstorms were ranked highest, followed by tornadoes. Hazards such as droughts, wildfires, earthquakes and dam failures ranked lower in order of priority.

Glinda Coleman, the Executive Director of the Great Falls Home Town Association, said that in addition to the whitewater project, there are trails being developed (as part of the Carolina Thread Trail) and a state park is on the books to be developed. As part of the HMP, Great Falls would like to consider what the responses would be as far as natural disasters considering there are going to be large numbers of tourists present in the Great Falls area in the future.

Fort Lawn Fire Chief David Dutton advocated for an outdoor warning siren in the Fort Lawn area. Darby said there are three warning sirens around Chester and one in Richburg. The three sirens in the Chester area are one at the Chester County Government Complex, one at the Chester County Fire Coordinator's office on Saluda Street and one at the Baseball Complex at Dawson Drive. Another manual siren is located in Great Falls and can be set off by firefighters in that area.

Another way that people can receive warnings about the natural disasters in the Reverse 911 system administered by the Chester County Sheriff's Office.

Drane and Darby said

See HAZARD PLAN, Page 5-B

BY BRIAN GARNER/THE N&R

At the Hazard Mitigation Plan public input meeting, Chester County Deputy EMA Director Laura Kunzie, Chester City Administrator Stephanie Jackson and Chester County EMA Director Ed Darby look over the possible flooding areas in the City of Chester.

HAZARD PLAN

Continued from Page 2-B

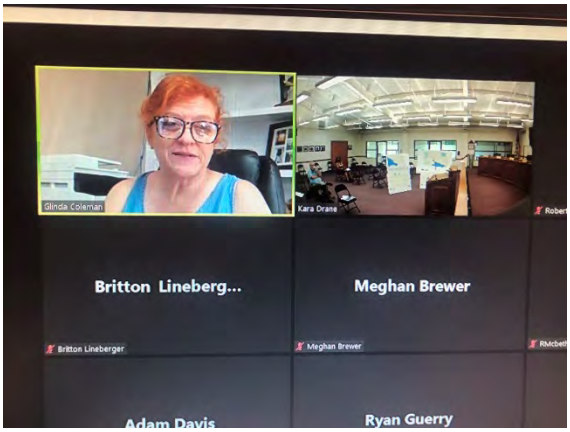
the changes from the 2016 HMP to the 2021 plan would be the updated data and the updated mitigation strategies.

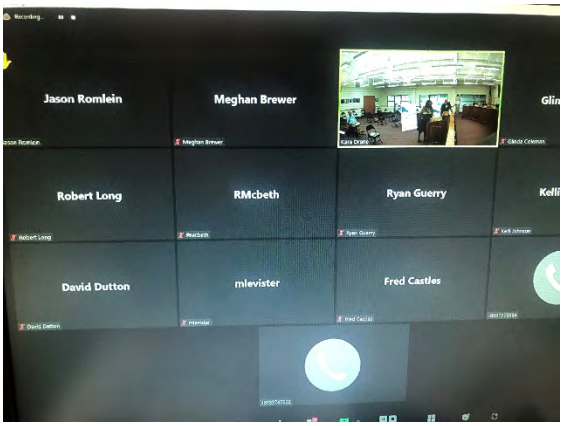
"The main reason why communities are required to continue to update their mitigation plan is because the plans are dynamic: they are implemented by the community. It's important for those communities to update their plans and to also update their strategies. What happens is over time, you make your community more resilient and stronger and you can better recover from disaster events," Drane said.

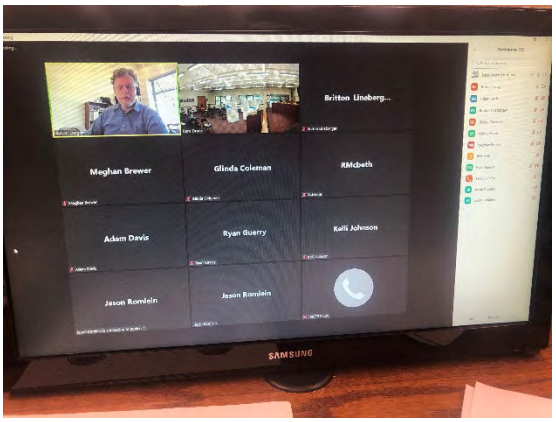
Chester County Deputy EMA Director Laura Kunzie added that according to FEMA studies for every dollar you spend on hazard mitigation funding, for example, for hurricanes, you save seven dollars in recovery.

The draft HMP should be submitted to the S.C. Emergency Management Department by September and approved by FEMA by the beginning of 2022.

Public Forum Meeting Images – August 19, 2021 (Page 1 of 2)







Public Forum Meeting Images – August 19, 2021 (Page 2 of 2)

Public Forum Meeting Summary – August 19, 2021

Attendance List

Planning Team Members
Ed Darby, Chester County EMA Director
Laura Kunzie, Chester County EMA Deputy Director
David Dutton, Town of Fort Lawn Fire Chief
Glinda Coleman, Great Falls Town Association Executive Director
Tommy McMinn, Town of Richburg Planning
Stephanie Jackson, City of Chester Administrator
Reggie McBeth, City of Chester, Public Works Director
Mike Levister, Chester County Planning and Building Director / Floodplain Administrator
Fred W. Castles, III, Chester Metropolitan District Executive Director
Robert Long, Chester County Economic Development Director
Britt Lineberger, Chester County EMS Director
Adam Davis, Chester County School District Chief Operating Officer
Meghan Brewer, Chester County Deputy Fire Coordinator
Ryan Guerry, South Carolina Emergency Management Division Emergency Manager
Jason Romlein, South Carolina Emergency Management Division Planner

Others in Attendance
Kelli Johnson, Chester Metropolitan District Executive Assistant
David Schuelke, Chester County IT Director
Brian Garner, *The Chester News and Reporter*
Kara W. Drane, AICP, Catawba Regional Council of Governments Senior Planner

Meeting Summary

The Public Forum was held in person in the Chester County Government Complex Council Chambers as well as via Zoom due to the ongoing pandemic. During the meeting, a summary of the Hazard Mitigation Plan and the updated mitigation strategies was provided, and the public was encouraged to take part in the community survey. The remainder of the meeting was dedicated to answering questions about the hazards that the County faces. Feedback received during the forum was incorporated into the Hazard Mitigation Plan.

Final Planning Meeting Summary – August 25, 2021

Attendance List

Planning Team Members

Laura Kunzie, Chester County EMA Deputy Director
David Dutton, Town of Fort Lawn Fire Chief
Glinda Coleman, Great Falls Town Association Executive Director
Marilyn Pressley, Town of Lowrys Clerk
Tommy McMinn, Town of Richburg Planning
Stephanie Jackson, City of Chester Administrator
Reggie McBeth, City of Chester Public Works Director
Mike Levister, Chester County Planning and Building Director / Floodplain Administrator
Fred W. Castles, III, Chester County CMD Executive Director
Robert Long, Chester County Economic Development Director
James Jackson, City of Chester Fire Chief
Robert Hall, Chester County Facilities Maintenance Director
Ryan Guerry, South Carolina Emergency Management Division Emergency Manager

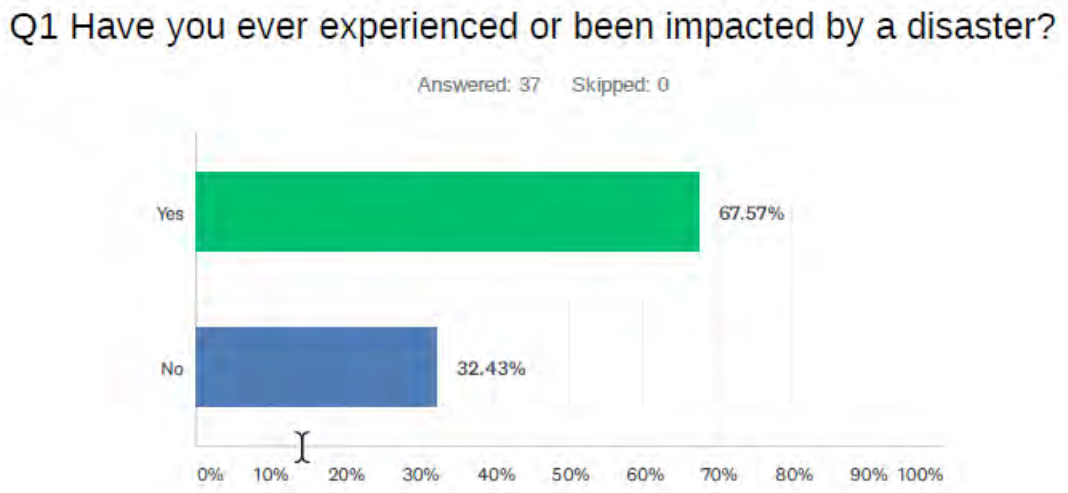
Others in Attendance

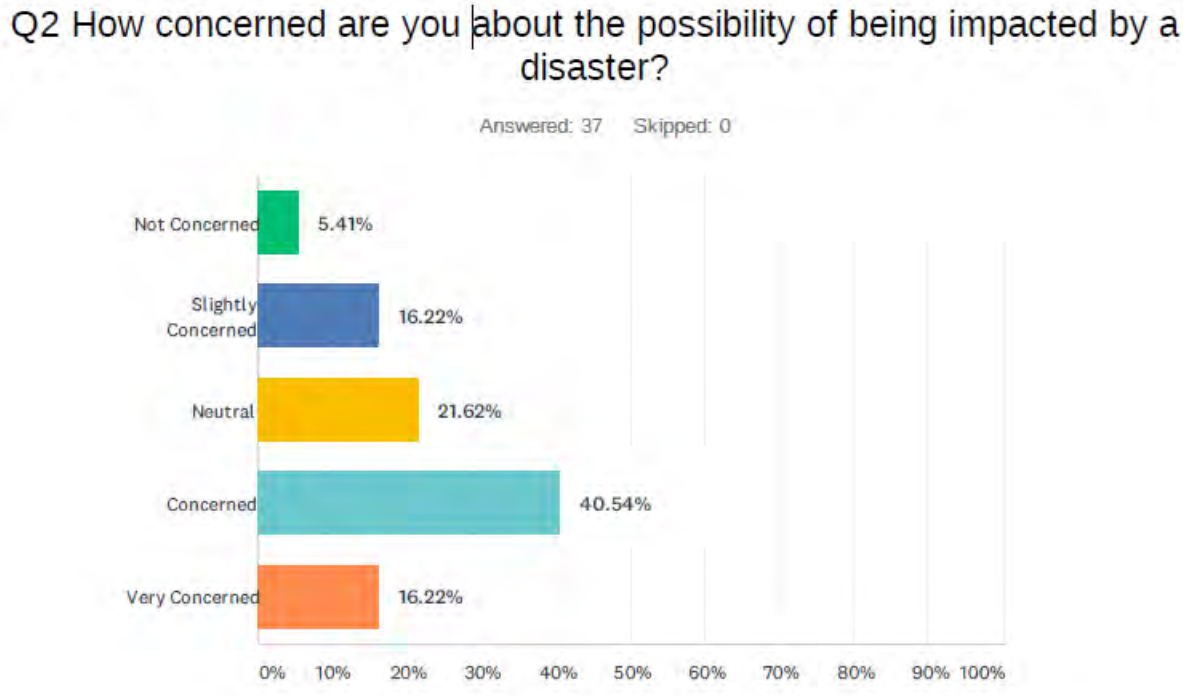
Kelli Johnson, Chester County CMD Executive Assistant
Kara W. Drane, AICP, Catawba Regional Council of Governments Senior Planner
Steve Allen, AICP, Catawba Regional Council of Governments Senior Planner
Eleanor Mixon, Catawba Regional Council of Governments Community Development Associate

Meeting Summary

The Final Planning Team Meeting was held via Zoom due to the ongoing pandemic. During the meeting, the number of community survey responses to date (34) was shared with the attendees. Additionally, the updated mitigation strategies were reviewed and discussed. An overview of the next steps in the Hazard Mitigation Plan update process was provided. Feedback from the Stakeholders and Planning Team was incorporated into the Hazard Mitigation Plan.

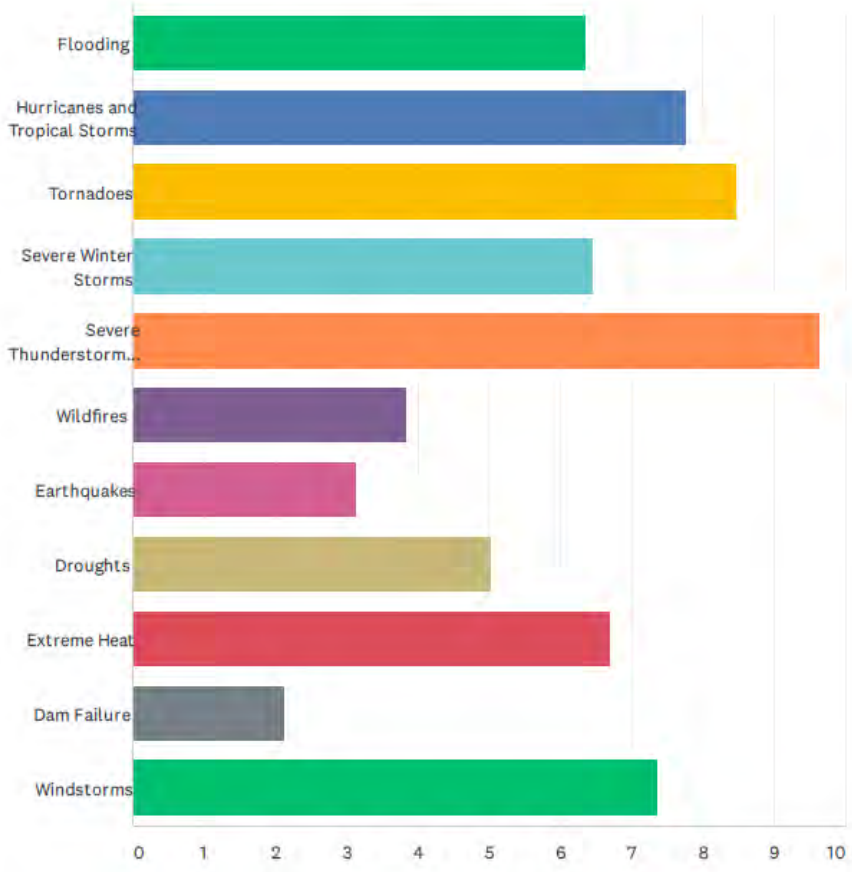
Online Hazard Mitigation Survey Results





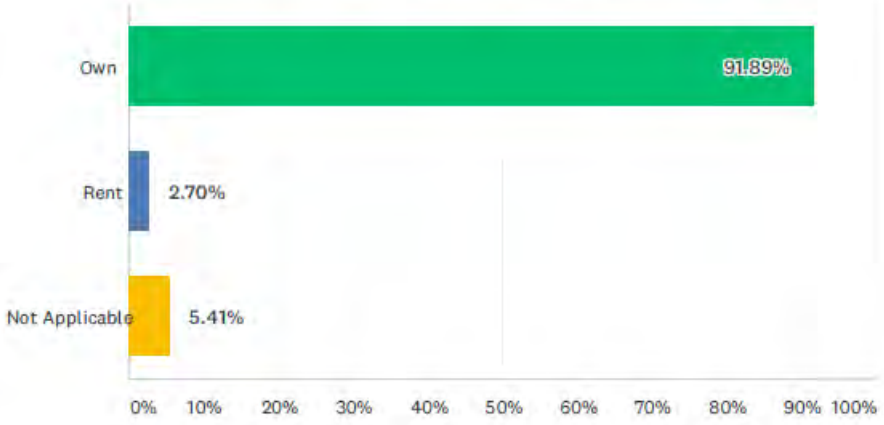
Q3 Please rank the following natural hazard(s) in order of priority that you feel pose the greatest threat to your neighborhood.

Answered: 37 Skipped: 0



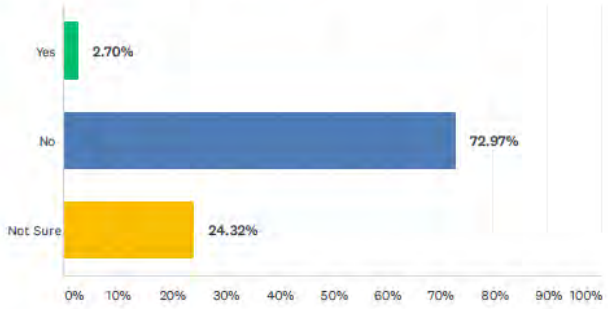
Q4 Do you rent or own?

