Cumberland Hoke Regional Hazard Mitigation Plan

Cumberland County, Hoke County

Prepared by:

Cumberland Hoke Regional Hazard Mitigation Planning Committee

With Professional Planning Assistance from

AECOM

FINAL DRAFT

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TABLE OF CONTENTS

SECTION 1: INTRODUCTION

Section 1 introduces the Cumberland-Hoke Regional Hazard Mitigation Plan. It consists of the following subsections:

- 1.1 Background
- 1.2 Purpose and Need
- 1.3 Scope
- 1.4 Authority
- 1.5 Plan Update

HMPC Meeting in Fayetteville, NC on 1/16/2020

1.1 Background

Each year in the United States, natural disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters, because additional expenses incurred by insurance companies and non-governmental organizations are not reimbursed by tax dollars. Many natural disasters are predictable, and much of the damage caused by these events can be reduced or even eliminated.

In an effort to reduce the Nation's mounting natural disaster losses, the U.S. Congress passed the Disaster Mitigation Act of 2000 (DMA 2000) to invoke new and revitalized approaches to mitigation planning. Section 322 of DMA 2000 emphasizes the need for state and local government entities to closely coordinate on mitigation planning activities and makes the development of a hazard mitigation plan a specific eligibility requirement for any local government applying for federal mitigation grant funds. These funds include the Hazard Mitigation Grant Program (HMGP), the Pre-Disaster Mitigation (PDM) program, and the Flood Mitigation Assistance (FMA) Program, all of which are administered by the Federal Emergency Management Agency (FEMA) under the Department of Homeland Security. Communities with an adopted and federally approved hazard mitigation plan thereby become pre-positioned and more apt to receive available mitigation funds before and after the next disaster strikes.

This Plan was prepared in coordination with FEMA Region IV and the North Carolina Division of Emergency Management (NCEM) to ensure that it meets all applicable DMA 2000 planning requirements. A Local Mitigation Plan Review Tool, found in Appendix B, provides a summary of FEMA's current minimum standards of acceptability and notes the location within the Plan where each planning requirement is met.

1.2 Purpose and Need

As defined by FEMA, "hazard mitigation" means any sustained action taken to reduce or eliminate the long-term risk to life and property from a hazard event. Hazard mitigation planning is the process through which hazards are identified, likely impacts determined, mitigation goals set, and appropriate mitigation strategies determined, prioritized, and implemented.

The purpose of this plan is to identify, assess and mitigate risk in order to better protect the people and property of Cumberland and Hoke Counties from the effects of natural and man-made hazards. This plan documents the hazard mitigation planning process and identifies relevant hazards and strategies the

participating communities will use to decrease vulnerability and increase resiliency and sustainability. This

plan demonstrates the participating communities' commitment to reducing risks from identified hazards and serves as a tool to help decision-makers direct mitigation activities and resources. This Plan will ensure the involved communities' continued eligibility for federal disaster assistance, including the HMGP, PDM and FMA programs.

1.3 Scope

This document comprises a Regional Hazard Mitigation Plan for Cumberland and Hoke Counties in North Carolina.

The jurisdictions participating in this Plan are the Unincorporated Areas of Cumberland County; the City of Fayetteville; the Towns of Eastover, Falcon, Godwin, Hope Mills, Linden, Spring Lake, Stedman, and Wade; the Unincorporated Areas of Hoke County; and the City of Raeford. Even though portions of Fort Bragg and Pope Field (Pope Army Airfield) are part of the City of Fayetteville and the Town of Spring Lake, these portions of the jurisdictions have been omitted from this Plan update.

1.4 Authority

This Hazard Mitigation Plan Update has been and will be adopted by Cumberland and Hoke Counties in accordance with the authority and police powers granted to counties as defined by the State of North Carolina (N.C.G.S., Chapter 153A). This Hazard Mitigation Plan has also been and will be adopted by the participating municipalities under the authority granted to cities and towns as defined by the State of North Carolina (N.C.G.S., Chapter 160A). Copies of all local resolutions to adopt the Plan will be included in Appendix A.

This Plan was developed in accordance with current state and federal rules and regulations governing local hazard mitigation plans. The Plan shall be monitored and updated on a routine basis to maintain compliance with the following legislation:

- Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390) and by FEMA's Interim Final Rule published in the Federal Register on February 26, 2002, at 44 CFR Part 201;
- National Flood Insurance Act of 1968, as amended 42 U.S.C. 4001 et seq; and
- North Carolina General Statutes, Chapter 166A: North Carolina Emergency Management Act, as amended by Senate Bill 300: An Act to Amend the Laws Regarding Emergency Management as recommended by the Legislative Disaster Response and Recovery Commission (2001).

1.5 Plan Update

CFR Requirement
CFR Subchapter D §201.6(d)(3): A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding.

The previous plan contained a risk assessment of identified hazards for the Counties and participating municipalities and a mitigation strategy to address the risk and vulnerability from these hazards. Since that time, progress has been made by both Counties and all participating municipalities on implementation of the mitigation strategies This section includes an overview of the approach to updating and combining the plans and identifies new analyses and information included in this plan update.

1.5.1 What's New in the Plan

The regional HMP update involved a comprehensive review and update of each section of the existing plans and an assessment of the success of the Counties and participating municipalities in evaluating, monitoring and implementing the mitigation strategy outlined in their previous plan. Only the information and data still valid from the previous plan was carried forward as applicable into this updated regional HMP. The following requirements were addressed during the development of this regional plan:

- Consider changes in vulnerability due to action implementation;
- Document success stories where mitigation efforts have proven effective;
- Document areas where mitigation actions were not effective;
- Document any new hazards that may arise or were previously overlooked;
- Incorporate new data or studies on hazards and risks;
- Incorporate new capabilities or changes in capabilities;
- Incorporate growth and development-related changes to inventories; and
- Incorporate new action recommendations or changes in action prioritization.

The table below provides a comparison of the hazards addressed in the 2018 State of North Carolina HMP as well as the existing plans for both Counties. A final decision was made as to which hazards should be included in the Plan as noted in

***Table* 1-1**.

Table 1-1: Comparison of Hazards for Plan Updates

State of North Carolina HMP	Final MAC Decision – Include in Cumberland-Hoke?
Flooding	Flood
Earthquake	Earthquake
Hurricanes and Coastal	Hurricane/Tropical Storm
Severe Winter Weather	Winter Storms
Wildfire	Wildfire
Dam Failure	Dam/Levee Failure
Drought	Drought
Geological	Landslide/Sinkhole
Severe Thunderstorm	Severe Thunderstorm
Tornado	Tornado
	Extreme Heat
	Erosion

In addition to the specific changes in hazard analyses identified above, the following items were also addressed in the plan update:

- GIS was used, to the extent data allowed, to analyze the priority hazards as part of the vulnerability assessment. This involved utilizing mapped hazard data combined with local parcel data.
- Assets at risk to identified hazards were identified by property type and values of properties based on tax assessment data from Cumberland and Hoke Counties.
- A discussion on climate change and its projected effect on specific hazards was included in Section 5 Hazard Profiles.
- The discussion on growth and development trends was enhanced utilizing 2010 Census data. Growth and development trends are as expected and do not currently affect the Region's overall vulnerability.
- Enhanced public outreach and agency coordination efforts were conducted throughout the plan update process in order to meet the more rigorous requirements of the 2013 CRS Coordinator's Manual, in addition to DMA requirements.

SECTION 2: PLANNING PROCESS

Section 2 provides an overview of the planning process used to develop the Cumberland-Hoke Regional Hazard Mitigation Plan. It consists of the following subsections:

- 2.1 Local Government Participation
- 2.2 The 10-Step Planning Process

CFR Requirements
Requirement §201.6(b): **An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:** 1. An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval; 2. An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and nonprofit interests to be involved in the planning process; and 3. Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information. ***Requirement §201.6(c)(1):*** **The plan shall include the following:** 1. 1) Documentation of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

This Regional Hazard Mitigation Plan was developed under the guidance of a Hazard Mitigation Planning Committee (HMPC). Information in this plan will be used to help guide and coordinate mitigation activities and decisions for local land use policy in the future. Proactive mitigation planning will help reduce the cost of disaster response and recovery to communities and their residents by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruptions. This plan identifies activities that can be undertaken by both the public and the private sectors to reduce safety hazards, health hazards, and property damage caused by floods.

2.1 Local Government Participation

The DMA planning regulations and guidance stress that each local government seeking FEMA approval of their mitigation plan must participate in the planning effort in the following ways:

- Participate in the process as part of the HMPC;
- Detail where within the planning area the risk differs from that facing the entire area;
- Identify potential mitigation actions; and
- Formally adopt the plan.

For the Cumberland-Hoke Regional HMPC, “participation” meant the following:

- Providing facilities for meetings;
- Attending and participating in the HMPC meetings;
- Completing and returning the Capability Assessment
- Collecting and providing other requested data (as available);
- Managing administrative details;
- Making decisions on plan process and content;
- Identifying mitigation actions for the plan;
- Reviewing and providing comments on plan drafts;
- Informing the public, local officials, and other interested parties about the planning process and providing opportunity for them to comment on the plan;
- Coordinating, and participating in the public input process; and
- Coordinating the formal adoption of the plan by the local governing body.

The HMPC met all of the above participation requirements. The Committee's representatives included representatives of County, City and Town Departments; citizens and other stakeholders.

Table *2-1* details the HMPC meeting dates and the HMPC members in attendance. A summary detailed summary of HMPC meeting dates including topics discussed and meeting locations follows in **Table *2-4***. During the planning process, the HMPC members communicated through face-to-face meetings, email and telephone conversations. Draft documents were posted on the Cumberland County, Hoke County and City of Fayetteville websites so that the HMPC members could easily access and review them. The Hazard Mitigation Plan can be found on the AECOM North Carolina Hazard Mitigation Plan website https://gis.aecomonline.net/irisk2/NCHMP.aspx?region=9

Although all HMPC members could not be present at every meeting, coordination was ongoing throughout the entire planning process. In particular, the communities of Falcon, Godwin, Wade, and Raeford participated in the planning process through emails and phone conversations and in direct contact with the Cumberland and Hoke County Planning Department as proxies. Also, these jurisdictions were provided planning process materials during the planning process.

Table 2-1. HMPC Meeting Attendance Record

Member Name	Affiliation	Meeting Date				
		11/14/19	1/06/20	2/27/20	5/07/20	11/18/20
Adam Johnson	Cumberland County	X				
Hendrix Valenzuela	EM Coordinator, Cumberland County	X	X	X		X
Jason Faragoi	EM Planner, Cumberland County	X	X	X	X	
Rawls Howard	Planning Inspections Director, Cumberland County	X		X	X	X
Rufus Smith III	Planning, Cumberland County	X	X			

Tracy Jackson	Assistant County Manager, Cumberland County	X				X
Wayne Dudley	Engineering Technician II, Cumberland County	X				
Marc Baker	EM Intern, Cumberland County	X	X	X		
Gene Booth	Emergency Management Director, Cumberland County		X			X
Garry Crumpler	EM Planner, Cumberland County	X	X	X	X	X
Bruce Morrison	Director of Safety, Cumberland County School		X			
Jon Soles	Cumberland County		X			
Tony McKinnon	Planning, Cumberland County		X			
Jamie Walters	Planner, Cumberland County			X		
Ronald Autry	Town Manager, Town of Eastover			X	X	
Clifton L. Turpin Jr	Mayor, Town of Falcon					
Scott Bullard	Emergency Management Coordinator, City of Fayetteville	X	X	X	X	
Melvin Lewis	Director of Emergency Management/Environmental Health and Safety, Fayetteville State University	X	X		X	
David Nash	City of Fayetteville	X				
Tai Davis	Fayetteville State University	X				
Daniel Edwards	Assistant Director, City of Fayetteville	X				
Toney Coleman	Deputy Airport Director, City of Fayetteville		X			

Dave Steinmeil	City of Fayetteville			X		
Sandra Maw	Water Engineer, Arcadis for City of Fayetteville			X	X	
Willie Junious Burnette	Mayor, Town of Godwin					
Brad Dean	Director, Town of Hope Mills	X				
Chuck Hodges	Fire Chief, Town of Hope Mills		X			
Beth Brown	Stormwater Technician, Town of Hope Mills			X	X	
Chance McLaughlin	Planning and Economic Development Administrator, Town of Hope Mills			X	X	
Larry Overby	Commissioner, Town of Linden		X	X	X	
Melton Brown	Administration Lieutenant, Town of Spring Lake	X				
Mike King	Police Chief, Town of Stedman	X				
Joseph Dixon	Mayor, Town of Wade					
Charles Jacob	EM Coordinator, Hoke County	X		X		
Jimmy Stewart	Hoke County	X				
Bryan A. Marley	EM Director, Hoke County	X	X	X	X	
Andy Connor	Inspections Director, Hoke County	X	X			
Robert Farrell	Planner, Hoke County	X	X	X		
James Stewart	Hoke County		X			
John K. McNeill III	Mayor, City of Raeford					
David Akers	South River EMC	X				
James Bullard	Cape Fear Valley	X				

Jonelle Kimbrough	Executive Director, Sustainable Sandhills	X		X	X	
Brent Edwards	AECOM	X	X	X	X	X
Kelly Keefe	AECOM	X	X	X	X	X
Mckenzie Houston	AECOM	X				
Reid Sutherland	Area Coordinator, NCEM	X	X	X		
Zach Shean	Harnett County	X				
Andrew McLean	Red Cross	X				
Robert Godwin	Director, Cape Fear Valley	X	X	X	X	
W. Scott Weaver	Citizen	X				
Freddy Johnson	Fire Chief, StonePointe Fire	X	X			
Ed Dickson	Consultant, City of Fayetteville		X	X		
Jacazza Jones	Hazard Mitigation P lanner, NCEM		X	X		
Robin Lorenzen	NCEM		X			
Jeffery Brown		X				
David J. McNeill	Communication Director, Duke Energy				X	
Sandy Taylor					X	
Murray Bryant					X	
Mark Walters	American Red Cross				X	
Daniel Wood						X

Based on the area of expertise of each representative participating on the HMPC, **Table *2-2*** demonstrates each member's expertise in the six mitigation categories (Prevention, Property Protection, Natural Resource Protection, Emergency Services, Structural Flood Control Projects and Public Information). The Cumberland County Planning & Inspections Department is responsible for community land use and comprehensive planning and was an active participant on the HMPC and provided data and information to support development of the plan.

Table 2-2. Staff Capability with Six Mitigation Categories

Community Department/Office	Prevention	Property Protection	Natural Resource Protection	Emergency Services	Structural Flood Control Projects	Public Information
Emergency Management	X			X		X
Planning	X	X				X
Engineering		X			X	
Building Inspections	X	X			X	
Parks and Recreation			X			X

2.2 The 10-Step Planning Process

The planning process for preparing the Cumberland-Hoke Regional Hazard Mitigation Plan was based on DMA planning requirements and FEMA's associated guidance. This guidance is structured around a four-phase process:

1. Planning Process;
2. Risk Assessment;
3. Mitigation Strategy; and
4. Plan Maintenance.

Into this process, the participating jurisdictions integrated a more detailed 10-step planning process used for FEMA's Community Rating System (CRS) and Flood Mitigation Assistance programs. Thus, the modified 10-step process used for this plan meets the requirements of seven major programs: FEMA's Hazard Mitigation Grant Program; Pre-Disaster Mitigation Program; Building Resilient Infrastructure and Communities, Community Rating System; Flood Mitigation Assistance Program; Severe Repetitive Loss Program; and flood control projects authorized by the U.S. Army Corps of Engineers.

Table *2-3* shows how the 10-step CRS planning process aligns with the four phases of hazard mitigation planning pursuant to the Disaster Mitigation Act of 2000.

Table 2-3. Mitigation Planning and CRS 10-Step Process Reference Table

DMA Process	CRS Process
Phase I – Planning Process	
§201.6(c)(1)	Step 1. Organize to Prepare the Plan
§201.6(b)(1)	Step 2. Involve the Public
§201.6(b)(2) & (3)	Step 3. Coordinate
Phase II – Risk Assessment	
§201.6(c)(2)(i)	Step 4. Assess the Hazard
§201.6(c)(2)(ii) & (iii)	Step 5. Assess the Problem
Phase III – Mitigation Strategy	
§201.6(c)(3)(i)	Step 6. Set Goals
§201.6(c)(3)(ii)	Step 7. Review Possible Activities
§201.6(c)(3)(iii)	Step 8. Draft an Action Plan
Phase IV – Plan Maintenance	
§201.6(c)(5)	Step 9. Adopt the Plan
§201.6(c)(4)	Step 10. Implement, Evaluate and Revise the Plan

2.2.1 Phase 1 – Planning Process

Planning Step 1: Organize to Prepare the Plan

In alignment with the commitment to participate in the DMA planning process and the CRS, community officials worked to establish the framework and organization for development of the plan. An initial meeting was held with key community representatives to discuss the organizational aspects of the plan development process.

The formal HMPC meetings followed the 10 CRS Planning Steps. Meeting agendas, minutes and sign-in sheets for the HMPC meetings are included in Appendix G. The meeting dates and topics discussed are summarized below in **Table *2-4***.

Table 2-4. Summary of HMPC Meeting Dates

Meeting Type	Meeting Topic	Meeting Date/Time	Meeting Location
HMPC #1 (Cumberland and Hoke Co Kick-off)	1. Introduction to the planning process 2. Organize resources: the role of the HMPC, planning for public involvement, and coordinating with other agencies and stakeholders	November 14, 2019 9:00am – 11:00am	Lake Rim Recreational Center, 1455 Hoke Loop Road, Fayetteville, NC, 28314
HMPC #2	1. Introduction to DMA, CRS and the planning process 2. Organize resources; the role of the HMPC, planning for public involvement, and coordinating with other agencies and stakeholders	January 16, 2020 9:00am – 11:00am	Lake Rim Recreation Center 1455 Hoke Loop Rd. Fayetteville NC 28314;
HMPC #3	1. Review/discussion of the Flood Risk Assessment (Assess the Hazard) 2. Review/discussion of Vulnerability Assessment (Assess the Problem)	February 27, 2020 9:00am – 11:00am	Lake Rim Recreation Center 1455 Hoke Loop Rd. Fayetteville NC 28314
HMPC #4	1. Review goals in existing Cumberland and Hoke Plan 2. Reaffirm and/or revise existing goals for Regional Plan 3. Review and update progress on mitigation actions 4. Create new actions	May 7, 020 9:00am – 10:00am	Microsoft Teams
HMPC #5	1. Review and update progress on mitigation actions 2. Review Draft of Plan	November 18, 2020 11:00am – 12:00pm	Microsoft Teams

Planning Step 2: Involve the Public

The first public meeting to provide an introduction to the planning process was held on February 27, 2020 at 6:30PM. A second and final public meeting to review the final plan will be held at subsequent adoption resolution meetings. As documented in Appendix D, a public notice was/will be posted in the local newspaper, The Fayetteville Observer, and Cumberland County Facebook prior to both public meetings inviting members of the public to attend.

Table 2-5. Summary of Public Meeting

Meeting Type	Meeting Topic	Meeting Date/Time	Meeting Location
Public Meeting #1	1. Introduction to the planning process, hazard identification, and solicit comments/feedback from the public during drafting of plan	February 27, 2020 6:30pm – 8:00pm	E.E. Miller Recreation, 1347 Rim Road

Involving the Public beyond Attending Public Meetings

Early discussions with the HMPC established the initial plan for public involvement. The HMPC agreed to an approach using established public information mechanisms and resources within the communities. Public involvement activities for this plan update included press releases, stakeholder and public meetings, and the collection of public and stakeholder comments on the draft plan.

The HMPC found seven different ways to involve the public beyond attending public meetings. The public outreach activities beyond the formal public meetings are summarized below in **Table *2-6***.

Table 2-6. Public Outreach Efforts

Location		Event/Message	Date
1	Cumberland County Facebook	Digital copy of Draft Risk Assessment posted on County website with request for public review/comment	January 2020
2	The Fayetteville Observer	Newspaper Article Seeking Public Input	February 2020
3	Cumberland County Local newspaper	Newspaper Article Seeking Public Input	February 2020

Planning Step 3: Coordinate

Early in the planning process, the HMPC determined that the risk assessment, mitigation strategy development, and plan approval would be greatly enhanced by inviting other local, state and federal agencies and organizations to participate in the process. Coordination involved sending these stakeholders coordination emails asking for their assistance and input and telling them how to become involved in the plan development process. The HMPC contacted the following agencies and organizations with specific data requests and a request for their input into the planning process:

- NCEM
    - Natural Hazards Risk Data
    - Repetitive Loss Data
- NC Forestry Service
    - Cumberland County Fire Reports

    - Hoke County Fire Reports
- NC Dam Safety
    - Dam Inventory
- NC Natural Heritage Program
    - Inventory of Significant Natural Areas of Cumberland County
    - Inventory of Significant Natural Areas of Hoke County
- Sustainable Sandhills
    - Cumberland County Climate Resiliency Plan

Coordination with Other Community Planning Efforts and Hazard Mitigation Activities

Coordination with other community planning efforts is also paramount to the success of this plan. Mitigation planning involves identifying existing policies, tools, and actions that will reduce a community's risk and vulnerability to hazards. Integrating existing planning efforts and mitigation policies and action strategies into this plan establishes a credible and comprehensive plan that ties into and supports other community programs. The development of this plan incorporated information from the following existing plans, studies, reports, and initiatives as well as other relevant data from neighboring communities and other jurisdictions.

- Cumberland County Land Use Plan, Hoke County Land Use Plan,
    - Used to identify growth and development trends and to develop the consequence analysis for each hazard.
- Cumberland County Growth Vision Plan
    - Used to identify growth and development trends and to develop the consequence analysis for each hazard.
- Cumberland and Hoke County Ordinances
    - The following ordinances were used to develop the capability assessment and the mitigation strategy for Cumberland and Hoke County Unincorporated Areas:
        - Zoning Ordinance
        - Subdivision Ordinance
        - Flood Damage Prevention Ordinance
- City of Fayetteville Unified Development Ordinance,
    - Used to develop the capability assessment and the mitigation strategy for the City of Fayetteville.
- City of Raeford Unified Development Ordinance,
    - Used to develop the capability assessment and the mitigation strategy for the City of Fayetteville.
- City of Fayetteville Capital Improvement Plan,

  - Used to develop the capability assessment and the mitigation strategy for the City of Fayetteville.
- Cumberland County Emergency Operations Plan,
  - Used to develop the capability assessment and the mitigation strategy for the City of Fayetteville.
- Cumberland County, NC and Incorporated Areas Flood Insurance Study, Hoke County, NC and Incorporated Areas Flood Insurance Study,
  - Used to identify flooding sources and SFHAs within Cumberland and Hoke Counties. The SFHAs were used to prepare the inland flooding vulnerability assessment.
- Cumberland County Climate Resiliency Plan,
  - Used to assess the potential for climate change to affect the probability of future occurrence for each hazard profiled in the plan update.
- Fayetteville-Cumberland Parks & Recreation Master Plan 2020,
  - Used to identify open space within Cumberland County. Also used to develop the capability assessment and the mitigation strategy for the County.

These and other documents were reviewed and considered, as appropriate, during the collection of data to support Planning Steps 4 and 5, which include the hazard identification, vulnerability assessment, and capability assessment. Data from these plans and ordinances were incorporated into the risk assessment and hazard vulnerability sections of the plan as appropriate. The data was also used in determining the capability of the community in being able to implement certain mitigation strategies. The Capability Assessment can be found in Section 7 – Capability Assessment.

2.2.2 Phase II – Risk Assessment

Planning Steps 4 and 5: Identify/Assess the Hazard and Assess the Problem

The HMPC completed a comprehensive effort to identify, document, and profile all hazards that have, or could have, an impact on the planning area. Data collection worksheets were developed and used in this effort to aid in determining hazards and vulnerabilities and where the risk varies across the planning area. Geographic information systems (GIS) were used to display, analyze, and quantify hazards and vulnerabilities. A draft of the risk and vulnerability assessment was posted on the Cumberland County website and the City of Fayetteville website for HMPC and public review and comment.

The HMPC also conducted a capability assessment to review and document the planning area's current capabilities to mitigate risk from and vulnerability to hazards. By collecting information about existing government programs, policies, regulations, ordinances, and emergency plans, the HMPC could assess those activities and measures already in place that contribute to mitigating some of the risks and vulnerabilities identified.

2.2.3 Phase III – Mitigation Strategy

Planning Steps 6 and 7: Set Goals and Review Possible Activities

AECOM facilitated brainstorming and discussion sessions with the HMPC that described the purpose and process of developing planning goals, a comprehensive range of mitigation alternatives, and a method of selecting and defending recommended mitigation actions using a series of selection criteria. This information is included in Section 8 - Mitigation Strategy.

Planning Step 8: Draft an Action Plan

A complete first draft of the plan was prepared based on input from the HMPC regarding the draft risk assessment and the goals and activities identified in Planning Steps 6 and 7. This complete draft was posted for HMPC and public review and comment on the Cumberland County website and the City of Fayetteville website. Other agencies were invited to comment on this draft as well. HMPC, public and agency comments were integrated into the final draft for the NCEM and FEMA Region IV to review and approve, contingent upon final adoption by the governing body of each participating jurisdiction.

2.2.4 Phase IV – Plan Maintenance

Planning Step 9: Adopt the Plan

In order to secure buy-in and officially implement the plan, the plan was reviewed and adopted by the governing body of each participating jurisdiction on the dates included in the corresponding resolutions included in Appendix A.

Planning Step 10: Implement, Evaluate and Revise the Plan

Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. Up to this point in the planning process, all of the HMPC's efforts have been directed at researching data, coordinating input from participating entities, and developing appropriate mitigation actions. Section 10 - Plan Maintenance provides an overview of the overall strategy for plan implementation and maintenance and outlines the method and schedule for monitoring, updating, and evaluating the plan. Section 10 also discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement.

SECTION 3: COMMUNITY PROFILE

Section provides a general overview of Cumberland and Hoke Counties and their participating municipalities. It consists of the following subsections:

- 3.1 Geography and Climate
- 3.2 Cultural, Historic and Natural Resources
- 3.3 Economy
- 3.4 Land Use
- 3.5 Population and Demographics
- 3.6 Growth and Development Trends

3.1 Geography and Climate

Each Cumberland and Hoke Counties are located in the Upper Coastal Plains section of North Carolina, distinctively known as the "Sandhills". The Counties are bordered by Moore and Harnett Counties to the north, Sampson County to the east, Robeson and Bladen Counties to the south, and Scotland County to the west. The total land area for each participating jurisdiction is presented in **Table *3-1***.

Table 3-1. Total Land Area of Participating Jurisdictions

Jurisdiction	Total Area (square miles)	Land Area (square miles)	Water Area (square miles)
Cumberland County	658.1	652.0	6.1
City of Fayetteville	147.8	145.9	1.9
Town of Eastover	11.4	11.4	0.01
Town of Falcon	1.2	1.2	0.0
Town of Godwin	0.5	0.5	0.0
Town of Hope Mills	7.0	6.9	0.1
Town of Linden	0.5	0.5	0.0
Town of Spring Lake	23.3	23.1	0.2
Town of Stedman	2.1	2.1	0.0
Town of Wade	1.8	1.8	0.0
Hoke County	392.6	391.0	1.6
City of Raeford	3.8	3.8	0.0
Town of Falcon	1.2	1.2	0.0
Source: 2010 U.S. Census			

The land in Cumberland County slopes generally from northwest to southeast. The northwestern section of Cumberland County, within Fort Bragg, has elevations of over 400 feet. Elevations in the southeastern section of Cumberland County tend to be at 100 feet or less. The Cape Fear River runs through Cumberland County, from north to south. The elevation of the river is approximately 35 feet above sea

level. Land on the western side of the river is dissected by several systems of streams that flow into the Cape Fear River. There are nine municipalities within the County: The City of Fayetteville and the Towns of Hope Mills, Spring Lake, Eastover, Stedman, Wade, Falcon, Godwin, and Linden.

The topography in Hoke County is gently rolling with land elevations ranging from the lowest point on Rockfish Creek (36 feet above sea level) in the southeastern portion of the County to the highest point(550 feet above sea level) in the northwestern portion of the County near the McCain area. Hoke County is located in two river basins – the Cape Fear River Basin to the north and east, and the Lumber River Basin to the south and west, with the Lumber River forming the southwestern boundary of the County. There is one municipality within the County: The City of Raeford. **Figure 3-1** shows the municipalities and river basins within Cumberland and Hoke Counties.

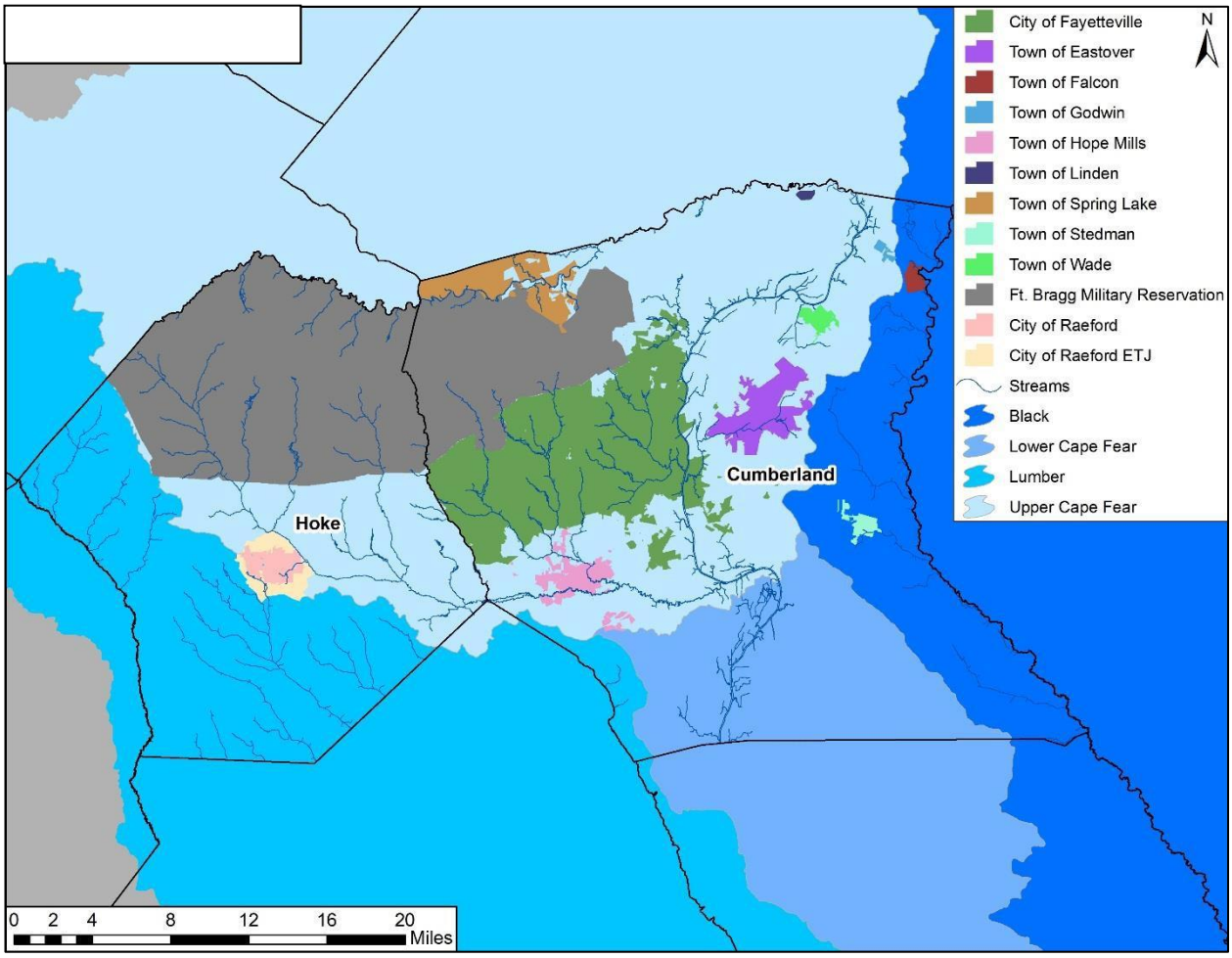


Figure 3-1. Cumberland and Hoke County River Basins

The Cumberland and Hoke County region has a mild climate, with a mean daily high temperature range from nearly 55 degrees in January to nearly 90 degrees in July. The annual precipitation for the region is approximately 46 inches per year.

3.2 Cultural, Historic and Natural Resources

Cumberland County

Archaeology

Archaeological surveys, including a 1985 county-wide effort, have resulted in over 850 prehistoric and historic archaeological sites being recorded with the North Carolina State Historic Preservation Office. Excavations at the Fayetteville Arsenal along Hay Street and at Cool Springs are notable projects in Fayetteville.

National Register of Historic Places

There are sixty-one Cumberland County listings in the National Register of Historic Places. They include rail stations, churches (Big Rockfish Presbyterian, Cape Fear Baptist, Evans Metropolitan AME Zion, Falcon Tabernacle), Civil War sites (Confederate Breastworks, Arsenal), early taverns (Barge's, Cool Spring), public buildings (Frances B. Stein Library), Cross Creek Cemetery No. 1 in Fayetteville, and several historic districts such as Haymount and Pope Air Force Base. The Market House in Fayetteville has been recognized as a National Historic Landmark.

Natural Features and Resources

Parks, Preserve and Conservation

The State of North Carolina owns and operates Carvers Creek State Park in northern Cumberland County. The park is over 4,000 acres and includes a 100-acre millpond. The park includes meadows of native grasses and wildflowers, longleaf pine forest and mixed pine and hardwood forests.

According to the Fayetteville-Cumberland Parks and Recreation Master Plan and the Fayetteville-Cumberland Parks & Recreation Department, over 1,200 acres of public park land in over 100 park sites exist within the City and County. The park and recreation facilities include: Arnett Park, Lake Rim Park and Recreation Center, County Mini Parks, Cashwell School Park, Seabrook School Park, Sunnyside School Park and Beaver Dam School Park; County Neighborhood Parks, Stoney Point School Park, Eastover Central Park, Grays Creek Park, South Hope Mills Park, East Hope Mills Park, East Fayetteville Park and Southeast Cumberland Park; County Community Parks, North Cumberland Park, East Cumberland Park and South Cumberland Park; the Cape Fear River Trail; City Mini Parks, College Lakes Park, College Lakes Elementary School Park, 71st Middle/Lloyd Auman School Park, Crystal Springs Park, Montclair Elementary School Park and Brentwood School Park; City Neighborhood Parks, Massey Hill Park, Nick Jeralds School Park, Cliffdale School Park, Bailey Lake Road Park, Gilmore Park and Southgate Park; City Community Parks, Northwest Fayetteville Park, Riverside Dog Park, and Southwest Fayetteville Park.

The Town of Eastover manages: Talley Woodland Park with a wooded area and benches; Eastover Ball Park with baseball/softball fields, playgrounds, concessions, softball field, walking trail and sheltered picnic areas; and Eastover Recreation Center – indoor basketball gym, cardio exercise room, 2 large activity rooms.

The Town of Falcon has one recreation facility, the J.O. Humphries Memorial Park. This 4.08-acre facility includes tennis courts, an open play area, a play apparatus, a physical fitness area, a natural area, a pavilion and picnicking facilities.

The Town of Godwin manages 12 acres of parks including playground equipment, a walking trail, picnic shelters and a volleyball court.

The Town of Hope Mills manages the Hope Mills Municipal Park which includes a ballfield, playground and walking trail. Additionally, a private man-made lake named Fantasy Lake Water Park is located nearby and includes water slides, swings, pedal boats, arcade, volleyball courts and picnic area.

The Town of Linden owns land where the Cumberland County Parks and Recreation developed and maintains the Linden Little River Community Park. The park has two picnic shelters, basketball court, bocce court, horseshoe court, walking trail, splash pad, two playground apparatus and open areas for other sports.

The Town of Stedman manages the 2.23-acre Ernest Freeman Town Park with amenities including playground equipment, benches, swings, grills, and a large picnic shelter.

The Town of Wade manages Wade Community Park.

No information for parks was readily available for the Town of Spring Lake.

Water Bodies and Floodplains

Cumberland County is located in the Cape Fear Basin, with only a small portion of the southern county

boundary along Cold Camp Creek draining to the Lumber River Basin. There are thirty dams forming lakes or ponds within the County, ranging from under an acre up to 210 acres in size. Glenville Lake serves as a water supply to the City of Fayetteville. The dam on Hope Mills Lake, a 68-acre lake used for recreation located in Hope Mills, has been breached.

Within Cumberland County, there are Water Supply Watershed Protection areas on Little Cross Creek (protected area and critical area, WS-IV), Cross Creek (protected area and critical area, WS-IV), two areas on the Cape Fear River (protected area and critical area, WS-IV), and two areas on the Little River (protected area and critical area, WS-III).

Almost 75,000 acres of the land within the County is located within a 100-yr or 500-yr special flood hazard area. A summary of acreage by flood zone is as follows: Zone A (128 acres), Zone AE (36,126 acres); Zone X 500-yr (38,368 acres); and Zone X Unshaded (346,274 acres).

Table 3-2. Cumberland County Summary of Flood Zone Acreage

Community	Zone A (acres)	Zone AE (acres)	Shaded Zone X (acres)	Unshaded Zone X (acres)	Total
Cumberland County Unincorporated Areas	119	29,485	32,356	275,115	**337,075**
Town of Eastover	0	693	1,406	5,189	**7,288**
Town of Falcon	0	128	0	681	**809**
City of Fayetteville	9	4,761	4,327	51,152	**60,249**
Town of Godwin	0	0	0	337	**337**
Town of Hope Mills	0	354	93	3,979	**4,426**
Town of Linden	0	0	76	173	**249**
Town Spring Lake	0	632	81	7,572	**8,285**
Town of Stedman	0	67	0	1,001	**1,068**
Town of Wade	0	6	29	1,075	**1,110**

Total	**128**	**36,126**	**38,368**	**346,274**	**420,896**

There are three distinct physical areas on the western side of the Cape Fear River: the lower terrace, the second terrace, and the uplands area. The lower terrace is a low, flat area adjacent to the Cape Fear River. On the western side of the river, the lower terrace extends from Longview Drive Extension on the north to Rockfish Creek on the south. On average, the lower terrace is about a mile wide. This area has historically served as a flood plain for the Cape Fear River; the larger floods of the Cape Fear River have inundated this area in the past. The lower terrace is poorly drained, because it is flat and because it has soils that tend to be plastic and impervious. Campbellton, one of the earliest settlements in the Fayetteville/Cumberland County area, was established on the lower terrace in 1762, due to its proximity to the Cape Fear River. Poor drainage and the threat of flooding from the Cape Fear River caused development to shift west from the lower terrace to the second terrace. The second terrace is located on higher ground, west of the lower terrace. The dividing line on the east between the second terrace and the lower terrace is a noticeable rise in elevation that can be seen along Person Street (near Liberty Point) and along Grove Street (just east of Green Street) in downtown Fayetteville. Drainage on the second terrace tends to be more favorable than in the lower terrace. The higher elevation of the second terrace has made it less vulnerable to flooding from the Cape Fear River. However, the second terrace is still vulnerable to flooding from Cross Creek and Blounts Creek.

Natural and Beneficial Floodplain Functions: Under natural conditions, a flood causes little or no damage in floodplains. Nature ensures that floodplain flora and fauna can survive the more frequent inundations, and the vegetation stabilizes soils during flooding. Floodplains reduce flood damage by allowing flood waters to spread over a large area. This reduces flood velocities and provides flood storage to reduce peak flows downstream.

Threatened and Endangered Species

The U.S. Fish and Wildlife Service maintains a regular listing of threatened species, endangered species, species of concern, and candidate species for counties across the United States. Last updated in December 2012, Cumberland County has 36 species that are listed with the U.S. Fish and Wildlife Services. **Table *3-3*** shows the species identified as threatened, endangered, or other classification in Cumberland County.

Table 3-3. Threatened and Endangered Species in Cumberland County

Common Name	Scientific Name	Federal Status
American Alligator	*Alligator mississippiensis*	Threatened
American Eel	*Anguilla rostrata*	Species of Concern
Bachman's Sparrow	*Aimophila aestivalis*	Species of Concern
Black-throated green warbler	*Dendroica virens waynei*	Species of Concern
Broadtail Madtom	*Noturus sp. cf. leptacanthus*	Species of Concern
Carolina Gopher Frog	*Rana capito*	Species of Concern
Northern Pine Snake	*Pituophis melanoleucus*	Species of Concern
Red-cockaded Woodpecker	*Picoides borealis*	Endangered

Sandhills Chub	*Semotilus lumbee*	Species of Concern
Southern Hognose Snake	*Heterodon simus*	Species of Concern
Atlantic Pigtoe	*Fusconaia masoni*	Species of Concern
Saint Francis' Satyr Butterfly	*Neonympha mitchellii francisci*	Endangered
Yellow Lampmussel	*Lampsilis cariosa*	Species of Concern
American Chaffseed	*Schwalbea americana*	Endangered
Awned Meadowberry	*Rhexia aristosa*	Species of Concern
Bog Oatgrass	*Danthonia epilis*	Species of Concern
Bog Spicebush	*Lindera subcoriacea*	Species of Concern
Boykin's Lobelia	*Lobelia boykinii*	Species of Concern
Carolina Grass-of-parnassus	*Parnassia caroliniana*	Species of Concern
Cuthbert Turtlehead	*Chelone cuthbertii*	Species of Concern
False Coco	*Pteroglossaspis ecristata*	Species of Concern
Georgia Lead-plant	*Amorpha georgiana var. georgiana*	Species of Concern
Loose Watermilfoil	*Myriophyllum laxum*	Species of Concern
Michaux's Sumac	*Rhus michauxii*	Endangered
Pickering's Dawnflower	*Stylisma pickeringii var. pickeringii*	Species of Concern
Pondberry	*Lindera melissifolia*	Endangered
Pondspice	*Litsea aestivalis*	Species of Concern
Rough-leaved Loosestrife	*Lysimachia asperulaefolia*	Endangered
Roughleaf Yellow-eyed Grass	*Xyris scabrifolia*	Species of Concern
Sandhills Bog Lily	*Lilium pyrophilum*	Species of Concern
Sandhills Milk-vetch	*Astragalus michauxii*	Species of Concern
Small-leaved Meadow-rue	*Thalictrum macrostylum*	Species of Concern
Spring-flowering Goldenrod	*Solidago verna*	Species of Concern
Venus' Fly-trap	*Dionaea muscipula*	Species of Concern
Well's Sandhill Prixie-moss	*Pyxidanthera barbulata var. brevifolia*	Species of Concern
Savanna Campylopus	*Campylopus carolinae*	Species of Concern
Source: U.S. Fish & Wildlife Service (http://www.fws.gov/raleigh/species/cntylist/cumberland.html)		

Hoke County

National Register of Historic Places

Hoke County contains four National Register listings including two plantation houses (Mill Prong and Puppy Creek Plantation), a major antebellum Presbyterian Church (Long Street), and the Hoke County Courthouse. The Raeford Historic District was more recently listed on the National Register of Historic Places in 2006. Raeford is significant as a typical railroad town in the Sandhills of North Carolina displaying characteristic commercial and residential growth along a grid pattern parallel and perpendicular to the rail line.

Natural Features and Resources

Parks, Preserve and Conservation

According to the Hoke County Land Use Plan, Hoke County has three soccer fields, 3 picnic shelters, seven baseball/softball fields, three playgrounds, two multi-use trails and three basketball courts. The City of Raeford has four public recreational facilities, 211 Sports Complex, Armory Park, Burlington Park and Rockfish Park, which include a ball field, two playgrounds, two tennis courts and walking trails.

Water Bodies and Floodplains

Hoke County is located in the Cape Fear Basin and the Lumber River Basin in the southern and western areas of the County. There are thirty dams forming lakes or ponds within the County, ranging from 1.6 acres to 85 acres in size.

Within Hoke County, there are Water Supply Watershed Protection areas on the Lumber River (protected area critical area, WS-IV) and on the Little River (protected area, WS-III).

Almost 350 acres of the land within the City of Raeford are located within the 100-yr special flood hazard area. A summary of acreage by flood zone is as follows: Zone AE (342 acres); Zone X 500-yr (58 acres); and Zone X Unshaded (5,547 acres).

Almost 19,000 acres of the land within Hoke County are located within the 100-yr special flood hazard area. A summary of acreage by flood zone is as follows: Zone A (2,420 acres); Zone AE (16,222 acres); Zone X 500-yr (513 acres); and Zone X Unshaded (225,493 acres).

Table 3-4. Hoke County Summary of Flood Acreage

Community	Zone A (acres)	Zone AE (acres)	Shaded Zone X (acres)	Unshaded Zone X (acres)	Total
Hoke County Unincorporated Areas	2,420	16,222	513	225,493	**244,648**
City of Raeford	0	342	58	5,547	**5,947**
Total	**2,420**	**16,564**	**571**	**231,040**	**250,595**

Natural and Beneficial Floodplain Functions: Under natural conditions, a flood causes little or no damage in floodplains. Nature ensures that floodplain flora and fauna can survive the more frequent inundations, and the vegetation stabilizes soils during flooding. Floodplains reduce flood damage by allowing flood waters to spread over a large area. This reduces flood velocities and provides flood storage to reduce peak flows downstream.

Threatened and Endangered Species

The U.S. Fish and Wildlife Service maintains a regular listing of threatened species, endangered species, species of concern, and candidate species for counties across the United States. Hoke County has 31 species that are listed with the U.S. Fish and Wildlife Services. **Table *3-5*** below shows the species identified as threatened, endangered, or other classification in Hoke County.

Table 3-5. Threatened and Endangered Species in Hoke County

Common Name	Scientific Name	Federal Status
American Alligator	*Alligator mississippiensis*	Threatened
American Eel	*Anguilla rostrata*	Species of Concern
Bachman's Sparrow	*Aimophila aestivalis*	Species of Concern
Carolina Gopher Frog	*Rana capito capito*	Species of Concern
Northern Pine Snake	*Pituophis melanoleucus melanoleucus*	Species of Concern
Pinwoods Darter	*Etheostoma mariae*	Species of Concern
Rafinesque's Big-eared Bat	*Corynorhinus rafinesquii*	Species of Concern
Red-cockaded Woodpecker	*Picoides borealis*	Endangered
Sandhills Chub	*Semotilus lumbee*	Species of Concern
Southeastern Myotis	*Myotis austroriparius*	Species of Concern
Southern Hognose Snake	*Heterodon simus*	Species of Concern
Saint Francis' Satyr Butterfly	*Neonympha mitchellii francisci*	Endangered
American Chaffseed	*Schwalbea americana*	Endangered
Awned Meadowberry	*Rhexia aristosa*	Species of Concern
Bog Spicebush	*Lindera subcoriacea*	Species of Concern
Boykin's Lobelia	*Lobelia boykinii*	Species of Concern
Carolina Grass-of-parnassus	*Parnassia caroliniana*	Species of Concern
False Coco	*Pteroglossaspis ecristata*	Species of Concern
Georgia Lead-plant	*Amorpha georgiana var. georgiana*	Species of Concern
Hairy-peduncled Beakrush	*Rhynchospora crinipes*	Species of Concern
Loose Watermilfoil	*Myriophyllum laxum*	Species of Concern
Michaux's Sumac	*Rhus michauxii*	Endangered
Pickering's Dawnflower	*Stylisma pickeringii var. pickeringii*	Species of Concern
Pondspice	*Litsea aestivalis*	Species of Concern
Rough-leaved Loosestrife	*Lysimachia asperulaefolia*	Endangered

Roughleaf Yellow-eyed Grass	*Xyris scabrifolia*	Species of Concern
Sandhills Bog Lily	*Lilium pyrophilum*	Species of Concern
Sandhills Milk-vetch	*Astragalus michauxii*	Species of Concern
Spring-flowering Goldenrod	*Solidago verna*	Species of Concern
Venus' Fly-trap	*Dionaea muscipula*	Species of Concern
Well's Sandhill Prixie-moss	*Pyxidanthera barbulata var. brevifolia*	Species of Concern
Source: U.S. Fish & Wildlife Service (http://www.fws.gov/raleigh/species/cntylist/hoke.html)		

3.3 Economy

Both Cumberland and Hoke Counties sustain a diversified economy. In Cumberland County, most private sector employment is concentrated in educational services, health care and social assistance (28%). The top three employment industries in Cumberland County were educational services, health care and social assistance (28%), retail trade (14%), and arts, entertainment, recreation, and food services (11%). **Table *3-6*** provides an overview of employment and occupation statistics for Cumberland County. **Table *3-7*** provides the top five employers in Cumberland County.

Table 3-6. Employment and Occupation Statistics for Cumberland County

Employment Status	Percentage
In labor force	66.3
Employed	47.4
Unemployed	7.3
Armed Forces	11.6
Not in labor force	33.7
Occupation	
Management, business, science and arts	33.0
Service	20.3
Sales and office	25.9
Natural resources, construction and maintenance	8.8
Production, transportation and material moving	12.0
Source: U.S. Census Bureau 2009-2013 American Community Survey 5-Year Estimates	

Table 3-7. Top Five Employers in Cumberland County

Rank	Company	Industry	Number of Employees
1	Defense Ex-Army, Navy & Air Force	Public Administration	1,000+
2	Cumberland County Board of Education	Education & Health Services	1,000+
3	Cape Fear Valley Health Systems	Education & Health Services	1,000+
4	Wal-Mart Associates, Inc.	Trade, Transportation & Utilities	1,000+
5	Cumberland County	Public Administration	1,000+
Source: NC Department of Commerce, 2015			

In Hoke County, most private sector employment is concentrated in educational services, health care and social assistance (27%). The top three employment industries in Hoke County were educational services, health care and social assistance (27%), manufacturing (14%), and retail trade (12%). **Table *3-8*** provides an overview of employment and occupation statistics for Hoke County. **Table *3-9*** provides the top five employers in Hoke County.

Table 3-8. Employment and Occupation Statistics for Hoke County

Employment Status	Percentage
In labor force	64.1
Employed	47.4
Unemployed	8.1
Armed Forces	8.6
Not in labor force	35.9
Occupation	
Management, business, science and arts	28.9
Service	22.0
Sales and office	23.6
Natural resources, construction and maintenance	10.4
Production, transportation and material moving	15.1
Source: U.S. Census Bureau 2009-2013 American Community Survey 5-Year Estimates	

Table 3-9. Top Five Employers in Hoke County

Rank	Company	Industry	Number of Employees
1	Hoke County Board of Education	Education & Health Services	1,000+
2	Hoke County	Public Administration	250-499
3	Conopco Inc.	Manufacturing	250-499
4	The Staffing Alliance LLC	Professional & Business Services	250-499
5	Burlington Industries LLC	Manufacturing	250-499
Source: NC Department of Commerce, 2015			

Fort Bragg, one of the largest military installations in the world in terms of personnel, is located in Cumberland and Hoke Counties. Currently, more than 50,000 active duty personnel call Fort Bragg home. As the area's single largest employer, Fort Bragg (and Pope Army Airfield) has a huge impact on area growth and economic conditions. As stated in the Cumberland County 2030 Joint Growth Vision Plan - Growth Factory Analysis, Dr. Sid Gautam of the Center for Entrepreneurship at Methodist College, in May 2000, conducted an Analysis of the Economic Impact of Ft. Bragg and Pope Air Force Base (now Pope Army Airfield which is part of Fort Bragg). Among his conclusions were the following:

- Ten classes of payroll dollars contribute $1.2 billion in wages for 50,000 jobs and result in an economic impact of $3.48 billion annually.
- Ft. Bragg and Pope Army Airfield represent no less than 35% of the economies of Cumberland and Hoke Counties--on the order of fifteen times the impact of the area's largest manufacturing facility.
- By itself, Bragg-Pope would be North Carolina's eighth largest metropolitan economy.
- A very significant part of military payrolls goes to long-term residents. On average, a Bragg-Pope dollar circulates 2.64 times through the economy in a year.
- Fort Bragg outweighs Pope Army Airfield in economic impact by about 8:1, but Pope contributes nearly $400 million to the economy.

3.4 Land Use

The existing land use for Cumberland County is shown in **Figure 3-2** on the following page. Interstate 95, which bisects the County, serves as a major north-south route on the eastern seaboard. Most of the urban development is located west of the Interstate, while land located east of Interstate 95 is generally rural. The proposed land use for the Cumberland County area is shown in **Figure 3-3** – 2030 Growth Strategy Map. According to the 2030 Growth Vision Plan, 149,248 acres is designated as rural area; 47,897 acres as conservation area; 44,974 acres as urban fringe; 105,585 acres as urban area; and 26,558 acres as community growth area.

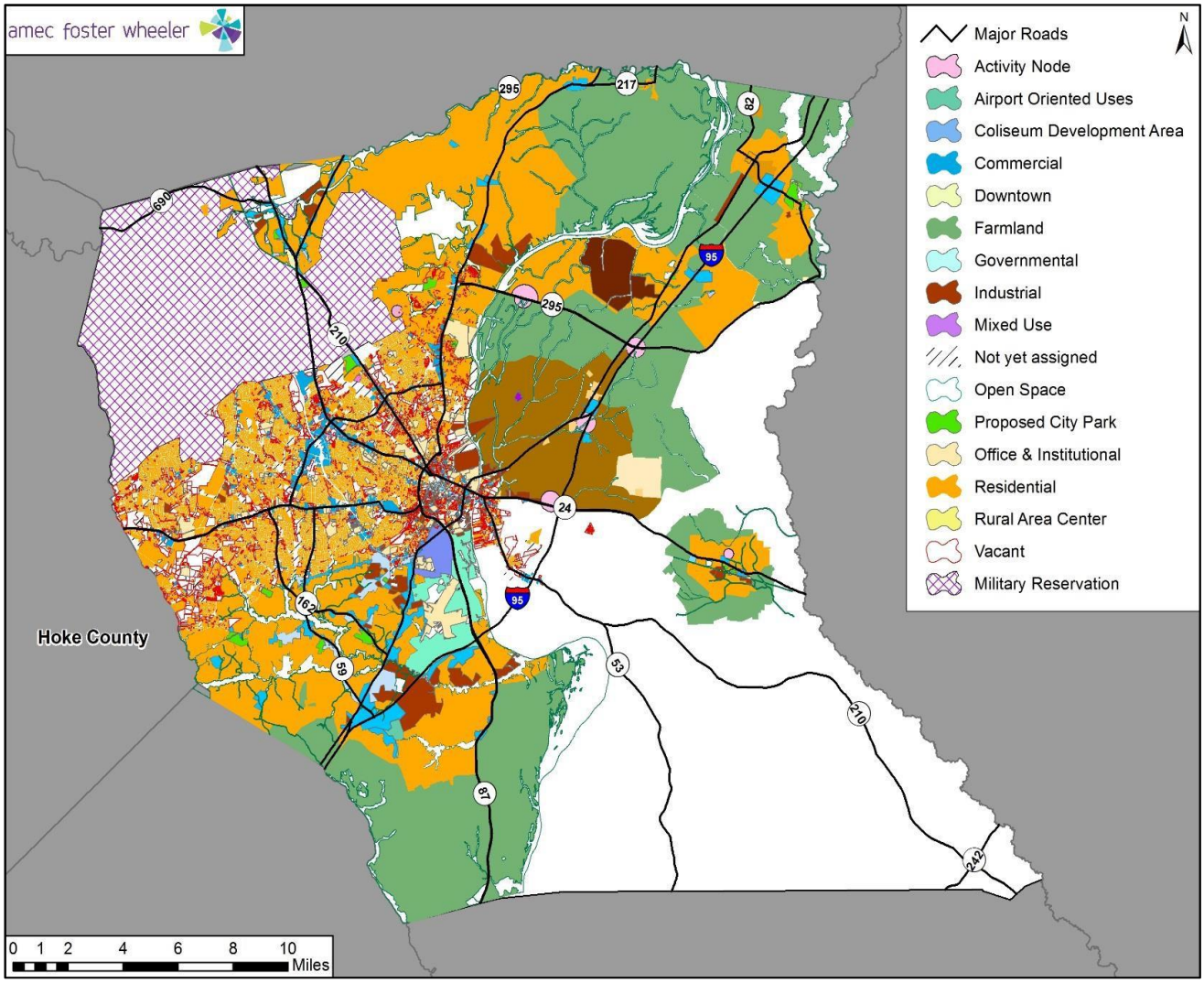


Figure 3-2. Cumberland County Existing Land Use

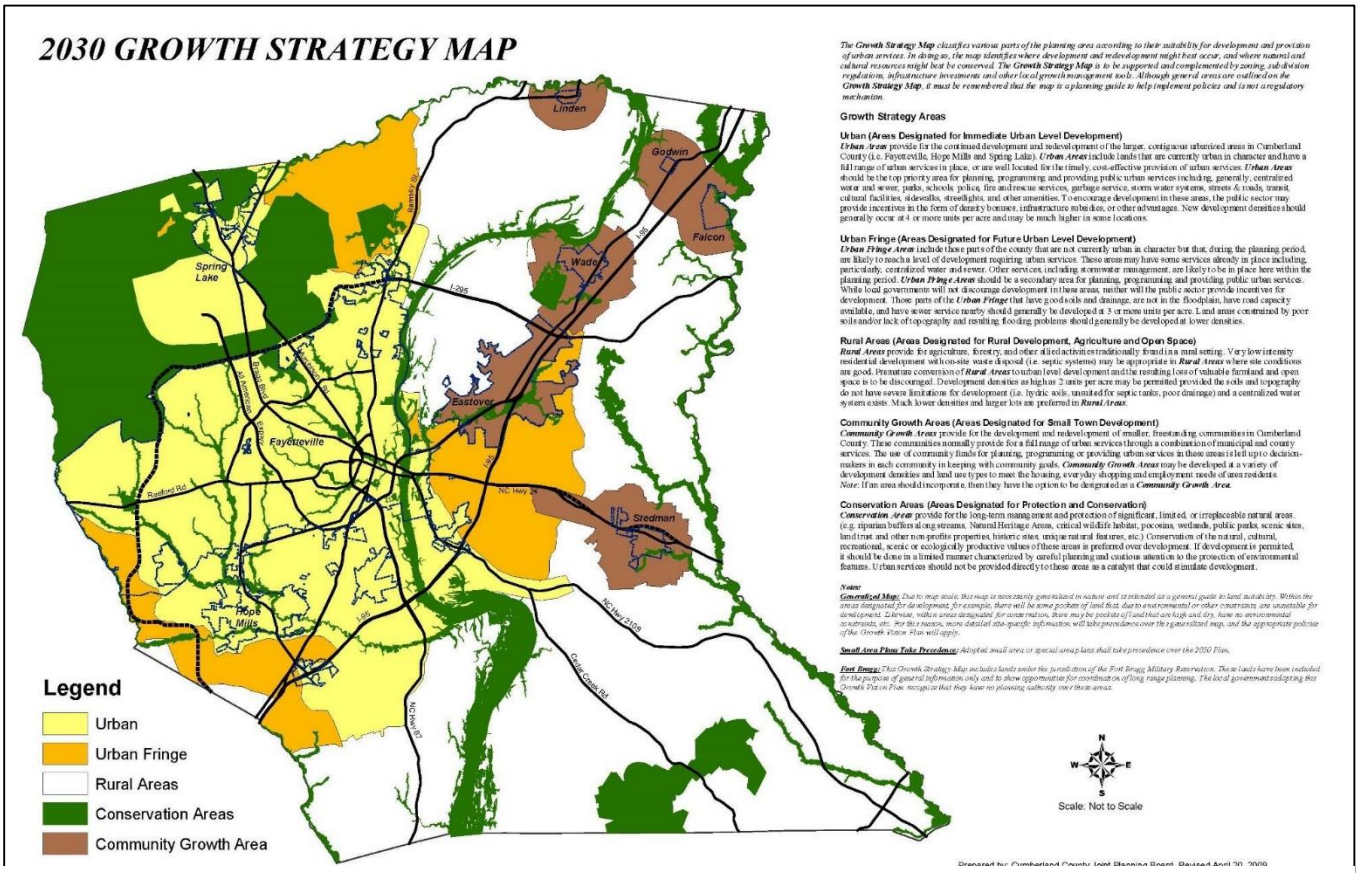


Figure 3-3. Cumberland County 2030 Growth Strategy Map

The existing land use for Hoke County is shown in **Figure 3-4**. According to the Hoke County Land Use Plan, approximately 97% of the County is zoned as Residential-Agricultural-20 which requires a minimum lot size area of 0.5 acre. Fort Bragg occupies approximately 36% of the total County acreage. Future land use data is not available for Hoke County.

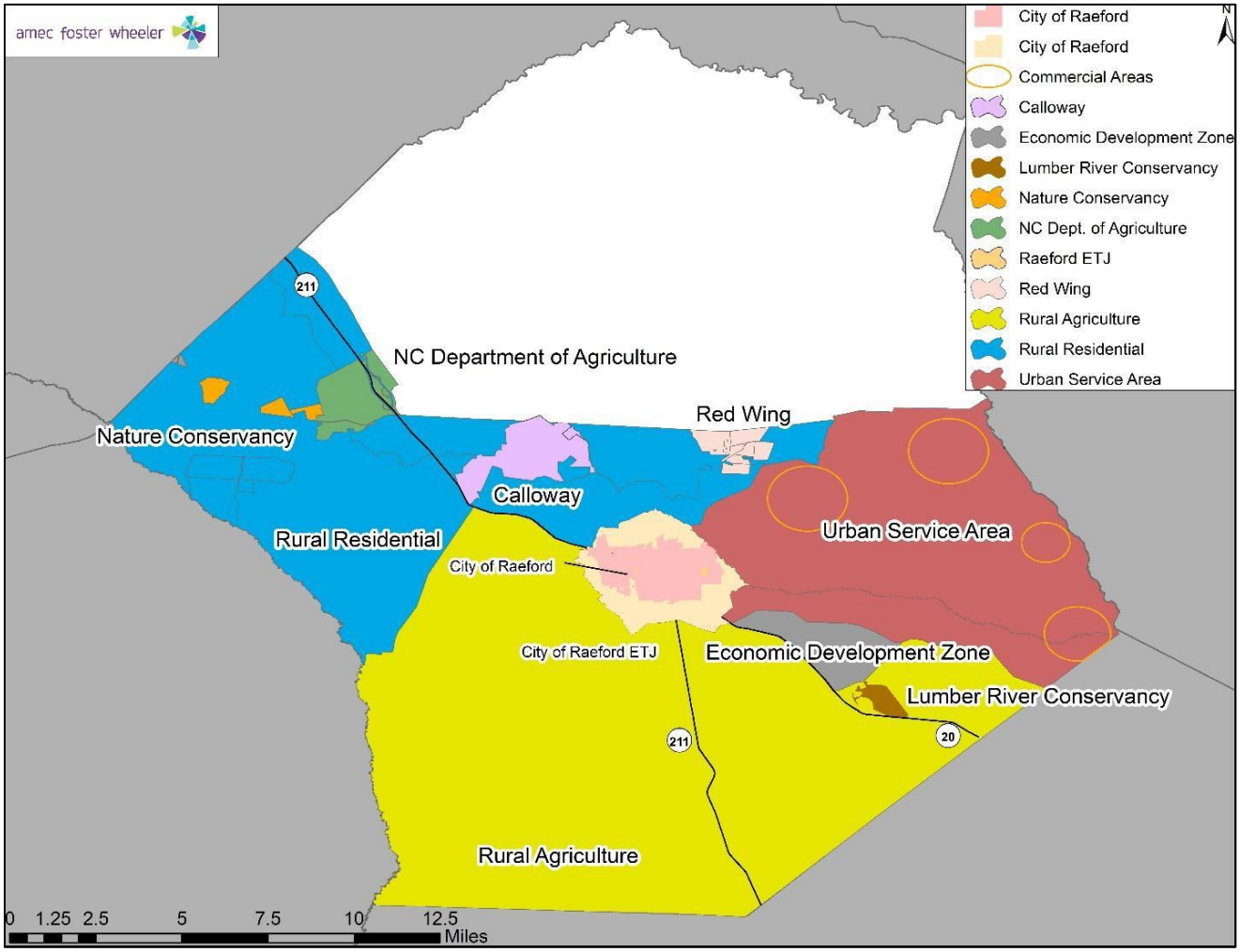


Figure 3-4. Hoke County Existing Land Use

3.5 Population and Demographics

Table 3-10 provides population counts and percent change in population since 2010 for all participating jurisdictions.

Table 3-10: Population Counts for Participating Jurisdictions

Jurisdiction	2000 Census Population	2010 Census Population	% Change
Cumberland County	302,963	319,431	5.4
City of Fayetteville	121,015	200,564	65.7
Town of Eastover	-	3,628	n/a
Town of Falcon	328	258	-21.3
Town of Godwin	112	139	24.1
Town of Hope Mills	11,237	15,176	35.1
Town of Linden	127	130	2.4
Town of Spring Lake	8,098	11,964	47.7
Town of Stedman	664	1,028	54.8
Town of Wade	480	556	15.8
Hoke County	33,646	46,952	39.5
City of Raeford	3,386	4,611	36.2

Source: Steven Manson, Jonathan Schroeder, David Van Riper, and Steven Ruggles. IPUMS National Historical Geographic Information System: Version 14.0 [Database]. Minneapolis, MN: IPUMS. 2019. http://doi.org/10.18128/D050.V14.0 Census 2000/Census 2010 Time Series Tables Geographically Standardized

Based on the 2010 Census, the median age of residents in both Cumberland and Hoke Counties is 31.0. The racial characteristics of the participating jurisdictions are presented below in **Table *3-11***. Generally, whites make up the majority of the population in both counties. However, several jurisdictions have much higher minority populations than others including Fayetteville, Raeford, Spring Lake and Hope Mills.

Table 3-11. Demographics of Participating Jurisdictions

Jurisdiction	White Persons, Percent (2010)	Black Persons, Percent (2010)	American Indian or Alaska Native, Percent (2010)	% Change Asian Persons, Percent (2010)	Hispanic or Latino Persons, Percent (2010)[1]
Cumberland County	51.4	36.7	1.6	2.2	9.5
City of Fayetteville	45.7	41.9	1.1	2.6	10.1
Town of Eastover	74.9	19.2	1.9	0.9	3.0
Town of Falcon	73.6	14.3	0.8	0	14.0
Town of Godwin	70.5	27.3	0.0	0.7	0.0
Town of Hope Mills	61.9	26.5	1.9	1.8	10.0
Town of Linden	76.9	12.3	3.1	0.8	5.4
Town of Spring Lake	47.2	36.3	1.1	3.0	15.4
Town of Stedman	83.2	11.7	1.1	0.7	3.2
Town of Wade	74.6	20.9	0.7	1.3	3.2
Hoke County	45.3	33.5	9.6	1.0	12.4
City of Raeford	43.6	41.1	4.3	1.0	9.6

[1]Persons of Hispanic Origin may be of any race, so are also included in applicable race category. Source: U.S. Census Bureau, 2010

3.6 Growth and Development

The projected population in Cumberland County for the year 2035 is 367,939 according to the NC State Office of Budget and Management. This is a projected 13% increase over the next 20 years.

The projected population in Hoke County for the year 2035 is 76,234 which equals a 48% increase over the next 20 years.

Table 3-12. Historic and Projected Population Growth (1990-2035)

Year	Population	Growth	Percent Growth
Cumberland County			
1990	274,713	--	--
2000	302,962	28,249	10.3
2010	319,431	16,469	5.4
2020	340,413	20,982	6.6
2030	358,765	18,352	5.4
2035	367,939	9,174	2.6
Hoke County			
1990	22,856	--	--
2000	33,646	10,790	47.2
2010	46,952	13,306	39.5
2020	57,919	10,967	23.4
2030	69,996	12,077	20.9
2035	76,234	6,238	8.9
Source: NC State Office of Budget and Management (http://www.osbm.nc.gov/demog/county-projections)			

According to the Cumberland County 2030 Growth Vision Plan – Growth Factor Analysis, areas with the highest growth rate from 1990-2000 (60%-95%) were in the southwestern part of the County as shown in **Figure 3-5** below. Factors that may have contributed to this growth include availability of undeveloped land, utilities, proximity to Fort Bragg, and the proposed Outer Loop.

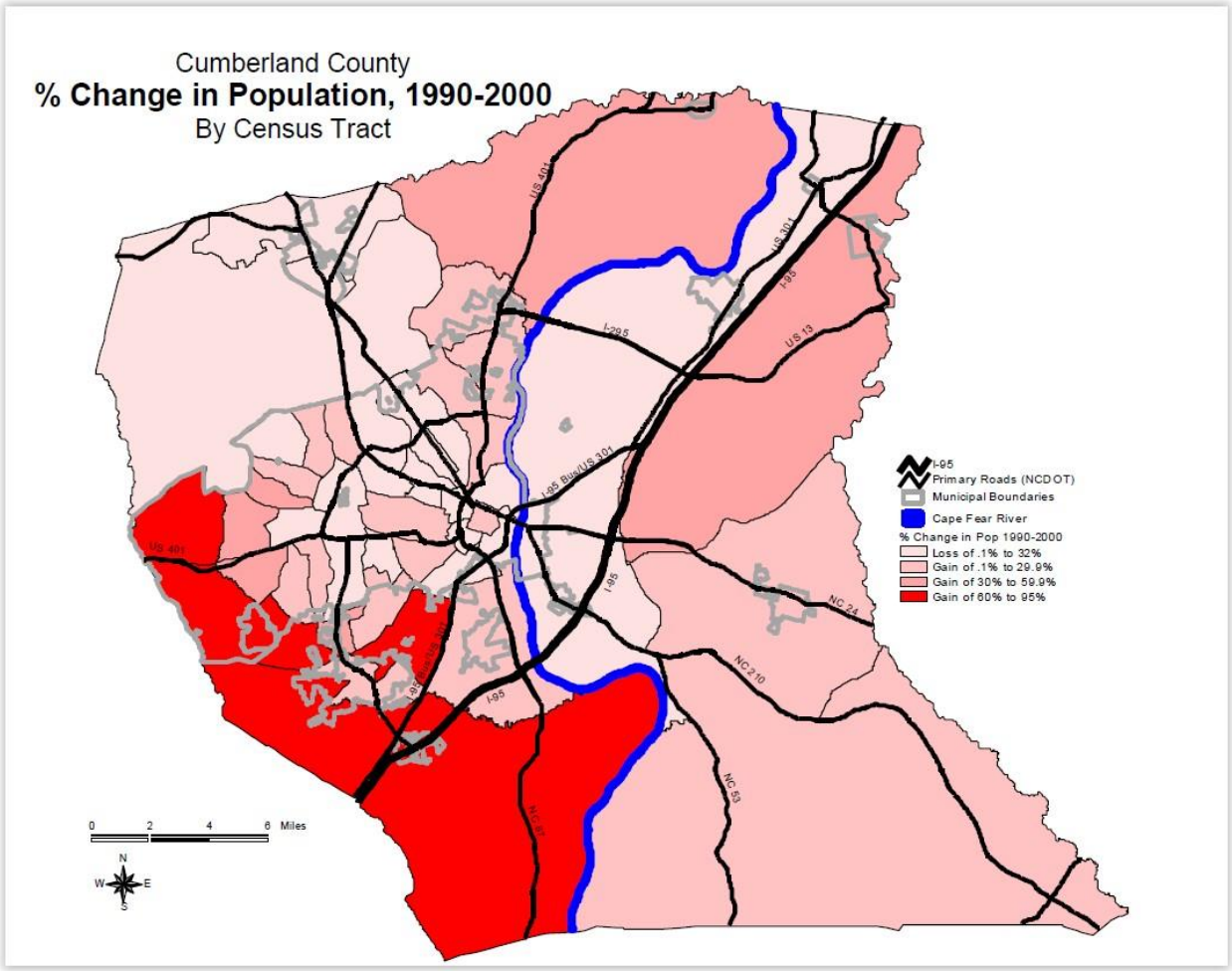


Figure 3-5 Cumberland County Population Change

Source: Cumberland County 2030 Growth Vision Plan

SECTION 4: HAZARD IDENTIFICATION

CFR Requirements
Requirement 44 CFR Subsection D §201.6(c)(2): **[The plan shall include] A risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.**

The following section describes the Risk Assessment process for the development of the Cumberland-Hoke Regional Hazard Mitigation Plan. It describes how the HMPC met the following requirements from the 10-step planning process:

- Planning Step 4: Assess the Hazard
- Planning Step 5: Assess the Problem

This assessment as defined by FEMA, risk is a combination of hazard, vulnerability, and exposure. "It is the impact that a hazard would have on people, services, facilities, and structures in a community and refers to the likelihood of a hazard event resulting in an adverse condition that causes injury or damage."

This risk assessment covers the entire geographical area of Cumberland and Hoke Counties in North Carolina. The risk assessment process identifies and profiles relevant hazards and assesses the exposure of lives, property, and infrastructure to these hazards. The process allows for a better understanding of a jurisdiction 's potential risk to natural hazards and provides a framework for developing and prioritizing mitigation actions to reduce risk from future hazard events. This risk assessment followed the methodology described in the FEMA publication Understanding Your Risks—Identifying Hazards and Estimating Losses (FEMA 386-2, 2002), which breaks the assessment down to a four-step process:

1. Identify Hazards;
2. Profile Hazard Events;
3. Inventory Assets; and
4. Estimate Losses.

Data collected through this process has been incorporated into the following sections of this plan:

Section 4: Hazard Identification identifies the natural and man-made hazards that threaten the planning area.

Section 5: Hazard Profiles discusses the threat to the planning area and describes previous occurrences of hazard events and the likelihood of future occurrences.

Section 6: Vulnerability Assessment assesses the planning area's exposure to the hazards; considering assets at risk, critical facilities, and future development trends.

Section 7: Capability Assessment inventories existing mitigation activities and policies, regulations, and plans that pertain to mitigation and can affect net vulnerability.

The HMPC conducted a hazard identification study to determine the natural and man-made hazards that threaten Cumberland and Hoke Counties. Existing hazard data from NCEM, FEMA, the National Oceanic and Atmospheric Administration (NOAA), and other sources were examined to assess the significance of

these hazards to the planning area. Significance was measured in general terms and focused on key criteria such as frequency and resulting damage, which includes deaths and injuries, as well as property and economic damage.

To further focus on the list of identified hazards for this plan update, the HMPC researched past events that resulted in a federal disaster declarations in order to identify known hazards. **Table *4-1*** and **Table *4-2*** present a list of all major disaster declarations that have occurred in Cumberland and Hoke Counties, respectively, since 1953. These tables present the foundation for identifying which hazards pose the greatest risk to the region.

Table 4-1. Major Disaster Declarations in Cumberland County (1953-2019)

Declaration #	Date	Event Details
DR-28	10/17/1954	Hurricane Hazel
DR-699	03/30/1984	Severe Storms, Tornadoes
DR-1134	09/06/1996	Hurricane Fran
DR-1240	08/27/1998	Hurricane Bonnie
DR-1292	09/16/1999	Hurricane Floyd & Irene
DR-1490	09/18/2003	Hurricane Isabel
DR-1546	09/10/2004	Tropical Storm Frances
DR-1969	04/19/2011	Severe Storms, Tornadoes and Flooding
DR-4285	10/10/2016	Hurricane Matthew
DR-4393	09/14/2018	Hurricane Florence
Source: FEMA		

Table 4-2. Major Disaster Declarations in Hoke County (1953-2019)

Declaration #	Date	Event Details
DR-1134	09/06/1996	Hurricane Fran
DR-1292	09/16/1999	Hurricane Floyd & Irene
DR-1312	01/31/2000	Winter Storm
DR-1546	09/10/2004	Tropical Storm Frances
DR-1969	04/19/2011	Severe Storms, Tornadoes and Flooding
DR-4285	10/10/2016	Hurricane Matthew
DR-4393	09/14/2018	Hurricane Florence
DR-4465	Hurricane Dorian	Hurricane Dorian
Source: FEMA		

Table *4-3* documents the decisions made by the HMPC as it relates to those hazards that were to be identified, analyzed, and addressed through the development of this regional plan. This table examines where or not the hazard was included in the 2018 State of North Carolina Hazard Mitigation Plan. This table summarizes those hazards that were identified for inclusion as well as those that were not identified and the reasoning for the decision.

Table 4-3. Hazard Evaluation

Hazard	Included in State Plan?	Included in Previous Plan?	Identified as a significant hazard to be included in the Regional Plan?
Earthquake	Yes	Yes	Yes
Coastal Hazards (coastal flooding, coastal erosion, storm surge & sea level rise)	Yes	No	No. Cumberland and Hoke Counties are 100 miles inland from the coast
Dam Failure	Yes	Yes	Yes
Drought	Yes	Yes	Yes
Extreme/Excessive Heat	No	Yes	Yes
Hurricane/Tropical Storm	Yes	Yes	Yes
Flooding	Yes	Yes	Yes
Severe Weather (thunderstorm wind, lightening and hail)	Yes	Yes	Yes
Tornado	Yes	Yes	Yes
Wildfire	Yes	Yes	Yes
Winter Storm	Yes	Yes	Yes
Geo Hazards (landslides and sinkholes)	Yes	No	No

The following hazards were evaluated by the HMPC and determined to be non-prevalent hazards that should not be included in the plan:

- **Avalanche** - According to the Federal Emergency Management Agency's Multi-Hazard Identification and Risk Assessment, this hazard is only relevant to the western United States.
- **Erosion -** This hazard may be possible, but the likelihood and magnitude are so minimal that the HMPC decided not to provide a detailed description or risk assessment.
- **Sinkhole -** This hazard may be possible, but the likelihood and magnitude are so minimal that the MAC decided not to provide a detailed description or risk assessment.
- **Tsunami** - According to a 2009 report by the USGS titled Regional Assessment of Tsunami Potential in the Gulf of Mexico, there are no significant earthquake sources within the Atlantic Ocean that are likely to generate tsunamis. Furthermore, Cumberland and Hoke Counties lie 100 miles inland from the coast.

- **Volcano** – There are no known active volcanoes in the United States east of central New Mexico.

The complete list of hazards for inclusion in this Regional Plan is as follows:

- Dam Failure
- Drought
- Earthquake
- Extreme Heat
- Hurricane/Tropical Storm
- Flooding
- Severe Weather (thunderstorm wind, lightning & hail)
- Tornado
- Wildfire
- Winter Storm

SECTION 5: HAZARD PROFILES

The hazards identified in Section 4 - Hazard Identification, are profiled individually in this section. It consists of the following subsections:

- 5.1 Dam Failure
- 5.2 Drought
- 5.3 Earthquake
- 5.4 Extreme Heat
- 5.5 Hurricane/Tropical Storm
- 5.6 Flooding
- 5.7 Severe Weather (Thunderstorm Wind, Lightning & Hail)
- 5.8 Tornado
- 5.9 Wildfire
- 5.10 Winter Storm
- 5.11 Hazard Profile Summary

CFR Requirements
44 CFR Subsection D §201.6(c)(2)(i): **[The risk assessment shall include a] description of the type, location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.**

This Information provided by members of the HMPC has been integrated into this section with information from other data sources.

Each hazard is profiled in the following format:

Hazard Description

This section provides a description of the hazard followed by details specific to the regional planning area.

Location and Spatial Extent

This section includes information on the hazard extent, seasonal patterns, speed of onset/duration, magnitude and any secondary effects.

Past Occurrences

This section contains information on historical events, including the extent or location of the hazard within or near the regional planning area.

Probability of Future Occurrence

This section gauges the likelihood of future occurrences based on past events and existing data. The frequency is determined by dividing the number of events observed by the number of years on record and multiplying by 100. This provides the percent chance of the event happening in any given year (e.g. 10 hurricanes or tropical storms over a 30-year period equates to a 33 percent chance of experiencing a hurricane or tropical storm in any given year). The likelihood of future occurrences is categorized into one of the classifications as follows:

- Highly Likely – 100 percent chance of occurrence within the next year
- Likely – Between 11 and 99 percent chance of occurrence within the next year (recurrence interval of 10 years or less)
- Possible – Between 1 and 10 percent chance of occurrence within the next year (recurrence interval of 11 to 100 years)

- Unlikely – Less than 1 percent chance or occurrence within the next 100 years (recurrence interval of greater than every 100 years)

Consequence Analysis

This section examines effects of the hazard on people, first responders, continuity of operations, built environment, economy and natural environment.

Those hazards determined to be of high or medium significance were characterized as priority hazards that required further evaluation in Section 6 Vulnerability Assessment. Significance was determined by frequency of the hazard and resulting damage, including deaths/injuries and property, crop and economic damage. Hazards occurring infrequently or having little to no impact on the regional planning area were determined to be of low significance and not considered a priority hazard. These criteria allowed the HMPC to prioritize hazards of greatest significance and focus resources where they are most needed.

Study Area

Cumberland County includes nine participating municipalities and Hoke County contains one participating municipality. ***Table 5-1*** provides a summary of the participating jurisdictions by County. Figure 5-1 provides a base map, for reference, of Cumberland and Hoke Counties and the participating municipalities.

Table 5-1. Participating Jurisdictions

Cumberland County	
City of Fayetteville	Town of Linden
Town of Eastover	Town of Spring Lake
Town of Falcon	Town of Stedman
Town of Godwin	Town of Wade
Town of Hope Mills	
Hoke County	
City of Raeford	

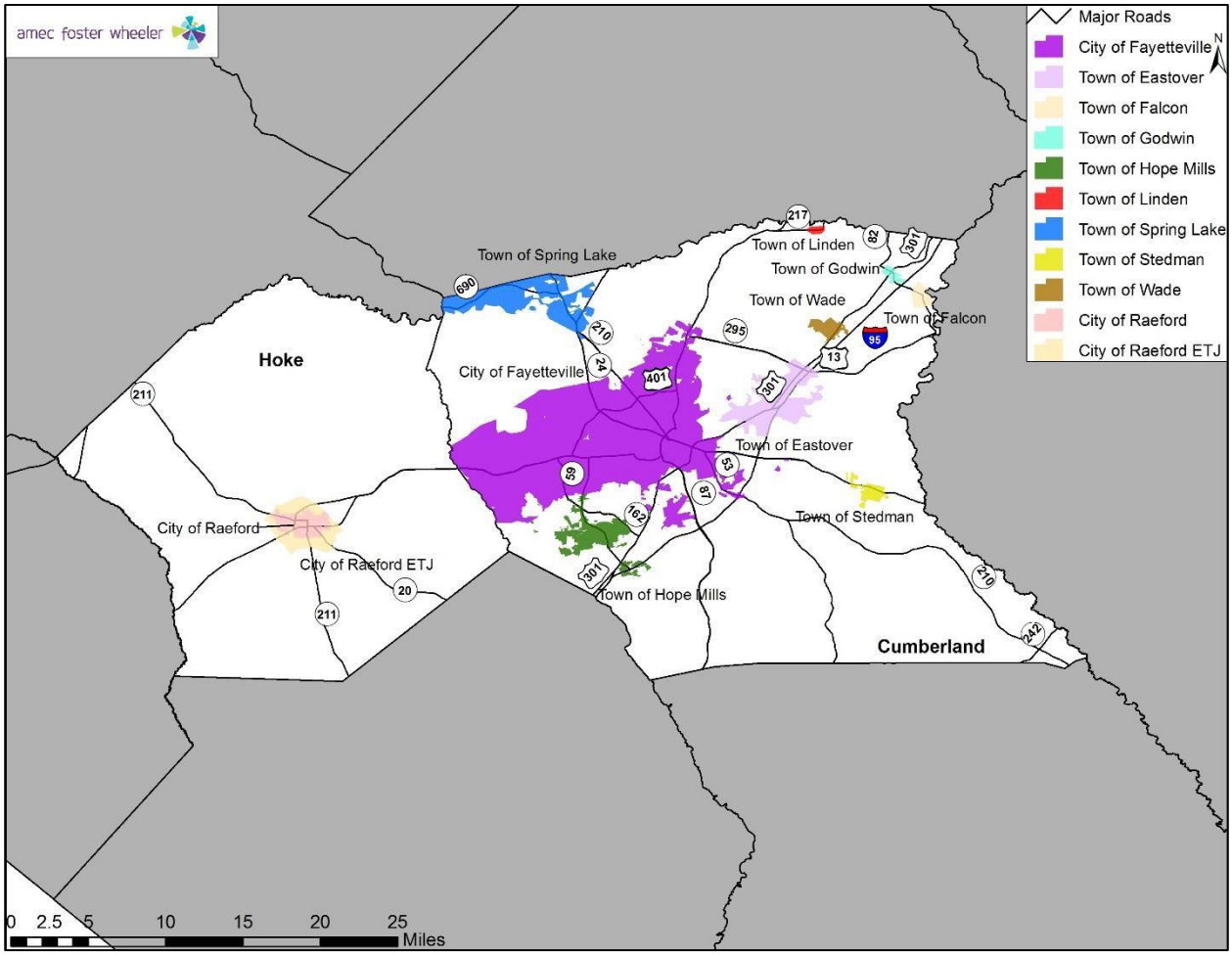


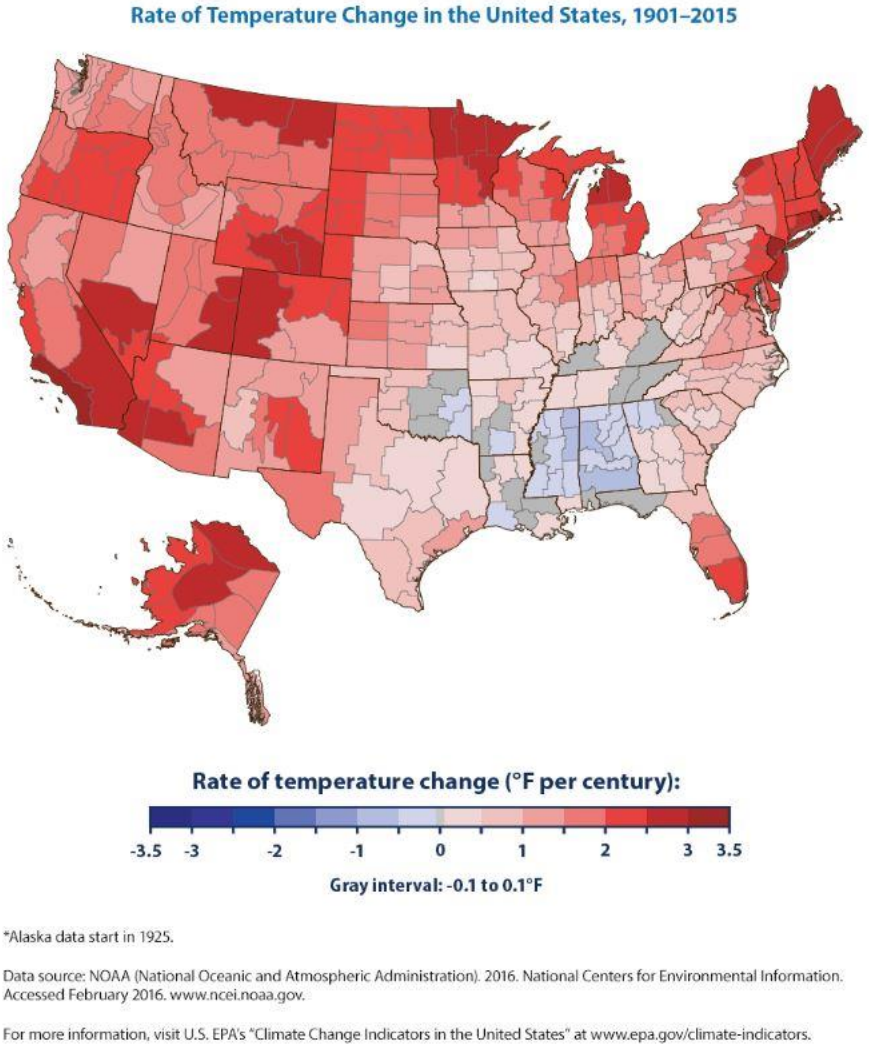
Figure 5-1. Cumberland and Hoke County Base Map

Climate Change

Climate change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcing such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use [(22)]. Climate change is a natural occurrence in which the earth has warmed and cooled periodically over geologic time. The recent and rapid warming of the earth over the past century has been cause for concern, as this warming is very likely due to the accumulation of human-caused greenhouse gases, such as CO2, in the atmosphere [(23)]. This warming is occurring almost everywhere in the world which suggests a global cause rather than changes in localized weather patterns.

Since 1901, the average surface temperature across the contiguous 48 states has risen at an average rate of 0.14°F per decade (1.4°F per century). Average temperatures have risen more quickly since the late 1970s (0.36 to 0.55°F per decade). Seven of the top 10 warmest years on record for the contiguous 48 states have occurred since 1998, and 2019 was the warmest year on record. The figure below, based on data

from NOAA and prepared by the EPA, shows how annual average air temperatures have changed in different parts of the United States since 1901. According to the Cumberland County Climate Resiliency Plan [21], the Cumberland-Hoke County region is projected to experience an additional 15-35 days annually with temperatures above 95°F, drastically increasing the number of extreme heat days. Furthermore, the average temperature in the Southeast United States is expected to increase by one to two degrees starting in 2050 [21].



The Cumberland County Climate Resiliency Plan identifies four climate risks projected to impact the Cumberland-Hoke region: 1) increasing temperatures; 2) increasing frequency and strength of severe weather events; 3) more heavy rain/flooding; and 4) more frequent and prolonged drought. A discussion of the effect of these climate risks on the individual hazards profiled below has been included in the Probability of Future Occurrence subsection for each hazard as applicable.

5.1 Dam Failure

5.1.1 Hazard Description

Dam Failure

A dam is a barrier constructed across a watercourse that stores, controls, or diverts water. Dams are

usually constructed of earth, rock, or concrete. The water impounded behind a dam is referred to as the reservoir and is measured in acre-feet. One acre-foot is the volume of water that covers one acre of land to a depth of one foot. Dams can benefit farmland, provide recreation areas, generate electrical power, and help control erosion and flooding issues.

A dam failure is the collapse or breach of a dam that causes downstream flooding. Dam failures may be caused by natural events, human-caused events, or a combination. Due to the lack of advance warning, failures resulting from natural events, such as hurricanes, earthquakes, or landslides, may be particularly severe. Prolonged rainfall and subsequent flooding are the most common cause of dam failure.

Dam failures usually occur when the spillway capacity is inadequate, and water overtops the dam or when internal erosion in dam foundation occurs (also known as piping). If internal erosion or overtopping cause a full structural breach, a high-velocity, debris-laden wall of water is released and rushes downstream, damaging or destroying anything in its path. Overtopping is the primary cause of earthen dam failure in the United States.

Dam failures can result from any one or a combination of the following:

- Prolonged periods of rainfall and flooding;
- Inadequate spillway capacity, resulting in excess overtopping flows;
- Internal erosion caused by embankment or foundation leakage or piping;
- Improper maintenance, including failure to remove trees, repair internal seepage problems, replace lost material from the cross-section of the dam and abutments, or maintain gates, valves, and other operational components;
- Improper design, including the use of improper construction materials and construction practices;
- Negligent operation, including the failure to remove or open gates or valves during high flow periods;
- Failure of upstream dams on the same waterway; and
- High winds, which can cause significant wave action and result in substantial erosion.

Water released by a failed dam generates tremendous energy and can cause a flood that is catastrophic to life and property. A catastrophic dam failure could challenge local response capabilities and require evacuations to save lives. Impacts to life safety will depend on the warning time and the resources available to notify and evacuate the public. Major casualties and loss of life could result, as well as water quality and health issues. Potentially catastrophic effects to roads, bridges, and homes are also of major concern. Associated water quality and health concerns could also be issues. Factors that influence the potential severity of a full or partial dam failure are the amount of water impounded; the density, type, and value of development and infrastructure located downstream; and the speed of failure.

Each state has definitions and methods to determine the Hazard Potential of a dam. In North Carolina, dams are regulated by the state if they are 25 feet or more in height and impound 50 acre-feet or more.

Dams and impoundments smaller than that may fall under state regulation if it is determined that failure of the dam could result in loss of human life or significant damage to property below the dam. The height of a

dam is from the highest point on the crest of the dam to the lowest point on the downstream toe, and the storage capacity is the volume impounded at the elevation of the highest point on the crest of the dam.

Dam Safety Program engineers determine the "hazard potential" of a dam, meaning the probable damage that would occur if the structure failed, in terms of loss of human life and economic loss or environmental damage. Dams are assigned one of three classes based on the nature of their hazard potential:

1. Class A (Low Hazard) includes dams located where failure may damage uninhabited low value non-residential buildings, agricultural land, or low volume roads.
2. Class B (Intermediate Hazard) includes dams located where failure may damage highways or secondary railroads, cause interruption of use or service of public utilities, cause minor damage to isolated homes, or cause minor damage to commercial and industrial buildings. Damage to these structures will be considered minor only when they are located in backwater areas not subjected to the direct path of the breach flood wave; and they will experience no more than 1.5 feet of flood rise due to breaching above the lowest ground elevation adjacent to the outside foundation walls or no more than 1.5 feet of flood rise due to breaching above the lowest floor elevation of the structure.
3. Class C (High Hazard) includes dams located where failure will likely cause loss of life or serious damage to homes, industrial and commercial buildings, important public utilities, primary highways, or major railroads.

Table 5-2. Dam Hazard Classifications

Hazard Classification	Description	Quantitative Guidelines
Low	Interruption of road service, low volume roads	Less than 25 vehicles per day
	Economic damage	Less than $30,000
Intermediate	Damage to highways, interruption of service	25 to less than 250 vehicles per day
	Economic damage	$30,000 to less than $200,000
	Loss of human life*	Probable loss of 1 or more human lives
High	Economic damage	More than $200,000
	*Probable loss of human life due to breached roadway or bridge on or below the dam	250 or more vehicles per day

5.1.2 Location and Spatial Extent

Table 5-3 provides details for 61 dams classified as high hazard in the North Carolina Dam Inventory that are located within Cumberland and Hoke Counties. Figure 5.3 reflects the location of the high hazard dams within the Counties. It should be noted that there are 61 additional dams located in Cumberland

County (1 intermediate hazard, 60 low hazard), as well as 21 additional low hazard dams located in Hoke County.

Table 5-3. Counts of High Hazard and Intermediate Hazard Dams by Jurisdiction

Jurisdiction	High	Intermediate
Cumberland		
City of Fayetteville	28	0
Cumberland County (Unincorporated Area)	7	0
Subtotal Cumberland	**35**	**0**
Hoke		
Hoke County (Unincorporated Area)	5	0
Subtotal Hoke	**5**	**0**
Total Plan	**40**	**0**

Source: North Carolina Dams Program, North Carolina Department of Environment and Natural Resources (NCDENR).

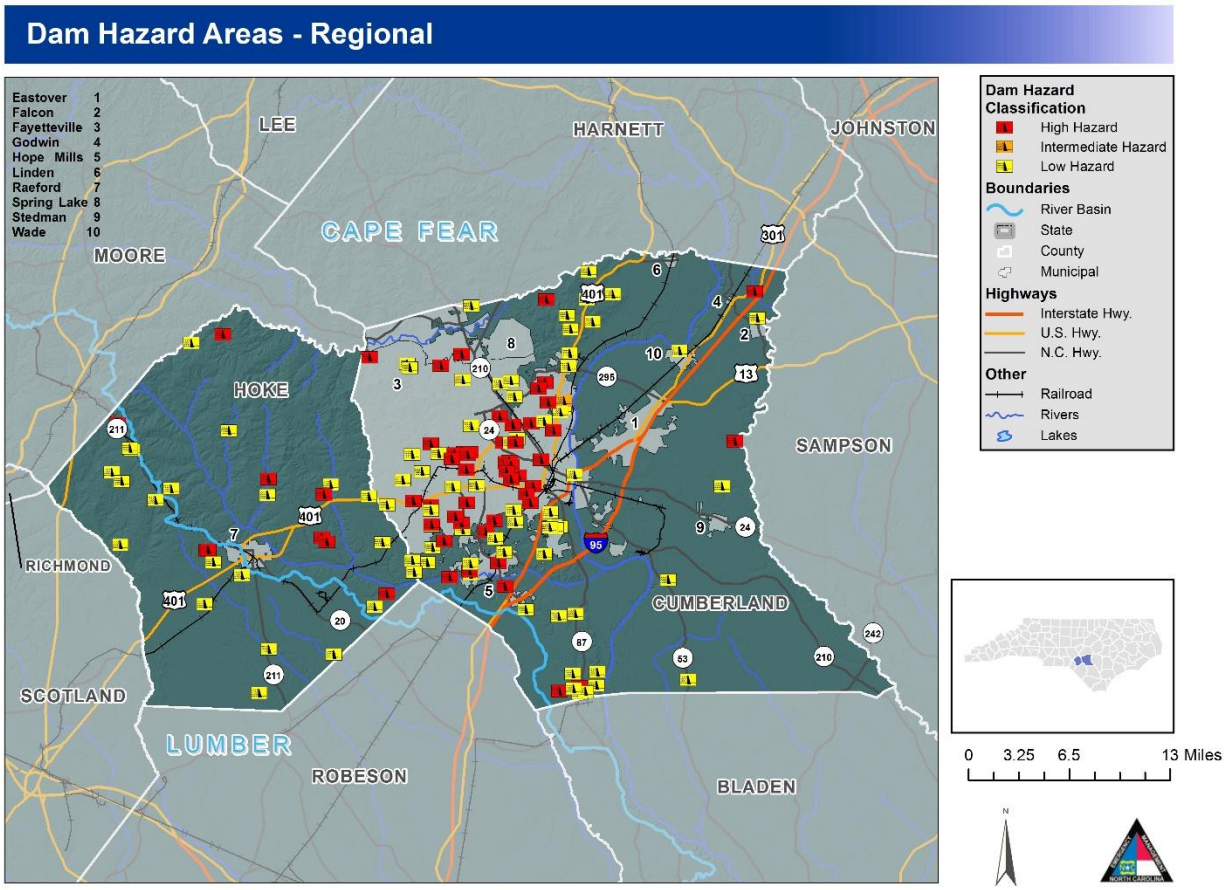


Figure 5-2. High Hazard Dam Locations

The National Levee Database (NLD), developed by the U.S. Army Corps of Engineers, contains levee system inspection and evaluation information for the NFIP. The NLD is a dynamic database with ongoing efforts to add levee data from federal agencies, states, and tribes. Currently, there are no levees located in Cumberland and Hoke Counties that are included in the U.S. Army Corps of Engineers NLD.