Answered: 37 Skipped: 0



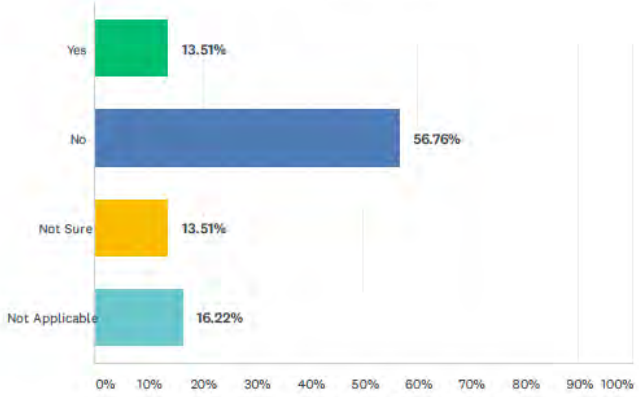
Q5 Is your home located in the floodplain?

Answered: 37 Skipped: 0



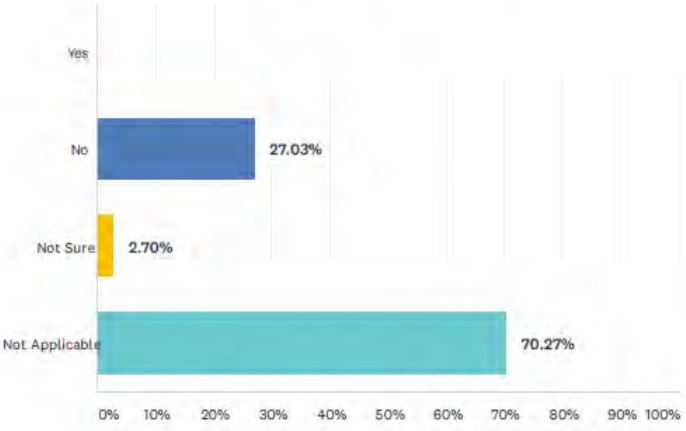
Q6 If you own your home, do you have flood insurance? Flood insurance is not included in a standard homeowner's policy and must be purchased separately.

Answered: 37 Skipped: 0



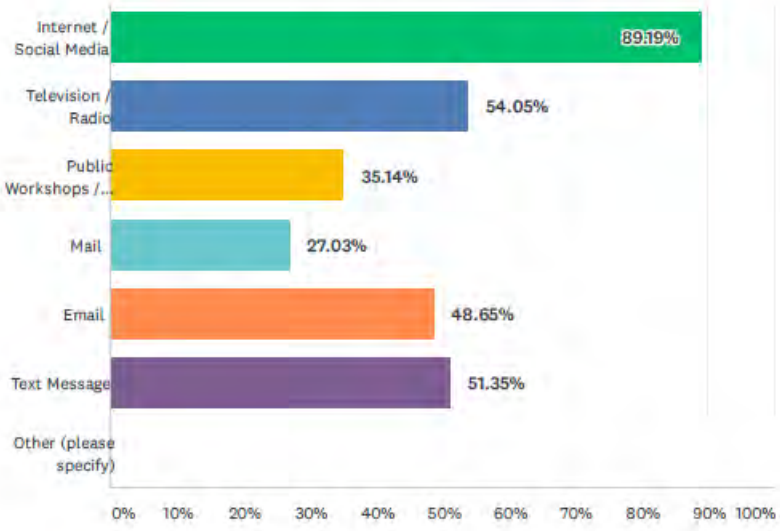
Q7 If you rent your home, do you have flood insurance for your contents? Content insurance is available through the National Flood Insurance Program (NFIP).

Answered: 37 Skipped: 0



Q8 What are the best ways for you to receive information about how to make your home and community more resistant to natural disasters? Check all that apply.

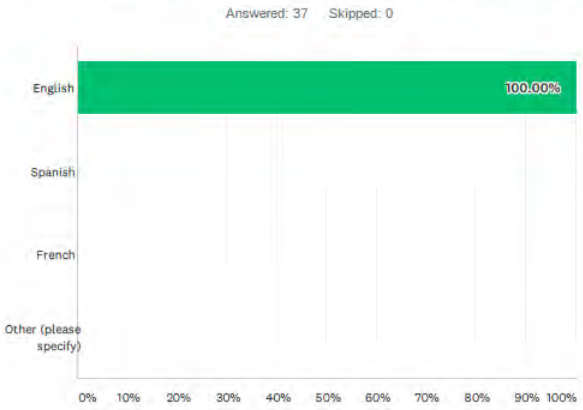
Answered: 37 Skipped: 0



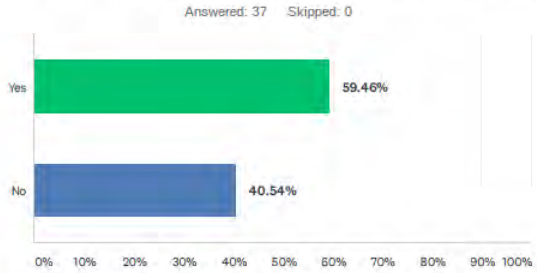
Q9 Share your ideas on what can be done to reduce the impact of future natural hazards in your neighborhood. Examples include planting trees to provide cooling shade and reduce impacts of extreme heat events and "daylighting" creeks and streams that have been previously piped to reduce stormwater runoff-caused flooding.

Answered: 37 Skipped: 0

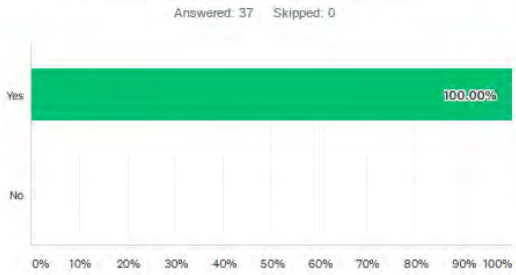
Q10 What language is spoken in your household? Check all that apply.



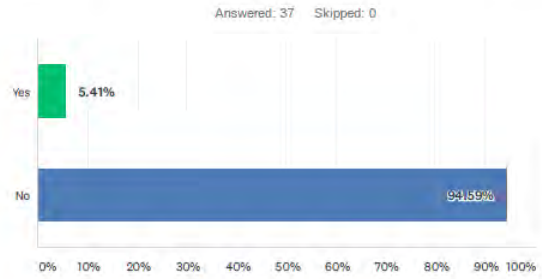
Q11 Does your family have a plan for when a disaster strikes? Examples include an emergency preparedness kit, a family communication plan, a shelter plan, and ways to receive emergency alerts and warnings. Additional information can be found at https://www.ready.gov/plan.



Q12 Does your family have a car or have access to transportation through a relative, friend, or public transit?

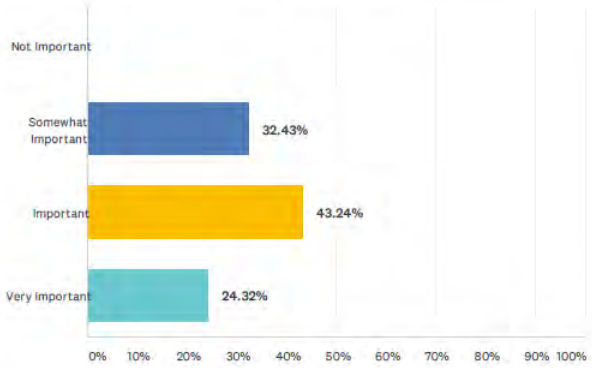


Q13 Do you or anyone in your household rely on powered medical equipment?



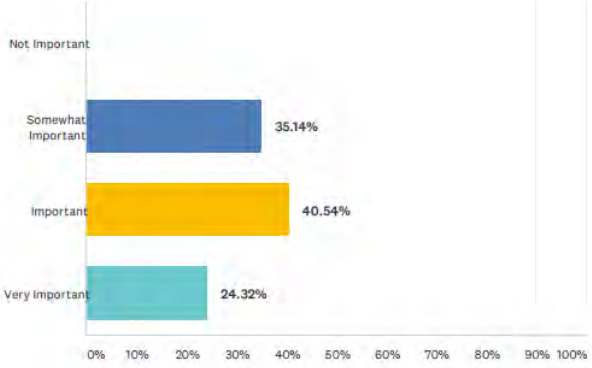
Q14 Prevention includes policies to reduce the impact of hazards, such as zoning, planning, and building codes. Indicate the level of importance prevention is for your neighborhood.

Answered: 37 Skipped: 0



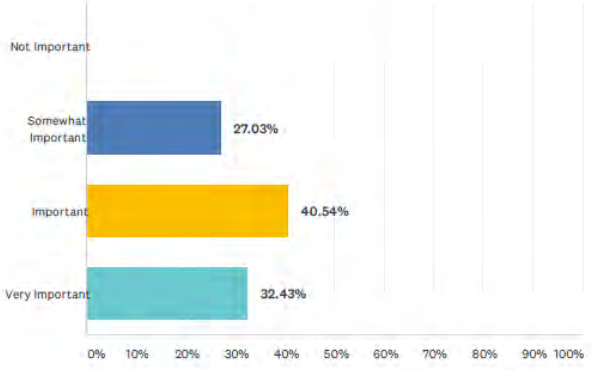
Q15 Property protection are modifications of existing homes and buildings to protect them from hazards, such as elevation of electrical equipment. Indicate the level of importance property protection is for your neighborhood.

Answered: 37 Skipped: 0

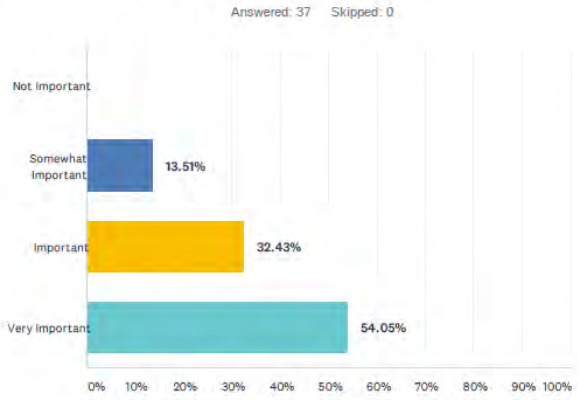


Q16 Natural resource protection includes actions that not only reduce the impact of hazards but also preserve and restore natural habitats. Indicate the level of importance natural resource protection is for your neighborhood.

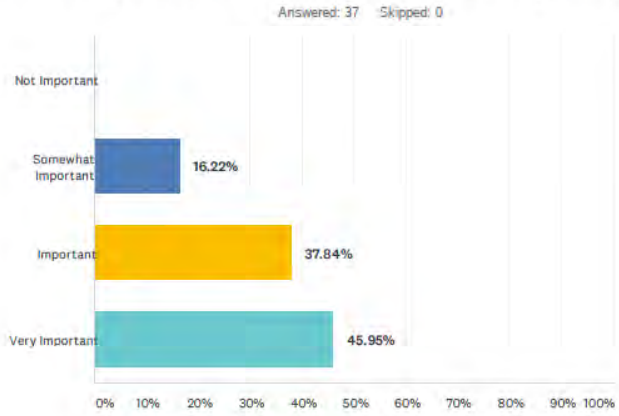
Answered: 37 Skipped: 0



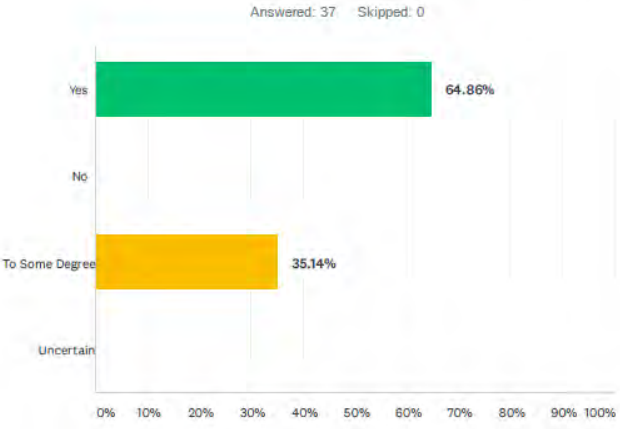
Q17 Emergency preparedness and services are actions that protect people and property during or immediately after a disaster or hazardous event and include advanced warning systems, emergency response training, etc. Indicate the level of importance emergency preparedness and services are for your neighborhood.

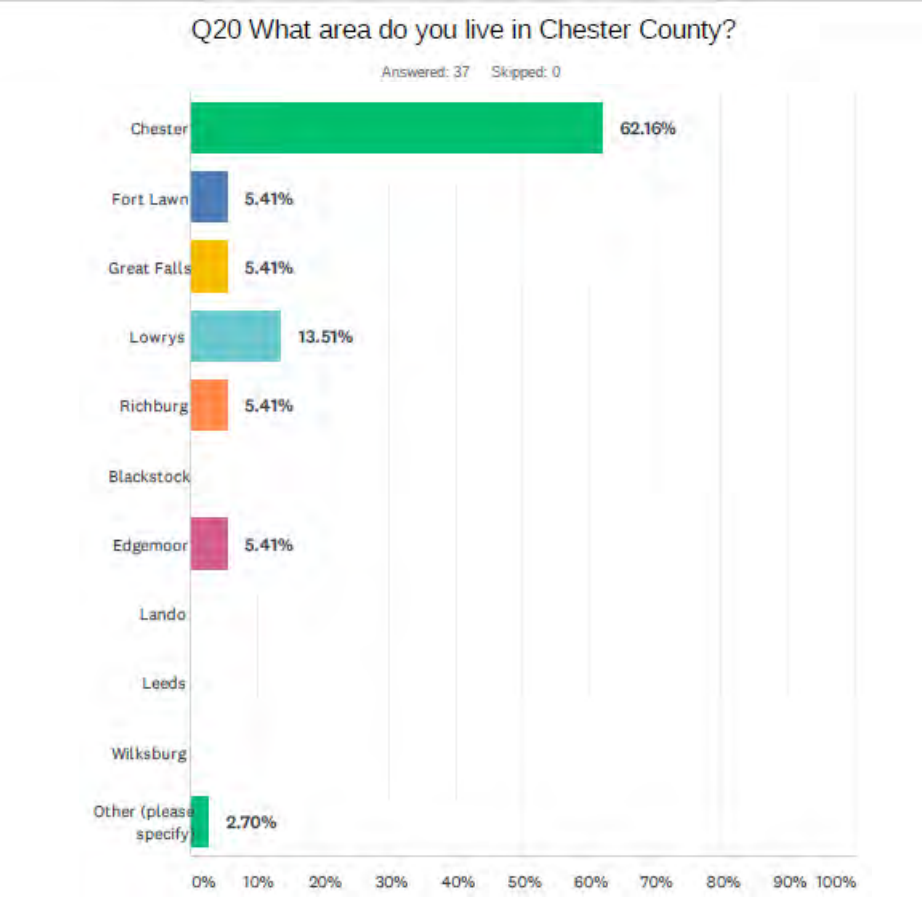


Q18 Infrastructure projects include engineering of structures to reduce the impact of hazards such as power generators, dams, bridges, etc. Indicate the level of importance infrastructure projects are for your neighborhood.



Q19 I strongly support the funding of identified mitigation programs in Chester County.