5.1.3 Extent

Two factors influence the potential severity of a dam failure: the amount of water impounded, and the density, type, and value of development and infrastructure located downstream. The potential extent of dam failure may be classified according to their "hazard potential," meaning the probable damage that would occur if the structure failed, in terms of loss of human life and economic loss or environmental damage. The State of North Carolina classifies dam structures under its regulations according to hazard potential as described in the table above. It is important to note that these classifications are not based on the adequacy or structural integrity of existing dam structures. There were no reported dam failures in the Region and all its jurisdictions. Mitigation strategy regarding dam identification and mapping will be considered in future mitigation actions for the Region.

Jurisdiction	Calculated Probability (IRISK)
Cumberland County (Unincorporated Area)	Low
Hoke County (Unincorporated Area)	Low

5.1.4 Past Occurrences

Table 5-4 details known past dam failures in Cumberland and Hoke Counties.

***Table 5-4. K*nown Dam Failures in Cumberland and Hoke Counties**

Location	County	Date of Occurrence	Result of Failure	Deaths/ Injuries	Property Damage	Details
Hope Mills Dam	Cumberland	5/26/2003	Heavy rains, dam gate would not open	0	$2.1 million	Dam embankment gave way and also destroyed 30 feet of the nearby Lakeview Road. About 40 homes and 1,600 people downstream were evacuated.
Hope Mills Dam	Cumberland	6/2010	Sinkhole	0		The dam failed in June 2010 when a sinkhole developed at the base of the dam.
Hope Mills Dam	Cumberland	NR	NR	0	NR	The 2013 NC State Hazard Mitigation Plan reports the dam has experienced 5 failures and has damage 11 homes.
Evans and Lockwood Dams	Cumberland	9/15/1989	Overtopping	2	>$10 million	
Country Club Lake	Cumberland	Multiple	NR	NR	NR	Small dam located on to perennial prongs of a tributary to Cross Creek. Multiple failures.
Jaycees Pond	Cumberland	6/19/1995	Flood	NR	NR	
Lake Lynn Dam	Cumberland	6/19/1995	Flood	NR	NR	
Wallace Lake Dam	Cumberland	1988	Piping	NR	NR	
Mount Vernon Estates	Cumberland	10/8/2016	Overtopping	0	NR	dam overtopped & partially breached, head cut scarp
Rayconda Upper Dam	Cumberland	10/8/2016	Breached	0	NR	
Arran Lakes Dam	Cumberland	10/8/2016	Overtopping	0	NR	

Forest Lake Dam	Cumberland	7/7/2011	Spillway Chute Failure	0	NR	A portion of the concrete chute spillway detached and fell into the void beneath approximately five feet in depth.
Long Valley Farm Lake Dam	Cumberland	10/8/2016	Overtopping	0	NR	breached, deep scour holes on crest, downstream slope and toe of dam near principal spillway
Smith Lake Dam	Cumberland	10/8/2016	Overtopping	0	NR	breached with large scour holes on downstream slope and toe of dam
Smith Lake Dam	Cumberland	10/8/2016	Overtopping	0	NR	
Arabia	Hoke	10/18/1999	Flash Flood	0	NR	A small dam near Arabia started leaking late at night and finally broke later that morning. Several roads were inundated, and a few homes sustained minor flooding.
Rockfish	Hoke	05/26/2003	Flash Flood	0	NR	A dam between McLaughlin Lake and Rockfish Creek collapsed.
Upchurch Pond Dam	Hoke	05/27/2003	Flash Flood	0	NR	A dam connecting Upchurch Pond and Rockfish Creek in neighboring Cumberland County caused flooding in Hoke County. Reconstruction cost estimated at more than $350,000. 4 additional dams damaged; another 15 overtopped during the rainfall even 4-6" in less than 24 hours).

McLaughlin Lake	Hoke	09/08/2004	Flood	0	NR	A dam failure at McLaughlin Lake on September 8, 2004 caused flooding to the Laurinburg Road area, damaging several homes and vehicles.
Edge Lake	Hoke	10/18/1999	Hurricane Floyd	0		Downstream homes were evacuated last night and early the morning of 10/18/1999. A shelter was opened at East Hoke Middle School for evacuated residents.
Sunset Lake Dam	Hoke	Unknown	Unknown	0	NR	Break reported.
McLonklin Lake Dam	Hoke	Unknown	Unknown	0	NR	Break reported.
All Low Hazards Dams	Hoke	1950–2009	Various	0	NR	Local perception is that all low hazard dams in the county seem to have broken at various points in time.

Sources: Association of State Dam Safety Officials; Hoke County 2010 Multi-Jurisdictional Hazard Mitigation Plan; National Performance of Dams Program database (npdp.standord.edu).

Note: The National Performance of Dams Program reports several "incidents" at dams that did not result in failure of the dam. Note: Several of the dams listed are small dams and are not listed in the NC Dam Safety database.

5.1.5 Probability of Future Occurrence

Based on the analyses performed in IRISK, the probability of future Dam Failure is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Low: Less Than 1% Annual Probability
- Medium: Between 1% And 10% Annual Probability
- High: More Than 10% Annual Probability

Jurisdiction	Calculated Probability (IRISK)
City Of Fayetteville	Medium
City Of Raeford	Low
Cumberland County (Unincorporated Area)	Low
Hoke County (Unincorporated Area)	Low
Town Of Eastover	Low
Town Of Falcon	Low
Town Of Godwin	Low
Town Of Hope Mills	Low
Town Of Linden	Low
Town Of Spring Lake	Low
Town Of Stedman	Low
Town Of Wade	Low

Climate Change and Dam Failure

Studies have been conducted to investigate the impact of climate change scenarios on dam safety. The safety of dams for the future climate can be based on an evaluation of changes in design floods and the freeboard available to accommodate an increase in flood levels. The results from the studies indicate that the design floods with the corresponding outflow floods and flood water levels will increase in the future, and this increase will affect the safety of the dams in the future. Studies concluded that the total hydrological failure probability of a dam will increase in the future climate and that the extent and depth of flood waters will increase by the future dam break scenario (27).

5.1.6 Consequence and Impact Analysis

People

A person's immediate vulnerability to a dam failure is directly associated with the person's distance downstream of the dam as well as proximity to the stream carrying the floodwater from the failure. For dams that have an Emergency Action Plan (EAP), the vulnerability off loss of life for persons in their homes or on their property may be mitigated by following the EAP evacuation procedures; however, the displaced

persons may still incur sheltering costs. For persons located on the river (e.g. for recreation) the vulnerability of loss of life is significant.

A large population is vulnerable to the loss of the uses of the lake upstream of the dam following failure. Several uses are minor, such as aesthetics or recreational use. However, some lakes serve as drinking water supplies and the loss of the lake could create a public health crisis if the drinking water supply is disrupted. Cumberland County and the City of Fayetteville are most vulnerable to dam breaches due to past occurrences.

First Responders

For dams that fail slowly, first responders will be impacted similarly to other events that have advance warning. For dams that fail without prior warning, the impact is rapid and severe, requiring rapid response to the impacts. Although the response is generally restricted to the stream below the dam, the location of impact moves rapidly downstream requiring multiple response locations.

Continuity of Operations

Unless critical infrastructure or facilities essential to the operation of government are located in the impact area of the inundation area downstream of the dam, continuity of operations will likely not be disrupted. Emergency response, emergency management and law enforcement officials may have resources stretched or overwhelmed in the failure of a large dam.

Built Environment

Vulnerability to the built environment includes damage to the dam itself and any man-made feature located within the inundation area caused by the dam failure. Downstream of the dam, vulnerability includes potential damage to homes, personal property, commercial buildings and property, and government owned buildings and property; destruction of bridge or culvert crossings; weakening of bridge supports through scour; and damage or destruction of public or private infrastructure that cross the stream such as water and sewer lines, gas lines and power lines. Water dependent structures on the lake upstream of the dam, such as docks/piers, floating structures or water intake structures, may be damaged by the rapid reduction in water level during the failure.

Economy

Economic impact from small dams is generally small and impact is often limited to dam owner and the cost of first responder activities. Large failures can disrupt the economy through displacement of workers, damage to commercial employment centers or destruction of infrastructure that impacts commercial activities or access to other economic drivers.

Natural Environment

Aquatic species within the lake will either be displaced or destroyed. The velocity of the flood wave will

likely destroy riparian and instream vegetation and destroy wetland function. The flood wave will like cause erosion within and adjacent to the stream. Deposition of eroded deposits may choke instream habitat or disrupt riparian areas. Sediments within the lake bottom and any low oxygen water from within the lake will be dispersed, potentially causing fish kills or releasing heavy metals found in the lake sediment layers.

5.2 Drought

5.2.1 Hazard Description

Drought is a deficiency in precipitation over an extended period. It is a normal, recurrent feature of climate that occurs in virtually all climate zones. The duration of droughts varies widely. There are cases when drought develops relatively quickly and lasts a very short period of time, exacerbated by extreme heat and/or wind, and there are other cases when drought spans multiple years, or even decades. Studying the paleoclimate record is often helpful in identifying when long-lasting droughts have occurred. Common types of drought are detailed below.

Table 5-5.Drought Classifications

Type	Details
Meteorological Drought	Meteorological Drought is based on the degree of dryness (rainfall deficit) and the length of the dry period.
Agricultural Drought	Agricultural Drought is based on the impacts to agriculture by factors such as rainfall deficits, soil water deficits, reduced ground water, or reservoir levels needed for irrigation.
Hydrological Drought	Hydrological Drought is based on the impact of rainfall deficits on the water supply such as stream flow, reservoir and lake levels, and ground water table decline.
Socioeconomic Drought	Socioeconomic drought is based on the impact of drought conditions (meteorological, agricultural, or hydrological drought) on supply and demand of some economic goods. Socioeconomic drought occurs when the demand for an economic good exceeds supply as a result of a weather-related deficit in water supply.

The wide variety of disciplines affected by drought, its diverse geographical and temporal distribution, and the many scales drought operates on make it difficult to develop both a definition to describe drought and an index to measure it. Many quantitative measures of drought have been developed in the United States, depending on the discipline affected, the region being considered, and the particular application. Several indices developed by Wayne Palmer, as well as the Standardized Precipitation Index, are useful for describing the many scales of drought.

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

The United States Drought Monitor reports data on North Carolina drought conditions from 2000 to 2020. It classifies drought by County on a scale of D0 to D4 where:

D0: Abnormally Dry;
D1: Moderate Drought;
D2: Severe Drought;

D3: Extreme Drought; and

D4: Exceptional Drought.

Category	Impact
D0	Pastures are dry; mild crop stress is noted; irrigation increases
	Lawns are brown
D1	Crop stress increases
	Hay production is reduced; producers feed hay to cattle early
	Wildfire danger is higher than the seasonal normal
	Increased signs of wildlife; trees and landscape are drought stressed
	Streamflow is reduced; lake and reservoirs levels decline
	Voluntary water conservation begins
D2	Dryland crop yields are low
	Wildfires are difficult to extinguish
	Swimming areas and boat ramps begin to close
	Voluntary and mandatory water use restrictions are implemented, people are asked to refrain from nonessential water use
D3	Hay is scarce, producers are purchasing outside of state; nitrate levels in forage are high
	Outdoor burn bans are implemented; wildfires are widespread
	Landscaping and greenhouse businesses lose revenue
	Aquatic wildlife is dying; fewer trout are stocked
	Hydropower generation decreases
	Voluntary conservation is requested even in sufficient water level areas; mandatory restrictions become more severe and fines are given to violators; stream levels are extremely low

Category	Impact
D4	Producers sell cattle; hay shortages and crop loss occur; farmers are stressed
	Daily life is affected for all citizens; people pray for rain; drought education seminars increase
	Epizootic hemorrhagic disease is widespread in deer
	Reservoirs are low; officials are counting the days of remaining water supply; well water is low; residents are hauling water

The **U.S. Drought Monitor** provides a summary of drought conditions across the United States and Puerto Rico. Often described as a blend of art and science, the map is updated weekly by combining a variety of data-based drought indices and indicators and local expert input into a single composite drought indicator.

The **Standardized Precipitation Index** (SPI) is a way of measuring drought that is different from the Palmer Drought Index (PDI). Like the PDI, this index is negative for drought, and positive for wet conditions. But the SPI is a probability index that considers only precipitation, while Palmer's indices are water balance indices that consider water supply (precipitation), demand (evapotranspiration) and loss (runoff).

The **Palmer Drought Severity Index** (PDSI) devised in 1965, was the first drought indicator to assess moisture status comprehensively. It uses temperature and precipitation data to calculate water supply and demand, incorporates soil moisture, and is considered most effective for unirrigated cropland. It primarily reflects long-term drought and has been used extensively to initiate drought relief. It is more complex than the SPI and the Drought Monitor.

5.2.2 Location and Spatial Extent

According to the PDSI map shown in Figure 5.3 below, southeastern North Carolina has a relatively low risk for drought hazard. However, drought cannot be confined to geographic or political boundaries and some areas may experience more severe drought events than what is shown on the map.

Figure 5.4 shows the spatial pattern of SPI through October 2020. The red shading denotes dry conditions while the green shading indicates wet conditions. The index is negative for drought, and positive for wet conditions. The Cumberland and Hoke County region is designated as moderately dry.

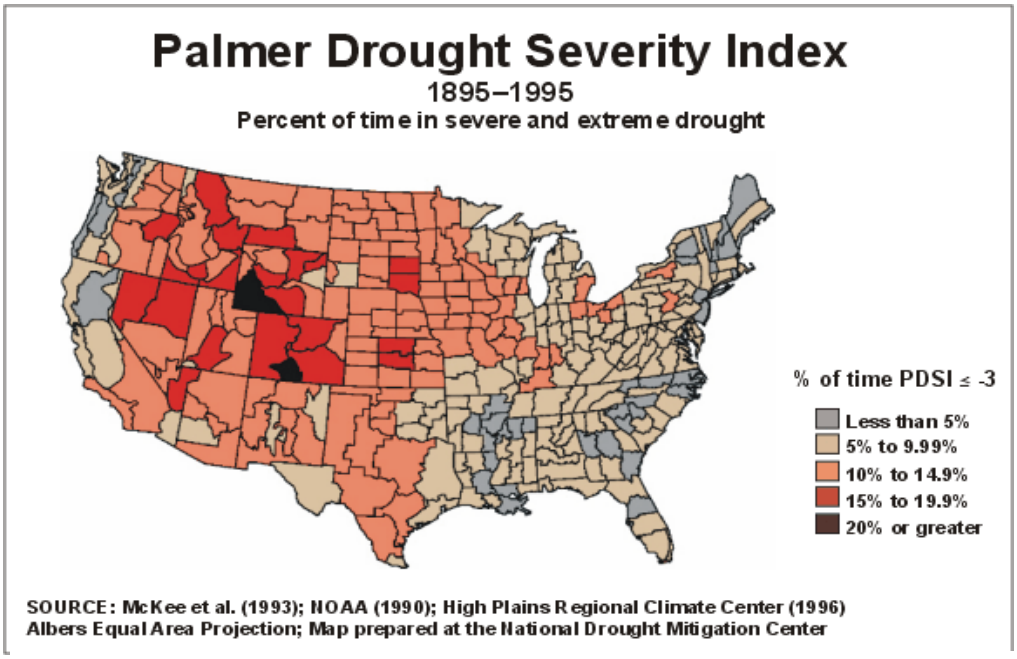


Figure 5-3. Palmer Drought Severity Index

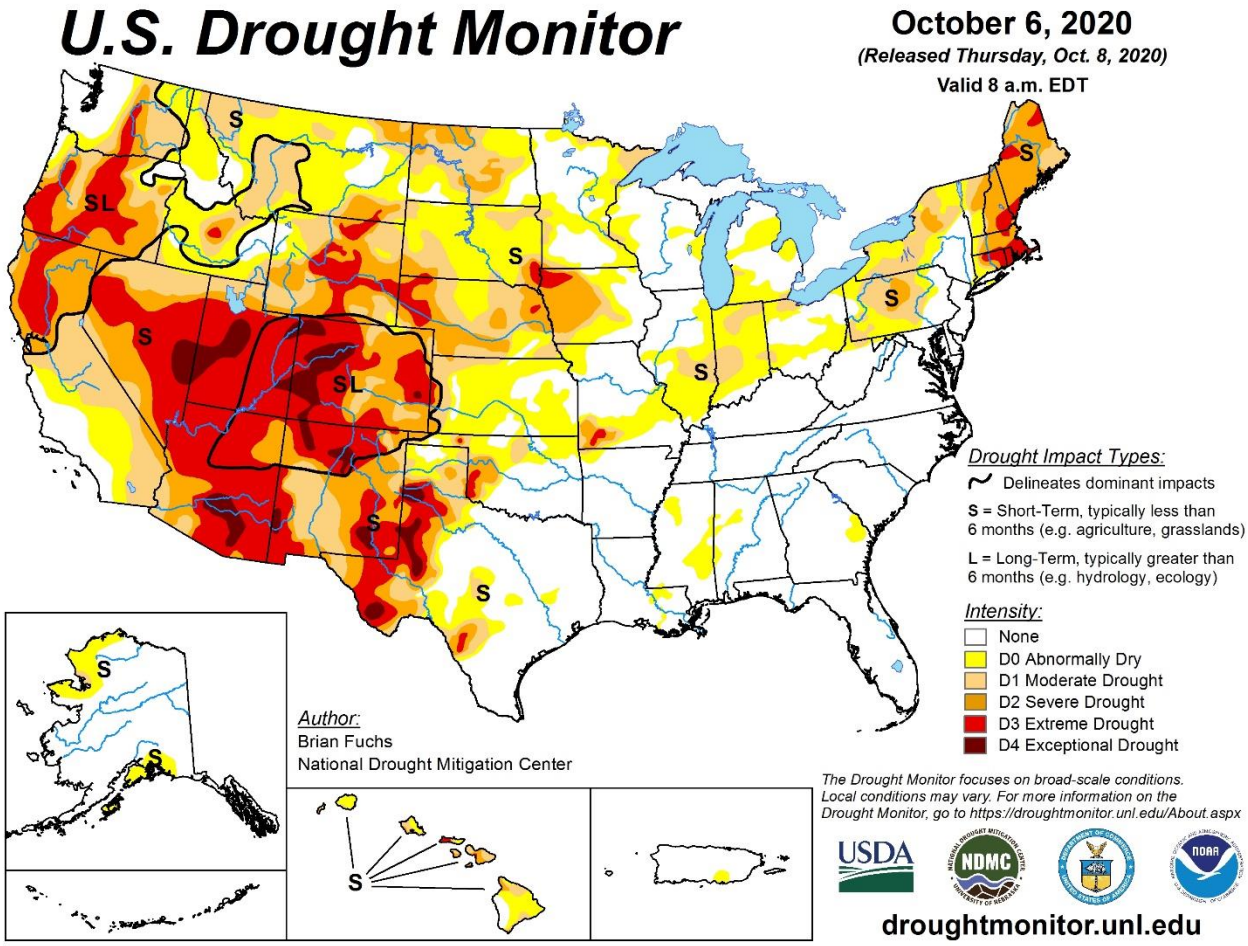


Figure 5-4. Standardized Precipitation Index

5.2.3 Extent

According to the North Carolina Drought Monitor, both counties in the Region experienced 20 years' worth of drought occurrences (including abnormally dry) during the last 20 years (2000-2020) Since last plan update no exceptional droughts have been recorded (The table below should be noted that the North Carolina Drought Monitor also estimates what percentage of the county is in each classification of drought severity. For example, the most severe classification reported may be exceptional, but a majority of the county may actually be in a less severe condition.

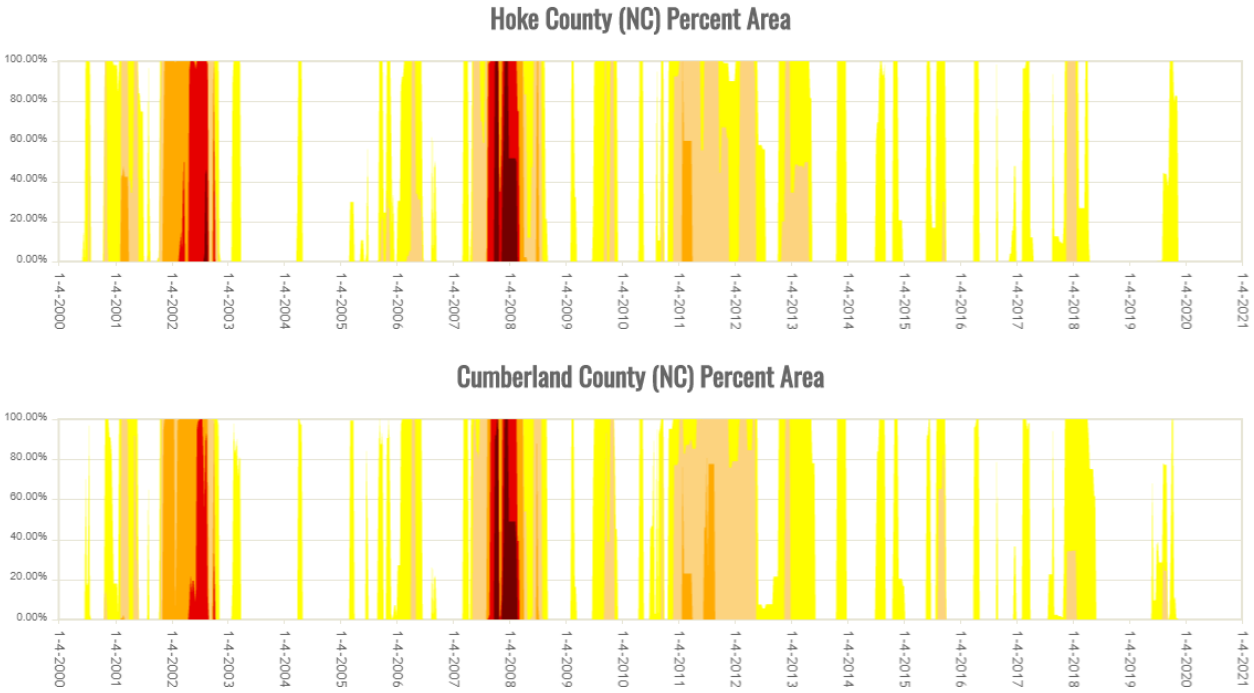
Table 5-6. Drought Extent

Location	Number Years with Drought Occurrences	Number Years with Exceptional Drought Occurrences
Cumberland County	20	2
Hoke County	20	2

5.2.4 Past Occurrences

According to the North Carolina Drought Monitor, Cumberland and Hoke Counties have experienced drought conditions every year since 2000. ***Table 5-7*** shows the most severe classification for each year by County.

Table 5-7. Historical Drought Occurrences



5.2.5 Probability of Future Occurrence

The probability of future Drought is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Low: Less than 1% annual probability
- Medium: Between 1% and 10% annual probability
- High: Greater than 10% annual probability

Jurisdiction	Self Assessment
City Of Fayetteville	Low
City Of Raeford	Low
Cumberland County (Unincorporated Area)	Low
Hoke County (Unincorporated Area)	Low
Town Of Eastover	Low
Town Of Falcon	Low
Town Of Godwin	Low
Town Of Hope Mills	Low
Town Of Linden	Low
Town Of Spring Lake	Low
Town Of Stedman	Low
Town Of Wade	Low

Climate Change and Drought

Drought is anticipated to increase in frequency and intensity during summer months under projected climate change scenarios (21). The spring and summer seasons in the Cumberland-Hoke region are projected to observe 0-10% decrease in precipitation, while the fall and winter seasons may experience 0-10% increase in precipitation (21). The HMPC expressed concern that prolonged droughts could potentially create a serious stress on reservoirs and the drinking water supply which is further discussed in Section 6 Vulnerability Assessment.

5.2.6 Consequence and Impact Analysis

People

Drought can affect people's health and safety. Examples of drought impacts on society include anxiety or depression about economic losses, conflicts when there is not enough water, reduced incomes, fewer recreational activities, higher incidents of heat stroke, and even loss of human life. All jurisdictions in the Region are susceptible to this impact.

First Responders

The overall effect on first responders would be relatively limited when compared to other hazards. Exceptional drought conditions may impact the amount of water immediately available to respond to wildfires.

Continuity of Operations

Drought would have minimal impacts on continuity of operations due to the relatively long warning time that would allow for plans to be made to maintain continuity of operations.

Built Environment

Drought has the potential to affect water supply for residential, commercial, institutional, industrial, and government-owned areas. Drought can reduce water supply in wells and reservoirs. When drought conditions persist with no relief, local or State governments must often institute water restrictions.

Economy

Examples of economic impacts include farmers who lose money because drought destroyed their crops or who may have to spend more money to feed and water their animals. Businesses that depend on farming, like companies that make tractors and food, may lose business when drought damages crops or livestock. Extreme drought also has the potential to impact local businesses such as landscaping, recreation and tourism, and public utilities. Businesses that sell boats and fishing equipment may not be able to sell some of their goods because drought has dried up lakes and other water sources. The jurisdictions of Falcon, Stedman and Wade are most vulnerable due to their high level of income based on agricultural.

Natural Environment

Plants and animals depend on water, just as people do. Drought can shrink their food supplies and damage their habitats. Sometimes this damage is only temporary, and other times it is irreversible.

Drought conditions can also provide a substantial increase in wildfire risk. As plants and trees wither and die from a lack of precipitation, increased insect infestations, and diseases—all of which are associated with drought—they become fuel for wildfires. Long periods of drought can equate to more wildfires and more intense wildfires, which affect the economy, the environment, and society in many ways such as by destroying neighborhoods, crops, and habitats.

5.3 Earthquake

5.3.1 Hazard Description

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

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. A detailed description of the Richter Scale is given in ***Table 5-8***.

Table 5-8. Richter Scale

Magnitude	Effects
Less than 3.5	Generally, not felt, but recorded.
3.5 – 5.4	Often felt, but rarely causes damage.
5.4 – 6.0	At most slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1 – 6.9	Can be destructive in areas up to 100 kilometers across where people live.
7.0 – 7.9	Major earthquake. Can cause serious damage over larger areas.
8.0 or greater	Great earthquake. Can cause serious damage in areas several hundred kilometers across.
Source: FEMA	

Table 5-9. Modified Mercalli Intensity Scale for Earthquakes

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

Figure 5.5 depicts the intensity level for North Carolina based on the national USGS map of peak acceleration with 2 percent probability of exceedance in 50 years. It is the probability that ground motion will reach a certain level during an earthquake. The data shows peak horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake) with a 2 percent probability of exceedance in 50 years. According to this map, Cumberland and Hoke Counties lie within an approximate zone level between 6 and 10% ground acceleration. This indicates that the region as a whole exists within an area of moderate seismic risk.

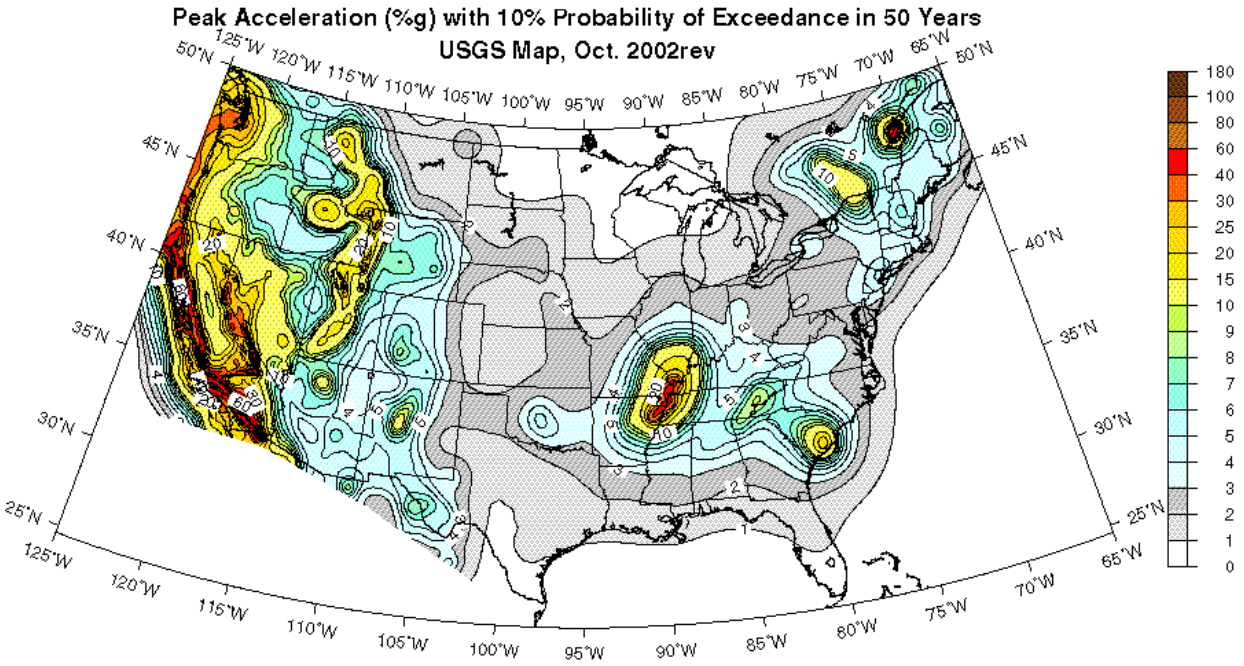


Figure 5-5. *Peak Acceleration with 10 Percent Probability of Exceedance in 50 Years*

5.3.2 Location and Spatial Extent

Approximately two-thirds of North Carolina is subject to earthquakes, with the western and southeast region most vulnerable to a very damaging earthquake. The state is affected by both the Charleston Fault in South Carolina and New Madrid Fault in Tennessee. Both of these faults have generated earthquakes measuring greater than 8.0 on the Richter Scale during the last 200 years. In addition, there are several smaller fault lines throughout North Carolina.

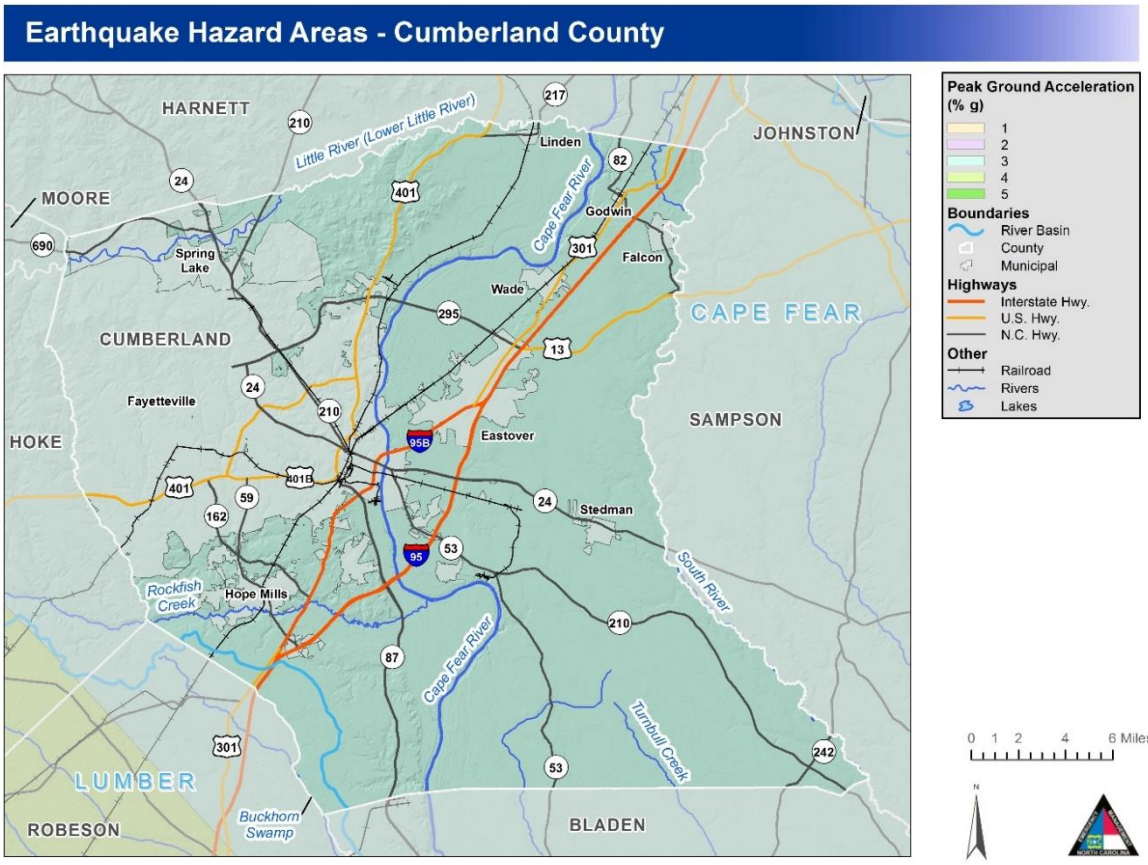


Figure 5-6: Earthquake Hazard Area – Cumberland County

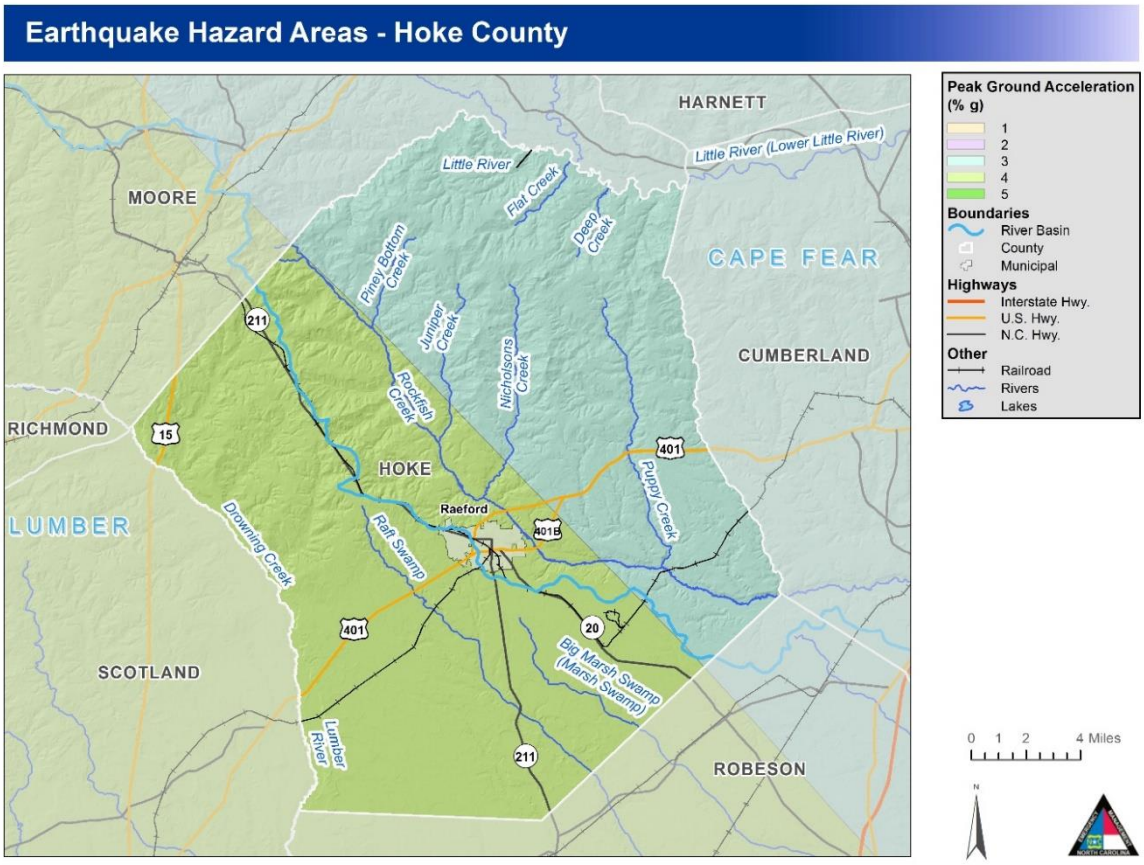


Figure 5-7: Earthquake Hazard Area – Hoke County

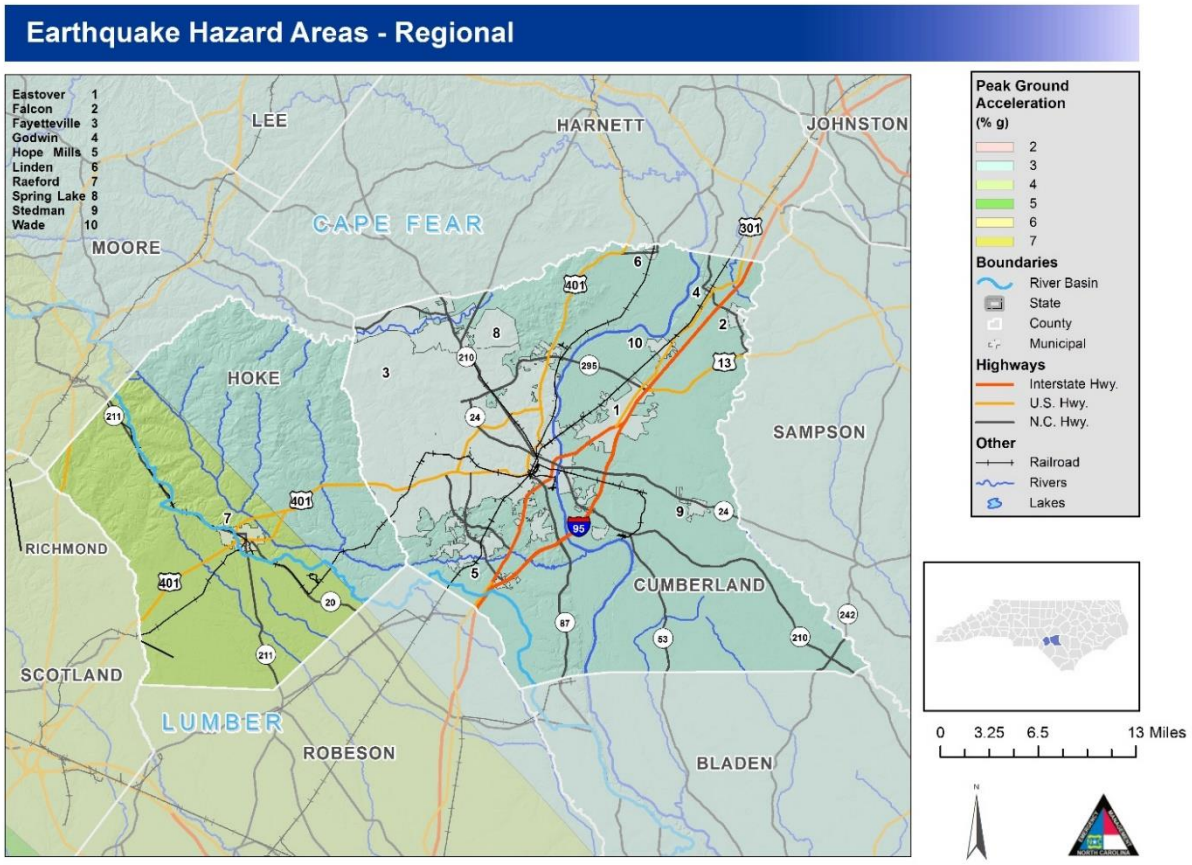


Figure 5-8: Earthquake Hazard Area – Regional

5.3.3 Extent

Location	Number of Occurrences	Greatest MMI Reported	Richter Scale Equivalent
Cumberland County	1	IV	< 4.8
Fayetteville	1	IV	< 4.8
Eastover	0	0	0
Falcon	0	0	0
Godwin	0	0	0
Hope Mills	0	0	0
Linden	0	0	0
Spring Lake	0	0	0
Stedman	0	0	0

Wade	0	0	0
Hoke County	1	IV	< 4.8
Raeford	1	IV	< 4.8

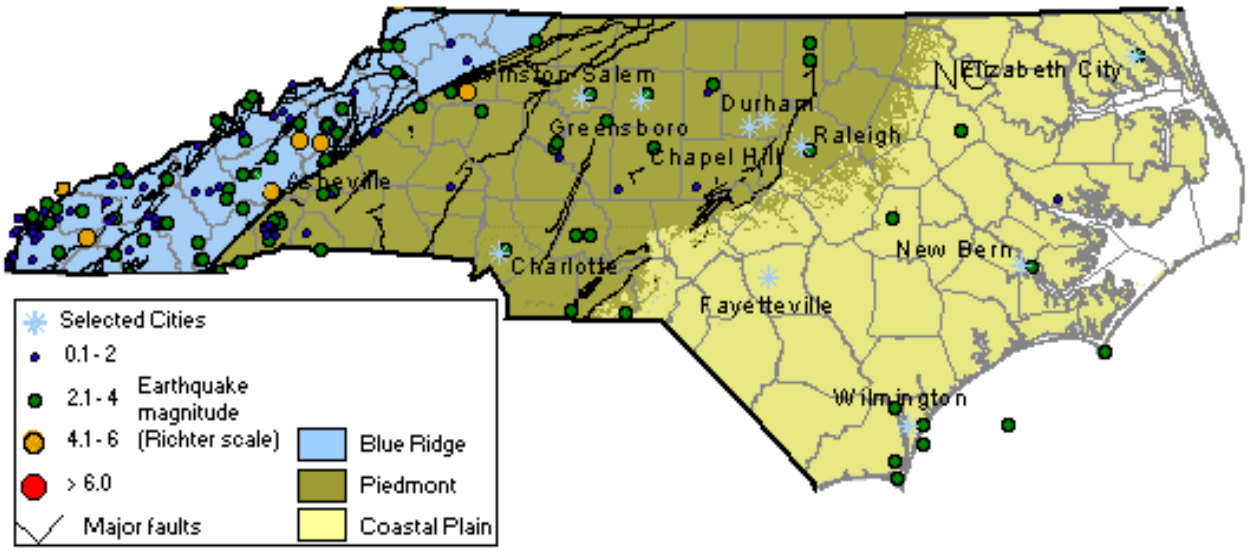


Figure 5-9. Geological and Seismic Information for North Carolina

The image above shows the intensity level associated with the Region, based on the national USGS map of peak acceleration with 10 percent probability of exceedance in 50 years. It is the probability that ground motion will reach a certain level during an earthquake. The data show peak horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake) with a 10 percent probability of exceedance in 50 years. The map was compiled by the U.S. Geological Survey (USGS) Geologic Hazards Team, which conducts global investigations of earthquake, geomagnetic, and landslide hazards. According to this map, all of the Region lies within an approximate zone of level "2" to "4" ground acceleration. This indicates that the region exists within an area of low to moderate seismic risk.

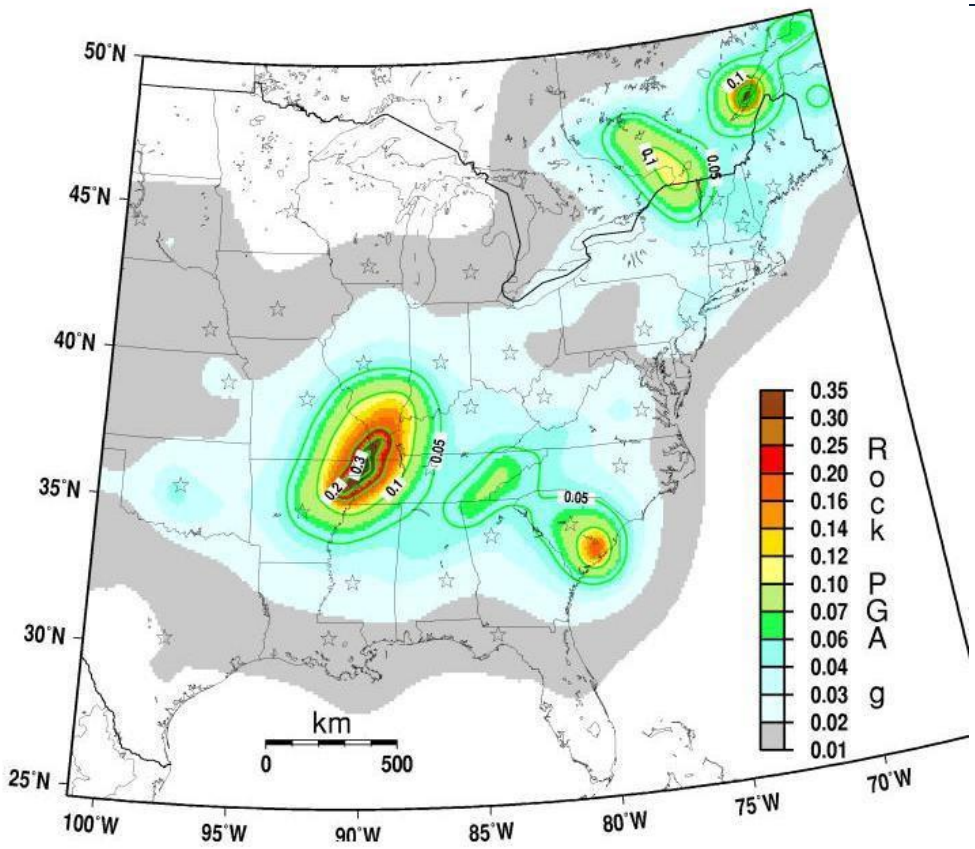


Figure 5-10. Peak Acceleration with 10 Percent Probability of Exceedance in 50 Years

5.3.4 Past Occurrences

A list of earthquakes that have caused damaged in North Carolina is presented below in ***Table 5-10***.

Table 5-10. Earthquakes Affecting North Carolina

Date	Location	Richter Scale
12/16/1811 - 1	NE Arkansas	8.5
12/16/1811 - 2	NE Arkansas	8.0
12/16/1811 - 3	NE Arkansas	8.5
01/23/1812	New Madrid, MO	8.4
02/07/1812	New Madrid, MO	8.7
04/29/1852	Wytheville, VA	5.0
08/31/1861	Wilkesboro, NC	5.1
12/23/1875	Central Virginia	5.0
08/31/1886	Charleston, SC	7.3
05/31/1897	Giles County, VA	5.8
01/01/1913	Union County, SC	4.8
02/21/1916	Asheville, NC	5.5
07/08/1926	Mitchell County, NC	5.2
11/03/1928	Newport, TN	4.5
05/13/1957	McDowell County, NC	4.1
07/02/1957	Buncombe County, NC	3.7
11/24/1957	Jackson County, NC	4.0
10/27/1959	Chesterfield, SC	4.0
07/13/1971	Newry, SC	3.8
11/30/1973	Alcoa, TN	4.6
11/13/1976	Southwest Virginia	4.1
05/05/1981	Henderson County, NC	3.5
08/23/2011	Mineral Springs, VA	5.8
08/09/2020	Sparta, NC	5.1

5.3.5 Probability of Future Occurrence

Based on the analyses performed in IRISK, the probability of future Earthquake is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Low: Less Than 4% Annual Probability Of 500-Year Earthquake
- Medium: Between 4% And 20% Annual Probability Of 500-Year Earthquake
- High: More Than 20% Annual Probability Of 500-Year Earthquake

Jurisdiction	Calculated Probability (IRISK)
City Of Fayetteville	Medium
City Of Raeford	Medium
Cumberland County (Unincorporated Area)	Medium
Hoke County (Unincorporated Area)	Medium
Town Of Eastover	Medium
Town Of Falcon	Medium
Town Of Godwin	Medium
Town Of Hope Mills	Medium
Town Of Linden	Medium
Town Of Spring Lake	Medium
Town Of Stedman	Medium
Town Of Wade	Medium

Climate Change and Earthquakes

Scientists are beginning to believe there may be a connection between climate change and earthquakes. Changing ice caps and sea-level redistribute weight over fault lines, which could potentially have an influence on earthquake occurrences. However, currently no studies quantify the relationship to a high level of detail, so recent earthquakes should not be linked with climate change. While not conclusive, early research suggest that more intense earthquakes and tsunamis may eventually be added to the adverse consequences that are caused by climate change.

5.3.6 Consequence and Impact Analysis

People

Earthquakes in the Cumberland and Hoke County region generally are not high impact events that cause injury or death. The public may typically experience some shaking in these events and the greatest threat to health and well-being is often from objects falling from shelves. All jurisdictions in the Region are equally vulnerable to this impact.

First Responders

A moderate earthquake is unlikely to damage infrastructure such as roads, bridges, or gas/power/water lines. Therefore, there would be little impact to first responders in the event of a moderate earthquake in Cumberland and Hoke Counties.

Continuity of Operations

There would likely be little disruption to services or operations due to a moderate earthquake.

Built Environment

Buildings can be damaged by the shaking itself or by the ground beneath them settling to a different level than it was before the earthquake (subsidence). Buildings can even sink into the ground if soil liquefaction occurs. If a structure (a building, road, etc.) is built across a fault, the ground displacement during an

earthquake could seriously damage that structure. An earthquake can also break dams or levees along a river. The water from the river or the reservoir would then flood the area, damaging buildings and possibly drowning people. Finally, fires can be started by broken gas lines and power lines. Fires can be a serious problem, especially if the water lines that feed the fire hydrants have been damaged as well. Historically, Cumberland Hoke Counties have not been impacted by an earthquake with more than a moderate intensity so damage to the built environment is unlikely.

Economy

Economic losses associated with an earthquake include property damage, business interruption costs, and costs to repair damaged utilities and infrastructure. Historically, there have been no economic losses associated with earthquakes in Cumberland Hoke Counties.

Natural Environment

A moderate earthquake is unlikely to cause substantial impacts to the natural environment in Cumberland and Hoke Counties. Impacts to the built environment (e.g. ruptured gas line) could damage the surrounding environment. However, this type damage is unlikely based on historical occurrences.

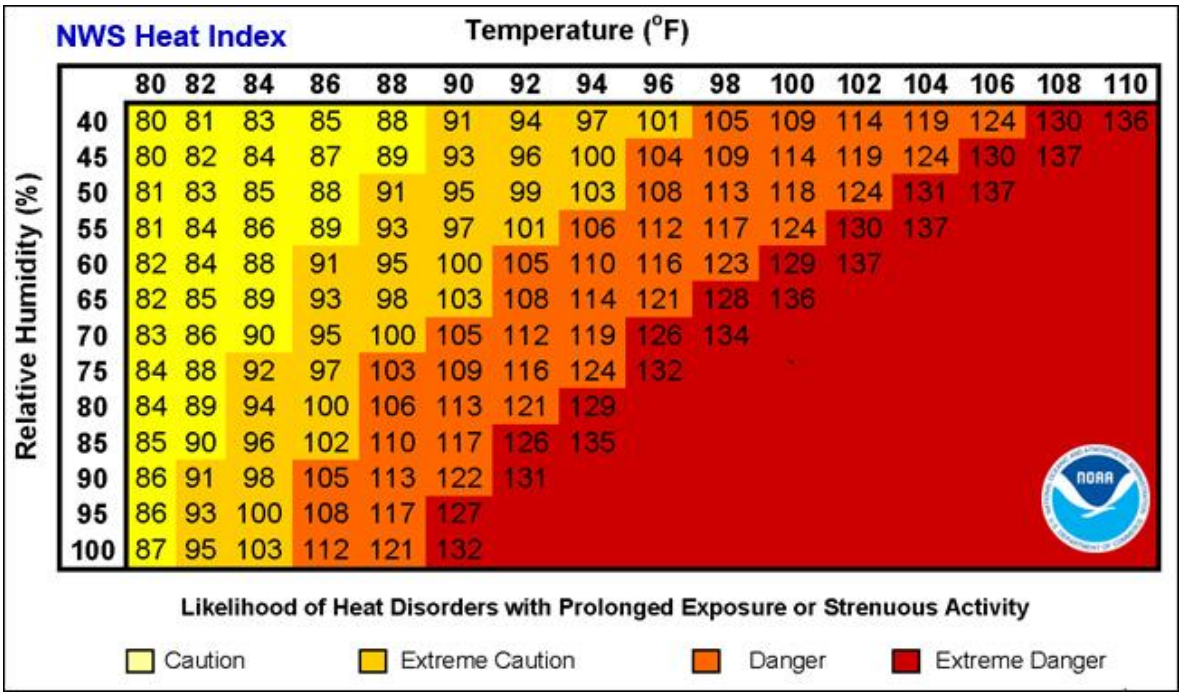
5.4 Extreme Heat

5.4.1 Hazard Description

According to the National Weather Service, about 175 Americans die from heat exposure, and nearly 20,000 people died between 1936 and 1975 from the effects of heat and solar radiation. Humans dissipate heat by varying the depth of blood circulation and sweating. Heat disorders typically occur when the body's ability to remove heat is disrupted, or by a chemical imbalance of salt caused by excessive sweating. Sun exposure, wind conditions, age and physical condition influence susceptibility to heat disorder.

Urban areas create stagnate that exacerbate heat conditions and many inner-city areas lack access to air conditioning. Sun exposure of outside workers, such as farming, and construction workers elevates the risk of heat disorder.

To measure the risk of experiencing heat disorders, the National Weather Service has developed the "Heat Index Program". Figure 5.8 on the following page displays a heat wave brochure provided by the National Weather Service.



Source: National Oceanic and Atmospheric Administration

Figure 5-11. Heat Index Chart

Table 5-11. Heat Disorders Associated with Heat Index Temperature

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

Source: National Weather Service; National Oceanic and Atmospheric Administration

In addition, NOAA has seventeen metropolitan areas participating in the Heat HealthWatch/Warning System in order to better inform and warn the public of heat dangers. A Heat HealthWatch is issued when conditions are favorable for an excessive heat event in the next 12 to 48 hours. A Heat Warning is issued when an excessive heat event is expected in the next 36 hours. Furthermore, a warning is issued when the conditions are occurring, imminent, or have a high likelihood of occurrence. Urban areas participate in the Heat Health Watch/Warning System because urban areas are at greater risk to heat affects. 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 store heat longer) gradually release heat at night.

5.4.2 Location and Spatial Extent

Summers in North America are hot, with the southern US experiencing heat waves periodically each summer. Extreme heat typically occurs over large areas impacting multiple counties at one time. All of Cumberland County and Hoke County, and their respective jurisdictions are vulnerable to extreme heat.

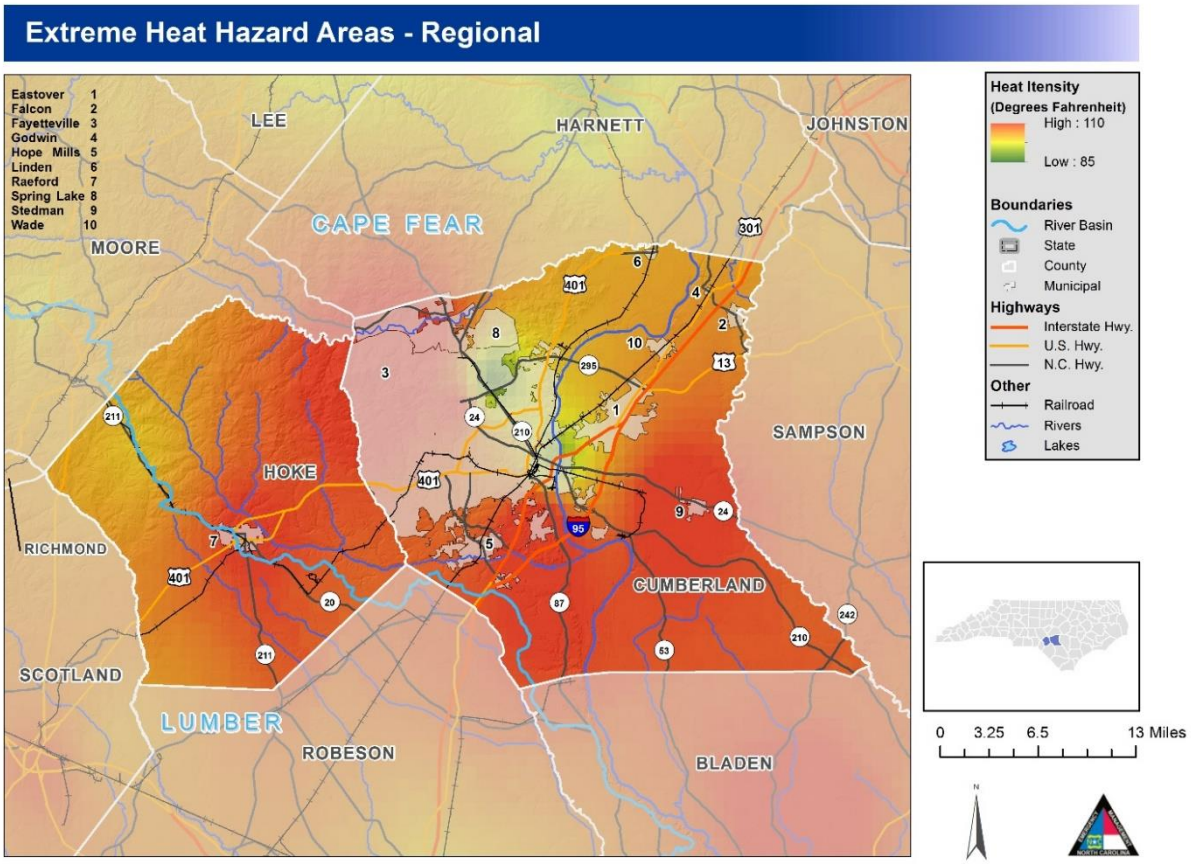


Figure 5-12: Extreme Heat Hazard Areas - Regional

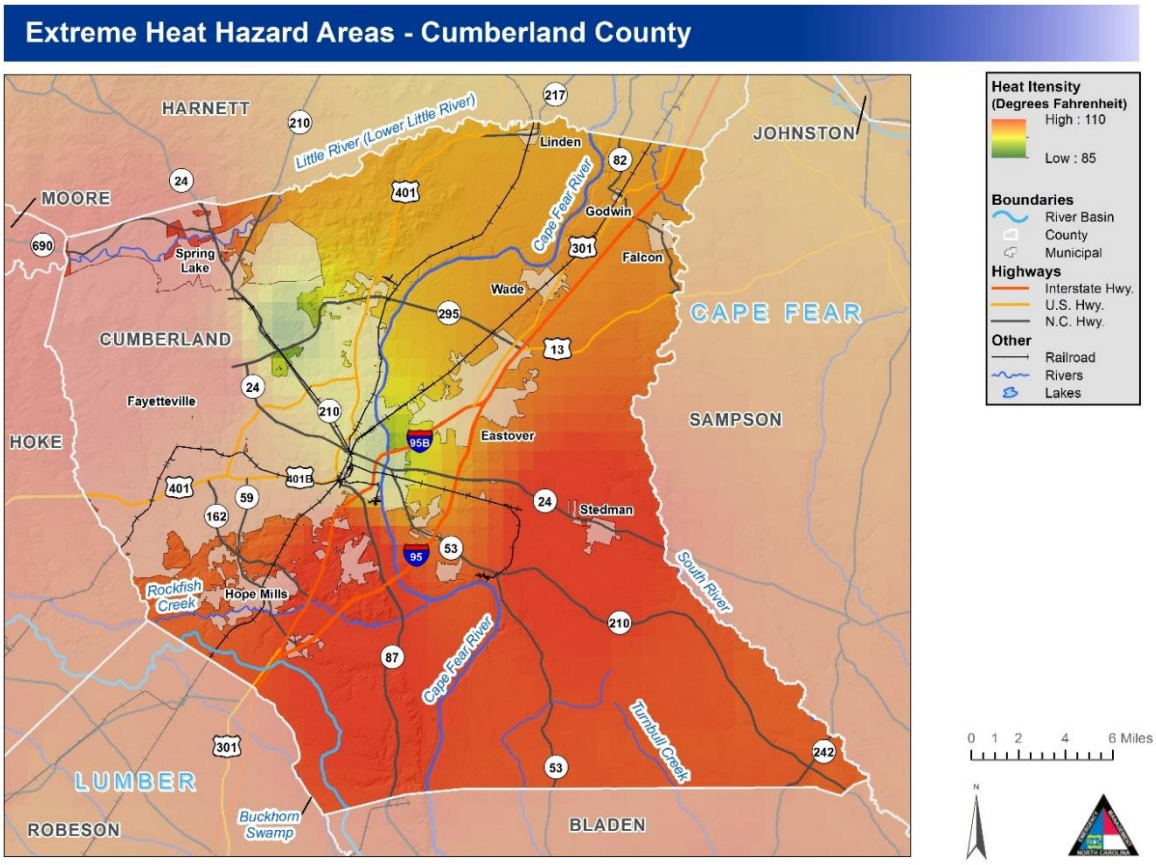


Figure 5-13: Extreme Heat Hazard Areas – Cumberland County

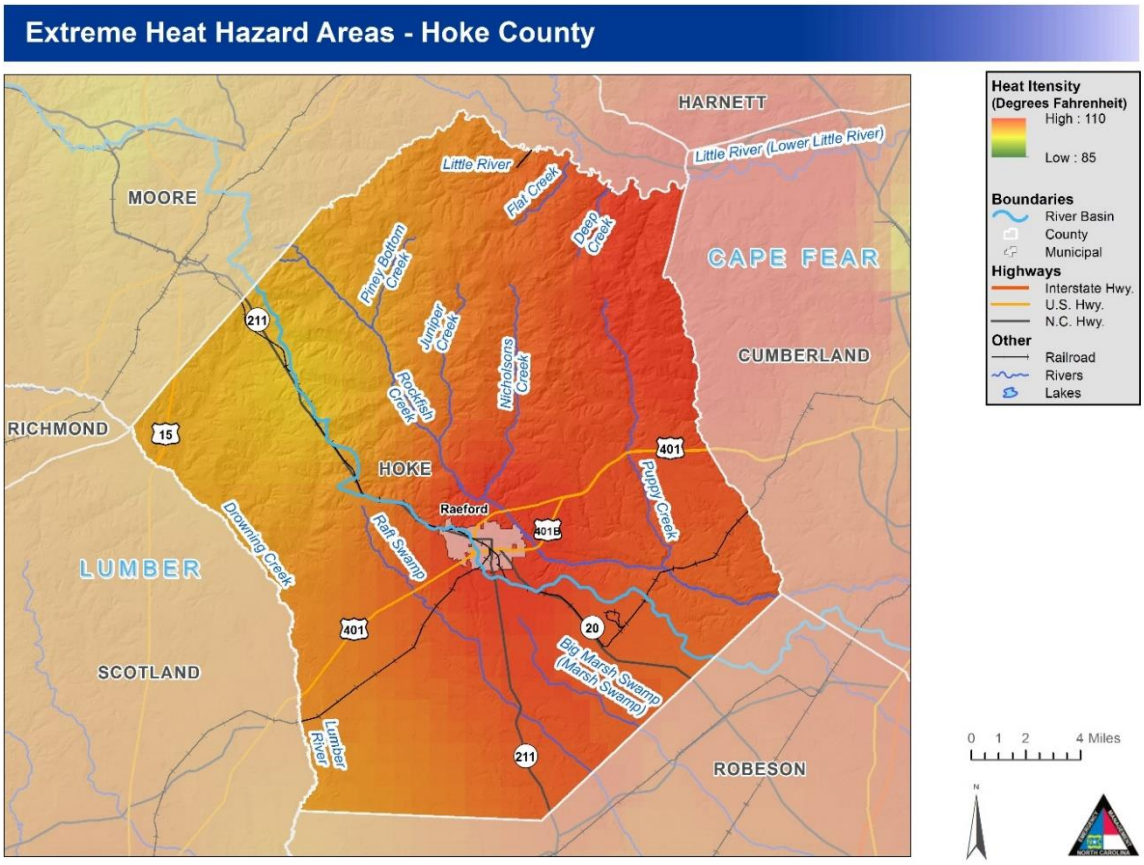


Figure 5-14: Extreme Heat Hazard Areas – Hoke County

5.4.3 Extent

Data from the National Climatic Data Center was used to determine historical extreme heat and heat wave events in the Region. Zero events were reported for each county in the region. In addition, information from the State Climate Office of North Carolina was reviewed to obtain historical temperature records in the region. Temperature information has been reported since 1940. The recorded maximum for each county can be found below:

Highest Recorded Temperature in the Region

Location	Date	Temperature (°F)
Cumberland County	8/21/1983	110
Hoke County	8/21/1983	110

Source: State Climate Office of North Carolina

5.4.4 Past Occurrences

According to the National Climatic Data Center, one instance of extreme heat was recorded in Cumberland and Hoke County beginning on July 22, 1998, and an additional instance of extreme heat was recorded in Cumberland beginning on August 10, 2007. No reports of property or crop damage were recorded by NCDC.

5.4.5 Probability of Future Occurrence

Based on the analyses performed in IRISK, the probability of future Extreme Heat is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Low: Less Than 1% Annual Probability
- Medium: Between 1% And 10% Annual Probability
- High: More Than 10% Annual Probability

Jurisdiction	Calculated Probability (IRISK)
City Of Fayetteville	Medium
City Of Raeford	Medium
Cumberland County (Unincorporated Area)	Medium
Hoke County (Unincorporated Area)	Medium
Town Of Eastover	Medium
Town Of Falcon	Medium
Town Of Godwin	Medium
Town Of Hope Mills	Medium
Town Of Linden	Medium
Town Of Spring Lake	Medium
Town Of Stedman	Medium
Town Of Wade	Medium

Climate Change and Extreme Heat

Research shows that temperatures will continue to rise in the Southeast United States and globally, directly affecting the Cumberland-Hoke County region in North Carolina. The County is projected to experience an additional 15-35 days annually with temperatures above 95°F, drastically increasing the number of extreme heat days [21]. The average temperature in the Southeast United States is expected to increase by one to two degrees starting in 2050 [21].

5.4.6 Consequence and Impact Analysis

People

A person's vulnerability is directly related to their age and physical condition and to the Apparent Temperature and sun exposure. Heat disorders begin with fatigue and if not mitigated can worsen to muscle cramps, heat exhaustion and in extreme conditions ultimately exposure can result in death. All jurisdictions in the Region are equally vulnerable to this impact.

First Responders

First responders are especially vulnerable to heat disorders as their response activities often require special attire, heavy equipment and prolonged exposure to the environment or high additional heat sources such as fire.

Continuity of Operations

Continuity of operations is generally not disrupted by extreme heat.

Built Environment

Buildings are typically not impacted by heat. Road surfaces are damaged as asphalt softens and concrete sections may buckle under expansion caused by heat. Power transmission lines may sag from expansion and if contact is made with vegetation the line may short out causing power outages. Additional power demand for air conditioning also increases power line temperature adding to heat impacts. Train rails may distort or buckle under the stress of head induced expansion.

Economy

Livestock are particularly vulnerable to extreme heat, particularly pigs, rabbits and poultry. Milk production and cattle reproduction are suppressed. Crop yields can be significantly reduced by extreme heat, particularly when extreme heat occurs during drought conditions. Water demand on drinking water supplies is increased, causing both increases in treatment costs and potential depletion of supplies.

According to Christopher Adams of the Cooperative Institute for Research in the Atmosphere at Colorado State University, in 1980 consumers paid $1.3 billion more for electric power during the summer that they did in 1979. Additionally, demand soared above supply causing rolling blackouts.

Natural Environment

Wild animals are vulnerable to heat disorders similar to humans, including mortality. Vegetation growth will be stunted, or plants may be killed if temperatures rise above their tolerance extremes.

5.5 Hurricane/Tropical Storm

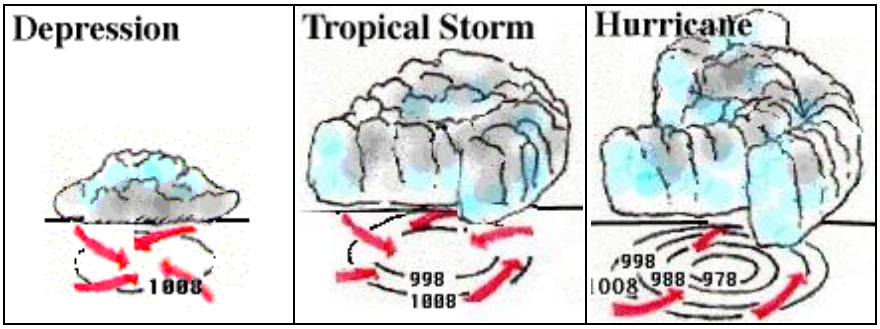
5.5.1 Hazard Description

A hurricane is a type of tropical cyclone or severe tropical storm that forms in the southern Atlantic Ocean, Caribbean Sea, Gulf of Mexico, and in the eastern Pacific Ocean. All Atlantic and Gulf of Mexico coastal areas are subject to hurricanes. The Atlantic hurricane season lasts from June to November, with the peak season from mid-August to late October.

While hurricanes pose the greatest threat to life and property, tropical storms and depressions also can be devastating. A tropical disturbance can grow to a more intense stage through an increase in sustained wind speeds. The progression of a tropical disturbance is described below and shown in Figure 5.15.

- **Tropical Depression:** A tropical cyclone with maximum sustained winds of 38 mph (33 knots) or less.
- **Tropical Storm:** A tropical cyclone with maximum sustained winds of 39 to 73 mph (34 to 63 knots).
- **Hurricane:** A tropical cyclone with maximum sustained winds of 74 mph (64 knots) or higher. In the western North Pacific, hurricanes are called typhoons; similar storms in the Indian Ocean and South Pacific Ocean are called cyclones.

- **Major Hurricane:** A tropical cyclone with maximum sustained winds of 111 mph (96 knots) or higher, corresponding to a Category 3, 4 or 5 on the Saffir-Simpson Hurricane Wind Scale.



Source: Department of Atmospheric Sciences at the University of Illinois at Urbana-Champaign

Figure 5-15. Life Cycle of a Hurricane

The Saffir-Simpson Hurricane Wind Scale classifies hurricanes by intensity into one of five categories as shown in ***Table 5-12***. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous, however, and require preventative measures.

Table 5-12. Saffir-Simpson Hurricane Wind Scale, 2012

Category	Wind Speed (mph)	Potential Damage
1	74-95	**Very dangerous winds will produce some damage**: Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110	**Extremely dangerous winds will cause extensive damage:** Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3	111-129	**Devastating damage will occur:** Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4	130-156	**Catastrophic damage will occur:** Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for

5	> 157	**Catastrophic damage will occur:** A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for
		weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

Source: National Hurricane Center/NOAA

Wind speed is the determining factor in the scale, as storm surge values are highly dependent on the slope of the continental shelf and the shape of the coastline in the landfall region. The following describes the characteristics of each category storm from the Saffir-Simpson Hurricane Wind Scale Extended Table:

Category 1 Hurricane - Winds 74 – 95 mph. Very dangerous winds will produce some damage. People, livestock, and pets struck by flying or falling debris could be injured or killed. Older (mainly pre-1994 construction) mobile homes could be destroyed, especially if they are not anchored properly as they tend to shift or roll off their foundations. Newer mobile homes that are anchored properly can sustain damage involving the removal of shingle or metal roof coverings, and loss of vinyl siding, as well as damage to carports, sunrooms, or lanais. Some poorly constructed frame homes can experience major damage, involving loss of the roof covering and damage to gable ends as well as the removal of porch coverings and awnings. Unprotected windows may break if struck by flying debris. Masonry chimneys can be toppled. Well-constructed frame homes could have damage to roof shingles, vinyl siding, soffit panels, and gutters. Failure of aluminum, screened-in, swimming pool enclosures can occur. Some apartment building and shopping center roof coverings could be partially removed. Industrial buildings can lose roofing and siding especially from windward corners, rakes, and eaves. Failures to overhead doors and unprotected windows will be common. Windows in high-rise buildings can be broken by flying debris. Falling and broken glass will pose a significant danger even after the storm. There will be occasional damage to commercial signage, fences, and canopies. Large branches of trees will snap, and shallow rooted trees can be toppled. Extensive damage to power lines and poles will likely result in power outages that could last a few to several days.

Category 2 Hurricane - Winds 96-110 mph. Extremely dangerous winds will cause extensive damage. There is a substantial risk of injury or death to people, livestock, and pets due to flying and falling debris. Older (mainly pre-1994 construction) mobile homes have a very high chance of being destroyed and the flying debris generated can shred nearby mobile homes. Newer mobile homes can also be destroyed. Poorly constructed frame homes have a high chance of having their roof structures removed especially if they are not anchored properly. Unprotected windows will have a high probability of being broken by flying debris. Well-constructed frame homes could sustain major roof and siding damage. Failure of aluminum, screened-in, swimming pool enclosures will be common. There will be a substantial percentage of roof and siding damage to apartment buildings and industrial buildings. Unreinforced masonry walls can collapse. Windows in high-rise buildings can be broken by flying debris. Falling and broken glass will pose a significant danger even after the storm. Commercial signage, fences, and canopies will be damaged and often destroyed. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks. Potable water could become scarce as filtration systems begin to fail.

Category 3 Hurricane - Winds 111-129 mph. Devastating damage will occur. There is a high risk of injury or death to people, livestock, and pets due to flying and falling debris. Nearly all older (pre-1994) mobile homes will be destroyed. Most post-1994 mobile homes will sustain severe damage with potential for complete roof failure and wall collapse. Poorly constructed frame homes can be destroyed by the removal of the roof and exterior walls. Unprotected windows will be broken by flying debris. Well-built frame homes

can experience major damage involving the removal of roof decking and gable ends. There will be a high percentage of roof covering and siding damage to apartment buildings and industrial buildings. Isolated structural damage to wood or steel framing can occur. Complete failure of older metal buildings is possible, and older unreinforced masonry buildings can collapse. Numerous windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm. Most commercial signage, fences, and canopies will be destroyed. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to a few weeks after the storm passes.

Category 4 Hurricane - Winds 130 to 156 mph. Catastrophic damage will occur. There is a very high risk of injury or death to people, livestock, and pets due to flying and falling debris. Nearly all older (pre-1994) mobile homes will be destroyed. A high percentage of newer mobile homes also will be destroyed. Poorly constructed homes can sustain complete collapse of all walls as well as the loss of the roof structure. Well-built homes also can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Extensive damage to roof coverings, windows, and doors will occur. Large amounts of windborne debris will be lofted into the air. Windborne debris damage will break most unprotected windows and penetrate some protected windows. There will be a high percentage of structural damage to the top floors of apartment buildings. Steel frames in older industrial buildings can collapse. There will be a high percentage of collapse to older unreinforced masonry buildings. Most windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm. Nearly all commercial signage, fences, and canopies will be destroyed. Most trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Long-term water shortages will increase human suffering. Most of the area will be uninhabitable for weeks or months.

Category 5 Hurricane - Winds 157 mph or higher. Catastrophic damage will occur. People, livestock, and pets are at very high risk of injury or death from flying or falling debris, even if indoors in mobile homes or framed homes. Almost complete destruction of all mobile homes will occur, regardless of age or construction. A high percentage of frame homes will be destroyed, with total roof failure and wall collapse. Extensive damage to roof covers, windows, and doors will occur. Large amounts of windborne debris will be lofted into the air. Windborne debris damage will occur to nearly all unprotected windows and many protected windows. Significant damage to wood roof commercial buildings will occur due to loss of roof sheathing. Complete collapse of many older metal buildings can occur. Most unreinforced masonry walls will fail which can lead to the collapse of the buildings. A high percentage of industrial buildings and low-rise apartment buildings will be destroyed. Nearly all windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm. Nearly all commercial signage, fences, and canopies will be destroyed. Nearly all trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Long-term water shortages will increase human suffering. Most of the area will be uninhabitable for weeks or months.

5.5.2 Location and Spatial Extent

All Atlantic and Gulf of Mexico coastal areas are subject to hurricanes. While coastal areas are most directly exposed to land falling hurricanes and tropical storms, their impact can be felt hundreds of miles inland. The entire Cumberland and Hoke County region is equally susceptible to hurricanes and tropical storms.

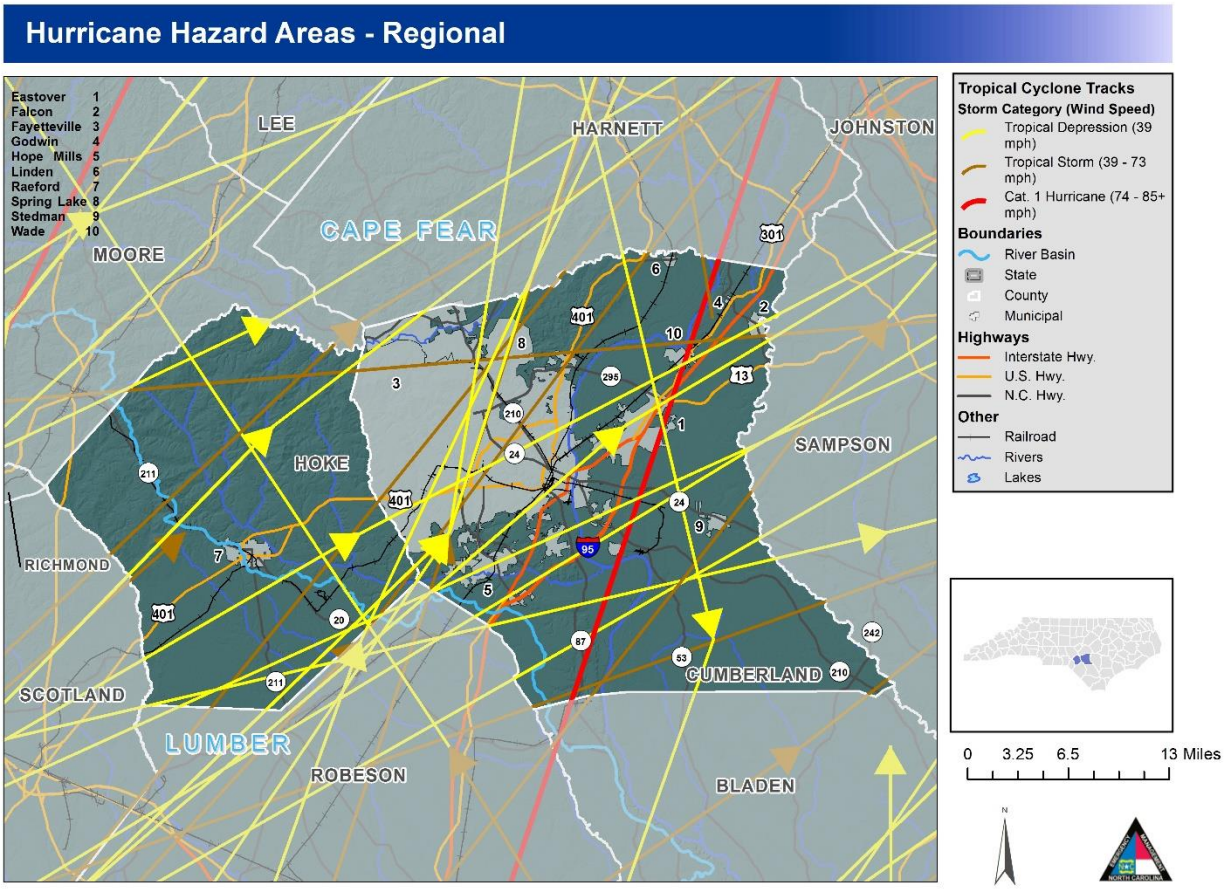


Figure 5-16: Hurricane Hazard Areas - Regional

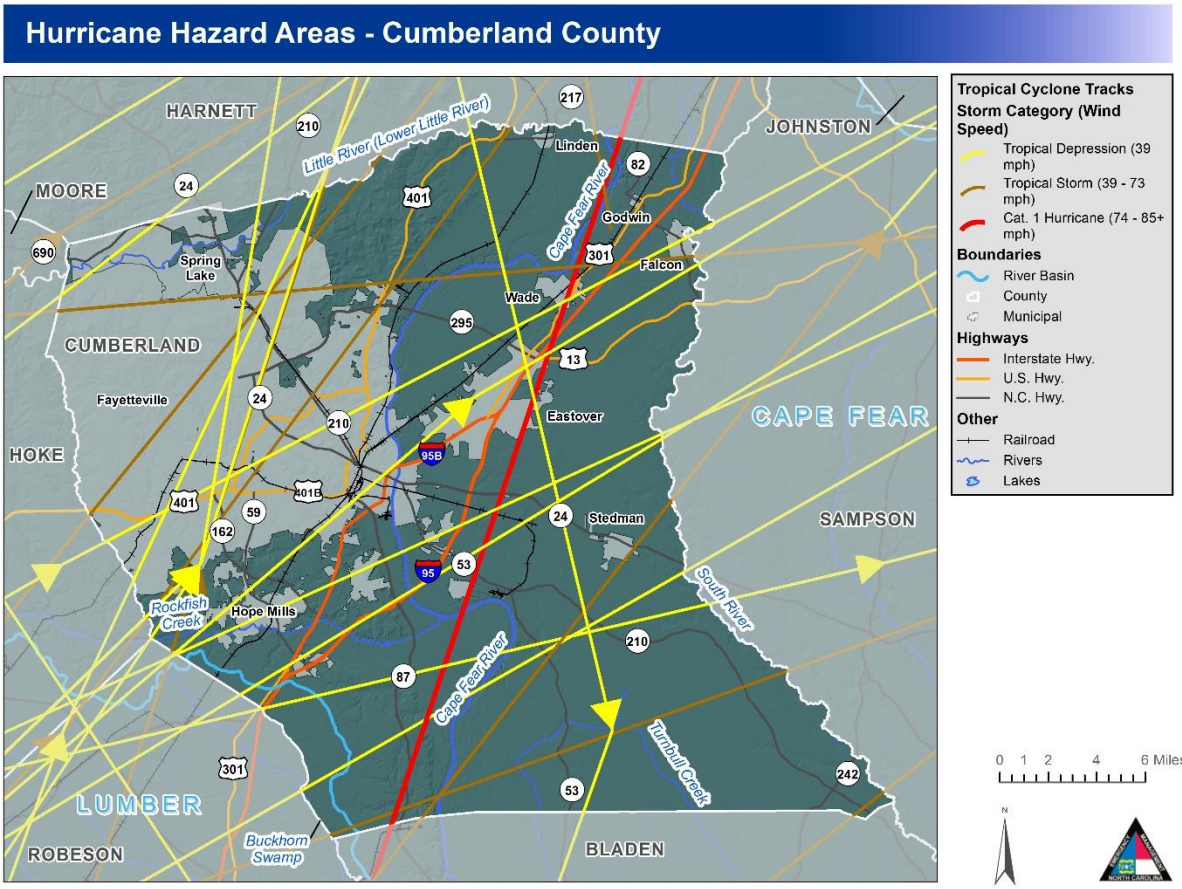


Figure 5-17: Hurricane Hazard Areas – Cumberland County

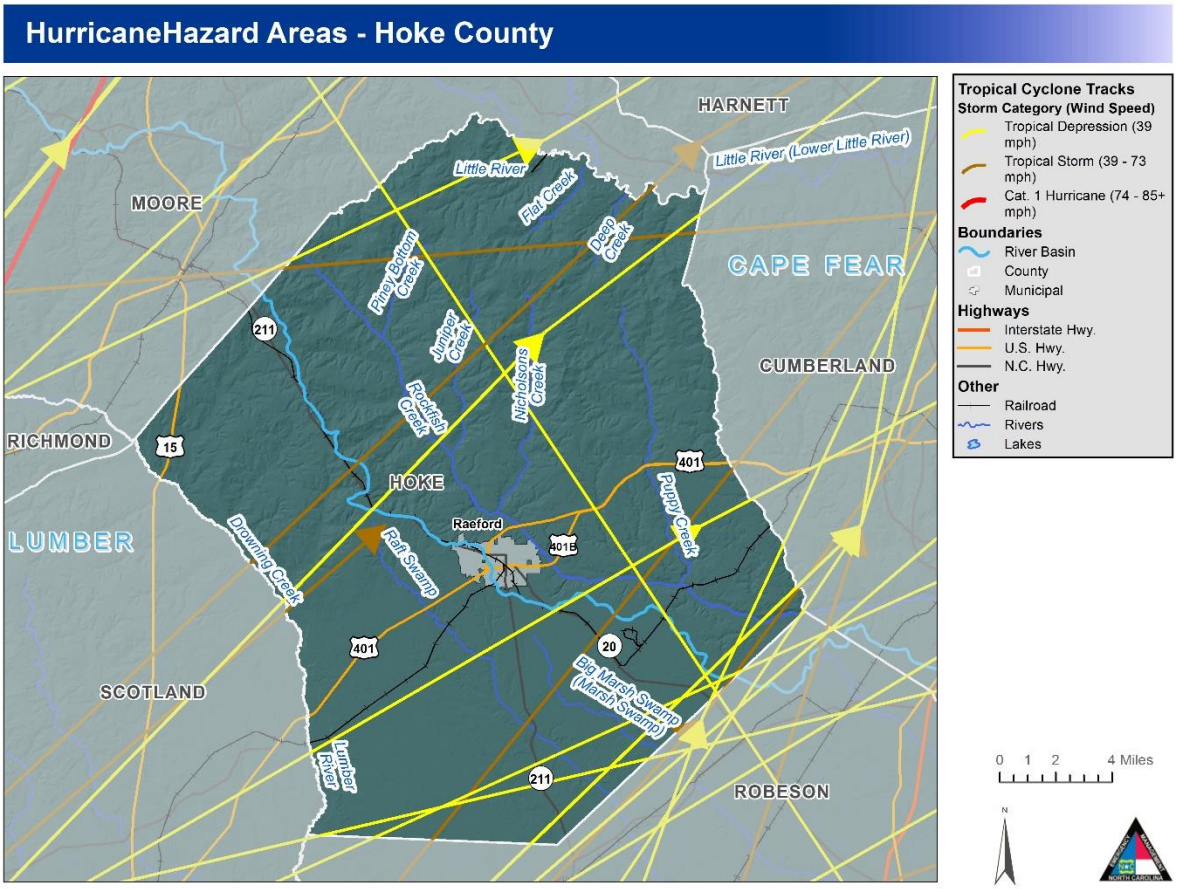


Figure 5-18: Hurricane Hazard Areas – Hoke County

5.5.3 Extent

Hurricane extent is defined by the Saffir-Simpson Scale which classifies hurricanes into Category 1 through Category 5. The greatest classification of hurricane to traverse directly through the Region was an Unnamed Category 3 storm which reached a maximum wind speed of 80 knots in the Region in 1893. The following lists the greatest extent of hurricane winds to pass through the area, though it should be noted that strongest storms could impact the region without a direct hit:

- Cumberland County: Unnamed 1893 Storm, Category 3 Hurricane (80 knots)
- Hoke County: Unnamed 1886 Storm, Category 1 Hurricane (70 knots)

5.5.4 Past Occurrences

Table 5-13 provides hurricane and tropical storm data reported since 1950 for Cumberland and Hoke Counties.

According to the National Hurricane Center's historical storm track records, 68 hurricane or tropical storm tracks have passed within 75 miles of the Cumberland Hoke Region since 1851.[1] This includes 43 hurricanes, 14 tropical storms, and 10 tropical depressions (based on the maximum storm category reached by the storm).

Of the recorded storm events, 40 have traversed directly through the Cumberland Hoke Region. ***Table 5-13*** provides the date of occurrence, name (if applicable), maximum wind speed (as recorded within 75 miles of the Region) and Maximum Category of the storm (based on the Saffir-Simpson Scale) for each event.

Table 5-13. Hurricane and Tropical Storm Events for Cumberland and Hoke Counties

Date of Occurrence	Storm Name	Maximum Wind Speed Within Buffer Area (knots)	Maximum Storm Category Achieved
8/25/1851	NOT NAMED	35	Tropical Storm (TS)
9/10/1854	NOT NAMED	57	Tropical Depression (TD)
1859	NOT NAMED	-	Tropical Depression (TD)
9/17/1859	NOT NAMED	35	Hurricane: Category 1 (H1)
6/23/1867	NOT NAMED	35	Hurricane: Category 1 (H1)
10/4/1877	NOT NAMED	48	Hurricane: Category 3 (H3)
9/13/1878	NOT NAMED	44	Hurricane: Category 2 (H2)
9/12/1883	NOT NAMED	44	Hurricane: Category 3 (H3)
10/13/1885	NOT NAMED	35	Tropical Depression (TD)
7/2/1886	NOT NAMED	31	Hurricane: Category 2 (H2)
6/22/1886	NOT NAMED	35	Tropical Depression (TD)
1886	NOT NAMED	53	Tropical Depression (TD)

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

Date of Occurrence	Storm Name	Maximum Wind Speed Within Buffer Area (knots)	Maximum Storm Category Achieved
1887	NOT NAMED	-	Hurricane: Category 1 (H1)
9/10/1888	NOT NAMED	31	Tropical Storm (TS)
9/24/1889	NOT NAMED	35	Hurricane: Category 2 (H2)
1891	NOT NAMED	-	Tropical Depression (TD)
10/4/1893	NOT NAMED	70	Hurricane: Category 3 (H3)
10/13/1893	NOT NAMED	35	Hurricane: Category 4 (H4)
9/30/1896	NOT NAMED	62	Hurricane: Category 3 (H3)
10/31/1899	NOT NAMED	66	Hurricane: Category 2 (H2)
7/13/1901	NOT NAMED	31	Hurricane: Category 1 (H1)
6/16/1902	NOT NAMED	31	Tropical Storm (TS)
9/14/1904	NOT NAMED	53	Hurricane: Category 1 (H1)
8/31/1911	NOT NAMED	22	Hurricane: Category 2 (H2)
6/14/1912	NOT NAMED	31	Tropical Storm (TS)
9/4/1913	NOT NAMED	66	Hurricane: Category 1 (H1)
10/10/1913	NOT NAMED	35	Hurricane: Category 1 (H1)
5/16/1916	NOT NAMED	31	Tropical Storm (TS)
9/6/1916	NOT NAMED	31	Tropical Storm (TS)
9/23/1920	NOT NAMED	31	Hurricane: Category 1 (H1)
9/30/1924	NOT NAMED	53	Hurricane: Category 1 (H1)
1927	NOT NAMED	44	Tropical Storm (TS)
8/11/1928	NOT NAMED	26	Hurricane: Category 2 (H2)
10/2/1929	NOT NAMED	35	Hurricane: Category 4 (H4)
9/6/1935	NOT NAMED	48	Hurricane: Category 5 (H5)
8/15/1940	NOT NAMED	62	Tropical Depression (TD)
8/2/1944	NOT NAMED	31	Hurricane: Category 1 (H1)
10/20/1944	NOT NAMED	48	Hurricane: Category 3 (H3)
9/18/1945	NOT NAMED	35	Hurricane: Category 4 (H4)
10/9/1946	NOT NAMED	22	Hurricane: Category 4 (H4)
9/25/1947	NOT NAMED	53	Tropical Storm (TS)
10/15/1954	HAZEL	35	Hurricane: Category 4 (H4)
8/17/1955	DIANE	53	Hurricane: Category 3 (H3)
9/26/1956	IVY	35	Hurricane: Category 1 (H1)

Date of Occurrence	Storm Name	Maximum Wind Speed Within Buffer Area (knots)	Maximum Storm Category Achieved
7/10/1959	CINDY	26	Hurricane: Category 1 (H1)
8/31/1964	CLEO	26	Hurricane: Category 4 (H4)
6/16/1965	UNNAMED	35	Tropical Storm (TS)
6/10/1968	CELESTE	31	Tropical Storm (TS)
5/26/1970	ALMA	22	Hurricane: Category 1 (H1)
9/13/1971	HEIDI	40	Tropical Depression (TD)
10/1/1971	UNNAMED	40	Tropical Storm (TS)
6/21/1972	AGNES	26	Hurricane: Category 1 (H1)
9/15/1976	UNNAMED	53	Tropical Storm (TS)
9/5/1979	DAVID	35	Hurricane: Category 5 (H5)
9/14/1984	DIANA	40	Hurricane: Category 4 (H4)
8/18/1985	ONE-C	22	Tropical Depression (TD)
9/8/1987	UNNAMED	53	Tropical Depression (TD)
9/6/1996	FRAN	57	Hurricane: Category 3 (H3)
7/24/1997	DANNY	31	Hurricane: Category 1 (H1)
9/4/1998	EARL	66	Hurricane: Category 2 (H2)
9/5/1999	DENNIS	26	Hurricane: Category 2 (H2)
9/16/1999	FLOYD*	66	Hurricane: Category 1 (H1)
9/19/2000	GORDON	35	Tropical Storm (TS)
9/23/2000	HELENE	35	Hurricane: Category 1 (H1)
8/30/2004	GASTON	35	Hurricane: Category 3 (H3)
9/27/2004	JEANNE	-	Tropical Storm (TS)
6/13/2006	ALBERTO	35	Hurricane: Category 1 (H1)
9/6/2008	HANNA	40	Tropical Depression (TD)
9/01/2016	HERMINE	55	Tropical Storm (TS)
6/5/2013	ANDREA	40	Tropical Storm (TS)
10/8/2016	MATTHEW*	70	Hurricane: Category 1 (H1)
8/6/2018	MICHAEL	45	Tropical Storm (TS)
9/05/2019	DORIAN*	90	Hurricane: Category 2 (H2)
10/20/2019	NESTER	40	Tropical Storm
10/4/2020	ISAIAS	60	Tropical Storm

*Although Hurricane's track traversed just outside of the 75-mile buffer area, it was included in the hazard history since a federal disaster area was declared for the Region as a result of the storm's impact.

Date of Occurrence	Storm Name	Maximum Wind Speed Within Buffer Area (knots)	Maximum Storm Category Achieved

Source: National Hurricane Center

5.5.5 Probability of Future Occurrences

Based on the analyses performed in IRISK, the probability of future Hurricane Winds is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Low: Less Than 0.2% Annual Probability Of 50-Year Event
- Medium: Between 0.2% And 2% Annual Probability Of 50-Year Event
- High: More Than 2% Annual Probability Of 50-Year Event

Jurisdiction	Calculated Probability (IRISK)
City Of Fayetteville	Medium
City Of Raeford	Medium
Cumberland County (Unincorporated Area)	Medium
Hoke County (Unincorporated Area)	Medium
Town Of Eastover	Medium
Town Of Falcon	Medium
Town Of Godwin	Medium
Town Of Hope Mills	Medium
Town Of Linden	Medium
Town Of Spring Lake	Medium
Town Of Stedman	Medium
Town Of Wade	Medium

5.5.6 Consequence and Impact Analysis

People

Hurricanes may affect human beings in a number of ways including causing deaths, causing injury, loss of property, outbreak of diseases, mental trauma and destroying livelihoods. During a hurricane, residential, commercial, and public buildings, as well as critical infrastructure such as transportation, water, energy,

and communication systems may be damaged or destroyed by several of the impacts associated with hurricanes. The wind and flooding hazards associated with hurricanes can be tremendously destructive and deadly. Power outages and flooding are likely to displace people from their homes. The City of Fayetteville and Cumberland County are more vulnerable due to the flood risk in their area. Furthermore, water can become polluted making it undrinkable, and if consumed, diseases and infection can be easily spread.