Q20 What area do you live in Chester County?
Answered: 37 Skipped: 0
Chester
62.16%
Fort Lawn
5.41%
Great Falls
5.41%
Lowrys
13.51%
Richburg
5.41%
Blackstock
Edgemoor
5.41%
Lando
Leeds
Wilksburg
Other (please specify)
2.70%
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

APPENDIX B: NOT FOR PUBLIC REVIEW

TABLE B.1: CRITICAL FACILITIES AND INFRASTRUCTURE

CRITICAL FACILITIES & INFRASTRUCTURE for CHESTER COUNTY, SOUTH CAROLINA

Including the following municipalities:

City of Chester, Town of Fort Lawn, Town of Great Falls, Town of Lowrys, Town of Richburg

NAME	ADDRESS	JURISDICTION	CLASS	Year Built / Updated / Type	Working Power Generator (YES/NO)	HAZARD IMPACT											Relative Overall Risk
						DG	DM	EQ	EH	FL	HR	HS	TR	WS	WF	WD	
CONTINUITY OF GOVERNMENT																	
R. Roddey Complex	1476 JA Cochran Bypass	Chester	Government		Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
City Hall	100 West End Street	Chester	Government	1891-Masonry	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Department of Social Services	115 Reedy Street	Chester	Government		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Chester County Emergency Management/EOC	127 Saluda Street	Chester	Government	1962-Masonry	Yes	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	5
Chester County Court House	140 Main Street	Chester	Government	1852-Masonry	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Memorial Building (FEMA)	154 Main Street	Chester	Government		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Chester County Detention Center	2740 Dawson St.	Chester	Government	1973/2011-Masonry	Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	4
COMMUNICATIONS																	
Chester County E911	2740 Dawson Drive	Chester	Communication		Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	4
Chester County Public Safety Communications Tower	657 Lowry's Highway	Chester	Communication Tower		Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Jeffco Communication Tower	3334 Armenia Rd.	Chester	Communication Tower		Yes	✓			✓		✓	✓		✓	✓	✓	3
Stewart Enterprises Tower	724 Communication Dr.	Richburg	Communication Tower		Yes	✓			✓		✓	✓		✓	✓	✓	3
Public Safety Communications Tower	880 Pine Ridge Rd.	Chester	Communication Tower		Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	4
TruVista Communications	112 York Street	Chester	Communication	Masonry	Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
TruVista Communications	116 York Street	Chester	Communication	Masonry	Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
TruVista Communications	1639 Boyd Road	Chester County	Communication	Masonry	Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	3
TruVista Communications	3275 Edgeland Road	Richburg	Communication	Masonry	Yes	✓			✓		✓	✓		✓	✓	✓	4

CRITICAL FACILITIES & INFRASTRUCTURE for CHESTER COUNTY, SOUTH CAROLINA

Including the following municipalities:

City of Chester, Town of Fort Lawn, Town of Great Falls, Town of Lowrys, Town of Richburg

NAME	ADDRESS	JURISDICTION	CLASS	Year Built / Updated / Type	Working Power Generator (YES/NO)	HAZARD IMPACT											Relative Overall Risk
						DG	DM	EQ	EH	FL	HR	HS	TR	WS	WF	WD	
TruVista Communications	501 Dearborn Street	Great Falls	Communication	Masonry	Yes	✓			✓		✓	✓	✓	✓	✓	✓	4
EMERGENCY RESPONSE																	
Chester County Sheriff Office	2740 Dawson Drive	Chester	Sheriff Station	2011-Masonry	Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	4
Chester County Sheriff Substation	203 N. Main Street	Richburg	Police Station	Masonry	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Fort Lawn Police Station	512 Municipal Drive	Fort Lawn	Police Station	Masonry	No	✓			✓		✓	✓	✓	✓	✓	✓	5
Great Falls Police Station	324 Dearborn Street	Great Falls	Police Station	Masonry	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	4
Chester City Fire Department	156 Columbia Street	Chester	Fire Department	1980-Masonry	Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Chester City Fire Sub Station	988 McCandless Road	Chester	Fire Department		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Cross Roads Fire Department	4711 Cabal Road	Sharon	Fire Department	1999-Cinderblock	No	✓	✓		✓		✓			✓	✓	✓	3
Fort Lawn Fire Department	5671 Pleasent Ave.	Fort Lawn	Fire Department	1972-Cinderblock	No	✓			✓		✓	✓	✓	✓	✓	✓	4
Fort Lawn Fire Sub Station	3442 Catawba River Rd.	Fort Lawn	Fire Department		No	✓			✓		✓	✓	✓	✓	✓	✓	4
Great Falls Fire Department	506 Chester Ave.	Great Falls	Fire Department	1960/2010-Steel	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Lando Fire Department	3795 Lando Rd.	Edgemoor	Fire Department	2007-Steel	No	✓		✓	✓		✓	✓		✓	✓	✓	3
Lando Fire Substation	2022 Killian Road	Edgemoor	Fire Department	1990-Steel	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	4
Lando Fire Dept. (Edgemoor Substation)	4887 Edgeland Rd.	Edgemoor	Fire Department	1957-Cinderblock	No	✓			✓		✓			✓	✓	✓	4
Leeds Fire Department	3441 West End Red.	Carlisle	Fire Department	1965-Cinderblock	No	✓			✓		✓	✓		✓	✓	✓	3
Lewis Fire Department	1998 Saluda Rd.	Chester	Fire Department	1967-Cinderblock	No	✓			✓		✓			✓	✓	✓	4
North Chester Fire Department	2428 Old York Rd.	Lowrys	Fire Department	1958/1992 - Cinderblock	No	✓			✓		✓	✓	✓	✓	✓	✓	3
Richburg Fire Department	225 North Main St.	Richburg	Fire Department	2013-Steel/Masonry	No	✓	✓		✓		✓	✓	✓	✓	✓	✓	4

CRITICAL FACILITIES & INFRASTRUCTURE for CHESTER COUNTY, SOUTH CAROLINA

Including the following municipalities:

City of Chester, Town of Fort Lawn, Town of Great Falls, Town of Lowrys, Town of Richburg

NAME	ADDRESS	JURISDICTION	CLASS	Year Built / Updated / Type	Working Power Generator (YES/NO)	HAZARD IMPACT											Relative Overall Risk
						DG	DM	EQ	EH	FL	HR	HS	TR	WS	WF	WD	
Richburg Fire Sub Station	2748 Knox Sation Road	Chester	Fire Department	1988-Steel	No	✓			✓		✓			✓	✓	✓	3
Rossville Fire Department	3686 Mountain Gap Rd.	Richburg	Fire Department	1964-Cinderblock	No	✓			✓		✓			✓	✓	✓	3
Rossville Sub Station	2774 Mountain Gap Rd.	Richburg	Fire Department	2004-Steel	No	✓			✓		✓			✓	✓	✓	3
South Chester Fire Department	2252 Columbia Rd.	Blackstock	Fire Department	1965-Cinderblock	No	✓			✓		✓		✓	✓	✓	✓	3
South Chester Sub Station	1599 Pleasant Grove Rd.	Chester	Fire Department	1995-Steel	No	✓	✓		✓		✓	✓	✓	✓	✓	✓	5
West Chester Fire Department	1690 Pinckney St.	Chester	Fire Department	1962-Cinderblock	No	✓		✓	✓		✓	✓	✓	✓	✓	✓	3
Chester County Coroners Office	514-B Government Drive	Chester County	Coroner	2015-Masonry	Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Chester EMS	514-A Government Drive	Chester	EMS	2015-Masonry	Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Richburg EMS	193 East Lancaster Hwy.	Richburg	EMS		No	✓	✓		✓		✓	✓	✓	✓	✓	✓	4
Great Falls EMS	506 Chester Ave.	Great Falls	EMS	1960/2010-Steel	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Great Falls Rescue Squad	560 Chester Ave.	Great Falls	Rescue Squad		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Chester Rescue Squad	602 Lancaster Hwy	Chester	Rescue Squad		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Chester Animal Control	2714 Dawson Drvie	Chester	Animal Control		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	4
HOSPITALS																	
Chester Regional Medical Center	1 Medical Park Dr.	Chester	Hospital	1952/65/67/68/77/78/80/86/88/90/91/92/97/99	Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
HEALTH CARE FACILITIES																	
Chester Care Facility	570 Center Rd	Chester	Residential Care		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Chester County Nursing Center	1 Medical Park Dr	Chester	Nursing Care		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5

CRITICAL FACILITIES & INFRASTRUCTURE for CHESTER COUNTY, SOUTH CAROLINA

Including the following municipalities:

City of Chester, Town of Fort Lawn, Town of Great Falls, Town of Lowrys, Town of Richburg

NAME	ADDRESS	JURISDICTION	CLASS	Year Built / Updated / Type	Working Power Generator (YES/NO)	HAZARD IMPACT											Relative Overall Risk
						DG	DM	EQ	EH	FL	HR	HS	TR	WS	WF	WD	
Chester County Dialysis Center	501 Health Way Dr.	Chester	Dialysis Center		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Hazel Pittman Center	130 Hudson St	Chester	Outpatient, Dependency		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Helms-Gordon Residential Care Home	714 Funderburke St	Fort Lawn	Residential Care		No	✓			✓		✓	✓	✓	✓	✓	✓	5
Neighbors Care Home Health Agency	173 Columbia St.	Chester	Home Health		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Palmetto Village	570 A Center Road	Chester	Residential Care		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Riley's Residential Care Home	2327 Brian Christopher Dr	Great Falls	Residential Care		No	✓		✓	✓		✓			✓	✓	✓	3
Villa of Chester Active Day Center	609 Columbia Rd.	Chester	Adult Day Care		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Chester Health Department	129 Wylie St.	Chester	Public Health		Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Great Falls Health Department	404 Chester Ave.	Great Falls	Public Health		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
SCHOOLS																	
Chester County Career Center (Shelter)	1324 J A Cochran Bypass	Chester	Grades 9-12	1968-Masonry	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Chester High	1330 J A Cochran Bypass	Chester	Grades 9-12	1974-Masonry	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Chester Park Elementary	835 Lancaster Hwy.	Chester	Grades K-5	1993-Masonry	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Lewisville Middle	3595 Lancaster Hwy.	Richburg	Grades K-8	2003-Masonry	No	✓	✓		✓		✓	✓	✓	✓	✓	✓	4
Lewisville High	3971 Lewisville High School Rd	Richburg	Grades 9-12	1972-Masonry	No	✓	✓		✓		✓	✓	✓	✓	✓	✓	4
Lewisville Elementary	4006 Lewisville High School Rd	Richburg	Grades K-5	1993-Masonry	No	✓	✓		✓		✓	✓	✓	✓	✓	✓	4
Great Falls Elementary	301 Dearborn Street	Great Falls	Grades K-5	1957, addition 1978, addition 1998-Masonry	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	4
Great Falls Middle	409 Sunset Avenue	Great Falls	Grades 6-8	1993-Masonry	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Great Falls High	411 Sunset Avenue	Great Falls	Grades 9-12	1964-Masonry	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
SHELTERS																	

CRITICAL FACILITIES & INFRASTRUCTURE for CHESTER COUNTY, SOUTH CAROLINA

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NAME	ADDRESS	JURISDICTION	CLASS	Year Built / Updated / Type	Working Power Generator (YES/NO)	HAZARD IMPACT											Relative Overall Risk
						DG	DM	EQ	EH	FL	HR	HS	TR	WS	WF	WD	
Chester County Hospital	1 Medical Park DR	Chester	Special Medical Needs		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Lewisville Middle	3595 Lancaster Hwy.	Richburg	Reserve	2003-Masonry	No	✓	✓		✓		✓	✓	✓	✓	✓	✓	4
Lewisville High	3971 Lewisville High School Rd	Richburg	Reserve	1972-Masonry	No	✓	✓		✓		✓	✓	✓	✓	✓	✓	4
Lewisville Elementary	4006 Lewisville High School Rd	Richburg	Reserve	1993-Masonry	No	✓	✓		✓		✓	✓	✓	✓	✓	✓	4
Ella Street Armory	109 Ella Street	Chester	Reserve		Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
First Baptist Church	102 Church Street	Chester	Reserve		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
First Baptist Church	165 N Main Street	Richburg	Reserve		No	✓	✓		✓		✓	✓	✓	✓	✓	✓	4
Union ARP Church	3549 Lancaster Highway	Richburg	Reserve		No	✓	✓		✓		✓	✓	✓	✓	✓	✓	4
Parkway Baptist Church	823 J A Cochran Bypass	Chester	Reserve	1957-Brick 1994-Metal	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Edgemoor ARP Church	2135 Starnes Road	Edgemoor	Reserve		No	✓	✓		✓		✓	✓	✓	✓	✓	✓	4
Mt Prospect United Methodist Church	2761 Peden Bridge Road	Richburg	Reserve		No	✓	✓		✓		✓	✓	✓	✓	✓	✓	5
Fort Lawn Community Center	555 Main Street	Fort Lawn	Reserve		No	✓			✓		✓	✓	✓	✓	✓	✓	5
PUBLIC WORKS																	
Chester Metropolitan District	155 Wylie Street	Chester	Business Office	1964-Cinderblock	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Chester Metropolitan District	6144 Lancaster Highway	Fort Lawn	Business Office	1964-Cinderblock	No	✓			✓		✓	✓	✓	✓	✓	✓	4
Chester Sewer District	155 Wylie St.	Chester	Business Office	1950-Cinderblock	No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Chester Sewer District	1649 Radcliff Road	Chester	Business Office		No	✓	✓	✓	✓		✓			✓	✓	✓	3
Public Works	405 Ashford Street	Chester	Business Office		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
Sandy River Wastewater Treatment Plant	1649 Radcliff Road	Chester	Wastewater Treatment Plant	1978-Cinderblock	No	✓	✓	✓	✓		✓			✓	✓	✓	3
Rocky Creek Waste Water Treatment	663 Ecology Road	Chester	Wastewater Treatment Plant	1978-Cinderblock	No	✓	✓	✓	✓		✓			✓	✓	✓	5

CRITICAL FACILITIES & INFRASTRUCTURE for CHESTER COUNTY, SOUTH CAROLINA

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NAME	ADDRESS	JURISDICTION	CLASS	Year Built / Updated / Type	Working Power Generator (YES/NO)	HAZARD IMPACT											Relative Overall Risk
						DG	DM	EQ	EH	FL	HR	HS	TR	WS	WF	WD	
Great Falls Waste Water Treatment	5803 Brooklyn Road	Great Falls	Wastewater Treatment Plant		No	✓	✓	✓	✓		✓	✓		✓	✓	✓	4
SCDOT - Engineering	1232 JA Cochran Bypass	Chester County	Public Works		Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	5
SCDOT - Richburg	1936 Mountain Gap Road	Richburg	Public Works		Yes	✓	✓		✓		✓	✓	✓	✓	✓	✓	3
SCDOT - Great Falls	5242 Sweatt McCullogh Road	Great Falls	Public Works		Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	4
TRANSPORTATION																	
Chester Municipal Airport	1858 Piper Drive	Chester	Airport		No	✓	✓		✓		✓	✓	✓	✓	✓	✓	4
SC Department of Transportation	1143 Scdot Rd.	Chester	Transportation		Yes	✓	✓	✓	✓		✓	✓		✓	✓	✓	4
						93	**72**	**59**	**93**	**1**	**93**	**82**	**25**	**93**	**93**	**93**	

DG: Drought
DM: Dams
EQ: Earthquakes
EH: Extreme Heat
FL: Flooding
HR: Hurricanes
HS: Hail
TR: Tornados
WS: Winter Storms
WF: Wildfires
WD: Windstorms

CRITICAL FACILITIES AND INFRASTRUCTURE TABLE SUMMARY

Since the historical GIS mapping data is statewide for hurricanes and tropical storms; severe winter storms; severe thunderstorms, hail, and lightning; wildfires; droughts; extreme heat; and windstorms, all 93 Critical Facilities and Infrastructure for Chester County show impact from the before listed hazards.

Of eleven (11) potential hazard impacts, 1 of the critical facilities has experienced 10 of the eleven events, the Chester County Emergency Management Agency's Emergency Operations Command Center*. 72% of the County's critical facilities have experienced nine (9) out of the eleven hazard impacts including 100% of the continuity of government facilities, 57% of the emergency response facilities, 83% of hospitals and healthcare facilities, 95% of schools and shelters, 64% of public works facilities, and 100% of transportation facilities.

*Although the Chester County Emergency Management Agency's Emergency Operations Command Center is on the edge of the 100-Year Floodplain, it has experienced a reoccurrence of flooding; therefore, the "flooding" hazard impact has been checked.

FLOODING (FL)
According to FIRM GIS data, none of the critical facilities in Chester County are in the 100-year floodplain.

DAMS (DM)
76% (71) of facilities are in areas near dams that are deemed to have a high or significant hazard potential or dams deemed to pose a low hazard if they meet inclusion criteria based on dam height and storage volume. Low hazard potential dams are included if they meet either of the following selection criteria: 1) exceeds 25 feet in height and 15 acre-feet of storage, or 2) exceeds 6 feet in height and 50-acre feet of storage. 60% (21) of the 35 dams in Chester County are a Dam Class 1, high hazard potential, or a Dam Class 2, Significant Hazard Potential.

EARTHQUAKES (EQ)
63% (59) of facilities are in areas that have historically been impacted by earthquakes.

HAILSTORMS (HS)
88% (82) of facilities are in areas that have historically been impacted by hailstorms.

TORNADOES (TR)
27% (25) of facilities are in areas that have historically been impacted by tornadoes.

FIGURE B.1: CHESTER COUNTY HAZARD MITIGATION PLANNING AREA

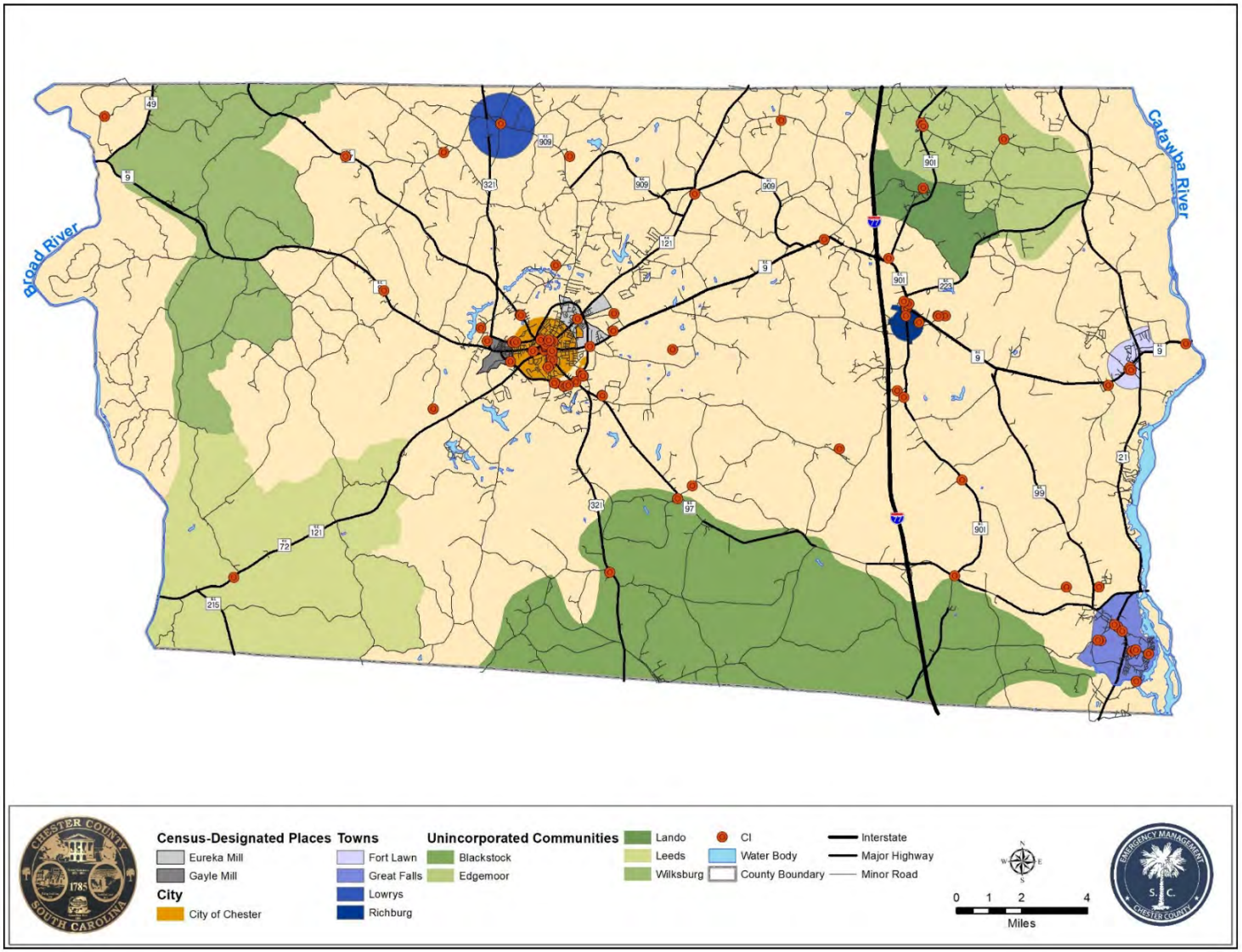


FIGURE B.2: CHESTER COUNTY – FLOOD DOLLAR EXPOSURE (REPLACEMENT VALUE)

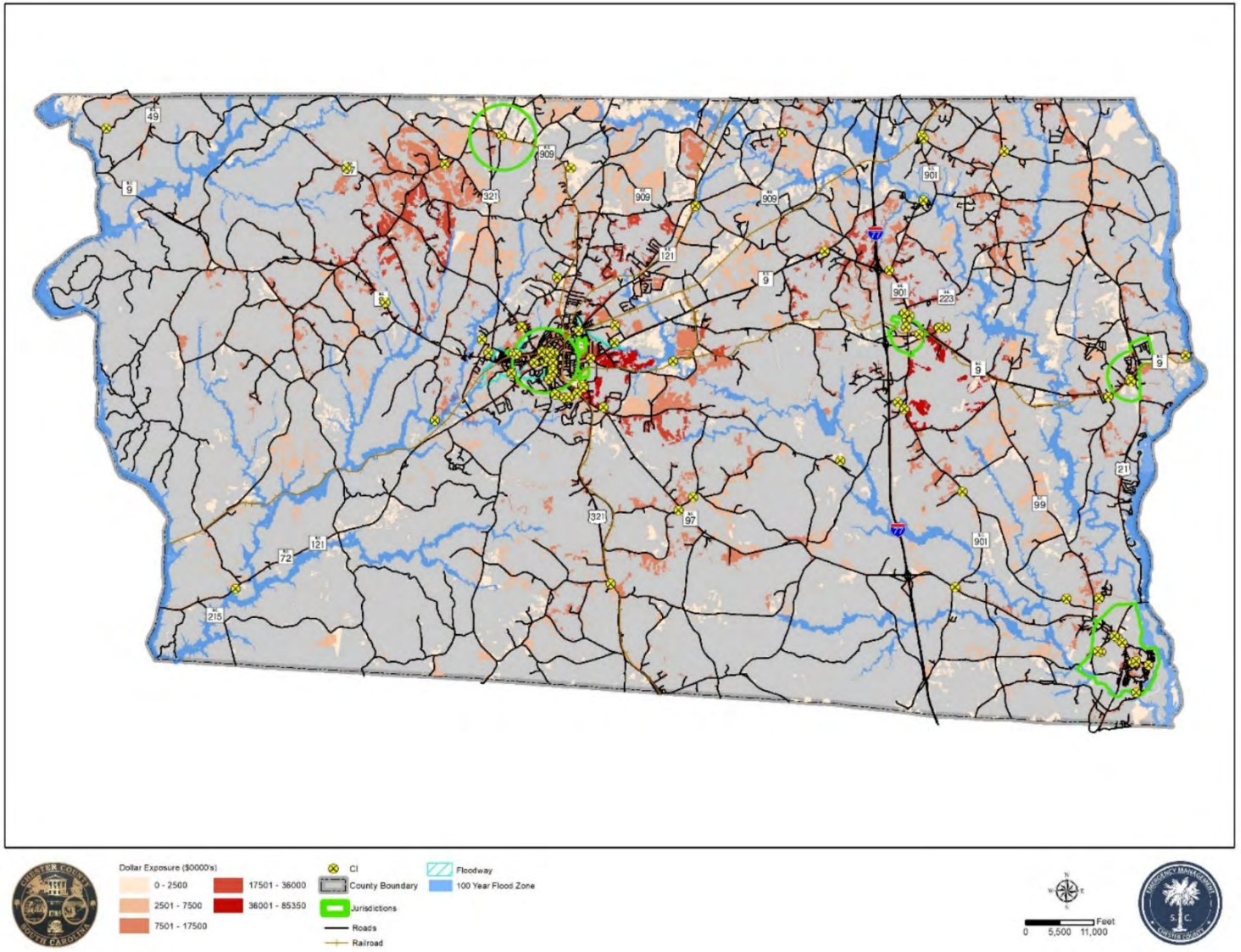


FIGURE B.3: CITY OF CHESTER – FLOOD DOLLAR EXPOSURE (REPLACEMENT VALUE)

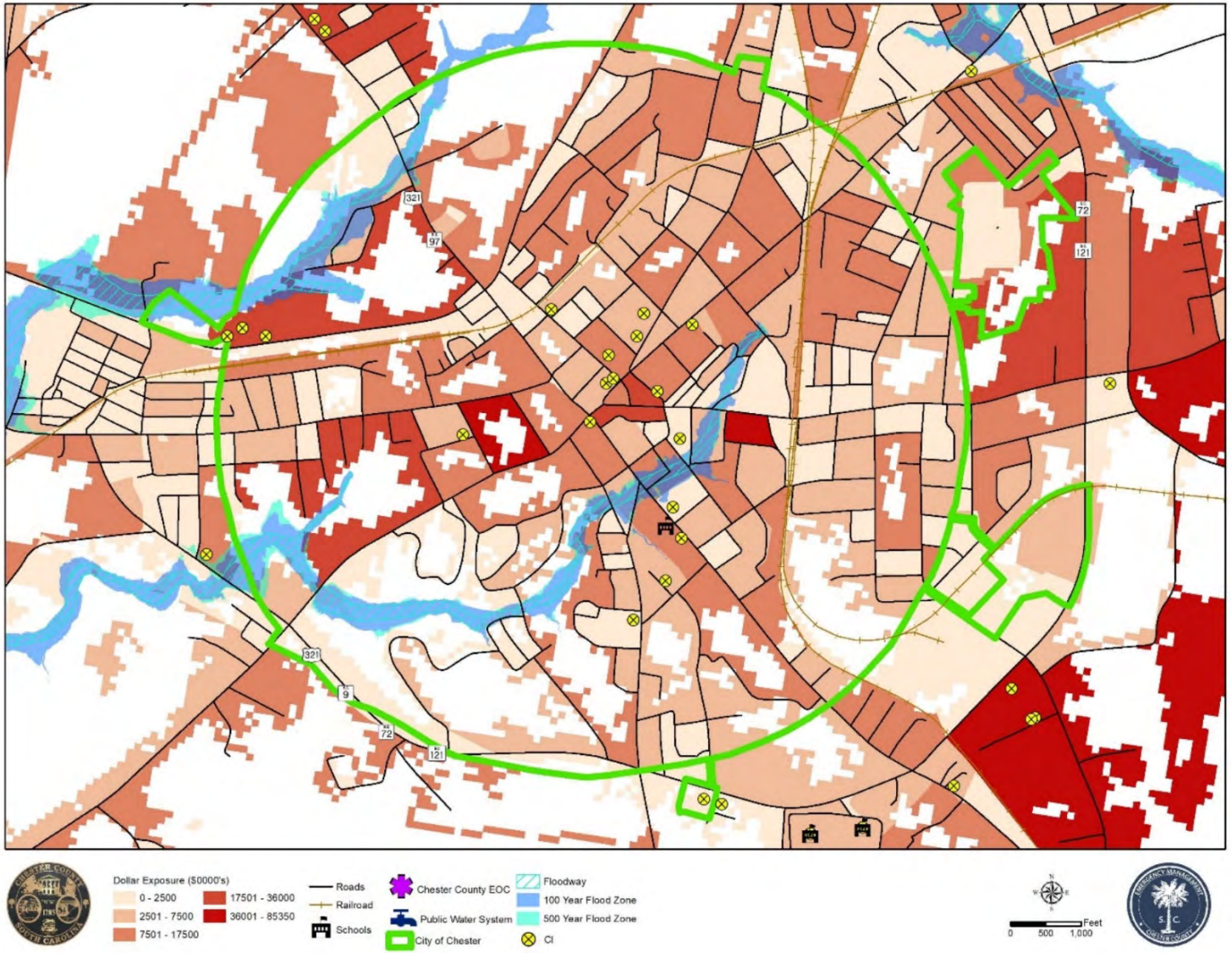


FIGURE B.4: TOWN OF FORT LAWN – FLOOD DOLLAR EXPOSURE (REPLACEMENT VALUE)

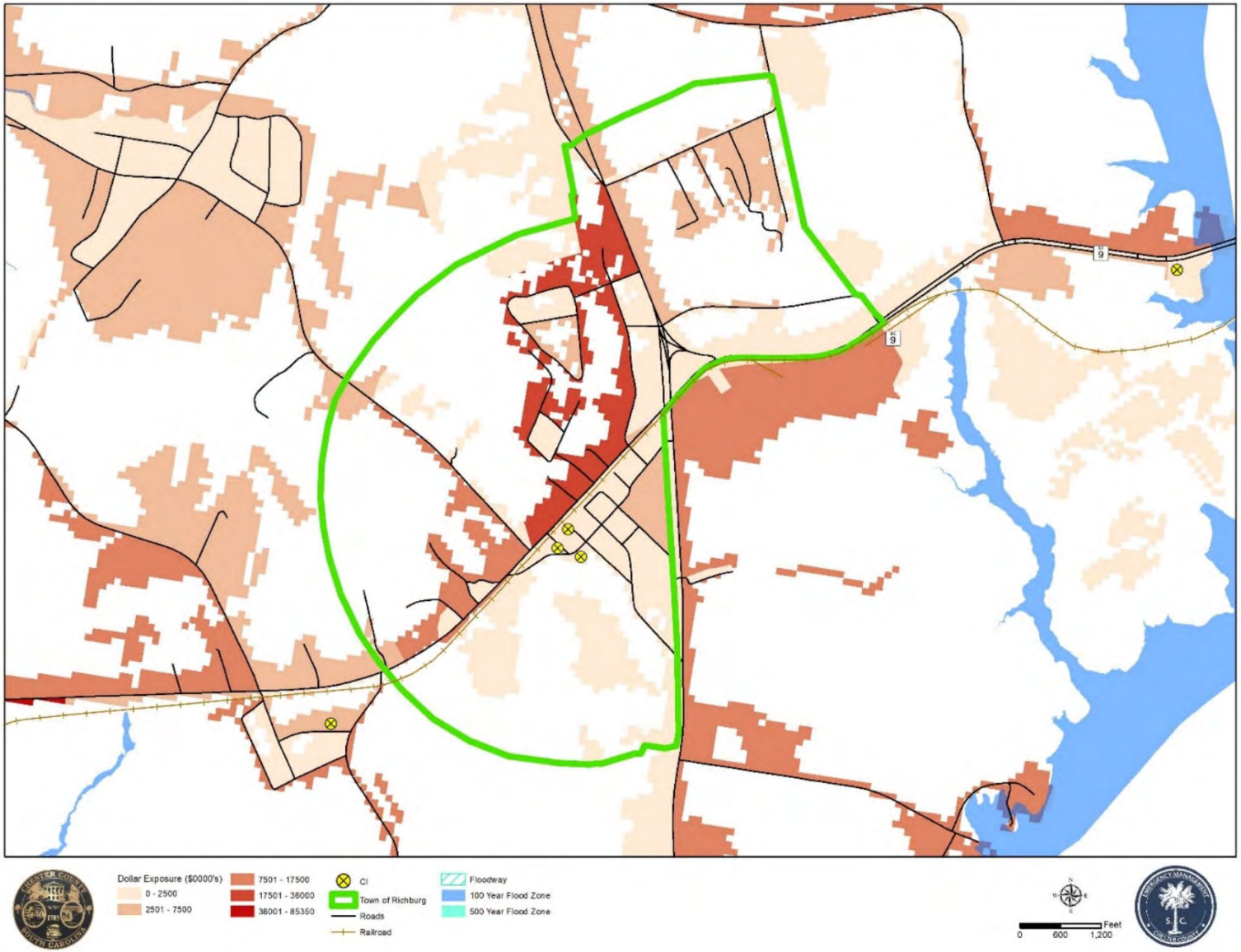


FIGURE B.5: TOWN OF LOWRYS – FLOOD DOLLAR EXPOSURE (REPLACEMENT VALUE)