First Responders

First responders responding to the impacts of a tropical storm or hurricane face many risks to their health and life safety. Responders face risk of injury or death during a storm event by flooding and high winds. Personnel or families of personnel may be harmed which would limit their response capability. Downed trees, power lines and flood waters may prevent access to areas in need which prolongs response time. Furthermore, hurricanes typically impact a large area which amplifies the number of emergency responses required.

Continuity of Operations

Continuity of operations may be affected if a hurricane event damages a critical facility or causes a loss of power. Hurricane events typically have ample lead time to prepare for and maintain continuity of operations.

Built Environment

Depending on the strength of a tropical storm or hurricane, structural damage to buildings may occur. A weak tropical storm may cause no damage whatsoever. The most likely impact from a category 1 or greater hurricane is the loss of glass windows and doors by high winds and debris. Loss of roof coverings, partial wall collapses, and other damages requiring significant repairs are possible in a major (category 3 to 5) hurricane. The level of damage is commensurate with the strength of the storm, as explained by the Saffir-Simpson Hurricane Wind Scale.

Loss of electric power, potable water, telecommunications, wastewater and other critical utilities is very possible during a hurricane. Some of this damage can be so severe that it may take days to weeks to restore.

Economy

Economic damages include property damage from wind, rain and flood, and also include intangibles such as business interruption and additional living expenses. Damage to infrastructure utilities include roads, water and power, and municipal buildings and all jurisdictions in the Region are vulnerable to this impact.

Natural Environment

Hurricanes can devastate wooded ecosystems and remove all the foliation from forest canopies, and they can change habitats so drastically that the indigenous animal populations suffer as a result. Specific foods can be taken away as high winds will often strip fruits, seeds and berries from bushes and trees.

Secondary impacts may occur as well. For example, high winds and debris may result in damage to an above-ground fuel tank, resulting in a significant chemical spill.

5.6 Flooding

5.6.1 Hazard Description

Flooding is defined by the rising and overflowing of a body of water onto normally dry land. As defined by FEMA, a flood is a general and temporary condition of partial or complete inundation of 2 or more acres of normally dry land area or of 2 or more properties. Flooding can result from an overflow of inland waters or an unusual accumulation or runoff of surface waters from any source.

Sources and Types of Flooding

Flooding within the Cumberland and Hoke Counties can be attributed to two sources: 1) flash flooding resulting from heavy rainfall that overburdens the drainage system within the community; and 2) riverine flooding resulting from heavy and prolonged rainfall over a given watershed which causes the capacity of the main channel to be exceeded. Flooding on the larger streams results primarily from hurricanes, tropical storms and other major weather fronts, while flooding on the smaller streams is due mainly to localized thunderstorms.

Riverine Flooding: Cumberland Hoke Counties have numerous streams and tributaries running throughout its jurisdiction that are susceptible to overflowing their banks during and following excessive precipitation events. While flash flooding caused by surface water runoff is not uncommon in the region, riverine flood events (such as the "100-year flood") will cause significantly more damage and economic disruption for the area. Cumberland Hoke County floodplains have been studied and mapped by FEMA. The most recent Flood Insurance Study for Cumberland County is dated June 18, 2007, and the most recent Flood Insurance Study for Hoke County is dated July 7, 2014.

Flash or Rapid Flooding: Flash flooding is the result of heavy, localized rainfall, possibly from slow-moving intense thunderstorms that cause small streams and drainage systems to overflow. Flash flood hazards caused by surface water runoff are most common in urbanized cities, where greater population density generally increases the amount of impervious surface (e.g., pavement and buildings) which increases the amount of surface water generated. Flooding can occur when the capacity of the stormwater system is exceeded or if conveyance is obstructed by debris, sediment and other materials that limit the volume of drainage.

Flooding and Floodplains

The area adjacent to a channel is the floodplain, as shown in Figure 5.11. A floodplain is flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which are areas covered by the flood, but which do not experience a strong current. Floodplains are made when floodwaters exceed the capacity of the main channel or escape the channel by eroding its banks. When this occurs, sediments (including rocks and debris) are deposited that gradually build up over time to create the floor of the floodplain. Floodplains generally contain unconsolidated sediments, often extending below the bed of the stream.

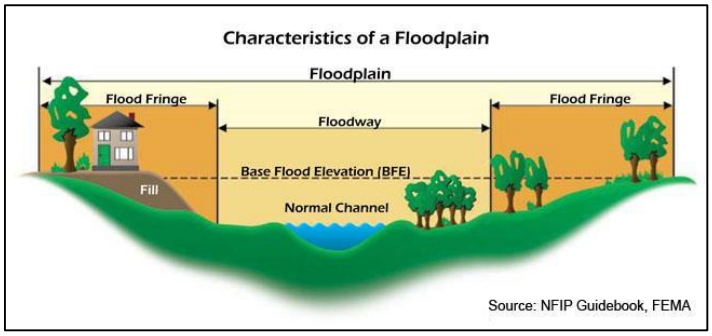


Figure 5-19. Characteristics of a Floodplain

In its common usage, the floodplain most often refers to that area that is inundated by the 100-year flood, the flood that has a 1% chance in any given year of being equaled or exceeded. The 100-year flood is the national minimum standard to which communities regulate their floodplains through the NFIP. The 500-year flood is the flood that has a 0.2 percent chance of being equaled or exceeded in any given year. The potential for flooding can change and increase through various land use changes and changes to land surface, which result in a change to the floodplain. A change in environment can create localized flooding problems inside and outside of natural floodplains by altering or confining natural drainage channels. These changes are most often created by human activity.

The 100-year flood, which is the minimum standard used by most federal and state agencies, is used by the NFIP as the standard for floodplain management and to determine the need for flood insurance. Participation in the NFIP requires adoption and enforcement of a local floodplain management ordinance which is intended to prevent unsafe development in the floodplain, thereby reducing future flood damages. Participation in the NFIP allows for the federal government to make flood insurance available within the community as a financial protection against flood losses. Since floods have an annual probability of occurrence, have a known magnitude, depth and velocity for each event, and in most cases, have a map indicating where they will occur, they are in many ways often the most predictable and manageable hazard.

5.6.2 Location and Spatial Extent

Regulated floodplains are illustrated on inundation maps called Flood Insurance Rate Maps (FIRMs). It is the official map for a community on which FEMA has delineated both the SFHAs and the risk premium zones applicable to the community. SFHAs represent the areas subject to inundation by the 100-year flood event. Structures located within the SFHA have a 26-percent chance of flooding during the life of a standard 30-year mortgage. Flood prone areas were identified using the most current FIS and associated FIRMs developed by FEMA. ***Table 5-14*** summarizes the flood insurance zones identified by the DFIRMs.

Table 5-14. Mapped Flood Insurance Zones within Cumberland and Hoke Counties

Zone	Description
AE	AE Zones, also within the 100-year flood limits, are defined with BFEs that reflect the combined influence of stillwater flood elevations and wave effects less than 3 feet. The AE Zone generally extends from the landward VE zone limit to the limits of the 100-year flood from coastal sources, or until it reaches the confluence with riverine flood sources. The AE Zones also depict the SFHA due to riverine flood sources, but instead of being subdivided into separate zones of differing BFEs with possible wave

Zone	Description
	effects added, they represent the flood profile determined by hydrologic and hydraulic investigations and have no wave effects.
A	Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.
0.2% Annual Chance (Zone X Shaded)	Moderate risk areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by a levee. No BFEs or base flood depths are shown within these zones. Zone X Shaded is used on new and revised maps in place of Zone B.
Zone X (unshaded)	Minimal risk areas outside the 1-percent and .2 percent-annual-chance floodplains. No BFEs or base flood depths are shown within these zones. Zone X (unshaded) is used on new and revised maps in place of Zone C.

Figure 5.20 – 5.31reflects the mapped flood hazard areas for Cumberland and Hoke Counties. Note, the Town of Godwin is not mapped below because they do not have a Special Flood Hazard Area (SFHA).

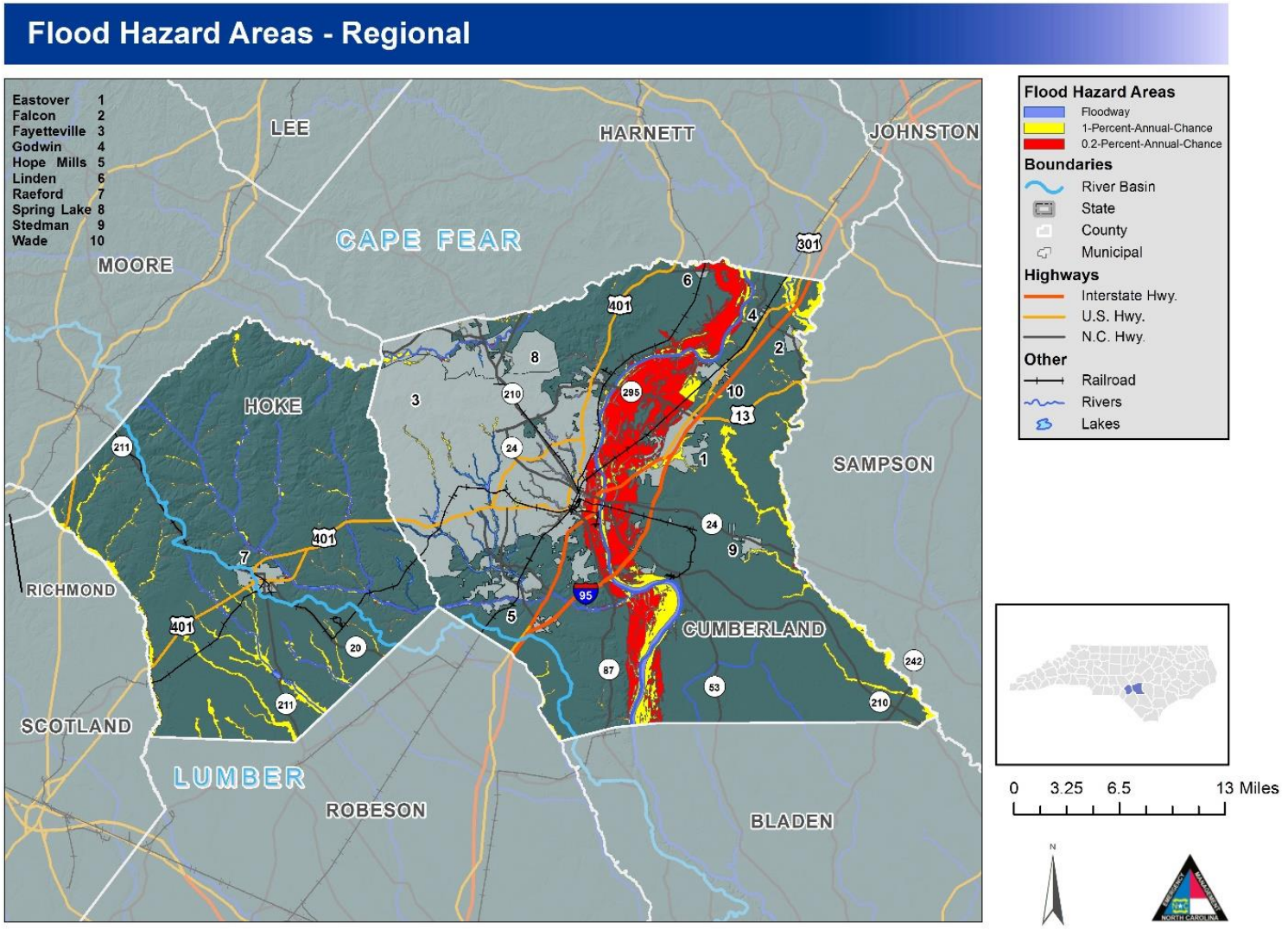


Figure 5-20. Flood Hazard Areas - Regional

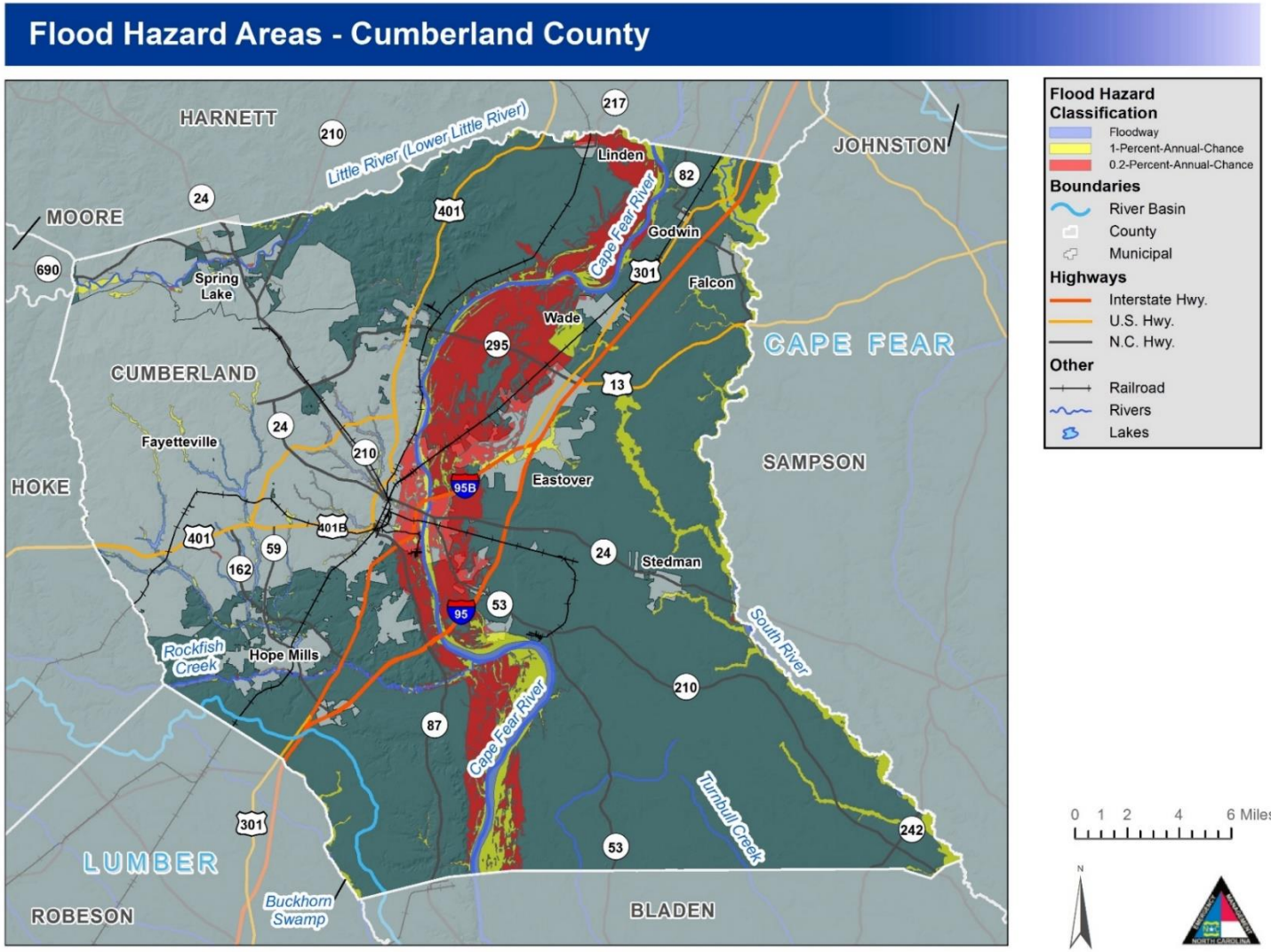


Figure 5-21: Flood Hazard Areas – Cumberland County

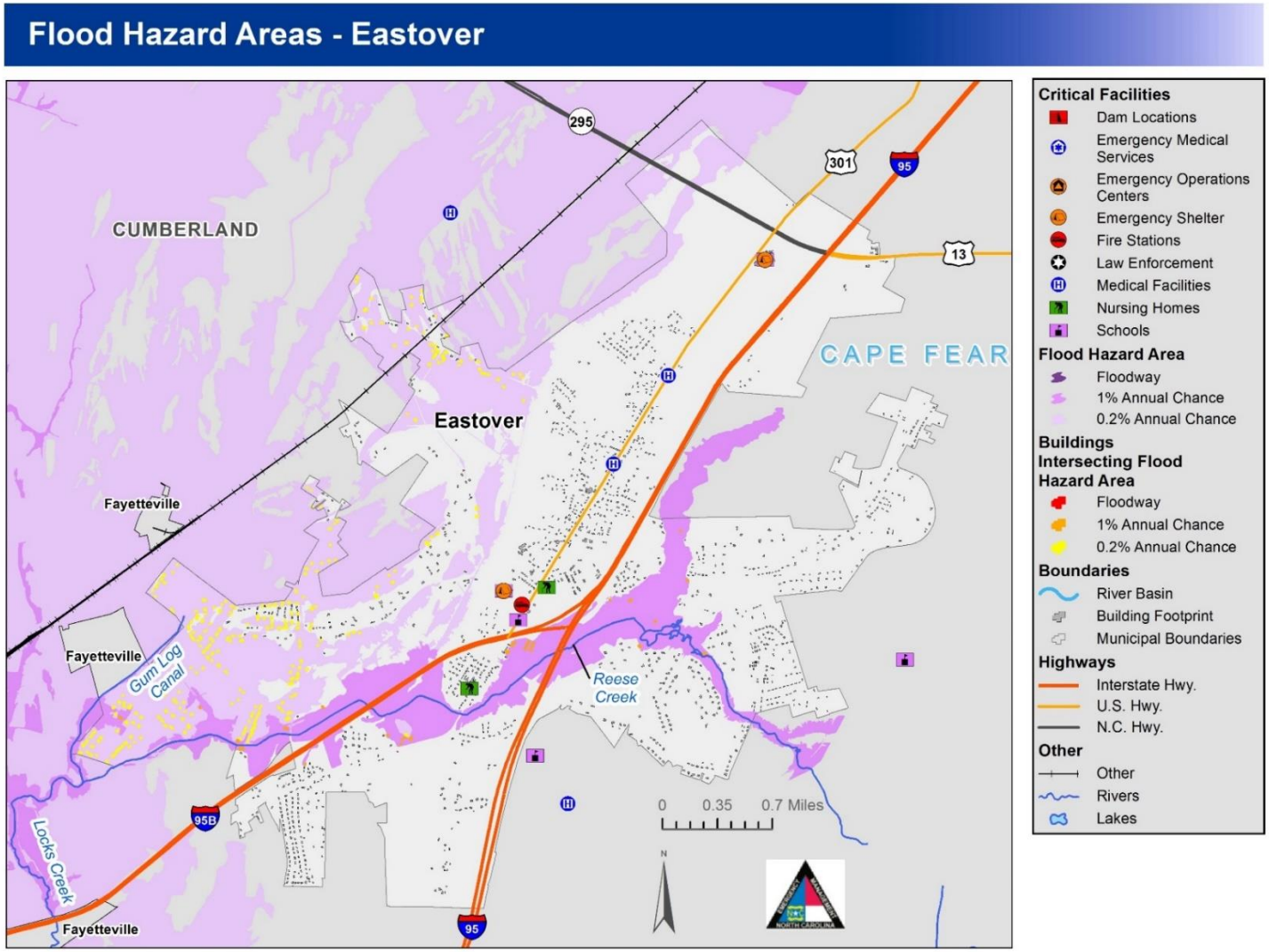


Figure 5-22: Flood Hazard Areas – Eastover

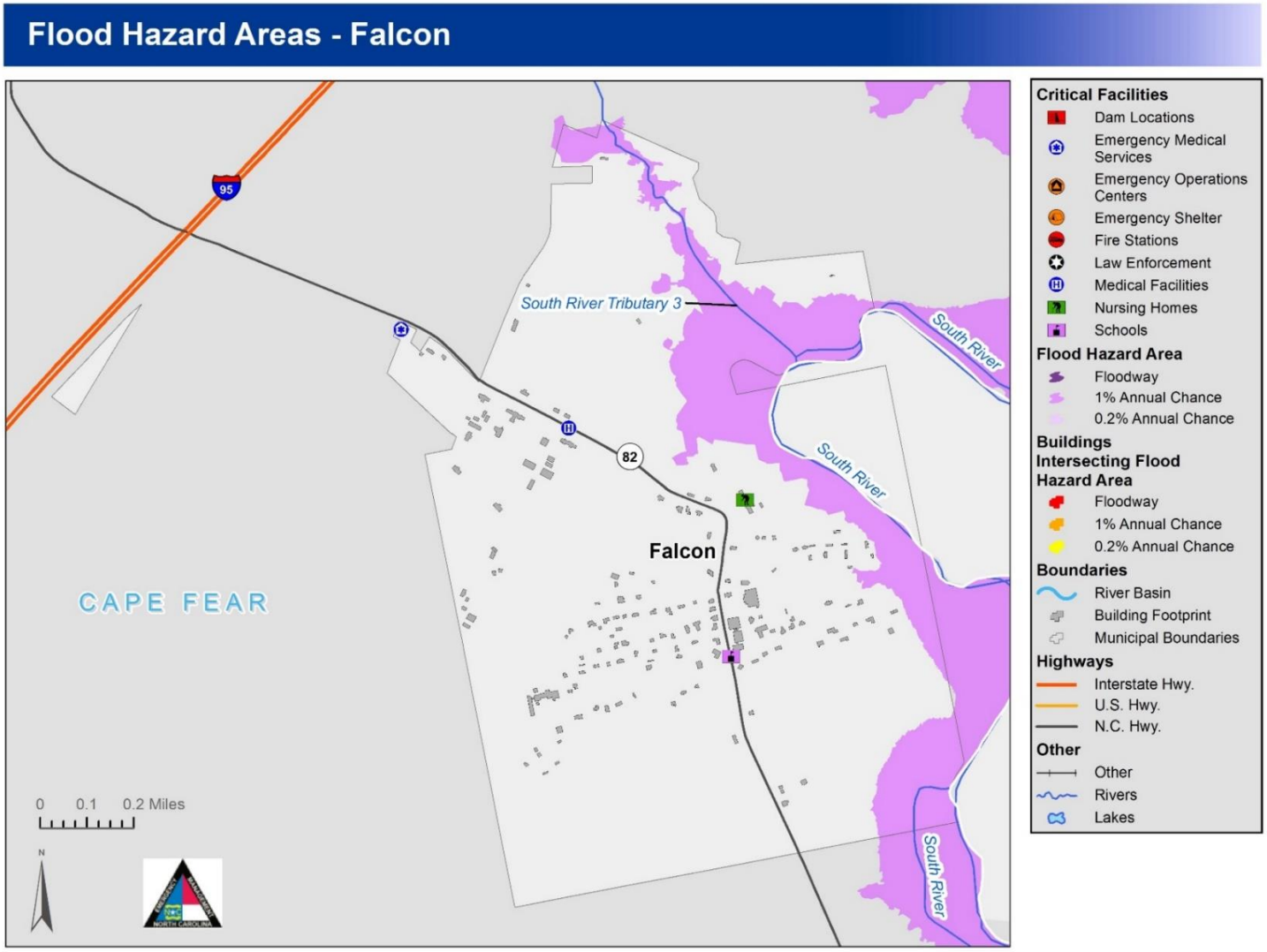


Figure 5-23: Flood Hazard Areas – Falcon

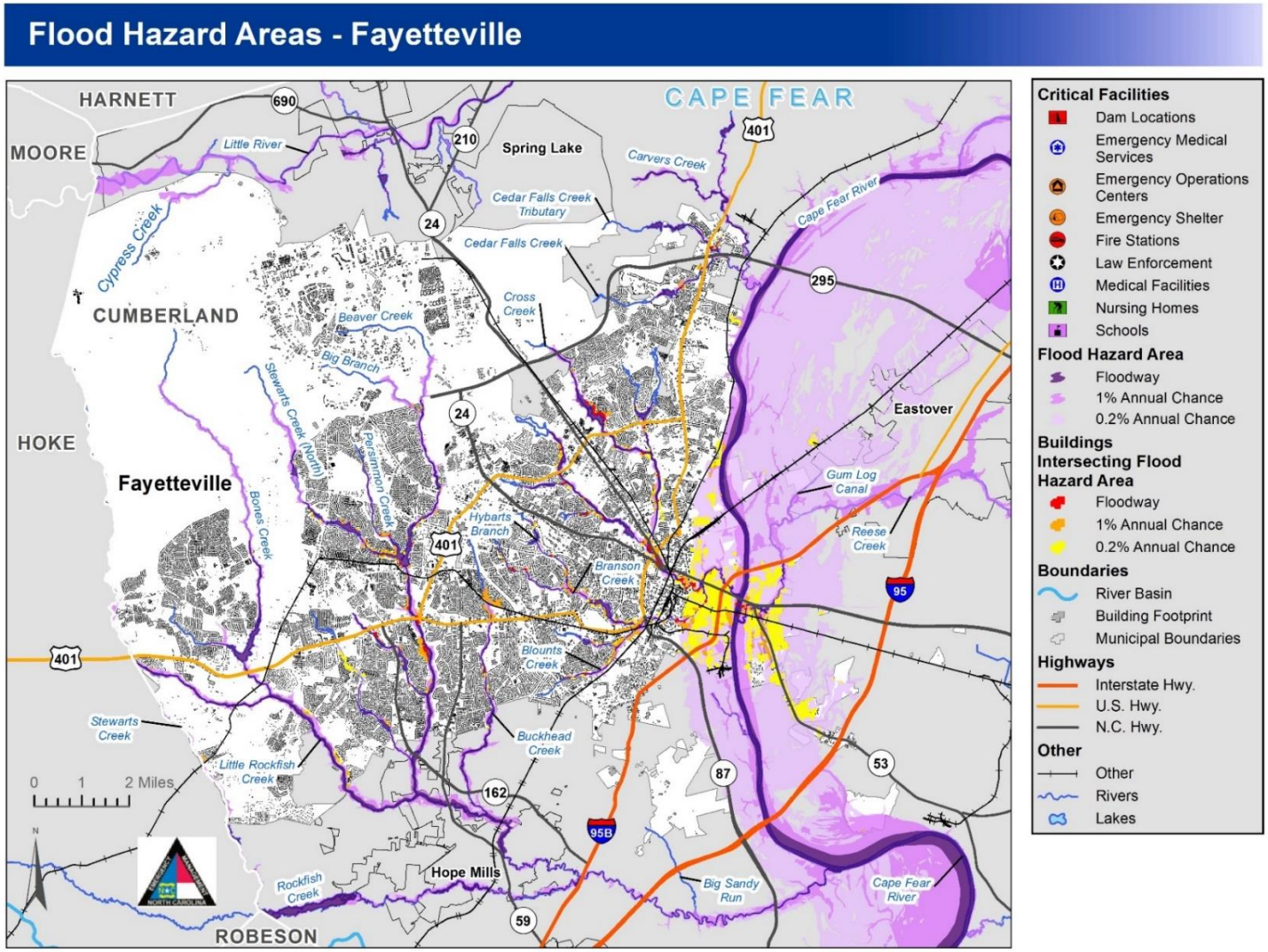


Figure 5-24: Flood Hazard Areas – Fayetteville

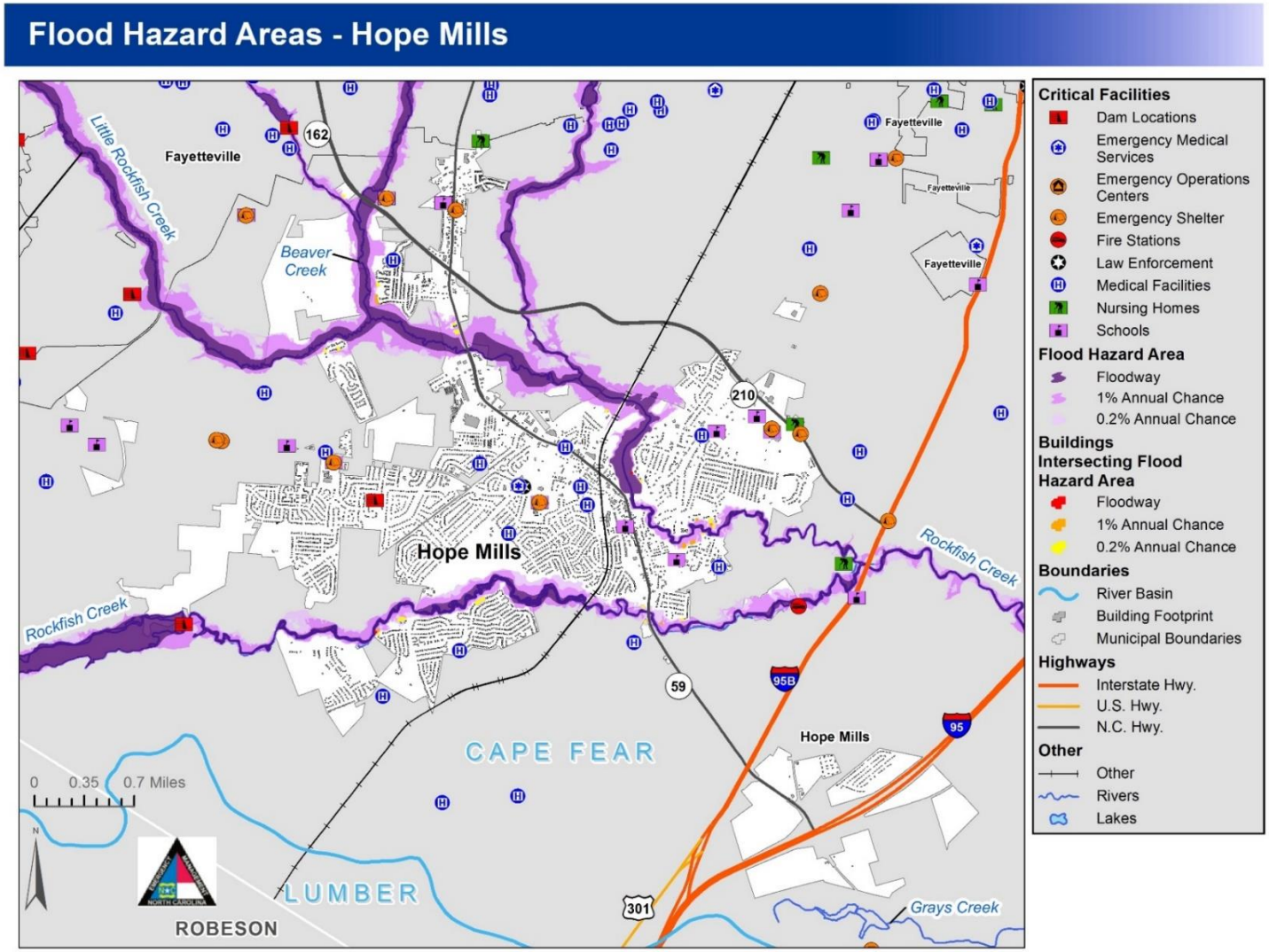


Figure 5-25: Flood Hazard Areas – Hope Mills

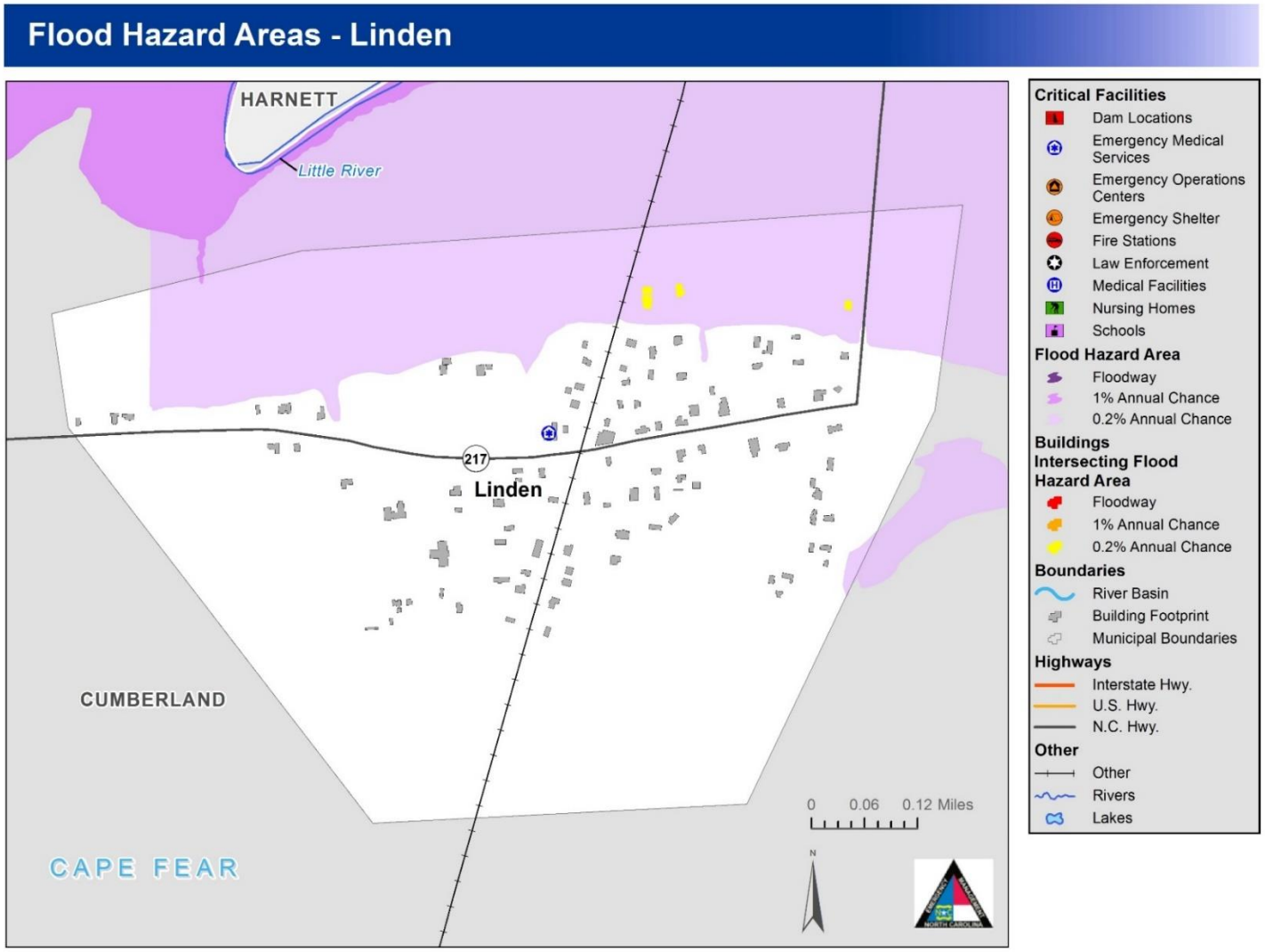


Figure 5-26: Flood Hazard Areas – Linden

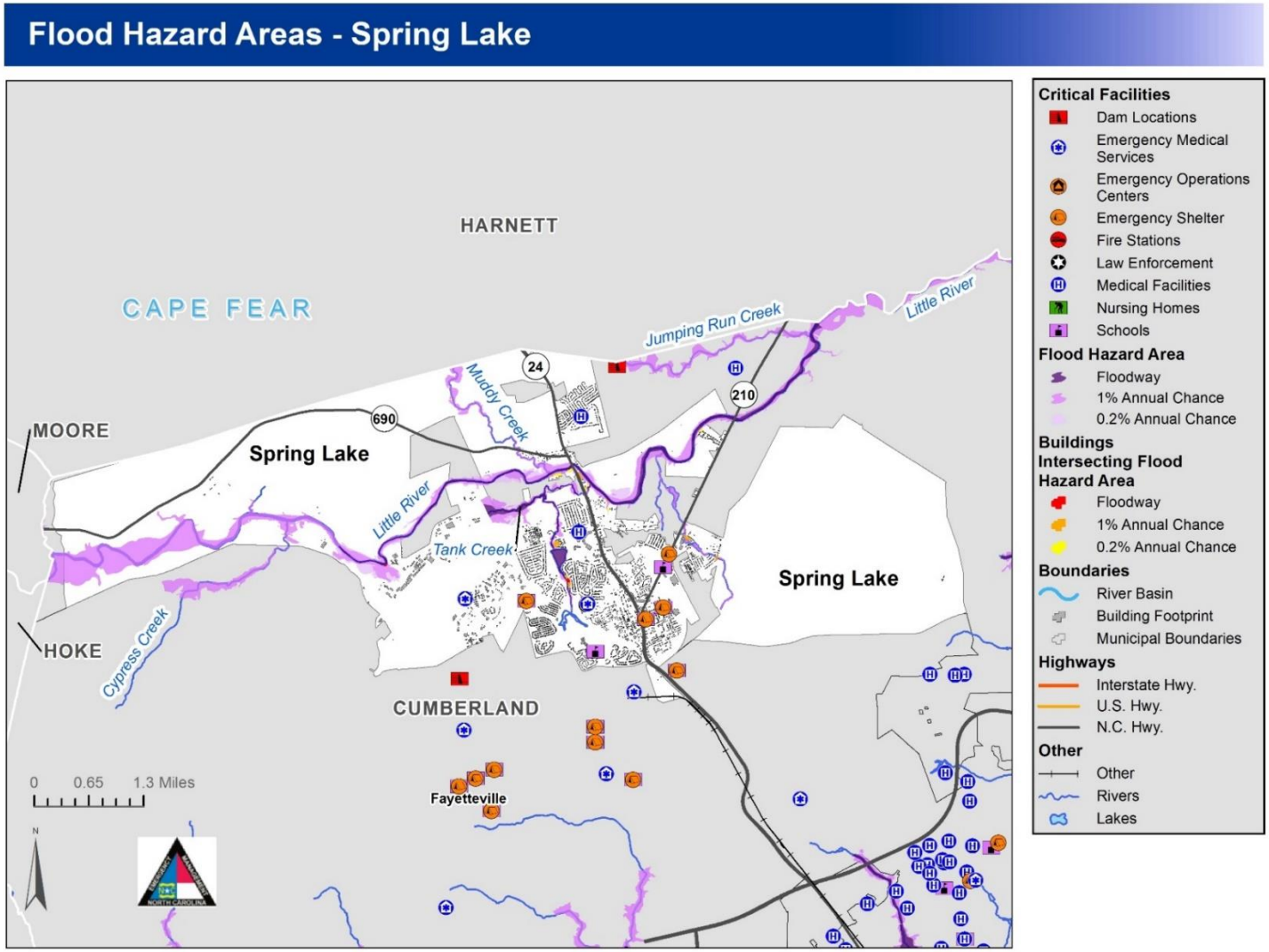


Figure 5-27: Flood Hazard Areas – Spring Lake

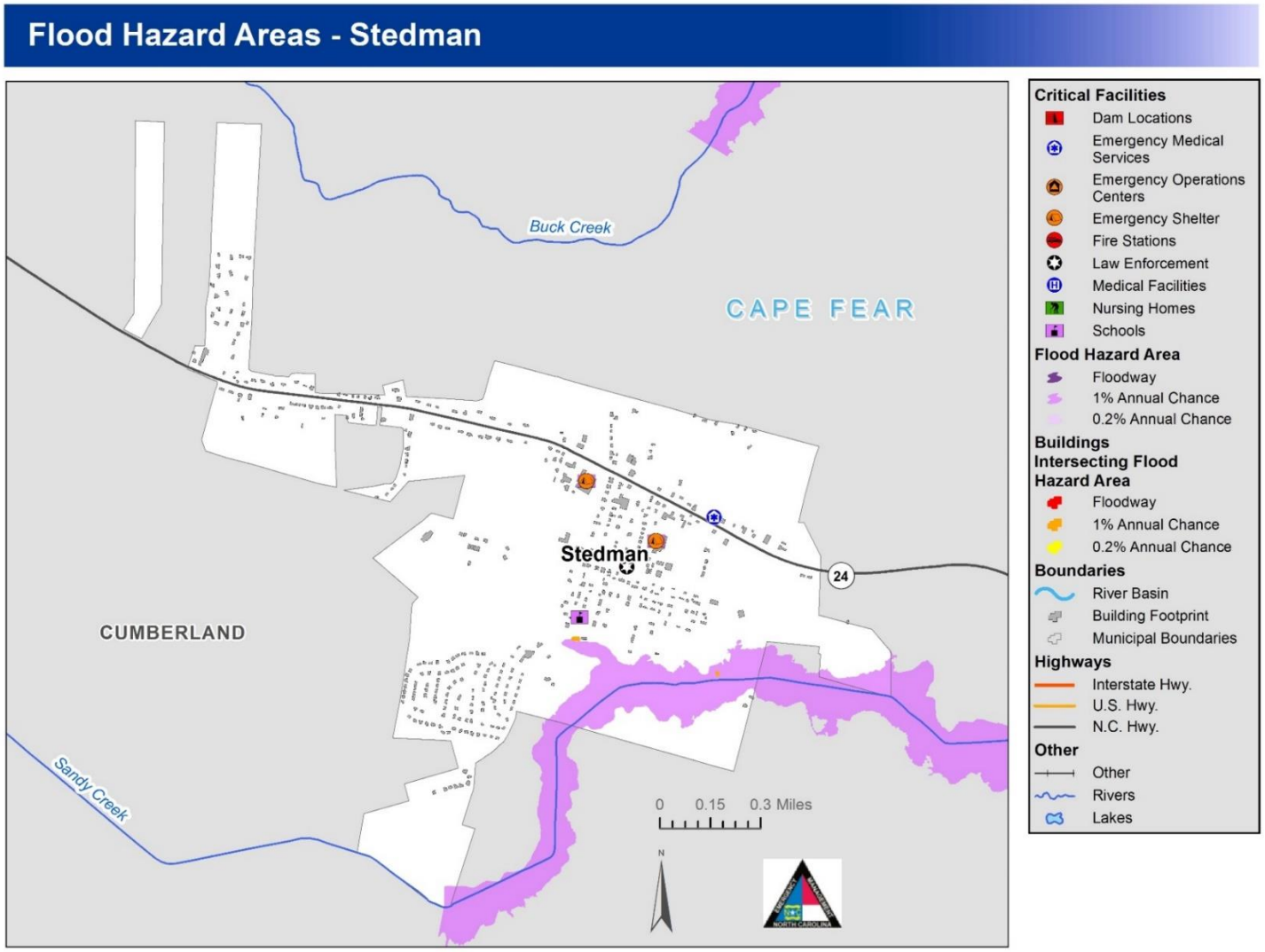


Figure 5-28: Flood Hazard Areas – Stedman

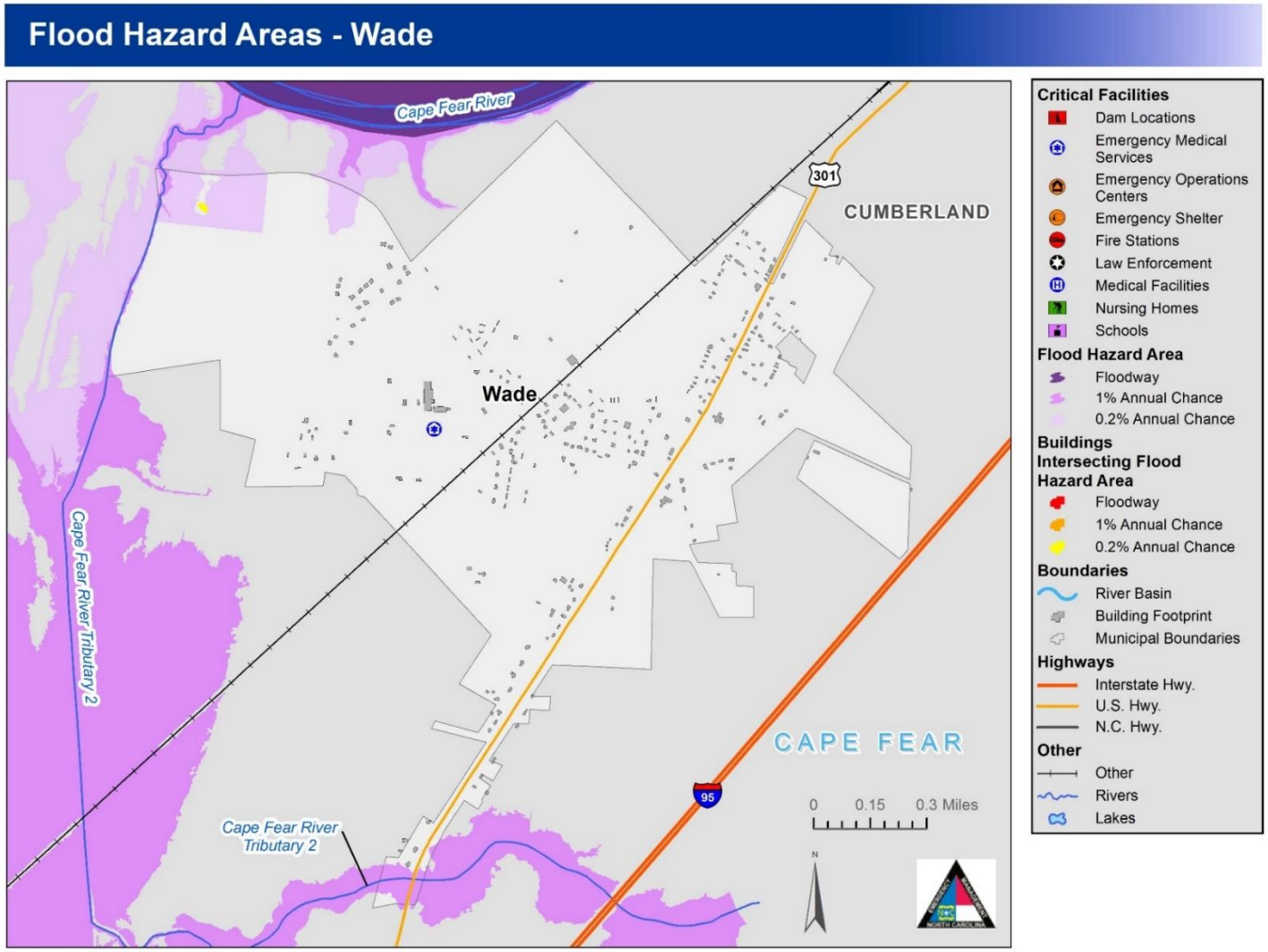


Figure 5-29: Flood Hazard Areas – Wade

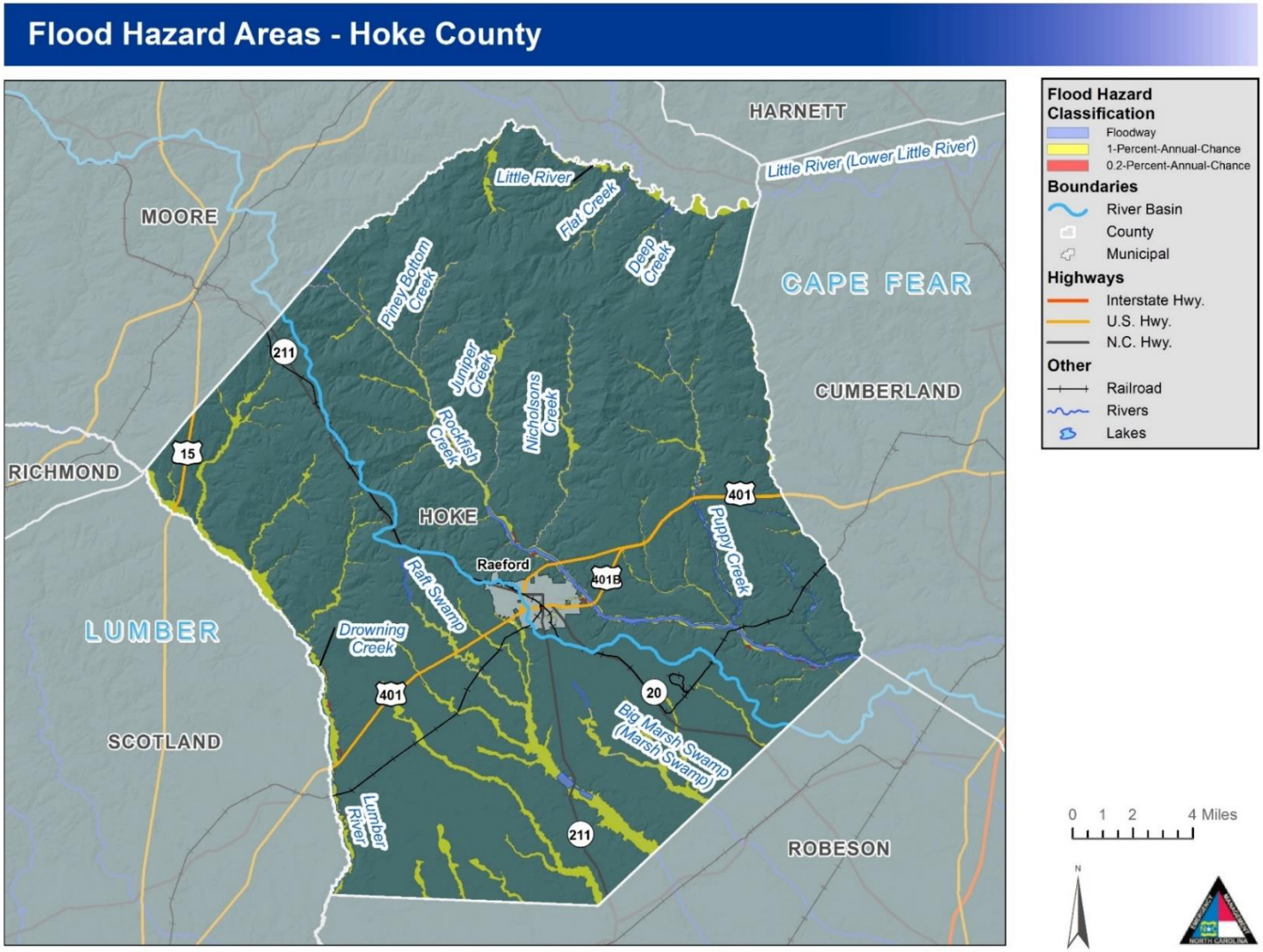


Figure 5-30: Flood Hazard Areas – Hoke County

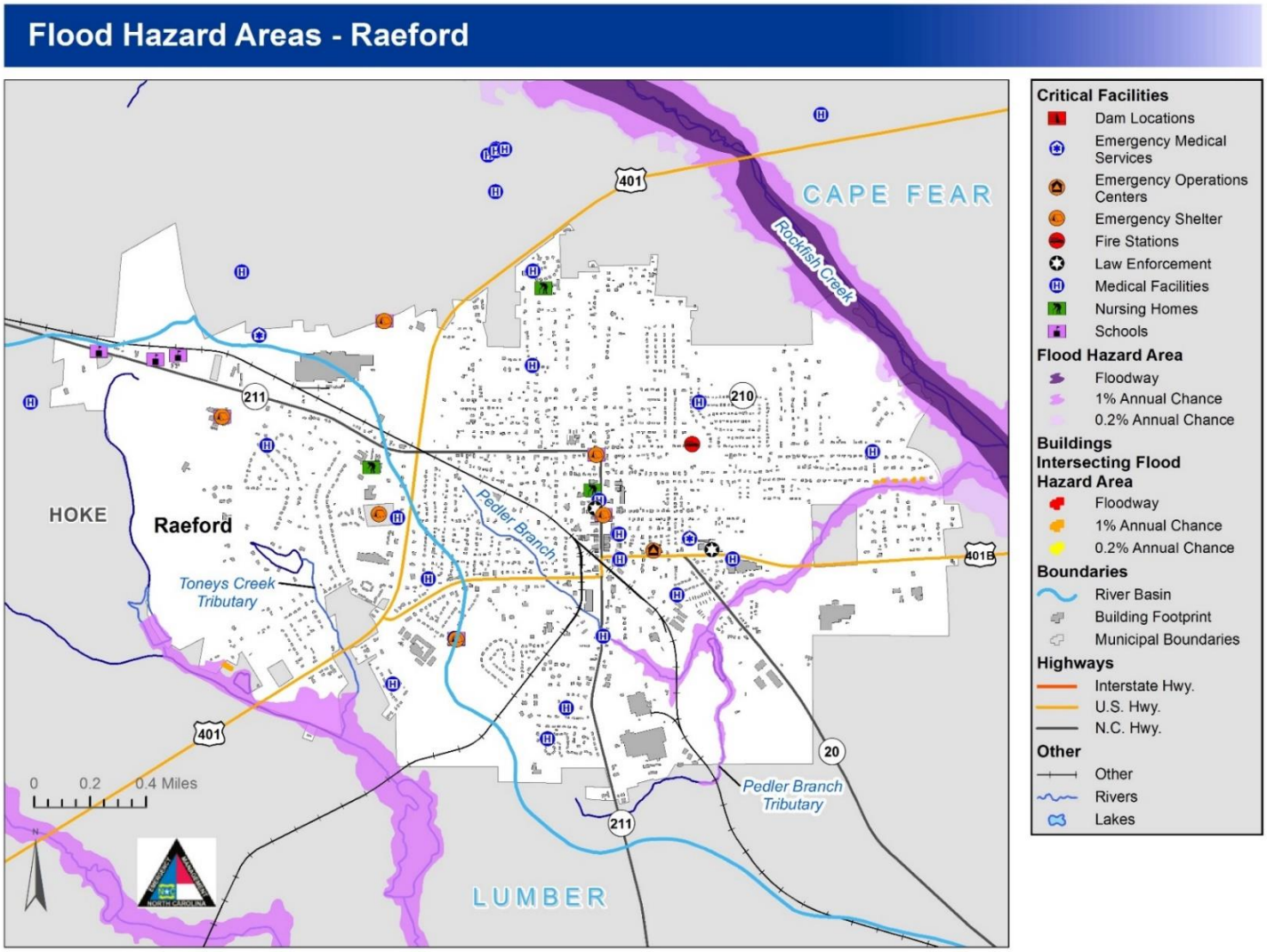


Figure 5-31: Flood Hazard Areas – Raeford

Table 5-15 provides a summary of acreage by flood zone for each County.

Table 5-15. Summary of Flood Zone Acreage

Zone	Cumberland County	Hoke County
Zone AE	36,126	16,564
Zone A	128	2,420
Zone X Shaded (500-yr)	38,368	571
Zone X Unshaded	346,274	231,040
Total:	**420,896**	**250,595**

5.6.3 Extent

The following table provide peak river stage data according to USGS which shows the highest recorded peak river stage for all jurisdictions.

Community	Flood Extent (Peak streamflow or Highest BFE) & NRI Flood Risk Index	Source (National Risk Index is a source for all)	Anecdotal recollections of first responders and public works engineers
Cumberland			
Cumberland County	105.2 feet	FIRM Panel 3720057000J	Less than 1ft of backwater flooding street and local roadways
Fayetteville	97.3 feet	FIRM Panel 3720043700J	Less than 1ft of backwater flooding street and local roadways
Falcon	139 feet	FIRM Panel 3720150200J	Between 1ft to 2ft of

Community	Flood Extent (Peak streamflow or Highest BFE) & NRI Flood Risk Index	Source (National Risk Index is a source for all)	Anecdotal recollections of first responders and public works engineers
			backwater flooding street and local roadways
Godwin	No BFE's	N/A	N/A
Hope Mills	111 feet	FIRM Panel 3720041400J	No Recollections
Eastover	136.7 feet	FIRM Panel 3720046800J	No Recollections
Linden	No BFE's	N/A	N/A
Spring Lake	180.3 feet	FIRM Panel 3720050200J	Between 3ft to 4ft of backwater flooding street and local roadways
Stedman	116.9 feet	FIRM Panel 3720048400J	Between 1ft to 2ft of backwater flooding street and local roadways
Wade	119 feet	FIRM Panel 3720057000J	Between 1ft to 2ft of backwater flooding street and local roadways
Hoke			
Hoke County	193.9 feet	FIRM Panel 3710848800J	Between 3ft to 4ft of backwater flooding street and local roadways

Community	Flood Extent (Peak streamflow or Highest BFE) & NRI Flood Risk Index	Source (National Risk Index is a source for all)	Anecdotal recollections of first responders and public works engineers
Raeford	237.5 feet	FIRM Panel 3710943500J	Between 3ft to 4ft of backwater flooding street and local roadways

5.6.4 Past Occurrences

The following historical occurrences ranging from 2005 to 2020 have been identified based on the National Climatic Data Center (NCDC) Storm Events database ***Table 5-16***. It should be noted that only those historical occurrences listed in the NCDC database are shown here and that other, unrecorded or unreported events may have occurred within the planning area during this timeframe.

Table 5-16. Historical Occurrences of River Flooding (2005 to 2020)

Location	Date	Type	Deaths	Injuries	Reported Property Damage	Reported Property Damage (PV)	Reported Crop Damage	Reported Crop Damage (PV)
Cumberland								
City Of Fayetteville	06/08/05	Flash Flood	0	0	0	$0	0	$0
City Of Fayetteville	06/15/08	Flash Flood	0	0	$0	$0	$0	$0
City Of Fayetteville	07/08/08	Flash Flood	0	0	$0	$0	$0	$0
City Of Fayetteville	08/11/08	Flash Flood	0	0	$0	$0	$0	$0
City Of Fayetteville	09/06/08	Flash Flood	0	0	$0	$0	$0	$0
City Of Fayetteville	06/21/11	Flash Flood	0	0	$0	$0	$0	$0

City Of Fayetteville	08/02/12	Flash Flood	0	0	$10,000	$7,532	$0	$0
City Of Fayetteville	06/23/13	Flash Flood	0	0	$0	$0	$0	$0
City Of Fayetteville	04/29/14	Flash Flood	0	0	$0	$0	$0	$0
City Of Fayetteville	09/02/14	Flash Flood	0	0	$2,000	$1,619	$0	$0
City Of Fayetteville	06/09/15	Flash Flood	0	0	$20,000	$16,615	$0	$0
City Of Fayetteville	06/03/16	Flash Flood	0	0	$0	$0	$0	$0
City Of Fayetteville	06/03/16	Flash Flood	0	0	$0	$0	$0	$0
City Of Fayetteville	09/01/17	Flash Flood	0	0	$0	$0	$0	$0
City Of Fayetteville	07/23/18	Flash Flood	0	0	$0	$0	$0	$0
City Of Fayetteville	09/17/18	Flash Flood	0	0	$0	$0	$0	$0
City Of Fayetteville	06/08/19	Flash Flood	0	0	$0	$0	$0	$0
City Of Fayetteville	07/04/19	Flash Flood	0	0	$2,000	$1,912	$0	$0
Cumberland County (Unincorporated Area)	07/08/08	Flash Flood	0	0	$0	$0	$0	$0
Cumberland County (Unincorporated Area)	08/14/09	Flash Flood	0	0	$0	$0	$0	$0
Cumberland County (Unincorporated Area)	06/25/10	Flash Flood	0	0	$10,000	$7,007	$0	$0
Cumberland County (Unincorporated Area)	06/22/11	Flash Flood	0	0	$0	$0	$0	$0
Cumberland County (Unincorporated Area)	08/07/16	Flash Flood	0	0	$0	$0	$0	$0
Cumberland County (Unincorporated Area)	09/29/16	Flash Flood	0	0	$1,000,000	$869,047	$0	$0
Cumberland County (Unincorporated Area)	10/09/16	Flood	2	0	$62,100,000	$54,023,558	$20,000,000	$17,398,891

Cumberland County (Unincorporated Area)	09/14/18	Flash Flood	0	0	$0	$0	$0	$0
Cumberland County (Unincorporated Area)	02/06/20	Flash Flood	0	0	$0	$0	$0	$0
Town Of Falcon	08/02/09	Flash Flood	0	0	$10,000	$6,793	$0	$0
Town Of Hope Mills	07/08/08	Flash Flood	0	0	$0	$0	$0	$0
Town Of Hope Mills	07/08/08	Flash Flood	0	0	$0	$0	$0	$0
Town Of Hope Mills	02/06/20	Flash Flood	0	0	$0	$0	$0	$0
Town Of Spring Lake	09/28/16	Flash Flood	0	0	$100,000	$86,905	$0	$0
Subtotal Cumberland	**32 Events**		**2**	**0**	**$63,254,000**	**$55,020,987**	**$20,000,000**	**$17,398,891**
Hoke								
City Of Raeford	09/06/08	Flash Flood	0	0	$150,000	$98,757	$0	$0
City Of Raeford	06/25/10	Flash Flood	0	0	$10,000	$7,007	$0	$0
City Of Raeford	06/25/13	Flash Flood	0	0	$0	$0	$0	$0
City Of Raeford	05/29/16	Flash Flood	0	0	$0	$0	$0	$0
Hoke County (Unincorporated Area)	10/08/05	Flood	0	0	$50,000	$29,783	0	$0
Hoke County (Unincorporated Area)	08/27/08	Flash Flood	0	0	$0	$0	$0	$0
Hoke County (Unincorporated Area)	06/23/13	Flash Flood	0	0	$0	$0	$0	$0
Hoke County (Unincorporated Area)	09/28/16	Flash Flood	0	0	$50,000	$43,452	$0	$0
Hoke County (Unincorporated Area)	09/29/16	Flash Flood	0	0	$150,000	$130,357	$0	$0
Hoke County (Unincorporated Area)	09/29/16	Flash Flood	0	0	$1,000,000	$869,047	$0	$0

Hoke County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$3,100,000	$2,696,828	$0	$0
Hoke County (Unincorporated Area)	04/15/18	Flash Flood	0	0	$0	$0	$0	$0
Hoke County (Unincorporated Area)	09/17/18	Flood	0	0	$35,310,000	$32,837,764	$30,000,000	$27,899,545
Hoke County (Unincorporated Area)	09/17/18	Flash Flood	0	0	$0	$0	$0	$0
Subtotal Hoke	**14 Events**		**0**	**0**	**$39,820,000**	**$36,712,995**	**$30,000,000**	**$27,899,545**
TOTAL PLAN	**46 Events**		**2**	**0**	**$103,074,000**	**$91,733,982**	**$50,000,000**	**$45,298,436**

Source: National Climatic Data Center (NCDC) Storm Events Database and or potential user entered data.

According to NCDC 46 recorded instances of River Flooding conditions have affected the planning area since 2005 to 2020 causing an estimated $103,074,000 in losses to property, $50,000,000 in losses to agricultural crops, 2 death(s), and 0 injury(ies).

Table 5-17 provides a summary of this historical information by participating jurisdiction. It is important to note that many of the events attributed to the county are countywide or cover large portions of the county. The individual counts by jurisdiction are for those events that are only attributed to that one jurisdiction.

Table 5-17. Summary of Historical River Flooding Occurrences by Participating Jurisdiction

Jurisdiction	Number of Occurrences	Deaths	Injuries	Reported Property Damage	Reported Property Damage (PV)	Reported Crop Damage	Reported Crop Damage (PV)
Cumberland							
City Of Fayetteville	18	0	0	$34,000	$20,024	$0	$0
Cumberland County (Unincorporated Area)	9	2	0	$63,110,000	$41,322,109	$20,000,000	$13,095,265
Town Of Falcon	1	0	0	$10,000	$6,793	$0	$0
Town Of Hope Mills	3	0	0	$0	$0	$0	$0
Town Of Spring Lake	1	0	0	$100,000	$86,905	$0	$0

Subtotal Cumberland	**32**	**2**	**0**	**$63,254,000**	**$41,435,830**	**$20,000,000**	**$13,095,265**
Hoke							
City Of Raeford	4	0	0	$160,000	$105,340	$0	$0
Hoke County (Unincorporated Area)	10	0	0	$39,660,000	$23,623,870	$30,000,000	$17,869,796
Subtotal Hoke	**14**	**0**	**0**	**$39,820,000**	**$23,729,210**	**$30,000,000**	**$17,869,796**
TOTAL PLAN	**46**	**2**	**0**	**$103,074,000**	**$65,165,040**	**$50,000,000**	**$30,965,061**

Source: National Climatic Data Center (NCDC) Storm Events Database and or potential user entered data.

Table 7.2 in Section 7: *Capability Assessment* lists the number of insured losses and total claims payments for historical flood damages in each jurisdiction as recorded under the NFIP. ***Table 5-18*** below provides the NFIP entry date for each participating jurisdiction. As explained in subsection 4.3, the NFIP entry date for each jurisdiction was used to determine buildings that were built pre - FIRM and are therefore assumed to be at greater risk to the flood hazard.

Table 5-18. NFIP Entry Dates

Jurisdiction	NFIP Entry Date
City of Fayetteville	11/02/73
Cumberland County (Unincorporated Area)	12/13/74
Town of Falcon	01/05/07
Town of Godwin	01/05/07
Town of Hope Mills	07/18/75
Town of Linden	01/05/07
Town of Spring Lake	12/13/74
Town of Stedman	01/05/07
Town of Wade	01/05/07
City of Raeford	06/03/86
Hoke County (Unincorporated Area)	03/02/89

Source: Federal Emergency Management Agency Community Status Book Report: Communities Participating in the National Flood Program, December 2020

5.6.5 Repetitive Loss Properties

Many of North Carolina's insured losses have involved repetitive loss properties. The Federal definition of a repetitive loss property is "any insured structure with at least two paid flood insurance losses of more than $1,000 each in any rolling 10-year period since 1978" (FEMA). Table 5-19 lists repetitive loss data by county, according to FEMA records. Types of repetitive loss properties can include residential, commercial, institutional etc.

Table 5-19: Summary of Residential Repetitive Loss Properties in the Cumberland Hoke Region

Location	Residential Properties	Commercial Properties	Total
Cumberland County Unincorporated	**30**	**1**	**31**
Town of Eastover	**-**	**-**	**-**
Town of Falcon	-	-	-
City of Fayetteville	4	-	4
Town of Godwin	-	-	-

Location	Residential Properties	Commercial Properties	Total
Town of Hope Mills	1	-	1
Town of Linden	-	-	-
Town of Spring Lake	-	-	-
Town of Stedman	-	-	-
Town of Wade	-	-	-
Hoke County Unincorporated	0	0	0
City of Raeford	-	-	-
Source: NCEM and National Flood Insurance Program			

The following provides details on select flooding events recorded in the NCEI database:

August 2, 2012 - Multiple reported of flash flooding were received just west of downtown Fayetteville. Flooding was reported on Yadkin Road, on Santa Fe Road, on Strickland Bridge Road near the intersection of Graham Road and on Hope Mills Road, with several reports of stranded cars. Hybarts Branch Creek came out of its banks and flooded several yards. Several roads also flooded near the Cross Creek Mall, with some water getting into portions of the mall and cars in the parking lot had water over the tires.

June 25, 2010 - Strong to severe thunderstorms formed along the sea breeze in a moist and unstable atmosphere. Some of these storms produced isolated wind damage and flash flooding across portions of the Southern Coastal Plain and Sandhills of central North Carolina. Numerous roads were reported flooded across the county. The worst of the flooding was reported in Raeford, NC near Southern Avenue and South Main Street. At this location flooding was reported in and around an apartment complex, with water waist deep in the parking lot and surrounding streets.

August 2, 2009 - The Falcon community received around one inch or rainfall during the late morning hours with a long lull during the early afternoon before training thunderstorms dumped an additional 5 inches between 630 to 900 pm. Two to three feet of flood waters was flowing over Northwest and Brooks Streets in town. NC Highway 82 was closed due to the flood waters. Flood waters entered 3 structures.

December 11, 2008 - A powerful upper level disturbance with associated cold front pushed across the region the afternoon and evening of December 11. Over 2 inches of rain fell in many locations with several reports of minor urban flooding. One house was struck by lightning and burned to the ground.

5.6.6 Probability of Future Occurrences

Based on the analyses performed in IRISK, the probability of future River Flooding is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Low: Less Than 1% Annual Probability
- Medium: Between 1% And 10% Annual Probability

- High: More Than 10% Annual Probability

Jurisdiction	Calculated Probability (IRISK)
City Of Fayetteville	Medium
City Of Raeford	Low
Cumberland County (Unincorporated Area)	Low
Hoke County (Unincorporated Area)	Low
Town Of Eastover	Medium
Town Of Falcon	Low
Town Of Godwin	Low
Town Of Hope Mills	Low
Town Of Linden	Low
Town Of Spring Lake	Low
Town Of Stedman	Low
Town Of Wade	Low

Climate Change and Inland Flooding

It is likely (66-100% probability) that the frequency of heavy precipitation or the proportion of total rainfall from heavy falls will increase in the 21st century across the globe (21). More specifically, it is "very likely" (90-100% probability) that most areas of the United States will exhibit an increase of at least 5% in the maximum 5-day precipitation by late 21st century (21). The mean change in the annual number of days with rainfall over 1 inch for the Southeastern United States is 0.5 to 1.5 days (21). As the number of heavy rain events increase, more flooding and pooling water can be expected.

5.6.7 Consequence and Impact Analysis

People

Certain health hazards are common to flood events. While such problems are often not reported, three general types of health hazards accompany floods. The first comes from the water itself. Floodwaters carry anything that was on the ground that the upstream runoff picked up, including dirt, oil, animal waste, and lawn, farm and industrial chemicals. Pastures and areas where farm animals are kept, or their wastes are stored can contribute polluted waters to the receiving streams.

Floodwaters also saturate the ground, which leads to infiltration into sanitary sewer lines. When wastewater treatment plants are flooded, there is nowhere for the sewage to flow. Infiltration and lack of treatment can lead to overloaded sewer lines that can back up into low-lying areas and homes. Even when it is diluted by flood waters, raw sewage can be a breeding ground for bacteria such as E.coli and other disease causing agents.

The second type of health problem arises after most of the water has gone. Stagnant pools can become breeding grounds for mosquitoes, and wet areas of a building that have not been properly cleaned breed mold and mildew. A building that is not thoroughly cleaned becomes a health hazard, especially for small children and the elderly.

Another health hazard occurs when heating ducts in a forced air system are not properly cleaned after inundation. When the furnace or air conditioner is turned on, the sediments left in the ducts are circulated throughout the building and breathed in by the occupants. If the City water system loses pressure, a boil order may be issued to protect people and animals from contaminated water.

The third problem is the long-term psychological impact of having been through a flood and seeing one 's home damaged and personal belongings destroyed. The cost and labor needed to repair a flood-damaged home puts a severe strain on people, especially the unprepared and uninsured. There is also a long-term problem for those who know that their homes can be flooded again. The resulting stress on floodplain residents takes its toll in the form of aggravated physical and mental health problems.

First Responders

First responders are at risk when attempting to rescue people from their homes. They are subject to the same health hazards as the public mentioned above. Flood waters may prevent access to areas in need of response or the flood may prevent access to the critical facilities themselves which may prolong response time.

Continuity of Operations

Floods can severely disrupt normal operations, especially when there is a loss of power. For a detailed analysis of critical facilities at risk to flooding, see Section 6 Vulnerability Assessment.

Built Environment

Residential, commercial, and public buildings, as well as critical infrastructure such as transportation, water, energy, and communication systems may be damaged or destroyed by flood waters. Cumberland County appears to be most vulnerable to flooding, especially the City of Fayetteville. For a detailed analysis of properties at risk to flooding, see Section 6 Vulnerability Assessment.

Economy

During floods (especially flash floods), roads, bridges, farms, houses and automobiles are destroyed. Additionally, the local government must deploy firemen, police and other emergency response personnel and equipment to help the affected area. It may take years for the affected communities to be re-built and business to return to normal.

Natural Environment

During a flood event, chemicals and other hazardous substances may end up contaminating local water bodies. Flooding kills animals and in general disrupts the ecosystem. Snakes and insects may also make their way to the flooded areas.

5.7 Severe Weather (Thunderstorm Wind, Lightning & Hail)

5.7.1 Hazard Description

Thunderstorms

Thunderstorms result from the rapid upward movement of warm, moist air. They can occur inside warm, moist air masses and at fronts. As the warm, moist air moves upward, it cools, condenses, and forms

cumulonimbus clouds that can reach heights of greater than 35,000 ft. As the rising air reaches its dew point, water droplets and ice form and begin falling the long distance through the clouds towards earth's surface. As the droplets fall, they collide with other droplets and become larger. The falling droplets create a downdraft of air that spreads out at Earth's surface and causes strong winds associated with thunderstorms.

There are four ways in which thunderstorms can organize: single cell, multi-cell cluster, multi-cell lines (squall lines), and supercells. Even though supercell thunderstorms are most frequently associated with severe weather phenomena, thunderstorms most frequently organize into clusters or lines. Warm, humid conditions are favorable for the development of thunderstorms. The average single cell thunderstorm is approximately 15 miles in diameter and lasts less than 30 minutes at a single location. However, thunderstorms, especially when organized into clusters or lines, can travel intact for distances exceeding 600 miles.

Thunderstorms are responsible for the development and formation of many severe weather phenomena, posing great hazards to the population and landscape. Damage that results from thunderstorms is mainly inflicted by downburst winds, large hailstones, and flash flooding caused by heavy precipitation. Stronger thunderstorms are capable of producing tornadoes and waterspouts.

The NCEI divides wind events into several types including High Wind, Strong Wind, Thunderstorm Wind, Tornado and Hurricane. For the purpose of this severe weather risk assessment, the wind hazard will include data from High Wind, Strong Wind and Thunderstorm Wind. Hurricane Wind and Tornadoes are addressed as individual hazards. The following definitions come from the NCEI Storm Data Preparation document.

- High Wind – Sustained non-convective winds of 40mph or greater lasting for one hour or longer or winds (sustained or gusts) of 58 mph for any duration on a widespread or localized basis.
- Strong Wind – Non-convective winds gusting less than 58 mph, or sustained winds less than 40 mph, resulting in a fatality, injury, or damage.
- Thunderstorm Wind – Winds, arising from convection (occurring within 30 minutes of lightning being observed or detected), with speeds of at least 58 mph, or winds of any speed (non-severe thunderstorm winds below 58 mph) producing a fatality, injury or damage.

Lightning

Lightning is an electrical discharge between positive and negative regions of a thunderstorm. A lightning flash is composed of a series of strokes with an average of about four. The length and duration of each lightning stroke vary, but typically average about 30 microseconds.

Lightning is one of the more dangerous weather hazards in the United States. Each year, lightning is responsible for deaths, injuries, and millions of dollars in property damage, including damage to buildings, communications systems, power lines, and electrical systems. Lightning also causes forest and brush fires, and deaths and injuries to livestock and other animals. According to the National Lightning Safety Institute, lightning causes more than 26,000 fires in the United States each year. The institute estimates property damage, increased operating costs, production delays, and lost revenue from lightning and secondary effects to be in excess of $6 billion per year. Impacts can be direct or indirect. People or objects can be directly struck, or damage can occur indirectly when the current passes through or near it.

Hail

Hail is associated with thunderstorms that can also bring high winds and tornados. It forms when updrafts

carry raindrops into extremely cold areas of the atmosphere where they freeze into ice. Hail falls when it becomes heavy enough to overcome the strength of the updraft and is pulled by gravity towards the earth. Hailstorms occur throughout the spring, summer, and fall in the region, but are more frequent in late spring and early summer. Hailstones are usually less than two inches in diameter and can fall at speeds of 120 mph. Hail causes nearly $1 billion in damage to crops and property each year in the United States.

5.7.2 Location and Spatial Extent

The entirety of Cumberland and Hoke Counties including all assets located within the Counties can be considered at risk to severe weather events. This includes the entire population and all critical facilities, buildings (commercial and residential), and infrastructure. It is assumed that the Region is uniformly exposed to severe thunderstorms; therefore, all areas of the region are equally exposed to hail which may be produced by such storms. Lightning occurs randomly, therefore it is impossible to predict where and with what frequency it will strike. It is assumed that all of the Region is uniformly exposed to lightning The figures (5-18) below show the average annual cloud-to-ground lightning strikes in the Region with “High” being greater than 100 strikes per year, “Medium” 99-50 strikes per year and “Low” being less than50 strikes per year. Figures 5-17 – 5-34 show the locations for recorded thunderstorm and lightning events with the data ranging from 1987 – present. Per the National Weather Service Instruction 10-1605, a lightning event is defined as a sudden electrical discharge from a thunderstorm, resulting in a fatality, injury, and/or damage, so each point represented on map for event type “lightning” records exact location of lightning strike/strikes that result in a fatality, injury, and/or damage. The same manual defines Thunderstorm Winds as winds arising from convection (occurring within 30 minutes of lightning being observed or detected), with speeds of at least 50 knots (58 mph), or winds of any speed (non-severe thunderstorm winds below 50 knots) producing a fatality, injury, or damage.

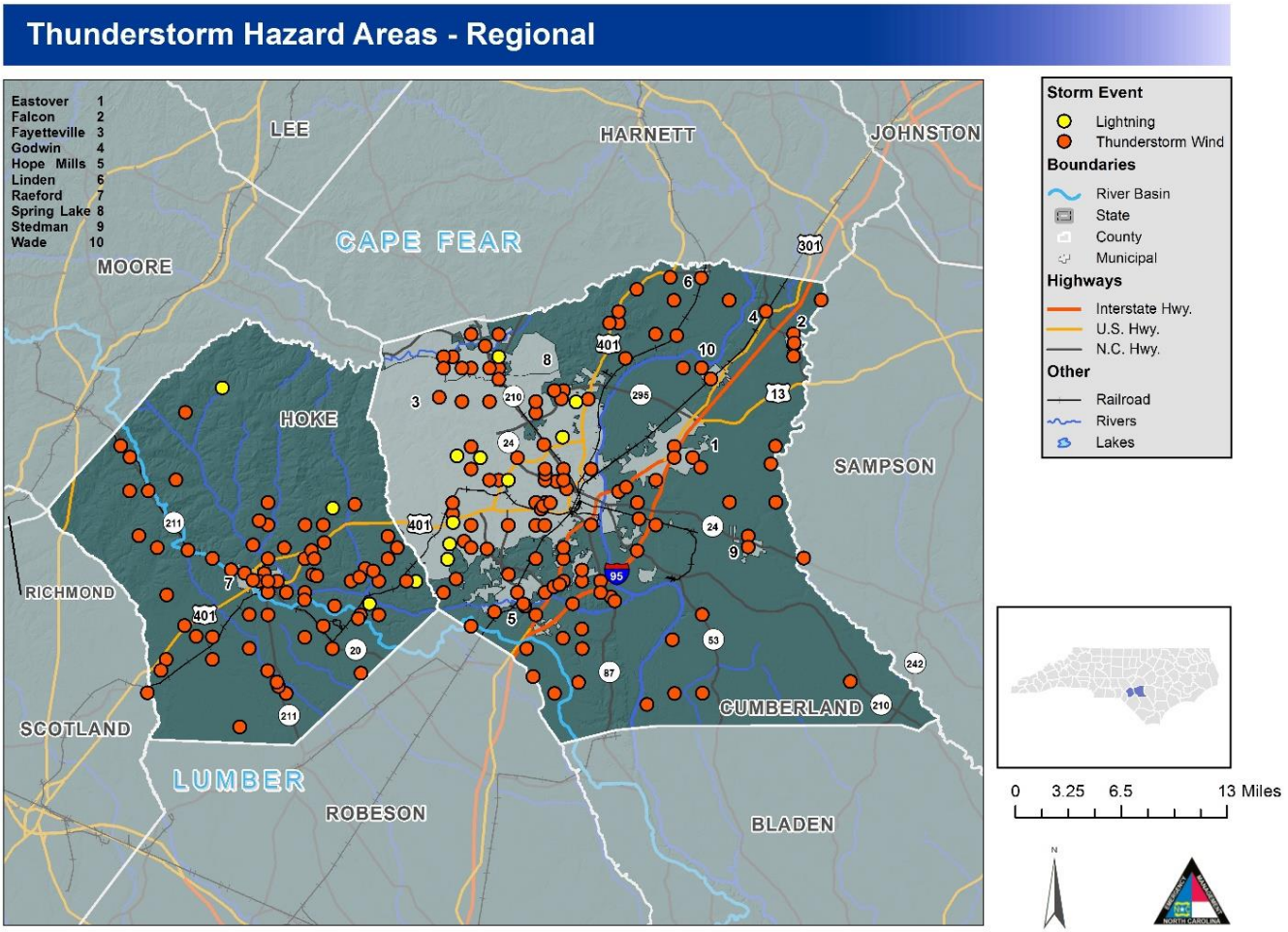


Figure 5-32: Thunderstorm Hazard Areas – Regional

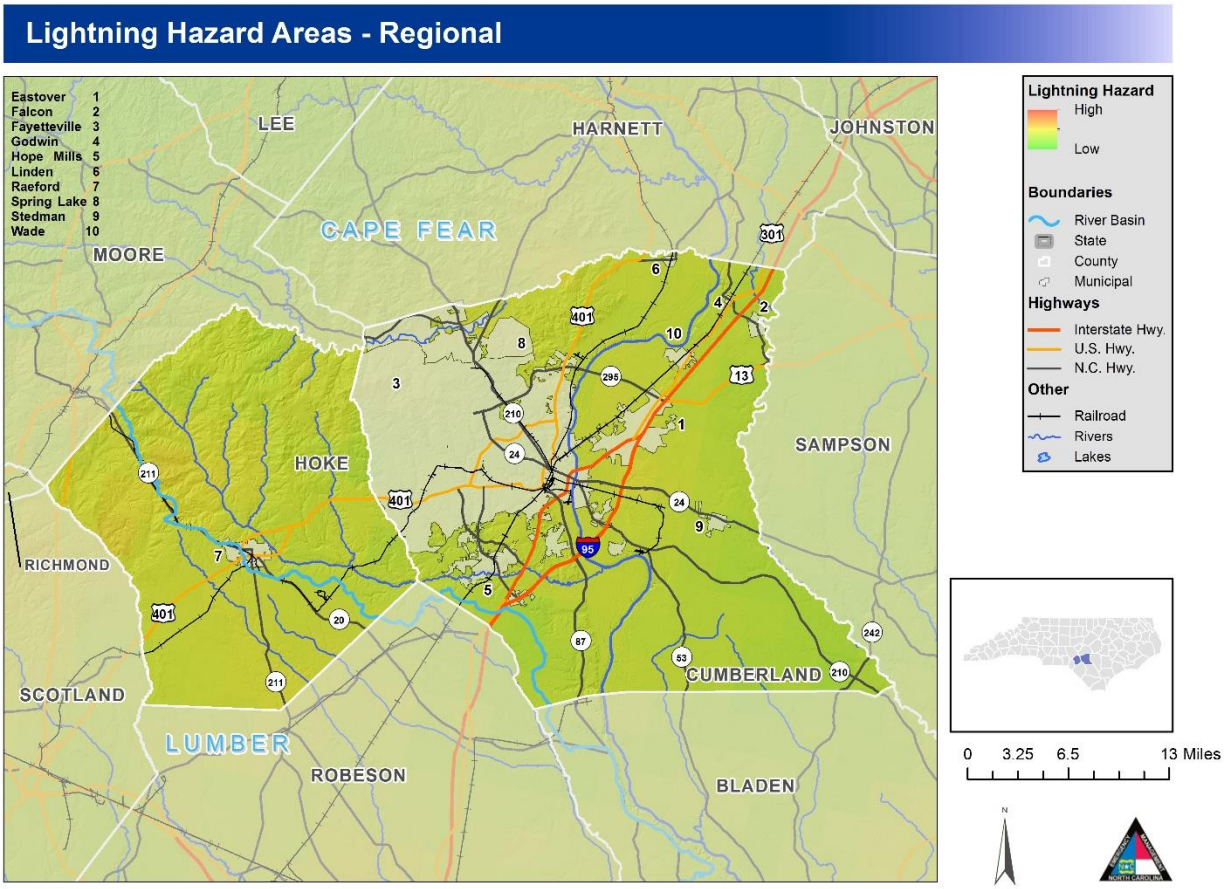


Figure 5-33: Lightning Hazard Areas – Regional

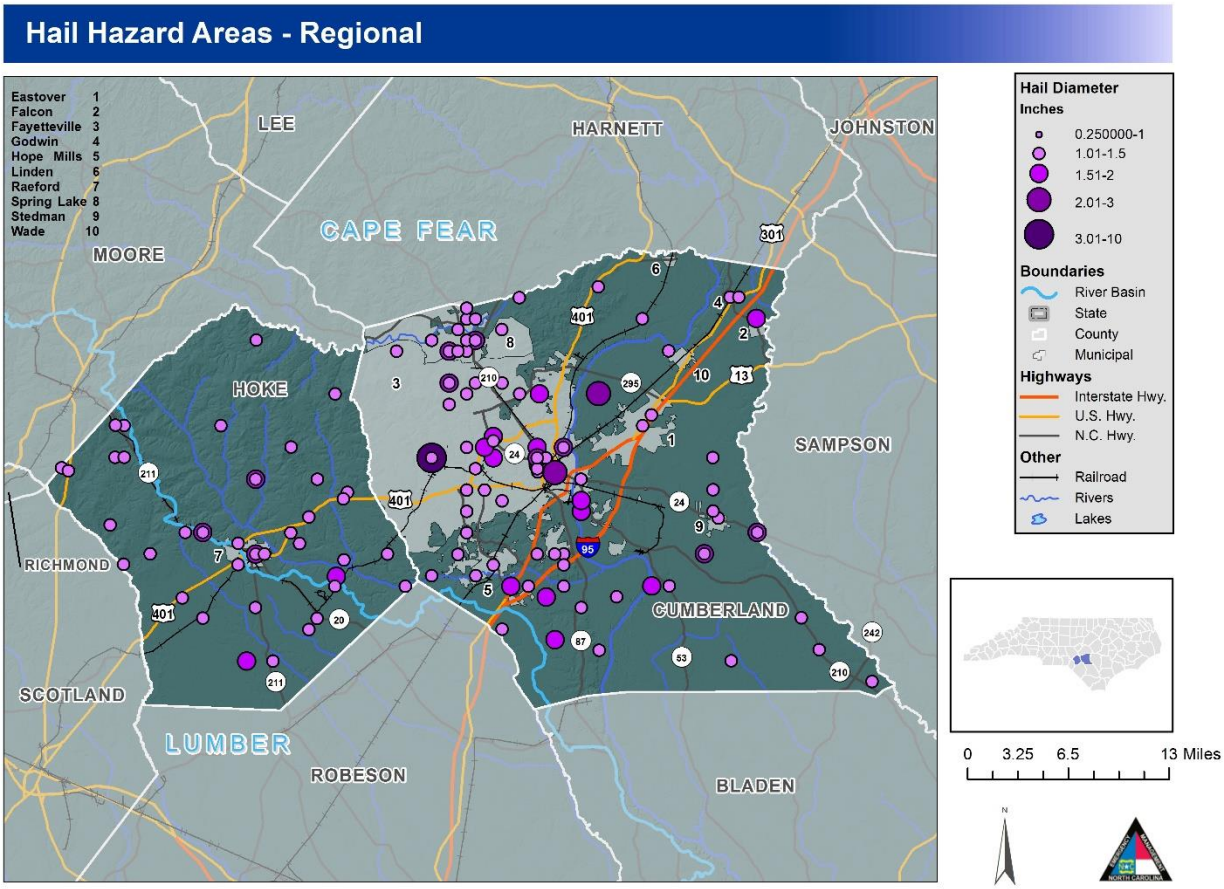


Figure 5-34: Hail Hazard Areas – Regional

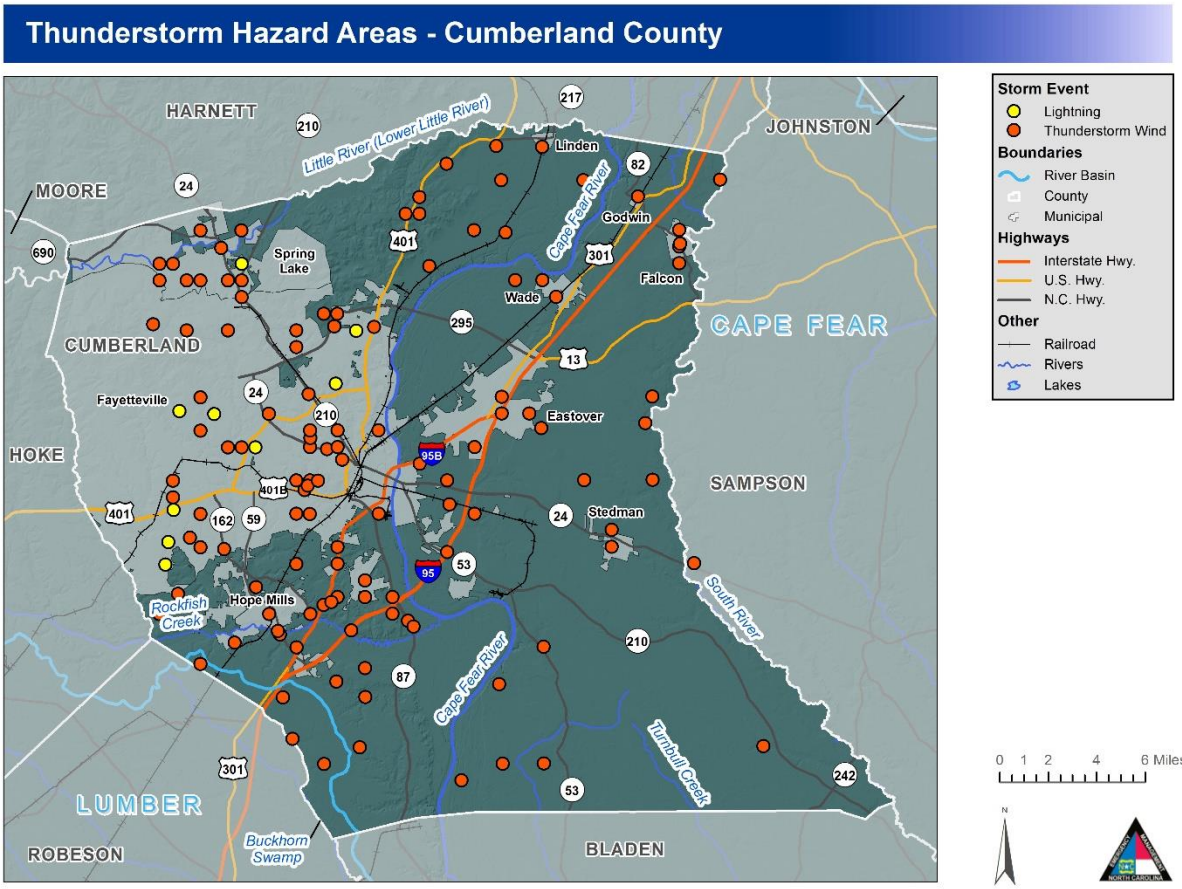


Figure 5-35: Thunderstorm Hazard Areas – Cumberland County

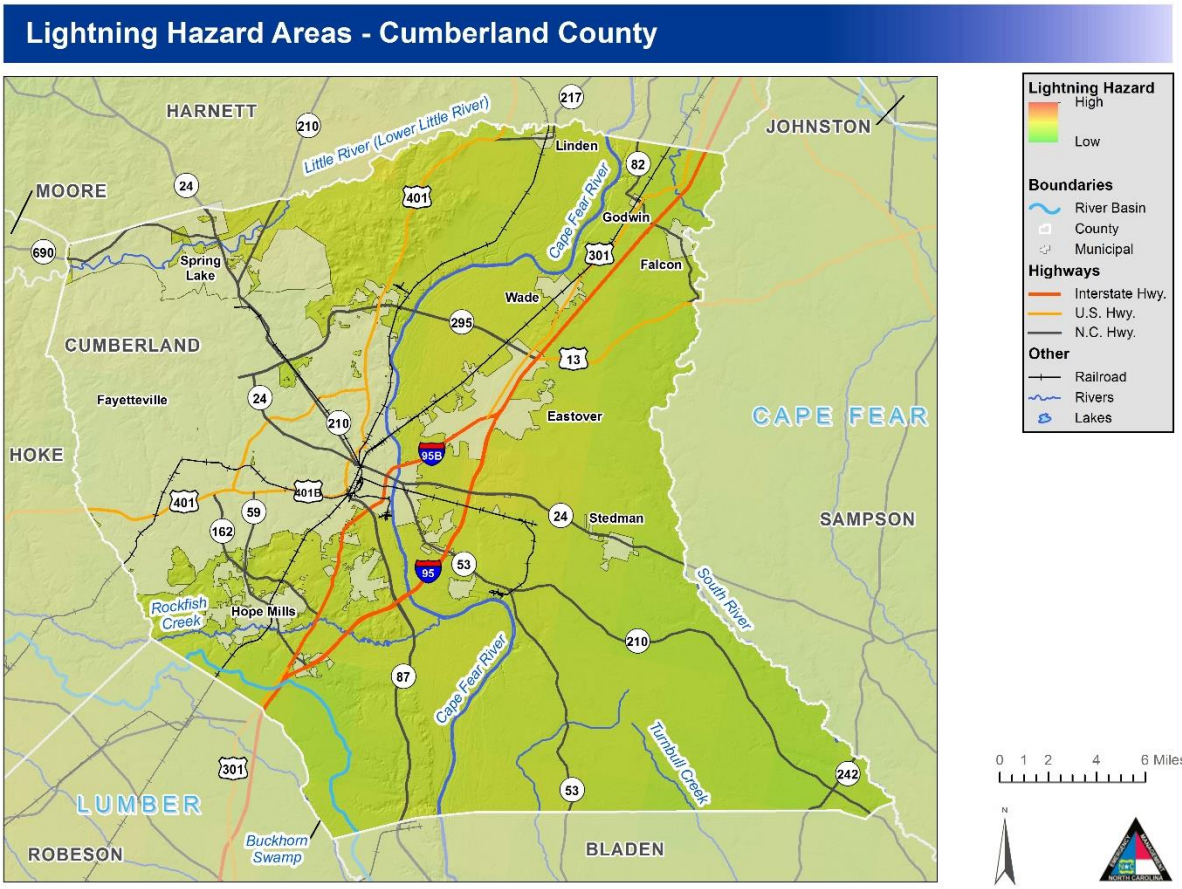


Figure 5-36: Lightning Hazard Areas – Cumberland County

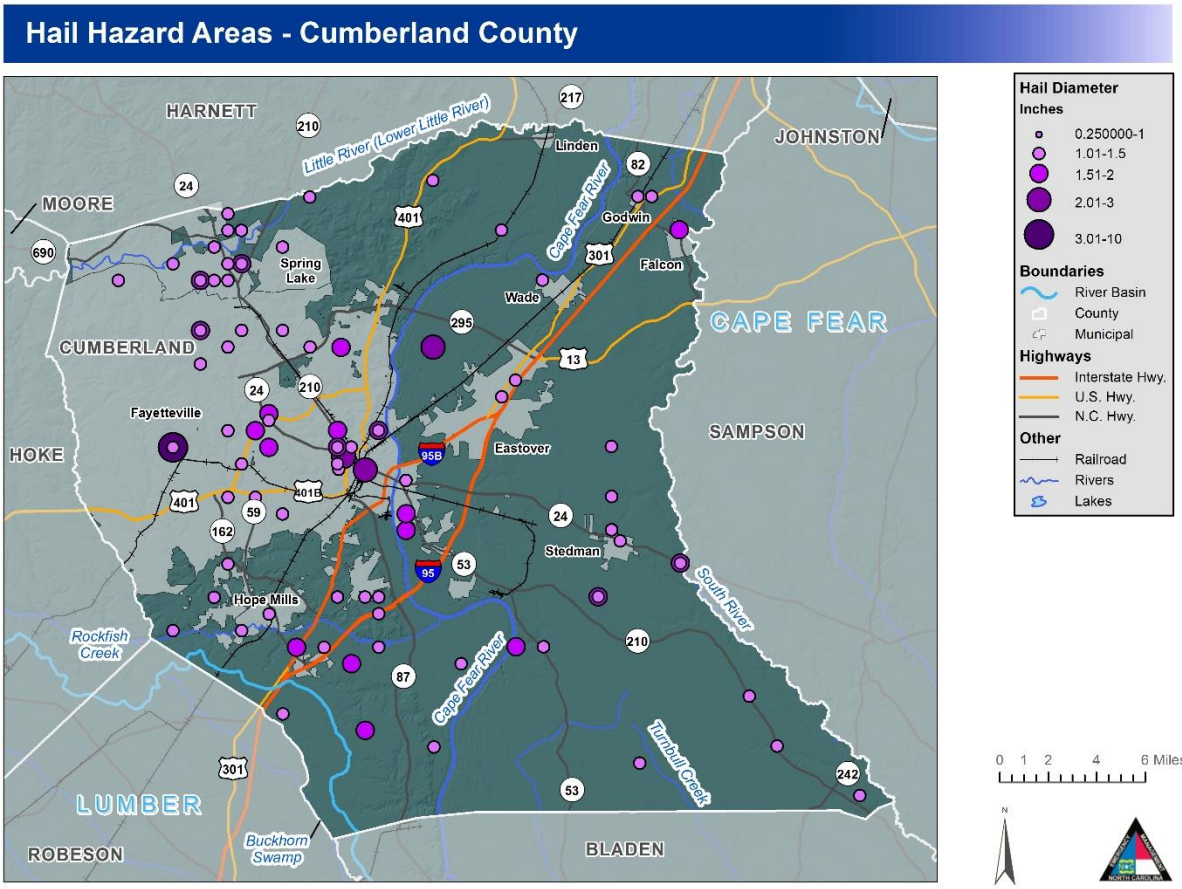


Figure 5-37: Hail Hazard Areas – Cumberland County

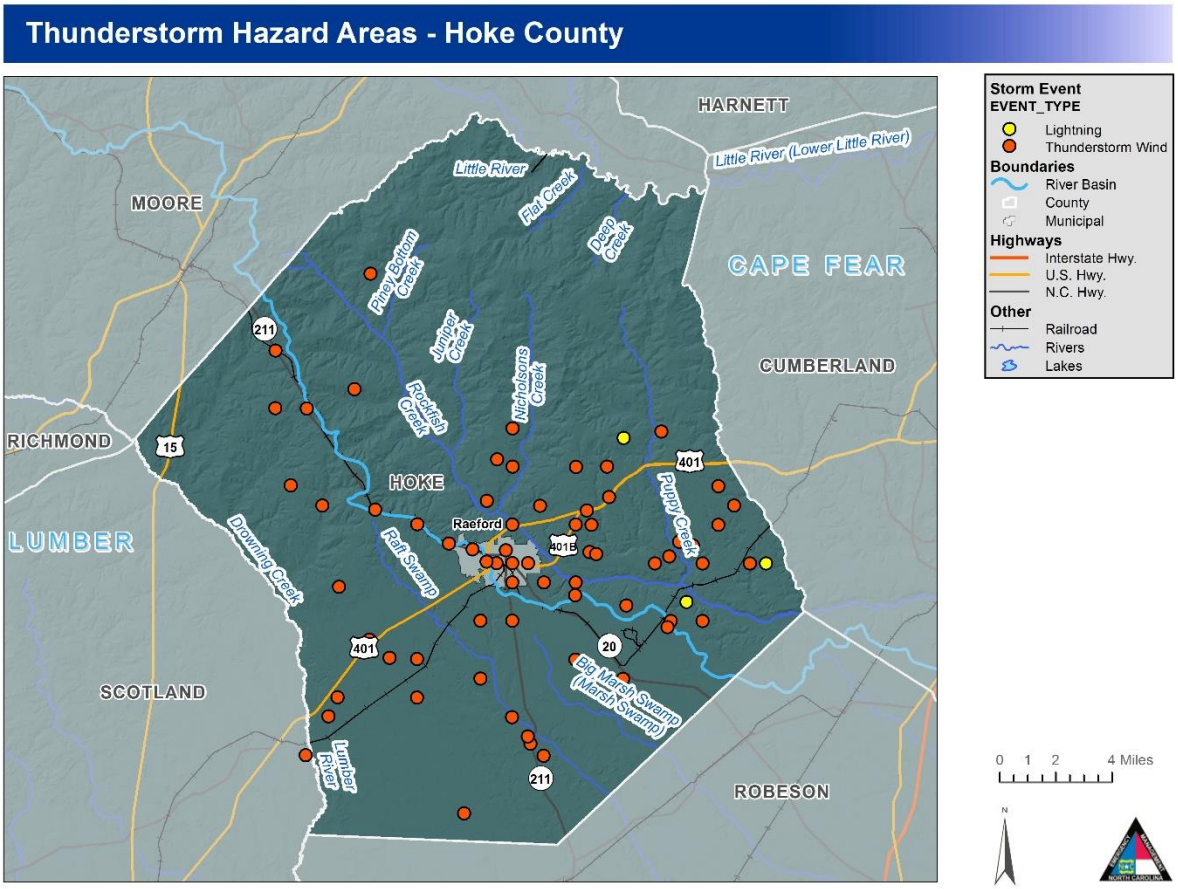


Figure 5-38: Thunderstorm Hazard Areas – Hoke County

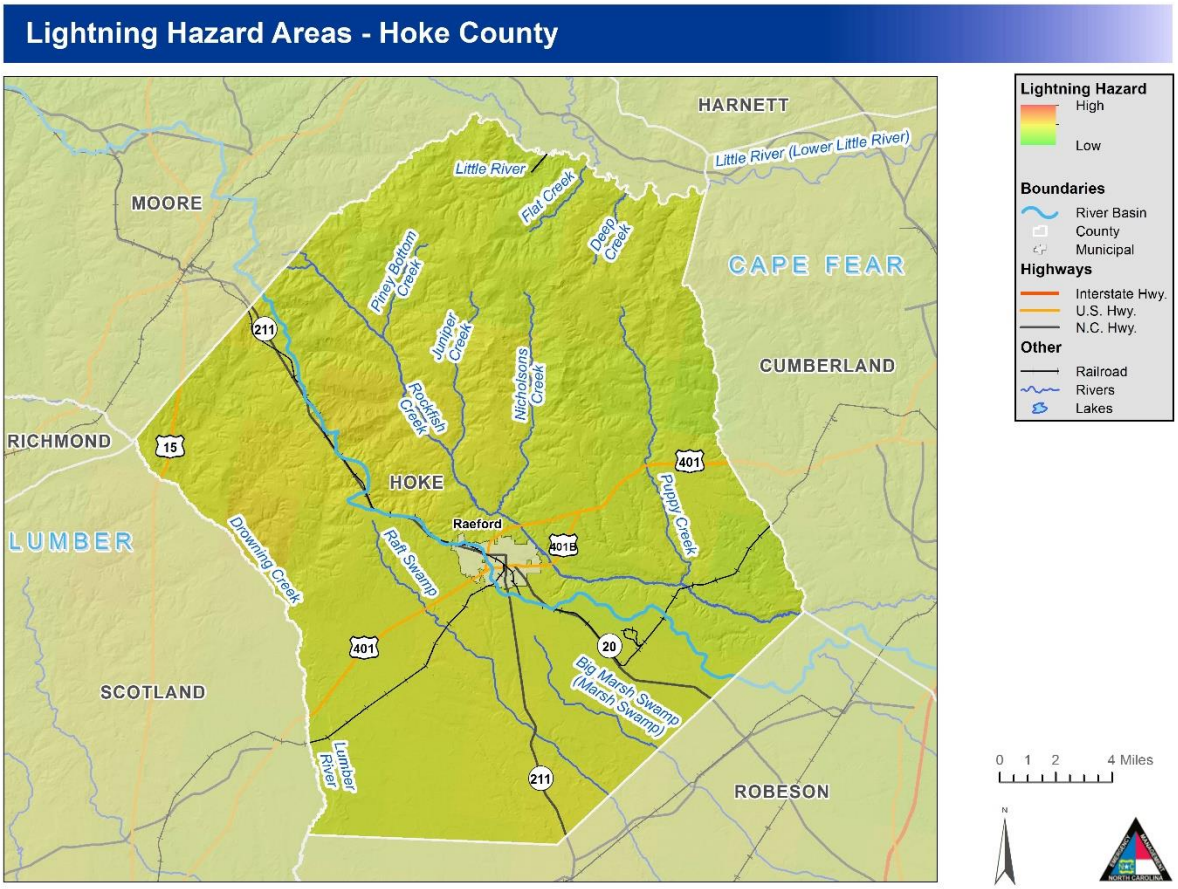


Figure 5-39: Lightning Hazard Areas – Hoke County

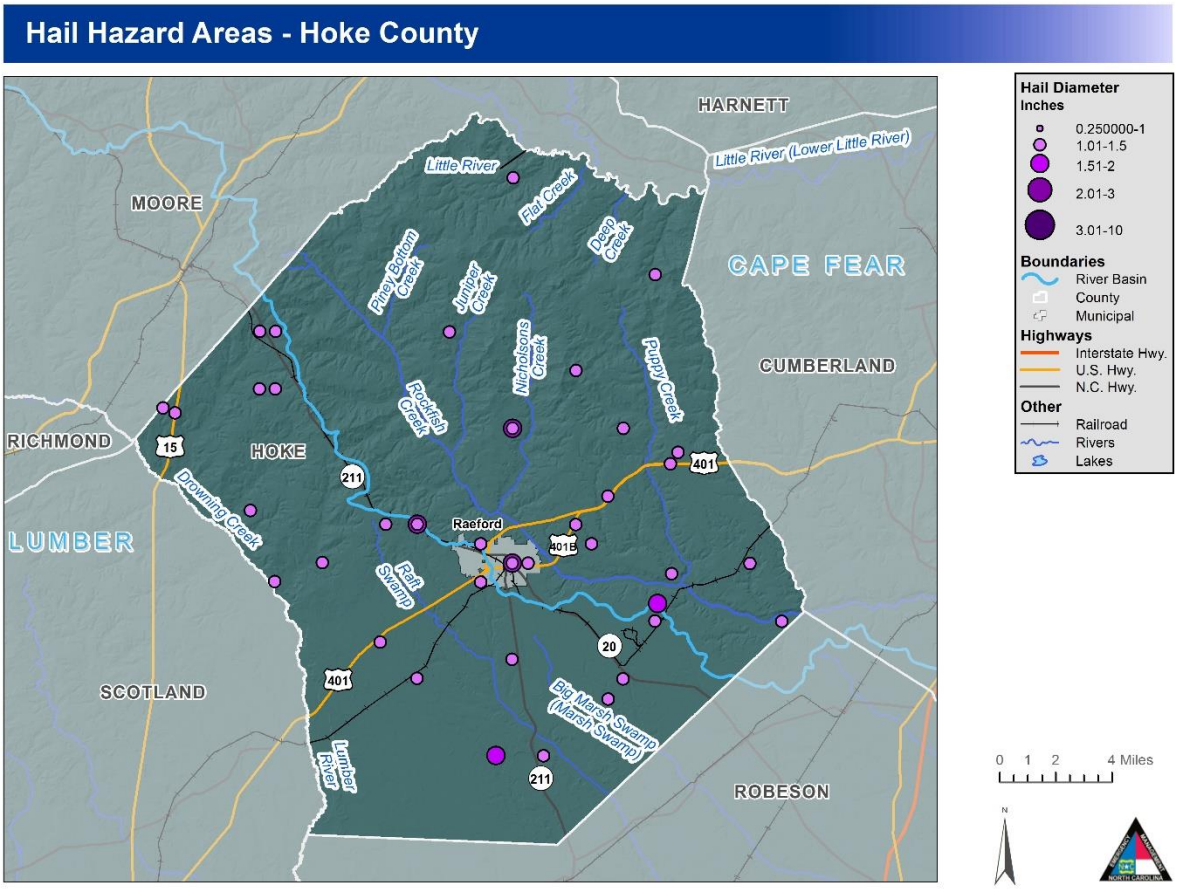


Figure 5-40: Hail Hazard Areas – Hoke County

5.7.3 Extent

Thunderstorm extent is defined by the number of thunder events and wind speeds reported. According to a 69-year history from the National Climatic Data Center, the strongest recorded wind event in the Region was reported on May 16, 2010 at 70 knots (approximately 81 mph). It should be noted that future events may exceed these historical occurrences.