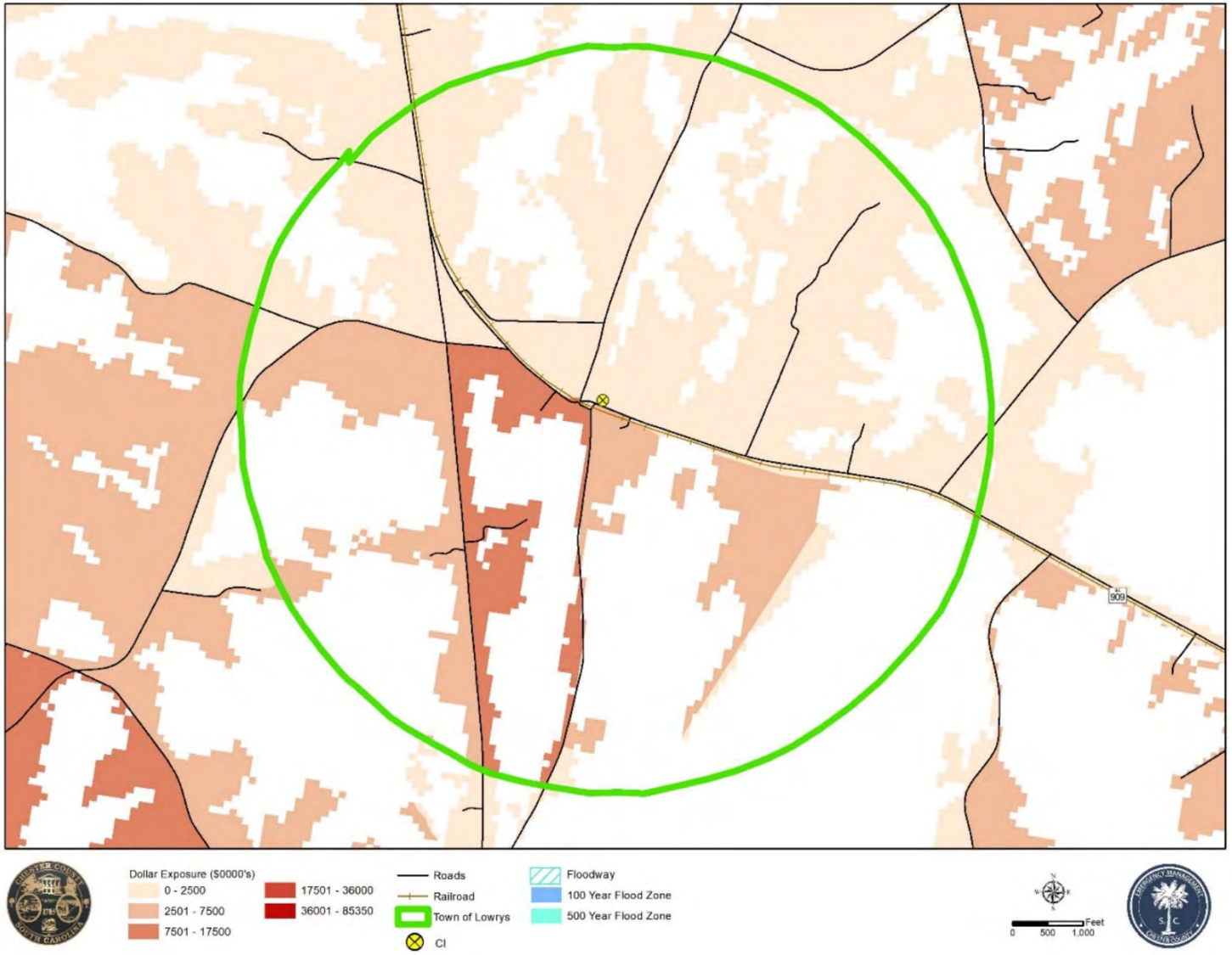


FIGURE B.6: TOWN OF GREAT FALLS – FLOOD DOLLAR EXPOSURE (REPLACEMENT VALUE)

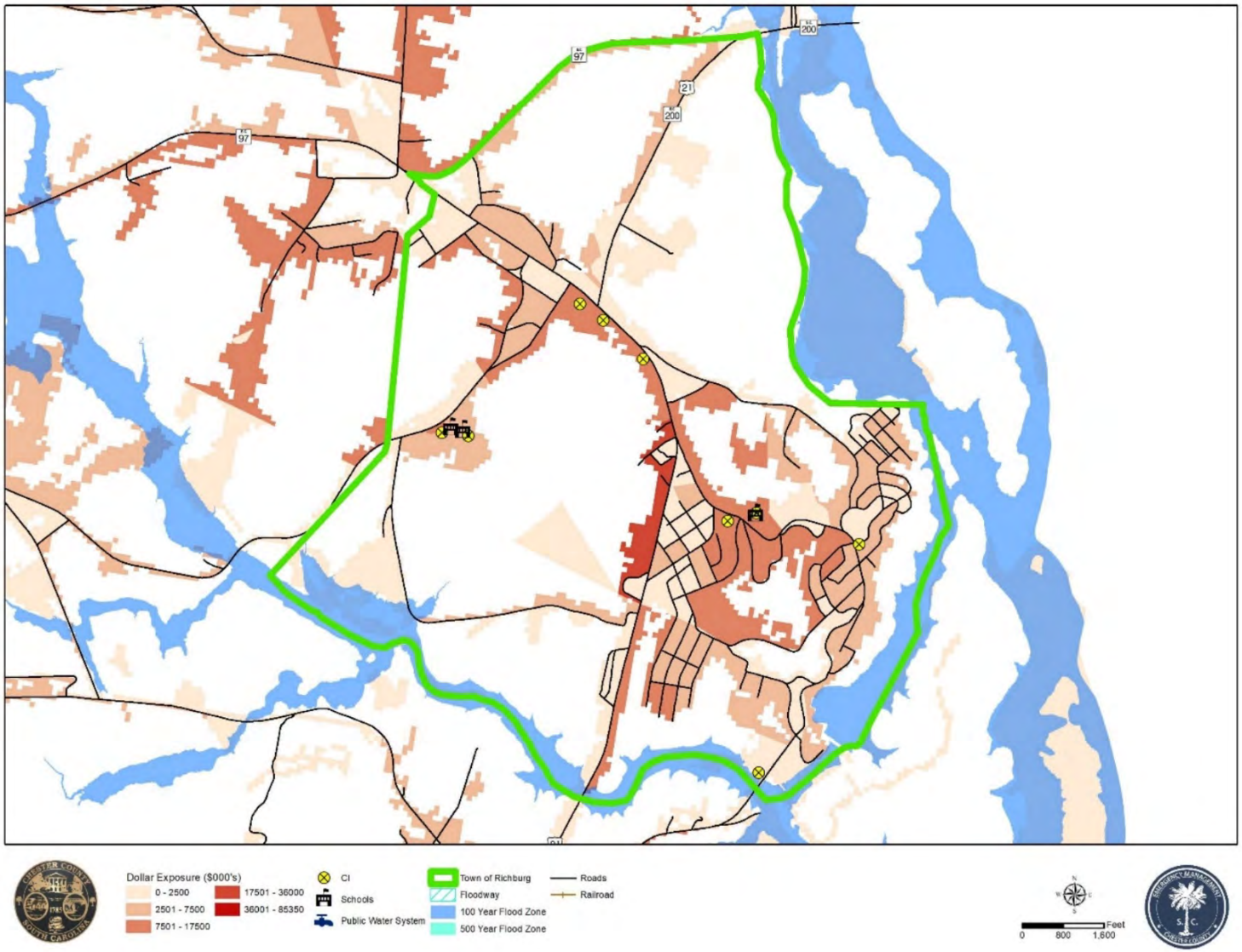


FIGURE B.7: TOWN OF RICHBURG – FLOOD DOLLAR EXPOSURE (REPLACEMENT VALUE)

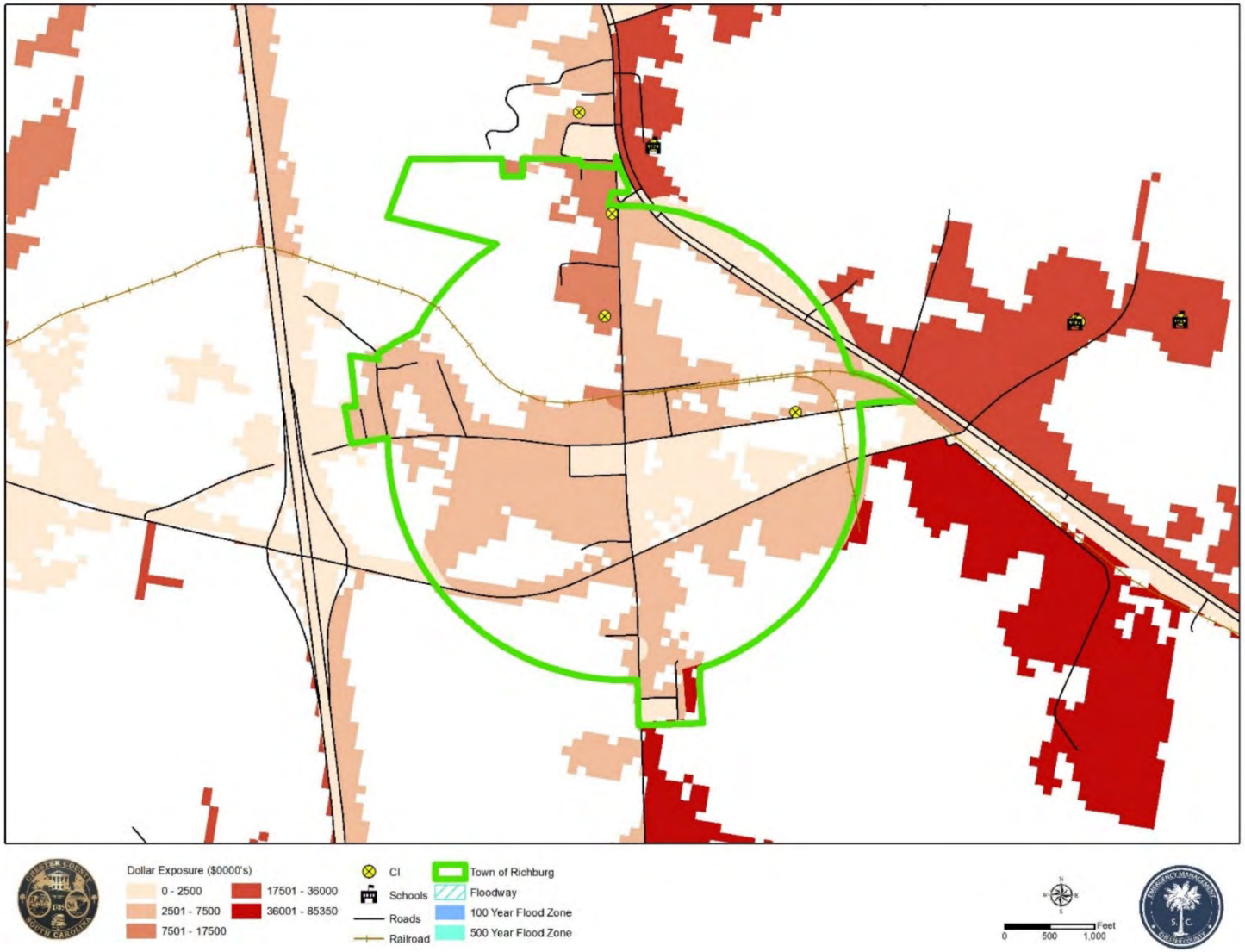


FIGURE B.8: CHESTER COUNTY HURRICANES 1851 – 2020

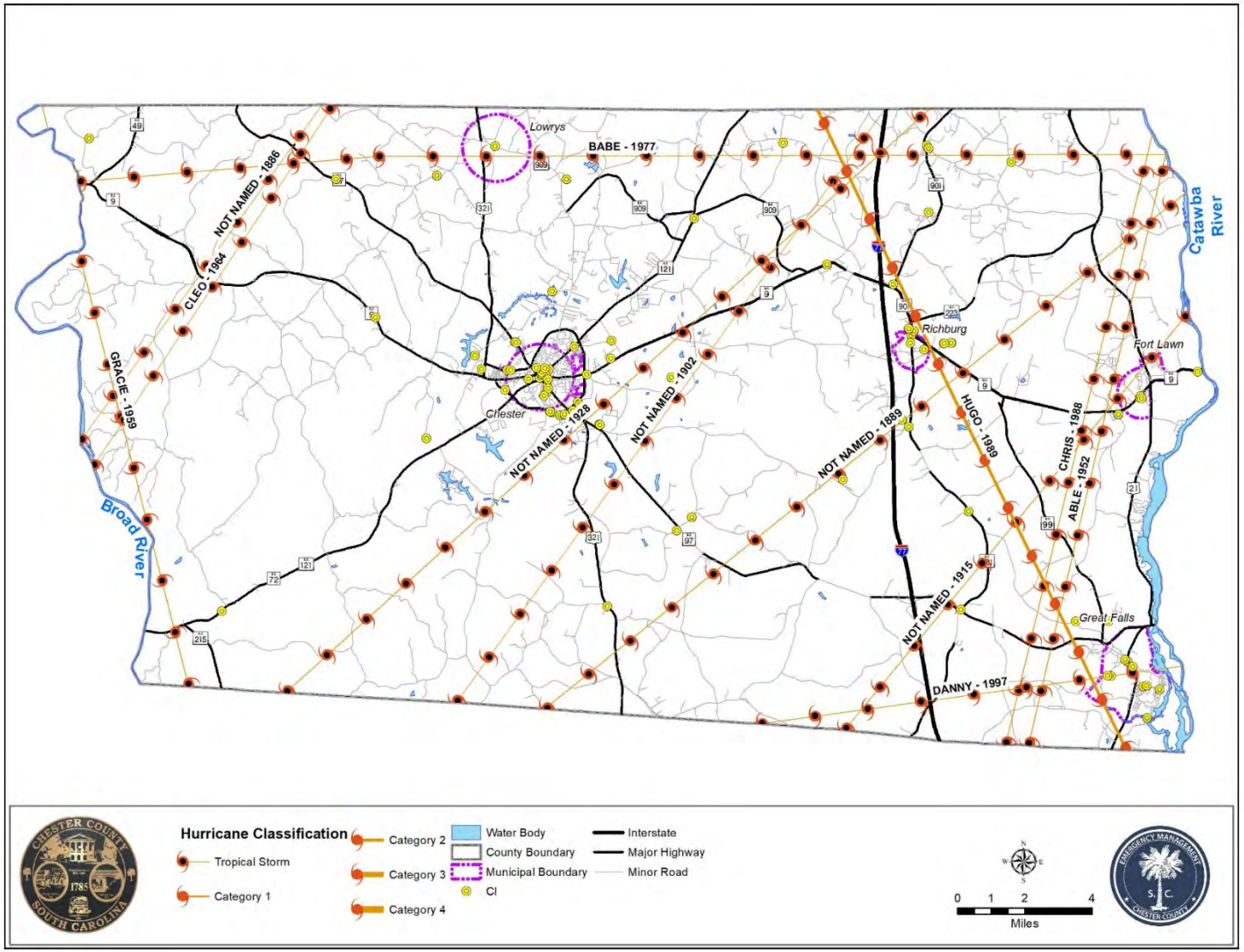


FIGURE B.9: CHESTER COUNTY TORNADOS 1950 – 2020

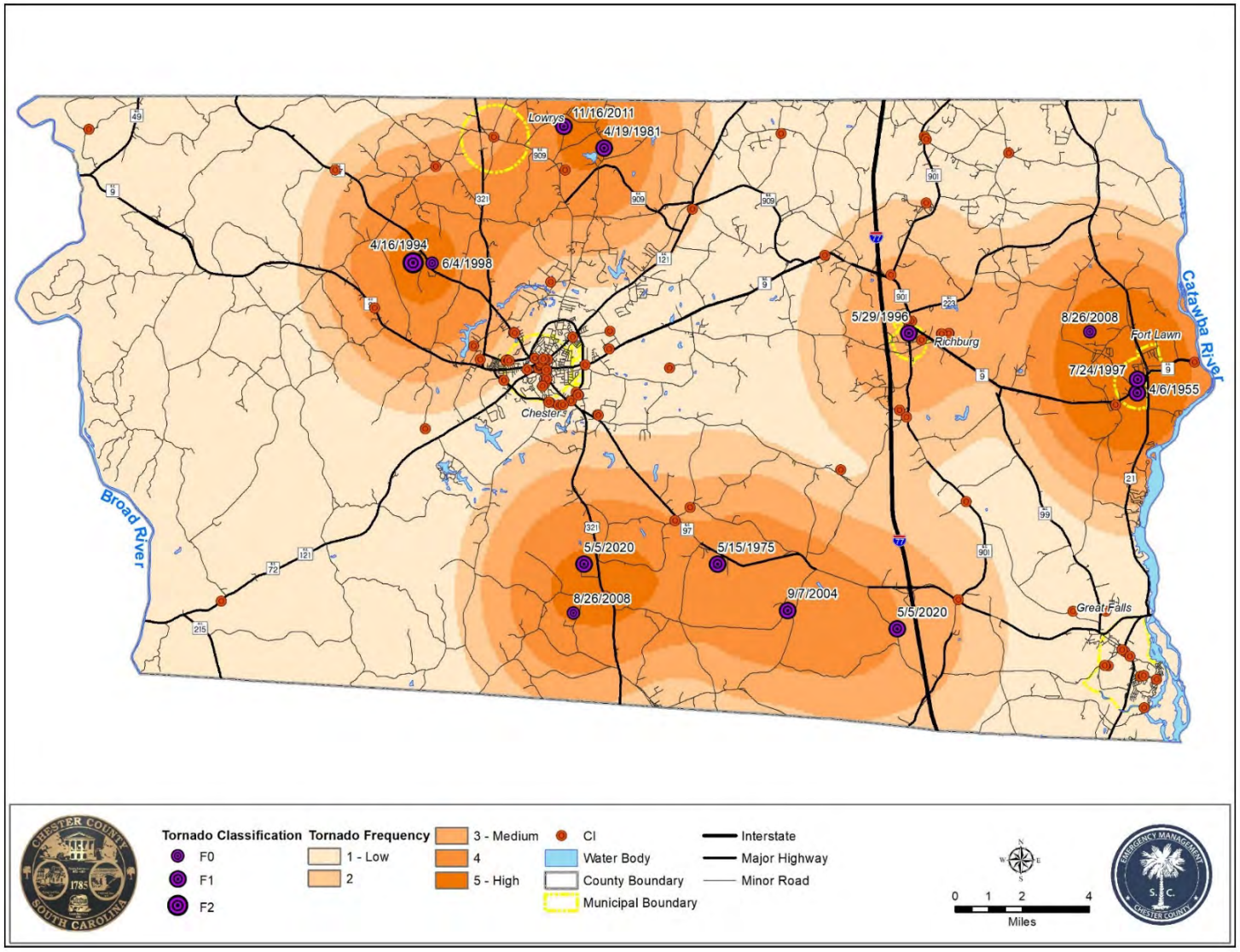


FIGURE B.10: CHESTER COUNTY WINTER STORM FREQUENCY 1960 – 2019

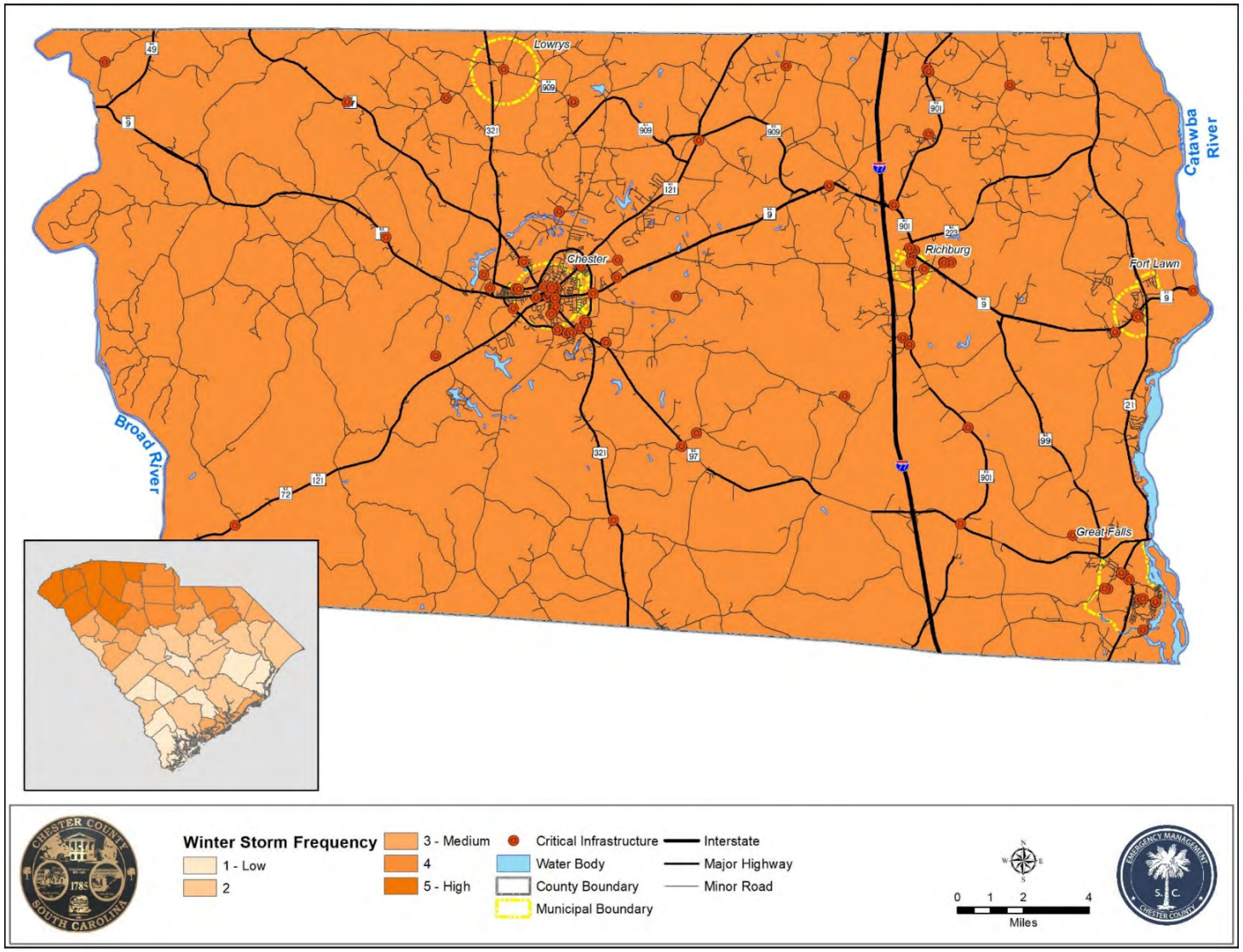


FIGURE B.11: CHESTER COUNTY SEVERE THUNDERSTORMS 1956 – 2020

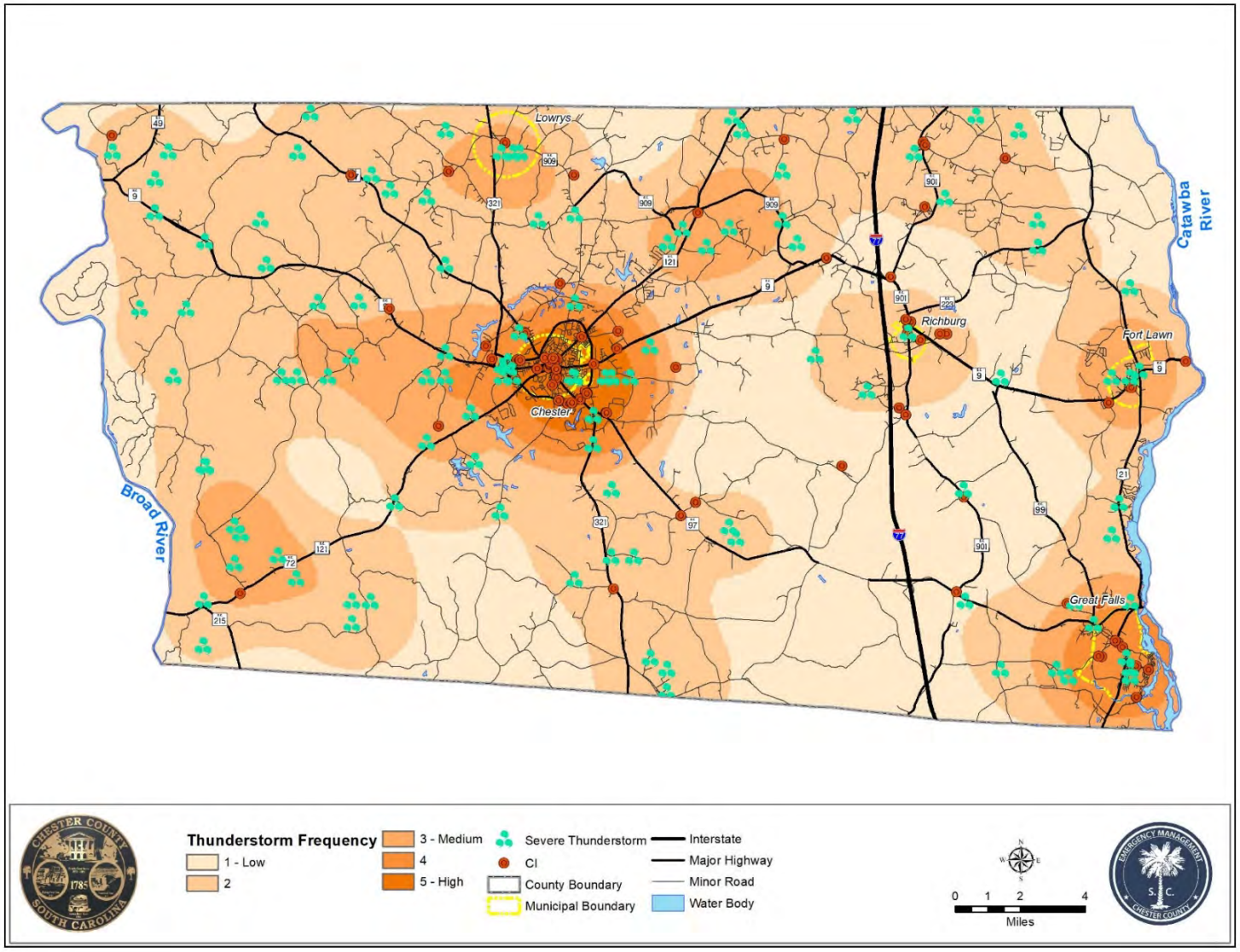


FIGURE B.12: CHESTER COUNTY HAIL 1963 – 2020

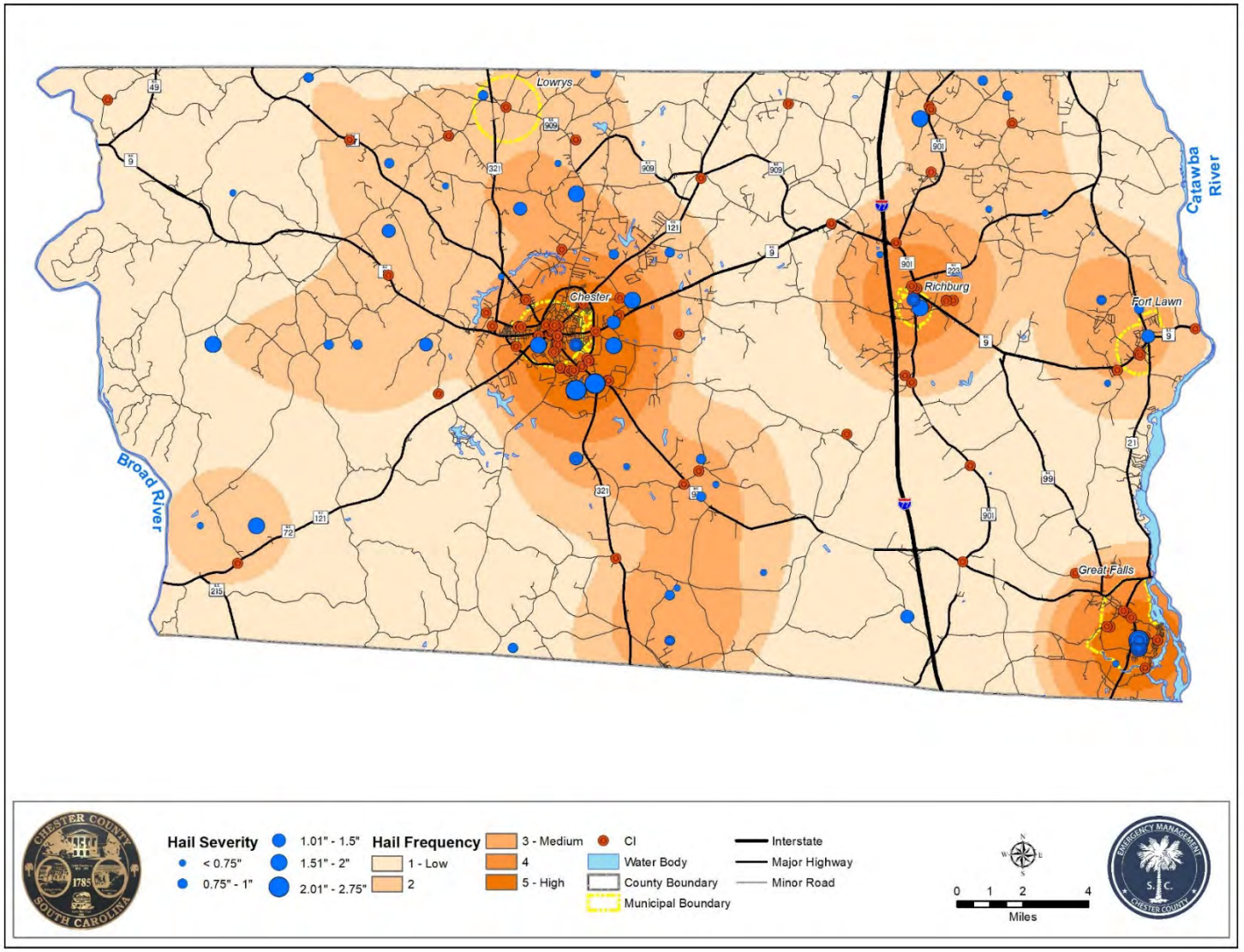


FIGURE B.13: CHESTER COUNTY LIGHTNING FREQUENCY 1960 – 2019

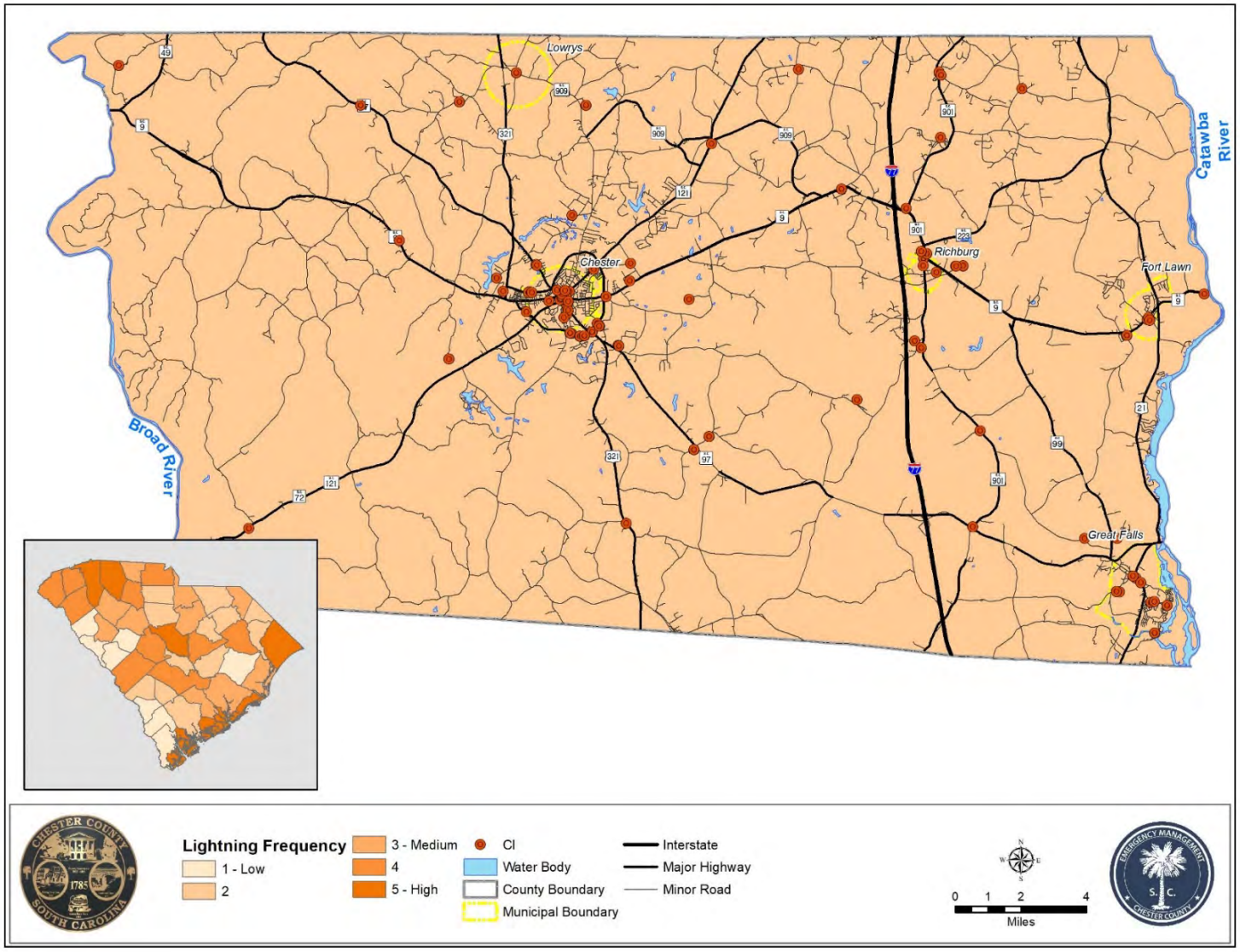


FIGURE B.14: CHESTER COUNTY WILDFIRE FREQUENCY 1966 – 2019

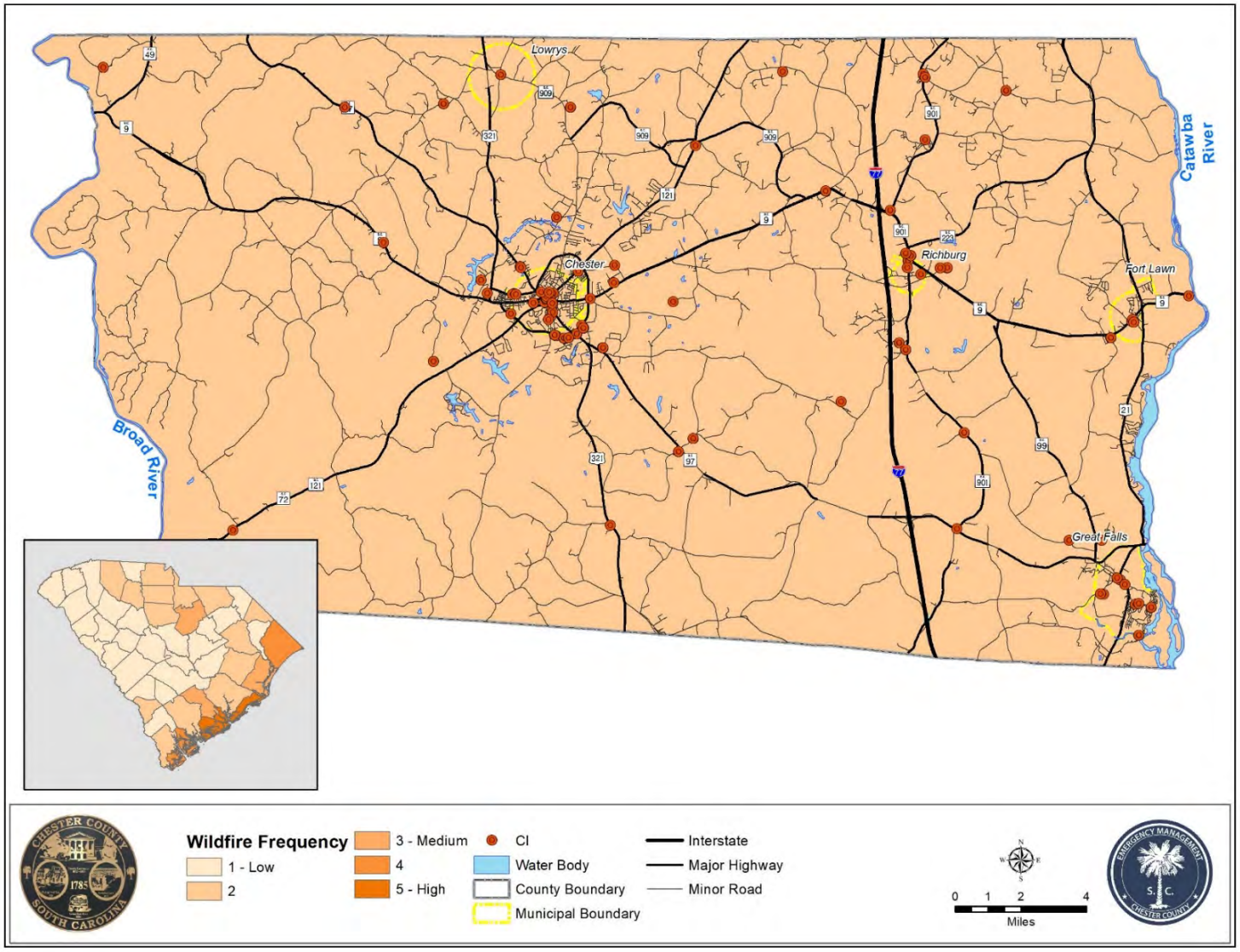