Location	Date	Type	Mag
Cumberland County	3/8/2005	Thunderstorm Wind	57 kts. EG
Fayetteville	7/1/2012	Hail	2.50 in.
Eastover	6/3/2010	Thunderstorm Wind	50 kts. EG
Falcon	7/1/2009	Thunderstorm Wind	50 kts. EG
Godwin	7/5/1997	Thunderstorm Wind	50 kts. EG
Hope Mills	8/23/2003	Lightning	N/A
Linden	7/9/2012	Thunderstorm Wind	50 kts. EG
Spring Lake	7/31/1996	Hail	1.75 in.
Stedman	8/4/1993	Thunderstorm Wind	50 kts. MG
Wade	2/28/1999	Thunderstorm Wind	50 kts. EG
Hoke County	5/16/2010	Thunderstorm Wind	70 kts. EG
Raeford	5/16/2010	Thunderstorm Wind	70 kts. EG

5.7.4 Past Occurrences

Table 5-20 shows detail for severe weather events reported by the NCEI since 2000 for Cumberland and Hoke Counties. There have been over 175 recorded events causing 28 injuries and close to $5M in property damage.

Table 5-20. Severe Weather Events in Cumberland and Hoke Counties

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Spring Lake	07/16/2000	Hail	0.75 in.	0	0	0.00K	0.00K
Cedar Creek	07/16/2000	Hail	1.00 in.	0	0	0.00K	0.00K
Stedman	08/18/2000	Lightning	N/A	0	1	0.00K	0.00K
Hope Mills	08/18/2000	Hail	1.00 in.	0	0	0.00K	0.00K
Hope Mills	08/18/2000	Hail	0.75 in.	0	0	0.00K	0.00K
Beaver Creek	08/18/2000	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
Countywide	08/18/2000	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
Hope Mills	08/18/2000	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
Countywide	08/18/2000	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Fayetteville	09/25/2000	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
Raeford	04/01/2001	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
Fayetteville Arpt	04/01/2001	Thunderstorm Wind	58 kts. M	0	3	0.00K	0.00K
Wade	05/12/2001	Hail	0.75 in.	0	0	0.00K	0.00K
Fayetteville	05/28/2001	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
Rockfish	06/16/2001	Hail	1.00 in.	0	0	0.00K	0.00K
Spring Lake	06/16/2001	Thunderstorm Wind	60 kts. E	0	0	0.00K	0.00K
Fayetteville	06/22/2001	Thunderstorm Wind	60 kts. E	0	0	0.00K	0.00K
Fayetteville	03/31/2002	Hail	1.75 in.	0	0	0.00K	0.00K
Hope Mills	03/31/2002	Hail	1.00 in.	0	0	0.00K	0.00K
Hope Mills	03/31/2002	Hail	0.88 in.	0	0	0.00K	0.00K
Linden	05/13/2002	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
Rockfish	06/06/2002	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
Fayetteville	07/22/2002	Lightning	N/A	0	0	180.00K	0.00K
Fayetteville	08/19/2002	Lightning	N/A	0	0	75.00K	0.00K
Wade	08/19/2002	Lightning	N/A	0	0	10.00K	0.00K
Raeford	11/11/2002	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
Godwin	11/11/2002	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
Fayetteville	04/26/2003	Hail	0.75 in.	0	0	0.00K	0.00K
Eastover	04/26/2003	Hail	1.25 in.	0	0	0.00K	0.00K
Antioch	05/02/2003	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
Fayetteville	05/25/2003	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
Cedar Creek	06/11/2003	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Countywide	07/09/2003	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Stedman	07/11/2003	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	07/19/2003	Hail	1.00 in.	0	0	0.00K	0.00K
Hope Mills	08/18/2003	Hail	0.88 in.	0	0	0.00K	0.00K
Hope Mills	08/23/2003	Lightning	N/A	0	0	105.00K	0.00K
Raeford	04/10/2004	Hail	1.00 in.	0	0	0.00K	0.00K
Raeford	04/11/2004	Hail	1.00 in.	0	0	0.00K	0.00K
Cedar Creek	05/30/2004	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Wade	07/08/2004	Hail	0.75 in.	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Eastover	07/08/2004	Hail	0.75 in.	0	0	0.00K	0.00K
Rockfish	07/10/2004	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	08/12/2004	Hail	1.00 in.	0	0	0.00K	0.00K
Raeford	03/08/2005	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Ft Bragg	03/08/2005	Thunderstorm Wind	57 kts. MG	0	0	1.000M	0.00K
Fayetteville	03/08/2005	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Ft Bragg	05/24/2005	Hail	0.75 in.	0	0	0.00K	0.00K
Raeford	07/13/2005	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Bonnie Doone	07/13/2005	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fayetteville	07/28/2005	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
Arabia	10/22/2005	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Rockfish	10/22/2005	Hail	0.75 in.	0	0	0.00K	0.00K
Hope Mills	10/22/2005	Hail	0.75 in.	0	0	0.00K	0.00K
Stedman	10/22/2005	Hail	0.75 in.	0	0	0.00K	0.00K
Hope Mills	01/02/2006	Hail	0.75 in.	0	0	0.00K	0.00K
Stedman	04/03/2006	Hail	0.88 in.	0	0	0.00K	0.00K
Fayetteville	04/03/2006	Hail	1.50 in.	0	0	0.00K	0.00K
Raeford	04/17/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Hope Mills	04/17/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Hope Mills	04/17/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fayetteville	04/17/2006	Thunderstorm Wind	56 kts. MG	0	0	0.00K	0.00K
Hope Mills	04/17/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Stedman	04/17/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fayetteville	04/17/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Spring Lake	05/18/2006	Hail	0.75 in.	0	0	0.00K	0.00K
Spring Lake	06/05/2006	Hail	0.75 in.	0	0	0.00K	0.00K
Raeford	06/08/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Eastover	06/21/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Rockfish	06/21/2006	Hail	0.75 in.	0	0	0.00K	0.00K
Cedar Creek	07/15/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Cedar Creek	07/15/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Spring Lake	07/19/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Ashley Hgts	07/19/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	07/19/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fayetteville	07/20/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Vander	07/27/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Vander	07/27/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fayetteville	07/27/2006	Lightning	N/A	0	1	0.00K	0.00K
Fayetteville	07/28/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	07/28/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fayetteville	07/28/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fbg)Ft Bragg	03/02/2007	Thunderstorm Wind	55 kts. MG	0	0	0.00K	0.00K
Pope Afb	04/03/2007	Hail	0.75 in.	0	0	0.00K	0.00K
Fayetteville Arpt	04/03/2007	Hail	1.00 in.	0	0	0.00K	0.00K
Spring Lake	06/12/2007	Lightning	N/A	0	0	750.00K	0.00K
Pope Afb	06/12/2007	Hail	0.75 in.	0	0	0.00K	0.00K
Eastover	06/13/2007	Hail	0.75 in.	0	0	0.00K	0.00K
Hope Mills	06/13/2007	Hail	0.75 in.	0	0	0.00K	0.00K
Ashley Hgts	06/13/2007	Hail	0.75 in.	0	0	0.00K	0.00K
(Pob)Pope Afb Fayett	06/29/2007	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
Raeford	07/27/2007	Hail	0.88 in.	0	0	0.00K	0.00K
Fayetteville	08/21/2007	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	03/04/2008	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fenix	03/04/2008	Thunderstorm Wind	51 kts. EG	0	0	0.00K	0.00K
(Fbg)Ft Bragg	03/04/2008	Thunderstorm Wind	51 kts. MG	0	0	0.00K	0.00K
Kornbow	03/15/2008	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Ashmont	05/20/2008	Hail	0.88 in.	0	0	0.00K	0.00K
Mc Cain	05/20/2008	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	05/20/2008	Hail	1.75 in.	0	0	0.00K	0.00K
Ashley Hgts	05/20/2008	Hail	0.75 in.	0	0	0.00K	0.00K
Hope Mills	05/20/2008	Hail	0.75 in.	0	0	0.00K	0.00K
Hope Mills	05/20/2008	Hail	0.75 in.	0	0	0.00K	0.00K
Cumberland	05/20/2008	Hail	1.00 in.	0	0	0.00K	0.00K
Hope Mills	05/20/2008	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Hope Mills	05/20/2008	Hail	1.75 in.	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	05/20/2008	Hail	0.75 in.	0	0	0.00K	0.00K
Raeford Muni Arpt	06/09/2008	Hail	0.75 in.	0	0	0.00K	0.00K
Raeford Muni Arpt	06/09/2008	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Rockfish	06/09/2008	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Godwin	06/14/2008	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Pob)Pope Afb Fayett	06/20/2008	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	06/20/2008	Hail	0.75 in.	0	0	0.00K	0.00K
Cedar Creek	06/22/2008	Hail	0.75 in.	0	0	0.00K	0.00K
Vander	07/22/2008	Thunderstorm Wind	53 kts. EG	0	0	0.00K	0.00K
Godwin	07/22/2008	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Godwin	07/22/2008	Hail	0.75 in.	0	0	0.00K	0.00K
Stedman	07/22/2008	Hail	0.88 in.	0	0	0.00K	0.00K
Dundarrach	07/22/2008	Thunderstorm Wind	53 kts. EG	0	0	0.00K	0.00K
Raeford Muni Arpt	07/31/2008	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fbg)Ft Bragg	08/07/2008	Hail	1.75 in.	0	0	25.00K	0.00K
Fayetteville	08/07/2008	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	08/07/2008	Thunderstorm Wind	51 kts. EG	0	0	0.00K	0.00K
Cedar Creek	08/07/2008	Hail	0.88 in.	0	0	0.00K	0.00K
Stedman	08/07/2008	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Godwin	10/01/2008	Hail	0.75 in.	0	0	0.00K	0.00K
Beaver Creek	04/06/2009	Lightning	N/A	0	0	6.00K	0.00K
Ashmont	04/24/2009	Hail	0.88 in.	0	0	0.00K	0.00K
Bowmore	04/24/2009	Hail	0.75 in.	0	0	0.00K	0.00K
Raeford	05/02/2009	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
Hope Mills	05/07/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Cedar Creek	05/29/2009	Hail	0.88 in.	0	0	0.00K	0.00K
Raeford	06/01/2009	Hail	0.75 in.	0	0	0.00K	0.00K
Raeford Muni Arpt	06/01/2009	Hail	0.88 in.	0	0	0.00K	0.00K
Timberland	06/01/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Bowmore	06/26/2009	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
Fayetteville	06/26/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Vander	06/26/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Falcon	07/01/2009	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
(Fay)Grannis Fld Fay	07/01/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Falcon	07/01/2009	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Fenix	07/16/2009	Lightning	N/A	0	0	75.00K	0.00K
Linden	07/17/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Slocomb	07/17/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Methodist College	07/17/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Cumberland	07/27/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Shaw	07/28/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Wade	07/28/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Arabia	07/31/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	07/31/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Cumberland	08/03/2009	Hail	0.75 in.	0	0	0.00K	0.00K
Ashley Hgts	08/05/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Antioch	08/05/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Five Pts	08/17/2009	Hail	0.75 in.	0	0	0.00K	0.00K
Skibo	09/25/2009	Lightning	N/A	0	2	0.00K	0.00K
Raeford Muni Arpt	05/16/2010	Thunderstorm Wind	70 kts. EG	0	1	300.00K	0.00K
Raeford Muni Arpt	05/16/2010	Hail	1.00 in.	0	0	0.00K	0.00K
Beaver Creek	05/23/2010	Lightning	N/A	0	0	10.00K	0.00K
Raeford Muni Arpt	05/28/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Eastover	06/13/2010	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
Sanatorium	06/14/2010	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Bowmore	06/23/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Methodist College	06/29/2010	Lightning	N/A	0	0	10.00K	0.00K
Raeford	06/29/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Arabia	06/29/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Rockfish	06/29/2010	Lightning	N/A	0	0	10.00K	0.00K
Hope Mills	06/29/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	06/29/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Edenburg	07/08/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Rockfish	09/26/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford Muni Arpt	09/26/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Rockfish	11/17/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fenix	11/17/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Hope Mills	11/17/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Stedman	11/17/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford Muni Arpt	02/28/2011	Lightning	N/A	0	0	50.00K	0.00K
Shaw Hgts	04/05/2011	Thunderstorm Wind	51 kts. MG	0	0	0.00K	0.00K
Slocomb	04/05/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Rockfish	05/22/2011	Hail	1.00 in.	0	0	0.00K	0.00K
Arabia	05/22/2011	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Manchester	05/27/2011	Hail	1.00 in.	0	0	0.00K	0.00K
Timberland	06/18/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Shaw Hgts	06/18/2011	Thunderstorm Wind	50 kts. MG	0	0	0.00K	0.00K
Fayetteville	06/18/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Shaw Hgts	06/21/2011	Hail	1.00 in.	0	0	0.00K	0.00K
Stedman	06/21/2011	Hail	1.00 in.	0	0	0.00K	0.00K
Fayetteville	06/21/2011	Hail	1.00 in.	0	0	0.00K	0.00K
Skibo	06/21/2011	Hail	1.75 in.	0	0	0.00K	0.00K
Rockfish	06/21/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Spring Lake	06/21/2011	Hail	1.00 in.	0	0	0.00K	0.00K
Kornbow	06/21/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fayetteville	06/21/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Antioch	06/23/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Hope Mills	06/23/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Cumberland	06/28/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	07/06/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	08/07/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Cedar Creek	08/07/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Stedman	08/07/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fenix	08/14/2011	Lightning	N/A	0	0	100.00K	0.00K
Shaw	08/21/2011	Lightning	N/A	0	0	15.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Hope Mills	08/29/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Dundarrach	08/29/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Hope Mills	12/07/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Slocomb	12/07/2011	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
Five Pts	03/17/2012	Hail	1.00 in.	0	0	0.00K	0.00K
Manchester	05/05/2012	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Bonnie Doone	05/23/2012	Hail	0.75 in.	0	0	0.00K	0.00K
Cedar Creek	06/01/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	06/23/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	06/23/2012	Thunderstorm Wind	51 kts. MG	0	0	0.00K	0.00K
Raeford Muni Arpt	07/01/2012	Hail	1.00 in.	0	0	0.00K	0.00K
Shaw	07/01/2012	Hail	1.75 in.	0	0	0.00K	0.00K
Shaw	07/01/2012	Hail	1.00 in.	0	0	0.00K	0.00K
Bonnie Doone	07/01/2012	Hail	1.75 in.	0	0	0.00K	0.00K
Silver City	07/01/2012	Hail	1.00 in.	0	0	0.00K	0.00K
Skibo	07/01/2012	Hail	1.75 in.	0	0	0.00K	0.00K
Raeford	07/01/2012	Hail	1.00 in.	0	0	0.00K	0.00K
Fayetteville	07/01/2012	Hail	1.25 in.	0	0	0.00K	0.00K
Fayetteville	07/01/2012	Hail	1.75 in.	0	0	0.00K	0.00K
Fayetteville	07/01/2012	Hail	2.50 in.	0	0	1.000M	0.00K
Eastover	07/01/2012	Hail	1.00 in.	0	0	0.00K	0.00K
East Fayetteville	07/01/2012	Hail	2.50 in.	0	0	0.00K	0.00K
Arabia	07/01/2012	Hail	1.75 in.	0	0	0.00K	0.00K
Cooper	07/01/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
East Fayetteville	07/01/2012	Hail	1.00 in.	0	0	0.00K	0.00K
East Fayetteville	07/01/2012	Hail	1.75 in.	0	0	0.00K	0.00K
Lakedale	07/01/2012	Thunderstorm Wind	50 kts. EG	0	1	2.50K	0.00K
(Fay)Grannis Fld Fay	07/01/2012	Hail	1.00 in.	0	0	0.00K	0.00K
Stedman	07/01/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Silver City	07/04/2012	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
Linden	07/09/2012	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
Timberland	07/09/2012	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Slocomb	07/09/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	07/10/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford Muni Arpt	07/10/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fayetteville	07/24/2012	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Kornbow	07/24/2012	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
Kornbow	07/24/2012	Thunderstorm Wind	50 kts. EG	0	0	30.00K	0.00K
(Fbg)Ft Bragg	07/24/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fayetteville	07/24/2012	Thunderstorm Wind	50 kts. EG	0	0	100.00K	0.00K
Raeford Muni Arpt	07/24/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Skibo	08/02/2012	Hail	1.00 in.	0	0	0.00K	0.00K
(Pob)Pope Afb Fayett	08/02/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Bonnie Doone	08/02/2012	Hail	1.50 in.	0	0	0.00K	0.00K
Owens	08/02/2012	Hail	1.00 in.	0	0	0.00K	0.00K
Fenix	09/01/2012	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
Fenix	09/01/2012	Lightning	N/A	0	0	500.00K	0.00K
Raeford	06/13/2013	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
Shaw Hgts	06/13/2013	Thunderstorm Wind	53 kts. MG	0	0	0.00K	0.00K
Lakedale	06/13/2013	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
Ashmont	06/13/2013	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	06/25/2013	Hail	1.00 in.	0	0	0.00K	0.00K
Raeford	06/25/2013	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Hope Mills	06/26/2013	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Edenburg	06/27/2013	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Hope Mills	09/03/2013	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
Silver City	02/21/2014	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	02/21/2014	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fbg)Ft Bragg	04/25/2014	Hail	1.00 in.	0	0	0.00K	0.00K
Spring Lake	04/25/2014	Hail	1.25 in.	0	0	0.00K	0.00K
Spring Lake	04/25/2014	Hail	1.00 in.	0	0	0.00K	0.00K
Manchester	04/25/2014	Hail	1.00 in.	0	0	0.00K	0.00K
Raeford Muni Arpt	04/28/2014	Hail	1.00 in.	0	0	0.00K	0.00K
Antioch	04/28/2014	Hail	1.75 in.	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Cumberland	04/29/2014	Hail	1.00 in.	0	0	0.00K	0.00K
Rockfish	06/17/2014	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
Bonnie Doone	06/19/2014	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Cedar Creek	06/19/2014	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	06/19/2014	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
East Fayetteville	06/19/2014	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Cedar Creek	06/19/2014	Hail	1.00 in.	0	0	0.00K	0.00K
East Fayetteville	09/02/2014	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
Clifdale	09/02/2014	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	04/09/2015	Hail	1.00 in.	0	0	0.00K	0.00K
Cumberland	06/09/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Owens	06/18/2015	Hail	1.00 in.	0	0	0.00K	0.00K
Kornbow	06/19/2015	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
Owens	06/19/2015	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
Lakedale	06/19/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Lakedale	06/19/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	06/19/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Eastover	06/19/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Lakedale	06/19/2015	Thunderstorm Wind	50 kts. EG	0	0	2.50K	0.00K
Eastover	06/19/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	06/19/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Eastover	06/19/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	06/19/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Pob)Pope Afb Fayett	06/26/2015	Hail	1.00 in.	0	0	0.00K	0.00K
Dundarrach	06/26/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Bowmore	06/30/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fayetteville	06/30/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fbg)Ft Bragg	07/08/2015	Thunderstorm Wind	64 kts. MG	0	0	0.00K	0.00K
Shaw Hgts	07/08/2015	Thunderstorm Wind	50 kts. EG	0	0	7.50K	0.00K
Clifdale	08/19/2015	Lightning		0	18	0.00K	0.00K
Hope Mills	02/24/2016	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Hope Mills	02/24/2016	Hail	1.50 in.	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Rockfish	05/03/2016	Hail	1.00 in.	0	0	0.00K	0.00K
Cumberland	05/03/2016	Hail	1.00 in.	0	0	0.00K	0.00K
Arabia	05/03/2016	Hail	1.25 in.	0	0	0.00K	0.00K
Cedar Creek	05/03/2016	Hail	1.00 in.	0	0	0.00K	0.00K
Rockfish	05/12/2016	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
Arabia	05/29/2016	Lightning	N/A	0	1	25.00K	0.00K
(Fay)Grannis Fld Fay	06/05/2016	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
(Fay)Grannis Fld Fay	06/05/2016	Hail	1.75 in.	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	06/05/2016	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Stedman	06/05/2016	Hail	1.00 in.	0	0	0.00K	0.00K
Stedman	06/05/2016	Hail	1.75 in.	0	0	0.00K	0.00K
Five Pts	06/05/2016	Thunderstorm Wind	50 kts. EG	0	0	2.50K	0.00K
Raeford Muni Arpt	06/05/2016	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Wade	06/15/2016	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fbg)Ft Bragg	07/04/2016	Thunderstorm Wind	51 kts. MG	0	0	0.00K	0.00K
(Fbg)Ft Bragg	07/04/2016	Thunderstorm Wind	52 kts. MG	0	0	0.00K	0.00K
(Fbg)Ft Bragg	07/07/2016	Thunderstorm Wind	50 kts. MG	0	0	0.00K	0.00K
Edenburg	07/11/2016	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Five Pts	07/11/2016	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fbg)Ft Bragg	07/15/2016	Thunderstorm Wind	53 kts. MG	0	0	0.00K	0.00K
Cooper	07/15/2016	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	07/16/2016	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Silver City	07/16/2016	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	07/19/2016	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford	07/19/2016	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K
Raeford	07/19/2016	Thunderstorm Wind	50 kts. EG	0	0	2.50K	0.00K
Wade	09/28/2016	Hail	1.00 in.	0	0	0.00K	0.00K
Stedman	04/06/2017	Hail	1.00 in.	0	0	0.00K	0.00K
Cedar Creek	05/05/2017	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Stedman	05/05/2017	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Stedman	05/05/2017	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Stedman	06/14/2017	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Hope Mills	06/14/2017	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Eastover	07/06/2017	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
Clifdale	07/23/2017	Hail	0.88 in.	0	0	0.00K	0.00K
Lakedale	07/23/2017	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
Montrose	09/01/2017	Thunderstorm Wind	60 kts. EG	0	0	25.00K	0.00K
Raeford	04/15/2018	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Silver City	04/15/2018	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
(Fbg)Ft Bragg	04/15/2018	Thunderstorm Wind	60 kts. MG	0	0	0.00K	0.00K
Antioch	04/24/2018	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Dundarrach	04/24/2018	Hail	1.00 in.	0	0	0.00K	0.00K
Slocomb	06/24/2018	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Arabia	06/25/2018	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K
Arabia	06/25/2018	Hail	1.00 in.	0	0	0.00K	0.00K
Lakedale	06/25/2018	Hail	0.75 in.	0	0	0.00K	0.00K
Kornbow	06/25/2018	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fayetteville	06/25/2018	Hail	1.50 in.	0	0	0.00K	0.00K
Sanatorium	06/25/2018	Hail	1.50 in.	0	0	0.00K	0.00K
Rockfish	06/25/2018	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Godwin	08/02/2018	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
Owens	08/03/2018	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Fenix	08/08/2018	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Owens	08/08/2018	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Manchester	09/17/2018	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford Muni Arpt	04/19/2019	Thunderstorm Wind	50 kts. EG	0	0	0.00K	5.00K
(Fbg)Ft Bragg	04/19/2019	Thunderstorm Wind	50 kts. MG	0	0	0.00K	0.00K
Bowmore	04/19/2019	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(Fay)Grannis Fld Fay	04/19/2019	Thunderstorm Wind	56 kts. MG	0	0	0.00K	0.00K
Raeford	05/04/2019	Thunderstorm Wind	50 kts. EG	0	0	2.50K	0.00K
(Fbg)Ft Bragg	05/30/2019	Thunderstorm Wind	52 kts. MG	0	0	0.00K	0.00K
Shaw Hgts	05/30/2019	Thunderstorm Wind	56 kts. MG	0	0	0.00K	0.00K
Silver City	06/05/2019	Hail	1.25 in.	0	0	0.00K	0.00K
Fenix	08/19/2019	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
East Fayetteville	08/19/2019	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
(Fay)Grannis Fld Fay	08/19/2019	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Dundarrach	01/12/2020	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford Muni Arpt	01/12/2020	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Raeford Muni Arpt	01/12/2020	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K
Clifdale	02/06/2020	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
Cumberland	04/13/2020	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
Vander	04/13/2020	Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
Raeford	04/26/2020	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Stedman	07/28/2020	Thunderstorm Wind	50 kts. EG	0	0	50.00K	0.00K
Totals:				0	28	4.681M	5.00K

According to NCDC 346 recorded instances of Thunderstorm Winds conditions have affected the planning area causing an estimated $1,756,500 in losses to property, $5,000 in losses to agricultural crops, 0 death(s), and 13 injury(ies).

Table 5-21 provides a summary of this historical information by participating jurisdiction. It is important to note that many of the events attributed to the county are countywide or cover large portions of the county. The individual counts by jurisdiction are for those events that are only attributed to that one jurisdiction.

Table 5-21. Summary of Historical Thunderstorm Winds Occurrences by Participating Jurisdiction

Jurisdiction	Number of Occurrences	Deaths	Injuries	Reported Property Damage	Reported Property Damage (PV)	Reported Crop Damage	Reported Crop Damage (PV)
Cumberland							
City Of Fayetteville	88	0	6	$173,000	$20,641	$0	$0
Cumberland County (Unincorporated Area)	109	0	2	$1,131,500	$163,459	$0	$0
Town Of Eastover	4	0	0	$10,000	$6,102	$0	$0
Town Of Falcon	3	0	0	$6,000	$2,782	$0	$0
Town Of Godwin	3	0	0	$15,000	$6,844	$0	$0
Town Of Hope Mills	6	0	0	$5,000	$1,640	$0	$0
Town Of Spring Lake	19	0	1	$5,000	$561	$0	$0
Town Of Stedman	3	0	0	$8,000	$5,681	$0	$0

Town Of Wade	2	0	0	$20,000	$9,490	$0	$0
Subtotal Cumberland	**237**	**0**	**9**	**$1,373,500**	**$217,200**	**$0**	**$0**
Hoke							
City Of Raeford	24	0	0	$19,000	$4,746	$0	$0
Hoke County (Unincorporated Area)	85	0	4	$364,000	$54,275	$5,000	$746
Subtotal Hoke	**109**	**0**	**4**	**$383,000**	**$59,022**	**$5,000**	**$746**
TOTAL PLAN	**346**	**0**	**13**	**$1,756,500**	**$276,222**	**$5,000**	**$746**

Source: National Climatic Data Center (NCDC) Storm Events Database and or potential user entered data.

According to NCDC, 197 recorded instances of thunderstorm, lightning, and hail conditions have affected the planning area causing an estimated $1,025,000 in property damages, $0 in crop damages, 0 death(s), and 0 reported injuries.

Table 5-22 provides a summary of this historical information by participating jurisdiction. It is important to note that many of the events attributed to the county are countywide or cover large portions of the county. The individual counts by jurisdiction are for those events that are only attributed to that one jurisdiction.

Table 5-22. Summary of Historical Hail Occurrences by Participating Jurisdiction

Jurisdiction	Number of Occurrences	Deaths	Injuries	Reported Property Damage	Reported Property Damage (PV)	Reported Crop Damage	Reported Crop Damage (PV)
Cumberland							
City Of Fayetteville	44	0	0	$1,000,000	$176,728	$0	$0
Cumberland County (Unincorporated Area)	64	0	0	$25,000	$4,888	$0	$0
Town Of Eastover	7	0	0	$0	$0	$0	$0
Town Of Falcon	1	0	0	$0	$0	$0	$0
Town Of Godwin	2	0	0	$0	$0	$0	$0
Town Of Hope Mills	11	0	0	$0	$0	$0	$0
Town Of Spring Lake	10	0	0	$0	$0	$0	$0
Town Of Stedman	1	0	0	$0	$0	$0	$0
Town Of Wade	2	0	0	$0	$0	$0	$0
Subtotal Cumberland	**142**	**0**	**0**	**$1,025,000**	**$181,616**	**$0**	**$0**
Hoke							
City Of Raeford	11	0	0	$0	$0	$0	$0

Hoke County (Unincorporated Area)	44	0	0	$0	$0	$0	$0
Subtotal Hoke	**55**	**0**	**0**	**$0**	**$0**	**$0**	**$0**
TOTAL PLAN	**197**	**0**	**0**	**$1,025,000**	**$181,616**	**$0**	**$0**

Source: National Climatic Data Center (NCDC) Storm Events Database and or potential user entered data.

5.7.5 Probability of Future Occurrences

Based on the analyses performed in IRISK, the probability of future Thunderstorm Winds is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Low: Less Than 0.2% Annual Probability Of 50-Year Event
- Medium: Between 0.2% And 2% Annual Probability Of 50-Year Event
- High: More Than 2% Annual Probability Of 50-Year Event

Jurisdiction	Calculated Probability (IRISK)
City Of Fayetteville	Medium
City Of Raeford	Medium
Cumberland County (Unincorporated Area)	Medium
Hoke County (Unincorporated Area)	Medium
Town Of Eastover	Medium
Town Of Falcon	Medium
Town Of Godwin	Medium
Town Of Hope Mills	Medium
Town Of Linden	Medium
Town Of Spring Lake	Medium
Town Of Stedman	Medium
Town Of Wade	Medium

Climate Change and Severe Weather

As discussed in subsection 5.6, research shows that the increasing trend in strength, frequency and duration of hurricanes from the Atlantic Ocean since the early 1980s will continue. According to the U.S. Global Change Research Program, there is low confidence however, on other trends in severe storms (21).

The frequency and intensity of individual rainfall events associated with thunderstorms is likely to increase which can overwhelm local stormwater drainage systems, leading to street flooding and ponded water.

5.7.6 Consequence and Impact Analysis

People

Thunderstorms are generally associated with hazards such as high wind, lightning and hail. High wind can cause trees to fall and potentially result in injuries or death and lightning can lead to house fires and serious injury. Hail can cause injury as well as severe property damage to homes and automobiles. All jurisdictions are vulnerable to this impact.

First Responders

First responders can be impacted in the same way as the general public. Downed trees, power lines and flood waters may prevent access to areas in need which prolongs response time.

Continuity of Operations

Thunderstorm events can result in a loss of power which may impact operations. Downed trees, power lines and flash flooding may prevent access to critical facilities and/or emergency equipment.

Built Environment

Thunderstorms can cause damage to commercial buildings and homes due to strong winds, lightning strikes and hail. Heavy rains associated with thunderstorm events may also lead to flash flooding which can damage roads and bridges.

Economy

Economic damages include property damage from wind, lightning and hail, and also include intangibles such as business interruption and additional living expenses.

Natural Environment

Thunderstorms have a huge impact on the environment. One of the most dangerous outcomes for the environment is when lightning causes sparks to flare up in surrounding forests or immense shrubs. This is often the cause of bush fires, which then spread quickly due to the fast winds that accompany the storm. High winds can also damage crops and trees. Flooding can kill animals and cause soil erosion.

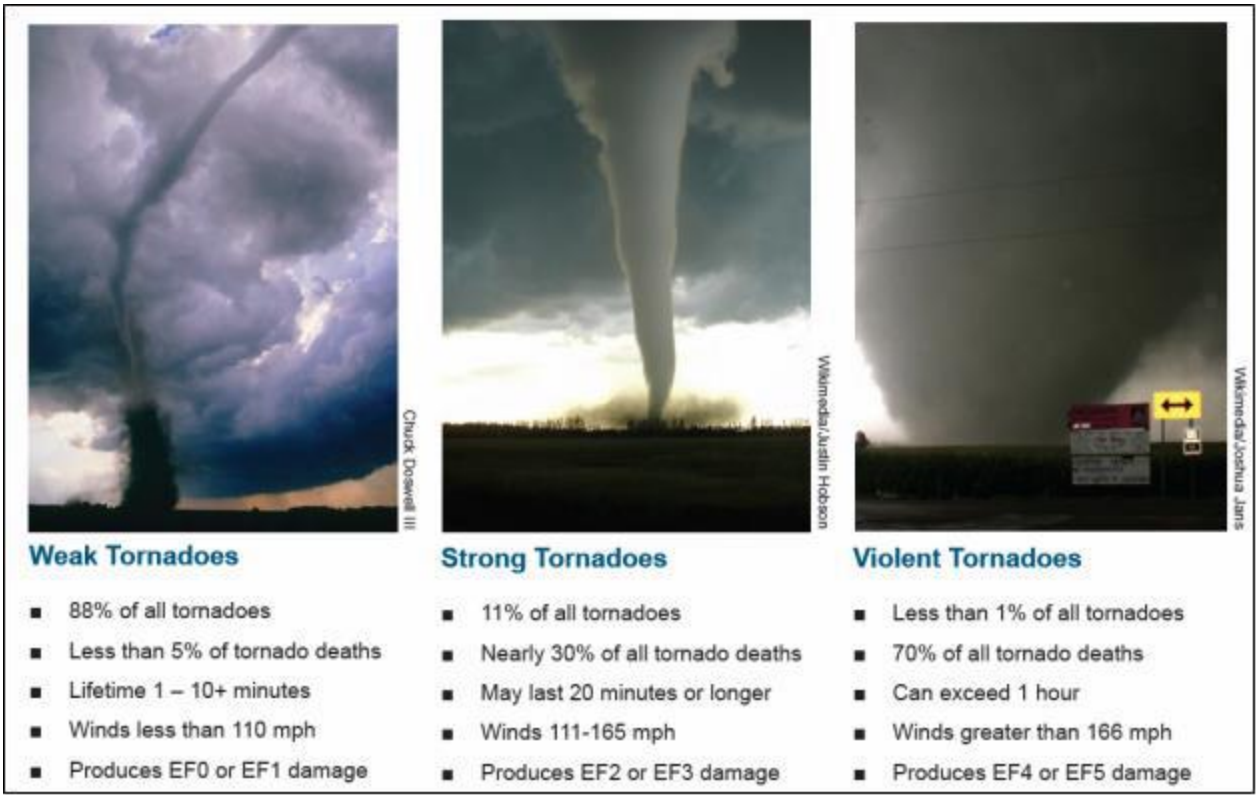
5.8 Tornado

5.8.1 Hazard Description

According to the Glossary of Meteorology (AMS 2000), a tornado is "a violently rotating column of air, pendant from a cumuliform cloud or underneath a cumuliform cloud, and often (but not always) visible as a funnel cloud." Tornadoes can appear from any direction. Most move from southwest to northeast, or west to east. Some tornadoes have changed direction amid path, or even backtracked.

Tornadoes are commonly produced by land falling tropical cyclones. Those making landfall along the Gulf coast traditionally produce more tornadoes than those making landfall along the Atlantic coast. Tornadoes that form within hurricanes are more common in the right front quadrant with respect to the forward direction but can occur in other areas as well. According to the NHC, about 10% of the tropical cyclone-related fatalities are caused by tornadoes. Tornadoes are more likely to be spawned within 24 hours of landfall and are usually within 30 miles of the tropical cyclone's center.

Tornadoes have the potential to produce winds in excess of 200 mph (EF5 on the Enhanced Fujita Scale) and can be very expansive – some in the Great Plains have exceeded two miles in width. Tornadoes associated with tropical cyclones, however, tend to be of lower intensity (EF0 to EF2) and much smaller in size than ones that form in the Great Plains.



Source: NOAA National Weather Service

Prior to February 1, 2007, tornado intensity was measured by the Fujita (F) scale. This scale was revised and is now the Enhanced Fujita scale. Both scales are sets of wind estimates (not measurements) based on damage. The new scale provides more damage indicators (28) and associated degrees of damage, allowing for more detailed analysis, better correlation between damage and wind speed. It is also more precise because it takes into account the materials affected and the construction of structures damaged by a tornado. ***Table 5-23*** shows the wind speeds associated with the enhanced Fujita scale ratings and the damage that could result at different levels of intensity.

Table 5-23. Enhanced Fujita (EF) Scale

EF Number	3 Second Gust (mph)	Damage
0	65-85	**Light damage.** Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
1	96-110	**Moderate damage.** Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
2	111-135	**Considerable damage.** Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
3	136-165	**Severe damage.** Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
4	166-200	**Devastating damage.** Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
5	Over 200	**Incredible damage.** Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m; high-rise buildings have significant structural deformation; incredible phenomena will occur.

5.8.2 Location and Spatial Extent

Although tornadoes can occur in most locations, most of the tornado activity in the United States exists in the Mid-West and Southeast. An exact season does not exist for tornadoes; however, most occur within the time period of early spring to middle summer (February – June). Figure 5.41 shows tornado activity in the United States based on the number of recorded tornadoes per 1,000 square miles.

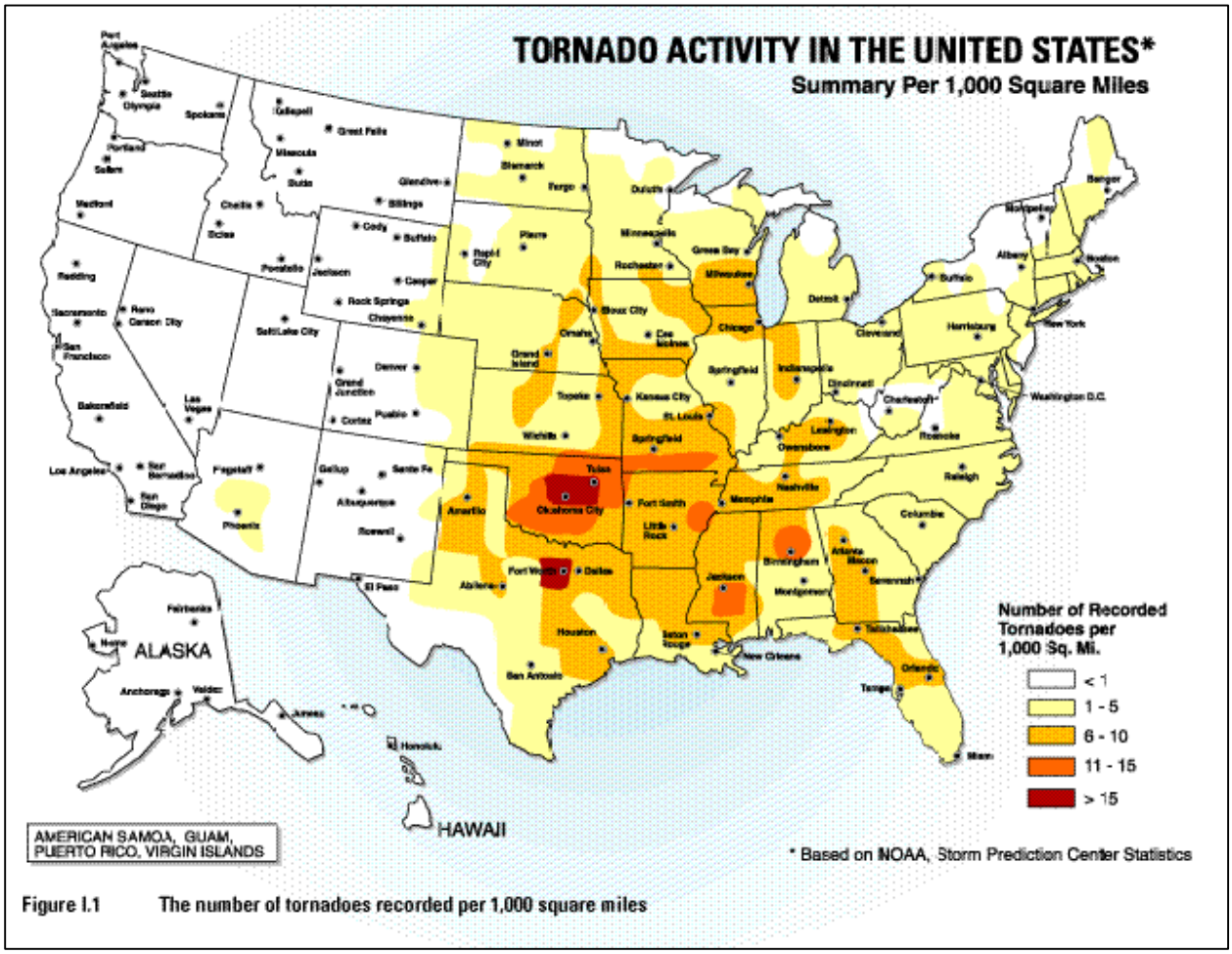


Figure 5-41. Tornado Activity in the United States

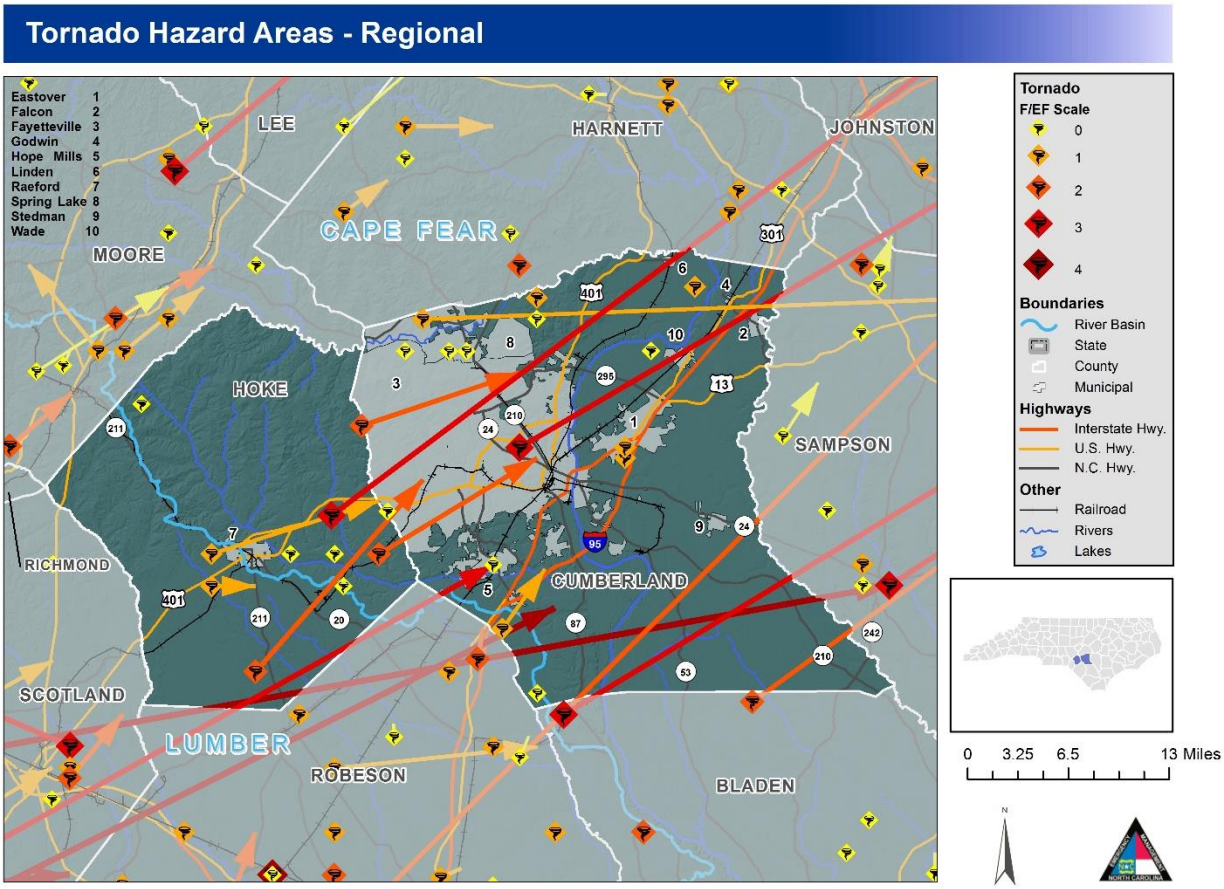


Figure 5-42: Tornado Hazard Areas – Regional

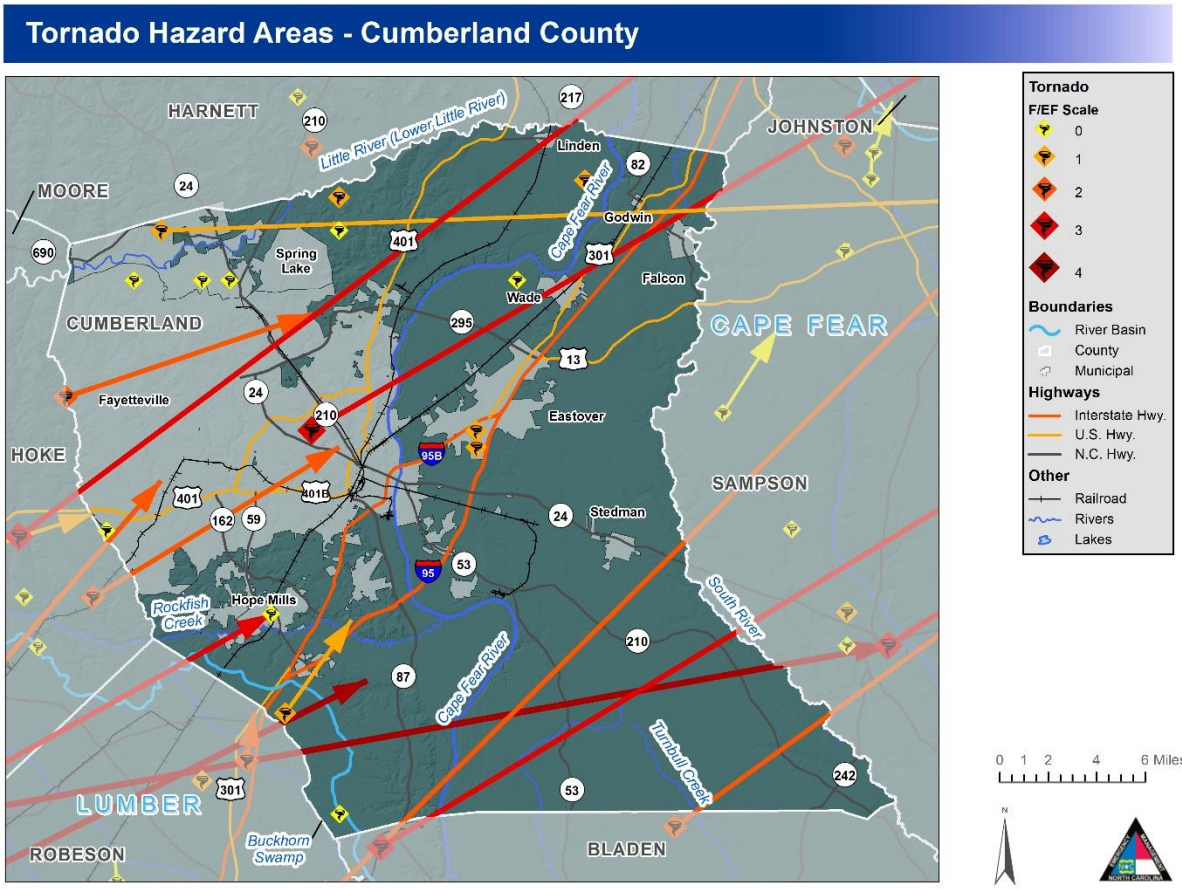


Figure 5-43: Tornado Hazard Areas – Cumberland County

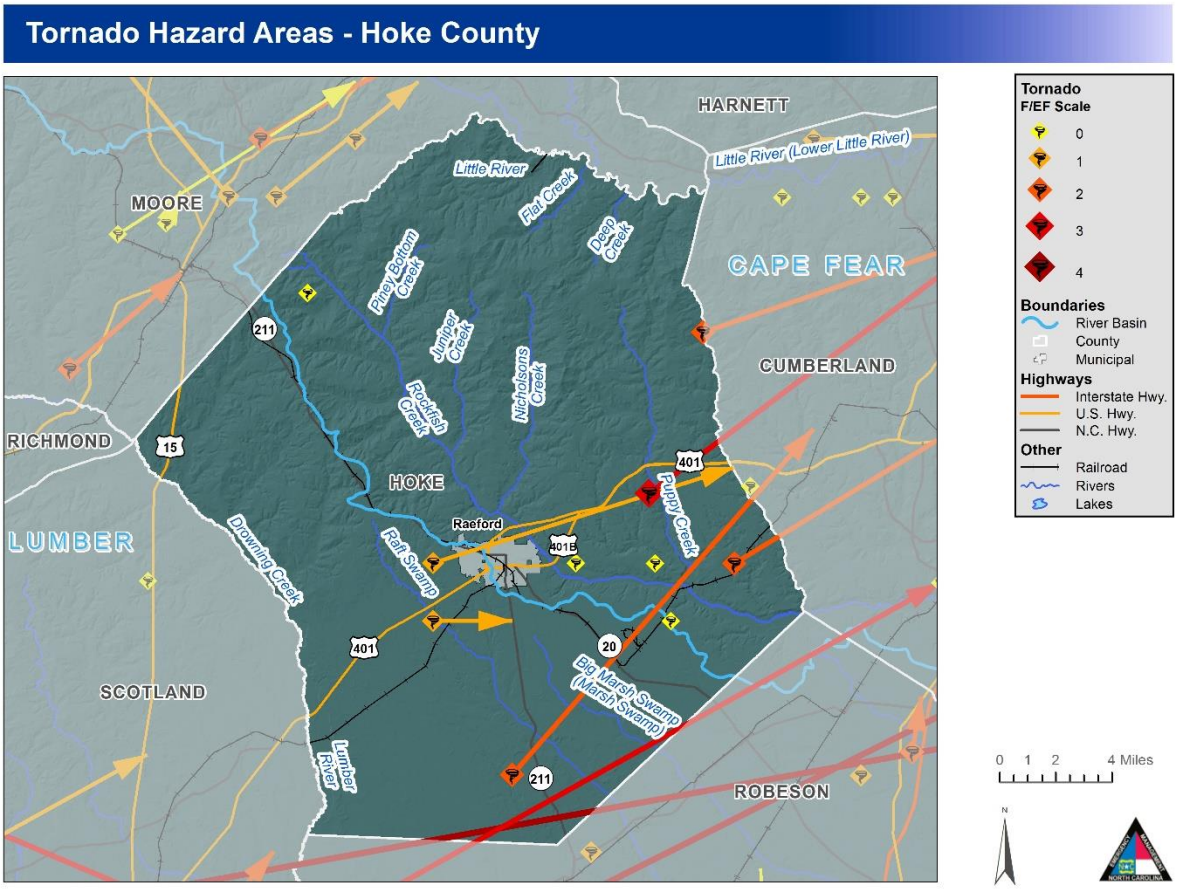


Figure 5-44: Tornado Hazard Areas – Hoke County

5.8.3 Extent

Tornado hazard extent is measured by tornado occurrences in the US provided by the Fujita/Enhanced Fujita Scale. The table below provides the highest recorded events in the jurisdictions (except Falcon, Godwin, Linden, Wade and Raeford; which haven't experienced tornadoes in their jurisdictions according to NCDC) in the Region below. It should be noted that jurisdictions can be affected by these events even though it is not depicted in the table.

Location	Date	Mag
Cumberland County	3/28/1984	F4
Fayetteville	2/21/1971	F3
Eastover	10/4/1960	F1
Falcon	N/A	N/A
Godwin	N/A	N/A
Hope Mills	3/27/2009	EF1
Linden	N/A	N/A
Spring Lake	3/15/1971	F1
Stedman	4/29/2014	EF1
Wade	N/A	N/A
Hoke County	2/11/1981	F2
Raeford	N/A	N/A

5.8.4 Past Occurrences

The following historical occurrences ranging from 1957 to 2020 have been identified based on the NCDC Storm Events database in ***Table 5-24***. It should be noted that only those historical occurrences listed in the NCDC database are shown here and that other, unrecorded or unreported events may have occurred within the planning area during this timeframe.

Table 5-24. Historical Occurrences of Tornado (1957 to 2020)

Location	Date	Magnitude	Deaths	Injuries	Reported Property Damage	Reported Property Damage (PV)	Reported Crop Damage	Reported Crop Damage (PV)
Cumberland								
City Of Fayetteville	02/22/71	EF3	2	60	$2,500,000	$452,122	$0	$0
City Of Fayetteville	09/08/04	EF0	0	0	0	$0	0	$0
City Of Fayetteville	04/16/11	EF3	1	85	$100,000,000	$72,022,644	$0	$0
Cumberland County (Unincorporated Area)	04/08/57	EF4	4	32	$250,000	$28,047	$0	$0

Cumberland County (Unincorporated Area)	06/02/59	EF0	0	0	$25,000	$3,020	$0	$0
Cumberland County (Unincorporated Area)	02/22/71	EF3	0	0	$250	$45	$0	$0
Cumberland County (Unincorporated Area)	05/29/73	EF1	0	0	$25,000	$4,888	$0	$0
Cumberland County (Unincorporated Area)	08/02/74	EF0	0	0	$25,000	$5,089	$0	$0
Cumberland County (Unincorporated Area)	03/28/84	EF3	2	11	$25,000,000	$7,097,791	$0	$0
Cumberland County (Unincorporated Area)	03/28/84	EF4	0	0	$2,500,000	$709,779	$0	$0
Cumberland County (Unincorporated Area)	05/19/86	EF2	0	0	$250,000	$76,400	$0	$0
Cumberland County (Unincorporated Area)	08/28/88	EF1	0	0	$250,000	$82,634	$0	$0
Cumberland County (Unincorporated Area)	11/04/92	EF0	0	0	$0	$0	$0	$0
Cumberland County (Unincorporated Area)	11/04/92	EF0	0	0	$0	$0	$0	$0
Cumberland County (Unincorporated Area)	11/04/92	EF0	0	0	$0	$0	$0	$0
Cumberland County (Unincorporated Area)	03/27/09	EF1	0	0	$225,000	$151,016	$0	$0
Cumberland County (Unincorporated Area)	04/29/14	EF1	0	0	$50,000	$39,981	$0	$0
Town Of Eastover	10/04/60	EF1	0	0	$25,000	$3,162	$0	$0
Town Of Eastover	12/26/64	EF1	0	1	$2,500	$366	$0	$0
Town Of Hope Mills	05/28/00	EF0	0	0	0	$0	0	$0
Town Of Spring Lake	03/15/71	EF1	0	0	$250,000	$45,306	$0	$0
Town Of Spring Lake	12/17/00	EF0	0	0	0	$0	0	$0
Subtotal Cumberland	**22 Events**		**9**	**189**	**$131,377,750**	**$80,722,292**	**$0**	**$0**
Hoke								
Hoke County (Unincorporated Area)	09/29/63	EF2	0	0	$250,000	$35,039	$0	$0
Hoke County (Unincorporated Area)	03/24/75	EF1	0	0	$250	$52	$0	$0
Hoke County (Unincorporated Area)	02/11/81	EF2	1	0	$250,000	$63,732	$0	$0
Hoke County (Unincorporated Area)	02/11/81	EF2	0	0	$250,000	$63,732	$0	$0
Hoke County (Unincorporated Area)	05/19/86	EF2	0	5	$250,000	$76,400	$0	$0
Hoke County (Unincorporated Area)	05/19/88	EF0	0	0	$2,500	$818	$0	$0
Hoke County (Unincorporated Area)	10/23/90	EF0	0	0	$2,500	$890	$0	$0
Hoke County (Unincorporated Area)	05/19/95	EF1	0	1	$200,000	$83,301	$0	$0
Hoke County (Unincorporated Area)	08/29/04	EF0	0	0	0	$0	0	$0

Hoke County (Unincorporated Area)	09/07/04	EF0	0	0	0	$0	0	$0
Hoke County (Unincorporated Area)	09/27/04	EF1	0	0	0	$0	0	$0
Hoke County (Unincorporated Area)	04/16/11	EF0	0	0	$100,000	$72,023	$0	$0
Subtotal Hoke	**12 Events**		**1**	**6**	**$1,305,250**	**$395,987**	**$0**	**$0**
TOTAL PLAN	**34 Events**		**10**	**195**	**$132,683,000**	**$81,118,279**	**$0**	**$0**

Source: National Climatic Data Center (NCDC) Storm Events Database and or potential user entered data.

According to the information provided in the preceding table, 34 recorded instances of Tornado have affected the planning area since 1957, causing an estimated $132,683,000 in property damage, $0 in crop damages, 10 death(s), and 195 injury(ies). The highest magnitude tornado on record is an Ef4. The lowest magnitude tornado on record is an Ef0

Table 5-25 provides a summary of this historical information by participating jurisdiction. It is important to note that many of the events attributed to the county are countywide or cover large portions of the county. The individual counts by jurisdiction are for those events that are only attributed to that one jurisdiction.

Table 5-25. Summary of Historical Tornado Occurrences by Participating Jurisdiction

Jurisdiction	Number of Occurrences	Deaths	Injuries	Reported Property Damage	Reported Property Damage (PV)	Reported Crop Damage	Reported Crop Damage (PV)
Cumberland							
City Of Fayetteville	3	3	145	$102,500,000	$18,536,984	$0	$0
Cumberland County (Unincorporated Area)	14	6	43	$28,600,250	$3,208,581	$0	$0
Town Of Eastover	2	0	1	$27,500	$3,479	$0	$0
Town Of Hope Mills	1	0	0	$0	$0	$0	$0
Town Of Spring Lake	2	0	0	$250,000	$45,306	$0	$0
Subtotal Cumberland	**22**	**9**	**189**	**$131,377,750**	**$21,794,349**	**$0**	**$0**
Hoke							
Hoke County (Unincorporated Area)	12	1	6	$1,305,250	$182,937	$0	$0
Subtotal Hoke	**12**	**1**	**6**	**$1,305,250**	**$182,937**	**$0**	**$0**
TOTAL PLAN	**34**	**10**	**195**	**$132,683,000**	**$21,977,286**	**$0**	**$0**

Source: National Climatic Data Center (NCDC) Storm Events Database and or potential user entered data.

5.8.5 Probability of Future Occurrences

Based on the analyses performed in IRISK, the probability of future Tornado is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Low: Less Than 1% Annual Probability Of Ef2 Event

- Medium: Between 1% And 10% Annual Probability Of Ef2 Event
- High: More Than 10% Annual Probability Of Ef2 Event

Jurisdiction	Calculated Probability (IRISK)
City Of Fayetteville	Low
City Of Raeford	Low
Cumberland County (Unincorporated Area)	Low
Hoke County (Unincorporated Area)	Low
Town Of Eastover	Low
Town Of Falcon	Low
Town Of Godwin	Low
Town Of Hope Mills	Low
Town Of Linden	Low
Town Of Spring Lake	Low
Town Of Stedman	Low
Town Of Wade	Low

Climate Change and Tornadoes

Research published in 2015 suggests that changes in heat and moisture content in the atmosphere, brought on by a warming world, could be playing a role in making tornado outbreaks more common and severe in the U.S. [28]. The research concluded that the number of days with large outbreaks have been increasing since the 1950s and that densely concentrated tornado outbreaks are on the rise. It is notable that the research shows that the area of tornado activity is not expanding, but rather the areas already subject to tornado activity are seeing the more densely packed tornadoes.

5.8.6 Consequence and Impact Analysis

People

The rate of onset of tornado events is rapid, giving those in danger minimal time to seek shelter. The current average lead time according to NOAA is 13 minutes. Injury may result from the direct impact of a tornado, or it may occur afterward when people walk among debris and enter damaged buildings. A study of injuries after a tornado in Marion, Illinois, showed that 50 percent of the tornado-related injuries were suffered during rescue attempts, cleanup, and other post-tornado activities. Common causes of injury included falling objects and heavy, rolling objects. Because tornadoes often damage power lines, gas lines, or electrical systems, there is a risk of fire, electrocution, or an explosion.

First Responders

Due to the rapid onset of tornado events, first responders could be critically affected by tornado events through direct impact of the tornado itself or injury received during response efforts. Response may be hindered as responders may be unable to access those that have been affected if storm conditions persist or if they are unable to safely enter affected areas. As mentioned above, a large percentage of tornado- related injuries are suffered during rescue attempts, cleanup, and other post-tornado activities due to walking among debris and entering damaged buildings.

Continuity of Operations

Continuity of operations could be greatly impacted by a tornado. Personnel or families of personnel may be harmed which would limit their response capability. Critical facilities and resources could also be damaged or destroyed during a tornado.

Built Environment

The weakest tornadoes, FO, can cause minor roof damage and strong tornadoes can destroy frame buildings and even badly damage steel reinforced concrete structures. Most building codes in the United States do not include provisions that provide protection against tornadic winds. Given the strength of the wind impact and construction techniques, buildings are vulnerable to direct impact, including potential destruction, from tornadoes and also from wind borne debris that tornadoes turn into missiles. Mobile homes particularly susceptible to damage and fatalities during tornadoes. All jurisdictions in the Region are vulnerable to building damages

Economy

The largest impact of tornadoes is the economic damage caused by widespread destruction along their paths. More directly, there are many people killed by these storms, and to a lesser extent pets and farm animals. The major damage is the complete destruction of homes, buildings, and farms, the wrecking of cars and trucks, and the loss of power distribution systems. Winds as high as 300 mph blow down walls, tear up trees, and throw debris in every direction at high speeds. Indirect losses include workers who cannot report to jobs and commercial entities that most close to repair damages.

Natural Environment

There is no defense for plants and animals from a direct impact from a tornado. Plants and animals in the path of the tornado will receive significant damage or be killed. Strong tornados can shred trees and lift grass from the ground.

5.9 Wildfire

5.9.1 Hazard Description

A wildfire is an uncontained fire that spreads through the environment. Wildfires have the ability to consume large areas, including infrastructure, property, and resources. When massive fires, or conflagrations, develop near populated areas, evacuations possibly ensue. Not only do the flames impact the environment, but the massive volumes of smoke spread by certain atmospheric conditions also impact the health of nearby populations. There are three general types of fire spread that are recognized.

Ground fires – burn organic matter in the soil beneath surface littler and are sustained by glowing combustion.

Surface fires – spread with a flaming front and burn leaf litter, fallen branches and other fuels located at ground level.

Crown fires – burn through the top layer of foliage on a tree, known as the canopy or crown fires. Crown fires, the most intense type of fire and often the most difficult to contain, need strong winds, steep slopes and a heavy fuel load to continue burning.

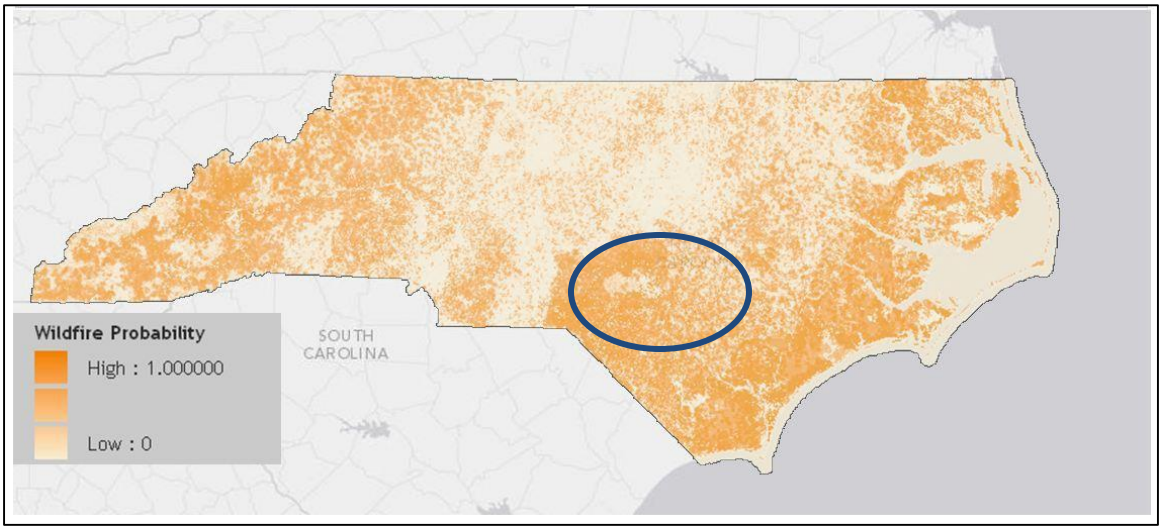
Generally, wildfires are started by humans, either through arson or carelessness. Fire intensity is controlled by both short-term weather conditions and longer-term vegetation conditions. During intense fires, understory vegetation, such as leaves, small branches, and other organic materials that accumulate on the ground, can become additional fuel for the fire. The most explosive conditions occur when dry, gusty winds blow across dry vegetation.

5.9.2 Location and Spatial Extent

The expansion of residential development from urban centers out into rural landscapes, increases the potential for wildland fire threat to public safety and the potential for damage to forest resources and dependent industries. The Wildland Urban Interface (WUI) is described as the area where structures and other human improvements meet and intermingle with undeveloped wildland or vegetative fuels. Population growth within the WUI substantially increases the risk of wildfire.

For the Cumberland County, NC project area, it is estimated that 301,884 people or 95 percent of the total project area population (319,404) live within the WUI [29]. For the Hoke County, NC project area, it is estimated that 46,629 people or 99 percent of the total project area population (46,964) live within the WUI [30]. Figures 5.19 and 5.20 on the following pages display the WUI for Cumberland and Hoke Counties, respectively.

Wildfires could potentially occur anywhere in the region. Figure 5.45 below shows areas of the state that have a high probability of experiencing a wildfire. Cumberland and Hoke Counties are located within the highest probability category.



Source: NC 2013 State Hazard Mitigation Plan

Figure 5-45. Wildfire Probability Map

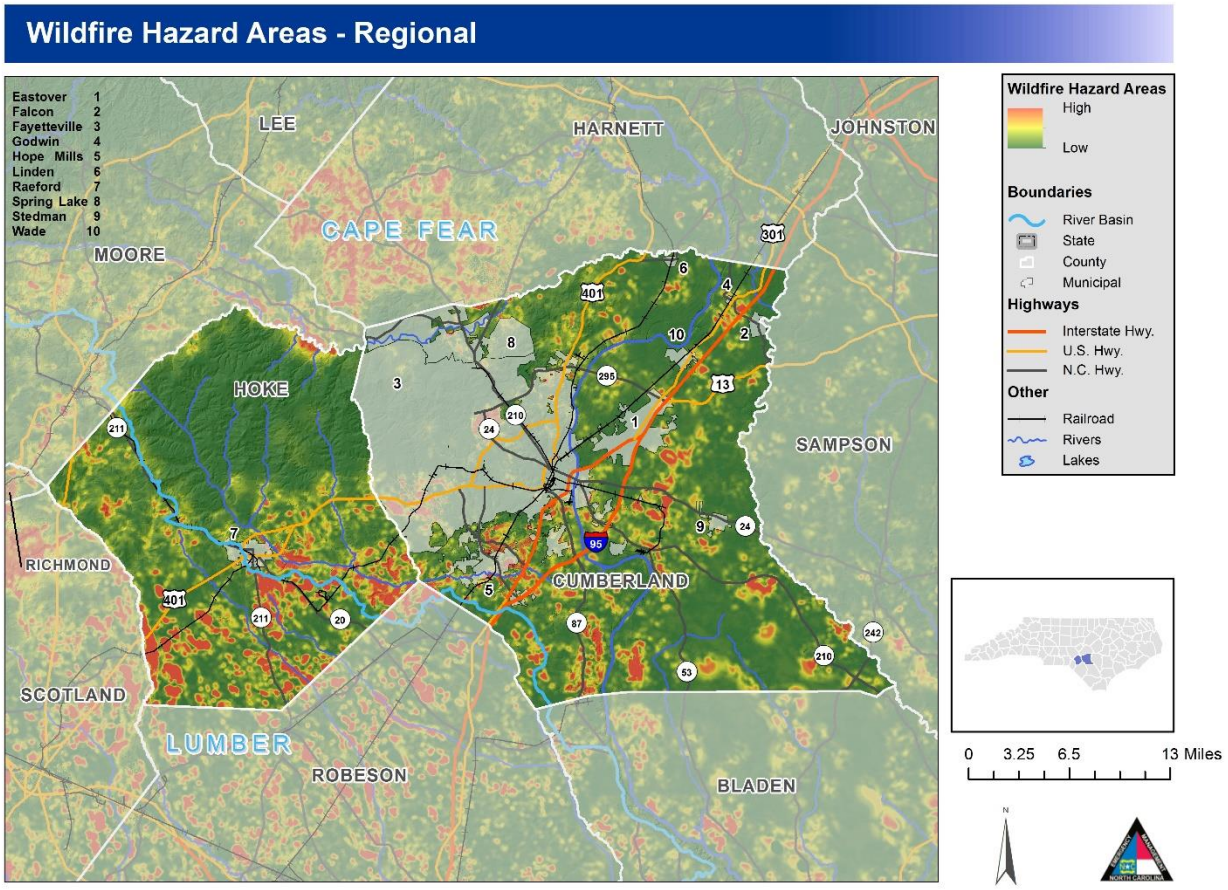


Figure 5-46: Wildfire Hazard Areas – Regional

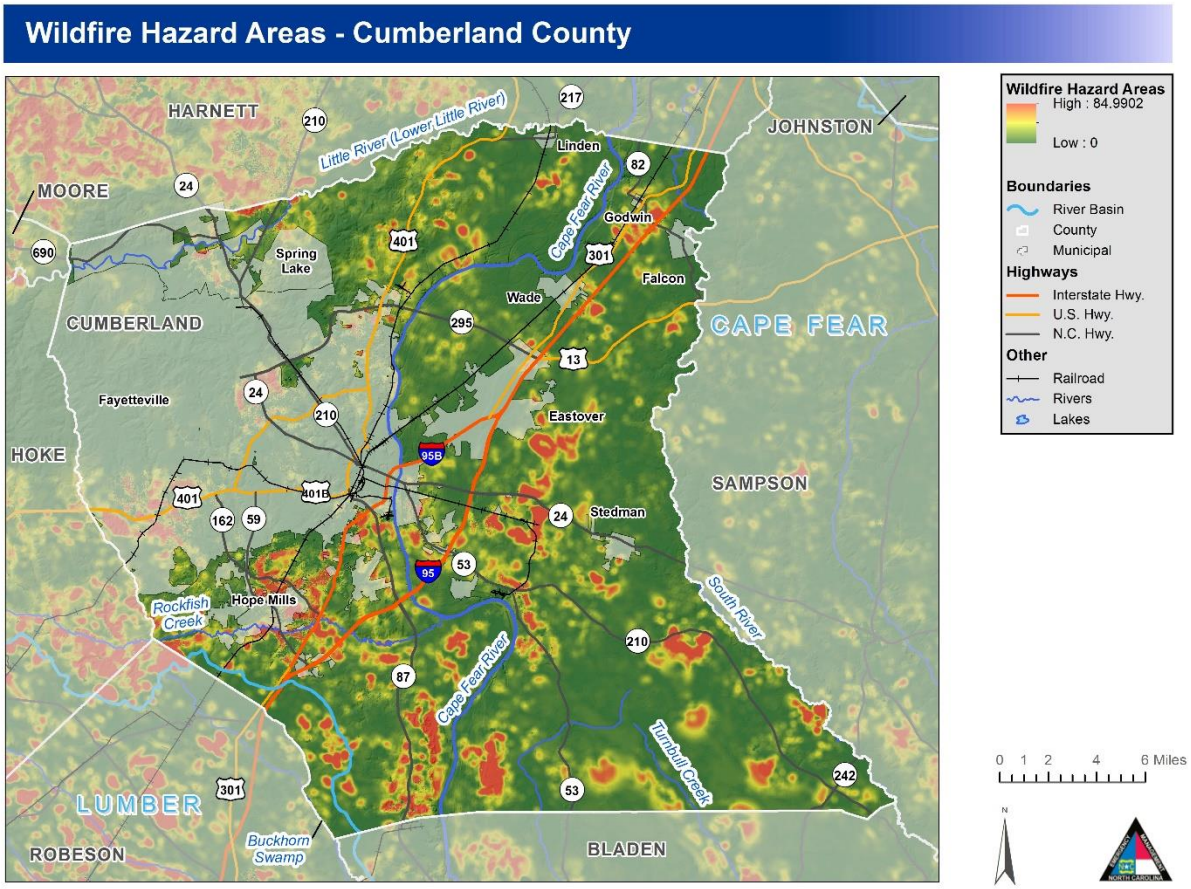


Figure 5-47: Wildfire Hazard Areas – Cumberland County

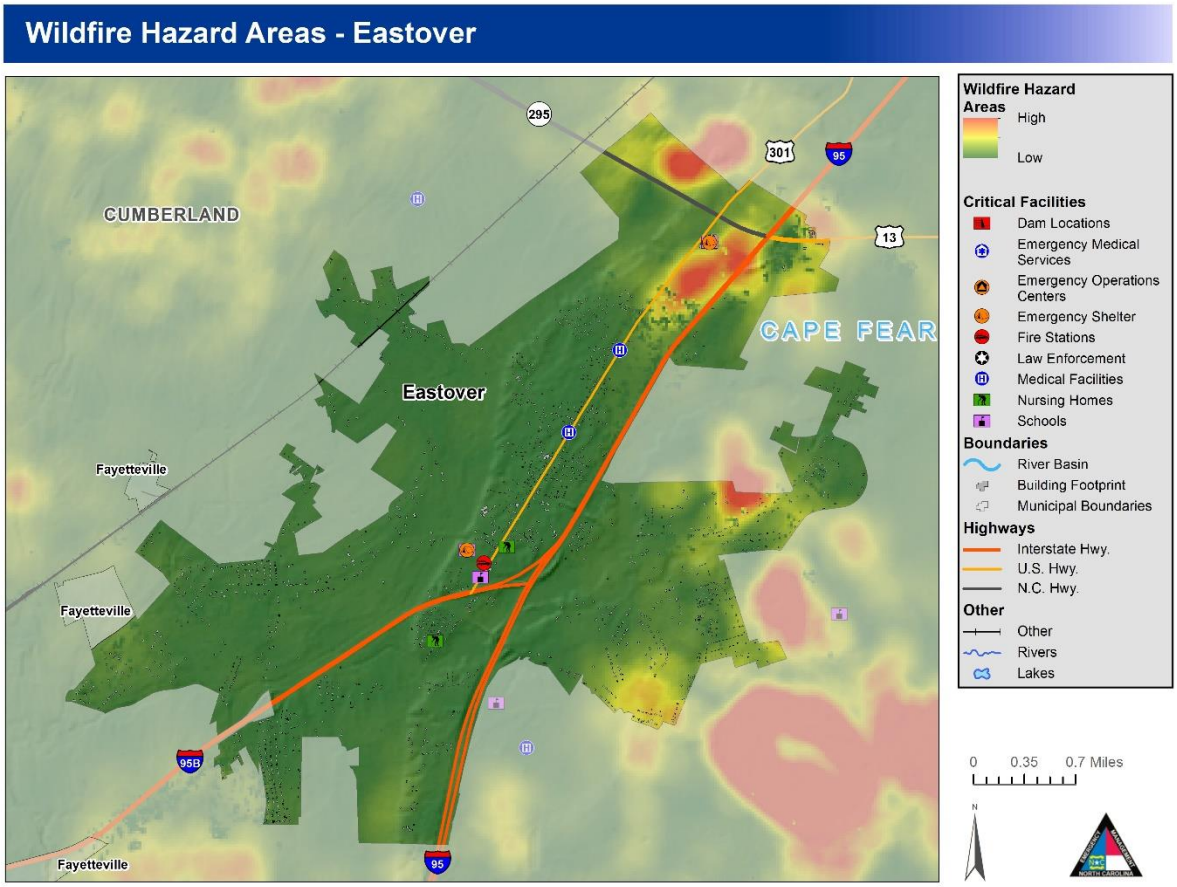


Figure 5-48: Wildfire Hazard Areas – Eastover

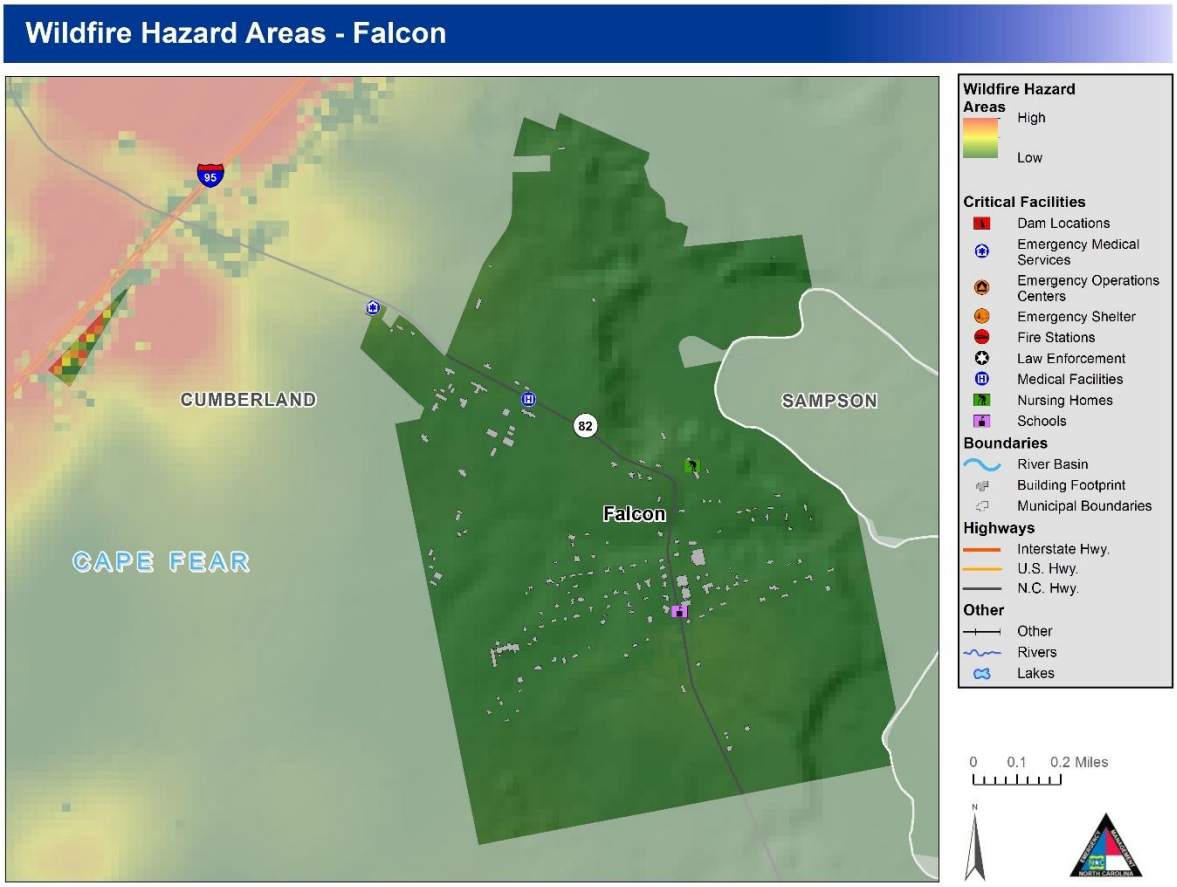


Figure 5-49: Wildfire Hazard Areas – Falcon

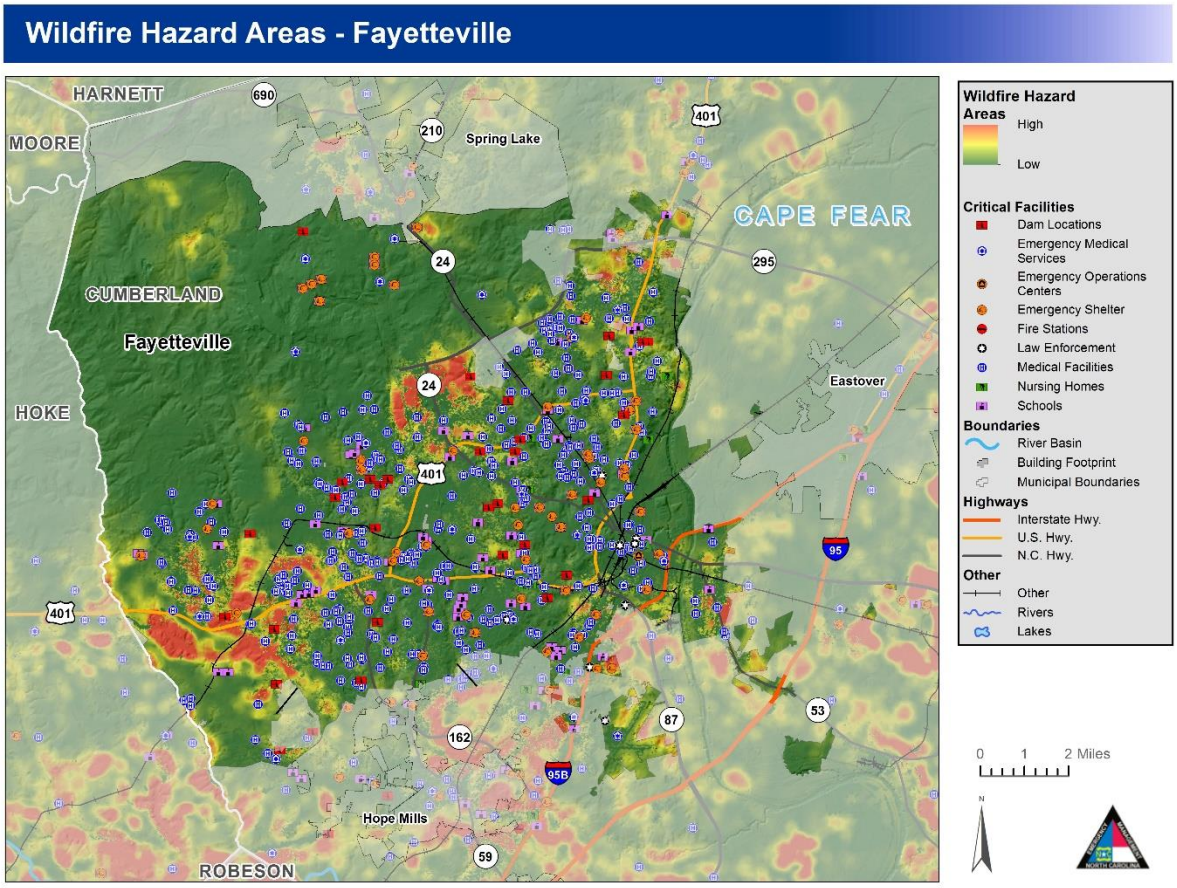


Figure 5-50: Wildfire Hazard Areas – Fayetteville

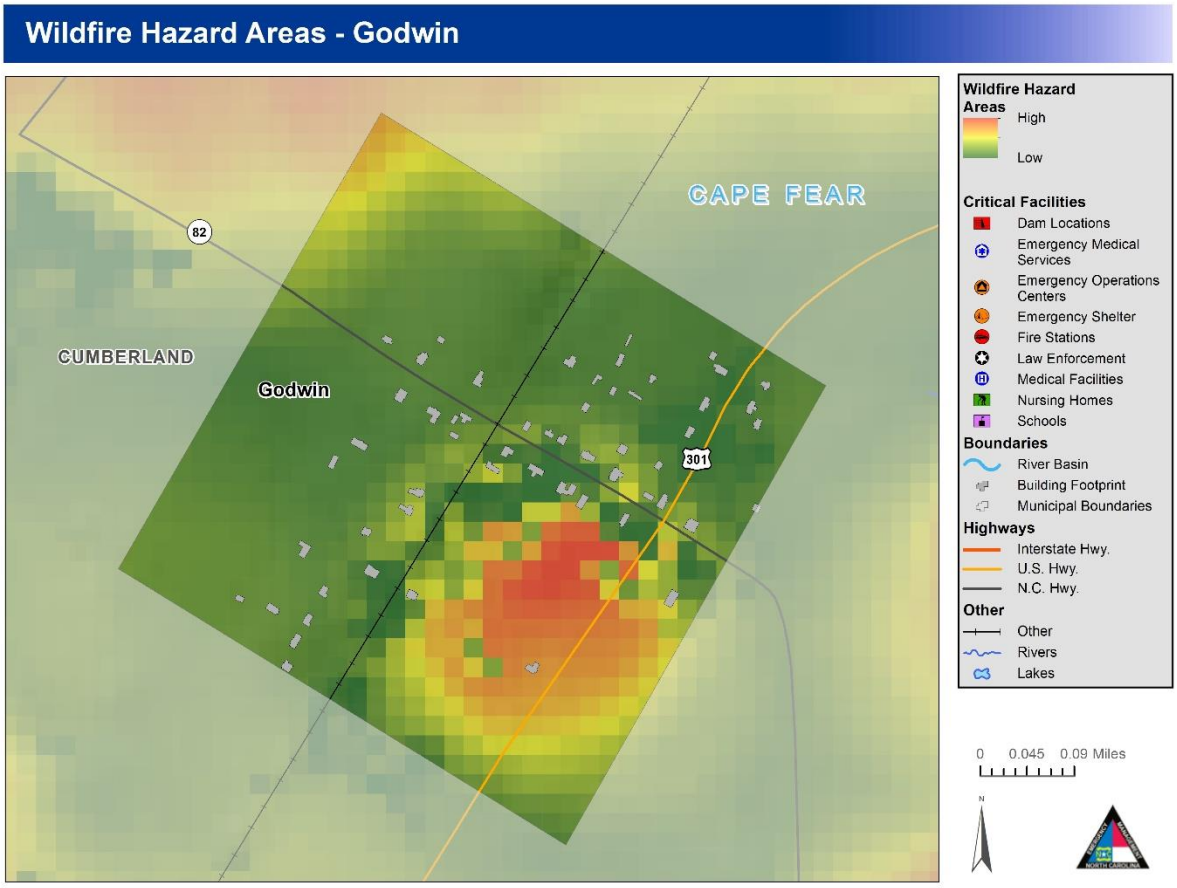


Figure 5-51: Wildfire Hazard Areas – Godwin

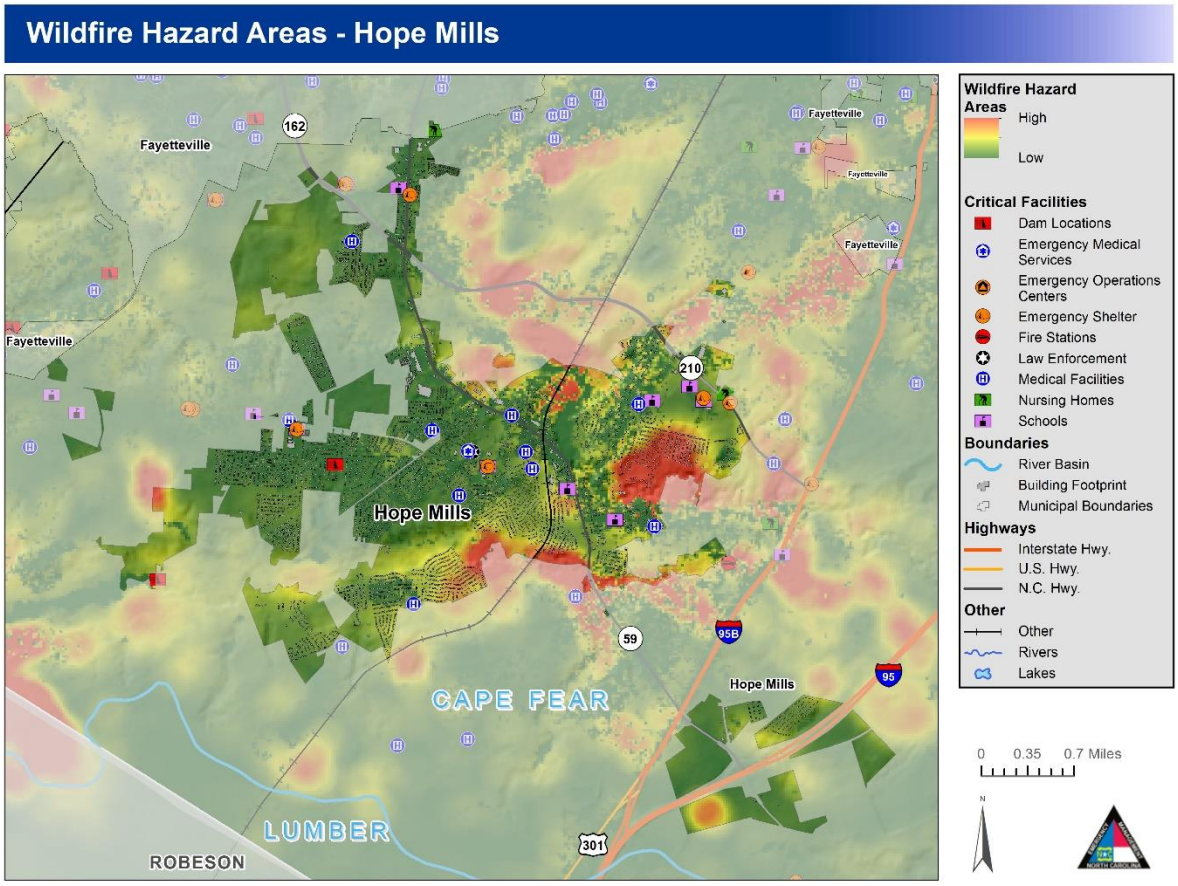


Figure 5-52: Wildfire Hazard Areas – Hope Mills

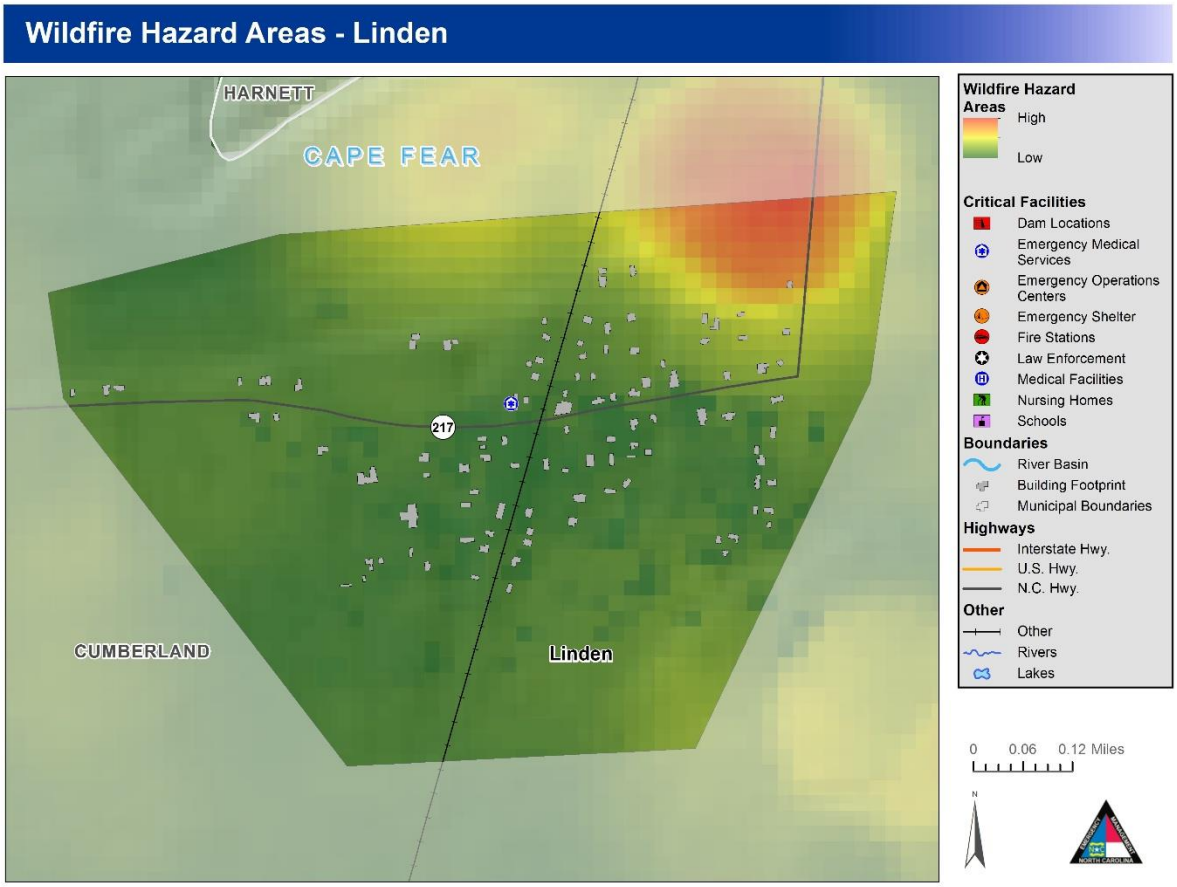


Figure 5-53: Wildfire Hazard Areas – Linden

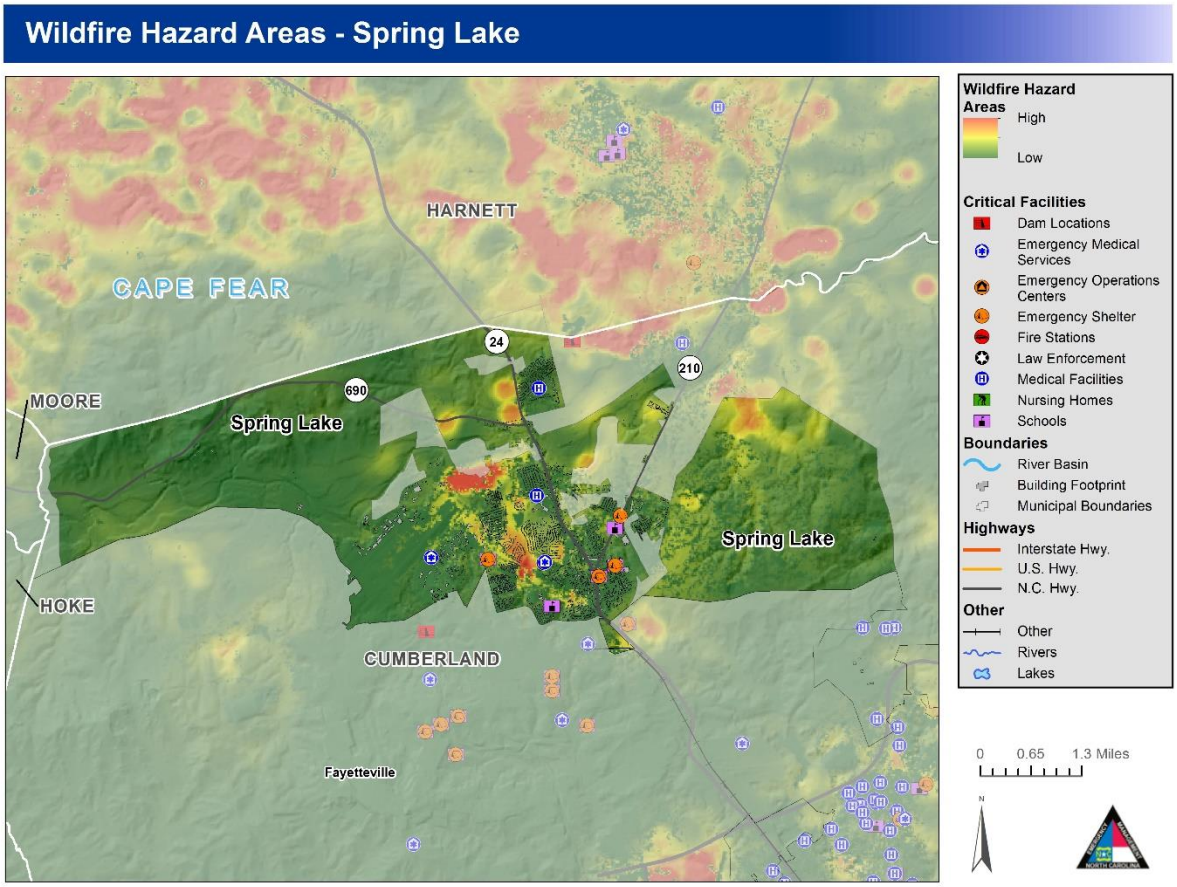


Figure 5-54: Wildfire Hazard Areas – Spring Lake

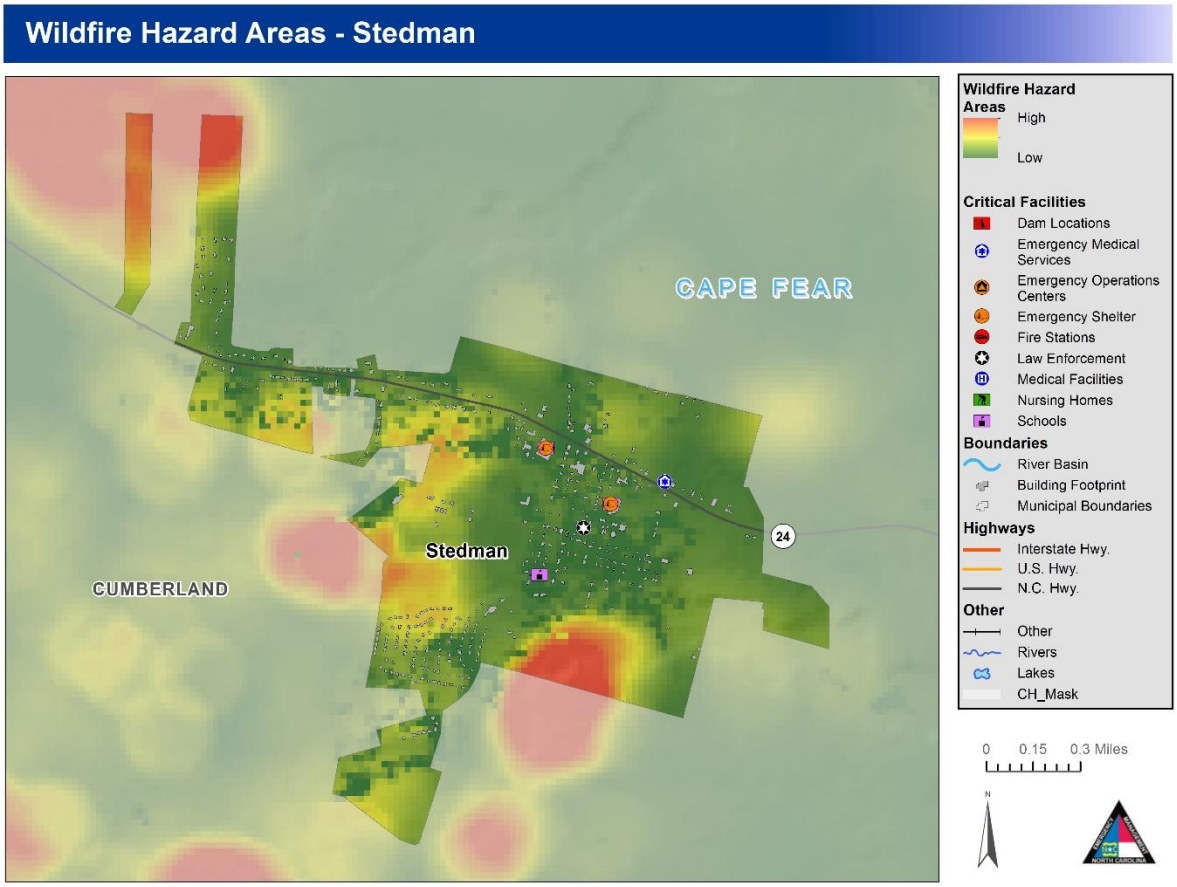


Figure 5-55: Wildfire Hazard Areas – Stedman

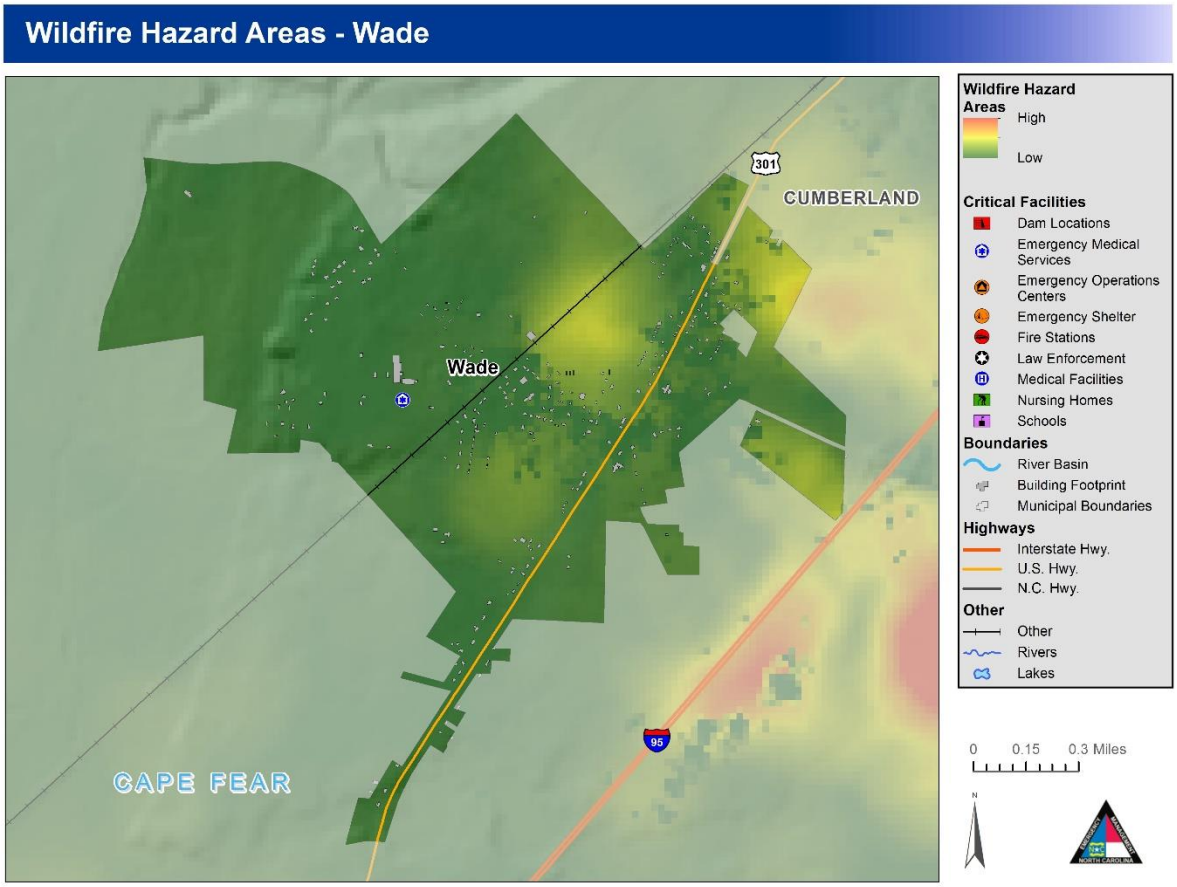


Figure 5-56: Wildfire Hazard Areas – Wade

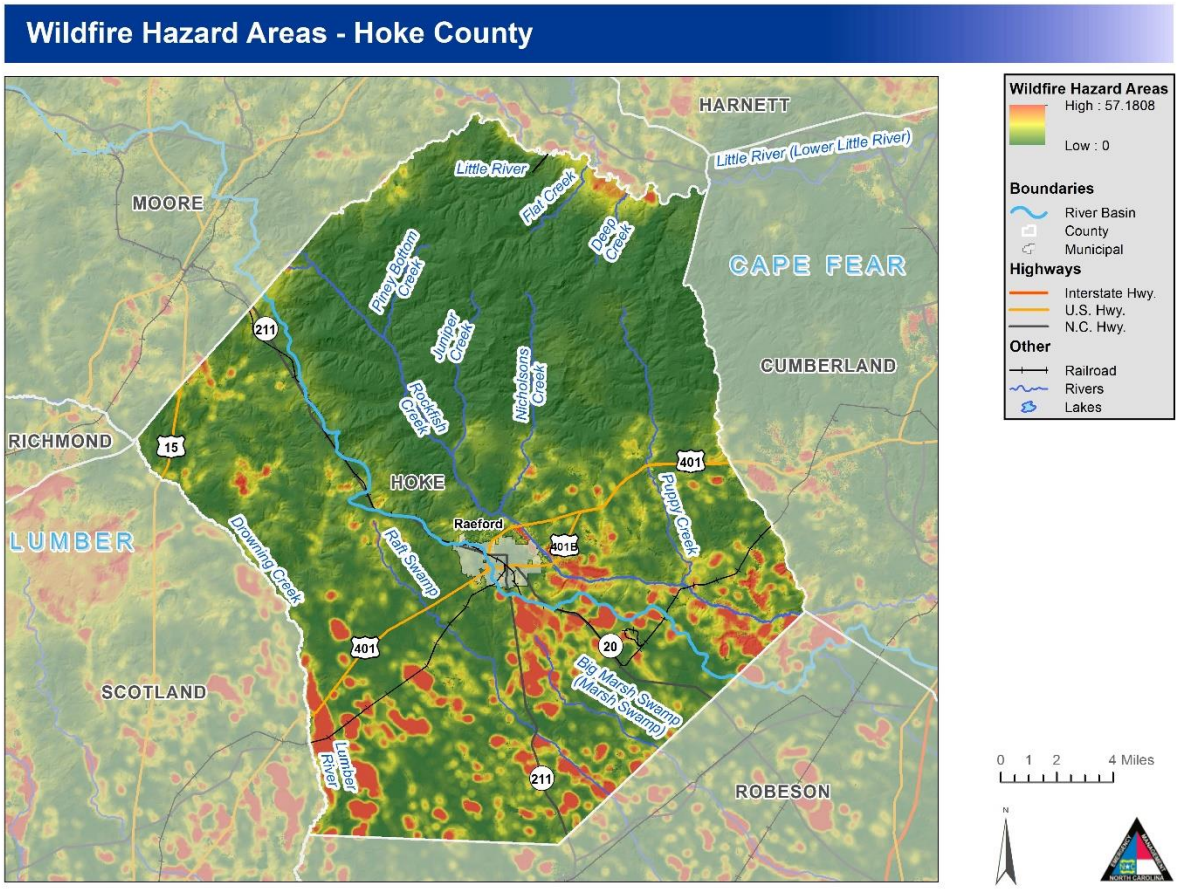


Figure 5-57: Wildfire Hazard Areas – Hoke County

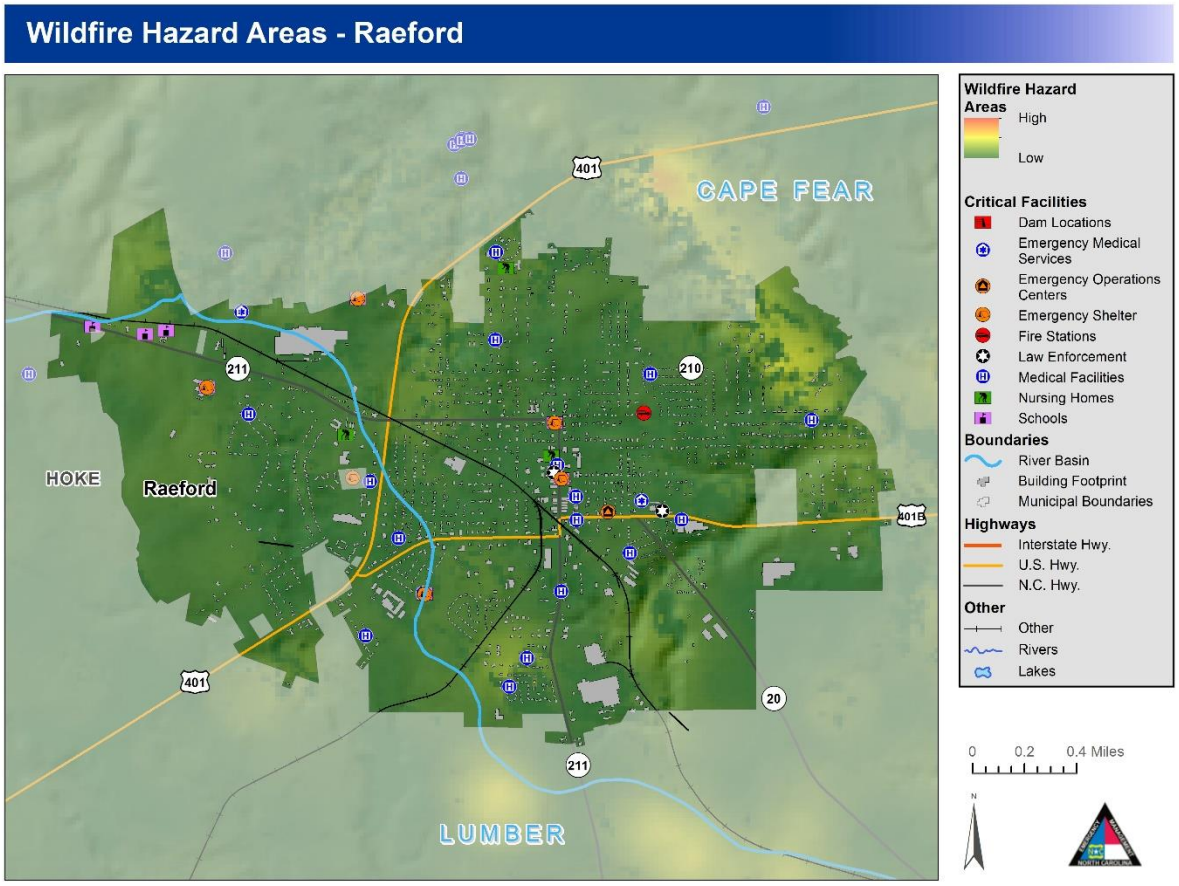


Figure 5-58: Wildfire Hazard Areas – Raeford

5.9.3 Extent

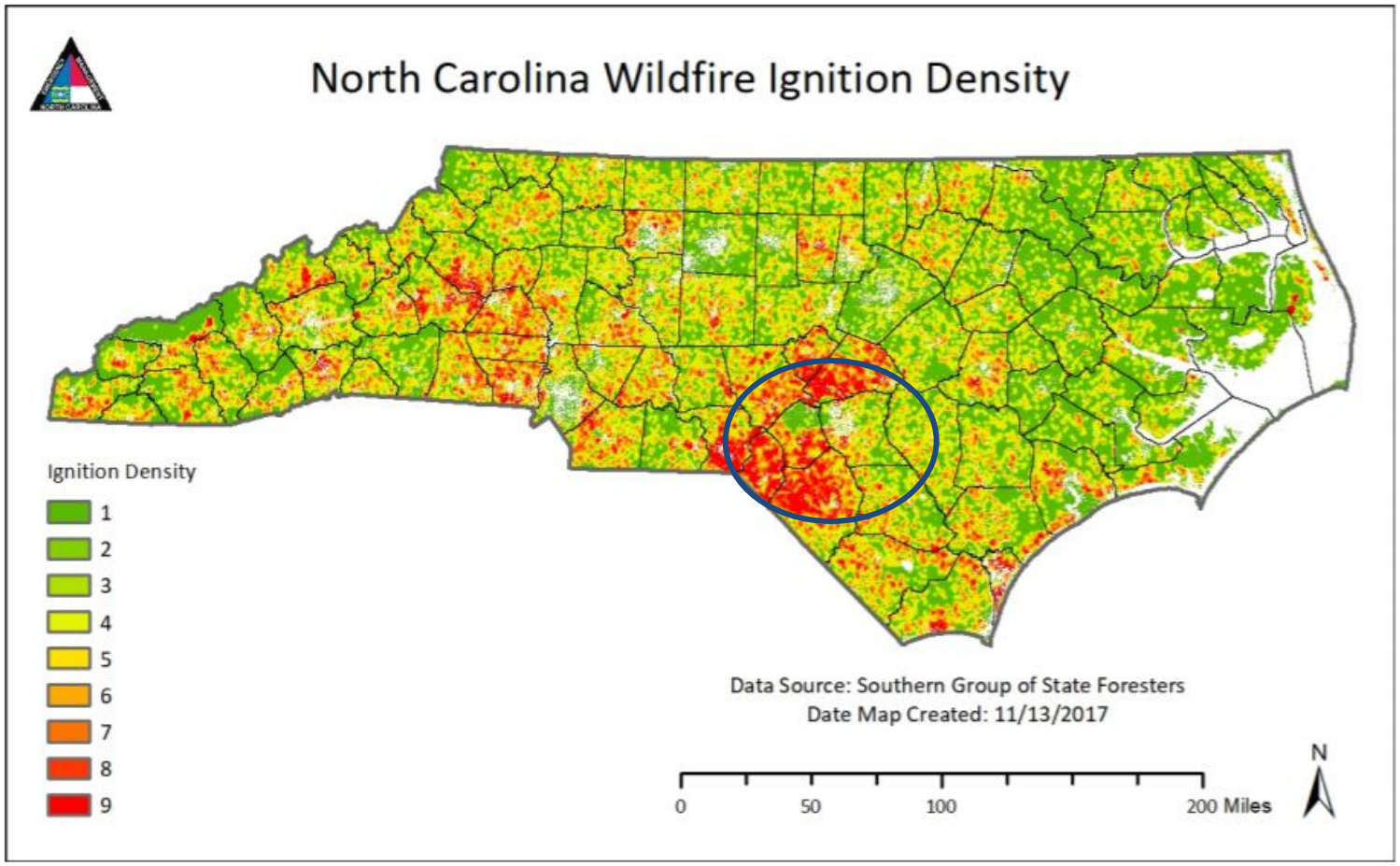
The average size of wildfires in the Region is typically small. Wildfire data was provided by the North Carolina Division of Forest Resources through Community Wildfire Protection Plans (Included in Appendix H) and is reported annually by county. The table below shows the number of acres burned for each community in the last five years. It should be noted that there may have been multiple acres burned that are not depicted by this table due to the small size of the fire and/or the unavailability of data at the local level.

Table 5-26. Total Acres Burned (2015-2020)

Jurisdiction	Total Acres Burned (Last 5 Years)
Cumberland County	
City of Fayetteville	248.65
Town of Eastover	Data Not Available
Town of Falcon	Data Not Available
Town of Godwin	Data Not Available
Town of Linden	Data Not Available
Town of Spring Lake	35.15
Town of Stedman	Data Not Available
Town of Wade	Data Not Available
Town of Hope Mills	37
Unincorporated Area	1,407.97
Hoke County	
City of Raeford	Data Not Available
Unincorporated Area	1,078.14

5.9.4 Past Occurrences

Figure 5-59 shows the Wildfire Ignition Density in the Region based on data from the Southern Group of State Foresters. This data is based on historical fire ignitions and the likelihood of a wildfire igniting in an area. Occurrence is derived by modeling historic wildfire ignition locations to create an average ignition rate map. This is measured in the number of fires per year per 1,000 acres.



Source: Southern Wildfire Risk Assessment

Figure 5-59. North Carolina Wildfire Ignition Density

Based on data from the North Carolina Division of Forest Resources from 2015 to 2020, the Region experienced an average of 48 wildfires annually which burn a combined 101 acres, on average per year. The data indicates that most of these fires are small, averaging three acres per fire.

Table 5-27 and ***Table 5-28*** provides a summary table for wildfire occurrences in the Region.

Table 5-27. Total Acres Burned Cumberland County (2015-2020)

Year	UNK	Camping	Children	Debris Burning	Incendiary	Lightning	Machine Use	Misc.	Railroad	Smoking	Undetermined	Total	Acres Burned	Average
2015	0	2	3	9	22	0	0	0	0	0	0	36	274.40	7.62
2016	0	1	1	14	0	0	2	6	0	0	31	55	355.33	6.46
2017	0	0	1	15	0	0	0	3	0	0	32	51	160.85	3.15
2018	0	1	1	36	1	0	1	3	0	0	32	75	283.64	3.78
2019	0	1	0	14	0	0	0	1	0	0	26	42	72.10	1.72
2020	0	0	0	18	0	0	1	5	0	1	26	51	262.65	5.15
Total	0	5	6	106	23	0	4	18	0	1	147	310	1,407.97	
AVG	0	1	1	15	3	0	1	3	0	0	21	44		
% of Total	0	1.61	1.94	34.19	7.42	0.00	1.29	5.81	0.00	0.32	47.42	100.00		

Table 5-28 Total Acres Burned Hoke County (2015-2020)

Year	UNK	Camping	Children	Debris Burning	Incendiary	Lightning	Machine Use	Misc.	Railroad	Smoking	Undetermined	Total	Acres Burned	Average
2015	0	0	3	6	9	3	0	1	0	0	0	22	173.08	7.87
2016	0	0	0	13	0	0	0	0	0	0	20	33	219.31	6.65
2017	0	0	0	29	6	0	1	1	0	0	30	67	146.73	2.19
2018	0	0	0	38	0	1	1	2	0	0	26	68	315.27	4.64
2019	0	0	0	40	11	1	3	9	0	1	24	89	144.15	1.62
2020	0	0	0	25	1	0	2	4	0	0	12	44	79.60	1.81
Total	0	0	3	151	27	5	7	17	0	1	112	323	1,078.14	
AVG	0	0	1	25	5	1	1	3	0	0	19	54		
% of Total	0.00	0.00	0.93	46.75	8.36	1.55	2.17	5.26	0.00	0.31	34.67	100.00		

5.9.5 Probability of Future Occurrences

Based on the analyses performed in IRISK, the probability of future Wildfire is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Low: Less Than 1% Annual Probability
- Medium: Between 1% And 10% Annual Probability
- High: More Than 10% Annual Probability

Jurisdiction	Calculated Probability (IRISK)
City Of Fayetteville	Medium
City Of Raeford	Medium
Cumberland County (Unincorporated Area)	Medium
Hoke County (Unincorporated Area)	Medium
Town Of Eastover	Low
Town Of Falcon	Low
Town Of Godwin	Medium
Town Of Hope Mills	Medium
Town Of Linden	Low
Town Of Spring Lake	Medium
Town Of Stedman	Medium
Town Of Wade	Medium

Climate Change and Wildfires

As mentioned in subsection 5.5, research shows that temperatures will continue to rise in the Southeast United States and globally, directly affecting the Cumberland-Hoke County region in North Carolina.

Higher temperatures will reduce the number of days prescribed burning can be performed. Reduction of prescribed burning will allow for growth of understory vegetation – providing fuel for destructive wildfires. Drought is also anticipated to increase in frequency and intensity during summer months under projected climate change scenarios. Drought can lead to dead or dying vegetation and landscaping material close to structures which creates fodder for wildfires within both the urban and rural settings.

5.9.6 Consequence and Impact Analysis

People

The potential health risk from wildfire events and the resulting diminished air quality is a concern. Exposure to wildfire smoke can cause serious health problems within a community, including asthma attacks and pneumonia, and can worsen chronic heart and lung diseases. Vulnerable populations include people with respiratory problems or with heart disease. Even healthy citizens may experience minor symptoms, such as sore throats and itchy eyes.

First Responders

Public and firefighter safety is the first priority in all wildland fire management activities. Wildfires are a real threat to the health and safety of the emergency services. Most fire-fighters in rural areas are 'retained'. This means that they are part-time and can be called away from their normal work to attend to fires.

Continuity of Operations

Wildfire events can result in a loss of power which may impact operations. Downed trees, power lines and damaged road conditions may prevent access to critical facilities and/or emergency equipment.

Built Environment

Wildfires frequently damage community infrastructure, including roadways, communication networks and facilities, power lines, and water distribution systems. Restoring basic services is critical and a top priority. Efforts to restore roadways include the costs of maintenance and damage assessment teams, field data collection, and replacement or repair costs. Direct impacts to municipal water supply may occur through contamination of ash and debris during the fire, destruction of aboveground distribution lines, and soil erosion or debris deposits into waterways after the fire. Utilities and communications repairs are also necessary for equipment damaged by a fire. This includes power lines, transformers, cell phone towers, and phone lines.

Economy

Wildfires can have significant short-term and long-term effects on the local economy. Wildfires, and extreme fire danger, may reduce recreation and tourism in and near the fires. If aesthetics are impaired, local property values can decline. Extensive fire damage to trees can significantly alter the timber supply, both through a short-term surplus from timber salvage and a longer-term decline while the trees regrow. Water supplies can be degraded by post-fire erosion and stream sedimentation.

Wildfires can also have positive effects on local economies. Positive effects come from economic activity generated in the community during fire suppression and post-fire rebuilding. These may include forestry support work, such as building fire lines and performing other defenses, or providing firefighting teams with food, ice, and amenities such as temporary shelters and washing machines.

Natural Environment

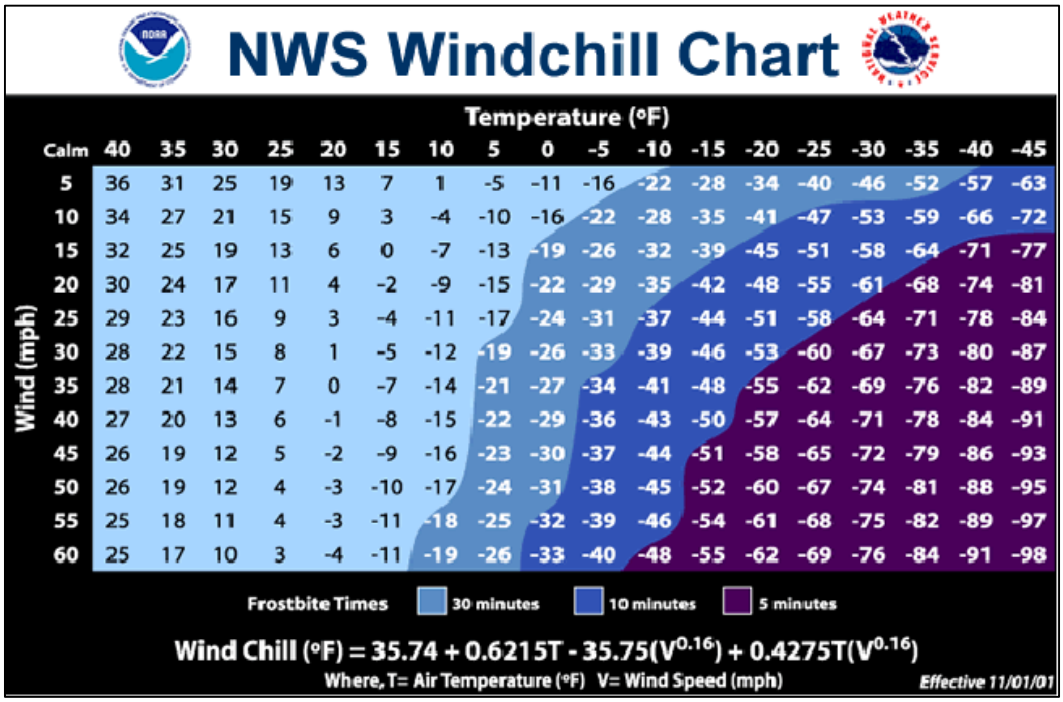
Wildfires cause damage to the natural environment, killing vegetation and occasionally animals. The risk of floods and debris flows increases due to the exposure of bare ground and the loss of vegetation. In addition, the secondary effects of wildfires, including erosion, landslides, introduction of invasive species, and changes in water quality, are often more disastrous than the fire itself.

5.10 Winter Storm

5.10.1 Hazard Description

North Carolina winter weather consists of storms that produce snow, sleet, freezing rain or a wintry mix of multiple precipitation types. Along with wintry precipitation, North Carolina winter weather also includes outbreaks of bitterly cold temperatures. The occurrence of severe winter weather has a substantial impact on communities, utilities, transportation systems and agriculture, and often results in loss of life due to accidents or hypothermia. In addition, severe winter weather may spawn other hazards such as flooding, severe thunderstorms, tornadoes, and extreme winds that may delay recovery efforts. For Cumberland and Hoke Counties, the NCEI Storm Events Database defines the following winter storm events:

- Cold/Wind Chill - Period of low temperatures or wind chill temperatures reaching or exceedingly locally/regionally defined advisory. For the NWS Office in Raleigh, this means wind chill of -15°F or lower with wind speeds 10 mph or greater on a widespread or localized basis. The NWS Windchill Temperature Index, as presented in the figure below, provides a useful formula for calculating the dangers of winter winds and freezing temperatures.



Source: http://www.nws.noaa.gov/om/winter/windchill.shtml

Figure 5-60. NWS Wind Chill Temperature Index

- **Heavy Snow** - Heavy snow can immobilize a community by stranding commuters, closing airports, stopping the flow of commerce, and disrupting emergency and medical services. The weight of snow can cause roofs to collapse and knock down trees and power lines. Residents may be isolated for days and unprotected livestock may be lost. The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts on communities. Snow accumulation meeting or exceeding locally/regionally defined 12 and/or 24 hour warning criteria, on a widespread or localized basis. For the NWS Office in Raleigh, this means snow accumulation of 3 inches or greater in 12 hours (4 inches or more in 24 hours). In some heavy snow events, structural damage, due to the excessive weight of snow accumulations, may occur in the few days following the meteorological end of the event.
- **Ice Storm** - Ice accretion meeting or exceeding locally/regionally defined warning criteria. For the NWS Office in Raleigh, this means freezing rain accumulations ¼ inch or greater on a widespread or localized basis.
- **Winter Storm** - A winter weather event which has more than one significant hazard (i.e., heavy snow and blowing snow; snow and ice; snow and sleet; sleet and ice; or snow, sleet and ice) and meets or exceeds locally/regionally defined 12 and/or 24-hour warning criteria for at least one of the precipitation elements, on a widespread or localized basis.
- **Winter Weather** - A winter precipitation event that causes a death, injury, or a significant impact to commerce or transportation but does not meet locally/regionally defined warning criteria. A Winter Weather event could result from one or more winter precipitation types (snow, or blowing/drifting snow, or freezing rain/drizzle), on a widespread or localized basis.

5.10.2 Location and Spatial Extent

The entirety of Cumberland and Hoke Counties including all assets located within the Counties can be considered at risk to winter storm events. This includes the entire population and all critical facilities, buildings (commercial and residential), and infrastructure. See maps below for further details.

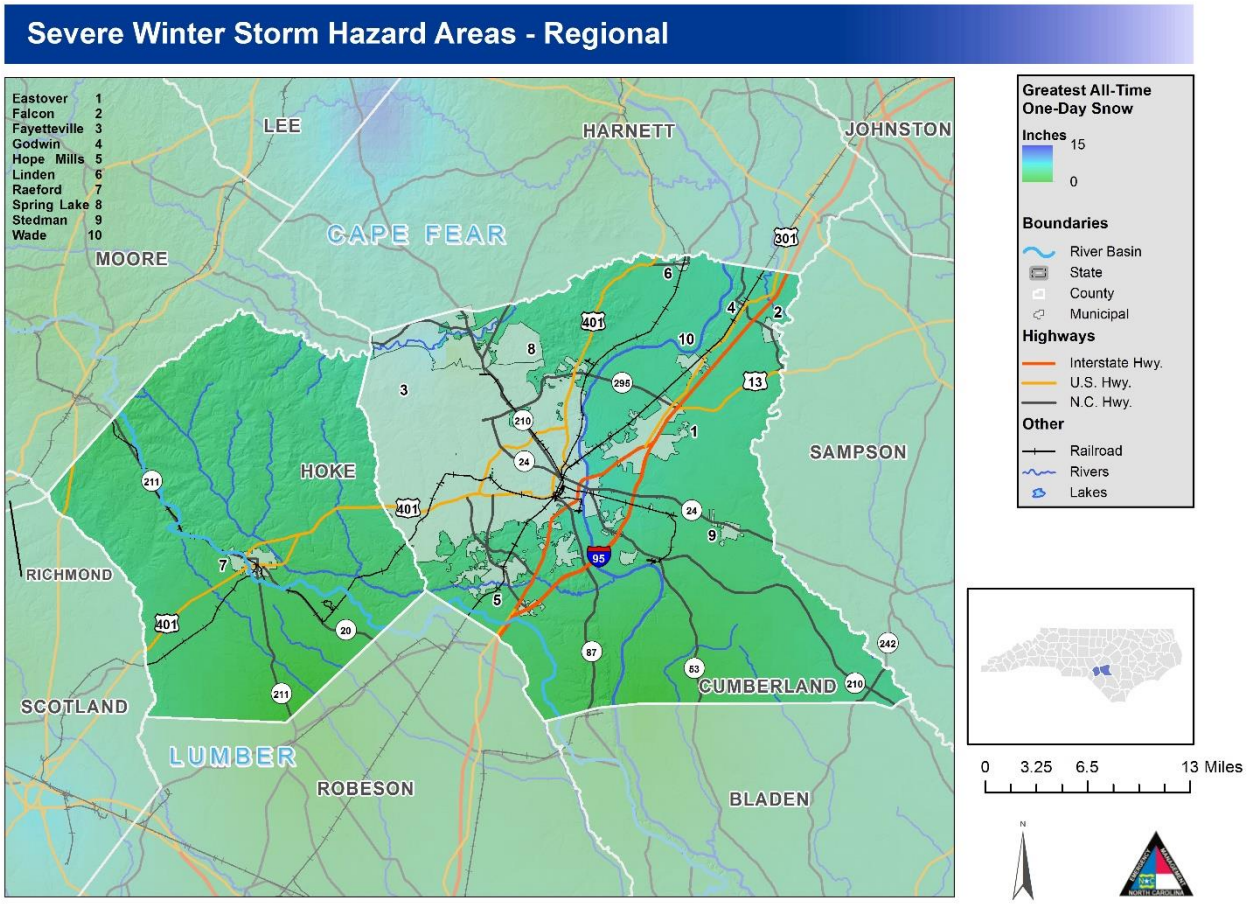


Figure 5-61: Winter Storm Hazard Areas – Regional

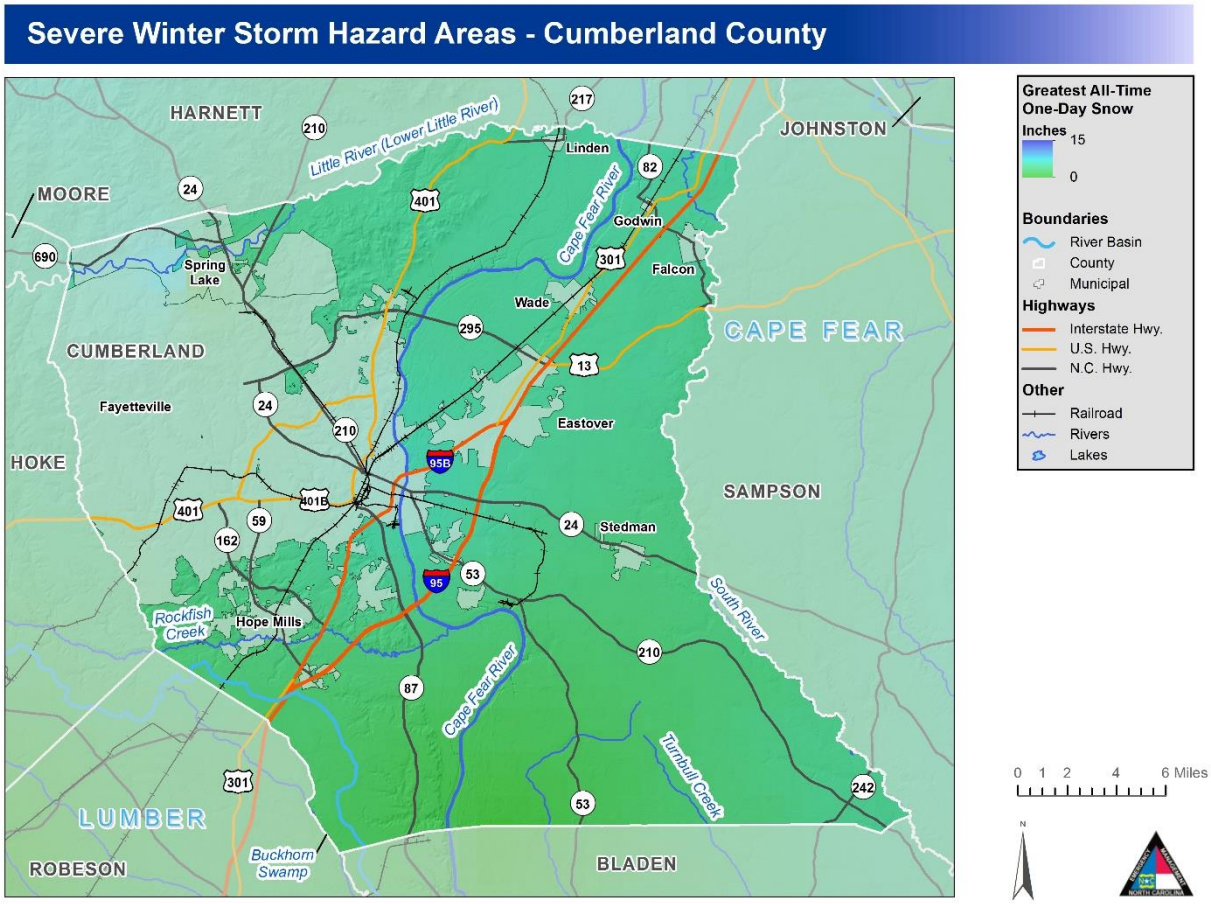


Figure 5-62: Winter Storm Hazard Areas – Cumberland County

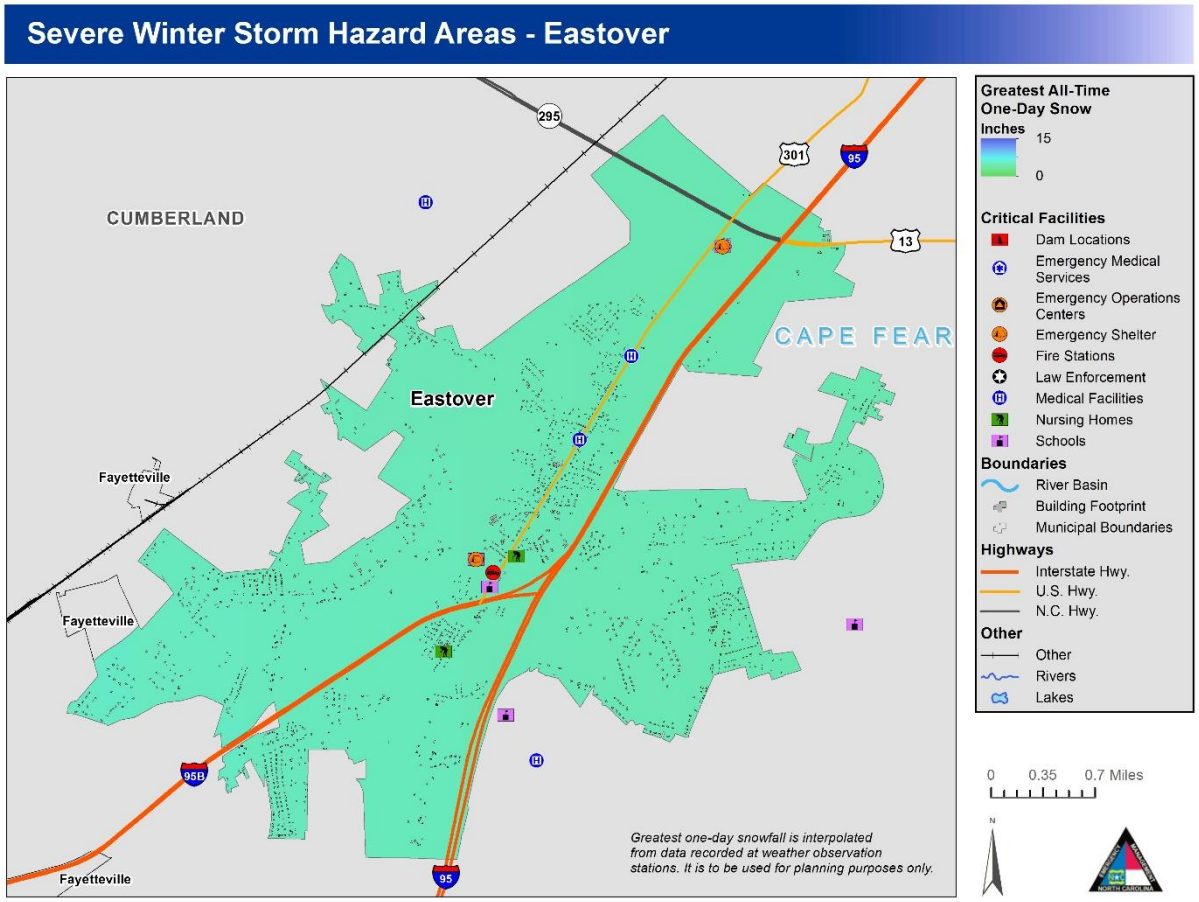


Figure 5-63: Winter Storm Hazard Areas – Eastover

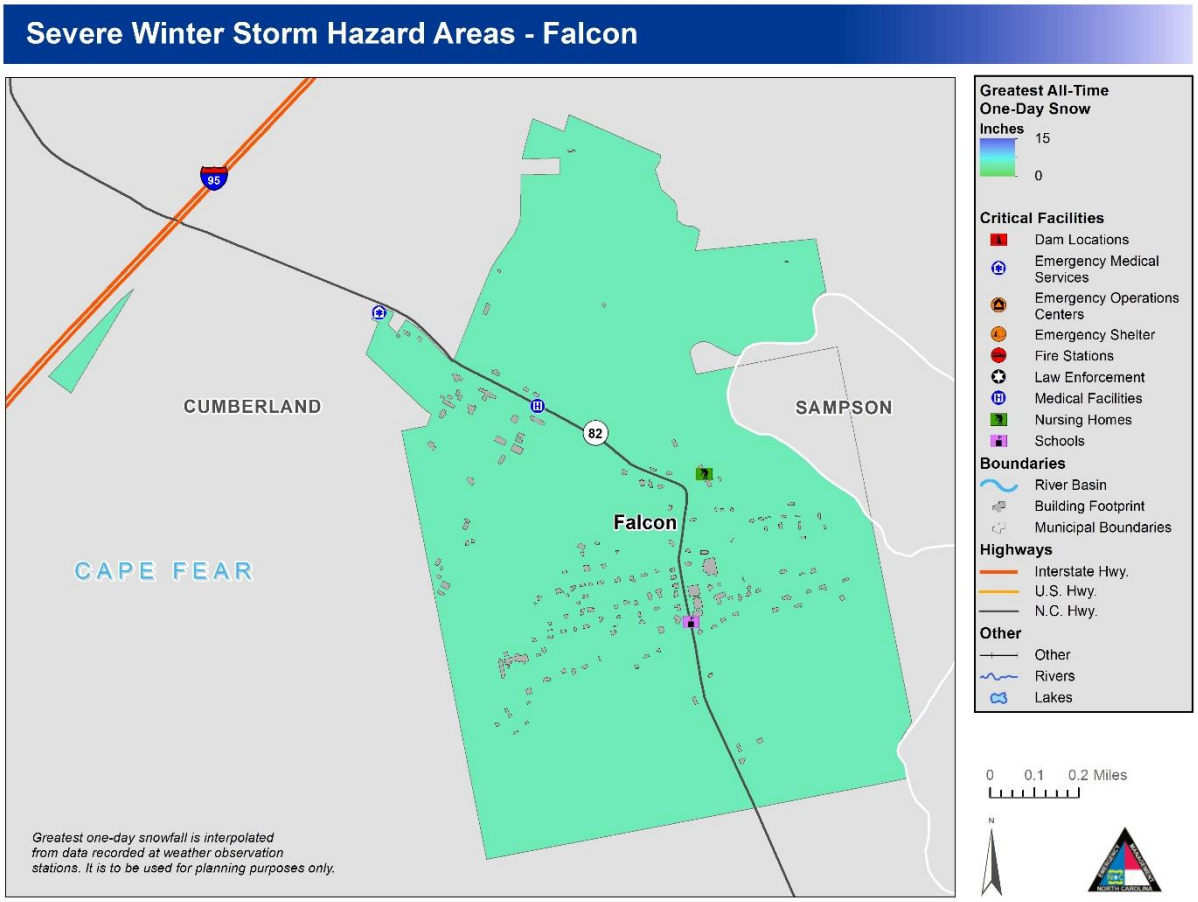


Figure 5-64: Winter Storm Hazard Areas – Falcon

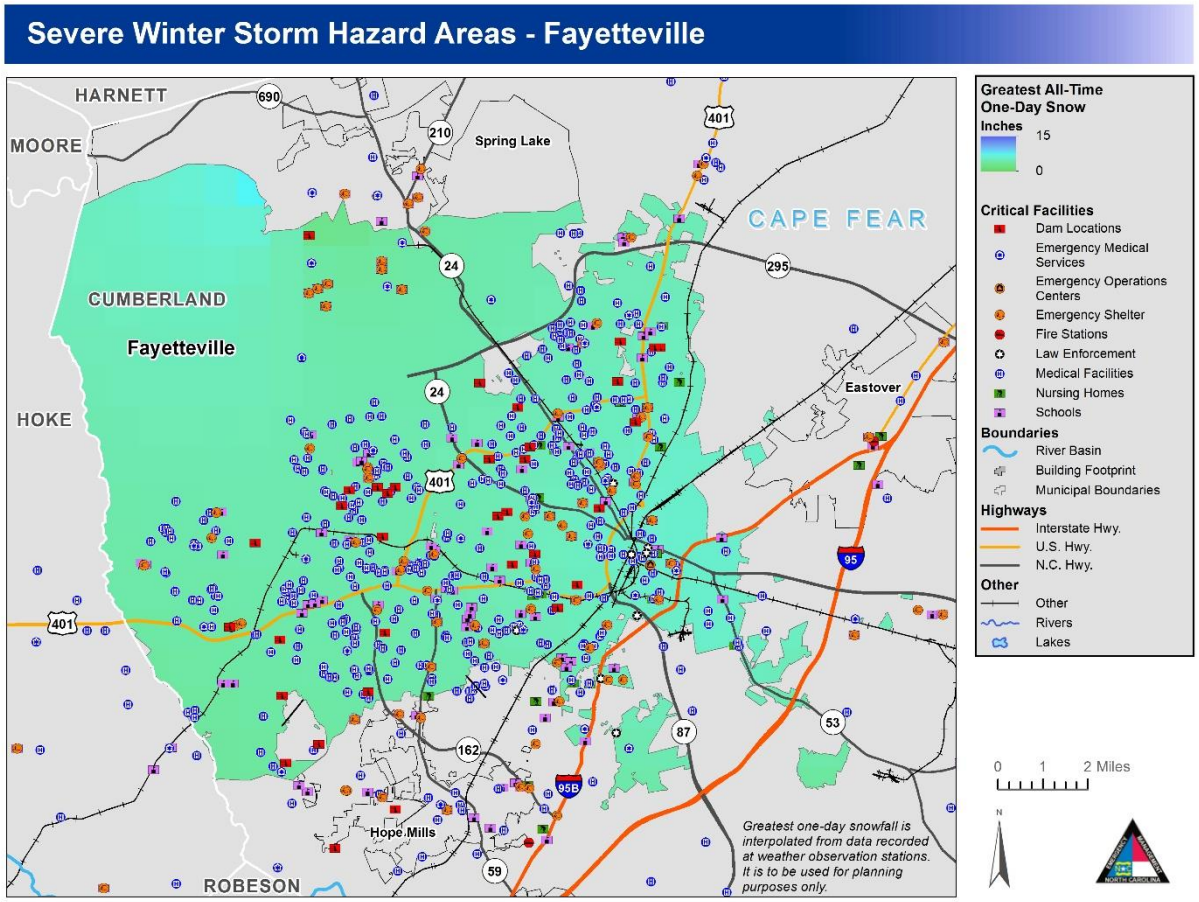


Figure 5-65: Winter Storm Hazard Areas – Fayetteville

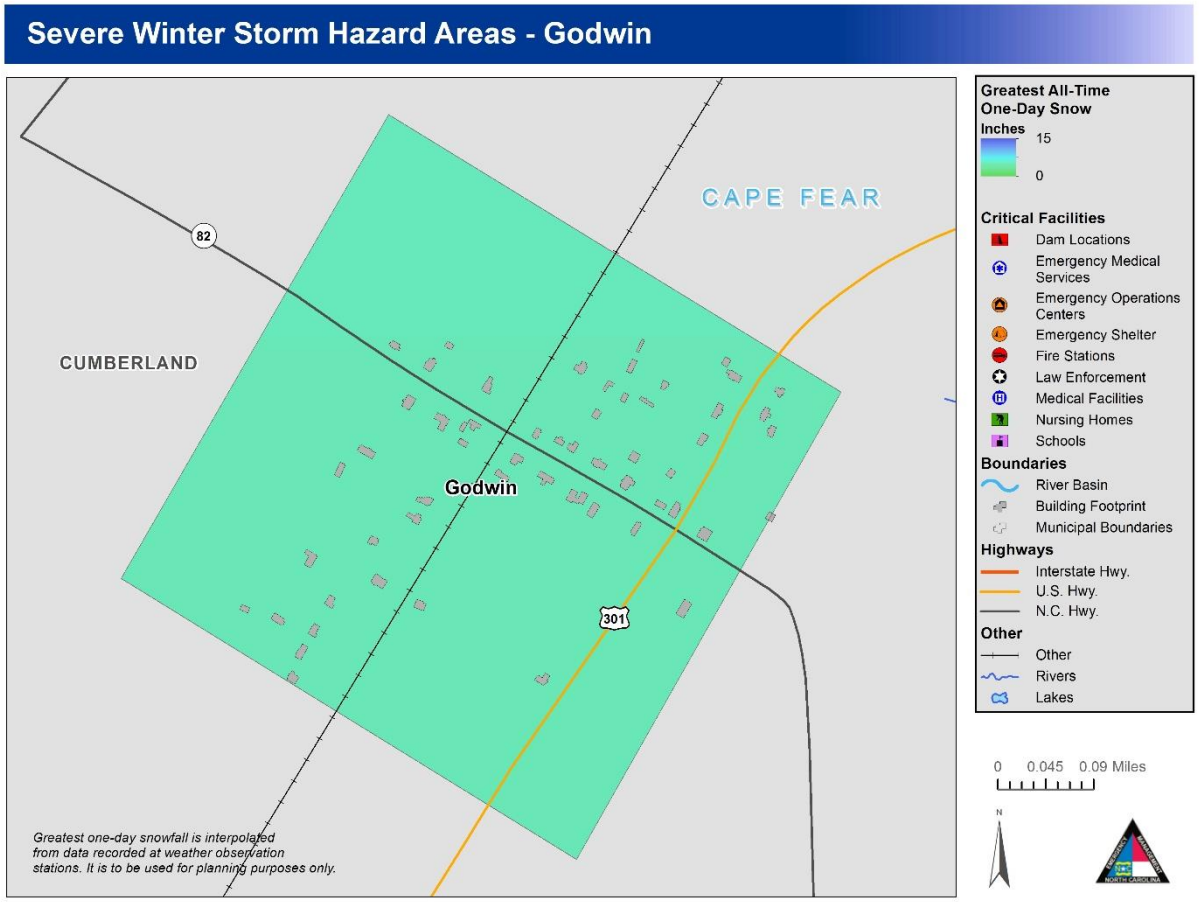


Figure 5-66: Winter Storm Hazard Areas – Godwin

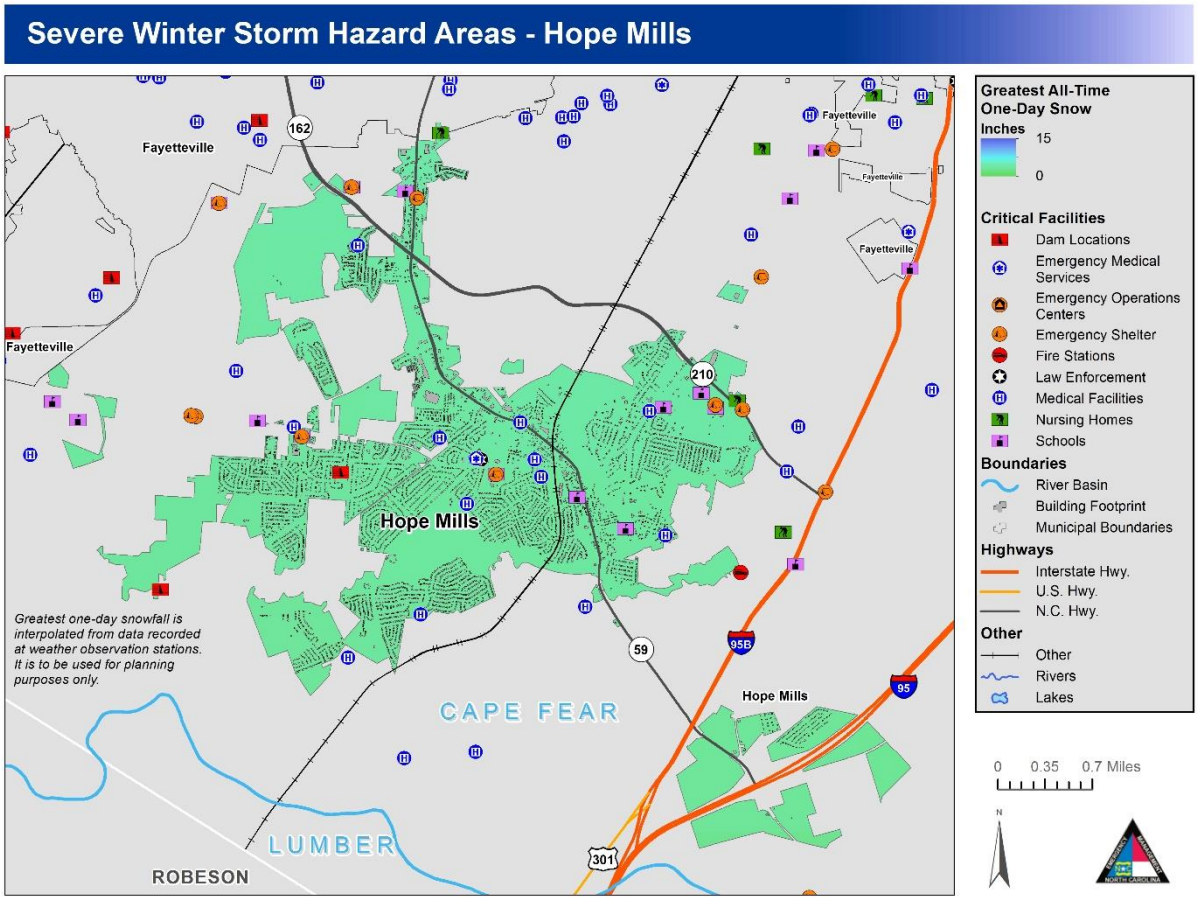


Figure 5-67: Winter Storm Hazard Areas – Hope Mills

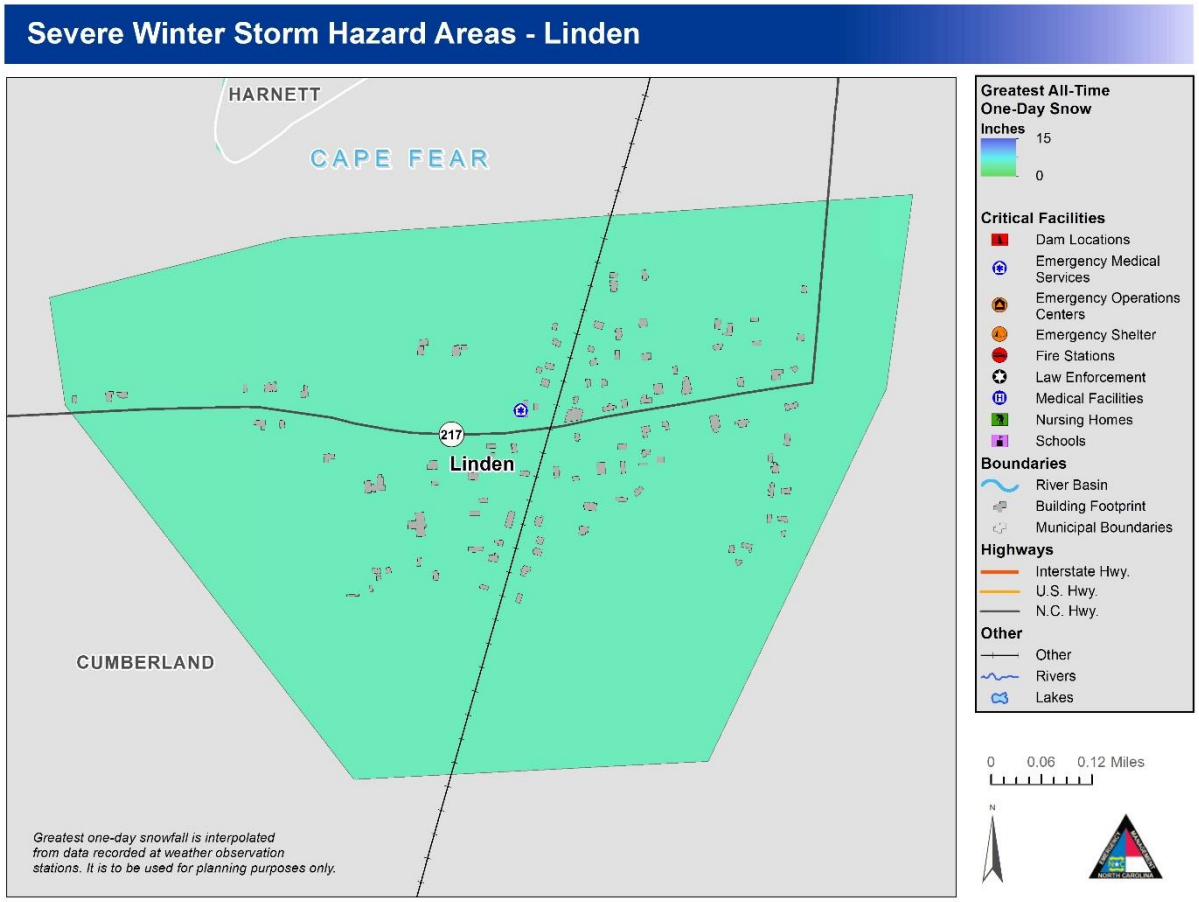


Figure 5-68: Winter Storm Hazard Areas – Linden

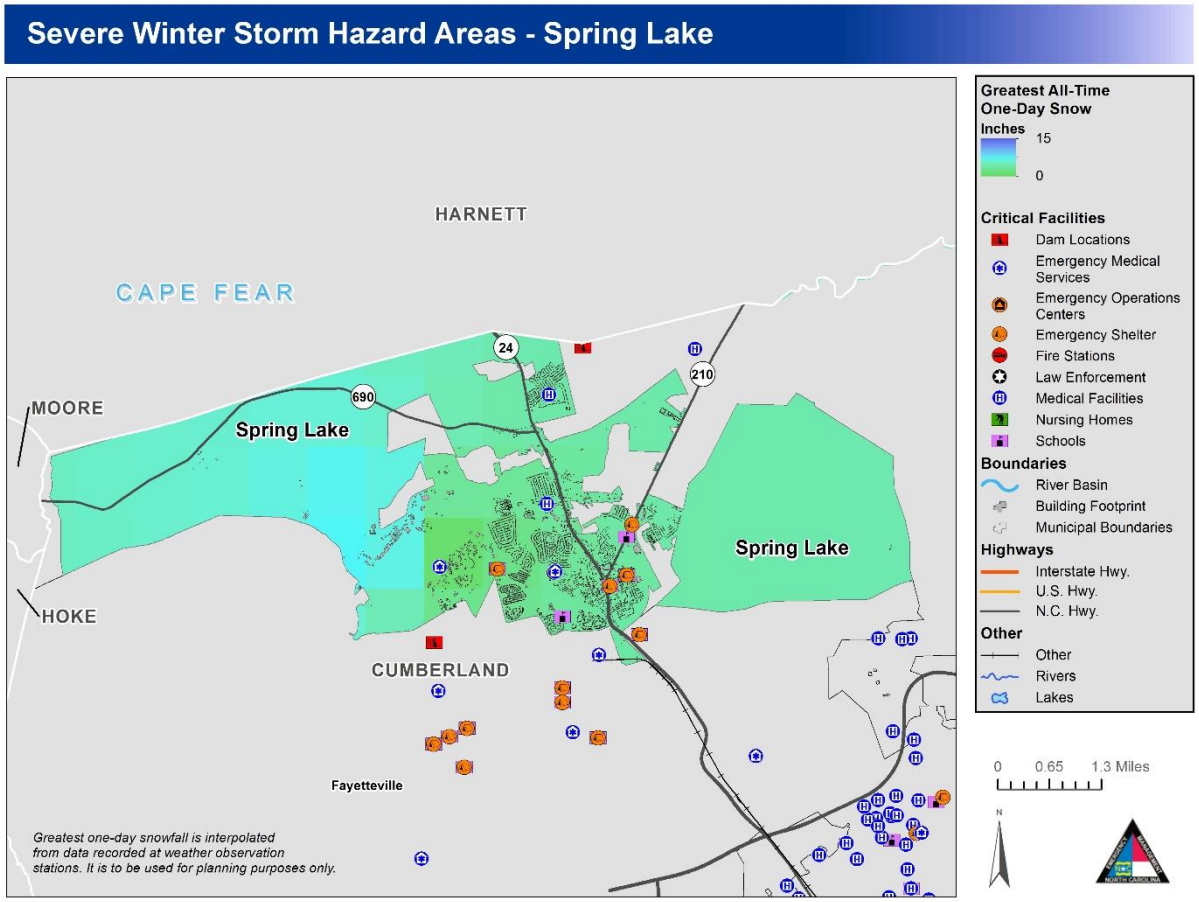


Figure 5-69: Winter Storm Hazard Areas – Spring Lake

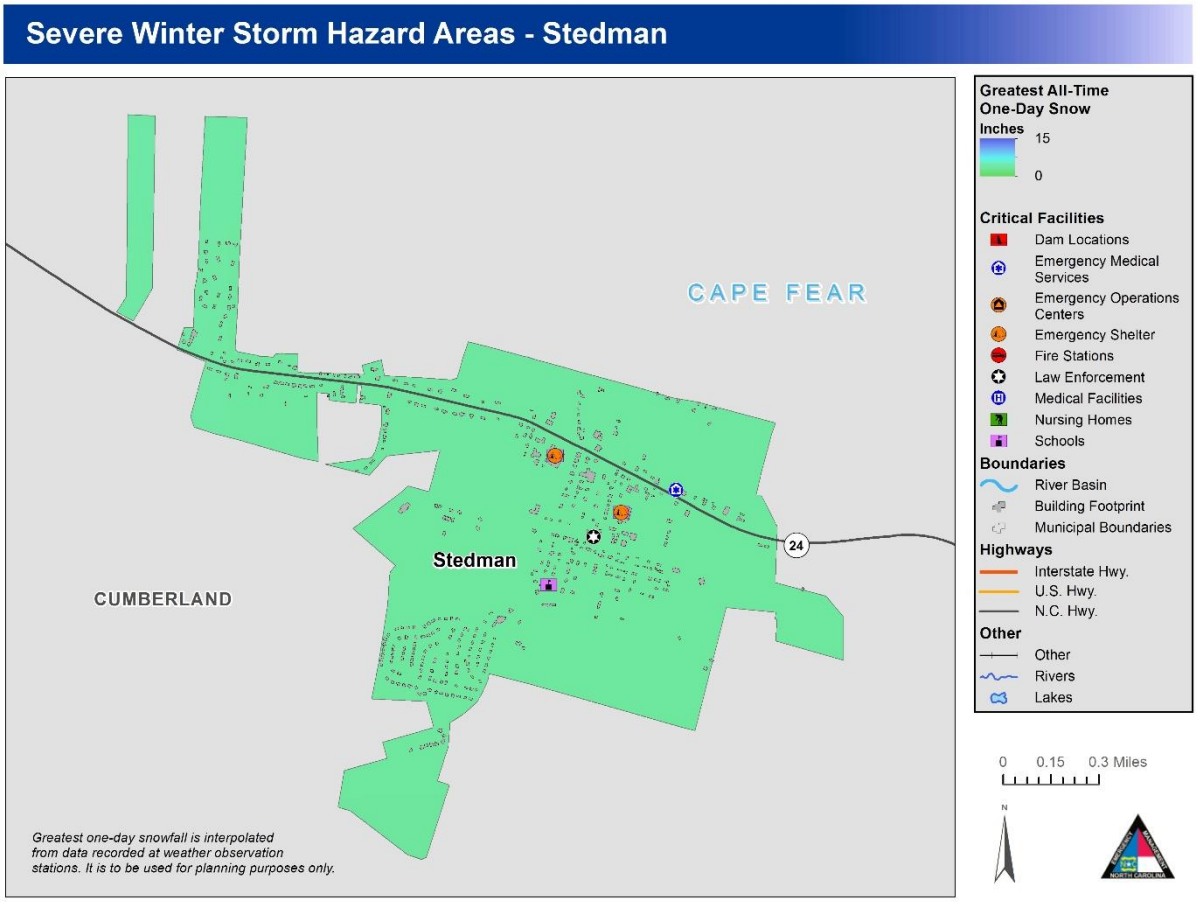


Figure 5-70: Winter Storm Hazard Areas – Stedman

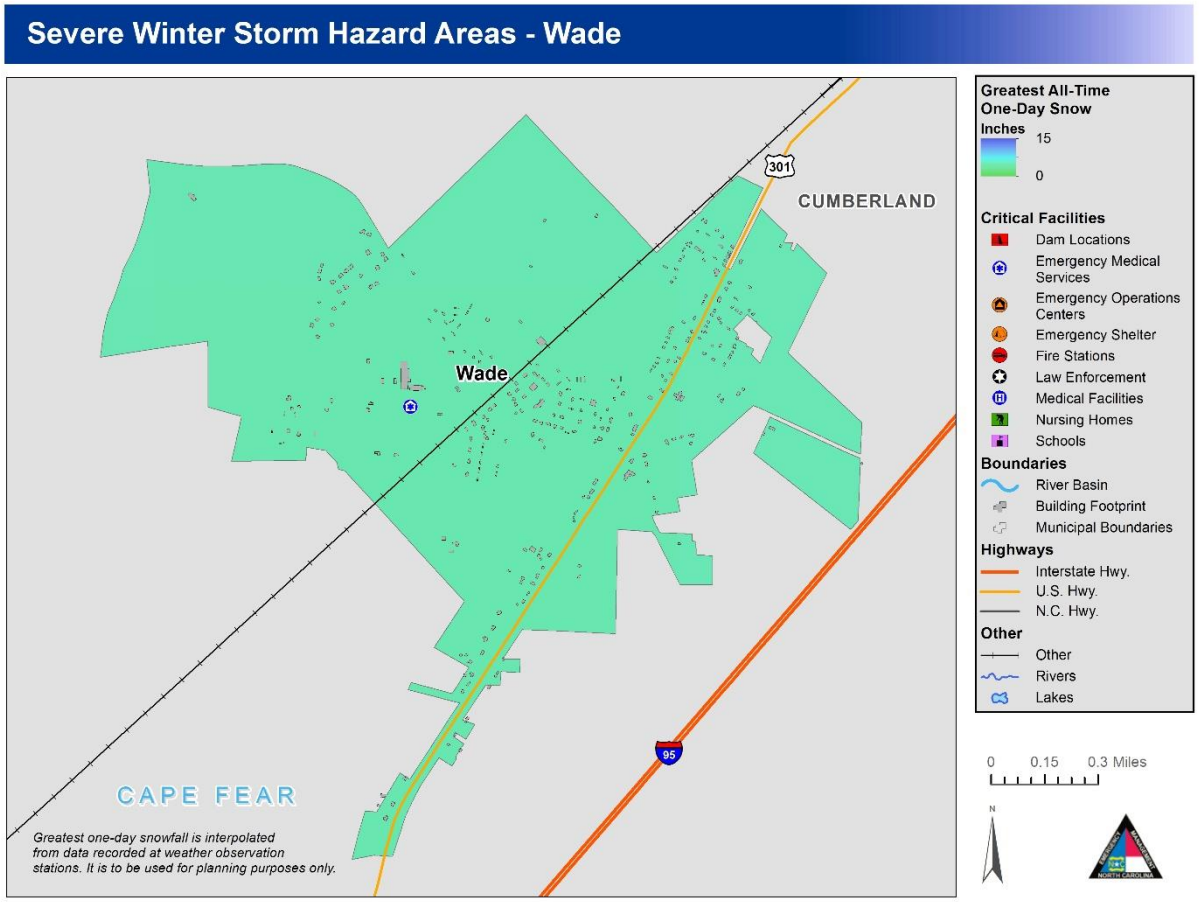


Figure 5-71: Winter Storm Hazard Areas – Wade

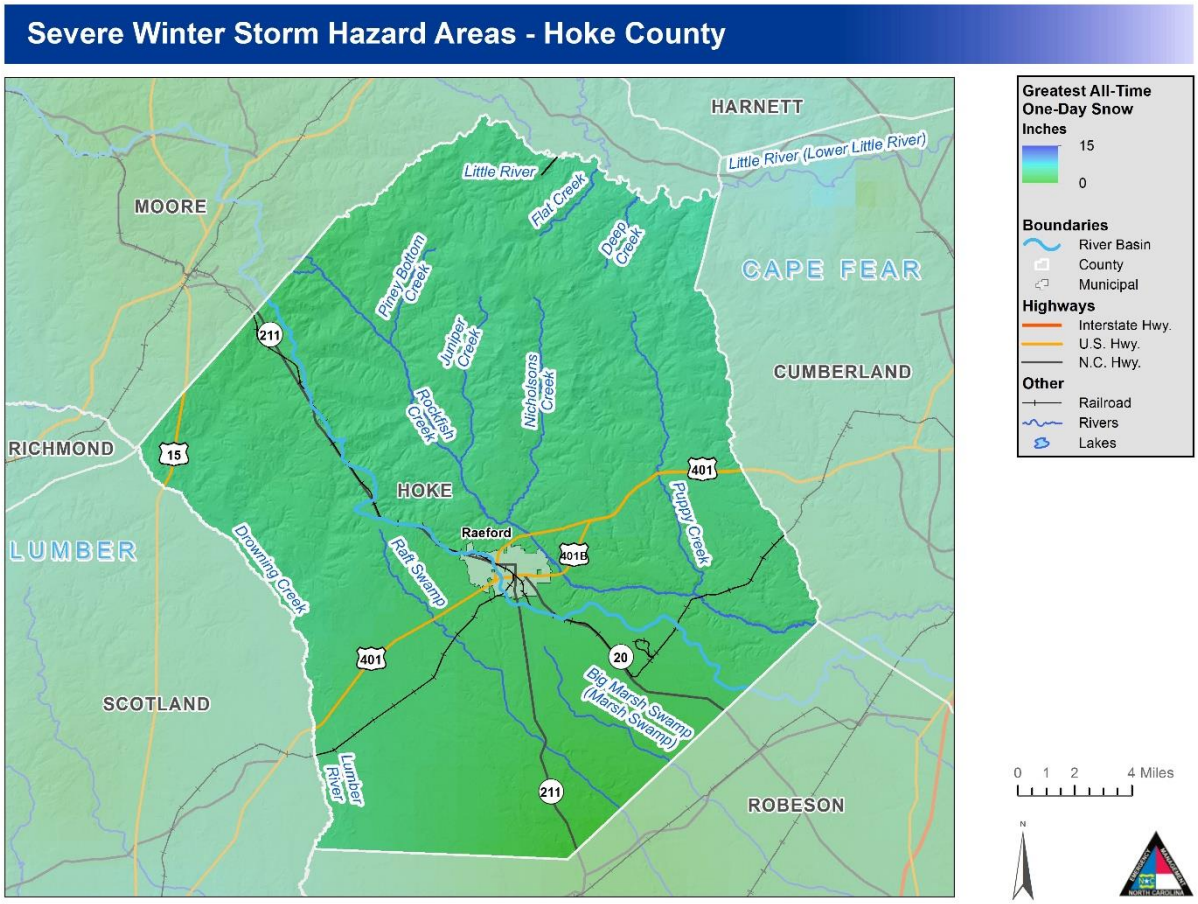


Figure 5-72: Winter Storm Hazard Areas – Hoke County

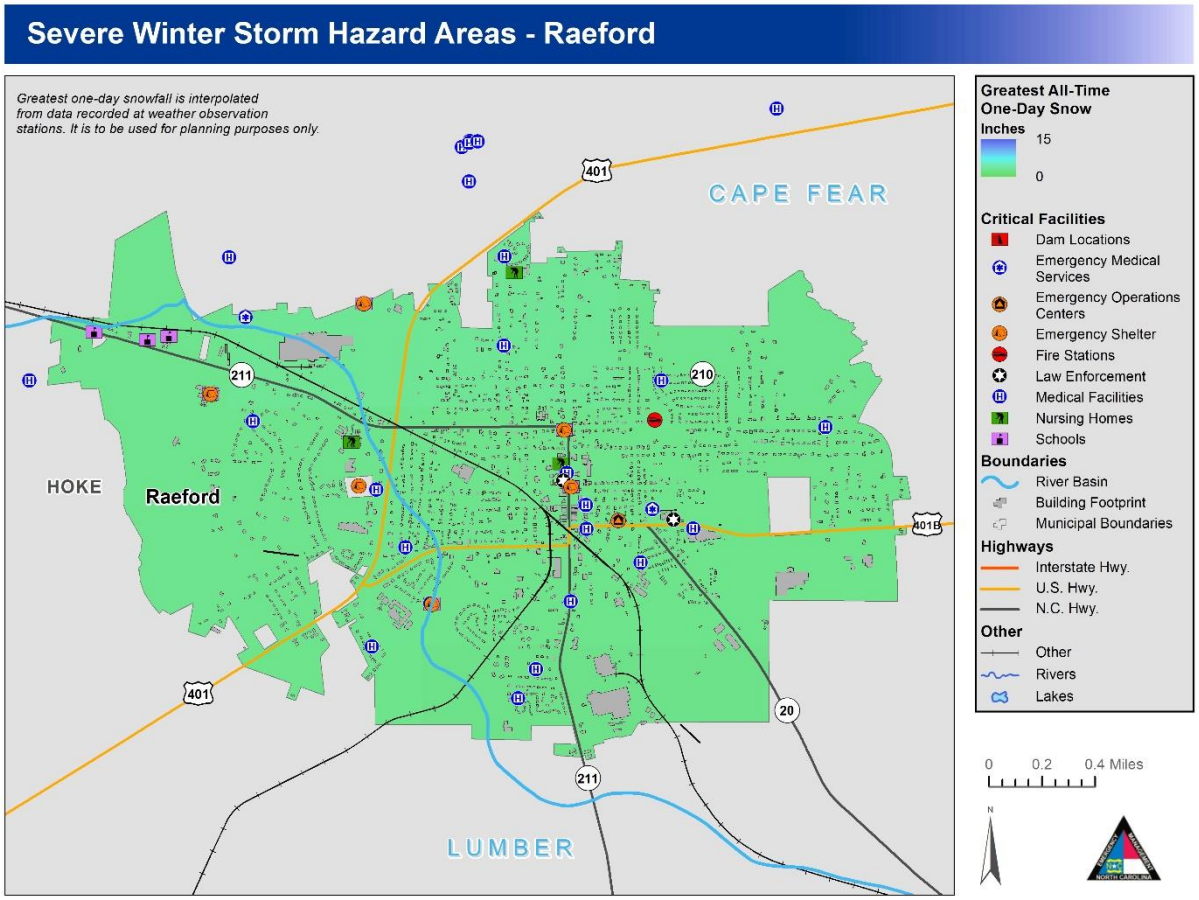


Figure 5-73: Winter Storm Hazard Areas – Raeford

5.10.3 Extent

Location	Greatest One-Day Snowfall (inches)
Cumberland County (unincorporated)	12
Eastover	3
Falcon	4
Fayetteville	12
Godwin	2
Hope Mills	2
Linden	2

Spring Lake		3
Stedman		3
Wade		2
Hoke County (unincorporated)	8	
Raeford		8

5.10.4 Past Occurrences

According to NCEI records, Cumberland and Hoke Counties have experienced 39 winter storm events since 1996, respectively. These events are reported to have caused one death due to icy road conditions.

Table 5-29. NCDC Records for Winter Storm Events in Cumberland and Hoke Counties (1996-2020)

Date	Location		Type of Winter Storm	Deaths/ Injuries	Property Damage	Crop Damage
1/6/1996	Cumberland County	Hoke County	Ice Storm	0/0	$0.00	$0.00
1/11/1996	Cumberland County	Hoke County	Ice Storm	0/0	$0.00	$0.00
2/2/1996	Cumberland County	Hoke County	Ice Storm	0/0	$0.00	$0.00
2/3/1996	Cumberland County	Hoke County	Cold/wind Chill	0/0	$0.00	$0.00
1/19/1998	n/a	Hoke County	Heavy Snow	0/0	$0.00	$0.00
12/23/1998	Cumberland County	Hoke County	Ice Storm	0/0	$0.00	$0.00
1/18/2000	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
1/22/2000	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
1/24/2000	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
1/28/2000	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
12/3/2000	Cumberland County	n/a	Winter Storm	0/0	$0.00	$0.00
1/3/2002	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
2/16/2003	n/a	Hoke County	Winter Storm	0/0	$0.00	$0.00
1/26/2004	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
2/26/2004	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
12/26/2004	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
2/1/2007	Cumberland County	Hoke County	Winter Weather	0/0	$0.00	$0.00
1/17/2008	Cumberland County	Hoke County	Winter Weather	0/0	$0.00	$0.00
1/19/2008	Cumberland County	Hoke County	Winter Weather	0/0	$0.00	$0.00
1/20/2009	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
2/4/2009	Cumberland County	n/a	Winter Weather	0/0	$0.00	$0.00
1/29/2010	Cumberland County	n/a	Winter Storm	0/0	$0.00	$0.00
1/30/2010	n/a	Hoke County	Winter Storm	0/0	$0.00	$0.00
2/12/2010	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
3/2/2010	Cumberland County	n/a	Winter Weather	0/0	$0.00	$0.00
12/16/2010	Cumberland County	Hoke County	Winter Weather	1/0	$0.00	$0.00
12/25/2010	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
1/10/2011	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
1/28/2014	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
2/11/2014	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
2/12/2014	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
2/16/2015	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00

2/24/2015	Cumberland County	Hoke County	Winter Weather	0/0	$0.00	$0.00
01/22/2016	Cumberland County	Hoke County	Winter Storm	0/0	$10.00K	$0.00
02/07/2016	Cumberland County	n/a	Winter Weather	0/0	$0.00	$0.00
01/07/2017	Cumberland County	n/a	Winter Weather	0/0	$0.00	$0.00
01/03/2018	Cumberland County	Hoke County	Winter Storm	0/0	$0.00	$0.00
01/17/2018	Cumberland County	n/a	Winter Weather	0/0	$0.00	$0.00
02/20/2020	Cumberland County	Hoke County	Winter Weather	0/0	$0.00	$0.00

Source: NCEI 9/2020

The following provides details on select flooding events recorded in the NCEI database:

December 23, 1998 - An ice storm began during the afternoon of 12/23/98 and continued through the early morning hours on 12/25/98. Most of the precipitation fell in the form of freezing rain across central North Carolina causing power outages to approximately 500,000 people sometime during the period. From Fayetteville to Goldsboro including most of the eastern Sandhills and Coastal Plain region of the state, rain was mixed with freezing rain. Some locations saw 1/4 inch accumulations of glaze on trees and power lines which caused numerous power outages. Travel conditions were not as severe as in the Piedmont region due to the mix with rain and temperatures ranging between 31 and 35 degrees.

January 18, 2000 - Light snow moved over the Triad area in the early morning hours of the 18th and spread slowly east-southeast, reaching the Sandhills and Coastal Plain before daybreak. The snow intensified in the morning in the Triad area where 4 to 6 inches of snow fell. The Sandhills and Coastal Plain received 1 to 3 inches before changing over to sleet and freezing rain in the mid-morning hours. Total accumulations of ice were less than a quarter of an inch. The snow and ice made for slick road conditions across the entire area. Most counties reported numerous accidents, causing many major roads to close.

January 24, 2000 - This record-setting snowstorm began with freezing drizzle in the early morning hours of the 24th. Road surfaces quickly froze during this time when the temperature dropped from 32 degrees to 27 degrees. The Coastal Plain received 4 to 8 inches of snow with light icing at the end of the event.

December 3, 2000 - The first major winter storm of the season produced heavy snow across the Coastal Plain of North Carolina on the afternoon of December 3. A low-pressure system developed off the coast and quickly moved northeast, preventing the snowfall from moving west of Raleigh.

December 3, 2002 - The first winter storm of the season brought significant snowfall to central North Carolina. An initial round of snow began to fall during the evening of the 2nd. The snow was heavy at times and accumulated between 3 and 5 inches. The snow changed to sleet and light freezing rain in the Coastal Plain through the early morning hours of the 3rd. After a period of little or no precipitation on the morning of the 3rd, snow began to fall again across the entire area, and was heavy at times, adding an additional 4 to 8 inches.

February 26, 2004 - A strong storm arrived on February 26th and continued into the morning of the 27th. This storm hit the area with a one-two punch, affecting southern sections on the 26th, then northern sections late on the 26th and the 27th. The first punch dumped heavy snow over portions of the southern Piedmont and Sandhills. Accumulations totaled 6 to locally 10 inches in areas such as Laurinburg, Hamlet, Fayetteville, and Raeford.

February 4, 2009 - Light to moderate snow fell across the county with up to an inch of snow accumulation near Fort Bragg and south of Fayetteville.

February 12, 2010 - A rapidly moving coastal storm system along the North Carolina coast produced up to 4 to 5 inches of snow in the Coastal Plain, Sandhills and Piedmont. Around 2 to 3 inches of snow fell

across the Northwest Piedmont and Triad. Due the weekend timing of the storm and lack of freezing rain impacts were minimal outside of a number of vehicle accidents.

December 16, 2010 - A prolonged period of light snow and freezing rain in the morning resulted a half inch of snow with a tenth of an inch of freezing rain. This combination created hazardous driving conditions during the morning commute. A 50-year-old man was killed in Fayetteville when a truck in the opposite lane slid on the ice striking a car in the oncoming traffic.

December 25, 2010 - Seven to nine inches of snow fell countywide including in Fayetteville. Many roads were impassible due to the heavy snow, however, other than a few minor accidents no other problems were reported due to the holiday.

5.10.5 Probability of Future Occurrences

The probability of future Winter Storm is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Low: Less than 1% annual probability
- Medium: Between 1% and 10% annual probability
- High: Greater than 10% annual probability

Jurisdiction	Calculated Probability (IRISK)
City Of Fayetteville	Low
City Of Raeford	Low
Cumberland County (Unincorporated Area)	Low
Hoke County (Unincorporated Area)	Low
Town Of Eastover	Low
Town Of Falcon	Low
Town Of Godwin	Low
Town Of Hope Mills	Low
Town Of Linden	Low
Town Of Spring Lake	Low
Town Of Stedman	Low
Town Of Wade	Low

Climate Change and Winter Storms

Climate change is fueling an increase in the intensity and snowfall of winter storms. The atmosphere now holds more moisture which drives heavier than normal precipitation, including heaver snowfall (31). For the entire Northern Hemisphere, there is evidence of an increase in both storm frequency and intensity during the cold season since 1950 (32). Extremely heavy snowstorms increased in number during the last century in northern and eastern parts of the United States but have been less frequent since 2000. In contrast, the South and lower Midwest saw reduced snowstorm frequency during the last century (33). Overall snow cover has decreased in the Northern Hemisphere, due in part to higher temperatures that shorten the time snow spends on the ground.

5.10.6 Consequence and Impact Analysis

People

Winter storms are considered to be deceptive killers because most deaths are indirectly related to the storm event. The leading cause of death during winter storms is from automobile or other transportation accidents. Exhaustion and heart attacks caused by overexertion are the two most likely causes of winter storm-related deaths.

Power outages during very cold winter storm conditions can result in a potentially dangerous situation. Elderly people account for the largest percentage of hypothermia victims. In addition, if the power is out for an extended period, residents are forced to find alternative means to heat their homes. The danger arises from carbon monoxide released from improperly ventilated heating sources such as space or kerosene heaters, furnaces, and blocked chimneys. House fires also occur more frequently in the winter due to lack of proper safety precautions when using an alternative heating source. All jurisdictions in the Region are vulnerable to this type of impact.

First Responders

Adverse impact expected to be severe for unprotected personnel and moderate to light for trained, equipped, and protected personnel.

Fire suppression during winter storms may present a great danger because water supplies may freeze and it may be difficult for firefighting equipment to get to the fire.

Clearing ice- or snow-covered roads is also a problem; with limited equipment in North Carolina due to the relative infrequency of events, priority is given to main thoroughfares and secondary roads are largely untouched during the initial hours after a storm has passed.

Continuity of Operations

Winter storm events can result in a loss of power which may impact operations. Downed trees, power lines and icy road conditions may prevent access to critical facilities and/or emergency equipment.

Built Environment

Localized impact to facilities and infrastructure in the areas of the incident. Power lines and roads most adversely affected.

Economy

Local economy and finances may be adversely affected, depending on damage. Utility companies will strive to restore power as quickly as possible; however, businesses without power may be forced to close for an extended period, resulting in financial losses for the local economy.

Natural Environment

Winter storm events may include ice or snow accumulation on trees which can cause large limbs, or even whole trees, to snap and potentially fall on residential homes, cars, or power lines. This potential for winter debris creates a dangerous environment to be outside in; significant injury may occur if a large limb snaps while a local resident is out driving or walking underneath it.

5.11 Hazard Profile Summary

Table 5-30 summarizes the results from the hazard profiles based on input from the HMPC. For each hazard profiled in this Section, this table includes the likelihood of future occurrence and whether or not the hazard is a considered a priority for the Region. A Vulnerability Assessment is provided in Section 6 for priority hazards.

Table 5-30. Summary of Hazard Profile Results

Hazard	Likelihood of Future Occurrence	Vulnerability Assessment
Dam Failure	Highly Likely	Yes
Drought	Highly Likely	Yes
Earthquake	Occasional	Yes
Extreme Heat	Occasional	Yes
Hurricane/Tropical Storm	Likely	Yes
Flooding	Occasional	Yes
Severe Weather (thunderstorm wind, lightning & hail)	Highly Likely	Yes
Tornado	Likely	Yes
Wildfire	Highly Likely	Yes
Winter Storm	Highly Likely	Yes

SECTION 6: VULNERABILITY ASSESSMENT

Section 6 quantifies the vulnerability of Cumberland and Hoke Counties to the priority hazards identified in Section 5. It consists of the following subsections:

- 6.1 Methodology
- 6.2 Asset Inventory
- 6.3 Vulnerability Assessment Results
- 6.4 Priority Index

CFR Requirements
44 CFR Subsection D §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. Plans approved after October 1, 2008 must also address NFIP insured structures that have been repetitively damaged by floods. The plan should describe vulnerability in terms of:** 1. The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; 2. (B): An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate; and 3. (C): Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

The HMPC conducted a vulnerability assessment of the hazards identified as a priority in order to assess the impact that each hazard would have on the region. The vulnerability assessment quantifies, to the extent feasible using best available data, assets at risk to natural hazards and estimates potential losses.