FIGURE B.15: CHESTER COUNTY EARTHQUAKES 1968 – 2020

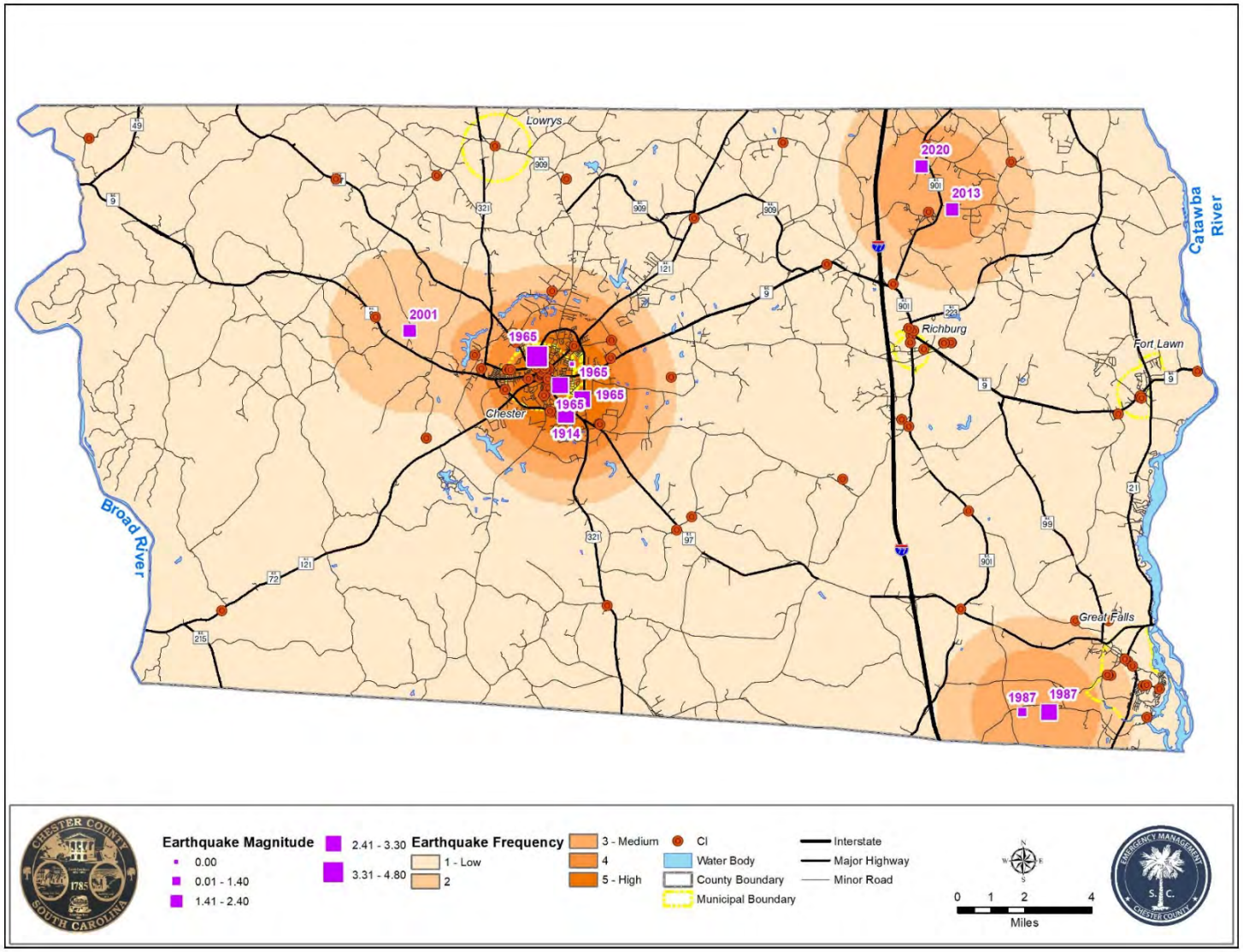


FIGURE B.16: CHESTER COUNTY DROUGHT FREQENCY 1960 – 2019

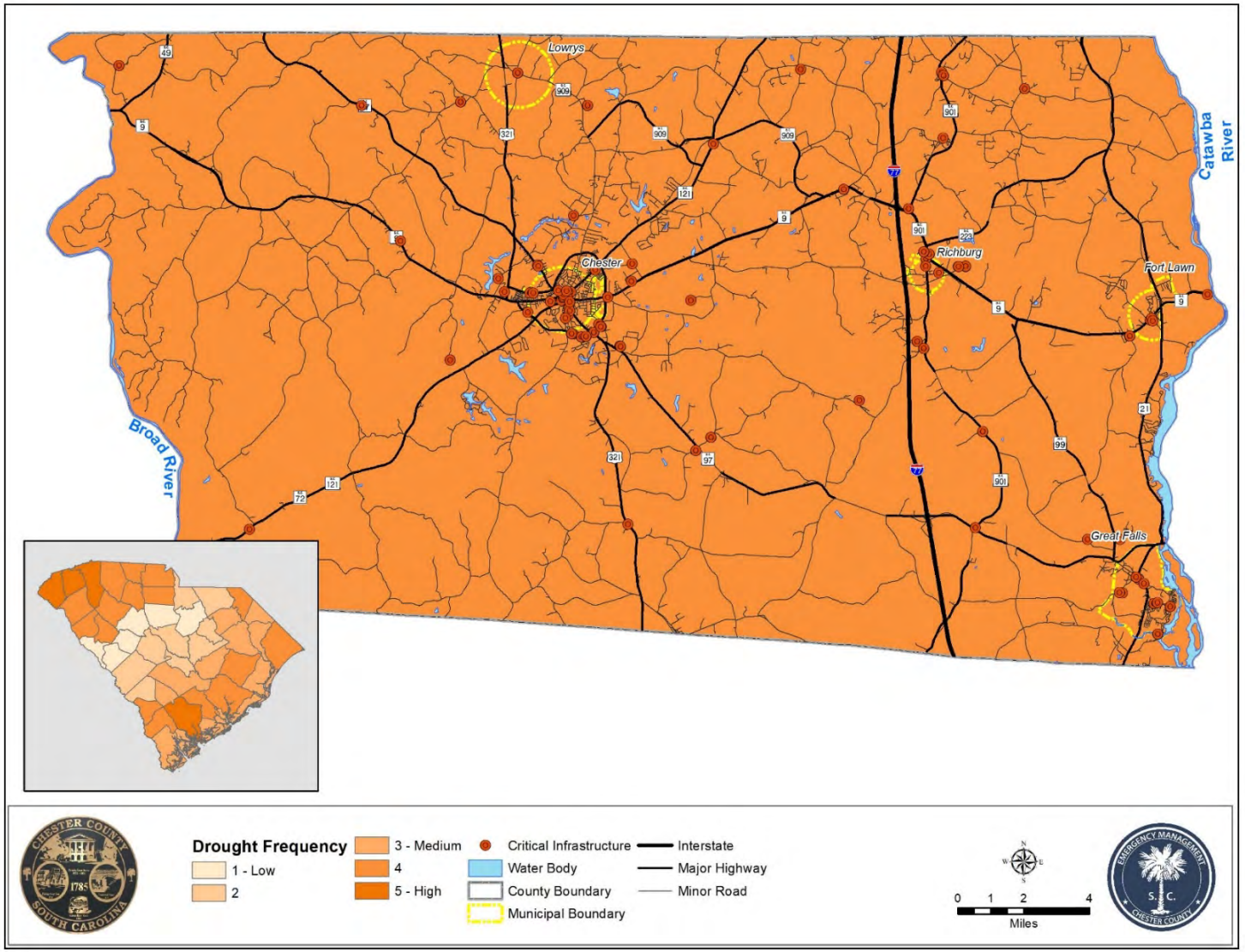


FIGURE B.17: CHESTER COUNTY EXTREME HEAT FREQUENCY 1976 – 2019

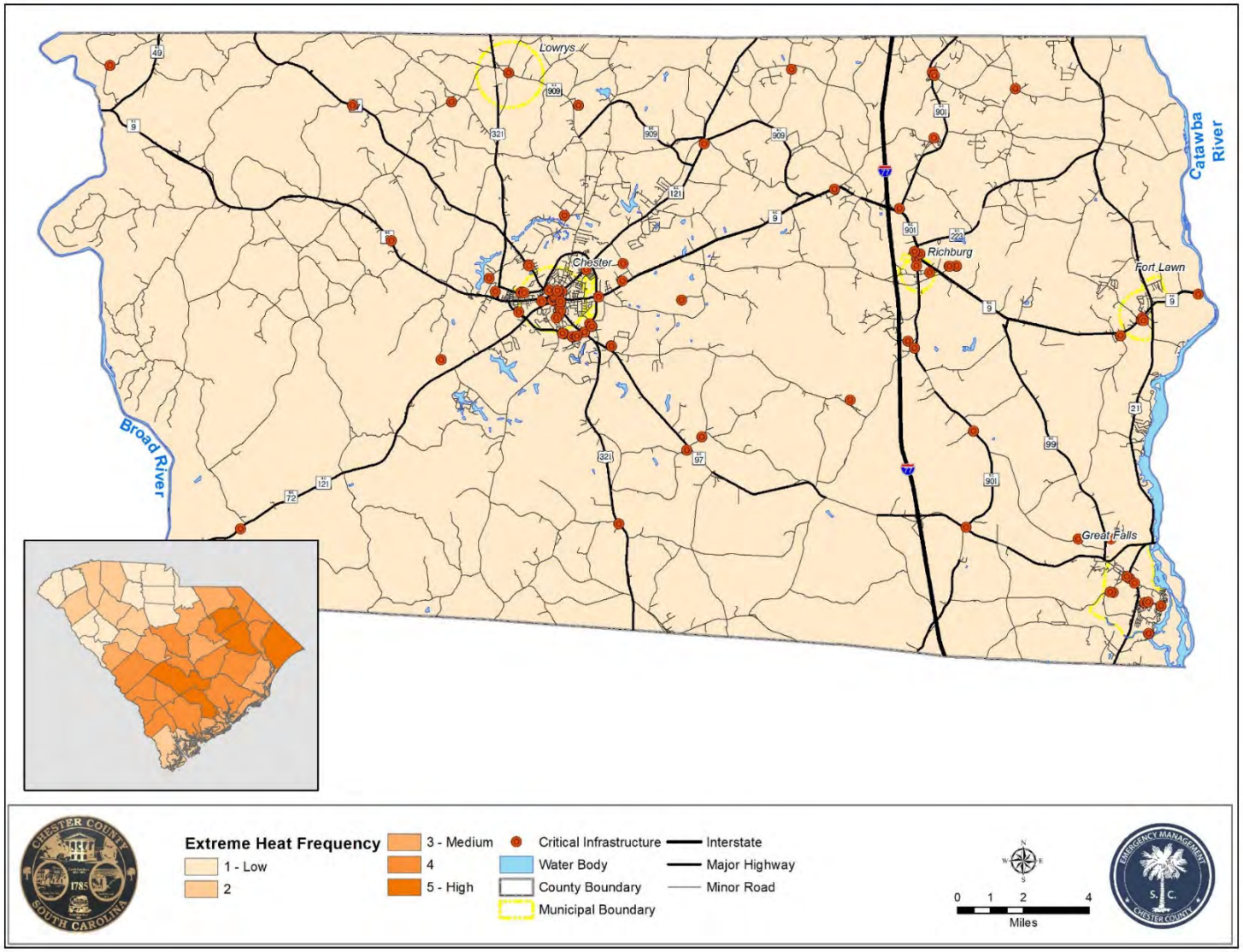


FIGURE B.18: CHESTER COUNTY DAMS

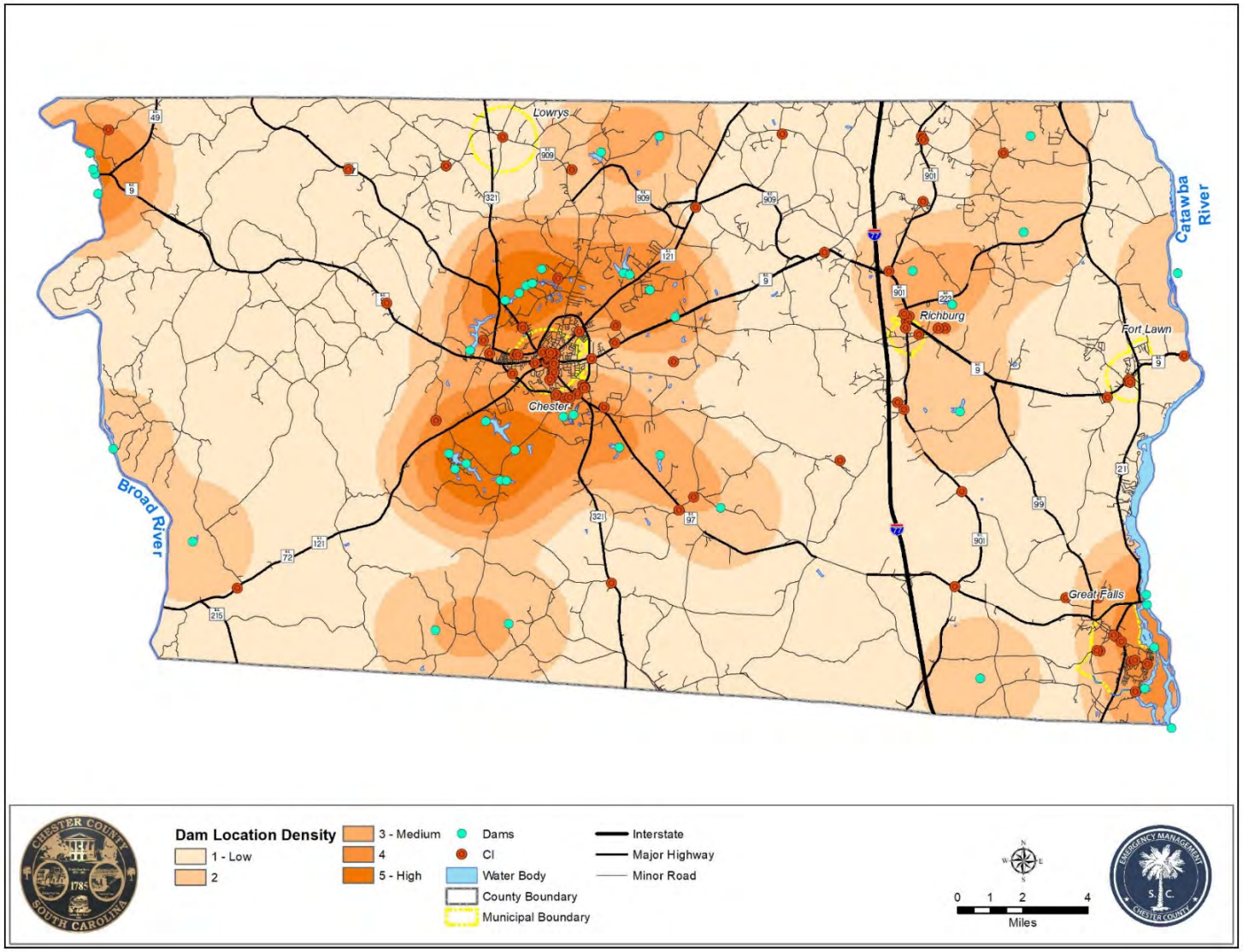


FIGURE B.19: CHESTER COUNTY WIND FREQENCY 1960 – 2019

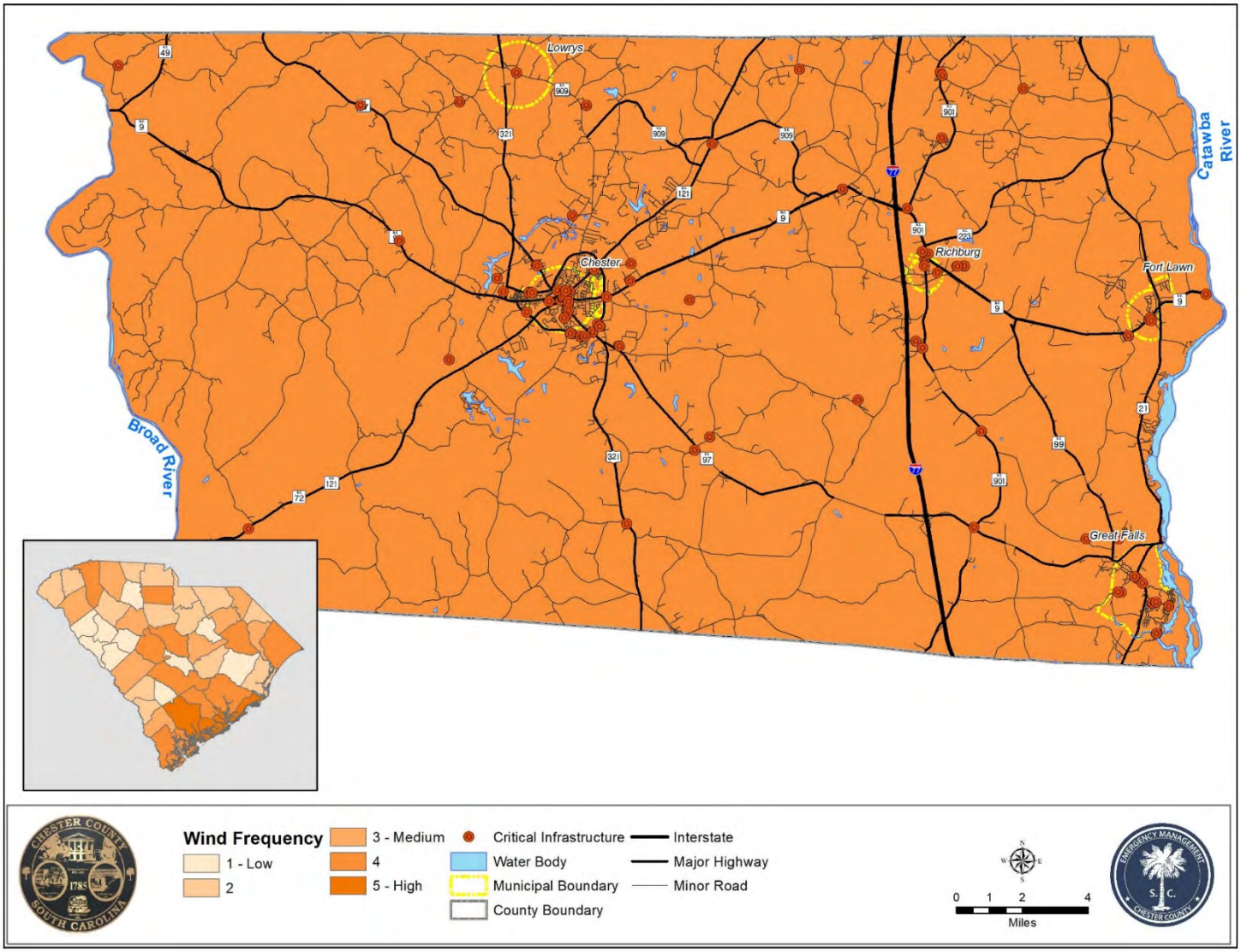


FIGURE B.20: CHESTER COUNTY SOCIAL VULNERABILITY

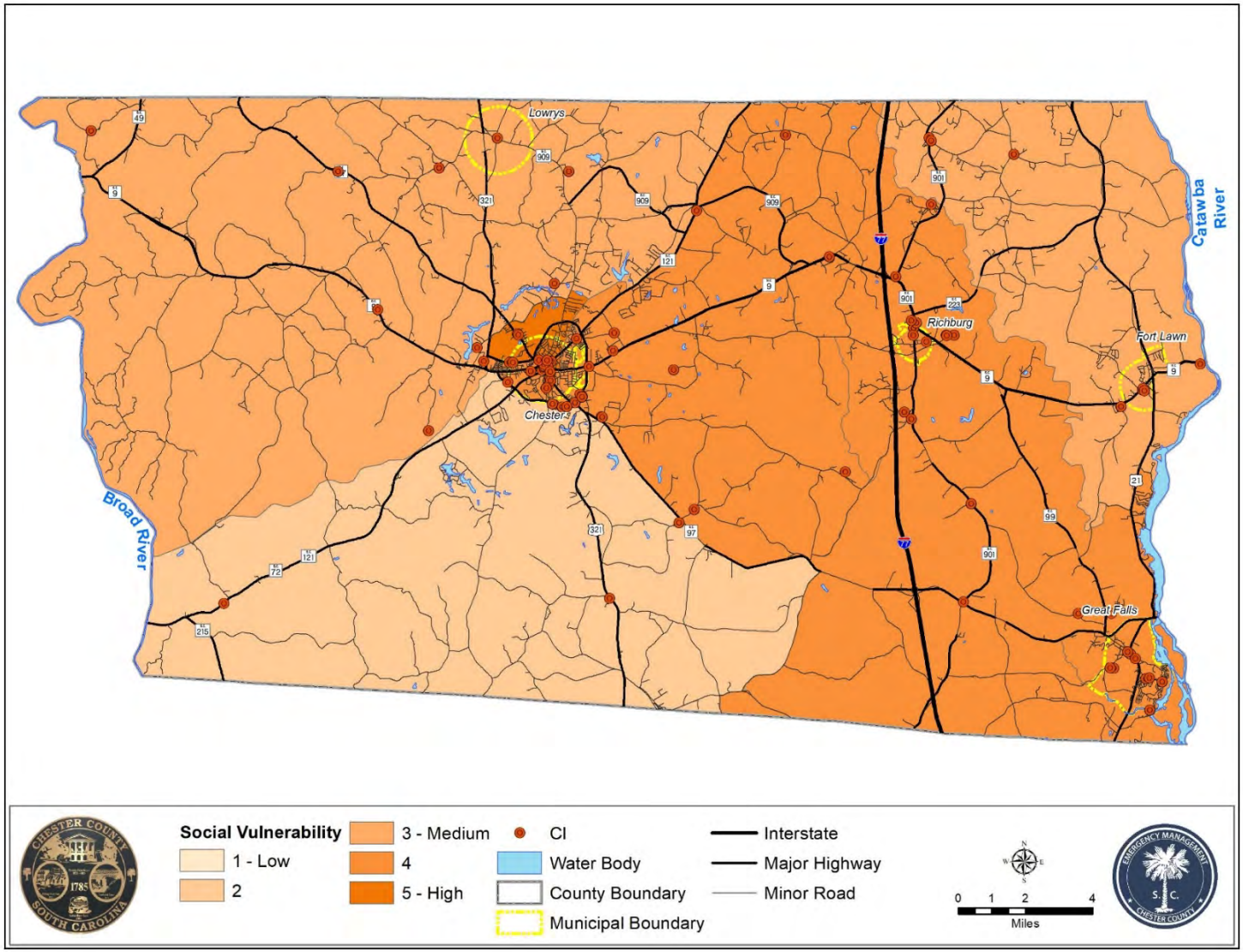
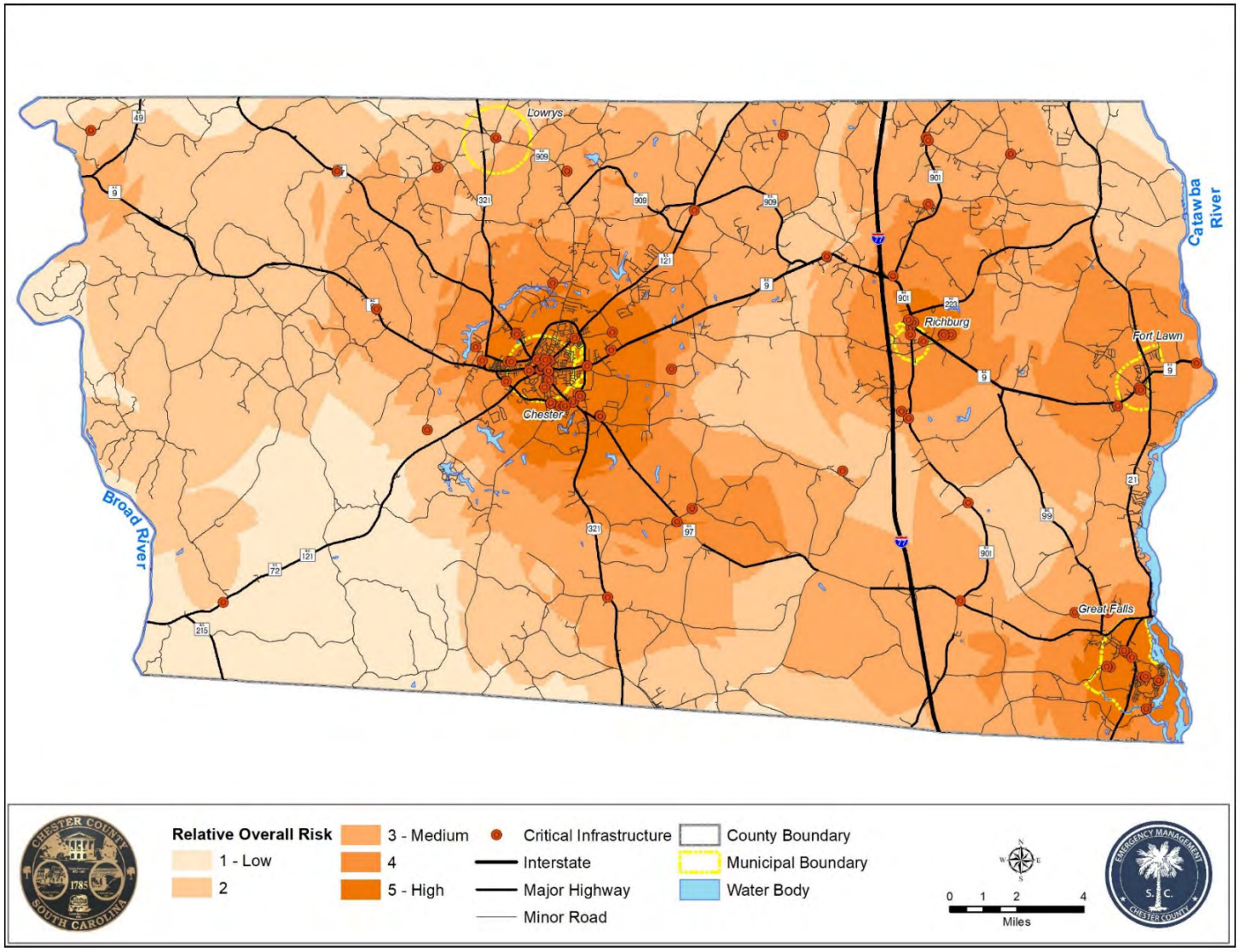


FIGURE B.21: CHESTER COUNTY OVERALL RISK ASSESSMENT



SECTION 10: APPENDICES REVISION HISTORY

Section 10 - Appendices REVISION HISTORY		
Date	**Section**	**Revision Detail**
9/16/2021	Section 10	Added revision history table.
9/16/2021	Section 10: Appendix C	Removed Appendix C: Local Mitigation Plan Review Tool.
9/16/2021	Section 10: Appendix A	Removed Appendix A: Plan Adoptions, and Appendix B became Appendix A.
9/16/2021	Section 10: Appendix B	Added Appendix B: Not for Public Review.
9/16/2021	Section 10: Appendix B	Moved critical infrastructure table and narrative to Appendix B from Section 5.
9/16/2021	Section 10: Appendix B	Updated critical infrastructure table. Added one additional facility to the table.
9/16/2021	Section 10: Appendix B	Inserted maps with critical infrastructure.