Vulnerability assessments followed the methodology described in the FEMA publication Understanding Your Risks—Identifying Hazards and Estimating Losses (August 2001). The vulnerability assessment first describes the total vulnerability and values at risk and then discusses vulnerability by hazard. Data used to support this assessment included the following:

- County GIS data (hazards, base layers, and assessor's data)
- Hazard layer GIS datasets from federal agencies
- Integrated Hazard Risk Management (IHRM) data provided by NCEM
- Written descriptions of inventory and risks provided by the State Hazard Mitigation Plan
- Other Existing plans and studies provided by the Counties

6.1 Methodology

The data provided by NCEM and the IHRM Program come from models and methods commonly used by government risk assessors. IHRM focused on collecting information on specific buildings and other critical infrastructure such as public utilities so that losses from damages could be calculated for each building or piece of infrastructure. The results factor in overall risk and its components of probability, consequence, and vulnerability.

6.2 Asset Inventory

Each participating jurisdiction assisted in the identification of assets to be used for analysis to determine what assets may be potentially at risk to the hazards covered in the Plan. These assets are defined broadly as anything that is important to the function and character of the community. For the purposes of this Risk Assessment, the individual types of assets include:

- Population
- Parcels and Buildings
- Critical Facilities
- Infrastructure
- High Potential Loss Properties
- Historic Properties

Although all assets may be affected by certain hazards (such as hail or tornadoes), some assets are more vulnerable because of their location (e.g., the floodplain), certain physical characteristics (e.g., slab-on-grade construction), or socioeconomic uses (e.g., major employers).

6.2.1 Population

The population counts shown in ***Table 6-1*** are derived from 2010 census data and include a breakdown of two subpopulations assumed to be at greater risk to natural hazards than the "general" population: elderly (ages 65 and older) and children (under the age of 5).

Table 6-1. Population Counts with Vulnerable Population Breakdown

Jurisdiction	2010 Census Population	Elderly (Age 65 and Over)	Children (Age 5 and Under)
Cumberland			
City Of Fayetteville	183,238	17,329	15,228
Cumberland County (Unincorporated Area)	107,594	10,175	8,942
Town Of Eastover	3,591	340	298
Town Of Falcon	286	27	24
Town Of Godwin	141	13	12
Town Of Hope Mills	14,596	1,380	1,213
Town Of Linden	104	10	9
Town Of Spring Lake	8,277	783	688
Town Of Stedman	983	93	82
Town Of Wade	527	50	44
Subtotal Cumberland	**319,337**	**30,200**	**26,540**
Hoke			
City Of Raeford	5,964	443	582
Hoke County (Unincorporated Area)	40,929	3,040	3,994
Subtotal Hoke	**46,893**	**3,483**	**4,576**
TOTAL PLAN AREA	**366,230**	**33,683**	**31,116**

Source: U.S. Census Bureau.

6.2.2 Parcels and Buildings

The parcel counts, building counts, and building values shown in ***Table 6-2*** represent the built environment inventories used for the analyses included in the Risk Assessment. In order to provide a more accurate reflection of buildings that contain livable space and/or commercial, industrial, or other uses, all building footprints less than 500 square feet have been eliminated from the counts and analysis.

Table 6-2. Parcel and Building Counts and Values by Jurisdiction

Jurisdiction	Number of Developed Parcels	Number of Undeveloped Parcels	Building Count	Building Value	Number of Pre-FIRM Buildings
Cumberland					
City Of Fayetteville	0	0	70,117	$21,915,475,751	0
Cumberland County (Unincorporated Area)	0	0	46,300	$11,536,542,720	0
Town Of Eastover	0	0	1,855	$215,115,528	0
Town Of Falcon	0	0	169	$30,778,897	0
Town Of Godwin	0	0	82	$6,517,058	0
Town Of Hope Mills	0	0	5,519	$1,238,476,389	0
Town Of Linden	0	0	106	$12,343,184	0
Town Of Spring Lake	0	0	2,998	$396,911,385	0
Town Of Stedman	0	0	486	$70,157,595	0
Town Of Wade	0	0	315	$26,569,515	0
Subtotal Cumberland	**0**	**0**	**127,947**	**$35,448,888,022**	**0**
Hoke					
City Of Raeford	0	0	3,011	$646,294,565	0
Hoke County (Unincorporated Area)	0	0	18,181	$2,692,138,980	0
Subtotal Hoke	**0**	**0**	**21,192**	**$3,338,433,545**	**0**
TOTAL PLAN	**0**	**0**	**149,139**	**$38,787,321,567**	**0**

Source: Participating jurisdictions.

6.2.3 Critical Facilities

Table 6-3 shows counts of critical facilities under a variety of categories attributed to each participating jurisdiction.

Table 6-3. Critical Facilities Counts by Jurisdiction Part A

Jurisdiction	Food and Agriculture	Banking and Finance	Chemical & Hazardous	Commercial	Communications	Critical Manufacturing	Healthcare	EM	Government Facilities
Cumberland									
City Of Fayetteville	68	102	0	2,869	12	415	394	0	550
Cumberland County (Unincorporated Area)	1,125	16	0	1,563	0	350	30	0	211
Town Of Eastover	13	1	0	64	0	21	7	0	11
Town Of Falcon	6	0	0	15	0	2	2	0	1
Town Of Godwin	3	0	0	5	0	1	0	0	1
Town Of Hope Mills	0	8	0	208	0	6	17	0	53
Town Of Linden	8	0	0	10	0	3	0	0	5
Town Of Spring Lake	0	5	0	206	0	10	7	0	21
Town Of Stedman	0	1	0	46	0	6	2	0	10
Town Of Wade	11	0	0	18	0	9	1	0	3
Subtotal Cumberland	**1,234**	**133**	**0**	**5,004**	**12**	**823**	**460**	**0**	**866**
Hoke									
City Of Raeford	16	6	0	242	1	54	26	0	94
Hoke County (Unincorporated Area)	700	1	0	360	0	45	4	0	106
Subtotal Hoke	**716**	**7**	**0**	**602**	**1**	**99**	**30**	**0**	**200**
TOTAL PLAN	**1,950**	**140**	**0**	**5,606**	**13**	**922**	**490**	**0**	**1,066**

Table 6-4. Critical Facilities Counts by Jurisdiction Part B

Jurisdiction	Food and Agriculture	Banking and Finance	Chemical & Hazardous	Commercial	Communications	Critical Manufacturing	Healthcare	EM	Government Facilities
Cumberland									
City Of Fayetteville	1	0	1	0	769	71	18	29	0
Cumberland County (Unincorporated Area)	0	0	0	0	306	51	13	8	0
Town Of Eastover	0	0	0	0	9	1	1	0	0
Town Of Falcon	0	0	0	0	0	0	0	0	0
Town Of Godwin	0	0	0	0	0	0	0	0	0
Town Of Hope Mills	0	0	0	0	25	2	2	0	0
Town Of Linden	0	0	0	0	2	0	1	0	0
Town Of Spring Lake	0	0	0	0	21	0	2	0	0
Town Of Stedman	0	0	0	0	4	0	1	0	0
Town Of Wade	0	0	0	0	3	0	1	0	0
Subtotal Cumberland	**1**	**0**	**1**	**0**	**1,139**	**125**	**39**	**37**	**0**
Hoke									
City Of Raeford	0	0	0	1	40	3	7	13	0
Hoke County (Unincorporated Area)	0	0	0	3	72	1	7	6	0
Subtotal Hoke	**0**	**0**	**0**	**4**	**112**	**4**	**14**	**19**	**0**
TOTAL PLAN	**1**	**0**	**1**	**4**	**1,251**	**129**	**53**	**56**	**0**

Source: Numbers in black supplied by participating jurisdictions. Numbers in orange derived from alternate sources via NC One Map.

*** A facility exists but a GPS point location for GIS analysis is not currently available.

6.2.4 Infrastructure

Certain infrastructure elements as shown in ***Table 6-5*** were identified for analysis. These include major roads, railroads, power plants, water/wastewater facilities, and water/wastewater lines.

Table 6-5. Infrastructure Counts and Measurements (in Miles) by Jurisdiction

Jurisdiction	Major Roads[1]	Railroad[2]	Energy (Power Plants)	Water (Treatment Facilities)	Water / Wastewater Lines
Cumberland					
City Of Fayetteville	0.0	0.0	71	29	0.0
Cumberland County (Unincorporated Area)	0.0	0.0	51	8	0.0
Town Of Eastover	0.0	0.0	1	0	0.0
Town Of Falcon	0.0	0.0	0	0	0.0
Town Of Godwin	0.0	0.0	0	0	0.0
Town Of Hope Mills	0.0	0.0	2	0	0.0
Town Of Linden	0.0	0.0	0	0	0.0
Town Of Spring Lake	0.0	0.0	0	0	0.0
Town Of Stedman	0.0	0.0	0	0	0.0
Town Of Wade	0.0	0.0	0	0	0.0
Subtotal Cumberland	**0.0**	**0.0**	**125**	**37**	**0.0**
City Of Raeford	0.0	0.0	3	13	0.0
Hoke County (Unincorporated Area)	0.0	0.0	1	6	0.0
Subtotal Hoke	**0.0**	**0.0**	**4**	**19**	**0.0**
TOTAL PLAN	**0.0**	**0.0**	**129**	**56**	**0.0**

Source: NC IRISK and participating jurisdictions.

[2]The major roads and railroads accounted for in this table are the same as those depicted on the "Community Profile" map found in Section 2.

[3]Does not include inactive/abandoned railroads.

6.2.5 High Potential Loss Properties

Table 6-6 shows counts of high potential loss properties attributed to each participating jurisdiction.

Table 6-6. High Potential Loss Properties by Jurisdiction

Jurisdiction	Residential[3]	Commercial	Industrial	Government	Agricultural	Religious	Utilities	Other
Cumberland								
City Of Fayetteville	227	306	12	177	0	88	40	0
Cumberland County (Unincorporated Area)	618	128	42	62	0	49	51	0
Town Of Eastover	0	5	1	5	0	2	0	0
Town Of Falcon	2	0	0	0	0	4	0	0
Town Of Hope Mills	3	8	0	13	0	10	1	0
Town Of Linden	0	0	0	1	0	0	0	0
Town Of Spring Lake	7	16	0	11	0	8	0	0
Town Of Stedman	0	0	0	4	0	2	0	0
Town Of Wade	0	1	0	1	0	0	0	0
Subtotal Cumberland	**857**	**464**	**55**	**274**	**0**	**163**	**92**	**0**
Hoke								
City Of Raeford	1	14	7	26	0	12	1	0
Hoke County (Unincorporated Area)	0	19	2	33	1	79	4	0
Subtotal Hoke	**1**	**33**	**9**	**59**	**1**	**91**	**5**	**0**
TOTAL PLAN	**858**	**497**	**64**	**333**	**1**	**254**	**97**	**0**

Source: Local sources

[4]This category consists of a variety of facilities specified by participating jurisdictions.

6.2.6 Historic Properties

Historic property counts including districts, buildings, and other cultural resources as shown in ***Table 6-7*** were derived from a combination of sources consisting of the National Register of Historic Places (National Park Service) and participating jurisdictions.

Table 6-7. Historic Property Counts by County

Jurisdiction	Districts	Buildings and Landmarks	Other
Cumberland County	0	69	0
Hoke County	0	5	0
Source: Jurisdictions and National Register of Historic Places.			

6.3 Vulnerability Assessment Results

The Disaster Mitigation Act regulations require that the HMPC evaluate the risks associated with each of the hazards identified in the planning process. This section summarizes the possible impacts and quantifies the region's vulnerability to each of the hazards identified as a priority hazard.

Vulnerability can be quantified in those instances where there is a known, identified hazard area, such as a mapped floodplain. In these instances, the numbers and types of buildings subject to the identified hazard can be counted and their values tabulated. Other information can be collected in regard to the hazard area, such as the location of critical community facilities (e.g., a fire station), historic structures, and valued natural resources (e.g., an identified wetland or endangered species habitat). Together, this information conveys the impact, or vulnerability, of that area to that hazard.

The conclusions drawn from the hazard profiling and vulnerability assessment process can be used to prioritize all potential hazards to the Cumberland and Hoke County region. The Priority Risk Index (PRI), discussed in detail in Section 6.4, is a good practice to use when prioritizing hazards because it provides a standardized numerical value so hazards can be compared against one another (the higher the PRI value, the greater the hazard risk). The PRI score is calculated through five categories: probability, impact, special extent, warning time, and duration. Hazards are then categorized in the following classifications based on the assigned risk value:

- Low Risk - Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- Medium Risk - Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- High Risk - Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread.

6.3.1 Dam/Levee Failure

Vulnerability—Low Risk

Given the current dam inventory and historic data, a dam breach of a high hazard dam is likely (35 percent annual probability) in the future and a dam breach of a low hazard dam is highly likely occur in the future. However, regular monitoring can help mitigate or prevent failures if appropriate actions are taken when it is determined a failure may be likely.

The NC Dam Safety's North Carolina Simplified Inundation Maps for Emergency Action Plans "assumed breach flood wave height" technique was used to estimate the inundation depth and distance downstream of each dam in the NC Dam Safety database. The initial flood wave heights are dependent upon the height of the dam and range from 3.5 feet to 16.5 feet. To estimate the exposure of buildings to the flood wave, the flood wave depth was compared to the North Carolina Floodplain Mapping Program's (NCFMP) building footprint data, available contour data and the NCFMP's 100-year floodplain elevations and depths.

The estimated number and characteristics of buildings that could potentially be impacted by a dam failure are shown in ***Table 6-8***.

Table 6-8. Properties Potentially at Risk to Dam Failure

County	Total Number of Buildings in Estimated Inundation Area	Total Building Value	Estimated Content Value	Total Value
Cumberland	94	$14,351,756	$7,641,354	$21,993,110
Hoke	6	$1,307,911	$638,240	$1,946,151
Total	**100**	**$15,659,667**	**$8,279,594**	**$23,939,261**

Note: Clark Dam and Upper Clark Dam would potential flood the same four buildings if either failed. The buildings are only counted once in this table.

Citizens displaced from their homes due to a dam failure may require accommodations in temporary emergency shelters. For planning purposes, Lock Lommond is estimated to impact the most buildings during a failure. If breached, this dam would potentially displace the occupants of 16 buildings. Using the 2009-2013 U.S. Census household factor for Cumberland County (2.55), an estimated 41 people could seek shelter.

6.3.2 Drought

Vulnerability—High Risk

Although the State of North Carolina as a whole is vulnerable to drought, estimated potential losses are inherently difficult to calculate because drought tends to cause little damage to the built environment. Therefore, it is assumed that whereas all buildings and facilities in the planning area would technically be exposed to the drought hazard, there is no significant vulnerability to these buildings on a structural level.

One specific concern voiced by the HMPC was that population growth could contribute directly to this hazard, as an increased number of users pull from the available water supply within the region. It is estimated that seven percent of the population in the region relies on groundwater for drinking, and 47% of the population relies on surface water. It can reasonably be assumed that the remaining 46% depends on a private well for drinking water.

Surface water supply is at risk to a decrease in precipitation, population growth within the Cumberland-Hoke region and population growth in cities upstream that depend on the same surface water supply. Well water is at risk to contaminants such as pesticides and fertilizers which may enter waterways during heavy rains and flooding then concentrate in the soil as streams, rivers and lakes dry up. Furthermore, humans and agricultural activities will place an even greater demand upon wells, shallow

and deep, as surface waters dry up. While there are five major aquifers beneath Cumberland County, subject matter experts agree that only two of those offer a viable possibility for additional water–driving a competition between humans, stock and crops (21).

6.3.3 Earthquake

The following tables provide counts and values by jurisdiction relevant to Earthquake hazard vulnerability in the Cumberland-Hoke Regional HMP Area.

Table 6-9. Population Impacted by the 250 Year Earthquake

Jurisdiction	Total Population	Population at Risk		All Elderly Population	Elderly Population at Risk		All Children	Children at Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	25,230	13.8%	17,329	2,386	13.8%	15,228	2,097	13.8%
Cumberland County (Unincorporated Area)	107,594	32,845	30.5%	10,175	3,106	30.5%	8,942	2,730	30.5%
Town Of Eastover	3,591	862	24%	340	82	24.1%	298	72	24.2%
Town Of Falcon	286	99	34.6%	27	9	33.3%	24	8	33.3%
Town Of Godwin	141	24	17%	13	2	15.4%	12	2	16.7%
Town Of Hope Mills	14,596	1,454	10%	1,380	137	9.9%	1,213	121	10%
Town Of Linden	104	27	26%	10	3	30%	9	2	22.2%
Town Of Spring Lake	8,277	1,807	21.8%	783	171	21.8%	688	150	21.8%
Town Of Stedman	983	123	12.5%	93	12	12.9%	82	10	12.2%
Town Of Wade	527	131	24.9%	50	12	24%	44	11	25%
Subtotal Cumberland	**319,337**	**62,602**	**19.6%**	**30200**	**5920**	**19.6%**	**26540**	**5203**	**19.6%**
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,922	100%	3,040	3,039	100%	3,994	3,993	100%
Subtotal Hoke	**46,893**	**46,886**	**100%**	**3483**	**3482**	**100%**	**4576**	**4575**	**100%**
TOTAL PLAN	**366,230**	**109,488**	**29.9%**	**33683**	**9402**	**27.9%**	**31116**	**9778**	**31.4%**

Source: GIS Analysis

Table 6-10. Population Impacted by the 500 Year Earthquake

Jurisdiction	Total Population	Population at Risk		All Elderly Population	Elderly Population at Risk		All Children	Children at Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-11. Population Impacted by the 750 Year Earthquake

Jurisdiction	Total Population	Population at Risk		All Elderly Population	Elderly Population at Risk		All Children	Children at Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-12. Population Impacted by the 1000 Year Earthquake

Jurisdiction	Total Population	Population at Risk		All Elderly Population	Elderly Population at Risk		All Children	Children at Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-13. Population Impacted by the 1500 Year Earthquake

Jurisdiction	Total Population	Population at Risk		All Elderly Population	Elderly Population at Risk		All Children	Children at Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-14. Population Impacted by the 2000 Year Earthquake

Jurisdiction	Total Population	Population at Risk		All Elderly Population	Elderly Population at Risk		All Children	Children at Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-15. Population Impacted by the 2500 Year Earthquake

Jurisdiction	Total Population	Population at Risk		All Elderly Population	Elderly Population at Risk		All Children	Children at Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-16. Buildings Impacted by the 250 Year Earthquake

Jurisdiction	All Buildings	Pre-FIRM Buildings at Risk		Residential Buildings at Risk			Commercial Buildings at Risk			Public Buildings at Risk			Total Buildings at Risk		
		Number	Percent	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	5,486	7.8%	8,860	12.6%	$108,509	4,107	5.9%	$453,800	950	1.4%	$153,288	13,917	19.8%	$715,598
Cumberland County (Unincorporated Area)	46,300	4,238	9.2%	11,783	25.4%	$82,802	3,032	6.5%	$349,715	1,670	3.6%	$395,241	16,485	35.6%	$827,758
Town Of Eastover	1,855	0	0%	410	22.1%	$1,211	98	5.3%	$8,223	27	1.5%	$2,454	535	28.8%	$11,888
Town Of Falcon	169	67	39.6%	33	19.5%	$107	13	7.7%	$1,102	22	13%	$939	68	40.2%	$2,148
Town Of Godwin	82	20	24.4%	12	14.6%	$43	6	7.3%	$50	3	3.7%	$152	21	25.6%	$245
Town Of Hope Mills	5,519	218	3.9%	517	9.4%	$8,454	232	4.2%	$25,177	77	1.4%	$11,322	826	15%	$44,952
Town Of Linden	106	49	46.2%	20	18.9%	$93	19	17.9%	$343	10	9.4%	$674	49	46.2%	$1,110
Town Of Spring Lake	2,998	364	12.1%	594	19.8%	$6,164	217	7.2%	$16,358	49	1.6%	$11,311	860	28.7%	$33,834
Town Of Stedman	486	119	24.5%	52	10.7%	$303	50	10.3%	$2,349	18	3.7%	$2,034	120	24.7%	$4,685
Town Of Wade	315	112	35.6%	67	21.3%	$233	36	11.4%	$2,353	10	3.2%	$818	113	35.9%	$3,404
Subtotal Cumberland	**127,947**	**10,673**	**8.3%**	**22,348**	**17.5%**	**$207,919**	**7,810**	**6.1%**	**$859,470**	**2,836**	**2.2%**	**$578,233**	**32,994**	**25.8%**	**$1,645,622**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$11,502	328	10.9%	$72,227	162	5.4%	$31,320	2,996	99.5%	$115,049
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,865	92.8%	$54,563	1,037	5.7%	$59,119	266	1.5%	$68,443	18,168	99.9%	$182,125
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,371**	**91.4%**	**$66,065**	**1,365**	**6.4%**	**$131,346**	**428**	**2%**	**$99,763**	**21,164**	**99.9%**	**$297,174**
TOTAL PLAN	**149,139**	**24,743**	**16.6%**	**41,719**	**28%**	**$273,984**	**9,175**	**6.2%**	**$990,816**	**3,264**	**2.2%**	**$677,996**	**54,158**	**36.3%**	**$1,942,796**

Source: GIS Analysis

Table 6-17. Buildings Impacted by the 500 Year Earthquake

Jurisdiction	All Buildings	Pre-FIRM Buildings at Risk		Residential Buildings at Risk			Commercial Buildings at Risk			Public Buildings at Risk			Total Buildings at Risk		
		Number	Percent	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$5,630,204	4,159	5.9%	$5,922,255	1,061	1.5%	$1,973,628	70,033	99.9%	$13,526,088
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$3,549,908	3,080	6.7%	$4,211,589	1,842	4%	$4,808,723	46,244	99.9%	$12,570,219
Town Of Eastover	1,855	0	0%	1,727	93.1%	$110,693	101	5.4%	$96,719	27	1.5%	$29,336	1,855	100%	$236,749
Town Of Falcon	169	165	97.6%	119	70.4%	$6,344	13	7.7%	$12,646	37	21.9%	$18,313	169	100%	$37,304
Town Of Godwin	82	81	98.8%	72	87.8%	$3,300	6	7.3%	$647	4	4.9%	$1,709	82	100%	$5,657
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$442,770	234	4.2%	$346,308	86	1.6%	$160,688	5,518	100%	$949,766
Town Of Linden	106	106	100%	77	72.6%	$4,277	19	17.9%	$4,293	10	9.4%	$6,974	106	100%	$15,544
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$205,145	223	7.4%	$217,030	50	1.7%	$113,672	2,998	100%	$535,847
Town Of Stedman	486	435	89.5%	416	85.6%	$26,871	50	10.3%	$30,328	20	4.1%	$24,965	486	100%	$82,164
Town Of Wade	315	290	92.1%	269	85.4%	$12,331	36	11.4%	$21,540	10	3.2%	$8,720	315	100%	$42,591
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$9,991,843**	**7,921**	**6.2%**	**$10,863,355**	**3,147**	**2.5%**	**$7,146,728**	**127,806**	**99.9%**	**$28,001,929**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$264,866	328	10.9%	$720,800	162	5.4%	$287,559	2,996	99.5%	$1,273,225
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$1,531,106	1,037	5.7%	$622,079	266	1.5%	$701,072	18,171	99.9%	$2,854,257
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$1,795,972**	**1,365**	**6.4%**	**$1,342,879**	**428**	**2%**	**$988,631**	**21,167**	**99.9%**	**$4,127,482**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$11,787,815**	**9,286**	**6.2%**	**$12,206,234**	**3,575**	**2.4%**	**$8,135,359**	**148,973**	**99.9%**	**$32,129,411**

Source: GIS Analysis

Table 6-18. Buildings Impacted by the 750 Year Earthquake

Jurisdiction	All Buildings	Pre-FIRM Buildings at Risk		Residential Buildings at Risk			Commercial Buildings at Risk			Public Buildings at Risk			Total Buildings at Risk		
		Number	Percent	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$18,006,863	4,159	5.9%	$15,279,262	1,061	1.5%	$5,235,414	70,033	99.9%	$38,521,538
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$11,031,860	3,080	6.7%	$10,766,353	1,842	4%	$12,555,344	46,244	99.9%	$34,353,557
Town Of Eastover	1,855	0	0%	1,727	93.1%	$353,052	101	5.4%	$260,442	27	1.5%	$73,791	1,855	100%	$687,285
Town Of Falcon	169	165	97.6%	119	70.4%	$19,462	13	7.7%	$31,404	37	21.9%	$52,525	169	100%	$103,391
Town Of Godwin	82	81	98.8%	72	87.8%	$10,541	6	7.3%	$1,790	4	4.9%	$4,864	82	100%	$17,194
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$1,443,116	234	4.2%	$894,211	86	1.6%	$416,344	5,518	100%	$2,753,670
Town Of Linden	106	106	100%	77	72.6%	$12,833	19	17.9%	$11,194	10	9.4%	$19,656	106	100%	$43,683
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$622,160	223	7.4%	$563,395	50	1.7%	$297,647	2,998	100%	$1,483,203
Town Of Stedman	486	435	89.5%	416	85.6%	$87,774	50	10.3%	$80,584	20	4.1%	$67,564	486	100%	$235,921
Town Of Wade	315	290	92.1%	269	85.4%	$38,808	36	11.4%	$48,384	10	3.2%	$24,482	315	100%	$111,674
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$31,626,469**	**7,921**	**6.2%**	**$27,937,019**	**3,147**	**2.5%**	**$18,747,631**	**127,806**	**99.9%**	**$78,311,116**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$856,151	328	10.9%	$1,748,090	162	5.4%	$777,916	2,996	99.5%	$3,382,156
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$4,795,982	1,037	5.7%	$1,495,258	266	1.5%	$1,801,367	18,171	99.9%	$8,092,607
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$5,652,133**	**1,365**	**6.4%**	**$3,243,348**	**428**	**2%**	**$2,579,283**	**21,167**	**99.9%**	**$11,474,763**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$37,278,602**	**9,286**	**6.2%**	**$31,180,367**	**3,575**	**2.4%**	**$21,326,914**	**148,973**	**99.9%**	**$89,785,879**

Source: GIS Analysis

Table 6-19. Buildings Impacted by the 1000 Year Earthquake

Jurisdiction	All Buildings	Pre-FIRM Buildings at Risk		Residential Buildings at Risk			Commercial Buildings at Risk			Public Buildings at Risk			Total Buildings at Risk		
		Number	Percent	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$32,661,773	4,159	5.9%	$25,133,363	1,061	1.5%	$8,904,331	70,033	99.9%	$66,699,467
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$19,772,136	3,080	6.7%	$18,037,316	1,842	4%	$21,207,427	46,244	99.9%	$59,016,878
Town Of Eastover	1,855	0	0%	1,727	93.1%	$599,040	101	5.4%	$414,090	27	1.5%	$124,712	1,855	100%	$1,137,842
Town Of Falcon	169	165	97.6%	119	70.4%	$34,726	13	7.7%	$53,212	37	21.9%	$93,874	169	100%	$181,812
Town Of Godwin	82	81	98.8%	72	87.8%	$19,319	6	7.3%	$3,147	4	4.9%	$8,762	82	100%	$31,228
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$2,782,767	234	4.2%	$1,482,789	86	1.6%	$768,159	5,518	100%	$5,033,715
Town Of Linden	106	106	100%	77	72.6%	$22,954	19	17.9%	$18,662	10	9.4%	$34,356	106	100%	$75,972
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$1,059,402	223	7.4%	$917,796	50	1.7%	$510,061	2,998	100%	$2,487,260
Town Of Stedman	486	435	89.5%	416	85.6%	$150,659	50	10.3%	$129,662	20	4.1%	$122,928	486	100%	$403,249
Town Of Wade	315	290	92.1%	269	85.4%	$69,373	36	11.4%	$78,024	10	3.2%	$40,896	315	100%	$188,294
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$57,172,149**	**7,921**	**6.2%**	**$46,268,061**	**3,147**	**2.5%**	**$31,815,506**	**127,806**	**99.9%**	**$135,255,717**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$1,716,666	328	10.9%	$3,029,289	162	5.4%	$1,459,274	2,996	99.5%	$6,205,228
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$9,243,457	1,037	5.7%	$2,471,931	266	1.5%	$3,149,877	18,171	99.9%	$14,865,265
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$10,960,123**	**1,365**	**6.4%**	**$5,501,220**	**428**	**2%**	**$4,609,151**	**21,167**	**99.9%**	**$21,070,493**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$68,132,272**	**9,286**	**6.2%**	**$51,769,281**	**3,575**	**2.4%**	**$36,424,657**	**148,973**	**99.9%**	**$156,326,210**

Source: GIS Analysis

Table 6-20. Buildings Impacted by the 1500 Year Earthquake

Jurisdiction	All Buildings	Pre-FIRM Buildings at Risk		Residential Buildings at Risk			Commercial Buildings at Risk			Public Buildings at Risk			Total Buildings at Risk		
		Number	Percent	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$72,233,096	4,159	5.9%	$50,555,911	1,061	1.5%	$19,261,658	70,033	99.9%	$142,050,664
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$43,473,264	3,080	6.7%	$34,326,168	1,842	4%	$44,545,141	46,244	99.9%	$122,344,574
Town Of Eastover	1,855	0	0%	1,727	93.1%	$1,418,443	101	5.4%	$824,282	27	1.5%	$305,156	1,855	100%	$2,547,882
Town Of Falcon	169	165	97.6%	119	70.4%	$74,812	13	7.7%	$114,818	37	21.9%	$203,160	169	100%	$392,790
Town Of Godwin	82	81	98.8%	72	87.8%	$44,179	6	7.3%	$7,181	4	4.9%	$19,468	82	100%	$70,828
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$5,686,493	234	4.2%	$2,792,228	86	1.6%	$1,603,535	5,518	100%	$10,082,256
Town Of Linden	106	106	100%	77	72.6%	$50,108	19	17.9%	$38,672	10	9.4%	$67,840	106	100%	$156,619
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$2,591,878	223	7.4%	$2,009,994	50	1.7%	$1,032,643	2,998	100%	$5,634,515
Town Of Stedman	486	435	89.5%	416	85.6%	$363,106	50	10.3%	$270,058	20	4.1%	$302,866	486	100%	$936,030
Town Of Wade	315	290	92.1%	269	85.4%	$169,450	36	11.4%	$166,275	10	3.2%	$84,371	315	100%	$420,097
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$126,104,829**	**7,921**	**6.2%**	**$91,105,587**	**3,147**	**2.5%**	**$67,425,838**	**127,806**	**99.9%**	**$284,636,255**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$3,307,525	328	10.9%	$5,565,685	162	5.4%	$2,878,810	2,996	99.5%	$11,752,020
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$18,059,268	1,037	5.7%	$4,492,557	266	1.5%	$6,058,803	18,171	99.9%	$28,610,627
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$21,366,793**	**1,365**	**6.4%**	**$10,058,242**	**428**	**2%**	**$8,937,613**	**21,167**	**99.9%**	**$40,362,647**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$147,471,622**	**9,286**	**6.2%**	**$101,163,829**	**3,575**	**2.4%**	**$76,363,451**	**148,973**	**99.9%**	**$324,998,902**

Source: GIS Analysis

Table 6-21. Buildings Impacted by the 2000 Year Earthquake

Jurisdiction	All Buildings	Pre-FIRM Buildings at Risk		Residential Buildings at Risk			Commercial Buildings at Risk			Public Buildings at Risk			Total Buildings at Risk		
		Number	Percent	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$110,656,048	4,159	5.9%	$78,825,240	1,061	1.5%	$31,448,742	70,033	99.9%	$220,930,029
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$66,887,188	3,080	6.7%	$52,701,636	1,842	4%	$71,551,600	46,244	99.9%	$191,140,425
Town Of Eastover	1,855	0	0%	1,727	93.1%	$2,067,570	101	5.4%	$1,227,667	27	1.5%	$499,518	1,855	100%	$3,794,754
Town Of Falcon	169	165	97.6%	119	70.4%	$110,398	13	7.7%	$177,332	37	21.9%	$308,851	169	100%	$596,581
Town Of Godwin	82	81	98.8%	72	87.8%	$65,199	6	7.3%	$10,738	4	4.9%	$27,861	82	100%	$103,798
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$9,001,531	234	4.2%	$4,459,642	86	1.6%	$2,603,433	5,518	100%	$16,064,606
Town Of Linden	106	106	100%	77	72.6%	$74,032	19	17.9%	$56,338	10	9.4%	$104,428	106	100%	$234,798
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$3,846,415	223	7.4%	$2,989,768	50	1.7%	$1,647,453	2,998	100%	$8,483,636
Town Of Stedman	486	435	89.5%	416	85.6%	$545,699	50	10.3%	$407,389	20	4.1%	$495,646	486	100%	$1,448,733
Town Of Wade	315	290	92.1%	269	85.4%	$245,328	36	11.4%	$249,481	10	3.2%	$119,735	315	100%	$614,543
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$193,499,408**	**7,921**	**6.2%**	**$141,105,231**	**3,147**	**2.5%**	**$108,807,267**	**127,806**	**99.9%**	**$443,411,903**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$5,247,903	328	10.9%	$8,861,331	162	5.4%	$4,633,256	2,996	99.5%	$18,742,490
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$28,593,263	1,037	5.7%	$7,137,259	266	1.5%	$9,779,989	18,171	99.9%	$45,510,511
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$33,841,166**	**1,365**	**6.4%**	**$15,998,590**	**428**	**2%**	**$14,413,245**	**21,167**	**99.9%**	**$64,253,001**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$227,340,574**	**9,286**	**6.2%**	**$157,103,821**	**3,575**	**2.4%**	**$123,220,512**	**148,973**	**99.9%**	**$507,664,904**
Source: GIS Analysis															

Table 6-22. Buildings Impacted by the 2500 Year Earthquake

Jurisdiction	All Buildings	Pre-FIRM Buildings at Risk		Residential Buildings at Risk			Commercial Buildings at Risk			Public Buildings at Risk			Total Buildings at Risk		
		Number	Percent	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$145,581,638	4,159	5.9%	$105,456,264	1,061	1.5%	$42,586,414	70,033	99.9%	$293,624,317
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$89,053,429	3,080	6.7%	$68,952,732	1,842	4%	$98,358,890	46,244	99.9%	$256,365,051
Town Of Eastover	1,855	0	0%	1,727	93.1%	$2,894,950	101	5.4%	$1,746,997	27	1.5%	$722,550	1,855	100%	$5,364,498
Town Of Falcon	169	165	97.6%	119	70.4%	$152,214	13	7.7%	$226,214	37	21.9%	$450,102	169	100%	$828,529
Town Of Godwin	82	81	98.8%	72	87.8%	$90,540	6	7.3%	$14,695	4	4.9%	$37,507	82	100%	$142,742
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$11,371,106	234	4.2%	$5,891,597	86	1.6%	$3,343,781	5,518	100%	$20,606,484
Town Of Linden	106	106	100%	77	72.6%	$102,707	19	17.9%	$77,646	10	9.4%	$141,083	106	100%	$321,436
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$5,248,374	223	7.4%	$4,153,564	50	1.7%	$2,254,242	2,998	100%	$11,656,181
Town Of Stedman	486	435	89.5%	416	85.6%	$747,301	50	10.3%	$552,954	20	4.1%	$660,812	486	100%	$1,961,067
Town Of Wade	315	290	92.1%	269	85.4%	$348,736	36	11.4%	$336,913	10	3.2%	$168,583	315	100%	$854,232
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$255,590,995**	**7,921**	**6.2%**	**$187,409,576**	**3,147**	**2.5%**	**$148,723,964**	**127,806**	**99.9%**	**$591,724,537**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$6,439,639	328	10.9%	$10,980,241	162	5.4%	$5,926,059	2,996	99.5%	$23,345,938
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$35,568,710	1,037	5.7%	$9,115,995	266	1.5%	$12,525,178	18,171	99.9%	$57,209,882
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$42,008,349**	**1,365**	**6.4%**	**$20,096,236**	**428**	**2%**	**$18,451,237**	**21,167**	**99.9%**	**$80,555,820**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$297,599,344**	**9,286**	**6.2%**	**$207,505,812**	**3,575**	**2.4%**	**$167,175,201**	**148,973**	**99.9%**	**$672,280,357**

Source: GIS Analysis

The following tables provide counts and estimated damages for CIKR buildings by jurisdiction in the plan. Because there is a large number of sectors and events, the table is sorted by sector and then by event. Totals across all sectors are shown at the bottom of each table.

Table 6-23. Critical Facilities Exposed to the Earthquake - City Of Fayetteville

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	250 Year	97	$10,306
	Banking and Finance 500 Year	102	$142,973
	Banking and Finance 750 Year	102	$366,306
	Banking and Finance 1000 Year	102	$598,538
	Banking and Finance 1500 Year	102	$1,226,162
	Banking and Finance 2000 Year	102	$1,919,041
	Banking and Finance 2500 Year	102	$2,529,534
Commercial Facilities	250 Year	2,713	$264,028
	Commercial Facilities 500 Year	2,869	$3,623,319
	Commercial Facilities 750 Year	2,869	$9,561,645
	Commercial Facilities 1000 Year	2,869	$15,957,120
	Commercial Facilities 1500 Year	2,869	$32,712,357
	Commercial Facilities 2000 Year	2,869	$51,526,563
	Commercial Facilities 2500 Year	2,869	$69,898,709
Communications	250 Year	12	$13,144
	Communications 500 Year	12	$132,091
	Communications 750 Year	12	$307,791
	Communications 1000 Year	12	$500,945
	Communications 1500 Year	12	$948,050
	Communications 2000 Year	12	$1,461,678
	Communications 2500 Year	12	$1,920,818

Critical Manufacturing	250 Year	415	$85,760
	Critical Manufacturing 500 Year	415	$960,578
	Critical Manufacturing 750 Year	415	$2,365,577
	Critical Manufacturing 1000 Year	415	$3,789,417
	Critical Manufacturing 1500 Year	415	$7,124,418
	Critical Manufacturing 2000 Year	415	$10,522,793
	Critical Manufacturing 2500 Year	415	$13,429,381
Defense Industrial Base	250 Year	1	$250
	Defense Industrial Base 500 Year	1	$4,173
	Defense Industrial Base 750 Year	1	$12,203
	Defense Industrial Base 1000 Year	1	$21,128
	Defense Industrial Base 1500 Year	1	$39,097
	Defense Industrial Base 2000 Year	1	$54,883
	Defense Industrial Base 2500 Year	1	$68,144
Emergency Services	250 Year	18	$5,736
	Emergency Services 500 Year	18	$94,356
	Emergency Services 750 Year	18	$253,395
	Emergency Services 1000 Year	18	$404,864
	Emergency Services 1500 Year	18	$744,725
	Emergency Services 2000 Year	18	$1,124,212
	Emergency Services 2500 Year	18	$1,536,056
Energy	250 Year	71	$2,093,405
	Energy 500 Year	71	$27,239,468
	Energy 750 Year	71	$70,932,647
	Energy 1000 Year	71	$112,524,427

	Energy 1500 Year	71	$207,482,615
	Energy 2000 Year	71	$303,127,618
	Energy 2500 Year	71	$368,349,377
Food and Agriculture	250 Year	68	$1,838
	Food and Agriculture 500 Year	68	$22,796
	Food and Agriculture 750 Year	68	$55,058
	Food and Agriculture 1000 Year	68	$90,014
	Food and Agriculture 1500 Year	68	$188,407
	Food and Agriculture 2000 Year	68	$288,326
	Food and Agriculture 2500 Year	68	$352,705
Government Facilities	250 Year	546	$88,667
	Government Facilities 500 Year	550	$1,099,915
	Government Facilities 750 Year	550	$2,909,223
	Government Facilities 1000 Year	550	$5,087,200
	Government Facilities 1500 Year	550	$11,634,847
	Government Facilities 2000 Year	550	$19,578,267
	Government Facilities 2500 Year	550	$26,349,354
Healthcare and Public Health	250 Year	391	$68,652
	Healthcare and Public Health 500 Year	394	$914,175
	Healthcare and Public Health 750 Year	394	$2,308,007
	Healthcare and Public Health 1000 Year	394	$3,723,686
	Healthcare and Public Health 1500 Year	394	$7,500,599
	Healthcare and Public Health 2000 Year	394	$11,703,015

	Healthcare and Public Health 2500 Year	394	$15,585,495
Nuclear Reactors, Materials and Waste	250 Year	1	$249
	Nuclear Reactors, Materials and Waste 500 Year	1	$6,293
	Nuclear Reactors, Materials and Waste 750 Year	1	$19,422
	Nuclear Reactors, Materials and Waste 1000 Year	1	$34,223
	Nuclear Reactors, Materials and Waste 1500 Year	1	$66,280
	Nuclear Reactors, Materials and Waste 2000 Year	1	$93,826
	Nuclear Reactors, Materials and Waste 2500 Year	1	$119,464
Transportation Systems	250 Year	769	$66,643
	Transportation Systems 500 Year	769	$868,913
	Transportation Systems 750 Year	769	$2,302,159
	Transportation Systems 1000 Year	769	$3,750,448
	Transportation Systems 1500 Year	769	$7,466,558
	Transportation Systems 2000 Year	769	$11,698,946
	Transportation Systems 2500 Year	769	$15,795,564
Water	250 Year	29	$1,785
	Water 500 Year	29	$13,919
	Water 750 Year	29	$33,292
	Water 1000 Year	29	$53,177
	Water 1500 Year	29	$93,143
	Water 2000 Year	29	$130,842
	Water 2500 Year	29	$163,206

All Categories	**250 Year**	**5,131**	**$2,700,463**
	All Categories 500 Year	**5,299**	**$35,122,969**
	All Categories 750 Year	**5,299**	**$91,426,725**
	All Categories 1000 Year	**5,299**	**$146,535,187**
	All Categories 1500 Year	**5,299**	**$277,227,258**
	All Categories 2000 Year	**5,299**	**$413,230,010**
	All Categories 2500 Year	**5,299**	**$516,097,807**

Table 6-24: Critical Facilities Exposed to the Earthquake - Cumberland County (Unincorporated Area)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	250 Year	16	$4,127
	Banking and Finance 500 Year	16	$50,088
	Banking and Finance 750 Year	16	$134,129
	Banking and Finance 1000 Year	16	$220,878
	Banking and Finance 1500 Year	16	$457,179
	Banking and Finance 2000 Year	16	$663,267
	Banking and Finance 2500 Year	16	$823,256
Commercial Facilities	250 Year	1,453	$177,120
	Commercial Facilities 500 Year	1,563	$2,274,223
	Commercial Facilities 750 Year	1,563	$6,095,795
	Commercial Facilities 1000 Year	1,563	$10,330,948
	Commercial Facilities 1500 Year	1,563	$19,759,747
	Commercial Facilities 2000 Year	1,563	$30,970,878
	Commercial Facilities 2500 Year	1,563	$41,134,778
Critical Manufacturing	250 Year	339	$126,364

	Critical Manufacturing 500 Year	350	$1,298,375
	Critical Manufacturing 750 Year	350	$2,983,533
	Critical Manufacturing 1000 Year	350	$4,694,416
	Critical Manufacturing 1500 Year	350	$8,433,945
	Critical Manufacturing 2000 Year	350	$12,235,263
	Critical Manufacturing 2500 Year	350	$15,328,768
Emergency Services	250 Year	13	$1,776
	Emergency Services 500 Year	13	$23,177
	Emergency Services 750 Year	13	$52,055
	Emergency Services 1000 Year	13	$86,608
	Emergency Services 1500 Year	13	$172,909
	Emergency Services 2000 Year	13	$269,176
	Emergency Services 2500 Year	13	$359,720
Energy	250 Year	51	$1,028,873
	Energy 500 Year	51	$7,075,992
	Energy 750 Year	51	$15,568,946
	Energy 1000 Year	51	$25,421,821
	Energy 1500 Year	51	$41,932,567
	Energy 2000 Year	51	$61,853,479
	Energy 2500 Year	51	$75,781,390
Food and Agriculture	250 Year	1,125	$5,934
	Food and Agriculture 500 Year	1,125	$123,818
	Food and Agriculture 750 Year	1,125	$309,863
	Food and Agriculture 1000 Year	1,125	$475,126
	Food and Agriculture 1500 Year	1,125	$940,574

	Food and Agriculture 2000 Year	1,125	$1,500,713
	Food and Agriculture 2500 Year	1,125	$2,144,038
Government Facilities	250 Year	201	$45,553
	Government Facilities 500 Year	211	$533,189
	Government Facilities 750 Year	211	$1,437,475
	Government Facilities 1000 Year	211	$2,654,674
	Government Facilities 1500 Year	211	$5,845,403
	Government Facilities 2000 Year	211	$9,548,796
	Government Facilities 2500 Year	211	$12,503,596
Healthcare and Public Health	250 Year	29	$2,411
	Healthcare and Public Health 500 Year	30	$32,555
	Healthcare and Public Health 750 Year	30	$82,529
	Healthcare and Public Health 1000 Year	30	$149,712
	Healthcare and Public Health 1500 Year	30	$310,636
	Healthcare and Public Health 2000 Year	30	$499,291
	Healthcare and Public Health 2500 Year	30	$663,759
Transportation Systems	250 Year	301	$61,075
	Transportation Systems 500 Year	306	$833,740
	Transportation Systems 750 Year	306	$2,238,711
	Transportation Systems 1000 Year	306	$3,972,395
	Transportation Systems 1500 Year	306	$7,938,539
	Transportation Systems 2000 Year	306	$12,323,845

	Transportation Systems 2500 Year	306	$16,146,904
Water	250 Year	8	$4,112
	Water 500 Year	8	$23,429
	Water 750 Year	8	$50,286
	Water 1000 Year	8	$78,744
	Water 1500 Year	8	$128,454
	Water 2000 Year	8	$180,049
	Water 2500 Year	8	$213,879
All Categories	**250 Year**	**3,536**	**$1,457,345**
	All Categories 500 Year	**3,673**	**$12,268,586**
	All Categories 750 Year	**3,673**	**$28,953,322**
	All Categories 1000 Year	**3,673**	**$48,085,322**
	All Categories 1500 Year	**3,673**	**$85,919,953**
	All Categories 2000 Year	**3,673**	**$130,044,757**
	All Categories 2500 Year	**3,673**	**$165,100,088**

Source: GIS Analysis

Table 6-25: Critical Facilities Exposed to the Earthquake - Town Of Eastover

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	250 Year	1	$41
	Banking and Finance 500 Year	1	$446
	Banking and Finance 750 Year	1	$1,236
	Banking and Finance 1000 Year	1	$1,814
	Banking and Finance 1500 Year	1	$3,052
	Banking and Finance 2000 Year	1	$4,099
	Banking and Finance 2500 Year	1	$5,777

Commercial Facilities	250 Year	63	$6,467
	Commercial Facilities 500 Year	64	$73,987
	Commercial Facilities 750 Year	64	$205,197
	Commercial Facilities 1000 Year	64	$331,051
	Commercial Facilities 1500 Year	64	$680,516
	Commercial Facilities 2000 Year	64	$1,023,957
	Commercial Facilities 2500 Year	64	$1,485,653
Critical Manufacturing	250 Year	21	$1,841
	Critical Manufacturing 500 Year	21	$21,420
	Critical Manufacturing 750 Year	21	$52,347
	Critical Manufacturing 1000 Year	21	$79,362
	Critical Manufacturing 1500 Year	21	$145,033
	Critical Manufacturing 2000 Year	21	$206,214
	Critical Manufacturing 2500 Year	21	$266,123
Emergency Services	250 Year	1	$156
	Emergency Services 500 Year	1	$2,808
	Emergency Services 750 Year	1	$5,432
	Emergency Services 1000 Year	1	$7,562
	Emergency Services 1500 Year	1	$15,539
	Emergency Services 2000 Year	1	$25,149
	Emergency Services 2500 Year	1	$44,545
Energy	250 Year	1	$91
	Energy 500 Year	1	$1,584
	Energy 750 Year	1	$4,609
	Energy 1000 Year	1	$7,046

	Energy 1500 Year	1	$12,515
	Energy 2000 Year	1	$17,249
	Energy 2500 Year	1	$25,693
Food and Agriculture	250 Year	13	$51
	Food and Agriculture 500 Year	13	$1,025
	Food and Agriculture 750 Year	13	$2,661
	Food and Agriculture 1000 Year	13	$4,117
	Food and Agriculture 1500 Year	13	$8,774
	Food and Agriculture 2000 Year	13	$13,843
	Food and Agriculture 2500 Year	13	$21,596
Government Facilities	250 Year	11	$875
	Government Facilities 500 Year	11	$12,073
	Government Facilities 750 Year	11	$29,110
	Government Facilities 1000 Year	11	$49,944
	Government Facilities 1500 Year	11	$132,184
	Government Facilities 2000 Year	11	$225,912
	Government Facilities 2500 Year	11	$339,752
Healthcare and Public Health	250 Year	5	$800
	Healthcare and Public Health 500 Year	7	$8,039
	Healthcare and Public Health 750 Year	7	$21,098
	Healthcare and Public Health 1000 Year	7	$35,772
	Healthcare and Public Health 1500 Year	7	$84,867
	Healthcare and Public Health 2000 Year	7	$137,329

	Healthcare and Public Health 2500 Year	7	$182,494
Transportation Systems	250 Year	9	$354
	Transportation Systems 500 Year	9	$4,674
	Transportation Systems 750 Year	9	$12,543
	Transportation Systems 1000 Year	9	$22,134
	Transportation Systems 1500 Year	9	$46,959
	Transportation Systems 2000 Year	9	$73,433
	Transportation Systems 2500 Year	9	$97,916
All Categories	**250 Year**	**125**	**$10,676**
	All Categories 500 Year	**128**	**$126,056**
	All Categories 750 Year	**128**	**$334,233**
	All Categories 1000 Year	**128**	**$538,802**
	All Categories 1500 Year	**128**	**$1,129,439**
	All Categories 2000 Year	**128**	**$1,727,185**
	All Categories 2500 Year	**128**	**$2,469,549**

Source: GIS Analysis

Table 6-26: Critical Facilities Exposed to the Earthquake - Town Of Falcon

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	250 Year	9	$626
	Commercial Facilities 500 Year	15	$8,364
	Commercial Facilities 750 Year	15	$24,545
	Commercial Facilities 1000 Year	15	$44,909
	Commercial Facilities 1500 Year	15	$94,102
	Commercial Facilities 2000 Year	15	$137,358
	Commercial Facilities 2500 Year	15	$183,974

Critical Manufacturing	250 Year	2	$205
	Critical Manufacturing 500 Year	2	$1,952
	Critical Manufacturing 750 Year	2	$4,759
	Critical Manufacturing 1000 Year	2	$8,040
	Critical Manufacturing 1500 Year	2	$14,507
	Critical Manufacturing 2000 Year	2	$22,804
	Critical Manufacturing 2500 Year	2	$30,094
Food and Agriculture	250 Year	6	$570
	Food and Agriculture 500 Year	6	$7,323
	Food and Agriculture 750 Year	6	$17,095
	Food and Agriculture 1000 Year	6	$28,394
	Food and Agriculture 1500 Year	6	$65,947
	Food and Agriculture 2000 Year	6	$106,479
	Food and Agriculture 2500 Year	6	$131,339
Government Facilities	250 Year	1	$20
	Government Facilities 500 Year	1	$244
	Government Facilities 750 Year	1	$624
	Government Facilities 1000 Year	1	$1,200
	Government Facilities 1500 Year	1	$3,305
	Government Facilities 2000 Year	1	$5,102
	Government Facilities 2500 Year	1	$6,639
Healthcare and Public Health	250 Year	2	$264
	Healthcare and Public Health 500 Year	2	$2,626
	Healthcare and Public Health 750 Year	2	$7,434

	Healthcare and Public Health 1000 Year	2	$13,139
	Healthcare and Public Health 1500 Year	2	$27,158
	Healthcare and Public Health 2000 Year	2	$38,376
	Healthcare and Public Health 2500 Year	2	$52,171
All Categories	**250 Year**	**20**	**$1,685**
	All Categories 500 Year	**26**	**$20,509**
	All Categories 750 Year	**26**	**$54,457**
	All Categories 1000 Year	**26**	**$95,682**
	All Categories 1500 Year	**26**	**$205,019**
	All Categories 2000 Year	**26**	**$310,119**
	All Categories 2500 Year	**26**	**$404,217**

Source: GIS Analysis

Table 6-27: Critical Facilities Exposed to the Earthquake - Town Of Godwin

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	250 Year	4	$154
	Commercial Facilities 500 Year	5	$1,788
	Commercial Facilities 750 Year	5	$5,180
	Commercial Facilities 1000 Year	5	$9,483
	Commercial Facilities 1500 Year	5	$21,735
	Commercial Facilities 2000 Year	5	$31,351
	Commercial Facilities 2500 Year	5	$42,060
Critical Manufacturing	250 Year	1	$18
	Critical Manufacturing 500 Year	1	$221

	Critical Manufacturing 750 Year	1	$648
	Critical Manufacturing 1000 Year	1	$1,076
	Critical Manufacturing 1500 Year	1	$1,870
	Critical Manufacturing 2000 Year	1	$2,481
	Critical Manufacturing 2500 Year	1	$3,324
Food and Agriculture	250 Year	3	$5
	Food and Agriculture 500 Year	3	$108
	Food and Agriculture 750 Year	3	$262
	Food and Agriculture 1000 Year	3	$379
	Food and Agriculture 1500 Year	3	$678
	Food and Agriculture 2000 Year	3	$922
	Food and Agriculture 2500 Year	3	$1,334
Government Facilities	250 Year	1	$25
	Government Facilities 500 Year	1	$239
	Government Facilities 750 Year	1	$564
	Government Facilities 1000 Year	1	$971
	Government Facilities 1500 Year	1	$2,367
	Government Facilities 2000 Year	1	$3,844
	Government Facilities 2500 Year	1	$5,484
All Categories	**250 Year**	**9**	**$202**
	All Categories 500 Year	**10**	**$2,356**
	All Categories 750 Year	**10**	**$6,654**
	All Categories 1000 Year	**10**	**$11,909**
	All Categories 1500 Year	**10**	**$26,650**
	All Categories 2000 Year	**10**	**$38,598**

	All Categories 2500 Year	**10**	**$52,202**

Source: GIS Analysis

Table 6-28: Critical Facilities Exposed to the Earthquake - Town Of Hope Mills

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	250 Year	8	$765
	Banking and Finance 500 Year	8	$8,289
	Banking and Finance 750 Year	8	$18,530
	Banking and Finance 1000 Year	8	$29,712
	Banking and Finance 1500 Year	8	$58,210
	Banking and Finance 2000 Year	8	$94,582
	Banking and Finance 2500 Year	8	$124,452
Commercial Facilities	250 Year	199	$19,873
	Commercial Facilities 500 Year	208	$277,943
	Commercial Facilities 750 Year	208	$717,872
	Commercial Facilities 1000 Year	208	$1,184,244
	Commercial Facilities 1500 Year	208	$2,235,109
	Commercial Facilities 2000 Year	208	$3,676,653
	Commercial Facilities 2500 Year	208	$4,980,127
Critical Manufacturing	250 Year	6	$4,789
	Critical Manufacturing 500 Year	6	$65,349
	Critical Manufacturing 750 Year	6	$172,519
	Critical Manufacturing 1000 Year	6	$294,847
	Critical Manufacturing 1500 Year	6	$534,411
	Critical Manufacturing 2000 Year	6	$761,635
	Critical Manufacturing 2500 Year	6	$905,165

Emergency Services	250 Year	2	$683
	Emergency Services 500 Year	2	$4,940
	Emergency Services 750 Year	2	$11,678
	Emergency Services 1000 Year	2	$19,448
	Emergency Services 1500 Year	2	$34,858
	Emergency Services 2000 Year	2	$53,319
	Emergency Services 2500 Year	2	$67,957
Energy	250 Year	2	$92,063
	Energy 500 Year	2	$1,162,917
	Energy 750 Year	2	$2,605,597
	Energy 1000 Year	2	$3,879,974
	Energy 1500 Year	2	$6,328,707
	Energy 2000 Year	2	$9,765,137
	Energy 2500 Year	2	$12,195,489
Government Facilities	250 Year	53	$6,919
	Government Facilities 500 Year	53	$103,705
	Government Facilities 750 Year	53	$270,216
	Government Facilities 1000 Year	53	$521,670
	Government Facilities 1500 Year	53	$1,126,694
	Government Facilities 2000 Year	53	$1,819,510
	Government Facilities 2500 Year	53	$2,309,097
Healthcare and Public Health	250 Year	15	$1,384
	Healthcare and Public Health 500 Year	17	$21,531
	Healthcare and Public Health 750 Year	17	$55,104

	Healthcare and Public Health 1000 Year	17	$90,087
	Healthcare and Public Health 1500 Year	17	$172,008
	Healthcare and Public Health 2000 Year	17	$282,031
	Healthcare and Public Health 2500 Year	17	$365,016
Transportation Systems	250 Year	25	$2,022
	Transportation Systems 500 Year	25	$24,824
	Transportation Systems 750 Year	25	$63,539
	Transportation Systems 1000 Year	25	$108,967
	Transportation Systems 1500 Year	25	$230,767
	Transportation Systems 2000 Year	25	$369,708
	Transportation Systems 2500 Year	25	$476,574
All Categories	**250 Year**	**310**	**$128,498**
	All Categories 500 Year	**321**	**$1,669,498**
	All Categories 750 Year	**321**	**$3,915,055**
	All Categories 1000 Year	**321**	**$6,128,949**
	All Categories 1500 Year	**321**	**$10,720,764**
	All Categories 2000 Year	**321**	**$16,822,575**
	All Categories 2500 Year	**321**	**$21,423,877**

Source: GIS Analysis

Table 6-29: Critical Facilities Exposed to the Earthquake - Town Of Linden

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	250 Year	10	$290
	Commercial Facilities 500 Year	10	$4,023

	Commercial Facilities 750 Year	10	$10,918
	Commercial Facilities 1000 Year	10	$18,575
	Commercial Facilities 1500 Year	10	$39,226
	Commercial Facilities 2000 Year	10	$57,416
	Commercial Facilities 2500 Year	10	$80,246
Critical Manufacturing	250 Year	3	$59
	Critical Manufacturing 500 Year	3	$721
	Critical Manufacturing 750 Year	3	$2,067
	Critical Manufacturing 1000 Year	3	$3,387
	Critical Manufacturing 1500 Year	3	$5,877
	Critical Manufacturing 2000 Year	3	$7,430
	Critical Manufacturing 2500 Year	3	$9,263
Emergency Services	250 Year	1	$29
	Emergency Services 500 Year	1	$962
	Emergency Services 750 Year	1	$2,334
	Emergency Services 1000 Year	1	$3,379
	Emergency Services 1500 Year	1	$5,893
	Emergency Services 2000 Year	1	$8,252
	Emergency Services 2500 Year	1	$12,318
Food and Agriculture	250 Year	8	$107
	Food and Agriculture 500 Year	8	$988
	Food and Agriculture 750 Year	8	$2,262
	Food and Agriculture 1000 Year	8	$3,586
	Food and Agriculture 1500 Year	8	$7,258
	Food and Agriculture 2000 Year	8	$10,773

	Food and Agriculture 2500 Year	8	$15,373
Government Facilities	250 Year	5	$456
	Government Facilities 500 Year	5	$3,778
	Government Facilities 750 Year	5	$11,161
	Government Facilities 1000 Year	5	$20,021
	Government Facilities 1500 Year	5	$36,909
	Government Facilities 2000 Year	5	$59,248
	Government Facilities 2500 Year	5	$78,563
Transportation Systems	250 Year	2	$76
	Transportation Systems 500 Year	2	$795
	Transportation Systems 750 Year	2	$2,108
	Transportation Systems 1000 Year	2	$4,069
	Transportation Systems 1500 Year	2	$11,349
	Transportation Systems 2000 Year	2	$17,648
	Transportation Systems 2500 Year	2	$22,965
All Categories	**250 Year**	**29**	**$1,017**
	All Categories 500 Year	**29**	**$11,267**
	All Categories 750 Year	**29**	**$30,850**
	All Categories 1000 Year	**29**	**$53,017**
	All Categories 1500 Year	**29**	**$106,512**
	All Categories 2000 Year	**29**	**$160,767**
	All Categories 2500 Year	**29**	**$218,728**

Source: GIS Analysis

Table 6-30: Critical Facilities Exposed to the Earthquake - Town Of Spring Lake

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	250 Year	5	$447
	Banking and Finance 500 Year	5	$4,474
	Banking and Finance 750 Year	5	$9,526
	Banking and Finance 1000 Year	5	$14,274
	Banking and Finance 1500 Year	5	$25,988
	Banking and Finance 2000 Year	5	$39,215
	Banking and Finance 2500 Year	5	$57,655
Commercial Facilities	250 Year	199	$12,447
	Commercial Facilities 500 Year	206	$171,347
	Commercial Facilities 750 Year	206	$441,665
	Commercial Facilities 1000 Year	206	$714,099
	Commercial Facilities 1500 Year	206	$1,554,706
	Commercial Facilities 2000 Year	206	$2,347,074
	Commercial Facilities 2500 Year	206	$3,257,278
Critical Manufacturing	250 Year	10	$483
	Critical Manufacturing 500 Year	10	$5,893
	Critical Manufacturing 750 Year	10	$14,296
	Critical Manufacturing 1000 Year	10	$21,609
	Critical Manufacturing 1500 Year	10	$41,548
	Critical Manufacturing 2000 Year	10	$59,821
	Critical Manufacturing 2500 Year	10	$81,960
Emergency Services	250 Year	2	$1,805
	Emergency Services 500 Year	2	$12,995
	Emergency Services 750 Year	2	$32,873

	Emergency Services 1000 Year	2	$58,146
	Emergency Services 1500 Year	2	$100,811
	Emergency Services 2000 Year	2	$156,444
	Emergency Services 2500 Year	2	$197,390
Government Facilities	250 Year	21	$4,699
	Government Facilities 500 Year	21	$47,953
	Government Facilities 750 Year	21	$128,969
	Government Facilities 1000 Year	21	$223,710
	Government Facilities 1500 Year	21	$487,684
	Government Facilities 2000 Year	21	$815,820
	Government Facilities 2500 Year	21	$1,131,665
Healthcare and Public Health	250 Year	7	$601
	Healthcare and Public Health 500 Year	7	$8,623
	Healthcare and Public Health 750 Year	7	$18,248
	Healthcare and Public Health 1000 Year	7	$26,428
	Healthcare and Public Health 1500 Year	7	$51,310
	Healthcare and Public Health 2000 Year	7	$77,084
	Healthcare and Public Health 2500 Year	7	$119,702
Transportation Systems	250 Year	21	$5,629
	Transportation Systems 500 Year	21	$67,131
	Transportation Systems 750 Year	21	$182,026
	Transportation Systems 1000 Year	21	$301,242

	Transportation Systems 1500 Year	21	$647,402
	Transportation Systems 2000 Year	21	$921,180
	Transportation Systems 2500 Year	21	$1,275,584
All Categories	**250 Year**	**265**	**$26,111**
	All Categories 500 Year	**272**	**$318,416**
	All Categories 750 Year	**272**	**$827,603**
	All Categories 1000 Year	**272**	**$1,359,508**
	All Categories 1500 Year	**272**	**$2,909,449**
	All Categories 2000 Year	**272**	**$4,416,638**
	All Categories 2500 Year	**272**	**$6,121,234**

Source: GIS Analysis

Table 6-31: Critical Facilities Exposed to the Earthquake - Town Of Stedman

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	250 Year	1	$82
	Banking and Finance 500 Year	1	$946
	Banking and Finance 750 Year	1	$1,940
	Banking and Finance 1000 Year	1	$3,097
	Banking and Finance 1500 Year	1	$7,023
	Banking and Finance 2000 Year	1	$10,453
	Banking and Finance 2500 Year	1	$12,808
Commercial Facilities	250 Year	44	$1,583
	Commercial Facilities 500 Year	46	$24,268
	Commercial Facilities 750 Year	46	$69,206
	Commercial Facilities 1000 Year	46	$113,218
	Commercial Facilities 1500 Year	46	$240,191

	Commercial Facilities 2000 Year	46	$364,648
	Commercial Facilities 2500 Year	46	$507,548
Critical Manufacturing	250 Year	6	$721
	Critical Manufacturing 500 Year	6	$7,111
	Critical Manufacturing 750 Year	6	$17,262
	Critical Manufacturing 1000 Year	6	$27,946
	Critical Manufacturing 1500 Year	6	$58,455
	Critical Manufacturing 2000 Year	6	$86,067
	Critical Manufacturing 2500 Year	6	$106,128
Emergency Services	250 Year	1	$108
	Emergency Services 500 Year	1	$1,130
	Emergency Services 750 Year	1	$2,724
	Emergency Services 1000 Year	1	$4,597
	Emergency Services 1500 Year	1	$12,251
	Emergency Services 2000 Year	1	$19,618
	Emergency Services 2500 Year	1	$24,218
Government Facilities	250 Year	10	$1,512
	Government Facilities 500 Year	10	$17,087
	Government Facilities 750 Year	10	$44,414
	Government Facilities 1000 Year	10	$82,740
	Government Facilities 1500 Year	10	$207,595
	Government Facilities 2000 Year	10	$350,015
	Government Facilities 2500 Year	10	$467,256
Healthcare and Public Health	250 Year	2	$138
	Healthcare and Public Health 500 Year	2	$1,565

	Healthcare and Public Health 750 Year	2	$4,103
	Healthcare and Public Health 1000 Year	2	$6,565
	Healthcare and Public Health 1500 Year	2	$14,972
	Healthcare and Public Health 2000 Year	2	$23,248
	Healthcare and Public Health 2500 Year	2	$31,444
Transportation Systems	250 Year	4	$239
	Transportation Systems 500 Year	4	$3,187
	Transportation Systems 750 Year	4	$8,499
	Transportation Systems 1000 Year	4	$14,426
	Transportation Systems 1500 Year	4	$32,437
	Transportation Systems 2000 Year	4	$48,985
	Transportation Systems 2500 Year	4	$64,364
All Categories	**250 Year**	**68**	**$4,383**
	All Categories 500 Year	**70**	**$55,294**
	All Categories 750 Year	**70**	**$148,148**
	All Categories 1000 Year	**70**	**$252,589**
	All Categories 1500 Year	**70**	**$572,924**
	All Categories 2000 Year	**70**	**$903,034**
	All Categories 2500 Year	**70**	**$1,213,766**

Source: GIS Analysis

Table 6-32: Critical Facilities Exposed to the Earthquake - Town Of Wade

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	250 Year	18	$749

	Commercial Facilities 500 Year	18	$8,079
	Commercial Facilities 750 Year	18	$23,056
	Commercial Facilities 1000 Year	18	$41,141
	Commercial Facilities 1500 Year	18	$93,085
	Commercial Facilities 2000 Year	18	$137,729
	Commercial Facilities 2500 Year	18	$189,277
Critical Manufacturing	250 Year	9	$1,655
	Critical Manufacturing 500 Year	9	$13,571
	Critical Manufacturing 750 Year	9	$29,051
	Critical Manufacturing 1000 Year	9	$45,007
	Critical Manufacturing 1500 Year	9	$93,722
	Critical Manufacturing 2000 Year	9	$137,958
	Critical Manufacturing 2500 Year	9	$184,001
Emergency Services	250 Year	1	$92
	Emergency Services 500 Year	1	$1,021
	Emergency Services 750 Year	1	$2,899
	Emergency Services 1000 Year	1	$4,572
	Emergency Services 1500 Year	1	$8,521
	Emergency Services 2000 Year	1	$11,717
	Emergency Services 2500 Year	1	$18,103
Food and Agriculture	250 Year	11	$23
	Food and Agriculture 500 Year	11	$460
	Food and Agriculture 750 Year	11	$1,206
	Food and Agriculture 1000 Year	11	$1,915
	Food and Agriculture 1500 Year	11	$4,063

	Food and Agriculture 2000 Year	11	$5,985
	Food and Agriculture 2500 Year	11	$10,295
Government Facilities	250 Year	3	$273
	Government Facilities 500 Year	3	$2,836
	Government Facilities 750 Year	3	$7,726
	Government Facilities 1000 Year	3	$11,978
	Government Facilities 1500 Year	3	$21,283
	Government Facilities 2000 Year	3	$28,222
	Government Facilities 2500 Year	3	$39,406
Healthcare and Public Health	250 Year	1	$276
	Healthcare and Public Health 500 Year	1	$2,938
	Healthcare and Public Health 750 Year	1	$5,224
	Healthcare and Public Health 1000 Year	1	$7,325
	Healthcare and Public Health 1500 Year	1	$14,619
	Healthcare and Public Health 2000 Year	1	$22,349
	Healthcare and Public Health 2500 Year	1	$30,275
Transportation Systems	250 Year	3	$103
	Transportation Systems 500 Year	3	$1,356
	Transportation Systems 750 Year	3	$3,704
	Transportation Systems 1000 Year	3	$6,983
	Transportation Systems 1500 Year	3	$15,354
	Transportation Systems 2000 Year	3	$25,255

	Transportation Systems 2500 Year	3	$34,140
All Categories	**250 Year**	**46**	**$3,171**
	All Categories 500 Year	**46**	**$30,261**
	All Categories 750 Year	**46**	**$72,866**
	All Categories 1000 Year	**46**	**$118,921**
	All Categories 1500 Year	**46**	**$250,647**
	All Categories 2000 Year	**46**	**$369,215**
	All Categories 2500 Year	**46**	**$505,497**

Source: GIS Analysis

Table 6-33: Critical Facilities Exposed to the Earthquake - City Of Raeford

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	250 Year	6	$771
	Banking and Finance 500 Year	6	$9,638
	Banking and Finance 750 Year	6	$26,141
	Banking and Finance 1000 Year	6	$46,636
	Banking and Finance 1500 Year	6	$84,757
	Banking and Finance 2000 Year	6	$134,411
	Banking and Finance 2500 Year	6	$162,044
Commercial Facilities	250 Year	242	$29,871
	Commercial Facilities 500 Year	242	$310,438
	Commercial Facilities 750 Year	242	$824,587
	Commercial Facilities 1000 Year	242	$1,531,037
	Commercial Facilities 1500 Year	242	$2,911,484
	Commercial Facilities 2000 Year	242	$4,788,651
	Commercial Facilities 2500 Year	242	$5,998,408

Communications	250 Year	1	$128
	Communications 500 Year	1	$1,277
	Communications 750 Year	1	$3,423
	Communications 1000 Year	1	$5,737
	Communications 1500 Year	1	$10,500
	Communications 2000 Year	1	$19,445
	Communications 2500 Year	1	$27,050
Critical Manufacturing	250 Year	54	$36,940
	Critical Manufacturing 500 Year	54	$359,896
	Critical Manufacturing 750 Year	54	$802,941
	Critical Manufacturing 1000 Year	54	$1,288,843
	Critical Manufacturing 1500 Year	54	$2,200,090
	Critical Manufacturing 2000 Year	54	$3,318,205
	Critical Manufacturing 2500 Year	54	$3,948,540
Emergency Services	250 Year	7	$2,538
	Emergency Services 500 Year	7	$25,644
	Emergency Services 750 Year	7	$68,380
	Emergency Services 1000 Year	7	$120,126
	Emergency Services 1500 Year	7	$214,276
	Emergency Services 2000 Year	7	$370,723
	Emergency Services 2500 Year	7	$496,138
Energy	250 Year	3	$6,738
	Energy 500 Year	3	$36,301
	Energy 750 Year	3	$79,881
	Energy 1000 Year	3	$126,890

	Energy 1500 Year	3	$229,856
	Energy 2000 Year	3	$320,306
	Energy 2500 Year	3	$394,304
Food and Agriculture	250 Year	16	$364
	Food and Agriculture 500 Year	16	$4,223
	Food and Agriculture 750 Year	16	$10,775
	Food and Agriculture 1000 Year	16	$19,136
	Food and Agriculture 1500 Year	16	$38,966
	Food and Agriculture 2000 Year	16	$67,687
	Food and Agriculture 2500 Year	16	$81,295
Government Facilities	250 Year	94	$19,691
	Government Facilities 500 Year	94	$167,374
	Government Facilities 750 Year	94	$452,733
	Government Facilities 1000 Year	94	$857,359
	Government Facilities 1500 Year	94	$1,759,279
	Government Facilities 2000 Year	94	$2,793,173
	Government Facilities 2500 Year	94	$3,609,388
Healthcare and Public Health	250 Year	26	$8,638
	Healthcare and Public Health 500 Year	26	$84,947
	Healthcare and Public Health 750 Year	26	$219,449
	Healthcare and Public Health 1000 Year	26	$408,375
	Healthcare and Public Health 1500 Year	26	$822,742
	Healthcare and Public Health	26	$1,315,921
	2000 Year		

	Healthcare and Public Health 2500 Year	26	$1,690,529
Postal and Shipping	250 Year	1	$498
	Postal and Shipping 500 Year	1	$2,264
	Postal and Shipping 750 Year	1	$4,828
	Postal and Shipping 1000 Year	1	$7,162
	Postal and Shipping 1500 Year	1	$12,125
	Postal and Shipping 2000 Year	1	$16,230
	Postal and Shipping 2500 Year	1	$20,090
Transportation Systems	250 Year	40	$4,051
	Transportation Systems 500 Year	40	$40,237
	Transportation Systems 750 Year	40	$104,658
	Transportation Systems 1000 Year	40	$187,133
	Transportation Systems 1500 Year	40	$352,625
	Transportation Systems 2000 Year	40	$601,770
	Transportation Systems 2500 Year	40	$777,619
Water	250 Year	13	$362
	Water 500 Year	13	$1,651
	Water 750 Year	13	$3,501
	Water 1000 Year	13	$5,232
	Water 1500 Year	13	$8,695
	Water 2000 Year	13	$11,803
	Water 2500 Year	13	$14,157
All Categories	**250 Year**	**503**	**$110,590**
	All Categories 500 Year	**503**	**$1,043,890**
	All Categories 750 Year	**503**	**$2,601,297**

	All Categories 1000 Year	**503**	**$4,603,666**
	All Categories 1500 Year	**503**	**$8,645,395**
	All Categories 2000 Year	**503**	**$13,758,325**
	All Categories 2500 Year	**503**	**$17,219,562**

Source: GIS Analysis

Table 6-34: Critical Facilities Exposed to the Earthquake - Hoke County (Unincorporated Area)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	250 Year	1	$29
	Banking and Finance 500 Year	1	$585
	Banking and Finance 750 Year	1	$1,722
	Banking and Finance 1000 Year	1	$3,688
	Banking and Finance 1500 Year	1	$8,086
	Banking and Finance 2000 Year	1	$13,220
	Banking and Finance 2500 Year	1	$16,657
Commercial Facilities	250 Year	360	$59,271
	Commercial Facilities 500 Year	360	$668,682
	Commercial Facilities 750 Year	360	$1,753,106
	Commercial Facilities 1000 Year	360	$3,032,303
	Commercial Facilities 1500 Year	360	$5,681,026
	Commercial Facilities 2000 Year	360	$8,879,350
	Commercial Facilities 2500 Year	360	$11,294,119
Critical Manufacturing	250 Year	45	$12,144
	Critical Manufacturing 500 Year	45	$97,816
	Critical Manufacturing 750 Year	45	$213,969
	Critical Manufacturing 1000 Year	45	$321,961

	Critical Manufacturing 1500 Year	45	$514,721
	Critical Manufacturing 2000 Year	45	$744,278
	Critical Manufacturing 2500 Year	45	$910,913
Emergency Services	250 Year	7	$2,976
	Emergency Services 500 Year	7	$29,138
	Emergency Services 750 Year	7	$67,275
	Emergency Services 1000 Year	7	$109,706
	Emergency Services 1500 Year	7	$198,005
	Emergency Services 2000 Year	7	$305,146
	Emergency Services 2500 Year	7	$386,246
Energy	250 Year	1	$6
	Energy 500 Year	1	$82
	Energy 750 Year	1	$186
	Energy 1000 Year	1	$263
	Energy 1500 Year	1	$390
	Energy 2000 Year	1	$580
	Energy 2500 Year	1	$714
Food and Agriculture	250 Year	700	$13,474
	Food and Agriculture 500 Year	700	$145,740
	Food and Agriculture 750 Year	700	$319,442
	Food and Agriculture 1000 Year	700	$525,367
	Food and Agriculture 1500 Year	700	$967,752
	Food and Agriculture 2000 Year	700	$1,637,789
	Food and Agriculture 2500 Year	700	$2,069,223
Government Facilities	250 Year	106	$26,700

	Government Facilities 500 Year	106	$242,822
	Government Facilities 750 Year	106	$588,409
	Government Facilities 1000 Year	106	$1,038,218
	Government Facilities 1500 Year	106	$2,100,507
	Government Facilities 2000 Year	106	$3,646,783
	Government Facilities 2500 Year	106	$4,757,003
Healthcare and Public Health	250 Year	4	$309
	Healthcare and Public Health 500 Year	4	$3,065
	Healthcare and Public Health 750 Year	4	$8,027
	Healthcare and Public Health 1000 Year	4	$12,505
	Healthcare and Public Health 1500 Year	4	$20,766
	Healthcare and Public Health 2000 Year	4	$31,421
	Healthcare and Public Health 2500 Year	4	$41,708
Postal and Shipping	250 Year	3	$1,436
	Postal and Shipping 500 Year	3	$6,606
	Postal and Shipping 750 Year	3	$14,043
	Postal and Shipping 1000 Year	3	$20,987
	Postal and Shipping 1500 Year	3	$35,074
	Postal and Shipping 2000 Year	3	$47,437
	Postal and Shipping 2500 Year	3	$57,562
Transportation Systems	250 Year	72	$9,842
	Transportation Systems 500 Year	72	$112,372

	Transportation Systems 750 Year	72	$289,605
	Transportation Systems 1000 Year	72	$472,526
	Transportation Systems 1500 Year	72	$839,961
	Transportation Systems 2000 Year	72	$1,297,287
	Transportation Systems 2500 Year	72	$1,685,273
Water	250 Year	6	$40,402
	Water 500 Year	6	$170,358
	Water 750 Year	6	$358,249
	Water 1000 Year	6	$529,511
	Water 1500 Year	6	$876,614
	Water 2000 Year	6	$1,184,852
	Water 2500 Year	6	$1,416,134
All Categories	**250 Year**	**1,305**	**$166,589**
	All Categories 500 Year	**1,305**	**$1,477,266**
	All Categories 750 Year	**1,305**	**$3,614,033**
	All Categories 1000 Year	**1,305**	**$6,067,035**
	All Categories 1500 Year	**1,305**	**$11,242,902**
	All Categories 2000 Year	**1,305**	**$17,788,143**
	All Categories 2500 Year	**1,305**	**$22,635,552**

Source: GIS Analysis

The following table provides counts and estimated damages for CIKR buildings across all jurisdictions, by sector, in the plan. Because there is a large number of sectors and events, the table is sorted by sector and then by event.

Table 6-35: Critical Facilities Exposed to the Earthquake (by Sector)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	250 Year	135	$16,568

	Banking and Finance 500 Year	140	$217,439
	Banking and Finance 750 Year	140	$559,530
	Banking and Finance 1000 Year	140	$918,637
	Banking and Finance 1500 Year	140	$1,870,457
	Banking and Finance 2000 Year	140	$2,878,288
	Banking and Finance 2500 Year	140	$3,732,183
Commercial Facilities	250 Year	5,314	$572,479
	Commercial Facilities 500 Year	5,606	$7,446,461
	Commercial Facilities 750 Year	5,606	$19,732,772
	Commercial Facilities 1000 Year	5,606	$33,308,128
	Commercial Facilities 1500 Year	5,606	$66,023,284
	Commercial Facilities 2000 Year	5,606	$103,941,628
	Commercial Facilities 2500 Year	5,606	$139,052,177
Communications	250 Year	13	$13,272
	Communications 500 Year	13	$133,368
	Communications 750 Year	13	$311,214
	Communications 1000 Year	13	$506,682
	Communications 1500 Year	13	$958,550
	Communications 2000 Year	13	$1,481,123
	Communications 2500 Year	13	$1,947,868
Critical Manufacturing	250 Year	911	$270,979
	Critical Manufacturing 500 Year	922	$2,832,903
	Critical Manufacturing 750 Year	922	$6,658,969
	Critical Manufacturing 1000 Year	922	$10,575,911
	Critical Manufacturing 1500 Year	922	$19,168,597

	Critical Manufacturing 2000 Year	922	$28,104,949
	Critical Manufacturing 2500 Year	922	$35,203,660
Defense Industrial Base	250 Year	1	$250
	Defense Industrial Base 500 Year	1	$4,173
	Defense Industrial Base 750 Year	1	$12,203
	Defense Industrial Base 1000 Year	1	$21,128
	Defense Industrial Base 1500 Year	1	$39,097
	Defense Industrial Base 2000 Year	1	$54,883
	Defense Industrial Base 2500 Year	1	$68,144
Emergency Services	250 Year	53	$15,899
	Emergency Services 500 Year	53	$196,171
	Emergency Services 750 Year	53	$499,045
	Emergency Services 1000 Year	53	$819,008
	Emergency Services 1500 Year	53	$1,507,788
	Emergency Services 2000 Year	53	$2,343,756
	Emergency Services 2500 Year	53	$3,142,691
Energy	250 Year	129	$3,221,176
	Energy 500 Year	129	$35,516,344
	Energy 750 Year	129	$89,191,866
	Energy 1000 Year	129	$141,960,421
	Energy 1500 Year	129	$255,986,650
	Energy 2000 Year	129	$375,084,369
	Energy 2500 Year	129	$456,746,967
Food and Agriculture	250 Year	1,950	$22,366
	Food and Agriculture 500 Year	1,950	$306,481

	Food and Agriculture 750 Year	1,950	$718,624
	Food and Agriculture 1000 Year	1,950	$1,148,034
	Food and Agriculture 1500 Year	1,950	$2,222,419
	Food and Agriculture 2000 Year	1,950	$3,632,517
	Food and Agriculture 2500 Year	1,950	$4,827,198
Government Facilities	250 Year	1,052	$195,390
	Government Facilities 500 Year	1,066	$2,231,215
	Government Facilities 750 Year	1,066	$5,880,624
	Government Facilities 1000 Year	1,066	$10,549,685
	Government Facilities 1500 Year	1,066	$23,358,057
	Government Facilities 2000 Year	1,066	$38,874,692
	Government Facilities 2500 Year	1,066	$51,597,203
Healthcare and Public Health	250 Year	482	$83,473
	Healthcare and Public Health 500 Year	490	$1,080,064
	Healthcare and Public Health 750 Year	490	$2,729,223
	Healthcare and Public Health 1000 Year	490	$4,473,594
	Healthcare and Public Health 1500 Year	490	$9,019,677
	Healthcare and Public Health 2000 Year	490	$14,130,065
	Healthcare and Public Health 2500 Year	490	$18,762,593
Nuclear Reactors, Materials and Waste	250 Year	1	$249
	Nuclear Reactors, Materials and Waste 500 Year	1	$6,293
	Nuclear Reactors, Materials and Waste	1	$19,422

	750 Year		
	Nuclear Reactors, Materials and Waste 1000 Year	1	$34,223
	Nuclear Reactors, Materials and Waste 1500 Year	1	$66,280
	Nuclear Reactors, Materials and Waste 2000 Year	1	$93,826
	Nuclear Reactors, Materials and Waste 2500 Year	1	$119,464
Postal and Shipping	250 Year	4	$1,934
	Postal and Shipping 500 Year	4	$8,870
	Postal and Shipping 750 Year	4	$18,871
	Postal and Shipping 1000 Year	4	$28,149
	Postal and Shipping 1500 Year	4	$47,199
	Postal and Shipping 2000 Year	4	$63,667
	Postal and Shipping 2500 Year	4	$77,652
Transportation Systems	250 Year	1,246	$150,034
	Transportation Systems 500 Year	1,251	$1,957,229
	Transportation Systems 750 Year	1,251	$5,207,552
	Transportation Systems 1000 Year	1,251	$8,840,323
	Transportation Systems 1500 Year	1,251	$17,581,951
	Transportation Systems 2000 Year	1,251	$27,378,057
	Transportation Systems 2500 Year	1,251	$36,376,903
Water	250 Year	56	$46,661
	Water 500 Year	56	$209,357
	Water 750 Year	56	$445,328
	Water 1000 Year	56	$666,664

	Water 1500 Year	56	$1,106,906
	Water 2000 Year	56	$1,507,546
	Water 2500 Year	56	$1,807,376
All Categories	**250 Year**	**11,347**	**$4,610,730**
	All Categories 500 Year	**11,682**	**$52,146,368**
	All Categories 750 Year	**11,682**	**$131,985,243**
	All Categories 1000 Year	**11,682**	**$213,850,587**
	All Categories 1500 Year	**11,682**	**$398,956,912**
	All Categories 2000 Year	**11,682**	**$599,569,366**
	All Categories 2500 Year	**11,682**	**$753,462,079**

Source: GIS Analysis

The following tables provide counts and estimated damages for High Potential Loss Properties by jurisdiction in the plan. Because there is a large number of categories and events, the table is sorted by category and then by event. Totals across all categories are shown at the bottom of each table.

Table 6-36: High Potential Loss Properties Exposed to the Earthquake - City Of Fayetteville

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	250 Year	289	$154,156
	Commercial 500 Year	306	$2,099,866
	Commercial 750 Year	306	$5,400,918
	Commercial 1000 Year	306	$8,876,072
	Commercial 1500 Year	306	$18,059,074
	Commercial 2000 Year	306	$28,208,838
	Commercial 2500 Year	306	$37,794,230
Government	250 Year	176	$87,701
	Government 500 Year	177	$1,111,641
	Government 750 Year	177	$2,942,901
	Government 1000 Year	177	$5,060,217
	Government 1500 Year	177	$11,314,972
	Government 2000 Year	177	$18,951,710
	Government 2500 Year	177	$25,620,544
Industrial	250 Year	12	$16,791
	Industrial 500 Year	12	$200,026
	Industrial 750 Year	12	$533,480
	Industrial 1000 Year	12	$843,801
	Industrial 1500 Year	12	$1,575,178
	Industrial 2000 Year	12	$2,280,990
	Industrial 2500 Year	12	$2,927,647
Religious	250 Year	68	$26,421
	Religious 500 Year	88	$349,296

	Religious 750 Year	88	$930,065
	Religious 1000 Year	88	$1,549,271
	Religious 1500 Year	88	$3,144,808
	Religious 2000 Year	88	$4,846,011
	Religious 2500 Year	88	$6,515,737
Residential	250 Year	84	$21,367
	Residential 500 Year	227	$381,462
	Residential 750 Year	227	$1,071,071
	Residential 1000 Year	227	$1,893,426
	Residential 1500 Year	227	$4,155,766
	Residential 2000 Year	227	$6,378,642
	Residential 2500 Year	227	$8,373,421
Utilities	250 Year	40	$2,089,234
	Utilities 500 Year	40	$27,203,269
	Utilities 750 Year	40	$70,856,511
	Utilities 1000 Year	40	$112,406,825
	Utilities 1500 Year	40	$207,266,370
	Utilities 2000 Year	40	$302,766,609
	Utilities 2500 Year	40	$367,850,633
All Categories	**250 Year**	**669**	**$2,395,670**
	All Categories 500 Year	**850**	**$31,345,560**
	All Categories 750 Year	**850**	**$81,734,946**
	All Categories 1000 Year	**850**	**$130,629,612**
	All Categories 1500 Year	**850**	**$245,516,168**
	All Categories 2000 Year	**850**	**$363,432,800**

	All Categories 2500 Year	**850**	**$449,082,212**

Source: GIS Analysis

Table 6-37: High Potential Loss Properties Exposed to the Earthquake - Cumberland County (Unincorporated Area)

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	250 Year	123	$115,590
	Commercial 500 Year	128	$1,430,504
	Commercial 750 Year	128	$3,845,672
	Commercial 1000 Year	128	$6,947,581
	Commercial 1500 Year	128	$13,798,553
	Commercial 2000 Year	128	$21,702,401
	Commercial 2500 Year	128	$28,435,144
Government	250 Year	60	$41,825
	Government 500 Year	62	$486,079
	Government 750 Year	62	$1,310,916
	Government 1000 Year	62	$2,426,588
	Government 1500 Year	62	$5,343,545
	Government 2000 Year	62	$8,682,093
	Government 2500 Year	62	$11,336,965
Industrial	250 Year	41	$100,168
	Industrial 500 Year	42	$1,079,485
	Industrial 750 Year	42	$2,673,083
	Industrial 1000 Year	42	$4,205,977
	Industrial 1500 Year	42	$7,421,020
	Industrial 2000 Year	42	$11,117,057
	Industrial 2500 Year	42	$14,312,852

Religious	250 Year	38	$15,429
	Religious 500 Year	49	$224,529
	Religious 750 Year	49	$606,565
	Religious 1000 Year	49	$989,022
	Religious 1500 Year	49	$1,831,162
	Religious 2000 Year	49	$2,826,709
	Religious 2500 Year	49	$3,766,165
Residential	250 Year	528	$276,402
	Residential 500 Year	618	$3,488,694
	Residential 750 Year	618	$9,039,153
	Residential 1000 Year	618	$15,017,828
	Residential 1500 Year	618	$31,615,753
	Residential 2000 Year	618	$50,694,197
	Residential 2500 Year	618	$70,946,932
Utilities	250 Year	51	$1,032,254
	Utilities 500 Year	51	$7,094,232
	Utilities 750 Year	51	$15,607,022
	Utilities 1000 Year	51	$25,480,875
	Utilities 1500 Year	51	$42,026,695
	Utilities 2000 Year	51	$61,983,298
	Utilities 2500 Year	51	$75,931,460
All Categories	**250 Year**	**841**	**$1,581,668**
	All Categories 500 Year	**950**	**$13,803,523**
	All Categories 750 Year	**950**	**$33,082,411**
	All Categories 1000 Year	**950**	**$55,067,871**

	All Categories 1500 Year	**950**	**$102,036,728**
	All Categories 2000 Year	**950**	**$157,005,755**
	All Categories 2500 Year	**950**	**$204,729,518**

Source: GIS Analysis

Table 6-38: High Potential Loss Properties Exposed to the Earthquake - Town Of Eastover

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	250 Year	5	$3,350
	Commercial 500 Year	5	$33,064
	Commercial 750 Year	5	$92,470
	Commercial 1000 Year	5	$145,979
	Commercial 1500 Year	5	$292,478
	Commercial 2000 Year	5	$436,270
	Commercial 2500 Year	5	$645,869
Government	250 Year	5	$906
	Government 500 Year	5	$12,993
	Government 750 Year	5	$29,231
	Government 1000 Year	5	$47,312
	Government 1500 Year	5	$124,062
	Government 2000 Year	5	$210,736
	Government 2500 Year	5	$330,255
Industrial	250 Year	1	$143
	Industrial 500 Year	1	$1,743
	Industrial 750 Year	1	$3,601
	Industrial 1000 Year	1	$5,553
	Industrial 1500 Year	1	$8,802

	Industrial 2000 Year	1	$12,813
	Industrial 2500 Year	1	$15,551
Religious	250 Year	2	$669
	Religious 500 Year	2	$7,236
	Religious 750 Year	2	$20,666
	Religious 1000 Year	2	$34,268
	Religious 1500 Year	2	$75,221
	Religious 2000 Year	2	$114,293
	Religious 2500 Year	2	$164,881
All Categories	**250 Year**	**13**	**$5,068**
	All Categories 500 Year	**13**	**$55,036**
	All Categories 750 Year	**13**	**$145,968**
	All Categories 1000 Year	**13**	**$233,112**
	All Categories 1500 Year	**13**	**$500,563**
	All Categories 2000 Year	**13**	**$774,112**
	All Categories 2500 Year	**13**	**$1,156,556**

Source: GIS Analysis

Table 6-39: High Potential Loss Properties Exposed to the Earthquake - Town Of Falcon

Category	Event	Number of Buildings At Risk	Estimated Damages
Religious	250 Year	3	$476
	Religious 500 Year	4	$5,005
	Religious 750 Year	4	$14,796
	Religious 1000 Year	4	$27,320
	Religious 1500 Year	4	$55,784
	Religious 2000 Year	4	$82,009

	Religious 2500 Year	4	$109,229
Residential	250 Year	1	$29
	Residential 500 Year	2	$1,522
	Residential 750 Year	2	$4,348
	Residential 1000 Year	2	$7,585
	Residential 1500 Year	2	$16,922
	Residential 2000 Year	2	$26,780
	Residential 2500 Year	2	$44,186
All Categories	**250 Year**	**4**	**$505**
	All Categories 500 Year	**6**	**$6,527**
	All Categories 750 Year	**6**	**$19,144**
	All Categories 1000 Year	**6**	**$34,905**
	All Categories 1500 Year	**6**	**$72,706**
	All Categories 2000 Year	**6**	**$108,789**
	All Categories 2500 Year	**6**	**$153,415**

Source: GIS Analysis

Table 6-40: High Potential Loss Properties Exposed to the Earthquake - Town Of Hope Mills

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	250 Year	7	$7,700
	Commercial 500 Year	8	$104,175
	Commercial 750 Year	8	$270,614
	Commercial 1000 Year	8	$421,308
	Commercial 1500 Year	8	$741,328
	Commercial 2000 Year	8	$1,204,814
	Commercial 2500 Year	8	$1,697,499

Government	250 Year	13	$6,143
	Government 500 Year	13	$89,471
	Government 750 Year	13	$230,810
	Government 1000 Year	13	$449,738
	Government 1500 Year	13	$971,874
	Government 2000 Year	13	$1,549,560
	Government 2500 Year	13	$1,947,525
Religious	250 Year	8	$2,565
	Religious 500 Year	10	$34,349
	Religious 750 Year	10	$88,778
	Religious 1000 Year	10	$149,954
	Religious 1500 Year	10	$293,612
	Religious 2000 Year	10	$470,665
	Religious 2500 Year	10	$619,710
Residential	250 Year	2	$853
	Residential 500 Year	3	$10,414
	Residential 750 Year	3	$26,715
	Residential 1000 Year	3	$49,652
	Residential 1500 Year	3	$108,277
	Residential 2000 Year	3	$169,271
	Residential 2500 Year	3	$220,244
Utilities	250 Year	1	$92,000
	Utilities 500 Year	1	$1,162,500
	Utilities 750 Year	1	$2,604,500
	Utilities 1000 Year	1	$3,878,000

	Utilities 1500 Year	1	$6,325,000
	Utilities 2000 Year	1	$9,759,500
	Utilities 2500 Year	1	$12,188,500
All Categories	**250 Year**	**31**	**$109,261**
	All Categories 500 Year	**35**	**$1,400,909**
	All Categories 750 Year	**35**	**$3,221,417**
	All Categories 1000 Year	**35**	**$4,948,652**
	All Categories 1500 Year	**35**	**$8,440,091**
	All Categories 2000 Year	**35**	**$13,153,810**
	All Categories 2500 Year	**35**	**$16,673,478**

Source: GIS Analysis

Table 6-41: High Potential Loss Properties Exposed to the Earthquake - Town Of Linden

Category	Event	Number of Buildings At Risk	Estimated Damages
Government	250 Year	1	$318
	Government 500 Year	1	$2,499
	Government 750 Year	1	$7,980
	Government 1000 Year	1	$14,672
	Government 1500 Year	1	$26,878
	Government 2000 Year	1	$44,305
	Government 2500 Year	1	$59,082
All Categories	**250 Year**	**1**	**$318**
	All Categories 500 Year	**1**	**$2,499**
	All Categories 750 Year	**1**	**$7,980**
	All Categories 1000 Year	**1**	**$14,672**
	All Categories 1500 Year	**1**	**$26,878**

	All Categories 2000 Year	**1**	**$44,305**
	All Categories 2500 Year	**1**	**$59,082**

Source: GIS Analysis

Table 6-42: High Potential Loss Properties Exposed to the Earthquake - Town Of Spring Lake

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	250 Year	12	$7,314
	Commercial 500 Year	16	$101,054
	Commercial 750 Year	16	$264,800
	Commercial 1000 Year	16	$432,571
	Commercial 1500 Year	16	$950,633
	Commercial 2000 Year	16	$1,380,729
	Commercial 2500 Year	16	$1,906,150
Government	250 Year	11	$5,991
	Government 500 Year	11	$55,486
	Government 750 Year	11	$147,325
	Government 1000 Year	11	$256,871
	Government 1500 Year	11	$536,328
	Government 2000 Year	11	$888,487
	Government 2500 Year	11	$1,214,523
Religious	250 Year	8	$2,074
	Religious 500 Year	8	$25,575
	Religious 750 Year	8	$62,479
	Religious 1000 Year	8	$97,334
	Religious 1500 Year	8	$185,496
	Religious 2000 Year	8	$275,879

	Religious 2500 Year	8	$375,794
Residential	250 Year	4	$2,177
	Residential 500 Year	7	$21,821
	Residential 750 Year	7	$56,896
	Residential 1000 Year	7	$105,877
	Residential 1500 Year	7	$218,376
	Residential 2000 Year	7	$348,282
	Residential 2500 Year	7	$464,805
All Categories	**250 Year**	**35**	**$17,556**
	All Categories 500 Year	**42**	**$203,936**
	All Categories 750 Year	**42**	**$531,500**
	All Categories 1000 Year	**42**	**$892,653**
	All Categories 1500 Year	**42**	**$1,890,833**
	All Categories 2000 Year	**42**	**$2,893,377**
	All Categories 2500 Year	**42**	**$3,961,272**

Source: GIS Analysis

Table 6-43: High Potential Loss Properties Exposed to the Earthquake - Town Of Stedman

Category	Event	Number of Buildings At Risk	Estimated Damages
Government	250 Year	4	$1,417
	Government 500 Year	4	$15,273
	Government 750 Year	4	$39,771
	Government 1000 Year	4	$75,295
	Government 1500 Year	4	$188,688
	Government 2000 Year	4	$314,546
	Government 2500 Year	4	$413,485

Religious	500 Year	2	$2,114
	Religious 750 Year	2	$7,091
	Religious 1000 Year	2	$12,319
	Religious 1500 Year	2	$28,831
	Religious 2000 Year	2	$42,240
	Religious 2500 Year	2	$55,650
All Categories	**250 Year**	**4**	**$1,417**
	All Categories 500 Year	**6**	**$17,387**
	All Categories 750 Year	**6**	**$46,862**
	All Categories 1000 Year	**6**	**$87,614**
	All Categories 1500 Year	**6**	**$217,519**
	All Categories 2000 Year	**6**	**$356,786**
	All Categories 2500 Year	**6**	**$469,135**

Source: GIS Analysis

Table 6-44: High Potential Loss Properties Exposed to the Earthquake - Town Of Wade

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	250 Year	1	$276
	Commercial 500 Year	1	$2,938
	Commercial 750 Year	1	$5,224
	Commercial 1000 Year	1	$7,325
	Commercial 1500 Year	1	$14,619
	Commercial 2000 Year	1	$22,349
	Commercial 2500 Year	1	$30,275
Government	250 Year	1	$223
	Government 500 Year	1	$2,350

	Government 750 Year	1	$6,419
	Government 1000 Year	1	$9,724
	Government 1500 Year	1	$16,235
	Government 2000 Year	1	$21,019
	Government 2500 Year	1	$29,754
All Categories	**250 Year**	**2**	**$499**
	All Categories 500 Year	**2**	**$5,288**
	All Categories 750 Year	**2**	**$11,643**
	All Categories 1000 Year	**2**	**$17,049**
	All Categories 1500 Year	**2**	**$30,854**
	All Categories 2000 Year	**2**	**$43,368**
	All Categories 2500 Year	**2**	**$60,029**

Source: GIS Analysis

Table 6-45: High Potential Loss Properties Exposed to the Earthquake - City Of Raeford

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	250 Year	14	$8,183
	Commercial 500 Year	14	$90,086
	Commercial 750 Year	14	$235,238
	Commercial 1000 Year	14	$417,300
	Commercial 1500 Year	14	$848,953
	Commercial 2000 Year	14	$1,430,517
	Commercial 2500 Year	14	$1,822,171
Government	250 Year	26	$15,936
	Government 500 Year	26	$134,874
	Government 750 Year	26	$368,712

	Government 1000 Year	26	$688,580
	Government 1500 Year	26	$1,374,329
	Government 2000 Year	26	$2,216,514
	Government 2500 Year	26	$2,885,062
Industrial	250 Year	7	$32,776
	Industrial 500 Year	7	$326,776
	Industrial 750 Year	7	$718,551
	Industrial 1000 Year	7	$1,138,585
	Industrial 1500 Year	7	$1,944,388
	Industrial 2000 Year	7	$2,978,149
	Industrial 2500 Year	7	$3,521,825
Religious	250 Year	12	$4,444
	Religious 500 Year	12	$45,323
	Religious 750 Year	12	$127,764
	Religious 1000 Year	12	$244,993
	Religious 1500 Year	12	$457,204
	Religious 2000 Year	12	$693,469
	Religious 2500 Year	12	$859,685
Residential	250 Year	1	$27
	Residential 500 Year	1	$973
	Residential 750 Year	1	$3,364
	Residential 1000 Year	1	$6,686
	Residential 1500 Year	1	$12,563
	Residential 2000 Year	1	$19,368
	Residential 2500 Year	1	$23,117

Utilities	250 Year	1	$6,460
	Utilities 500 Year	1	$34,570
	Utilities 750 Year	1	$74,990
	Utilities 1000 Year	1	$116,430
	Utilities 1500 Year	1	$205,670
	Utilities 2000 Year	1	$284,930
	Utilities 2500 Year	1	$349,070
All Categories	**250 Year**	**61**	**$67,826**
	All Categories 500 Year	**61**	**$632,602**
	All Categories 750 Year	**61**	**$1,528,619**
	All Categories 1000 Year	**61**	**$2,612,574**
	All Categories 1500 Year	**61**	**$4,843,107**
	All Categories 2000 Year	**61**	**$7,622,947**
	All Categories 2500 Year	**61**	**$9,460,930**

Source: GIS Analysis

Table 6-46: High Potential Loss Properties Exposed to the Earthquake - Hoke County (Unincorporated Area)

Category	Event	Number of Buildings At Risk	Estimated Damages
Agricultural	250 Year	1	$204
	Agricultural 500 Year	1	$1,912
	Agricultural 750 Year	1	$4,095
	Agricultural 1000 Year	1	$6,692
	Agricultural 1500 Year	1	$12,058
	Agricultural 2000 Year	1	$20,929
	Agricultural 2500 Year	1	$26,024
Commercial	250 Year	19	$7,837

	Commercial 500 Year	19	$110,461
	Commercial 750 Year	19	$297,529
	Commercial 1000 Year	19	$506,862
	Commercial 1500 Year	19	$917,734
	Commercial 2000 Year	19	$1,422,196
	Commercial 2500 Year	19	$1,829,783
Government	250 Year	33	$26,478
	Government 500 Year	33	$239,731
	Government 750 Year	33	$579,085
	Government 1000 Year	33	$1,014,658
	Government 1500 Year	33	$2,037,161
	Government 2000 Year	33	$3,517,210
	Government 2500 Year	33	$4,586,564
Industrial	250 Year	2	$2,128
	Industrial 500 Year	2	$11,920
	Industrial 750 Year	2	$25,251
	Industrial 1000 Year	2	$38,080
	Industrial 1500 Year	2	$62,241
	Industrial 2000 Year	2	$89,752
	Industrial 2500 Year	2	$108,793
Religious	250 Year	79	$30,974
	Religious 500 Year	79	$348,448
	Religious 750 Year	79	$932,718
	Religious 1000 Year	79	$1,619,879
	Religious 1500 Year	79	$3,032,102

	Religious 2000 Year	79	$4,695,788
	Religious 2500 Year	79	$5,930,404
Utilities	250 Year	4	$40,260
	Utilities 500 Year	4	$169,740
	Utilities 750 Year	4	$356,940
	Utilities 1000 Year	4	$527,580
	Utilities 1500 Year	4	$873,360
	Utilities 2000 Year	4	$1,180,500
	Utilities 2500 Year	4	$1,410,780
All Categories	**250 Year**	**138**	**$107,881**
	All Categories 500 Year	**138**	**$882,212**
	All Categories 750 Year	**138**	**$2,195,618**
	All Categories 1000 Year	**138**	**$3,713,751**
	All Categories 1500 Year	**138**	**$6,934,656**
	All Categories 2000 Year	**138**	**$10,926,375**
	All Categories 2500 Year	**138**	**$13,892,348**

Source: GIS Analysis

6.3.4 Extreme Heat

Vulnerability—Moderate Risk

The HMPC has identified the extreme heat hazard as a hazard separate and distinct from the drought hazard. Common perception with regard to the extreme heat hazard is that it is more common than may officially be recorded by the National Weather Service and has a greater impact on the community than can be analyzed by weather reports or dollar losses. Extreme heat is not likely to impact the built environment, but may impact agriculture and pose a threat to humans. Elderly persons, persons with respiratory disabilities, and children may be at risk to experience health problems during extreme heat events, some of which could result in serious illness or death. Potential losses of human life due to extreme heat are not quantified in this Plan. There are no past reports of death or property or crop damage recorded by NCEI.

Under standard building design practices, as temperatures climb as a result of climate change, so go energy and water demands, stressing production and supply lines. Urban areas will experience even higher temperatures due to the urban heat island (UHI) effect. Algae blooms and bacterial overgrowth

due to warmer water temperatures may taint rivers and streams, creating larger and more frequent fish- kills. Excessive heat can warp roads and railways, as well as weaken the structural integrity of bridges. Systems in older buildings may fail due to excessive heat build-up due to inadequate ventilation or insulation (21).

6.3.5 Hurricane/Tropical Storm

The following tables provide counts and values by jurisdiction relevant to Hurricane Winds hazard vulnerability in the Cumberland-Hoke Regional HMP Area.

Table 6-47. Population Impacted by the 25 Year Hurricane Winds

Jurisdiction	Total Population	Population at Risk		All Elderly Population	Elderly Population at Risk		All Children	Children at Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,927	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,891**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,228**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-48. Population Impacted by the 50 Year Hurricane Winds

Jurisdiction	Total Population	Population at Risk		All Elderly Population	Elderly Population at Risk		All Children	Children at Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-49. Population Impacted by the 100 Year Hurricane Winds

Jurisdiction	Total Population	Population at Risk		All Elderly Population	Elderly Population at Risk		All Children	Children at Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-50. Population Impacted by the 300 Year Hurricane Winds

Jurisdiction	Total Population	Population at Risk		All Elderly Population	Elderly Population at Risk		All Children	Children at Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-51. Population Impacted by the 700 Year Hurricane Winds

Jurisdiction	Total Population	Population at Risk		All Elderly Population	Elderly Population at Risk		All Children	Children at Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-52. Buildings Impacted by the 25 Year Hurricane Winds

Jurisdiction	All Buildings	Pre-FIRM Buildings at Risk		Residential Buildings at Risk			Commercial Buildings at Risk			Public Buildings at Risk			Total Buildings at Risk		
		Number	Percent	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$15,031,255	4,159	5.9%	$2,124,819	1,061	1.5%	$563,738	70,033	99.9%	$17,719,812
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$10,701,471	3,080	6.7%	$1,812,781	1,842	4%	$1,725,489	46,244	99.9%	$14,239,741
Town Of Eastover	1,855	0	0%	1,727	93.1%	$478,251	101	5.4%	$50,413	27	1.5%	$5,517	1,855	100%	$534,181
Town Of Falcon	169	165	97.6%	119	70.4%	$44,175	13	7.7%	$5,930	37	21.9%	$8,519	169	100%	$58,624
Town Of Godwin	82	81	98.8%	72	87.8%	$21,886	6	7.3%	$127	4	4.9%	$414	82	100%	$22,426
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$1,031,001	234	4.2%	$88,176	86	1.6%	$80,375	5,518	100%	$1,199,553
Town Of Linden	106	106	100%	77	72.6%	$19,127	19	17.9%	$548	10	9.4%	$1,295	106	100%	$20,970
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$557,910	223	7.4%	$37,428	50	1.7%	$22,684	2,998	100%	$618,022
Town Of Stedman	486	435	89.5%	416	85.6%	$96,801	50	10.3%	$8,165	20	4.1%	$5,494	486	100%	$110,460
Town Of Wade	315	290	92.1%	269	85.4%	$77,531	36	11.4%	$3,920	10	3.2%	$1,220	315	100%	$82,670
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$28,059,408**	**7,921**	**6.2%**	**$4,132,307**	**3,147**	**2.5%**	**$2,414,745**	**127,806**	**99.9%**	**$34,606,459**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$728,420	328	10.9%	$139,655	162	5.4%	$59,762	2,996	99.5%	$927,837
Hoke County (Unincorporated Area)	18,181	11,334	62.3%	16,867	92.8%	$4,745,004	1,037	5.7%	$379,242	266	1.5%	$366,189	18,170	99.9%	$5,490,435
Subtotal Hoke	**21,192**	**14,069**	**66.4%**	**19,373**	**91.4%**	**$5,473,424**	**1,365**	**6.4%**	**$518,897**	**428**	**2%**	**$425,951**	**21,166**	**99.9%**	**$6,418,272**
TOTAL PLAN	**149,139**	**65,412**	**43.9%**	**136,111**	**91.3%**	**$33,532,832**	**9,286**	**6.2%**	**$4,651,204**	**3,575**	**2.4%**	**$2,840,696**	**148,972**	**99.9%**	**$41,024,731**
Source: GIS Analysis															

Table 6-53. Buildings Impacted by the 50 Year Hurricane Winds

Jurisdiction	All Buildings	Pre-FIRM Buildings at Risk		Residential Buildings at Risk			Commercial Buildings at Risk			Public Buildings at Risk			Total Buildings at Risk		
		Number	Percent	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$39,001,762	4,159	5.9%	$7,344,215	1,061	1.5%	$1,972,978	70,033	99.9%	$48,318,955
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$27,049,605	3,080	6.7%	$5,712,709	1,842	4%	$5,366,525	46,244	99.9%	$38,128,839
Town Of Eastover	1,855	0	0%	1,727	93.1%	$1,118,950	101	5.4%	$165,291	27	1.5%	$16,130	1,855	100%	$1,300,371
Town Of Falcon	169	165	97.6%	119	70.4%	$108,786	13	7.7%	$20,098	37	21.9%	$36,832	169	100%	$165,716
Town Of Godwin	82	81	98.8%	72	87.8%	$50,827	6	7.3%	$586	4	4.9%	$1,786	82	100%	$53,199
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$2,857,819	234	4.2%	$307,000	86	1.6%	$242,777	5,518	100%	$3,407,596
Town Of Linden	106	106	100%	77	72.6%	$45,661	19	17.9%	$2,140	10	9.4%	$4,143	106	100%	$51,944
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$1,466,710	223	7.4%	$145,364	50	1.7%	$86,382	2,998	100%	$1,698,456
Town Of Stedman	486	435	89.5%	416	85.6%	$248,873	50	10.3%	$32,001	20	4.1%	$22,400	486	100%	$303,274
Town Of Wade	315	290	92.1%	269	85.4%	$172,703	36	11.4%	$15,376	10	3.2%	$4,418	315	100%	$192,497
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$72,121,696**	**7,921**	**6.2%**	**$13,744,780**	**3,147**	**2.5%**	**$7,754,371**	**127,806**	**99.9%**	**$93,620,847**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$1,873,219	328	10.9%	$593,184	162	5.4%	$227,197	2,996	99.5%	$2,693,600
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$11,874,170	1,037	5.7%	$1,359,033	266	1.5%	$1,293,012	18,171	99.9%	$14,526,215
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$13,747,389**	**1,365**	**6.4%**	**$1,952,217**	**428**	**2%**	**$1,520,209**	**21,167**	**99.9%**	**$17,219,815**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$85,869,085**	**9,286**	**6.2%**	**$15,696,997**	**3,575**	**2.4%**	**$9,274,580**	**148,973**	**99.9%**	**$110,840,662**
Source: GIS Analysis															

Table 6-54. Buildings Impacted by the 100 Year Hurricane Winds

Jurisdiction	All Buildings	Pre-FIRM Buildings at Risk		Residential Buildings at Risk			Commercial Buildings at Risk			Public Buildings at Risk			Total Buildings at Risk		
		Number	Percent	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$88,226,315	4,159	5.9%	$20,956,181	1,061	1.5%	$6,031,213	70,033	99.9%	$115,213,709
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$65,523,329	3,080	6.7%	$14,374,095	1,842	4%	$14,637,055	46,244	99.9%	$94,534,478
Town Of Eastover	1,855	0	0%	1,727	93.1%	$2,321,328	101	5.4%	$408,563	27	1.5%	$54,588	1,855	100%	$2,784,479
Town Of Falcon	169	165	97.6%	119	70.4%	$287,845	13	7.7%	$54,626	37	21.9%	$143,184	169	100%	$485,655
Town Of Godwin	82	81	98.8%	72	87.8%	$111,395	6	7.3%	$2,519	4	4.9%	$7,968	82	100%	$121,882
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$6,628,216	234	4.2%	$956,083	86	1.6%	$625,224	5,518	100%	$8,209,523
Town Of Linden	106	106	100%	77	72.6%	$102,504	19	17.9%	$8,491	10	9.4%	$15,706	106	100%	$126,701
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$3,460,948	223	7.4%	$525,013	50	1.7%	$341,021	2,998	100%	$4,326,982
Town Of Stedman	486	435	89.5%	416	85.6%	$535,580	50	10.3%	$120,192	20	4.1%	$85,767	486	100%	$741,540
Town Of Wade	315	290	92.1%	269	85.4%	$366,919	36	11.4%	$63,563	10	3.2%	$20,055	315	100%	$450,537
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$167,564,379**	**7,921**	**6.2%**	**$37,469,326**	**3,147**	**2.5%**	**$21,961,781**	**127,806**	**99.9%**	**$226,995,486**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$5,548,565	328	10.9%	$1,994,224	162	5.4%	$802,981	2,996	99.5%	$8,345,770
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$33,045,821	1,037	5.7%	$3,524,134	266	1.5%	$3,796,604	18,171	99.9%	$40,366,559
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$38,594,386**	**1,365**	**6.4%**	**$5,518,358**	**428**	**2%**	**$4,599,585**	**21,167**	**99.9%**	**$48,712,329**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$206,158,765**	**9,286**	**6.2%**	**$42,987,684**	**3,575**	**2.4%**	**$26,561,366**	**148,973**	**99.9%**	**$275,707,815**
Source: GIS Analysis															

Table 6-55. Buildings Impacted by the 300 Year Hurricane Winds

Jurisdiction	All Buildings	Pre-FIRM Buildings at Risk		Residential Buildings at Risk			Commercial Buildings at Risk			Public Buildings at Risk			Total Buildings at Risk		
		Number	Percent	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$642,371,769	4,159	5.9%	$152,648,208	1,061	1.5%	$47,353,444	70,033	99.9%	$842,373,421
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$398,061,407	3,080	6.7%	$63,467,292	1,842	4%	$66,061,225	46,244	99.9%	$527,589,925
Town Of Eastover	1,855	0	0%	1,727	93.1%	$15,885,553	101	5.4%	$2,144,955	27	1.5%	$716,038	1,855	100%	$18,746,545
Town Of Falcon	169	165	97.6%	119	70.4%	$2,085,148	13	7.7%	$360,579	37	21.9%	$1,303,104	169	100%	$3,748,830
Town Of Godwin	82	81	98.8%	72	87.8%	$858,969	6	7.3%	$26,497	4	4.9%	$85,156	82	100%	$970,622
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$49,505,994	234	4.2%	$7,746,305	86	1.6%	$4,478,294	5,518	100%	$61,730,593
Town Of Linden	106	106	100%	77	72.6%	$275,986	19	17.9%	$32,307	10	9.4%	$56,585	106	100%	$364,878
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$9,331,148	223	7.4%	$1,751,211	50	1.7%	$1,278,173	2,998	100%	$12,360,532
Town Of Stedman	486	435	89.5%	416	85.6%	$3,643,379	50	10.3%	$1,173,310	20	4.1%	$898,545	486	100%	$5,715,234
Town Of Wade	315	290	92.1%	269	85.4%	$2,510,005	36	11.4%	$744,763	10	3.2%	$283,315	315	100%	$3,538,083
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$1,124,529,358**	**7,921**	**6.2%**	**$230,095,427**	**3,147**	**2.5%**	**$122,513,879**	**127,806**	**99.9%**	**$1,477,138,663**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$46,346,076	328	10.9%	$12,932,036	162	5.4%	$6,389,412	2,996	99.5%	$65,667,525
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$257,546,452	1,037	5.7%	$15,155,544	266	1.5%	$24,702,016	18,171	99.9%	$297,404,012
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$303,892,528**	**1,365**	**6.4%**	**$28,087,580**	**428**	**2%**	**$31,091,428**	**21,167**	**99.9%**	**$363,071,537**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$1,428,421,886**	**9,286**	**6.2%**	**$258,183,007**	**3,575**	**2.4%**	**$153,605,307**	**148,973**	**99.9%**	**$1,840,210,200**

Source: GIS Analysis

Table 6-56. Buildings Impacted by the 700 Year Hurricane Winds

Jurisdiction	All Buildings	Pre-FIRM Buildings at Risk		Residential Buildings at Risk			Commercial Buildings at Risk			Public Buildings at Risk			Total Buildings at Risk		
		Number	Percent	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages	Number	Percent	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$1,562,123,816	4,159	5.9%	$359,502,788	1,061	1.5%	$112,747,709	70,033	99.9%	$2,034,374,313
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$969,205,374	3,080	6.7%	$148,186,859	1,842	4%	$175,299,539	46,244	99.9%	$1,292,691,773
Town Of Eastover	1,855	0	0%	1,727	93.1%	$38,531,000	101	5.4%	$4,902,463	27	1.5%	$1,967,355	1,855	100%	$45,400,818
Town Of Falcon	169	165	97.6%	119	70.4%	$4,251,807	13	7.7%	$847,932	37	21.9%	$2,855,552	169	100%	$7,955,291
Town Of Godwin	82	81	98.8%	72	87.8%	$2,012,005	6	7.3%	$64,035	4	4.9%	$205,060	82	100%	$2,281,101
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$119,787,724	234	4.2%	$18,543,787	86	1.6%	$10,619,963	5,518	100%	$148,951,475
Town Of Linden	106	106	100%	77	72.6%	$767,236	19	17.9%	$104,259	10	9.4%	$167,018	106	100%	$1,038,513
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$24,369,963	223	7.4%	$4,967,357	50	1.7%	$3,688,100	2,998	100%	$33,025,420
Town Of Stedman	486	435	89.5%	416	85.6%	$8,989,011	50	10.3%	$2,733,589	20	4.1%	$2,242,487	486	100%	$13,965,087
Town Of Wade	315	290	92.1%	269	85.4%	$5,751,554	36	11.4%	$1,824,639	10	3.2%	$727,783	315	100%	$8,303,975
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$2,735,789,490**	**7,921**	**6.2%**	**$541,677,708**	**3,147**	**2.5%**	**$310,520,566**	**127,806**	**99.9%**	**$3,587,987,766**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$110,754,803	328	10.9%	$35,347,506	162	5.4%	$18,871,520	2,996	99.5%	$164,973,828
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$571,790,354	1,037	5.7%	$33,856,498	266	1.5%	$56,903,080	18,171	99.9%	$662,549,932
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$682,545,157**	**1,365**	**6.4%**	**$69,204,004**	**428**	**2%**	**$75,774,600**	**21,167**	**99.9%**	**$827,523,760**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$3,418,334,647**	**9,286**	**6.2%**	**$610,881,712**	**3,575**	**2.4%**	**$386,295,166**	**148,973**	**99.9%**	**$4,415,511,526**

Source: GIS Analysis

The following tables provide counts and estimated damages for CIKR buildings by jurisdiction in the plan. Because there is a large number of sectors and events, the table is sorted by sector and then by event. Totals across all sectors are shown at the bottom of each table.

Table 6-57. Critical Facilities Exposed to the Hurricane Winds - City Of Fayetteville

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	102	$108,999
	Banking and Finance 50 Year	102	$336,825
	Banking and Finance 100 Year	102	$801,708
	Banking and Finance 300 Year	102	$4,641,997
	Banking and Finance 700 Year	102	$10,262,601
Commercial Facilities	25 Year	2,869	$1,349,182
	Commercial Facilities 50 Year	2,869	$4,764,303
	Commercial Facilities 100 Year	2,869	$13,877,561
	Commercial Facilities 300 Year	2,869	$101,849,627
	Commercial Facilities 700 Year	2,869	$239,278,694
Communications	25 Year	12	$72,957
	Communications 50 Year	12	$264,889
	Communications 100 Year	12	$687,381
	Communications 300 Year	12	$4,066,557
	Communications 700 Year	12	$9,078,747

Critical Manufacturing	25 Year	415	$291,298
	Critical Manufacturing 50 Year	415	$905,270
	Critical Manufacturing 100 Year	415	$2,339,022
	Critical Manufacturing 300 Year	415	$16,668,493
	Critical Manufacturing 700 Year	415	$40,636,994
Defense Industrial Base	25 Year	1	$342
	Defense Industrial Base 50 Year	1	$1,027
	Defense Industrial Base 100 Year	1	$4,205
	Defense Industrial Base 300 Year	1	$66,719
	Defense Industrial Base 700 Year	1	$180,009
Emergency Services	25 Year	18	$83,963
	Emergency Services 50 Year	18	$331,620
	Emergency Services 100 Year	18	$893,729
	Emergency Services 300 Year	18	$3,509,415
	Emergency Services 700 Year	18	$6,307,443
Energy	25 Year	71	$1,116,897
	Energy 50 Year	71	$4,965,259
	Energy 100 Year	71	$22,727,712

	Energy 300 Year	71	$281,849,403
	Energy 700 Year	71	$734,685,205
Food and Agriculture	25 Year	68	$1,884
	Food and Agriculture 50 Year	68	$7,636
	Food and Agriculture 100 Year	68	$33,732
	Food and Agriculture 300 Year	68	$479,587
	Food and Agriculture 700 Year	68	$1,199,903
Government Facilities	25 Year	550	$306,807
	Government Facilities 50 Year	550	$1,073,622
	Government Facilities 100 Year	550	$3,364,628
	Government Facilities 300 Year	550	$27,235,579
	Government Facilities 700 Year	550	$65,258,272
Healthcare and Public Health	25 Year	394	$207,633
	Healthcare and Public Health 50 Year	394	$738,665
	Healthcare and Public Health 100 Year	394	$2,351,471
	Healthcare and Public Health 300 Year	394	$19,904,023
	Healthcare and Public Health 700 Year	394	$48,677,161
	25 Year	1	$3,437

Nuclear Reactors, Materials and Waste	Nuclear Reactors, Materials and Waste 50 Year	1	$17,623
	Nuclear Reactors, Materials and Waste 100 Year	1	$63,997
	Nuclear Reactors, Materials and Waste 300 Year	1	$374,165
	Nuclear Reactors, Materials and Waste 700 Year	1	$725,645
Transportation Systems	25 Year	769	$259,685
	Transportation Systems 50 Year	769	$865,833
	Transportation Systems 100 Year	769	$2,497,709
	Transportation Systems 300 Year	769	$19,746,510
	Transportation Systems 700 Year	769	$47,383,498
Water	25 Year	29	$1,231
	Water 50 Year	29	$4,179
	Water 100 Year	29	$17,587
	Water 300 Year	29	$252,264
	Water 700 Year	29	$656,420
All Categories	**25 Year**	**5,299**	**$3,804,315**
	All Categories 50 Year	**5,299**	**$14,276,751**

	All Categories 100 Year	**5,299**	**$49,660,442**
	All Categories 300 Year	**5,299**	**$480,644,339**
	All Categories 700 Year	**5,299**	**$1,204,330,592**

Source: GIS Analysis

Table 6-58: Critical Facilities Exposed to the Hurricane Winds - Cumberland County (Unincorporated Area)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	16	$42,107
	Banking and Finance 50 Year	16	$154,098
	Banking and Finance 100 Year	16	$373,415
	Banking and Finance 300 Year	16	$800,917
	Banking and Finance 700 Year	16	$1,428,526
Commercial Facilities	25 Year	1,563	$981,069
	Commercial Facilities 50 Year	1,563	$3,035,940
	Commercial Facilities 100 Year	1,563	$7,692,045
	Commercial Facilities 300 Year	1,563	$37,778,049
	Commercial Facilities 700 Year	1,563	$89,003,405
Critical Manufacturing	25 Year	350	$450,828
	Critical Manufacturing 50 Year	350	$1,414,140

	Critical Manufacturing 100 Year	350	$3,497,518
	Critical Manufacturing 300 Year	350	$16,030,211
	Critical Manufacturing 700 Year	350	$36,892,712
Emergency Services	25 Year	13	$4,227
	Emergency Services 50 Year	13	$14,653
	Emergency Services 100 Year	13	$51,524
	Emergency Services 300 Year	13	$505,589
	Emergency Services 700 Year	13	$1,259,523
Energy	25 Year	51	$567,482
	Energy 50 Year	51	$1,754,561
	Energy 100 Year	51	$7,705,999
	Energy 300 Year	51	$122,678,901
	Energy 700 Year	51	$321,684,947
Food and Agriculture	25 Year	1,125	$20,625
	Food and Agriculture 50 Year	1,125	$156,264
	Food and Agriculture 100 Year	1,125	$587,997
	Food and Agriculture 300 Year	1,125	$3,019,710
	Food and Agriculture 700 Year	1,125	$6,151,104

Government Facilities	25 Year	211	$375,953
	Government Facilities 50 Year	211	$1,225,238
	Government Facilities 100 Year	211	$3,271,036
	Government Facilities 300 Year	211	$18,970,499
	Government Facilities 700 Year	211	$42,367,906
Healthcare and Public Health	25 Year	30	$41,104
	Healthcare and Public Health 50 Year	30	$136,819
	Healthcare and Public Health 100 Year	30	$309,101
	Healthcare and Public Health 300 Year	30	$964,065
	Healthcare and Public Health 700 Year	30	$1,901,270
Transportation Systems	25 Year	306	$443,310
	Transportation Systems 50 Year	306	$1,312,599
	Transportation Systems 100 Year	306	$3,289,628
	Transportation Systems 300 Year	306	$15,137,854
	Transportation Systems 700 Year	306	$37,372,528
Water	25 Year	8	$1,843
	Water 50 Year	8	$5,215
	Water 100 Year	8	$17,832

	Water 300 Year	8	$279,834
	Water 700 Year	8	$817,704
All Categories	**25 Year**	**3,673**	**$2,928,548**
	All Categories 50 Year	**3,673**	**$9,209,527**
	All Categories 100 Year	**3,673**	**$26,796,095**
	All Categories 300 Year	**3,673**	**$216,165,629**
	All Categories 700 Year	**3,673**	**$538,879,625**

Source: GIS Analysis

Table 6-59: Critical Facilities Exposed to the Hurricane Winds - Town Of Eastover

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	1	$49
	Banking and Finance 50 Year	1	$238
	Banking and Finance 100 Year	1	$1,309
	Banking and Finance 300 Year	1	$18,562
	Banking and Finance 700 Year	1	$42,449
Commercial Facilities	25 Year	64	$28,498
	Commercial Facilities 50 Year	64	$84,545
	Commercial Facilities 100 Year	64	$215,462

	Commercial Facilities 300 Year	64	$1,557,764
	Commercial Facilities 700 Year	64	$3,863,020
Critical Manufacturing	25 Year	21	$20,055
	Critical Manufacturing 50 Year	21	$73,320
	Critical Manufacturing 100 Year	21	$172,052
	Critical Manufacturing 300 Year	21	$560,939
	Critical Manufacturing 700 Year	21	$1,062,899
Emergency Services	25 Year	1	$289
	Emergency Services 50 Year	1	$905
	Emergency Services 100 Year	1	$3,531
	Emergency Services 300 Year	1	$62,914
	Emergency Services 700 Year	1	$189,381
Energy	25 Year	1	$168
	Energy 50 Year	1	$488
	Energy 100 Year	1	$1,793
	Energy 300 Year	1	$30,541
	Energy 700 Year	1	$94,577
Food and Agriculture	25 Year	13	$145

	Food and Agriculture 50 Year	13	$919
	Food and Agriculture 100 Year	13	$3,655
	Food and Agriculture 300 Year	13	$24,615
	Food and Agriculture 700 Year	13	$50,332
Government Facilities	25 Year	11	$2,962
	Government Facilities 50 Year	11	$8,614
	Government Facilities 100 Year	11	$27,475
	Government Facilities 300 Year	11	$299,246
	Government Facilities 700 Year	11	$799,301
Healthcare and Public Health	25 Year	7	$1,480
	Healthcare and Public Health 50 Year	7	$5,199
	Healthcare and Public Health 100 Year	7	$17,691
	Healthcare and Public Health 300 Year	7	$155,376
	Healthcare and Public Health 700 Year	7	$368,094
Transportation Systems	25 Year	9	$2,282
	Transportation Systems 50 Year	9	$7,192
	Transportation Systems 100 Year	9	$20,182
	Transportation Systems 300 Year	9	$151,036

	Transportation Systems 700 Year	9	$399,764
All Categories	**25 Year**	**128**	**$55,928**
	All Categories 50 Year	**128**	**$181,420**
	All Categories 100 Year	**128**	**$463,150**
	All Categories 300 Year	**128**	**$2,860,993**
	All Categories 700 Year	**128**	**$6,869,817**

Source: GIS Analysis

Table 6-60: Critical Facilities Exposed to the Hurricane Winds - Town Of Falcon

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	25 Year	15	$5,122
	Commercial Facilities 50 Year	15	$19,591
	Commercial Facilities 100 Year	15	$65,978
	Commercial Facilities 300 Year	15	$526,485
	Commercial Facilities 700 Year	15	$1,187,651
Critical Manufacturing	25 Year	2	$1,851
	Critical Manufacturing 50 Year	2	$4,956
	Critical Manufacturing 100 Year	2	$11,074
	Critical Manufacturing 300 Year	2	$65,076

	Critical Manufacturing 700 Year	2	$157,677
Food and Agriculture	25 Year	6	$939
	Food and Agriculture 50 Year	6	$3,871
	Food and Agriculture 100 Year	6	$15,209
	Food and Agriculture 300 Year	6	$174,086
	Food and Agriculture 700 Year	6	$434,932
Government Facilities	25 Year	1	$54
	Government Facilities 50 Year	1	$258
	Government Facilities 100 Year	1	$1,325
	Government Facilities 300 Year	1	$18,331
	Government Facilities 700 Year	1	$43,543
Healthcare and Public Health	25 Year	2	$3,005
	Healthcare and Public Health 50 Year	2	$10,742
	Healthcare and Public Health 100 Year	2	$26,109
	Healthcare and Public Health 300 Year	2	$100,269
	Healthcare and Public Health 700 Year	2	$203,974
All Categories	**25 Year**	**26**	**$10,971**
	All Categories 50 Year	**26**	**$39,418**

	All Categories 100 Year	**26**	**$119,695**
	All Categories 300 Year	**26**	**$884,247**
	All Categories 700 Year	**26**	**$2,027,777**

Source: GIS Analysis

Table 6-61: Critical Facilities Exposed to the Hurricane Winds - Town Of Godwin

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	25 Year	5	$431
	Commercial Facilities 50 Year	5	$1,894
	Commercial Facilities 100 Year	5	$8,335
	Commercial Facilities 300 Year	5	$86,222
	Commercial Facilities 700 Year	5	$206,387
Critical Manufacturing	25 Year	1	$40
	Critical Manufacturing 50 Year	1	$145
	Critical Manufacturing 100 Year	1	$637
	Critical Manufacturing 300 Year	1	$6,631
	Critical Manufacturing 700 Year	1	$16,441
Food and Agriculture	25 Year	3	$17
	Food and Agriculture 50 Year	3	$111

	Food and Agriculture 100 Year	3	$444
	Food and Agriculture 300 Year	3	$3,046
	Food and Agriculture 700 Year	3	$6,231
Government Facilities	25 Year	1	$53
	Government Facilities 50 Year	1	$223
	Government Facilities 100 Year	1	$1,071
	Government Facilities 300 Year	1	$15,754
	Government Facilities 700 Year	1	$40,036
All Categories	**25 Year**	**10**	**$541**
	All Categories 50 Year	**10**	**$2,373**
	All Categories 100 Year	**10**	**$10,487**
	All Categories 300 Year	**10**	**$111,653**
	All Categories 700 Year	**10**	**$269,095**

Source: GIS Analysis

Table 6-62: Critical Facilities Exposed to the Hurricane Winds - Town Of Hope Mills

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	8	$815
	Banking and Finance 50 Year	8	$2,400

	Banking and Finance 100 Year	8	$8,683
	Banking and Finance 300 Year	8	$120,930
	Banking and Finance 700 Year	8	$326,344
Commercial Facilities	25 Year	208	$75,125
	Commercial Facilities 50 Year	208	$266,897
	Commercial Facilities 100 Year	208	$829,479
	Commercial Facilities 300 Year	208	$6,578,185
	Commercial Facilities 700 Year	208	$15,626,796
Critical Manufacturing	25 Year	6	$7,123
	Critical Manufacturing 50 Year	6	$25,567
	Critical Manufacturing 100 Year	6	$102,447
	Critical Manufacturing 300 Year	6	$1,195,389
	Critical Manufacturing 700 Year	6	$2,984,622
Emergency Services	25 Year	2	$535
	Emergency Services 50 Year	2	$1,583
	Emergency Services 100 Year	2	$5,247
	Emergency Services 300 Year	2	$51,640
	Emergency Services 700 Year	2	$137,864

Energy	25 Year	2	$56,206
	Energy 50 Year	2	$371,088
	Energy 100 Year	2	$1,549,019
	Energy 300 Year	2	$11,069,297
	Energy 700 Year	2	$23,283,095
Government Facilities	25 Year	53	$66,661
	Government Facilities 50 Year	53	$193,188
	Government Facilities 100 Year	53	$467,811
	Government Facilities 300 Year	53	$3,155,487
	Government Facilities 700 Year	53	$7,425,121
Healthcare and Public Health	25 Year	17	$10,694
	Healthcare and Public Health 50 Year	17	$31,932
	Healthcare and Public Health 100 Year	17	$82,255
	Healthcare and Public Health 300 Year	17	$462,483
	Healthcare and Public Health 700 Year	17	$1,018,701
Transportation Systems	25 Year	25	$7,545
	Transportation Systems 50 Year	25	$28,044
	Transportation Systems 100 Year	25	$84,648

	Transportation Systems 300 Year	25	$648,741
	Transportation Systems 700 Year	25	$1,613,659
All Categories	**25 Year**	**321**	**$224,704**
	All Categories 50 Year	**321**	**$920,699**
	All Categories 100 Year	**321**	**$3,129,589**
	All Categories 300 Year	**321**	**$23,282,152**
	All Categories 700 Year	**321**	**$52,416,202**

Source: GIS Analysis

Table 6-63: Critical Facilities Exposed to the Hurricane Winds - Town Of Linden

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	25 Year	10	$552
	Commercial Facilities 50 Year	10	$2,000
	Commercial Facilities 100 Year	10	$8,175
	Commercial Facilities 300 Year	10	$32,240
	Commercial Facilities 700 Year	10	$104,037
Critical Manufacturing	25 Year	3	$103
	Critical Manufacturing 50 Year	3	$301
	Critical Manufacturing 100 Year	3	$1,131

	Critical Manufacturing 300 Year	3	$4,256
	Critical Manufacturing 700 Year	3	$13,583
Emergency Services	25 Year	1	$208
	Emergency Services 50 Year	1	$638
	Emergency Services 100 Year	1	$2,225
	Emergency Services 300 Year	1	$7,924
	Emergency Services 700 Year	1	$25,508
Food and Agriculture	25 Year	8	$127
	Food and Agriculture 50 Year	8	$586
	Food and Agriculture 100 Year	8	$2,325
	Food and Agriculture 300 Year	8	$8,091
	Food and Agriculture 700 Year	8	$24,096
Government Facilities	25 Year	5	$735
	Government Facilities 50 Year	5	$2,397
	Government Facilities 100 Year	5	$8,955
	Government Facilities 300 Year	5	$30,032
	Government Facilities 700 Year	5	$79,688
Transportation Systems	25 Year	2	$118

	Transportation Systems 50 Year	2	$361
	Transportation Systems 100 Year	2	$1,384
	Transportation Systems 300 Year	2	$6,348
	Transportation Systems 700 Year	2	$24,365
All Categories	**25 Year**	**29**	**$1,843**
	All Categories 50 Year	**29**	**$6,283**
	All Categories 100 Year	**29**	**$24,195**
	All Categories 300 Year	**29**	**$88,891**
	All Categories 700 Year	**29**	**$271,277**

Source: GIS Analysis

Table 6-64: Critical Facilities Exposed to the Hurricane Winds - Town Of Spring Lake

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	5	$414
	Banking and Finance 50 Year	5	$1,029
	Banking and Finance 100 Year	5	$3,025
	Banking and Finance 300 Year	5	$9,307
	Banking and Finance 700 Year	5	$26,466
Commercial Facilities	25 Year	206	$32,348

	Commercial Facilities 50 Year	206	$130,249
	Commercial Facilities 100 Year	206	$475,947
	Commercial Facilities 300 Year	206	$1,577,721
	Commercial Facilities 700 Year	206	$4,464,433
Critical Manufacturing	25 Year	10	$768
	Critical Manufacturing 50 Year	10	$2,291
	Critical Manufacturing 100 Year	10	$6,767
	Critical Manufacturing 300 Year	10	$20,327
	Critical Manufacturing 700 Year	10	$56,987
Emergency Services	25 Year	2	$1,161
	Emergency Services 50 Year	2	$3,602
	Emergency Services 100 Year	2	$15,967
	Emergency Services 300 Year	2	$73,973
	Emergency Services 700 Year	2	$254,407
Government Facilities	25 Year	21	$11,808
	Government Facilities 50 Year	21	$47,716
	Government Facilities 100 Year	21	$202,844
	Government Facilities 300 Year	21	$819,131

	Government Facilities 700 Year	21	$2,393,850
Healthcare and Public Health	25 Year	7	$867
	Healthcare and Public Health 50 Year	7	$2,540
	Healthcare and Public Health 100 Year	7	$8,153
	Healthcare and Public Health 300 Year	7	$26,189
	Healthcare and Public Health 700 Year	7	$79,317
Transportation Systems	25 Year	21	$9,635
	Transportation Systems 50 Year	21	$34,412
	Transportation Systems 100 Year	21	$123,406
	Transportation Systems 300 Year	21	$428,339
	Transportation Systems 700 Year	21	$1,216,124
All Categories	**25 Year**	**272**	**$57,001**
	All Categories 50 Year	**272**	**$221,839**
	All Categories 100 Year	**272**	**$836,109**
	All Categories 300 Year	**272**	**$2,954,987**
	All Categories 700 Year	**272**	**$8,491,584**

Source: GIS Analysis

Table 6-65: Critical Facilities Exposed to the Hurricane Winds - Town Of Stedman

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	1	$85
	Banking and Finance 50 Year	1	$253
	Banking and Finance 100 Year	1	$865
	Banking and Finance 300 Year	1	$9,836
	Banking and Finance 700 Year	1	$28,580
Commercial Facilities	25 Year	46	$7,310
	Commercial Facilities 50 Year	46	$29,404
	Commercial Facilities 100 Year	46	$105,292
	Commercial Facilities 300 Year	46	$945,090
	Commercial Facilities 700 Year	46	$2,226,466
Critical Manufacturing	25 Year	6	$1,839
	Critical Manufacturing 50 Year	6	$7,123
	Critical Manufacturing 100 Year	6	$26,580
	Critical Manufacturing 300 Year	6	$262,421
	Critical Manufacturing 700 Year	6	$621,844
Emergency Services	25 Year	1	$230

	Emergency Services 50 Year	1	$1,344
	Emergency Services 100 Year	1	$8,044
	Emergency Services 300 Year	1	$109,745
	Emergency Services 700 Year	1	$232,715
Government Facilities	25 Year	10	$3,368
	Government Facilities 50 Year	10	$12,640
	Government Facilities 100 Year	10	$48,763
	Government Facilities 300 Year	10	$542,659
	Government Facilities 700 Year	10	$1,398,627
Healthcare and Public Health	25 Year	2	$198
	Healthcare and Public Health 50 Year	2	$864
	Healthcare and Public Health 100 Year	2	$4,718
	Healthcare and Public Health 300 Year	2	$77,956
	Healthcare and Public Health 700 Year	2	$183,718
Transportation Systems	25 Year	4	$629
	Transportation Systems 50 Year	4	$2,773
	Transportation Systems 100 Year	4	$11,699
	Transportation Systems 300 Year	4	$124,148

	Transportation Systems 700 Year	4	$284,126
All Categories	**25 Year**	**70**	**$13,659**
	All Categories 50 Year	**70**	**$54,401**
	All Categories 100 Year	**70**	**$205,961**
	All Categories 300 Year	**70**	**$2,071,855**
	All Categories 700 Year	**70**	**$4,976,076**

Source: GIS Analysis

Table 6-66: Critical Facilities Exposed to the Hurricane Winds - Town Of Wade

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	25 Year	18	$1,322
	Commercial Facilities 50 Year	18	$4,660
	Commercial Facilities 100 Year	18	$19,490
	Commercial Facilities 300 Year	18	$251,614
	Commercial Facilities 700 Year	18	$654,671
Critical Manufacturing	25 Year	9	$2,119
	Critical Manufacturing 50 Year	9	$9,268
	Critical Manufacturing 100 Year	9	$42,635
	Critical Manufacturing 300 Year	9	$523,921

	Critical Manufacturing 700 Year	9	$1,244,739
Emergency Services	25 Year	1	$104
	Emergency Services 50 Year	1	$366
	Emergency Services 100 Year	1	$1,561
	Emergency Services 300 Year	1	$25,705
	Emergency Services 700 Year	1	$72,493
Food and Agriculture	25 Year	11	$101
	Food and Agriculture 50 Year	11	$625
	Food and Agriculture 100 Year	11	$2,373
	Food and Agriculture 300 Year	11	$14,943
	Food and Agriculture 700 Year	11	$29,699
Government Facilities	25 Year	3	$413
	Government Facilities 50 Year	3	$1,784
	Government Facilities 100 Year	3	$8,722
	Government Facilities 300 Year	3	$122,045
	Government Facilities 700 Year	3	$302,117
Healthcare and Public Health	25 Year	1	$308
	Healthcare and Public Health 50 Year	1	$977

	Healthcare and Public Health 100 Year	1	$3,466
	Healthcare and Public Health 300 Year	1	$39,970
	Healthcare and Public Health 700 Year	1	$111,820
Transportation Systems	25 Year	3	$771
	Transportation Systems 50 Year	3	$2,113
	Transportation Systems 100 Year	3	$5,371
	Transportation Systems 300 Year	3	$49,882
	Transportation Systems 700 Year	3	$136,883
All Categories	**25 Year**	**46**	**$5,138**
	All Categories 50 Year	**46**	**$19,793**
	All Categories 100 Year	**46**	**$83,618**
	All Categories 300 Year	**46**	**$1,028,080**
	All Categories 700 Year	**46**	**$2,552,422**

Source: GIS Analysis

Table 6-67: Critical Facilities Exposed to the Hurricane Winds - City Of Raeford

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	6	$1,426
	Banking and Finance 50 Year	6	$6,662

	Banking and Finance 100 Year	6	$24,917
	Banking and Finance 300 Year	6	$171,671
	Banking and Finance 700 Year	6	$374,821
Commercial Facilities	25 Year	242	$77,685
	Commercial Facilities 50 Year	242	$306,691
	Commercial Facilities 100 Year	242	$1,036,180
	Commercial Facilities 300 Year	242	$7,925,922
	Commercial Facilities 700 Year	242	$20,103,250
Communications	25 Year	1	$168
	Communications 50 Year	1	$610
	Communications 100 Year	1	$1,973
	Communications 300 Year	1	$19,667
	Communications 700 Year	1	$48,454
Critical Manufacturing	25 Year	54	$56,430
	Critical Manufacturing 50 Year	54	$262,546
	Critical Manufacturing 100 Year	54	$868,141
	Critical Manufacturing 300 Year	54	$4,319,093
	Critical Manufacturing 700 Year	54	$13,643,370

Emergency Services	25 Year	7	$2,282
	Emergency Services 50 Year	7	$8,103
	Emergency Services 100 Year	7	$35,897
	Emergency Services 300 Year	7	$555,688
	Emergency Services 700 Year	7	$1,417,977
Energy	25 Year	3	$2,834
	Energy 50 Year	3	$9,282
	Energy 100 Year	3	$38,965
	Energy 300 Year	3	$211,701
	Energy 700 Year	3	$1,443,094
Food and Agriculture	25 Year	16	$652
	Food and Agriculture 50 Year	16	$3,953
	Food and Agriculture 100 Year	16	$15,007
	Food and Agriculture 300 Year	16	$92,233
	Food and Agriculture 700 Year	16	$187,730
Government Facilities	25 Year	94	$34,786
	Government Facilities 50 Year	94	$139,458
	Government Facilities 100 Year	94	$515,905

	Government Facilities 300 Year	94	$4,145,979
	Government Facilities 700 Year	94	$12,216,840
Healthcare and Public Health	25 Year	26	$18,208
	Healthcare and Public Health 50 Year	26	$62,877
	Healthcare and Public Health 100 Year	26	$196,757
	Healthcare and Public Health 300 Year	26	$1,361,043
	Healthcare and Public Health 700 Year	26	$3,775,512
Postal and Shipping	25 Year	1	$348
	Postal and Shipping 50 Year	1	$1,948
	Postal and Shipping 100 Year	1	$10,105
	Postal and Shipping 300 Year	1	$104,555
	Postal and Shipping 700 Year	1	$215,671
Transportation Systems	25 Year	40	$6,949
	Transportation Systems 50 Year	40	$26,451
	Transportation Systems 100 Year	40	$92,069
	Transportation Systems 300 Year	40	$644,701
	Transportation Systems 700 Year	40	$2,250,931
Water	25 Year	13	$122

	Water 50 Year	13	$362
	Water 100 Year	13	$1,416
	Water 300 Year	13	$22,418
	Water 700 Year	13	$61,639
All Categories	**25 Year**	**503**	**$201,890**
	All Categories 50 Year	**503**	**$828,943**
	All Categories 100 Year	**503**	**$2,837,332**
	All Categories 300 Year	**503**	**$19,574,671**
	All Categories 700 Year	**503**	**$55,739,289**

Source: GIS Analysis

Table 6-68: Critical Facilities Exposed to the Hurricane Winds - Hoke County (Unincorporated Area)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	1	$2,653
	Banking and Finance 50 Year	1	$9,764
	Banking and Finance 100 Year	1	$21,928
	Banking and Finance 300 Year	1	$56,837
	Banking and Finance 700 Year	1	$89,543
Commercial Facilities	25 Year	360	$473,131

	Commercial Facilities 50 Year	360	$1,599,768
	Commercial Facilities 100 Year	360	$4,094,283
	Commercial Facilities 300 Year	360	$20,801,328
	Commercial Facilities 700 Year	360	$46,591,575
Critical Manufacturing	25 Year	45	$12,038
	Critical Manufacturing 50 Year	45	$40,801
	Critical Manufacturing 100 Year	45	$123,407
	Critical Manufacturing 300 Year	45	$788,294
	Critical Manufacturing 700 Year	45	$2,435,887
Emergency Services	25 Year	7	$9,497
	Emergency Services 50 Year	7	$27,905
	Emergency Services 100 Year	7	$76,796
	Emergency Services 300 Year	7	$614,180
	Emergency Services 700 Year	7	$1,530,700
Energy	25 Year	1	$102
	Energy 50 Year	1	$219
	Energy 100 Year	1	$390
	Energy 300 Year	1	$1,980

	Energy 700 Year	1	$4,721
Food and Agriculture	25 Year	700	$15,210
	Food and Agriculture 50 Year	700	$93,766
	Food and Agriculture 100 Year	700	$409,073
	Food and Agriculture 300 Year	700	$2,182,272
	Food and Agriculture 700 Year	700	$4,821,719
Government Facilities	25 Year	106	$119,567
	Government Facilities 50 Year	106	$478,334
	Government Facilities 100 Year	106	$1,623,199
	Government Facilities 300 Year	106	$11,962,225
	Government Facilities 700 Year	106	$28,110,588
Healthcare and Public Health	25 Year	4	$286
	Healthcare and Public Health 50 Year	4	$917
	Healthcare and Public Health 100 Year	4	$2,914
	Healthcare and Public Health 300 Year	4	$28,035
	Healthcare and Public Health 700 Year	4	$82,538
Postal and Shipping	25 Year	3	$487
	Postal and Shipping 50 Year	3	$2,674

	Postal and Shipping 100 Year	3	$13,022
	Postal and Shipping 300 Year	3	$119,077
	Postal and Shipping 700 Year	3	$302,980
Transportation Systems	25 Year	72	$108,095
	Transportation Systems 50 Year	72	$386,713
	Transportation Systems 100 Year	72	$933,530
	Transportation Systems 300 Year	72	$3,224,516
	Transportation Systems 700 Year	72	$6,617,635
Water	25 Year	6	$5,962
	Water 50 Year	6	$11,101
	Water 100 Year	6	$31,213
	Water 300 Year	6	$385,435
	Water 700 Year	6	$1,442,624
All Categories	**25 Year**	**1,305**	**$747,028**
	All Categories 50 Year	**1,305**	**$2,651,962**
	All Categories 100 Year	**1,305**	**$7,329,755**
	All Categories 300 Year	**1,305**	**$40,164,179**
	All Categories 700 Year	**1,305**	**$92,030,510**

Source: GIS Analysis

The following table provides counts and estimated damages for CIKR buildings across all jurisdictions, by sector, in the plan. Because there is a large number of sectors and events, the table is sorted by sector and then by event.

Table 6-69: Critical Facilities Exposed to the Hurricane Winds (by Sector)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	140	$156,548
	Banking and Finance 50 Year	140	$511,269
	Banking and Finance 100 Year	140	$1,235,850
	Banking and Finance 300 Year	140	$5,830,057
	Banking and Finance 700 Year	140	$12,579,330
Commercial Facilities	25 Year	5,606	$3,031,775
	Commercial Facilities 50 Year	5,606	$10,245,942
	Commercial Facilities 100 Year	5,606	$28,428,227
	Commercial Facilities 300 Year	5,606	$179,910,247
	Commercial Facilities 700 Year	5,606	$423,310,385
Communications	25 Year	13	$73,125
	Communications 50 Year	13	$265,499
	Communications 100 Year	13	$689,354
	Communications 300 Year	13	$4,086,224

	Communications 700 Year	13	$9,127,201
Critical Manufacturing	25 Year	922	$844,492
	Critical Manufacturing 50 Year	922	$2,745,728
	Critical Manufacturing 100 Year	922	$7,191,411
	Critical Manufacturing 300 Year	922	$40,445,051
	Critical Manufacturing 700 Year	922	$99,767,755
Defense Industrial Base	25 Year	1	$342
	Defense Industrial Base 50 Year	1	$1,027
	Defense Industrial Base 100 Year	1	$4,205
	Defense Industrial Base 300 Year	1	$66,719
	Defense Industrial Base 700 Year	1	$180,009
Emergency Services	25 Year	53	$102,496
	Emergency Services 50 Year	53	$390,719
	Emergency Services 100 Year	53	$1,094,521
	Emergency Services 300 Year	53	$5,516,773
	Emergency Services 700 Year	53	$11,428,011
Energy	25 Year	129	$1,743,689
	Energy 50 Year	129	$7,100,897

	Energy 100 Year	129	$32,023,878
	Energy 300 Year	129	$415,841,823
	Energy 700 Year	129	$1,081,195,639
Food and Agriculture	25 Year	1,950	$39,700
	Food and Agriculture 50 Year	1,950	$267,731
	Food and Agriculture 100 Year	1,950	$1,069,815
	Food and Agriculture 300 Year	1,950	$5,998,583
	Food and Agriculture 700 Year	1,950	$12,905,746
Government Facilities	25 Year	1,066	$923,167
	Government Facilities 50 Year	1,066	$3,183,472
	Government Facilities 100 Year	1,066	$9,541,734
	Government Facilities 300 Year	1,066	$67,316,967
	Government Facilities 700 Year	1,066	$160,435,889
Healthcare and Public Health	25 Year	490	$283,783
	Healthcare and Public Health 50 Year	490	$991,532
	Healthcare and Public Health 100 Year	490	$3,002,635
	Healthcare and Public Health 300 Year	490	$23,119,409
	Healthcare and Public Health 700 Year	490	$56,402,105

Nuclear Reactors, Materials and Waste	25 Year	1	$3,437
	Nuclear Reactors, Materials and Waste 50 Year	1	$17,623
	Nuclear Reactors, Materials and Waste 100 Year	1	$63,997
	Nuclear Reactors, Materials and Waste 300 Year	1	$374,165
	Nuclear Reactors, Materials and Waste 700 Year	1	$725,645
Postal and Shipping	25 Year	4	$835
	Postal and Shipping 50 Year	4	$4,622
	Postal and Shipping 100 Year	4	$23,127
	Postal and Shipping 300 Year	4	$223,632
	Postal and Shipping 700 Year	4	$518,651
Transportation Systems	25 Year	1,251	$839,019
	Transportation Systems 50 Year	1,251	$2,666,491
	Transportation Systems 100 Year	1,251	$7,059,626
	Transportation Systems 300 Year	1,251	$40,162,075
	Transportation Systems 700 Year	1,251	$97,299,513
Water	25 Year	56	$9,158

	Water 50 Year	56	$20,857
	Water 100 Year	56	$68,048
	Water 300 Year	56	$939,951
	Water 700 Year	56	$2,978,387
All Categories	**25 Year**	**11,682**	**$8,051,566**
	All Categories 50 Year	**11,682**	**$28,413,409**
	All Categories 100 Year	**11,682**	**$91,496,428**
	All Categories 300 Year	**11,682**	**$789,831,676**
	All Categories 700 Year	**11,682**	**$1,968,854,266**

Source: GIS Analysis

The following tables provide counts and estimated damages for High Potential Loss Properties by jurisdiction in the plan. Because there is a large number of categories and events, the table is sorted by category and then by event. Totals across all categories are shown at the bottom of each table.

Table 6-70: High Potential Loss Properties Exposed to the Hurricane Winds - City Of Fayetteville

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	306	$844,584
	Commercial 50 Year	306	$2,993,469
	Commercial 100 Year	306	$8,417,541
	Commercial 300 Year	306	$56,647,958
	Commercial 700 Year	306	$130,995,200
Government	25 Year	177	$344,499
	Government 50 Year	177	$1,242,024
	Government 100 Year	177	$3,780,731
	Government 300 Year	177	$27,406,628
	Government 700 Year	177	$63,661,376
Industrial	25 Year	12	$19,748
	Industrial 50 Year	12	$57,266
	Industrial 100 Year	12	$172,996
	Industrial 300 Year	12	$1,634,047
	Industrial 700 Year	12	$4,482,921
Religious	25 Year	88	$97,144

	Religious 50 Year	88	$301,027
	Religious 100 Year	88	$867,435
	Religious 300 Year	88	$7,618,133
	Religious 700 Year	88	$18,999,796
Residential	25 Year	227	$179,740
	Residential 50 Year	227	$697,978
	Residential 100 Year	227	$2,304,680
	Residential 300 Year	227	$18,480,017
	Residential 700 Year	227	$43,621,453
Utilities	25 Year	40	$1,111,953
	Utilities 50 Year	40	$4,945,637
	Utilities 100 Year	40	$22,621,553
	Utilities 300 Year	40	$280,084,268
	Utilities 700 Year	40	$730,683,492
All Categories	**25 Year**	**850**	**$2,597,668**
	All Categories 50 Year	**850**	**$10,237,401**
	All Categories 100 Year	**850**	**$38,164,936**
	All Categories 300 Year	**850**	**$391,871,051**

	All Categories 700 Year	**850**	**$992,444,238**

Source: GIS Analysis

Table 6-71: High Potential Loss Properties Exposed to the Hurricane Winds - Cumberland County (Unincorporated Area)

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	128	$958,324
	Commercial 50 Year	128	$2,856,623
	Commercial 100 Year	128	$6,659,381
	Commercial 300 Year	128	$22,957,747
	Commercial 700 Year	128	$54,872,842
Government	25 Year	62	$326,232
	Government 50 Year	62	$1,057,172
	Government 100 Year	62	$2,857,983
	Government 300 Year	62	$17,143,002
	Government 700 Year	62	$38,570,876
Industrial	25 Year	42	$208,448
	Industrial 50 Year	42	$722,338
	Industrial 100 Year	42	$1,966,394
	Industrial 300 Year	42	$8,086,012

	Industrial 700 Year	42	$18,100,995
Religious	25 Year	49	$117,135
	Religious 50 Year	49	$328,297
	Religious 100 Year	49	$812,527
	Religious 300 Year	49	$5,862,030
	Religious 700 Year	49	$13,856,138
Residential	25 Year	618	$1,326,514
	Residential 50 Year	618	$3,962,836
	Residential 100 Year	618	$10,540,760
	Residential 300 Year	618	$39,343,287
	Residential 700 Year	618	$110,976,776
Utilities	25 Year	51	$568,632
	Utilities 50 Year	51	$1,757,323
	Utilities 100 Year	51	$7,716,427
	Utilities 300 Year	51	$122,887,135
	Utilities 700 Year	51	$322,310,949
All Categories	**25 Year**	**950**	**$3,505,285**
	All Categories 50 Year	**950**	**$10,684,589**

	All Categories 100 Year	**950**	**$30,553,472**
	All Categories 300 Year	**950**	**$216,279,213**
	All Categories 700 Year	**950**	**$558,688,576**

Source: GIS Analysis

Table 6-72: High Potential Loss Properties Exposed to the Hurricane Winds - Town Of Eastover

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	5	$14,753
	Commercial 50 Year	5	$37,598
	Commercial 100 Year	5	$73,919
	Commercial 300 Year	5	$255,885
	Commercial 700 Year	5	$543,551
Government	25 Year	5	$1,982
	Government 50 Year	5	$5,858
	Government 100 Year	5	$19,845
	Government 300 Year	5	$245,991
	Government 700 Year	5	$720,474
Industrial	25 Year	1	$4,049
	Industrial 50 Year	1	$15,281
	Industrial 100 Year	1	$34,906

	Industrial 300 Year	1	$79,306
	Industrial 700 Year	1	$114,478
Religious	25 Year	2	$661
	Religious 50 Year	2	$1,942
	Religious 100 Year	2	$7,692
	Religious 300 Year	2	$124,306
	Religious 700 Year	2	$349,971
All Categories	**25 Year**	**13**	**$21,445**
	All Categories 50 Year	**13**	**$60,679**
	All Categories 100 Year	**13**	**$136,362**
	All Categories 300 Year	**13**	**$705,488**
	All Categories 700 Year	**13**	**$1,728,474**

Source: GIS Analysis

Table 6-73: High Potential Loss Properties Exposed to the Hurricane Winds - Town Of Falcon

Category	Event	Number of Buildings At Risk	Estimated Damages
Religious	25 Year	4	$3,955
	Religious 50 Year	4	$13,463
	Religious 100 Year	4	$39,444

	Religious 300 Year	4	$281,302
	Religious 700 Year	4	$656,519
Residential	25 Year	2	$723
	Residential 50 Year	2	$3,988
	Residential 100 Year	2	$19,165
	Residential 300 Year	2	$178,009
	Residential 700 Year	2	$353,869
All Categories	**25 Year**	**6**	**$4,678**
	All Categories 50 Year	**6**	**$17,451**
	All Categories 100 Year	**6**	**$58,609**
	All Categories 300 Year	**6**	**$459,311**
	All Categories 700 Year	**6**	**$1,010,388**

Source: GIS Analysis

Table 6-74: High Potential Loss Properties Exposed to the Hurricane Winds - Town Of Hope Mills

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	8	$15,658
	Commercial 50 Year	8	$55,207
	Commercial 100 Year	8	$202,621

	Commercial 300 Year	8	$1,874,524
	Commercial 700 Year	8	$4,485,879
Government	25 Year	13	$57,814
	Government 50 Year	13	$160,492
	Government 100 Year	13	$373,456
	Government 300 Year	13	$2,546,046
	Government 700 Year	13	$6,085,672
Religious	25 Year	10	$10,486
	Religious 50 Year	10	$39,073
	Religious 100 Year	10	$122,466
	Religious 300 Year	10	$995,399
	Religious 700 Year	10	$2,371,719
Residential	25 Year	3	$1,227
	Residential 50 Year	3	$4,656
	Residential 100 Year	3	$16,803
	Residential 300 Year	3	$131,307
	Residential 700 Year	3	$303,173
Utilities	25 Year	1	$56,153

	Utilities 50 Year	1	$370,922
	Utilities 100 Year	1	$1,548,282
	Utilities 300 Year	1	$11,057,555
	Utilities 700 Year	1	$23,252,452
All Categories	**25 Year**	**35**	**$141,338**
	All Categories 50 Year	**35**	**$630,350**
	All Categories 100 Year	**35**	**$2,263,628**
	All Categories 300 Year	**35**	**$16,604,831**
	All Categories 700 Year	**35**	**$36,498,895**

Source: GIS Analysis

Table 6-75: High Potential Loss Properties Exposed to the Hurricane Winds - Town Of Linden

Category	Event	Number of Buildings At Risk	Estimated Damages
Government	25 Year	1	$322
	Government 50 Year	1	$743
	Government 100 Year	1	$2,204
	Government 300 Year	1	$6,608
	Government 700 Year	1	$17,961
All Categories	**25 Year**	**1**	**$322**

	All Categories 50 Year	**1**	**$743**
	All Categories 100 Year	**1**	**$2,204**
	All Categories 300 Year	**1**	**$6,608**
	All Categories 700 Year	**1**	**$17,961**

Source: GIS Analysis

Table 6-76: High Potential Loss Properties Exposed to the Hurricane Winds - Town Of Spring Lake

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	16	$19,338
	Commercial 50 Year	16	$80,085
	Commercial 100 Year	16	$287,456
	Commercial 300 Year	16	$926,244
	Commercial 700 Year	16	$2,579,758
Government	25 Year	11	$12,276
	Government 50 Year	11	$49,218
	Government 100 Year	11	$210,384
	Government 300 Year	11	$857,114
	Government 700 Year	11	$2,527,353
Religious	25 Year	8	$4,886

	Religious 50 Year	8	$19,470
	Religious 100 Year	8	$68,413
	Religious 300 Year	8	$205,348
	Religious 700 Year	8	$520,735
Residential	25 Year	7	$6,550
	Residential 50 Year	7	$24,279
	Residential 100 Year	7	$80,425
	Residential 300 Year	7	$231,336
	Residential 700 Year	7	$579,751
All Categories	**25 Year**	**42**	**$43,050**
	All Categories 50 Year	**42**	**$173,052**
	All Categories 100 Year	**42**	**$646,678**
	All Categories 300 Year	**42**	**$2,220,042**
	All Categories 700 Year	**42**	**$6,207,597**

Source: GIS Analysis

Table 6-77: High Potential Loss Properties Exposed to the Hurricane Winds - Town Of Stedman

Category	Event	Number of Buildings At Risk	Estimated Damages
Government	25 Year	4	$2,942

	Government 50 Year	4	$10,778
	Government 100 Year	4	$37,710
	Government 300 Year	4	$355,203
	Government 700 Year	4	$979,239
Religious	25 Year	2	$1,363
	Religious 50 Year	2	$6,753
	Religious 100 Year	2	$22,120
	Religious 300 Year	2	$137,357
	Religious 700 Year	2	$318,244
All Categories	**25 Year**	**6**	**$4,305**
	All Categories 50 Year	**6**	**$17,531**
	All Categories 100 Year	**6**	**$59,830**
	All Categories 300 Year	**6**	**$492,560**
	All Categories 700 Year	**6**	**$1,297,483**

Source: GIS Analysis

Table 6-78: High Potential Loss Properties Exposed to the Hurricane Winds - Town Of Wade

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	1	$308

	Commercial 50 Year	1	$977
	Commercial 100 Year	1	$3,466
	Commercial 300 Year	1	$39,970
	Commercial 700 Year	1	$111,820
Government	25 Year	1	$322
	Government 50 Year	1	$1,461
	Government 100 Year	1	$7,293
	Government 300 Year	1	$103,556
	Government 700 Year	1	$253,332
All Categories	**25 Year**	**2**	**$630**
	All Categories 50 Year	**2**	**$2,438**
	All Categories 100 Year	**2**	**$10,759**
	All Categories 300 Year	**2**	**$143,526**
	All Categories 700 Year	**2**	**$365,152**

Source: GIS Analysis

Table 6-79: High Potential Loss Properties Exposed to the Hurricane Winds - City Of Raeford

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	14	$23,043

	Commercial 50 Year	14	$99,748
	Commercial 100 Year	14	$324,477
	Commercial 300 Year	14	$1,954,734
	Commercial 700 Year	14	$5,326,085
Government	25 Year	26	$25,982
	Government 50 Year	26	$104,560
	Government 100 Year	26	$395,181
	Government 300 Year	26	$3,381,195
	Government 700 Year	26	$9,818,672
Industrial	25 Year	7	$51,789
	Industrial 50 Year	7	$241,883
	Industrial 100 Year	7	$781,406
	Industrial 300 Year	7	$3,267,366
	Industrial 700 Year	7	$10,839,547
Religious	25 Year	12	$13,887
	Religious 50 Year	12	$47,872
	Religious 100 Year	12	$146,075
	Religious 300 Year	12	$994,579

	Religious 700 Year	12	$2,901,887
Residential	25 Year	1	$646
	Residential 50 Year	1	$2,977
	Residential 100 Year	1	$8,994
	Residential 300 Year	1	$21,887
	Residential 700 Year	1	$97,617
Utilities	25 Year	1	$2,242
	Utilities 50 Year	1	$6,954
	Utilities 100 Year	1	$30,785
	Utilities 300 Year	1	$142,578
	Utilities 700 Year	1	$1,282,249
All Categories	**25 Year**	**61**	**$117,589**
	All Categories 50 Year	**61**	**$503,994**
	All Categories 100 Year	**61**	**$1,686,918**
	All Categories 300 Year	**61**	**$9,762,339**
	All Categories 700 Year	**61**	**$30,266,057**

Source: GIS Analysis

Table 6-80: High Potential Loss Properties Exposed to the Hurricane Winds - Hoke County (Unincorporated Area)

Category	Event	Number of Buildings At Risk	Estimated Damages
Agricultural	25 Year	1	$13
	Agricultural 50 Year	1	$126
	Agricultural 100 Year	1	$3,494
	Agricultural 300 Year	1	$10,553
	Agricultural 700 Year	1	$25,009
Commercial	25 Year	19	$167,428
	Commercial 50 Year	19	$595,474
	Commercial 100 Year	19	$1,370,973
	Commercial 300 Year	19	$4,388,589
	Commercial 700 Year	19	$8,189,404
Government	25 Year	33	$117,163
	Government 50 Year	33	$466,495
	Government 100 Year	33	$1,586,481
	Government 300 Year	33	$11,965,358
	Government 700 Year	33	$28,100,815
Industrial	25 Year	2	$1,057

	Industrial 50 Year	2	$3,277
	Industrial 100 Year	2	$14,495
	Industrial 300 Year	2	$230,924
	Industrial 700 Year	2	$603,932
Religious	25 Year	79	$212,129
	Religious 50 Year	79	$701,002
	Religious 100 Year	79	$1,838,220
	Religious 300 Year	79	$10,447,353
	Religious 700 Year	79	$23,316,360
Utilities	25 Year	4	$5,926
	Utilities 50 Year	4	$10,793
	Utilities 100 Year	4	$29,644
	Utilities 300 Year	4	$375,467
	Utilities 700 Year	4	$1,416,944
All Categories	**25 Year**	**138**	**$503,716**
	All Categories 50 Year	**138**	**$1,777,167**
	All Categories 100 Year	**138**	**$4,843,307**
	All Categories 300 Year	**138**	**$27,418,244**

	All Categories 700 Year	**138**	**$61,652,464**

Source: GIS Analysis

6.3.6 Inland Flooding: 100-/500-year

The following tables provide counts and values by jurisdiction relevant to River Flooding hazard vulnerability in the Cumberland-Hoke Regional HMP Area.

Source: GIS Analysis

Table 6-81: Population Impacted by the 100 Year River Flooding

Jurisdiction	Total Population	Population At Risk		All Elderly Population	Elderly Population At Risk		All Children Population	Children At Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	1,405	0.8%	17,329	133	0.8%	15,228	117	0.8%
Cumberland County (Unincorporated Area)	107,594	615	0.6%	10,175	58	0.6%	8,942	51	0.6%
Town Of Eastover	3,591	45	1.3%	340	4	1.2%	298	4	1.3%
Town Of Falcon	286	0	0%	27	0	0%	24	0	0%
Town Of Godwin	141	0	0%	13	0	0%	12	0	0%
Town Of Hope Mills	14,596	14	0.1%	1,380	1	0.1%	1,213	1	0.1%
Town Of Linden	104	0	0%	10	0	0%	9	0	0%
Town Of Spring Lake	8,277	12	0.1%	783	1	0.1%	688	1	0.1%
Town Of Stedman	983	2	0.2%	93	0	0%	82	0	0%
Town Of Wade	527	0	0%	50	0	0%	44	0	0%

Subtotal Cumberland	**319,337**	**2,093**	**0.7%**	**30200**	**197**	**0.7%**	**26540**	**174**	**0.7%**
Hoke									
City Of Raeford	5,964	7	0.1%	443	1	0.2%	582	1	0.2%
Hoke County (Unincorporated Area)	40,929	70	0.2%	3,040	5	0.2%	3,994	7	0.2%
Subtotal Hoke	**46,893**	**77**	**0.2%**	**3483**	**6**	**0.2%**	**4576**	**8**	**0.2%**
TOTAL PLAN	**366,230**	**2,170**	**0.6%**	**33683**	**203**	**0.6%**	**31116**	**182**	**0.6%**

Source: GIS Analysis

Table 6-82: Buildings Impacted by the 100 Year River Flooding

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings At Risk		Residential Buildings At Risk			Commercial Buildings At Risk			Public Buildings At Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	238	0.3%	498	0.7%	$5,627,438	49	0.1%	$1,212,706	5	0%	$407,496	552	0.8%	$7,247,640
Cumberland County (Unincorporated Area)	46,300	49	0.1%	244	0.5%	$1,582,000	11	0%	$92,054	1	0%	$11,592	256	0.6%	$1,685,646
Town Of Eastover	1,855	0	0%	20	1.1%	$176,088	4	0.2%	$32,069	0	0%	$0	24	1.3%	$208,158
Town Of Falcon	169	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Town Of Godwin	82	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Town Of Hope Mills	5,519	0	0%	5	0.1%	$33,961	0	0%	$0	0	0%	$0	5	0.1%	$33,961
Town Of Linden	106	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Town Of Spring Lake	2,998	0	0%	4	0.1%	$9,929	0	0%	$0	0	0%	$0	4	0.1%	$9,929

Town Of Stedman	486	1	0.2%	1	0.2%	$1,025	0	0%	$0	0	0%	$0	1	0.2%	$1,025
Town Of Wade	315	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Subtotal Cumberland	**127,947**	**288**	**0.2%**	**772**	**0.6%**	**$7,430,441**	**64**	**0.1%**	**$1,336,829**	**6**	**0%**	**$419,088**	**842**	**0.7%**	**$9,186,359**
Hoke															
City Of Raeford	3,011	3	0.1%	3	0.1%	$3,732	0	0%	$0	0	0%	$0	3	0.1%	$3,732
Hoke County (Unincorporated Area)	18,181	27	0.1%	29	0.2%	$78,782	3	0%	$77,498	1	0%	$316	33	0.2%	$156,597
Subtotal Hoke	**21,192**	**30**	**0.1%**	**32**	**0.2%**	**$82,514**	**3**	**0%**	**$77,498**	**1**	**0%**	**$316**	**36**	**0.2%**	**$160,329**
TOTAL PLAN	**149,139**	**318**	**0.2%**	**804**	**0.5%**	**$7,512,955**	**67**	**0%**	**$1,414,327**	**7**	**0%**	**$419,404**	**878**	**0.6%**	**$9,346,688**

Source: GIS Analysis

The following tables provide counts and estimated damages for CIKR buildings by jurisdiction in the plan. Because there is a large number of sectors and events, the table is sorted by sector and then by event. Totals across all sectors are shown at the bottom of each table.

Table 6-83: Critical Facilities Exposed to the River Flooding - City Of Fayetteville

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	100 Year	49	$1,052,378
Critical Manufacturing	100 Year	1	$13,459
Government Facilities	100 Year	1	$4,027
Transportation Systems	100 Year	3	$550,338
Water	100 Year	2	$50,539
All Categories	**100 Year**	**56**	**$1,670,741**

Source: GIS Analysis

Table 6-84: Critical Facilities Exposed to the River Flooding - Cumberland County (Unincorporated Area)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	100 Year	9	$68,787
Critical Manufacturing	100 Year	2	$15,893
Food and Agriculture	100 Year	1	$18,966
All Categories	**100 Year**	**12**	**$103,646**

Source: GIS Analysis

Table 6-85: Critical Facilities Exposed to the River Flooding - Town Of Eastover

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	100 Year	4	$32,069
All Categories	**100 Year**	**4**	**$32,069**

Source: GIS Analysis

Table 6-86: Critical Facilities Exposed to the River Flooding - Hoke County (Unincorporated Area)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	100 Year	3	$74,911
Food and Agriculture	100 Year	1	$2,903
All Categories	**100 Year**	**4**	**$77,814**

Source: GIS Analysis

The following table provides counts and estimated damages for CIKR buildings across all jurisdictions, by sector, in the plan. Because there is a large number of sectors and events, the table is sorted by sector and then by event.

Table 6-87: Critical Facilities Exposed to the River Flooding (by Sector)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	100 Year	65	$1,228,145
Critical Manufacturing	100 Year	3	$29,352
Food and Agriculture	100 Year	2	$21,869
Government Facilities	100 Year	1	$4,027
Transportation Systems	100 Year	3	$550,338
Water	100 Year	2	$50,539
All Categories	**100 Year**	**76**	**$1,884,270**

Source: GIS Analysis

The following tables provide counts and estimated damages for High Potential Loss Properties by jurisdiction in the plan. Because there is a large number of categories and events, the table is sorted by category and then by event. Totals across all categories are shown at the bottom of each table.

Table 6-88: High Potential Loss Properties Exposed to the River Flooding - City Of Fayetteville

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	100 Year	2	$525,581
Religious	100 Year	1	$283,887
Residential	100 Year	2	$57,008
All Categories	**100 Year**	**5**	**$866,476**

Source: GIS Analysis

6.3.7 Severe Weather (Thunderstorm, Lightning, & Hail)

The following tables provide counts and values by jurisdiction relevant to Thunderstorm Winds hazard vulnerability in the Cumberland-Hoke Regional HMP Area.

Table 6-89: Population Impacted by the 25 Year Thunderstorm Winds

Jurisdiction	Total Population	Population At Risk		All Elderly Population	Elderly Population At Risk		All Children Population	Children At Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%

Subtotal Hoke	46,893	46,893	100%	3483	3483	100%	4576	4576	100%
TOTAL PLAN	366,230	366,230	100%	33683	33683	100%	31116	31116	100%

Source: GIS Analysis

Table 6-90: Population Impacted by the 50 Year Thunderstorm Winds

Jurisdiction	Total Population	Population At Risk		All Elderly Population	Elderly Population At Risk		All Children Population	Children At Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	319,337	319,337	100%	30200	30200	100%	26540	26540	100%
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%

Subtotal Hoke	46,893	46,893	100%	3483	3483	100%	4576	4576	100%
TOTAL PLAN	366,230	366,230	100%	33683	33683	100%	31116	31116	100%

Source: GIS Analysis

Table 6-91: Population Impacted by the 100 Year Thunderstorm Winds

Jurisdiction	Total Population	Population At Risk		All Elderly Population	Elderly Population At Risk		All Children Population	Children At Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	319,337	319,337	100%	30200	30200	100%	26540	26540	100%
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%

Subtotal Hoke	46,893	46,893	100%	3483	3483	100%	4576	4576	100%
TOTAL PLAN	366,230	366,230	100%	33683	33683	100%	31116	31116	100%

Source: GIS Analysis

Table 6-92: Population Impacted by the 300 Year Thunderstorm Winds

Jurisdiction	Total Population	Population At Risk		All Elderly Population	Elderly Population At Risk		All Children Population	Children At Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	319,337	319,337	100%	30200	30200	100%	26540	26540	100%
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%

Subtotal Hoke	46,893	46,893	100%	3483	3483	100%	4576	4576	100%
TOTAL PLAN	366,230	366,230	100%	33683	33683	100%	31116	31116	100%

Source: GIS Analysis

Table 6-93: Population Impacted by the 700 Year Thunderstorm Winds

Jurisdiction	Total Population	Population At Risk		All Elderly Population	Elderly Population At Risk		All Children Population	Children At Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	319,337	319,337	100%	30200	30200	100%	26540	26540	100%
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%

Subtotal Hoke	46,893	46,893	100%	3483	3483	100%	4576	4576	100%
TOTAL PLAN	366,230	366,230	100%	33683	33683	100%	31116	31116	100%

Source: GIS Analysis

Table 6-94: Buildings Impacted by the 25 Year Thunderstorm Winds

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings At Risk		Residential Buildings At Risk			Commercial Buildings At Risk			Public Buildings At Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$15,031,255	4,159	5.9%	$2,124,819	1,061	1.5%	$563,738	70,033	99.9%	$17,719,812
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$10,706,580	3,080	6.7%	$1,816,231	1,842	4%	$1,725,535	46,244	99.9%	$14,248,346
Town Of Eastover	1,855	0	0%	1,727	93.1%	$478,251	101	5.4%	$50,413	27	1.5%	$5,517	1,855	100%	$534,181
Town Of Falcon	169	165	97.6%	119	70.4%	$44,175	13	7.7%	$5,930	37	21.9%	$8,519	169	100%	$58,624
Town Of Godwin	82	81	98.8%	72	87.8%	$21,886	6	7.3%	$127	4	4.9%	$414	82	100%	$22,426
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$1,031,001	234	4.2%	$88,176	86	1.6%	$80,375	5,518	100%	$1,199,553
Town Of Linden	106	106	100%	77	72.6%	$19,127	19	17.9%	$548	10	9.4%	$1,295	106	100%	$20,970
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$560,097	223	7.4%	$37,428	50	1.7%	$22,684	2,998	100%	$620,210
Town Of Stedman	486	435	89.5%	416	85.6%	$96,801	50	10.3%	$8,165	20	4.1%	$5,494	486	100%	$110,460
Town Of Wade	315	290	92.1%	269	85.4%	$77,531	36	11.4%	$3,920	10	3.2%	$1,220	315	100%	$82,670
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$28,066,704**	**7,921**	**6.2%**	**$4,135,757**	**3,147**	**2.5%**	**$2,414,791**	**127,806**	**99.9%**	**$34,617,252**
Hoke															

City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$728,420	328	10.9%	$139,655	162	5.4%	$59,762	2,996	99.5%	$927,837
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$5,225,347	1,037	5.7%	$417,449	266	1.5%	$394,186	18,171	99.9%	$6,036,982
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$5,953,767**	**1,365**	**6.4%**	**$557,104**	**428**	**2%**	**$453,948**	**21,167**	**99.9%**	**$6,964,819**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$34,020,471**	**9,286**	**6.2%**	**$4,692,861**	**3,575**	**2.4%**	**$2,868,739**	**148,973**	**99.9%**	**$41,582,071**

Source: GIS Analysis

Table 6-95: Buildings Impacted by the 50 Year Thunderstorm Winds

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings At Risk		Residential Buildings At Risk			Commercial Buildings At Risk			Public Buildings At Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$25,113,892	4,159	5.9%	$4,056,141	1,061	1.5%	$1,067,047	70,033	99.9%	$30,237,080
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$17,418,374	3,080	6.7%	$3,312,871	1,842	4%	$3,095,210	46,244	99.9%	$23,826,455
Town Of Eastover	1,855	0	0%	1,727	93.1%	$758,846	101	5.4%	$94,687	27	1.5%	$9,159	1,855	100%	$862,692
Town Of Falcon	169	165	97.6%	119	70.4%	$69,883	13	7.7%	$11,267	37	21.9%	$17,785	169	100%	$98,935
Town Of Godwin	82	81	98.8%	72	87.8%	$34,469	6	7.3%	$269	4	4.9%	$845	82	100%	$35,583
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$1,793,251	234	4.2%	$166,101	86	1.6%	$143,529	5,518	100%	$2,102,880
Town Of Linden	106	106	100%	77	72.6%	$30,318	19	17.9%	$1,043	10	9.4%	$2,226	106	100%	$33,588
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$935,836	223	7.4%	$73,792	50	1.7%	$43,636	2,998	100%	$1,053,264
Town Of Stedman	486	435	89.5%	416	85.6%	$161,444	50	10.3%	$16,132	20	4.1%	$10,965	486	100%	$188,541
Town Of Wade	315	290	92.1%	269	85.4%	$119,173	36	11.4%	$7,584	10	3.2%	$2,189	315	100%	$128,946

Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$46,435,486**	**7,921**	**6.2%**	**$7,739,887**	**3,147**	**2.5%**	**$4,392,591**	**127,806**	**99.9%**	**$58,567,964**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$1,183,933	328	10.9%	$295,389	162	5.4%	$117,135	2,996	99.5%	$1,596,457
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$8,206,054	1,037	5.7%	$817,130	266	1.5%	$753,036	18,171	99.9%	$9,776,219
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$9,389,987**	**1,365**	**6.4%**	**$1,112,519**	**428**	**2%**	**$870,171**	**21,167**	**99.9%**	**$11,372,676**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$55,825,473**	**9,286**	**6.2%**	**$8,852,406**	**3,575**	**2.4%**	**$5,262,762**	**148,973**	**99.9%**	**$69,940,640**

Source: GIS Analysis

Table 6-96: Buildings Impacted by the 100 Year Thunderstorm Winds

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings At Risk		Residential Buildings At Risk			Commercial Buildings At Risk			Public Buildings At Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$39,001,762	4,159	5.9%	$7,344,215	1,061	1.5%	$1,972,978	70,033	99.9%	$48,318,955
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$26,808,997	3,080	6.7%	$5,681,357	1,842	4%	$5,364,032	46,244	99.9%	$37,854,386
Town Of Eastover	1,855	0	0%	1,727	93.1%	$1,118,950	101	5.4%	$165,291	27	1.5%	$16,130	1,855	100%	$1,300,371
Town Of Falcon	169	165	97.6%	119	70.4%	$108,786	13	7.7%	$20,098	37	21.9%	$36,832	169	100%	$165,716
Town Of Godwin	82	81	98.8%	72	87.8%	$50,827	6	7.3%	$586	4	4.9%	$1,786	82	100%	$53,199
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$2,857,819	234	4.2%	$307,000	86	1.6%	$242,777	5,518	100%	$3,407,596
Town Of Linden	106	106	100%	77	72.6%	$45,661	19	17.9%	$2,140	10	9.4%	$4,143	106	100%	$51,944
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$1,466,710	223	7.4%	$145,364	50	1.7%	$86,382	2,998	100%	$1,698,456

Town Of Stedman	486	435	89.5%	416	85.6%	$248,873	50	10.3%	$32,001	20	4.1%	$22,400	486	100%	$303,274
Town Of Wade	315	290	92.1%	269	85.4%	$172,703	36	11.4%	$15,376	10	3.2%	$4,418	315	100%	$192,497
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$71,881,088**	**7,921**	**6.2%**	**$13,713,428**	**3,147**	**2.5%**	**$7,751,878**	**127,806**	**99.9%**	**$93,346,394**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$1,873,219	328	10.9%	$593,184	162	5.4%	$227,197	2,996	99.5%	$2,693,600
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$12,595,408	1,037	5.7%	$1,460,670	266	1.5%	$1,361,612	18,171	99.9%	$15,417,691
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$14,468,627**	**1,365**	**6.4%**	**$2,053,854**	**428**	**2%**	**$1,588,809**	**21,167**	**99.9%**	**$18,111,291**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$86,349,715**	**9,286**	**6.2%**	**$15,767,282**	**3,575**	**2.4%**	**$9,340,687**	**148,973**	**99.9%**	**$111,457,685**

Source: GIS Analysis

Table 6-97: Buildings Impacted by the 300 Year Thunderstorm Winds

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings At Risk		Residential Buildings At Risk			Commercial Buildings At Risk			Public Buildings At Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$88,226,315	4,159	5.9%	$20,956,181	1,061	1.5%	$6,031,213	70,033	99.9%	$115,213,709
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$64,268,839	3,080	6.7%	$14,223,189	1,842	4%	$14,593,060	46,244	99.9%	$93,085,088
Town Of Eastover	1,855	0	0%	1,727	93.1%	$2,321,328	101	5.4%	$408,563	27	1.5%	$54,588	1,855	100%	$2,784,479
Town Of Falcon	169	165	97.6%	119	70.4%	$287,845	13	7.7%	$54,626	37	21.9%	$143,184	169	100%	$485,655
Town Of Godwin	82	81	98.8%	72	87.8%	$111,395	6	7.3%	$2,519	4	4.9%	$7,968	82	100%	$121,882
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$6,628,216	234	4.2%	$956,083	86	1.6%	$625,224	5,518	100%	$8,209,523

Town Of Linden	106	106	100%	77	72.6%	$102,504	19	17.9%	$8,491	10	9.4%	$15,706	106	100%	$126,701
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$3,460,948	223	7.4%	$525,013	50	1.7%	$341,021	2,998	100%	$4,326,982
Town Of Stedman	486	435	89.5%	416	85.6%	$535,580	50	10.3%	$120,192	20	4.1%	$85,767	486	100%	$741,540
Town Of Wade	315	290	92.1%	269	85.4%	$366,919	36	11.4%	$63,563	10	3.2%	$20,055	315	100%	$450,537
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$166,309,889**	**7,921**	**6.2%**	**$37,318,420**	**3,147**	**2.5%**	**$21,917,786**	**127,806**	**99.9%**	**$225,546,096**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$5,548,565	328	10.9%	$1,994,224	162	5.4%	$802,981	2,996	99.5%	$8,345,770
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$33,906,906	1,037	5.7%	$3,689,794	266	1.5%	$3,907,399	18,171	99.9%	$41,504,099
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$39,455,471**	**1,365**	**6.4%**	**$5,684,018**	**428**	**2%**	**$4,710,380**	**21,167**	**99.9%**	**$49,849,869**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$205,765,360**	**9,286**	**6.2%**	**$43,002,438**	**3,575**	**2.4%**	**$26,628,166**	**148,973**	**99.9%**	**$275,395,965**

Source: GIS Analysis

Table 6-98: Buildings Impacted by the 700 Year Thunderstorm Winds

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings At Risk		Residential Buildings At Risk			Commercial Buildings At Risk			Public Buildings At Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$143,075,588	4,159	5.9%	$35,848,249	1,061	1.5%	$10,701,871	70,033	99.9%	$189,625,708
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$109,437,467	3,080	6.7%	$22,614,318	1,842	4%	$24,682,979	46,244	99.9%	$156,734,764
Town Of Eastover	1,855	0	0%	1,727	93.1%	$3,657,468	101	5.4%	$629,138	27	1.5%	$113,561	1,855	100%	$4,400,168
Town Of Falcon	169	165	97.6%	119	70.4%	$498,751	13	7.7%	$91,584	37	21.9%	$279,690	169	100%	$870,026

Town Of Godwin	82	81	98.8%	72	87.8%	$183,744	6	7.3%	$5,191	4	4.9%	$16,631	82	100%	$205,566
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$10,895,154	234	4.2%	$1,714,765	86	1.6%	$1,048,415	5,518	100%	$13,658,335
Town Of Linden	106	106	100%	77	72.6%	$167,912	19	17.9%	$17,656	10	9.4%	$31,542	106	100%	$217,109
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$5,731,874	223	7.4%	$1,001,547	50	1.7%	$700,950	2,998	100%	$7,434,371
Town Of Stedman	486	435	89.5%	416	85.6%	$841,510	50	10.3%	$236,917	20	4.1%	$170,078	486	100%	$1,248,505
Town Of Wade	315	290	92.1%	269	85.4%	$586,753	36	11.4%	$135,838	10	3.2%	$46,028	315	100%	$768,619
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$275,076,221**	**7,921**	**6.2%**	**$62,295,203**	**3,147**	**2.5%**	**$37,791,745**	**127,806**	**99.9%**	**$375,163,171**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$10,598,277	328	10.9%	$3,582,332	162	5.4%	$1,561,933	2,996	99.5%	$15,742,542
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$61,516,551	1,037	5.7%	$5,675,059	266	1.5%	$6,691,120	18,171	99.9%	$73,882,730
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$72,114,828**	**1,365**	**6.4%**	**$9,257,391**	**428**	**2%**	**$8,253,053**	**21,167**	**99.9%**	**$89,625,272**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$347,191,049**	**9,286**	**6.2%**	**$71,552,594**	**3,575**	**2.4%**	**$46,044,798**	**148,973**	**99.9%**	**$464,788,443**

Source: GIS Analysis

The following tables provide counts and estimated damages for CIKR buildings by jurisdiction in the plan. Because there is a large number of sectors and events, the table is sorted by sector and then by event. Totals across all sectors are shown at the bottom of each table.

Table 6-99: Critical Facilities Exposed to the Thunderstorm Winds - City Of Fayetteville

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	102	$108,999
	Banking and Finance 50 Year	102	$200,155
	Banking and Finance 100 Year	102	$336,825
	Banking and Finance 300 Year	102	$801,708
	Banking and Finance 700 Year	102	$1,261,888
Commercial Facilities	25 Year	2,869	$1,349,182
	Commercial Facilities 50 Year	2,869	$2,599,564
	Commercial Facilities 100 Year	2,869	$4,764,303
	Commercial Facilities 300 Year	2,869	$13,877,561
	Commercial Facilities 700 Year	2,869	$23,879,739
Communications	25 Year	12	$72,957
	Communications 50 Year	12	$145,892
	Communications 100 Year	12	$264,889
	Communications 300 Year	12	$687,381
	Communications	12	$1,086,636

	700 Year		
Critical Manufacturing	25 Year	415	$291,298
	Critical Manufacturing 50 Year	415	$528,611
	Critical Manufacturing 100 Year	415	$905,270
	Critical Manufacturing 300 Year	415	$2,339,022
	Critical Manufacturing 700 Year	415	$3,880,853
Defense Industrial Base	25 Year	1	$342
	Defense Industrial Base 50 Year	1	$562
	Defense Industrial Base 100 Year	1	$1,027
	Defense Industrial Base 300 Year	1	$4,205
	Defense Industrial Base 700 Year	1	$9,672
Emergency Services	25 Year	18	$83,963
	Emergency Services 50 Year	18	$172,960
	Emergency Services 100 Year	18	$331,620
	Emergency Services 300 Year	18	$893,729
	Emergency Services 700 Year	18	$1,336,841
Energy	25 Year	71	$1,116,897
	Energy 50 Year	71	$2,251,705

	Energy 100 Year	71	$4,965,259
	Energy 300 Year	71	$22,727,712
	Energy 700 Year	71	$47,982,476
Food and Agriculture	25 Year	68	$1,884
	Food and Agriculture 50 Year	68	$3,729
	Food and Agriculture 100 Year	68	$7,636
	Food and Agriculture 300 Year	68	$33,732
	Food and Agriculture 700 Year	68	$75,847
Government Facilities	25 Year	550	$306,807
	Government Facilities 50 Year	550	$579,463
	Government Facilities 100 Year	550	$1,073,622
	Government Facilities 300 Year	550	$3,364,628
	Government Facilities 700 Year	550	$6,056,311
Healthcare and Public Health	25 Year	394	$207,633
	Healthcare and Public Health 50 Year	394	$395,955
	Healthcare and Public Health 100 Year	394	$738,665
	Healthcare and Public Health 300 Year	394	$2,351,471
	Healthcare and Public Health 700 Year	394	$4,267,456

Nuclear Reactors, Materials and Waste	25 Year	1	$3,437
	Nuclear Reactors, Materials and Waste 50 Year	1	$8,100
	Nuclear Reactors, Materials and Waste 100 Year	1	$17,623
	Nuclear Reactors, Materials and Waste 300 Year	1	$63,997
	Nuclear Reactors, Materials and Waste 700 Year	1	$111,285
Transportation Systems	25 Year	769	$259,685
	Transportation Systems 50 Year	769	$484,168
	Transportation Systems 100 Year	769	$865,833
	Transportation Systems 300 Year	769	$2,497,709
	Transportation Systems 700 Year	769	$4,381,873
Water	25 Year	29	$1,231
	Water 50 Year	29	$2,174
	Water 100 Year	29	$4,179
	Water 300 Year	29	$17,587
	Water 700 Year	29	$39,308
All Categories	**25 Year**	**5,299**	**$3,804,315**

	All Categories 50 Year	**5,299**	**$7,373,038**
	All Categories 100 Year	**5,299**	**$14,276,751**
	All Categories 300 Year	**5,299**	**$49,660,442**
	All Categories 700 Year	**5,299**	**$94,370,185**

Source: GIS Analysis

Table 6-100: Critical Facilities Exposed to the Thunderstorm Winds - Cumberland County (Unincorporated Area)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	16	$42,107
	Banking and Finance 50 Year	16	$83,452
	Banking and Finance 100 Year	16	$154,098
	Banking and Finance 300 Year	16	$373,415
	Banking and Finance 700 Year	16	$530,164
Commercial Facilities	25 Year	1,563	$984,520
	Commercial Facilities 50 Year	1,563	$1,779,208
	Commercial Facilities 100 Year	1,563	$3,032,425
	Commercial Facilities 300 Year	1,563	$7,628,837
	Commercial Facilities 700 Year	1,563	$12,295,839
Critical Manufacturing	25 Year	350	$450,828

	Critical Manufacturing 50 Year	350	$826,143
	Critical Manufacturing 100 Year	350	$1,414,140
	Critical Manufacturing 300 Year	350	$3,497,518
	Critical Manufacturing 700 Year	350	$5,520,620
Emergency Services	25 Year	13	$4,227
	Emergency Services 50 Year	13	$7,772
	Emergency Services 100 Year	13	$14,653
	Emergency Services 300 Year	13	$51,524
	Emergency Services 700 Year	13	$100,729
Energy	25 Year	51	$567,482
	Energy 50 Year	51	$935,831
	Energy 100 Year	51	$1,754,561
	Energy 300 Year	51	$7,705,999
	Energy 700 Year	51	$17,968,542
Food and Agriculture	25 Year	1,125	$20,625
	Food and Agriculture 50 Year	1,125	$53,882
	Food and Agriculture 100 Year	1,125	$125,935
	Food and Agriculture 300 Year	1,125	$487,744

	Food and Agriculture 700 Year	1,125	$865,438
Government Facilities	25 Year	211	$375,953
	Government Facilities 50 Year	211	$700,180
	Government Facilities 100 Year	211	$1,225,238
	Government Facilities 300 Year	211	$3,261,817
	Government Facilities 700 Year	211	$5,448,026
Healthcare and Public Health	25 Year	30	$41,104
	Healthcare and Public Health 50 Year	30	$79,183
	Healthcare and Public Health 100 Year	30	$136,819
	Healthcare and Public Health 300 Year	30	$309,101
	Healthcare and Public Health 700 Year	30	$438,733
Transportation Systems	25 Year	306	$443,310
	Transportation Systems 50 Year	306	$783,874
	Transportation Systems 100 Year	306	$1,312,599
	Transportation Systems 300 Year	306	$3,267,408
	Transportation Systems 700 Year	306	$5,300,594
Water	25 Year	8	$1,843
	Water 50 Year	8	$3,026

	Water 100 Year	8	$5,215
	Water 300 Year	8	$17,832
	Water 700 Year	8	$39,356
All Categories	**25 Year**	**3,673**	**$2,931,999**
	All Categories 50 Year	**3,673**	**$5,252,551**
	All Categories 100 Year	**3,673**	**$9,175,683**
	All Categories 300 Year	**3,673**	**$26,601,195**
	All Categories 700 Year	**3,673**	**$48,508,041**

Source: GIS Analysis

Table 6-101: Critical Facilities Exposed to the Thunderstorm Winds - Town Of Eastover

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	1	$49
	Banking and Finance 50 Year	1	$100
	Banking and Finance 100 Year	1	$238
	Banking and Finance 300 Year	1	$1,309
	Banking and Finance 700 Year	1	$3,113
Commercial Facilities	25 Year	64	$28,498
	Commercial Facilities 50 Year	64	$49,983

	Commercial Facilities 100 Year	64	$84,545
	Commercial Facilities 300 Year	64	$215,462
	Commercial Facilities 700 Year	64	$358,458
Critical Manufacturing	25 Year	21	$20,055
	Critical Manufacturing 50 Year	21	$40,821
	Critical Manufacturing 100 Year	21	$73,320
	Critical Manufacturing 300 Year	21	$172,052
	Critical Manufacturing 700 Year	21	$242,017
Emergency Services	25 Year	1	$289
	Emergency Services 50 Year	1	$480
	Emergency Services 100 Year	1	$905
	Emergency Services 300 Year	1	$3,531
	Emergency Services 700 Year	1	$8,276
Energy	25 Year	1	$168
	Energy 50 Year	1	$270
	Energy 100 Year	1	$488
	Energy 300 Year	1	$1,793
	Energy 700 Year	1	$4,095

Food and Agriculture	25 Year	13	$145
	Food and Agriculture 50 Year	13	$386
	Food and Agriculture 100 Year	13	$919
	Food and Agriculture 300 Year	13	$3,655
	Food and Agriculture 700 Year	13	$6,561
Government Facilities	25 Year	11	$2,962
	Government Facilities 50 Year	11	$4,915
	Government Facilities 100 Year	11	$8,614
	Government Facilities 300 Year	11	$27,475
	Government Facilities 700 Year	11	$52,985
Healthcare and Public Health	25 Year	7	$1,480
	Healthcare and Public Health 50 Year	7	$2,782
	Healthcare and Public Health 100 Year	7	$5,199
	Healthcare and Public Health 300 Year	7	$17,691
	Healthcare and Public Health 700 Year	7	$33,053
Transportation Systems	25 Year	9	$2,282
	Transportation Systems 50 Year	9	$4,108
	Transportation Systems 100 Year	9	$7,192

	Transportation Systems 300 Year	9	$20,182
	Transportation Systems 700 Year	9	$34,143
All Categories	**25 Year**	**128**	**$55,928**
	All Categories 50 Year	**128**	**$103,845**
	All Categories 100 Year	**128**	**$181,420**
	All Categories 300 Year	**128**	**$463,150**
	All Categories 700 Year	**128**	**$742,701**

Source: GIS Analysis

Table 6-102: Critical Facilities Exposed to the Thunderstorm Winds - Town Of Falcon

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	25 Year	15	$5,122
	Commercial Facilities 50 Year	15	$10,184
	Commercial Facilities 100 Year	15	$19,591
	Commercial Facilities 300 Year	15	$65,978
	Commercial Facilities 700 Year	15	$122,030
Critical Manufacturing	25 Year	2	$1,851
	Critical Manufacturing 50 Year	2	$3,123
	Critical Manufacturing 100 Year	2	$4,956

	Critical Manufacturing 300 Year	2	$11,074
	Critical Manufacturing 700 Year	2	$17,674
Food and Agriculture	25 Year	6	$939
	Food and Agriculture 50 Year	6	$1,911
	Food and Agriculture 100 Year	6	$3,871
	Food and Agriculture 300 Year	6	$15,209
	Food and Agriculture 700 Year	6	$31,768
Government Facilities	25 Year	1	$54
	Government Facilities 50 Year	1	$115
	Government Facilities 100 Year	1	$258
	Government Facilities 300 Year	1	$1,325
	Government Facilities 700 Year	1	$3,120
Healthcare and Public Health	25 Year	2	$3,005
	Healthcare and Public Health 50 Year	2	$5,973
	Healthcare and Public Health 100 Year	2	$10,742
	Healthcare and Public Health 300 Year	2	$26,109
	Healthcare and Public Health 700 Year	2	$37,672
All Categories	**25 Year**	**26**	**$10,971**

	All Categories 50 Year	**26**	**$21,306**
	All Categories 100 Year	**26**	**$39,418**
	All Categories 300 Year	**26**	**$119,695**
	All Categories 700 Year	**26**	**$212,264**

Source: GIS Analysis

Table 6-103: Critical Facilities Exposed to the Thunderstorm Winds - Town Of Godwin

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	25 Year	5	$431
	Commercial Facilities 50 Year	5	$891
	Commercial Facilities 100 Year	5	$1,894
	Commercial Facilities 300 Year	5	$8,335
	Commercial Facilities 700 Year	5	$17,172
Critical Manufacturing	25 Year	1	$40
	Critical Manufacturing 50 Year	1	$73
	Critical Manufacturing 100 Year	1	$145
	Critical Manufacturing 300 Year	1	$637
	Critical Manufacturing 700 Year	1	$1,328
Food and Agriculture	25 Year	3	$17

	Food and Agriculture 50 Year	3	$46
	Food and Agriculture 100 Year	3	$111
	Food and Agriculture 300 Year	3	$444
	Food and Agriculture 700 Year	3	$802
Government Facilities	25 Year	1	$53
	Government Facilities 50 Year	1	$104
	Government Facilities 100 Year	1	$223
	Government Facilities 300 Year	1	$1,071
	Government Facilities 700 Year	1	$2,520
All Categories	**25 Year**	**10**	**$541**
	All Categories 50 Year	**10**	**$1,114**
	All Categories 100 Year	**10**	**$2,373**
	All Categories 300 Year	**10**	**$10,487**
	All Categories 700 Year	**10**	**$21,822**

Source: GIS Analysis

Table 6-104: Critical Facilities Exposed to the Thunderstorm Winds - Town Of Hope Mills

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	8	$815

	Banking and Finance 50 Year	8	$1,358
	Banking and Finance 100 Year	8	$2,400
	Banking and Finance 300 Year	8	$8,683
	Banking and Finance 700 Year	8	$18,834
Commercial Facilities	25 Year	208	$75,125
	Commercial Facilities 50 Year	208	$143,679
	Commercial Facilities 100 Year	208	$266,897
	Commercial Facilities 300 Year	208	$829,479
	Commercial Facilities 700 Year	208	$1,480,511
Critical Manufacturing	25 Year	6	$7,123
	Critical Manufacturing 50 Year	6	$12,927
	Critical Manufacturing 100 Year	6	$25,567
	Critical Manufacturing 300 Year	6	$102,447
	Critical Manufacturing 700 Year	6	$212,649
Emergency Services	25 Year	2	$535
	Emergency Services 50 Year	2	$896
	Emergency Services 100 Year	2	$1,583
	Emergency Services 300 Year	2	$5,247

	Emergency Services 700 Year	2	$9,945
Energy	25 Year	2	$56,206
	Energy 50 Year	2	$152,375
	Energy 100 Year	2	$371,088
	Energy 300 Year	2	$1,549,019
	Energy 700 Year	2	$2,841,246
Government Facilities	25 Year	53	$66,661
	Government Facilities 50 Year	53	$116,863
	Government Facilities 100 Year	53	$193,188
	Government Facilities 300 Year	53	$467,811
	Government Facilities 700 Year	53	$761,497
Healthcare and Public Health	25 Year	17	$10,694
	Healthcare and Public Health 50 Year	17	$18,808
	Healthcare and Public Health 100 Year	17	$31,932
	Healthcare and Public Health 300 Year	17	$82,255
	Healthcare and Public Health 700 Year	17	$131,908
Transportation Systems	25 Year	25	$7,545
	Transportation Systems 50 Year	25	$15,009

	Transportation Systems 100 Year	25	$28,044
	Transportation Systems 300 Year	25	$84,648
	Transportation Systems 700 Year	25	$146,114
All Categories	**25 Year**	**321**	**$224,704**
	All Categories 50 Year	**321**	**$461,915**
	All Categories 100 Year	**321**	**$920,699**
	All Categories 300 Year	**321**	**$3,129,589**
	All Categories 700 Year	**321**	**$5,602,704**

Source: GIS Analysis

Table 6-105: Critical Facilities Exposed to the Thunderstorm Winds - Town Of Linden

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	25 Year	10	$552
	Commercial Facilities 50 Year	10	$1,009
	Commercial Facilities 100 Year	10	$2,000
	Commercial Facilities 300 Year	10	$8,175
	Commercial Facilities 700 Year	10	$17,370
Critical Manufacturing	25 Year	3	$103
	Critical Manufacturing 50 Year	3	$166

	Critical Manufacturing 100 Year	3	$301
	Critical Manufacturing 300 Year	3	$1,131
	Critical Manufacturing 700 Year	3	$2,362
Emergency Services	25 Year	1	$208
	Emergency Services 50 Year	1	$349
	Emergency Services 100 Year	1	$638
	Emergency Services 300 Year	1	$2,225
	Emergency Services 700 Year	1	$4,354
Food and Agriculture	25 Year	8	$127
	Food and Agriculture 50 Year	8	$269
	Food and Agriculture 100 Year	8	$586
	Food and Agriculture 300 Year	8	$2,325
	Food and Agriculture 700 Year	8	$4,598
Government Facilities	25 Year	5	$735
	Government Facilities 50 Year	5	$1,282
	Government Facilities 100 Year	5	$2,397
	Government Facilities 300 Year	5	$8,955
	Government Facilities 700 Year	5	$17,291

Transportation Systems	25 Year	2	$118
	Transportation Systems 50 Year	2	$194
	Transportation Systems 100 Year	2	$361
	Transportation Systems 300 Year	2	$1,384
	Transportation Systems 700 Year	2	$3,222
All Categories	**25 Year**	**29**	**$1,843**
	All Categories 50 Year	**29**	**$3,269**
	All Categories 100 Year	**29**	**$6,283**
	All Categories 300 Year	**29**	**$24,195**
	All Categories 700 Year	**29**	**$49,197**

Source: GIS Analysis

Table 6-106: Critical Facilities Exposed to the Thunderstorm Winds - Town Of Spring Lake

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	5	$414
	Banking and Finance 50 Year	5	$637
	Banking and Finance 100 Year	5	$1,029
	Banking and Finance 300 Year	5	$3,025
	Banking and Finance 700 Year	5	$5,521

Commercial Facilities	25 Year	206	$32,348
	Commercial Facilities 50 Year	206	$64,881
	Commercial Facilities 100 Year	206	$130,249
	Commercial Facilities 300 Year	206	$475,947
	Commercial Facilities 700 Year	206	$905,910
Critical Manufacturing	25 Year	10	$768
	Critical Manufacturing 50 Year	10	$1,319
	Critical Manufacturing 100 Year	10	$2,291
	Critical Manufacturing 300 Year	10	$6,767
	Critical Manufacturing 700 Year	10	$12,103
Emergency Services	25 Year	2	$1,161
	Emergency Services 50 Year	2	$1,915
	Emergency Services 100 Year	2	$3,602
	Emergency Services 300 Year	2	$15,967
	Emergency Services 700 Year	2	$37,300
Government Facilities	25 Year	21	$11,808
	Government Facilities 50 Year	21	$23,690
	Government Facilities 100 Year	21	$47,716

	Government Facilities 300 Year	21	$202,844
	Government Facilities 700 Year	21	$435,857
Healthcare and Public Health	25 Year	7	$867
	Healthcare and Public Health 50 Year	7	$1,437
	Healthcare and Public Health 100 Year	7	$2,540
	Healthcare and Public Health 300 Year	7	$8,153
	Healthcare and Public Health 700 Year	7	$15,193
Transportation Systems	25 Year	21	$9,635
	Transportation Systems 50 Year	21	$18,153
	Transportation Systems 100 Year	21	$34,412
	Transportation Systems 300 Year	21	$123,406
	Transportation Systems 700 Year	21	$241,058
All Categories	**25 Year**	**272**	**$57,001**
	All Categories 50 Year	**272**	**$112,032**
	All Categories 100 Year	**272**	**$221,839**
	All Categories 300 Year	**272**	**$836,109**
	All Categories 700 Year	**272**	**$1,652,942**

Source: GIS Analysis

Table 6-107: Critical Facilities Exposed to the Thunderstorm Winds - Town Of Stedman

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	1	$85
	Banking and Finance 50 Year	1	$140
	Banking and Finance 100 Year	1	$253
	Banking and Finance 300 Year	1	$865
	Banking and Finance 700 Year	1	$1,666
Commercial Facilities	25 Year	46	$7,310
	Commercial Facilities 50 Year	46	$14,744
	Commercial Facilities 100 Year	46	$29,404
	Commercial Facilities 300 Year	46	$105,292
	Commercial Facilities 700 Year	46	$199,586
Critical Manufacturing	25 Year	6	$1,839
	Critical Manufacturing 50 Year	6	$3,609
	Critical Manufacturing 100 Year	6	$7,123
	Critical Manufacturing 300 Year	6	$26,580
	Critical Manufacturing 700 Year	6	$52,761
Emergency Services	25 Year	1	$230

	Emergency Services 50 Year	1	$557
	Emergency Services 100 Year	1	$1,344
	Emergency Services 300 Year	1	$8,044
	Emergency Services 700 Year	1	$19,237
Government Facilities	25 Year	10	$3,368
	Government Facilities 50 Year	10	$6,349
	Government Facilities 100 Year	10	$12,640
	Government Facilities 300 Year	10	$48,763
	Government Facilities 700 Year	10	$98,109
Healthcare and Public Health	25 Year	2	$198
	Healthcare and Public Health 50 Year	2	$392
	Healthcare and Public Health 100 Year	2	$864
	Healthcare and Public Health 300 Year	2	$4,718
	Healthcare and Public Health 700 Year	2	$11,733
Transportation Systems	25 Year	4	$629
	Transportation Systems 50 Year	4	$1,306
	Transportation Systems 100 Year	4	$2,773
	Transportation Systems 300 Year	4	$11,699

	Transportation Systems 700 Year	4	$23,903
All Categories	**25 Year**	**70**	**$13,659**
	All Categories 50 Year	**70**	**$27,097**
	All Categories 100 Year	**70**	**$54,401**
	All Categories 300 Year	**70**	**$205,961**
	All Categories 700 Year	**70**	**$406,995**

Source: GIS Analysis

Table 6-108: Critical Facilities Exposed to the Thunderstorm Winds - Town Of Wade

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	25 Year	18	$1,322
	Commercial Facilities 50 Year	18	$2,364
	Commercial Facilities 100 Year	18	$4,660
	Commercial Facilities 300 Year	18	$19,490
	Commercial Facilities 700 Year	18	$42,603
Critical Manufacturing	25 Year	9	$2,119
	Critical Manufacturing 50 Year	9	$4,309
	Critical Manufacturing 100 Year	9	$9,268
	Critical Manufacturing 300 Year	9	$42,635

	Critical Manufacturing 700 Year	9	$94,561
Emergency Services	25 Year	1	$104
	Emergency Services 50 Year	1	$184
	Emergency Services 100 Year	1	$366
	Emergency Services 300 Year	1	$1,561
	Emergency Services 700 Year	1	$3,670
Food and Agriculture	25 Year	11	$101
	Food and Agriculture 50 Year	11	$264
	Food and Agriculture 100 Year	11	$625
	Food and Agriculture 300 Year	11	$2,373
	Food and Agriculture 700 Year	11	$4,161
Government Facilities	25 Year	3	$413
	Government Facilities 50 Year	3	$827
	Government Facilities 100 Year	3	$1,784
	Government Facilities 300 Year	3	$8,722
	Government Facilities 700 Year	3	$20,323
Healthcare and Public Health	25 Year	1	$308
	Healthcare and Public Health 50 Year	1	$528

	Healthcare and Public Health 100 Year	1	$977
	Healthcare and Public Health 300 Year	1	$3,466
	Healthcare and Public Health 700 Year	1	$6,863
Transportation Systems	25 Year	3	$771
	Transportation Systems 50 Year	3	$1,296
	Transportation Systems 100 Year	3	$2,113
	Transportation Systems 300 Year	3	$5,371
	Transportation Systems 700 Year	3	$9,686
All Categories	**25 Year**	**46**	**$5,138**
	All Categories 50 Year	**46**	**$9,772**
	All Categories 100 Year	**46**	**$19,793**
	All Categories 300 Year	**46**	**$83,618**
	All Categories 700 Year	**46**	**$181,867**

Source: GIS Analysis

Table 6-109: Critical Facilities Exposed to the Thunderstorm Winds - City Of Raeford

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	6	$1,426
	Banking and Finance 50 Year	6	$3,136

	Banking and Finance 100 Year	6	$6,662
	Banking and Finance 300 Year	6	$24,917
	Banking and Finance 700 Year	6	$45,528
Commercial Facilities	25 Year	242	$77,685
	Commercial Facilities 50 Year	242	$157,178
	Commercial Facilities 100 Year	242	$306,691
	Commercial Facilities 300 Year	242	$1,036,180
	Commercial Facilities 700 Year	242	$1,898,607
Communications	25 Year	1	$168
	Communications 50 Year	1	$322
	Communications 100 Year	1	$610
	Communications 300 Year	1	$1,973
	Communications 700 Year	1	$3,747
Critical Manufacturing	25 Year	54	$56,430
	Critical Manufacturing 50 Year	54	$126,779
	Critical Manufacturing 100 Year	54	$262,546
	Critical Manufacturing 300 Year	54	$868,141
	Critical Manufacturing 700 Year	54	$1,514,658

Emergency Services	25 Year	7	$2,282
	Emergency Services 50 Year	7	$4,144
	Emergency Services 100 Year	7	$8,103
	Emergency Services 300 Year	7	$35,897
	Emergency Services 700 Year	7	$83,574
Energy	25 Year	3	$2,834
	Energy 50 Year	3	$4,885
	Energy 100 Year	3	$9,282
	Energy 300 Year	3	$38,965
	Energy 700 Year	3	$87,210
Food and Agriculture	25 Year	16	$652
	Food and Agriculture 50 Year	16	$1,703
	Food and Agriculture 100 Year	16	$3,953
	Food and Agriculture 300 Year	16	$15,007
	Food and Agriculture 700 Year	16	$26,303
Government Facilities	25 Year	94	$34,786
	Government Facilities 50 Year	94	$69,956
	Government Facilities 100 Year	94	$139,458

	Government Facilities 300 Year	94	$515,905
	Government Facilities 700 Year	94	$1,021,427
Healthcare and Public Health	25 Year	26	$18,208
	Healthcare and Public Health 50 Year	26	$34,167
	Healthcare and Public Health 100 Year	26	$62,877
	Healthcare and Public Health 300 Year	26	$196,757
	Healthcare and Public Health 700 Year	26	$356,379
Postal and Shipping	25 Year	1	$348
	Postal and Shipping 50 Year	1	$828
	Postal and Shipping 100 Year	1	$1,948
	Postal and Shipping 300 Year	1	$10,105
	Postal and Shipping 700 Year	1	$22,490
Transportation Systems	25 Year	40	$6,949
	Transportation Systems 50 Year	40	$13,554
	Transportation Systems 100 Year	40	$26,451
	Transportation Systems 300 Year	40	$92,069
	Transportation Systems 700 Year	40	$174,804
Water	25 Year	13	$122

	Water 50 Year	13	$201
	Water 100 Year	13	$362
	Water 300 Year	13	$1,416
	Water 700 Year	13	$3,228
All Categories	**25 Year**	**503**	**$201,890**
	All Categories 50 Year	**503**	**$416,853**
	All Categories 100 Year	**503**	**$828,943**
	All Categories 300 Year	**503**	**$2,837,332**
	All Categories 700 Year	**503**	**$5,237,955**

Source: GIS Analysis

Table 6-110: Critical Facilities Exposed to the Thunderstorm Winds - Hoke County (Unincorporated Area)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	1	$2,653
	Banking and Finance 50 Year	1	$5,427
	Banking and Finance 100 Year	1	$9,764
	Banking and Finance 300 Year	1	$21,928
	Banking and Finance 700 Year	1	$29,720
Commercial Facilities	25 Year	360	$508,755

	Commercial Facilities 50 Year	360	$965,813
	Commercial Facilities 100 Year	360	$1,692,812
	Commercial Facilities 300 Year	360	$4,266,565
	Commercial Facilities 700 Year	360	$6,694,967
Critical Manufacturing	25 Year	45	$21,648
	Critical Manufacturing 50 Year	45	$36,866
	Critical Manufacturing 100 Year	45	$60,820
	Critical Manufacturing 300 Year	45	$155,663
	Critical Manufacturing 700 Year	45	$265,601
Emergency Services	25 Year	7	$12,356
	Emergency Services 50 Year	7	$20,997
	Emergency Services 100 Year	7	$34,452
	Emergency Services 300 Year	7	$87,619
	Emergency Services 700 Year	7	$151,738
Energy	25 Year	1	$102
	Energy 50 Year	1	$157
	Energy 100 Year	1	$219
	Energy 300 Year	1	$390

	Energy 700 Year	1	$554
Food and Agriculture	25 Year	700	$21,776
	Food and Agriculture 50 Year	700	$50,582
	Food and Agriculture 100 Year	700	$111,395
	Food and Agriculture 300 Year	700	$420,269
	Food and Agriculture 700 Year	700	$750,773
Government Facilities	25 Year	106	$124,646
	Government Facilities 50 Year	106	$255,389
	Government Facilities 100 Year	106	$496,080
	Government Facilities 300 Year	106	$1,655,446
	Government Facilities 700 Year	106	$3,024,411
Healthcare and Public Health	25 Year	4	$286
	Healthcare and Public Health 50 Year	4	$496
	Healthcare and Public Health 100 Year	4	$917
	Healthcare and Public Health 300 Year	4	$2,914
	Healthcare and Public Health 700 Year	4	$5,370
Postal and Shipping	25 Year	3	$653
	Postal and Shipping 50 Year	3	$1,266

	Postal and Shipping 100 Year	3	$2,674
	Postal and Shipping 300 Year	3	$13,022
	Postal and Shipping 700 Year	3	$29,696
Transportation Systems	25 Year	72	$114,545
	Transportation Systems 50 Year	72	$226,185
	Transportation Systems 100 Year	72	$401,925
	Transportation Systems 300 Year	72	$951,034
	Transportation Systems 700 Year	72	$1,387,013
Water	25 Year	6	$10,860
	Water 50 Year	6	$17,843
	Water 100 Year	6	$29,952
	Water 300 Year	6	$92,558
	Water 700 Year	6	$198,519
All Categories	**25 Year**	**1,305**	**$818,280**
	All Categories 50 Year	**1,305**	**$1,581,021**
	All Categories 100 Year	**1,305**	**$2,841,010**
	All Categories 300 Year	**1,305**	**$7,667,408**
	All Categories 700 Year	**1,305**	**$12,538,362**

Source: GIS Analysis

The following table provides counts and estimated damages for CIKR buildings across all jurisdictions, by sector, in the plan. Because there is a large number of sectors and events, the table is sorted by sector and then by event.

Table 6-111: Critical Facilities Exposed to the Thunderstorm Winds (by Sector)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	25 Year	140	$156,548
	Banking and Finance 50 Year	140	$294,405
	Banking and Finance 100 Year	140	$511,269
	Banking and Finance 300 Year	140	$1,235,850
	Banking and Finance 700 Year	140	$1,896,434
Commercial Facilities	25 Year	5,606	$3,070,850
	Commercial Facilities 50 Year	5,606	$5,789,498
	Commercial Facilities 100 Year	5,606	$10,335,471
	Commercial Facilities 300 Year	5,606	$28,537,301
	Commercial Facilities 700 Year	5,606	$47,912,792
Communications	25 Year	13	$73,125
	Communications 50 Year	13	$146,214
	Communications 100 Year	13	$265,499
	Communications 300 Year	13	$689,354

	Communications 700 Year	13	$1,090,383
Critical Manufacturing	25 Year	922	$854,102
	Critical Manufacturing 50 Year	922	$1,584,746
	Critical Manufacturing 100 Year	922	$2,765,747
	Critical Manufacturing 300 Year	922	$7,223,667
	Critical Manufacturing 700 Year	922	$11,817,187
Defense Industrial Base	25 Year	1	$342
	Defense Industrial Base 50 Year	1	$562
	Defense Industrial Base 100 Year	1	$1,027
	Defense Industrial Base 300 Year	1	$4,205
	Defense Industrial Base 700 Year	1	$9,672
Emergency Services	25 Year	53	$105,355
	Emergency Services 50 Year	53	$210,254
	Emergency Services 100 Year	53	$397,266
	Emergency Services 300 Year	53	$1,105,344
	Emergency Services 700 Year	53	$1,755,664
Energy	25 Year	129	$1,743,689
	Energy 50 Year	129	$3,345,223

	Energy 100 Year	129	$7,100,897
	Energy 300 Year	129	$32,023,878
	Energy 700 Year	129	$68,884,123
Food and Agriculture	25 Year	1,950	$46,266
	Food and Agriculture 50 Year	1,950	$112,772
	Food and Agriculture 100 Year	1,950	$255,031
	Food and Agriculture 300 Year	1,950	$980,758
	Food and Agriculture 700 Year	1,950	$1,766,251
Government Facilities	25 Year	1,066	$928,246
	Government Facilities 50 Year	1,066	$1,759,133
	Government Facilities 100 Year	1,066	$3,201,218
	Government Facilities 300 Year	1,066	$9,564,762
	Government Facilities 700 Year	1,066	$16,941,877
Healthcare and Public Health	25 Year	490	$283,783
	Healthcare and Public Health 50 Year	490	$539,721
	Healthcare and Public Health 100 Year	490	$991,532
	Healthcare and Public Health 300 Year	490	$3,002,635
	Healthcare and Public Health 700 Year	490	$5,304,360

Nuclear Reactors, Materials and Waste	25 Year	1	$3,437
	Nuclear Reactors, Materials and Waste 50 Year	1	$8,100
	Nuclear Reactors, Materials and Waste 100 Year	1	$17,623
	Nuclear Reactors, Materials and Waste 300 Year	1	$63,997
	Nuclear Reactors, Materials and Waste 700 Year	1	$111,285
Postal and Shipping	25 Year	4	$1,001
	Postal and Shipping 50 Year	4	$2,094
	Postal and Shipping 100 Year	4	$4,622
	Postal and Shipping 300 Year	4	$23,127
	Postal and Shipping 700 Year	4	$52,186
Transportation Systems	25 Year	1,251	$845,469
	Transportation Systems 50 Year	1,251	$1,547,847
	Transportation Systems 100 Year	1,251	$2,681,703
	Transportation Systems 300 Year	1,251	$7,054,910
	Transportation Systems 700 Year	1,251	$11,702,410
Water	25 Year	56	$14,056

	Water 50 Year	56	$23,244
	Water 100 Year	56	$39,708
	Water 300 Year	56	$129,393
	Water 700 Year	56	$280,411
All Categories	**25 Year**	**11,682**	**$8,126,269**
	All Categories 50 Year	**11,682**	**$15,363,813**
	All Categories 100 Year	**11,682**	**$28,568,613**
	All Categories 300 Year	**11,682**	**$91,639,181**
	All Categories 700 Year	**11,682**	**$169,525,035**

Source: GIS Analysis

The following tables provide counts and estimated damages for High Potential Loss Properties by jurisdiction in the plan. Because there is a large number of categories and events, the table is sorted by category and then by event. Totals across all categories are shown at the bottom of each table.

Table 6-112: High Potential Loss Properties Exposed to the Thunderstorm Winds - City Of Fayetteville

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	306	$844,584
	Commercial 50 Year	306	$1,639,266
	Commercial 100 Year	306	$2,993,469
	Commercial 300 Year	306	$8,417,541

	Commercial 700 Year	306	$14,081,870
Government	25 Year	177	$344,499
	Government 50 Year	177	$663,392
	Government 100 Year	177	$1,242,024
	Government 300 Year	177	$3,780,731
	Government 700 Year	177	$6,579,721
Industrial	25 Year	12	$19,748
	Industrial 50 Year	12	$33,120
	Industrial 100 Year	12	$57,266
	Industrial 300 Year	12	$172,996
	Industrial 700 Year	12	$315,147
Religious	25 Year	88	$97,144
	Religious 50 Year	88	$172,850
	Religious 100 Year	88	$301,027
	Religious 300 Year	88	$867,435
	Religious 700 Year	88	$1,563,758
Residential	25 Year	227	$179,740
	Residential 50 Year	227	$362,555

	Residential 100 Year	227	$697,978
	Residential 300 Year	227	$2,304,680
	Residential 700 Year	227	$4,140,086
Utilities	25 Year	40	$1,111,953
	Utilities 50 Year	40	$2,242,619
	Utilities 100 Year	40	$4,945,637
	Utilities 300 Year	40	$22,621,553
	Utilities 700 Year	40	$47,715,938
All Categories	**25 Year**	**850**	**$2,597,668**
	All Categories 50 Year	**850**	**$5,113,802**
	All Categories 100 Year	**850**	**$10,237,401**
	All Categories 300 Year	**850**	**$38,164,936**
	All Categories 700 Year	**850**	**$74,396,520**

Source: GIS Analysis

Table 6-113: High Potential Loss Properties Exposed to the Thunderstorm Winds - Cumberland County (Unincorporated Area)

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	128	$958,624
	Commercial 50 Year	128	$1,712,827

	Commercial 100 Year	128	$2,856,623
	Commercial 300 Year	128	$6,637,161
	Commercial 700 Year	128	$10,109,925
Government	25 Year	62	$326,232
	Government 50 Year	62	$604,303
	Government 100 Year	62	$1,057,172
	Government 300 Year	62	$2,849,649
	Government 700 Year	62	$4,815,582
Industrial	25 Year	42	$208,448
	Industrial 50 Year	42	$399,260
	Industrial 100 Year	42	$722,338
	Industrial 300 Year	42	$1,966,394
	Industrial 700 Year	42	$3,204,937
Religious	25 Year	49	$117,135
	Religious 50 Year	49	$201,983
	Religious 100 Year	49	$328,297
	Religious 300 Year	49	$812,527
	Religious 700 Year	49	$1,359,995

Residential	25 Year	618	$1,330,369
	Residential 50 Year	618	$2,328,169
	Residential 100 Year	618	$3,962,836
	Residential 300 Year	618	$10,540,760
	Residential 700 Year	618	$17,609,087
Utilities	25 Year	51	$568,632
	Utilities 50 Year	51	$937,517
	Utilities 100 Year	51	$1,757,323
	Utilities 300 Year	51	$7,716,427
	Utilities 700 Year	51	$17,994,172
All Categories	**25 Year**	**950**	**$3,509,440**
	All Categories 50 Year	**950**	**$6,184,059**
	All Categories 100 Year	**950**	**$10,684,589**
	All Categories 300 Year	**950**	**$30,522,918**
	All Categories 700 Year	**950**	**$55,093,698**

Source: GIS Analysis

Table 6-114: High Potential Loss Properties Exposed to the Thunderstorm Winds - Town Of Eastover

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	5	$14,753
	Commercial 50 Year	5	$24,230
	Commercial 100 Year	5	$37,598
	Commercial 300 Year	5	$73,919
	Commercial 700 Year	5	$101,044
Government	25 Year	5	$1,982
	Government 50 Year	5	$3,237
	Government 100 Year	5	$5,858
	Government 300 Year	5	$19,845
	Government 700 Year	5	$39,412
Industrial	25 Year	1	$4,049
	Industrial 50 Year	1	$8,449
	Industrial 100 Year	1	$15,281
	Industrial 300 Year	1	$34,906
	Industrial 700 Year	1	$46,624
Religious	25 Year	2	$661

	Religious 50 Year	2	$1,070
	Religious 100 Year	2	$1,942
	Religious 300 Year	2	$7,692
	Religious 700 Year	2	$17,601
All Categories	**25 Year**	**13**	**$21,445**
	All Categories 50 Year	**13**	**$36,986**
	All Categories 100 Year	**13**	**$60,679**
	All Categories 300 Year	**13**	**$136,362**
	All Categories 700 Year	**13**	**$204,681**

Source: GIS Analysis

Table 6-115: High Potential Loss Properties Exposed to the Thunderstorm Winds - Town Of Falcon

Category	Event	Number of Buildings At Risk	Estimated Damages
Religious	25 Year	4	$3,955
	Religious 50 Year	4	$7,471
	Religious 100 Year	4	$13,463
	Religious 300 Year	4	$39,444
	Religious 700 Year	4	$69,020
Residential	25 Year	2	$723

	Residential 50 Year	2	$1,687
	Residential 100 Year	2	$3,988
	Residential 300 Year	2	$19,165
	Residential 700 Year	2	$39,170
All Categories	**25 Year**	**6**	**$4,678**
	All Categories 50 Year	**6**	**$9,158**
	All Categories 100 Year	**6**	**$17,451**
	All Categories 300 Year	**6**	**$58,609**
	All Categories 700 Year	**6**	**$108,190**

Source: GIS Analysis

Table 6-116: High Potential Loss Properties Exposed to the Thunderstorm Winds - Town Of Hope Mills

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	8	$15,658
	Commercial 50 Year	8	$28,429
	Commercial 100 Year	8	$55,207
	Commercial 300 Year	8	$202,621
	Commercial 700 Year	8	$389,601
Government	25 Year	13	$57,814

	Government 50 Year	13	$99,216
	Government 100 Year	13	$160,492
	Government 300 Year	13	$373,456
	Government 700 Year	13	$603,446
Religious	25 Year	10	$10,486
	Religious 50 Year	10	$20,916
	Religious 100 Year	10	$39,073
	Religious 300 Year	10	$122,466
	Religious 700 Year	10	$221,115
Residential	25 Year	3	$1,227
	Residential 50 Year	3	$2,345
	Residential 100 Year	3	$4,656
	Residential 300 Year	3	$16,803
	Residential 700 Year	3	$30,880
Utilities	25 Year	1	$56,153
	Utilities 50 Year	1	$152,287
	Utilities 100 Year	1	$370,922
	Utilities 300 Year	1	$1,548,282

	Utilities 700 Year	1	$2,839,523
All Categories	**25 Year**	**35**	**$141,338**
	All Categories 50 Year	**35**	**$303,193**
	All Categories 100 Year	**35**	**$630,350**
	All Categories 300 Year	**35**	**$2,263,628**
	All Categories 700 Year	**35**	**$4,084,565**

Source: GIS Analysis

Table 6-117: High Potential Loss Properties Exposed to the Thunderstorm Winds - Town Of Linden

Category	Event	Number of Buildings At Risk	Estimated Damages
Government	25 Year	1	$322
	Government 50 Year	1	$476
	Government 100 Year	1	$743
	Government 300 Year	1	$2,204
	Government 700 Year	1	$3,954
All Categories	**25 Year**	**1**	**$322**
	All Categories 50 Year	**1**	**$476**
	All Categories 100 Year	**1**	**$743**
	All Categories 300 Year	**1**	**$2,204**

	All Categories 700 Year	**1**	**$3,954**

Source: GIS Analysis

Table 6-118: High Potential Loss Properties Exposed to the Thunderstorm Winds - Town Of Spring Lake

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	16	$19,338
	Commercial 50 Year	16	$39,859
	Commercial 100 Year	16	$80,085
	Commercial 300 Year	16	$287,456
	Commercial 700 Year	16	$536,447
Government	25 Year	11	$12,276
	Government 50 Year	11	$24,466
	Government 100 Year	11	$49,218
	Government 300 Year	11	$210,384
	Government 700 Year	11	$454,604
Religious	25 Year	8	$4,886
	Religious 50 Year	8	$9,620
	Religious 100 Year	8	$19,470
	Religious 300 Year	8	$68,413

	Religious 700 Year	8	$124,248
Residential	25 Year	7	$6,550
	Residential 50 Year	7	$12,621
	Residential 100 Year	7	$24,279
	Residential 300 Year	7	$80,425
	Residential 700 Year	7	$142,191
All Categories	**25 Year**	**42**	**$43,050**
	All Categories 50 Year	**42**	**$86,566**
	All Categories 100 Year	**42**	**$173,052**
	All Categories 300 Year	**42**	**$646,678**
	All Categories 700 Year	**42**	**$1,257,490**

Source: GIS Analysis

Table 6-119: High Potential Loss Properties Exposed to the Thunderstorm Winds - Town Of Stedman

Category	Event	Number of Buildings At Risk	Estimated Damages
Government	25 Year	4	$2,942
	Government 50 Year	4	$5,499
	Government 100 Year	4	$10,778
	Government 300 Year	4	$37,710

	Government 700 Year	4	$69,884
Religious	25 Year	2	$1,363
	Religious 50 Year	2	$3,173
	Religious 100 Year	2	$6,753
	Religious 300 Year	2	$22,120
	Religious 700 Year	2	$37,047
All Categories	**25 Year**	**6**	**$4,305**
	All Categories 50 Year	**6**	**$8,672**
	All Categories 100 Year	**6**	**$17,531**
	All Categories 300 Year	**6**	**$59,830**
	All Categories 700 Year	**6**	**$106,931**

Source: GIS Analysis

Table 6-120: High Potential Loss Properties Exposed to the Thunderstorm Winds - Town Of Wade

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	1	$308
	Commercial 50 Year	1	$528
	Commercial 100 Year	1	$977
	Commercial 300 Year	1	$3,466

	Commercial 700 Year	1	$6,863
Government	25 Year	1	$322
	Government 50 Year	1	$664
	Government 100 Year	1	$1,461
	Government 300 Year	1	$7,293
	Government 700 Year	1	$17,170
All Categories	**25 Year**	**2**	**$630**
	All Categories 50 Year	**2**	**$1,192**
	All Categories 100 Year	**2**	**$2,438**
	All Categories 300 Year	**2**	**$10,759**
	All Categories 700 Year	**2**	**$24,033**

Source: GIS Analysis

Table 6-121: High Potential Loss Properties Exposed to the Thunderstorm Winds - City Of Raeford

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	25 Year	14	$23,043
	Commercial 50 Year	14	$49,564
	Commercial 100 Year	14	$99,748
	Commercial 300 Year	14	$324,477

	Commercial 700 Year	14	$552,744
Government	25 Year	26	$25,982
	Government 50 Year	26	$52,148
	Government 100 Year	26	$104,560
	Government 300 Year	26	$395,181
	Government 700 Year	26	$796,411
Industrial	25 Year	7	$51,789
	Industrial 50 Year	7	$116,918
	Industrial 100 Year	7	$241,883
	Industrial 300 Year	7	$781,406
	Industrial 700 Year	7	$1,326,703
Religious	25 Year	12	$13,887
	Religious 50 Year	12	$26,216
	Religious 100 Year	12	$47,872
	Religious 300 Year	12	$146,075
	Religious 700 Year	12	$260,573
Residential	25 Year	1	$646
	Residential 50 Year	1	$1,467

	Residential 100 Year	1	$2,977
	Residential 300 Year	1	$8,994
	Residential 700 Year	1	$14,456
Utilities	25 Year	1	$2,242
	Utilities 50 Year	1	$3,698
	Utilities 100 Year	1	$6,954
	Utilities 300 Year	1	$30,785
	Utilities 700 Year	1	$71,899
All Categories	**25 Year**	**61**	**$117,589**
	All Categories 50 Year	**61**	**$250,011**
	All Categories 100 Year	**61**	**$503,994**
	All Categories 300 Year	**61**	**$1,686,918**
	All Categories 700 Year	**61**	**$3,022,786**

Source: GIS Analysis

Table 6-122: High Potential Loss Properties Exposed to the Thunderstorm Winds - Hoke County (Unincorporated Area)

Category	Event	Number of Buildings At Risk	Estimated Damages
Agricultural	25 Year	1	$126
	Agricultural 50 Year	1	$343

	Agricultural 100 Year	1	$835
	Agricultural 300 Year	1	$3,494
	Agricultural 700 Year	1	$6,414
Commercial	25 Year	19	$174,759
	Commercial 50 Year	19	$349,495
	Commercial 100 Year	19	$623,143
	Commercial 300 Year	19	$1,448,103
	Commercial 700 Year	19	$2,059,017
Government	25 Year	33	$124,247
	Government 50 Year	33	$252,170
	Government 100 Year	33	$487,479
	Government 300 Year	33	$1,623,479
	Government 700 Year	33	$2,977,570
Industrial	25 Year	2	$1,057
	Industrial 50 Year	2	$1,743
	Industrial 100 Year	2	$3,277
	Industrial 300 Year	2	$14,495
	Industrial 700 Year	2	$33,847

Religious	25 Year	79	$229,357
	Religious 50 Year	79	$425,075
	Religious 100 Year	79	$738,898
	Religious 300 Year	79	$1,892,695
	Religious 700 Year	79	$3,040,559
Utilities	25 Year	4	$10,793
	Utilities 50 Year	4	$17,704
	Utilities 100 Year	4	$29,644
	Utilities 300 Year	4	$90,989
	Utilities 700 Year	4	$194,950
All Categories	**25 Year**	**138**	**$540,339**
	All Categories 50 Year	**138**	**$1,046,530**
	All Categories 100 Year	**138**	**$1,883,276**
	All Categories 300 Year	**138**	**$5,073,255**
	All Categories 700 Year	**138**	**$8,312,357**

Source: GIS Analysis

6.3.8 Tornado

The following tables provide counts and values by jurisdiction relevant to Tornado hazard vulnerability in the Cumberland-Hoke Regional HMP Area.

Table 6-123: Population Impacted by the EF0 Tornado

Jurisdiction	Total Population	Population At Risk		All Elderly Population	Elderly Population At Risk		All Children Population	Children At Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%
Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%

Subtotal Hoke	46,893	46,893	100%	3483	3483	100%	4576	4576	100%
TOTAL PLAN	366,230	366,230	100%	33683	33683	100%	31116	31116	100%

Source: GIS Analysis

Table 6-124: Population Impacted by the EF1 Tornado

Jurisdiction	Total Population	Population At Risk		All Elderly Population	Elderly Population At Risk		All Children Population	Children At Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	319,337	319,337	100%	30200	30200	100%	26540	26540	100%
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%

Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-125: Population Impacted by the EF2 Tornado

Jurisdiction	Total Population	Population At Risk		All Elderly Population	Elderly Population At Risk		All Children Population	Children At Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%

Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-126: Population Impacted by the EF3 Tornado

Jurisdiction	Total Population	Population At Risk		All Elderly Population	Elderly Population At Risk		All Children Population	Children At Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%

Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-127: Population Impacted by the EF4 Tornado

Jurisdiction	Total Population	Population At Risk		All Elderly Population	Elderly Population At Risk		All Children Population	Children At Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	183,238	100%	17,329	17,329	100%	15,228	15,228	100%
Cumberland County (Unincorporated Area)	107,594	107,594	100%	10,175	10,175	100%	8,942	8,942	100%
Town Of Eastover	3,591	3,591	100%	340	340	100%	298	298	100%
Town Of Falcon	286	286	100%	27	27	100%	24	24	100%
Town Of Godwin	141	141	100%	13	13	100%	12	12	100%
Town Of Hope Mills	14,596	14,596	100%	1,380	1,380	100%	1,213	1,213	100%
Town Of Linden	104	104	100%	10	10	100%	9	9	100%
Town Of Spring Lake	8,277	8,277	100%	783	783	100%	688	688	100%
Town Of Stedman	983	983	100%	93	93	100%	82	82	100%
Town Of Wade	527	527	100%	50	50	100%	44	44	100%
Subtotal Cumberland	**319,337**	**319,337**	**100%**	**30200**	**30200**	**100%**	**26540**	**26540**	**100%**
Hoke									
City Of Raeford	5,964	5,964	100%	443	443	100%	582	582	100%

Hoke County (Unincorporated Area)	40,929	40,929	100%	3,040	3,040	100%	3,994	3,994	100%
Subtotal Hoke	**46,893**	**46,893**	**100%**	**3483**	**3483**	**100%**	**4576**	**4576**	**100%**
TOTAL PLAN	**366,230**	**366,230**	**100%**	**33683**	**33683**	**100%**	**31116**	**31116**	**100%**

Source: GIS Analysis

Table 6-128: Population Impacted by the EF5 Tornado

Jurisdiction	Total Population	Population At Risk		All Elderly Population	Elderly Population At Risk		All Children Population	Children At Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	0	0%	17,329	0	0%	15,228	0	0%
Cumberland County (Unincorporated Area)	107,594	0	0%	10,175	0	0%	8,942	0	0%
Town Of Eastover	3,591	0	0%	340	0	0%	298	0	0%
Town Of Falcon	286	0	0%	27	0	0%	24	0	0%
Town Of Godwin	141	0	0%	13	0	0%	12	0	0%
Town Of Hope Mills	14,596	0	0%	1,380	0	0%	1,213	0	0%
Town Of Linden	104	0	0%	10	0	0%	9	0	0%
Town Of Spring Lake	8,277	0	0%	783	0	0%	688	0	0%
Town Of Stedman	983	0	0%	93	0	0%	82	0	0%
Town Of Wade	527	0	0%	50	0	0%	44	0	0%
Subtotal Cumberland	**319,337**	**0**	**0%**	**30200**	**0**	**0%**	**26540**	**0**	**0%**
Hoke									
City Of Raeford	5,964	0	0%	443	0	0%	582	0	0%

Hoke County (Unincorporated Area)	40,929	0	0%	3,040	0	0%	3,994	0	0%
Subtotal Hoke	**46,893**	**0**	**0%**	**3483**	**0**	**0%**	**4576**	**0**	**0%**
TOTAL PLAN	**366,230**	**0**	**0%**	**33683**	**0**	**0%**	**31116**	**0**	**0%**

Source: GIS Analysis

Table 6-129: Buildings Impacted by the EF0 Tornado

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings At Risk		Residential Buildings At Risk			Commercial Buildings At Risk			Public Buildings At Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$482,294,858	4,159	5.9%	$162,096,424	1,061	1.5%	$34,563,880	70,033	99.9%	$678,955,161
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$322,063,831	3,080	6.7%	$124,531,966	1,842	4%	$70,695,987	46,244	99.9%	$517,291,784
Town Of Eastover	1,855	0	0%	1,727	93.1%	$13,246,666	101	5.4%	$2,821,630	27	1.5%	$681,114	1,855	100%	$16,749,410
Town Of Falcon	169	165	97.6%	119	70.4%	$862,201	13	7.7%	$325,730	37	21.9%	$413,219	169	100%	$1,601,149
Town Of Godwin	82	81	98.8%	72	87.8%	$453,677	6	7.3%	$25,410	4	4.9%	$29,037	82	100%	$508,124
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$36,969,991	234	4.2%	$8,973,200	86	1.6%	$4,408,429	5,518	100%	$50,351,620
Town Of Linden	106	106	100%	77	72.6%	$511,444	19	17.9%	$158,532	10	9.4%	$149,475	106	100%	$819,451
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$16,837,953	223	7.4%	$6,742,798	50	1.7%	$2,014,210	2,998	100%	$25,594,960
Town Of Stedman	486	435	89.5%	416	85.6%	$3,068,854	50	10.3%	$891,521	20	4.1%	$805,920	486	100%	$4,766,294
Town Of Wade	315	290	92.1%	269	85.4%	$1,538,622	36	11.4%	$704,973	10	3.2%	$102,250	315	100%	$2,345,845
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$877,848,097**	**7,921**	**6.2%**	**$307,272,184**	**3,147**	**2.5%**	**$113,863,521**	**127,806**	**99.9%**	**$1,298,983,798**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$20,561,220	328	10.9%	$16,097,976	162	5.4%	$4,256,407	2,996	99.5%	$40,915,604

Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$129,160,251	1,037	5.7%	$22,580,482	266	1.5%	$12,813,337	18,171	99.9%	$164,554,070
Subtotal Hoke	21,192	14,070	66.4%	19,374	91.4%	$149,721,471	1,365	6.4%	$38,678,458	428	2%	$17,069,744	21,167	99.9%	$205,469,674
TOTAL PLAN	149,139	65,413	43.9%	136,112	91.3%	$1,027,569,568	9,286	6.2%	$345,950,642	3,575	2.4%	$130,933,265	148,973	99.9%	$1,504,453,472

Source: GIS Analysis

Table 6-130: Buildings Impacted by the EF1 Tornado

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings At Risk		Residential Buildings At Risk			Commercial Buildings At Risk			Public Buildings At Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$3,489,090,756	4,159	5.9%	$942,130,459	1,061	1.5%	$219,300,916	70,033	99.9%	$4,650,522,131
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$2,315,777,328	3,080	6.7%	$799,247,358	1,842	4%	$511,926,664	46,244	99.9%	$3,626,951,351
Town Of Eastover	1,855	0	0%	1,727	93.1%	$96,258,000	101	5.4%	$18,745,149	27	1.5%	$3,694,228	1,855	100%	$118,697,377
Town Of Falcon	169	165	97.6%	119	70.4%	$6,194,191	13	7.7%	$2,363,892	37	21.9%	$3,326,662	169	100%	$11,884,745
Town Of Godwin	82	81	98.8%	72	87.8%	$3,291,895	6	7.3%	$155,711	4	4.9%	$233,766	82	100%	$3,681,372
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$268,450,487	234	4.2%	$54,084,233	86	1.6%	$21,437,844	5,518	100%	$343,972,563
Town Of Linden	106	106	100%	77	72.6%	$3,688,908	19	17.9%	$1,079,101	10	9.4%	$911,150	106	100%	$5,679,160
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$119,900,435	223	7.4%	$38,205,941	50	1.7%	$12,581,238	2,998	100%	$170,687,614
Town Of Stedman	486	435	89.5%	416	85.6%	$22,394,412	50	10.3%	$5,479,627	20	4.1%	$3,934,641	486	100%	$31,808,680
Town Of Wade	315	290	92.1%	269	85.4%	$11,104,378	36	11.4%	$4,473,634	10	3.2%	$823,174	315	100%	$16,401,186
Subtotal Cumberland	127,947	51,343	40.1%	116,738	91.2%	$6,336,150,790	7,921	6.2%	$1,865,965,105	3,147	2.5%	$778,170,283	127,806	99.9%	$8,980,286,179
Hoke															

City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$150,048,093	328	10.9%	$99,057,694	162	5.4%	$25,385,493	2,996	99.5%	$274,491,279
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$937,501,239	1,037	5.7%	$142,494,497	266	1.5%	$77,988,931	18,171	99.9%	$1,157,984,667
Subtotal Hoke	21,192	14,070	66.4%	19,374	91.4%	$1,087,549,332	1,365	6.4%	$241,552,191	428	2%	$103,374,424	21,167	99.9%	$1,432,475,946
TOTAL PLAN	149,139	65,413	43.9%	136,112	91.3%	$7,423,700,122	9,286	6.2%	$2,107,517,296	3,575	2.4%	$881,544,707	148,973	99.9%	$10,412,762,125

Source: GIS Analysis

Table 6-131: Buildings Impacted by the EF2 Tornado

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings At Risk		Residential Buildings At Risk			Commercial Buildings At Risk			Public Buildings At Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$6,833,762,543	4,159	5.9%	$2,353,223,230	1,061	1.5%	$732,532,311	70,033	99.9%	$9,919,518,084
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$4,275,168,888	3,080	6.7%	$1,783,395,790	1,842	4%	$1,793,219,292	46,244	99.9%	$7,851,783,970
Town Of Eastover	1,855	0	0%	1,727	93.1%	$175,961,784	101	5.4%	$42,564,386	27	1.5%	$11,516,042	1,855	100%	$230,042,212
Town Of Falcon	169	165	97.6%	119	70.4%	$11,087,451	13	7.7%	$5,734,022	37	21.9%	$12,037,747	169	100%	$28,859,220
Town Of Godwin	82	81	98.8%	72	87.8%	$6,097,395	6	7.3%	$403,637	4	4.9%	$845,900	82	100%	$7,346,932
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$516,514,783	234	4.2%	$132,472,532	86	1.6%	$63,029,791	5,518	100%	$712,017,107
Town Of Linden	106	106	100%	77	72.6%	$6,791,779	19	17.9%	$2,416,872	10	9.4%	$2,994,614	106	100%	$12,203,266
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$233,928,904	223	7.4%	$93,879,397	50	1.7%	$41,764,480	2,998	100%	$369,572,780
Town Of Stedman	486	435	89.5%	416	85.6%	$42,017,961	50	10.3%	$12,849,856	20	4.1%	$11,594,898	486	100%	$66,462,715
Town Of Wade	315	290	92.1%	269	85.4%	$20,068,033	36	11.4%	$9,919,835	10	3.2%	$2,978,709	315	100%	$32,966,577
Subtotal Cumberland	127,947	51,343	40.1%	116,738	91.2%	$12,121,399,521	7,921	6.2%	$4,436,859,557	3,147	2.5%	$2,672,513,784	127,806	99.9%	$19,230,772,863

Hoke														
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$285,813,424	328	10.9%	$232,717,352	162	5.4%	$82,667,116	2,996	99.5%	$601,197,892
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$1,716,203,522	1,037	5.7%	$274,090,448	266	1.5%	$256,161,205	18,171	99.9%	$2,246,455,175
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$2,002,016,946**	**1,365**	**6.4%**	**$506,807,800**	**428**	**2%**	**$338,828,321**	**21,167**	**99.9%**	**$2,847,653,067**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$14,123,416,467**	**9,286**	**6.2%**	**$4,943,667,357**	**3,575**	**2.4%**	**$3,011,342,105**	**148,973**	**99.9%**	**$22,078,425,930**

Source: GIS Analysis

Table 6-132: Buildings Impacted by the EF3 Tornado

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings At Risk		Residential Buildings At Risk			Commercial Buildings At Risk			Public Buildings At Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$8,618,106,657	4,159	5.9%	$3,171,550,329	1,061	1.5%	$1,151,518,891	70,033	99.9%	$12,941,175,876
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$5,144,030,484	3,080	6.7%	$2,202,881,881	1,842	4%	$2,839,062,453	46,244	99.9%	$10,185,974,817
Town Of Eastover	1,855	0	0%	1,727	93.1%	$204,518,194	101	5.4%	$55,377,780	27	1.5%	$17,903,172	1,855	100%	$277,799,146
Town Of Falcon	169	165	97.6%	119	70.4%	$12,924,462	13	7.7%	$6,802,766	37	21.9%	$19,147,375	169	100%	$38,874,604
Town Of Godwin	82	81	98.8%	72	87.8%	$7,215,201	6	7.3%	$500,087	4	4.9%	$1,345,498	82	100%	$9,060,786
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$635,201,788	234	4.2%	$174,370,549	86	1.6%	$97,001,244	5,518	100%	$906,573,580
Town Of Linden	106	106	100%	77	72.6%	$8,092,351	19	17.9%	$2,882,659	10	9.4%	$4,695,589	106	100%	$15,670,599
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$303,294,573	223	7.4%	$131,835,061	50	1.7%	$65,589,313	2,998	100%	$500,718,947
Town Of Stedman	486	435	89.5%	416	85.6%	$49,796,614	50	10.3%	$16,098,133	20	4.1%	$17,851,576	486	100%	$83,746,323
Town Of Wade	315	290	92.1%	269	85.4%	$23,393,476	36	11.4%	$11,366,488	10	3.2%	$4,737,968	315	100%	$39,497,931

Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$15,006,573,800**	**7,921**	**6.2%**	**$5,773,665,733**	**3,147**	**2.5%**	**$4,218,853,079**	**127,806**	**99.9%**	**$24,999,092,609**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$344,229,689	328	10.9%	$281,000,758	162	5.4%	$129,434,329	2,996	99.5%	$754,664,775
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$2,003,066,762	1,037	5.7%	$334,486,673	266	1.5%	$401,624,292	18,171	99.9%	$2,739,177,726
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$2,347,296,451**	**1,365**	**6.4%**	**$615,487,431**	**428**	**2%**	**$531,058,621**	**21,167**	**99.9%**	**$3,493,842,501**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$17,353,870,251**	**9,286**	**6.2%**	**$6,389,153,164**	**3,575**	**2.4%**	**$4,749,911,700**	**148,973**	**99.9%**	**$28,492,935,110**

Source: GIS Analysis

Table 6-133: Buildings Impacted by the EF4 Tornado

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings At Risk		Residential Buildings At Risk			Commercial Buildings At Risk			Public Buildings At Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	32,035	45.7%	64,813	92.4%	$8,769,460,415	4,159	5.9%	$3,336,865,146	1,061	1.5%	$1,217,733,482	70,033	99.9%	$13,324,059,044
Cumberland County (Unincorporated Area)	46,300	15,481	33.4%	41,322	89.2%	$5,193,030,360	3,080	6.7%	$2,273,337,734	1,842	4%	$2,965,100,845	46,244	99.9%	$10,431,468,939
Town Of Eastover	1,855	0	0%	1,727	93.1%	$204,754,322	101	5.4%	$57,247,186	27	1.5%	$19,300,989	1,855	100%	$281,302,498
Town Of Falcon	169	165	97.6%	119	70.4%	$12,969,207	13	7.7%	$6,879,237	37	21.9%	$19,834,490	169	100%	$39,682,935
Town Of Godwin	82	81	98.8%	72	87.8%	$7,250,963	6	7.3%	$524,673	4	4.9%	$1,393,781	82	100%	$9,169,418
Town Of Hope Mills	5,519	1,201	21.8%	5,198	94.2%	$643,045,315	234	4.2%	$183,790,199	86	1.6%	$106,415,000	5,518	100%	$933,250,514
Town Of Linden	106	106	100%	77	72.6%	$8,150,408	19	17.9%	$2,954,484	10	9.4%	$4,987,462	106	100%	$16,092,354
Town Of Spring Lake	2,998	1,549	51.7%	2,725	90.9%	$310,761,051	223	7.4%	$139,842,086	50	1.7%	$69,477,399	2,998	100%	$520,080,536
Town Of Stedman	486	435	89.5%	416	85.6%	$50,018,666	50	10.3%	$16,795,028	20	4.1%	$19,570,236	486	100%	$86,383,929

Town Of Wade	315	290	92.1%	269	85.4%	$23,458,164	36	11.4%	$11,548,060	10	3.2%	$4,907,993	315	100%	$39,914,218
Subtotal Cumberland	**127,947**	**51,343**	**40.1%**	**116,738**	**91.2%**	**$15,222,898,871**	**7,921**	**6.2%**	**$6,029,783,833**	**3,147**	**2.5%**	**$4,428,721,677**	**127,806**	**99.9%**	**$25,681,404,385**
Hoke															
City Of Raeford	3,011	2,735	90.8%	2,506	83.2%	$346,860,530	328	10.9%	$289,336,062	162	5.4%	$137,828,641	2,996	99.5%	$774,025,233
Hoke County (Unincorporated Area)	18,181	11,335	62.3%	16,868	92.8%	$2,007,395,624	1,037	5.7%	$347,049,685	266	1.5%	$426,661,580	18,171	99.9%	$2,781,106,889
Subtotal Hoke	**21,192**	**14,070**	**66.4%**	**19,374**	**91.4%**	**$2,354,256,154**	**1,365**	**6.4%**	**$636,385,747**	**428**	**2%**	**$564,490,221**	**21,167**	**99.9%**	**$3,555,132,122**
TOTAL PLAN	**149,139**	**65,413**	**43.9%**	**136,112**	**91.3%**	**$17,577,155,025**	**9,286**	**6.2%**	**$6,666,169,580**	**3,575**	**2.4%**	**$4,993,211,898**	**148,973**	**99.9%**	**$29,236,536,507**

Source: GIS Analysis

Table 6-134: Buildings Impacted by the EF5 Tornado

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings At Risk		Residential Buildings At Risk			Commercial Buildings At Risk			Public Buildings At Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Cumberland County (Unincorporated Area)	46,300	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Town Of Eastover	1,855	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Town Of Falcon	169	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Town Of Godwin	82	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Town Of Hope Mills	5,519	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Town Of Linden	106	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Town Of Spring Lake	2,998	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Town Of Stedman	486	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0

Town Of Wade	315	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Subtotal Cumberland	**127,947**	**0**	**0%**	**0**	**0%**	**$0**	**0**	**0%**	**$0**	**0**	**0%**	**$0**	**0**	**0%**	**$0**
Hoke															
City Of Raeford	3,011	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Hoke County (Unincorporated Area)	18,181	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Subtotal Hoke	**21,192**	**0**	**0%**	**0**	**0%**	**$0**	**0**	**0%**	**$0**	**0**	**0%**	**$0**	**0**	**0%**	**$0**
TOTAL PLAN	**149,139**	**0**	**0%**	**0**	**0%**	**$0**	**0**	**0%**	**$0**	**0**	**0%**	**$0**	**0**	**0%**	**$0**

Source: GIS Analysis

The following tables provide counts and estimated damages for CIKR buildings by jurisdiction in the plan. Because there is a large number of sectors and events, the table is sorted by sector and then by event. Totals across all sectors are shown at the bottom of each table.

Table 6-135: Critical Facilities Exposed to the Tornado - City Of Fayetteville

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	EF0	102	$3,589,029
	Banking and Finance EF1	102	$21,648,541
	Banking and Finance EF2	102	$59,903,983
	Banking and Finance EF3	102	$81,872,728
	Banking and Finance EF4	102	$84,342,744
Commercial Facilities	EF0	2,869	$89,118,603
	Commercial Facilities EF1	2,869	$534,700,992
	Commercial Facilities EF2	2,869	$1,487,141,269
	Commercial Facilities EF3	2,869	$2,100,885,950
	Commercial Facilities EF4	2,869	$2,234,838,673
Communications	EF0	12	$2,801,490
	Communications EF1	12	$18,406,175
	Communications EF2	12	$48,572,955
	Communications EF3	12	$64,678,189
	Communications	12	$66,807,889

	EF4		
Critical Manufacturing	EF0	415	$23,105,695
	Critical Manufacturing EF1	415	$162,684,597
	Critical Manufacturing EF2	415	$374,366,498
	Critical Manufacturing EF3	415	$411,646,941
	Critical Manufacturing EF4	415	$415,133,031
Defense Industrial Base	EF0	1	$92,845
	Defense Industrial Base EF1	1	$670,166
	Defense Industrial Base EF2	1	$1,514,386
	Defense Industrial Base EF3	1	$1,623,569
	Defense Industrial Base EF4	1	$1,623,569
Emergency Services	EF0	18	$1,154,901
	Emergency Services EF1	18	$9,297,658
	Emergency Services EF2	18	$33,644,199
	Emergency Services EF3	18	$53,514,838
	Emergency Services EF4	18	$55,435,250
Energy	EF0	71	$692,260,990
	Energy EF1	71	$4,996,553,728

	Energy EF2	71	$11,293,100,308
	Energy EF3	71	$12,110,418,724
	Energy EF4	71	$12,111,000,664
Food and Agriculture	EF0	68	$635,081
	Food and Agriculture EF1	68	$4,787,524
	Food and Agriculture EF2	68	$9,748,744
	Food and Agriculture EF3	68	$10,446,911
	Food and Agriculture EF4	68	$10,447,587
Government Facilities	EF0	550	$24,131,365
	Government Facilities EF1	550	$135,926,657
	Government Facilities EF2	550	$430,970,228
	Government Facilities EF3	550	$671,885,966
	Government Facilities EF4	550	$720,552,343
Healthcare and Public Health	EF0	394	$27,715,820
	Healthcare and Public Health EF1	394	$134,800,882
	Healthcare and Public Health EF2	394	$330,306,851
	Healthcare and Public Health EF3	394	$470,704,089
	Healthcare and Public Health EF4	394	$488,675,318

Nuclear Reactors, Materials and Waste	EF0	1	$171,275
	Nuclear Reactors, Materials and Waste EF1	1	$815,135
	Nuclear Reactors, Materials and Waste EF2	1	$2,629,140
	Nuclear Reactors, Materials and Waste EF3	1	$3,842,634
	Nuclear Reactors, Materials and Waste EF4	1	$4,216,428
Transportation Systems	EF0	769	$23,847,214
	Transportation Systems EF1	769	$135,609,678
	Transportation Systems EF2	769	$299,170,262
	Transportation Systems EF3	769	$440,513,102
	Transportation Systems EF4	769	$460,645,231
Water	EF0	29	$334,181
	Water EF1	29	$2,412,154
	Water EF2	29	$5,450,788
	Water EF3	29	$5,843,777
	Water EF4	29	$5,843,777
All Categories	**EF0**	**5,299**	**$888,958,489**

	All Categories EF1	**5,299**	**$6,158,313,887**
	All Categories EF2	**5,299**	**$14,376,519,611**
	All Categories EF3	**5,299**	**$16,427,877,418**
	All Categories EF4	**5,299**	**$16,659,562,504**

Source: GIS Analysis

Table 6-136: Critical Facilities Exposed to the Tornado - Cumberland County (Unincorporated Area)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	EF0	16	$1,089,428
	Banking and Finance EF1	16	$6,674,674
	Banking and Finance EF2	16	$18,205,469
	Banking and Finance EF3	16	$23,592,819
	Banking and Finance EF4	16	$23,933,671
Commercial Facilities	EF0	1,563	$57,447,899
	Commercial Facilities EF1	1,563	$377,979,600
	Commercial Facilities EF2	1,563	$945,859,896
	Commercial Facilities EF3	1,563	$1,234,654,140
	Commercial Facilities EF4	1,563	$1,286,649,255
Critical Manufacturing	EF0	350	$31,214,159
	Critical Manufacturing EF1	350	$221,844,833

	Critical Manufacturing EF2	350	$507,778,675
	Critical Manufacturing EF3	350	$552,806,834
	Critical Manufacturing EF4	350	$555,880,062
Emergency Services	EF0	13	$234,557
	Emergency Services EF1	13	$1,888,325
	Emergency Services EF2	13	$6,833,032
	Emergency Services EF3	13	$10,868,697
	Emergency Services EF4	13	$11,258,726
Energy	EF0	51	$145,665,867
	Energy EF1	51	$1,051,336,517
	Energy EF2	51	$2,375,904,812
	Energy EF3	51	$2,547,436,536
	Energy EF4	51	$2,547,522,220
Food and Agriculture	EF0	1,125	$10,633,229
	Food and Agriculture EF1	1,125	$70,590,831
	Food and Agriculture EF2	1,125	$104,666,343
	Food and Agriculture EF3	1,125	$107,986,373
	Food and Agriculture EF4	1,125	$108,002,328

Government Facilities	EF0	211	$16,739,152
	Government Facilities EF1	211	$77,460,141
	Government Facilities EF2	211	$220,520,719
	Government Facilities EF3	211	$337,362,596
	Government Facilities EF4	211	$373,620,563
Healthcare and Public Health	EF0	30	$1,907,209
	Healthcare and Public Health EF1	30	$8,208,898
	Healthcare and Public Health EF2	30	$17,044,593
	Healthcare and Public Health EF3	30	$22,658,029
	Healthcare and Public Health EF4	30	$23,482,331
Transportation Systems	EF0	306	$27,358,933
	Transportation Systems EF1	306	$155,327,043
	Transportation Systems EF2	306	$339,785,945
	Transportation Systems EF3	306	$499,790,416
	Transportation Systems EF4	306	$522,503,240
Water	EF0	8	$558,484
	Water EF1	8	$4,031,205
	Water EF2	8	$9,109,387

	Water EF3	8	$9,766,152
	Water EF4	8	$9,766,152
All Categories	**EF0**	**3,673**	**$292,848,917**
	All Categories EF1	**3,673**	**$1,975,342,067**
	All Categories EF2	**3,673**	**$4,545,708,871**
	All Categories EF3	**3,673**	**$5,346,922,592**
	All Categories EF4	**3,673**	**$5,462,618,548**

Source: GIS Analysis

Table 6-137: Critical Facilities Exposed to the Tornado - Town Of Eastover

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	EF0	1	$8,756
	Banking and Finance EF1	1	$54,377
	Banking and Finance EF2	1	$154,214
	Banking and Finance EF3	1	$195,997
	Banking and Finance EF4	1	$197,918
Commercial Facilities	EF0	64	$1,836,437
	Commercial Facilities EF1	64	$12,769,224
	Commercial Facilities EF2	64	$30,201,639

	Commercial Facilities EF3	64	$41,769,140
	Commercial Facilities EF4	64	$43,425,991
Critical Manufacturing	EF0	21	$576,525
	Critical Manufacturing EF1	21	$4,104,499
	Critical Manufacturing EF2	21	$9,381,407
	Critical Manufacturing EF3	21	$10,196,185
	Critical Manufacturing EF4	21	$10,246,708
Emergency Services	EF0	1	$28,852
	Emergency Services EF1	1	$232,278
	Emergency Services EF2	1	$840,514
	Emergency Services EF3	1	$1,336,930
	Emergency Services EF4	1	$1,384,907
Energy	EF0	1	$36,141
	Energy EF1	1	$172,003
	Energy EF2	1	$554,778
	Energy EF3	1	$810,839
	Energy EF4	1	$889,714
Food and Agriculture	EF0	13	$51,169

	Food and Agriculture EF1	13	$369,346
	Food and Agriculture EF2	13	$834,618
	Food and Agriculture EF3	13	$894,792
	Food and Agriculture EF4	13	$894,792
Government Facilities	EF0	11	$469,404
	Government Facilities EF1	11	$1,989,835
	Government Facilities EF2	11	$5,348,583
	Government Facilities EF3	11	$8,093,142
	Government Facilities EF4	11	$9,138,921
Healthcare and Public Health	EF0	7	$267,005
	Healthcare and Public Health EF1	7	$1,441,628
	Healthcare and Public Health EF2	7	$3,956,644
	Healthcare and Public Health EF3	7	$5,852,169
	Healthcare and Public Health EF4	7	$6,061,312
Transportation Systems	EF0	9	$228,454
	Transportation Systems EF1	9	$1,306,188
	Transportation Systems EF2	9	$2,808,031
	Transportation Systems EF3	9	$4,131,758

	Transportation Systems EF4	9	$4,307,913
All Categories	**EF0**	**128**	**$3,502,743**
	All Categories EF1	**128**	**$22,439,378**
	All Categories EF2	**128**	**$54,080,428**
	All Categories EF3	**128**	**$73,280,952**
	All Categories EF4	**128**	**$76,548,176**

Source: GIS Analysis

Table 6-138: Critical Facilities Exposed to the Tornado - Town Of Falcon

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	EF0	15	$206,129
	Commercial Facilities EF1	15	$1,604,050
	Commercial Facilities EF2	15	$5,376,424
	Commercial Facilities EF3	15	$8,296,469
	Commercial Facilities EF4	15	$8,579,576
Critical Manufacturing	EF0	2	$87,286
	Critical Manufacturing EF1	2	$630,038
	Critical Manufacturing EF2	2	$1,423,708
	Critical Manufacturing EF3	2	$1,526,354

	Critical Manufacturing EF4	2	$1,526,354
Food and Agriculture	EF0	6	$156,583
	Food and Agriculture EF1	6	$1,130,234
	Food and Agriculture EF2	6	$2,554,010
	Food and Agriculture EF3	6	$2,738,148
	Food and Agriculture EF4	6	$2,738,148
Government Facilities	EF0	1	$3,588
	Government Facilities EF1	1	$28,889
	Government Facilities EF2	1	$104,537
	Government Facilities EF3	1	$166,277
	Government Facilities EF4	1	$172,244
Healthcare and Public Health	EF0	2	$41,960
	Healthcare and Public Health EF1	2	$337,803
	Healthcare and Public Health EF2	2	$1,222,362
	Healthcare and Public Health EF3	2	$1,944,303
	Healthcare and Public Health EF4	2	$2,014,075
All Categories	**EF0**	**26**	**$495,546**
	All Categories EF1	**26**	**$3,731,014**

	All Categories EF2	**26**	**$10,681,041**
	All Categories EF3	**26**	**$14,671,551**
	All Categories EF4	**26**	**$15,030,397**

Source: GIS Analysis

Table 6-139: Critical Facilities Exposed to the Tornado - Town Of Godwin

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	EF0	5	$36,166
	Commercial Facilities EF1	5	$254,080
	Commercial Facilities EF2	5	$898,326
	Commercial Facilities EF3	5	$1,406,570
	Commercial Facilities EF4	5	$1,472,561
Critical Manufacturing	EF0	1	$7,988
	Critical Manufacturing EF1	1	$57,660
	Critical Manufacturing EF2	1	$130,295
	Critical Manufacturing EF3	1	$139,689
	Critical Manufacturing EF4	1	$139,689
Food and Agriculture	EF0	3	$6,156
	Food and Agriculture EF1	3	$44,436

	Food and Agriculture EF2	3	$100,412
	Food and Agriculture EF3	3	$107,652
	Food and Agriculture EF4	3	$107,652
Government Facilities	EF0	1	$4,136
	Government Facilities EF1	1	$33,301
	Government Facilities EF2	1	$120,503
	Government Facilities EF3	1	$191,674
	Government Facilities EF4	1	$198,552
All Categories	**EF0**	**10**	**$54,446**
	All Categories EF1	**10**	**$389,477**
	All Categories EF2	**10**	**$1,249,536**
	All Categories EF3	**10**	**$1,845,585**
	All Categories EF4	**10**	**$1,918,454**

Source: GIS Analysis

Table 6-140: Critical Facilities Exposed to the Tornado - Town Of Hope Mills

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	EF0	8	$158,138
	Banking and Finance EF1	8	$908,486

	Banking and Finance EF2	8	$2,670,483
	Banking and Finance EF3	8	$3,542,410
	Banking and Finance EF4	8	$3,676,658
Commercial Facilities	EF0	208	$6,417,185
	Commercial Facilities EF1	208	$40,042,355
	Commercial Facilities EF2	208	$107,908,514
	Commercial Facilities EF3	208	$150,268,078
	Commercial Facilities EF4	208	$159,490,390
Critical Manufacturing	EF0	6	$1,381,559
	Critical Manufacturing EF1	6	$9,840,575
	Critical Manufacturing EF2	6	$22,297,933
	Critical Manufacturing EF3	6	$24,293,616
	Critical Manufacturing EF4	6	$24,380,249
Emergency Services	EF0	2	$46,377
	Emergency Services EF1	2	$373,365
	Emergency Services EF2	2	$1,351,048
	Emergency Services EF3	2	$2,148,992
	Emergency Services EF4	2	$2,226,109

Energy	EF0	2	$28,602,447
	Energy EF1	2	$206,432,188
	Energy EF2	2	$466,522,669
	Energy EF3	2	$500,215,162
	Energy EF4	2	$500,236,092
Government Facilities	EF0	53	$3,720,900
	Government Facilities EF1	53	$15,910,658
	Government Facilities EF2	53	$42,973,880
	Government Facilities EF3	53	$65,070,932
	Government Facilities EF4	53	$73,336,498
Healthcare and Public Health	EF0	17	$852,695
	Healthcare and Public Health EF1	17	$3,854,512
	Healthcare and Public Health EF2	17	$8,379,262
	Healthcare and Public Health EF3	17	$11,451,079
	Healthcare and Public Health EF4	17	$11,864,532
Transportation Systems	EF0	25	$795,186
	Transportation Systems EF1	25	$4,546,483
	Transportation Systems EF2	25	$9,773,988

	Transportation Systems EF3	25	$14,381,523
	Transportation Systems EF4	25	$14,994,670
All Categories	**EF0**	**321**	**$41,974,487**
	All Categories EF1	**321**	**$281,908,622**
	All Categories EF2	**321**	**$661,877,777**
	All Categories EF3	**321**	**$771,371,792**
	All Categories EF4	**321**	**$790,205,198**

Source: GIS Analysis

Table 6-141: Critical Facilities Exposed to the Tornado - Town Of Linden

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	EF0	10	$91,532
	Commercial Facilities EF1	10	$668,069
	Commercial Facilities EF2	10	$1,863,659
	Commercial Facilities EF3	10	$2,633,256
	Commercial Facilities EF4	10	$2,735,927
Critical Manufacturing	EF0	3	$25,167
	Critical Manufacturing EF1	3	$181,657
	Critical Manufacturing EF2	3	$410,493

	Critical Manufacturing EF3	3	$440,089
	Critical Manufacturing EF4	3	$440,089
Emergency Services	EF0	1	$17,646
	Emergency Services EF1	1	$142,060
	Emergency Services EF2	1	$514,054
	Emergency Services EF3	1	$817,661
	Emergency Services EF4	1	$847,003
Food and Agriculture	EF0	8	$44,141
	Food and Agriculture EF1	8	$318,617
	Food and Agriculture EF2	8	$719,986
	Food and Agriculture EF3	8	$771,895
	Food and Agriculture EF4	8	$771,895
Government Facilities	EF0	5	$99,235
	Government Facilities EF1	5	$506,684
	Government Facilities EF2	5	$1,531,027
	Government Facilities EF3	5	$2,367,590
	Government Facilities EF4	5	$2,575,922
Transportation Systems	EF0	2	$30,287

	Transportation Systems EF1	2	$173,164
	Transportation Systems EF2	2	$372,267
	Transportation Systems EF3	2	$547,757
	Transportation Systems EF4	2	$571,110
All Categories	**EF0**	**29**	**$308,008**
	All Categories EF1	**29**	**$1,990,251**
	All Categories EF2	**29**	**$5,411,486**
	All Categories EF3	**29**	**$7,578,248**
	All Categories EF4	**29**	**$7,941,946**

Source: GIS Analysis

Table 6-142: Critical Facilities Exposed to the Tornado - Town Of Spring Lake

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	EF0	5	$93,997
	Banking and Finance EF1	5	$583,744
	Banking and Finance EF2	5	$1,655,523
	Banking and Finance EF3	5	$2,104,066
	Banking and Finance EF4	5	$2,124,690
Commercial Facilities	EF0	206	$4,616,542

	Commercial Facilities EF1	206	$27,467,839
	Commercial Facilities EF2	206	$75,827,603
	Commercial Facilities EF3	206	$108,381,029
	Commercial Facilities EF4	206	$115,392,526
Critical Manufacturing	EF0	10	$129,308
	Critical Manufacturing EF1	10	$875,935
	Critical Manufacturing EF2	10	$2,086,701
	Critical Manufacturing EF3	10	$2,376,766
	Critical Manufacturing EF4	10	$2,427,735
Emergency Services	EF0	2	$107,765
	Emergency Services EF1	2	$867,573
	Emergency Services EF2	2	$3,139,372
	Emergency Services EF3	2	$4,993,521
	Emergency Services EF4	2	$5,172,716
Government Facilities	EF0	21	$1,230,173
	Government Facilities EF1	21	$6,269,256
	Government Facilities EF2	21	$18,924,150
	Government Facilities EF3	21	$29,259,231

	Government Facilities EF4	21	$31,843,591
Healthcare and Public Health	EF0	7	$372,275
	Healthcare and Public Health EF1	7	$1,559,694
	Healthcare and Public Health EF2	7	$2,950,941
	Healthcare and Public Health EF3	7	$3,797,428
	Healthcare and Public Health EF4	7	$3,935,906
Transportation Systems	EF0	21	$1,973,400
	Transportation Systems EF1	21	$11,282,940
	Transportation Systems EF2	21	$24,255,964
	Transportation Systems EF3	21	$35,690,415
	Transportation Systems EF4	21	$37,212,053
All Categories	**EF0**	**272**	**$8,523,460**
	All Categories EF1	**272**	**$48,906,981**
	All Categories EF2	**272**	**$128,840,254**
	All Categories EF3	**272**	**$186,602,456**
	All Categories EF4	**272**	**$198,109,217**

Source: GIS Analysis

Table 6-143: Critical Facilities Exposed to the Tornado - Town Of Stedman

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	EF0	1	$15,918
	Banking and Finance EF1	1	$98,852
	Banking and Finance EF2	1	$280,348
	Banking and Finance EF3	1	$356,305
	Banking and Finance EF4	1	$359,797
Commercial Facilities	EF0	46	$621,084
	Commercial Facilities EF1	46	$4,065,070
	Commercial Facilities EF2	46	$11,092,251
	Commercial Facilities EF3	46	$15,345,470
	Commercial Facilities EF4	46	$16,131,478
Critical Manufacturing	EF0	6	$188,348
	Critical Manufacturing EF1	6	$1,359,520
	Critical Manufacturing EF2	6	$3,072,132
	Critical Manufacturing EF3	6	$3,293,625
	Critical Manufacturing EF4	6	$3,293,625
Emergency Services	EF0	1	$16,471

	Emergency Services EF1	1	$132,601
	Emergency Services EF2	1	$479,826
	Emergency Services EF3	1	$763,216
	Emergency Services EF4	1	$790,604
Government Facilities	EF0	10	$671,293
	Government Facilities EF1	10	$2,850,812
	Government Facilities EF2	10	$7,672,990
	Government Facilities EF3	10	$11,613,346
	Government Facilities EF4	10	$13,108,143
Healthcare and Public Health	EF0	2	$87,699
	Healthcare and Public Health EF1	2	$354,942
	Healthcare and Public Health EF2	2	$659,510
	Healthcare and Public Health EF3	2	$830,160
	Healthcare and Public Health EF4	2	$859,522
Transportation Systems	EF0	4	$96,628
	Transportation Systems EF1	4	$552,471
	Transportation Systems EF2	4	$1,187,697
	Transportation Systems EF3	4	$1,747,587

	Transportation Systems EF4	4	$1,822,094
All Categories	**EF0**	**70**	**$1,697,441**
	All Categories EF1	**70**	**$9,414,268**
	All Categories EF2	**70**	**$24,444,754**
	All Categories EF3	**70**	**$33,949,709**
	All Categories EF4	**70**	**$36,365,263**

Source: GIS Analysis

Table 6-144: Critical Facilities Exposed to the Tornado - Town Of Wade

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	EF0	18	$177,443
	Commercial Facilities EF1	18	$1,199,716
	Commercial Facilities EF2	18	$3,436,317
	Commercial Facilities EF3	18	$4,879,921
	Commercial Facilities EF4	18	$5,076,444
Critical Manufacturing	EF0	9	$381,107
	Critical Manufacturing EF1	9	$2,750,878
	Critical Manufacturing EF2	9	$6,216,208
	Critical Manufacturing EF3	9	$6,664,382

	Critical Manufacturing EF4	9	$6,664,382
Emergency Services	EF0	1	$9,635
	Emergency Services EF1	1	$77,570
	Emergency Services EF2	1	$280,691
	Emergency Services EF3	1	$446,470
	Emergency Services EF4	1	$462,492
Food and Agriculture	EF0	11	$24,383
	Food and Agriculture EF1	11	$176,003
	Food and Agriculture EF2	11	$397,716
	Food and Agriculture EF3	11	$426,390
	Food and Agriculture EF4	11	$426,390
Government Facilities	EF0	3	$30,843
	Government Facilities EF1	3	$248,304
	Government Facilities EF2	3	$898,503
	Government Facilities EF3	3	$1,429,169
	Government Facilities EF4	3	$1,480,456
Healthcare and Public Health	EF0	1	$123,697
	Healthcare and Public Health EF1	1	$500,637

	Healthcare and Public Health EF2	1	$930,222
	Healthcare and Public Health EF3	1	$1,170,920
	Healthcare and Public Health EF4	1	$1,212,333
Transportation Systems	EF0	3	$60,114
	Transportation Systems EF1	3	$343,702
	Transportation Systems EF2	3	$738,886
	Transportation Systems EF3	3	$1,087,203
	Transportation Systems EF4	3	$1,133,556
All Categories	**EF0**	**46**	**$807,222**
	All Categories EF1	**46**	**$5,296,810**
	All Categories EF2	**46**	**$12,898,543**
	All Categories EF3	**46**	**$16,104,455**
	All Categories EF4	**46**	**$16,456,053**

Source: GIS Analysis

Table 6-145: Critical Facilities Exposed to the Tornado - City Of Raeford

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	EF0	6	$202,720
	Banking and Finance EF1	6	$1,258,940

	Banking and Finance EF2	6	$3,570,409
	Banking and Finance EF3	6	$4,537,767
	Banking and Finance EF4	6	$4,582,246
Commercial Facilities	EF0	242	$6,038,173
	Commercial Facilities EF1	242	$35,512,779
	Commercial Facilities EF2	242	$99,415,422
	Commercial Facilities EF3	242	$139,361,751
	Commercial Facilities EF4	242	$147,040,868
Communications	EF0	1	$20,198
	Communications EF1	1	$115,484
	Communications EF2	1	$248,266
	Communications EF3	1	$365,300
	Communications EF4	1	$380,875
Critical Manufacturing	EF0	54	$7,367,912
	Critical Manufacturing EF1	54	$53,098,877
	Critical Manufacturing EF2	54	$120,144,696
	Critical Manufacturing EF3	54	$129,010,011
	Critical Manufacturing EF4	54	$129,084,180

Emergency Services	EF0	7	$178,880
	Emergency Services EF1	7	$1,440,093
	Emergency Services EF2	7	$5,211,073
	Emergency Services EF3	7	$8,288,790
	Emergency Services EF4	7	$8,586,238
Energy	EF0	3	$618,210
	Energy EF1	3	$4,348,332
	Energy EF2	3	$10,039,036
	Energy EF3	3	$11,039,936
	Energy EF4	3	$11,141,096
Food and Agriculture	EF0	16	$136,617
	Food and Agriculture EF1	16	$784,628
	Food and Agriculture EF2	16	$1,959,844
	Food and Agriculture EF3	16	$2,535,728
	Food and Agriculture EF4	16	$2,698,931
Government Facilities	EF0	94	$3,058,383
	Government Facilities EF1	94	$15,740,663
	Government Facilities EF2	94	$47,766,654

	Government Facilities EF3	94	$73,921,264
	Government Facilities EF4	94	$80,323,458
Healthcare and Public Health	EF0	26	$2,392,850
	Healthcare and Public Health EF1	26	$11,005,817
	Healthcare and Public Health EF2	26	$24,787,761
	Healthcare and Public Health EF3	26	$34,278,814
	Healthcare and Public Health EF4	26	$35,508,821
Postal and Shipping	EF0	1	$45,749
	Postal and Shipping EF1	1	$330,218
	Postal and Shipping EF2	1	$746,201
	Postal and Shipping EF3	1	$800,000
	Postal and Shipping EF4	1	$800,000
Transportation Systems	EF0	40	$891,197
	Transportation Systems EF1	40	$5,095,429
	Transportation Systems EF2	40	$10,954,107
	Transportation Systems EF3	40	$16,117,959
	Transportation Systems EF4	40	$16,805,138
Water	EF0	13	$34,311

	Water EF1	13	$247,664
	Water EF2	13	$559,651
	Water EF3	13	$600,000
	Water EF4	13	$600,000
All Categories	**EF0**	**503**	**$20,985,200**
	All Categories EF1	**503**	**$128,978,924**
	All Categories EF2	**503**	**$325,403,120**
	All Categories EF3	**503**	**$420,857,320**
	All Categories EF4	**503**	**$437,551,851**

Source: GIS Analysis

Table 6-146: Critical Facilities Exposed to the Tornado - Hoke County (Unincorporated Area)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	EF0	1	$28,864
	Banking and Finance EF1	1	$137,372
	Banking and Finance EF2	1	$443,080
	Banking and Finance EF3	1	$647,586
	Banking and Finance EF4	1	$710,580
Commercial Facilities	EF0	360	$12,079,962

	Commercial Facilities EF1	360	$82,772,486
	Commercial Facilities EF2	360	$252,806,986
	Commercial Facilities EF3	360	$372,442,051
	Commercial Facilities EF4	360	$390,324,581
Critical Manufacturing	EF0	45	$1,928,208
	Critical Manufacturing EF1	45	$13,879,118
	Critical Manufacturing EF2	45	$31,435,620
	Critical Manufacturing EF3	45	$33,796,649
	Critical Manufacturing EF4	45	$33,831,182
Emergency Services	EF0	7	$339,458
	Emergency Services EF1	7	$2,732,843
	Emergency Services EF2	7	$9,888,976
	Emergency Services EF3	7	$15,729,516
	Emergency Services EF4	7	$16,293,979
Energy	EF0	1	$1,537
	Energy EF1	1	$11,093
	Energy EF2	1	$25,067
	Energy EF3	1	$26,874

	Energy EF4	1	$26,874
Food and Agriculture	EF0	700	$9,937,006
	Food and Agriculture EF1	700	$65,113,269
	Food and Agriculture EF2	700	$88,226,681
	Food and Agriculture EF3	700	$89,901,541
	Food and Agriculture EF4	700	$89,901,541
Government Facilities	EF0	106	$7,391,787
	Government Facilities EF1	106	$34,342,145
	Government Facilities EF2	106	$98,222,386
	Government Facilities EF3	106	$150,405,048
	Government Facilities EF4	106	$166,427,185
Healthcare and Public Health	EF0	4	$111,137
	Healthcare and Public Health EF1	4	$449,805
	Healthcare and Public Health EF2	4	$835,772
	Healthcare and Public Health EF3	4	$1,052,030
	Healthcare and Public Health EF4	4	$1,089,239
Postal and Shipping	EF0	3	$137,246
	Postal and Shipping EF1	3	$990,655

	Postal and Shipping EF2	3	$2,238,602
	Postal and Shipping EF3	3	$2,400,000
	Postal and Shipping EF4	3	$2,400,000
Transportation Systems	EF0	72	$3,324,038
	Transportation Systems EF1	72	$19,005,225
	Transportation Systems EF2	72	$40,857,264
	Transportation Systems EF3	72	$60,117,699
	Transportation Systems EF4	72	$62,680,778
Water	EF0	6	$3,443,464
	Water EF1	6	$24,855,322
	Water EF2	6	$56,166,026
	Water EF3	6	$60,215,461
	Water EF4	6	$60,215,461
All Categories	**EF0**	**1,305**	**$38,722,707**
	All Categories EF1	**1,305**	**$244,289,333**
	All Categories EF2	**1,305**	**$581,146,460**
	All Categories EF3	**1,305**	**$786,734,455**
	All Categories EF4	**1,305**	**$823,901,400**

Source: GIS Analysis

The following table provides counts and estimated damages for CIKR buildings across all jurisdictions, by sector, in the plan. Because there is a large number of sectors and events, the table is sorted by sector and then by event.

Table 6-147: Critical Facilities Exposed to the Tornado (by Sector)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	EF0	140	$5,186,850
	Banking and Finance EF1	140	$31,364,986
	Banking and Finance EF2	140	$86,883,509
	Banking and Finance EF3	140	$116,849,678
	Banking and Finance EF4	140	$119,928,304
Commercial Facilities	EF0	5,606	$178,687,155
	Commercial Facilities EF1	5,606	$1,119,036,260
	Commercial Facilities EF2	5,606	$3,021,828,306
	Commercial Facilities EF3	5,606	$4,180,323,825
	Commercial Facilities EF4	5,606	$4,411,158,270
Communications	EF0	13	$2,821,688
	Communications EF1	13	$18,521,659
	Communications EF2	13	$48,821,221
	Communications EF3	13	$65,043,489

	Communications EF4	13	$67,188,764
Critical Manufacturing	EF0	922	$66,393,262
	Critical Manufacturing EF1	922	$471,308,187
	Critical Manufacturing EF2	922	$1,078,744,366
	Critical Manufacturing EF3	922	$1,176,191,141
	Critical Manufacturing EF4	922	$1,183,047,286
Defense Industrial Base	EF0	1	$92,845
	Defense Industrial Base EF1	1	$670,166
	Defense Industrial Base EF2	1	$1,514,386
	Defense Industrial Base EF3	1	$1,623,569
	Defense Industrial Base EF4	1	$1,623,569
Emergency Services	EF0	53	$2,134,542
	Emergency Services EF1	53	$17,184,366
	Emergency Services EF2	53	$62,182,785
	Emergency Services EF3	53	$98,908,631
	Emergency Services EF4	53	$102,458,024
Energy	EF0	129	$867,185,192
	Energy EF1	129	$6,258,853,861

	Energy EF2	129	$14,146,146,670
	Energy EF3	129	$15,169,948,071
	Energy EF4	129	$15,170,816,660
Food and Agriculture	EF0	1,950	$21,624,365
	Food and Agriculture EF1	1,950	$143,314,888
	Food and Agriculture EF2	1,950	$209,208,354
	Food and Agriculture EF3	1,950	$215,809,430
	Food and Agriculture EF4	1,950	$215,989,264
Government Facilities	EF0	1,066	$57,550,259
	Government Facilities EF1	1,066	$291,307,345
	Government Facilities EF2	1,066	$875,054,160
	Government Facilities EF3	1,066	$1,351,766,235
	Government Facilities EF4	1,066	$1,472,777,876
Healthcare and Public Health	EF0	490	$33,872,347
	Healthcare and Public Health EF1	490	$162,514,618
	Healthcare and Public Health EF2	490	$391,073,918
	Healthcare and Public Health EF3	490	$553,739,021
	Healthcare and Public Health EF4	490	$574,703,389

Nuclear Reactors, Materials and Waste	EF0	1	$171,275
	Nuclear Reactors, Materials and Waste EF1	1	$815,135
	Nuclear Reactors, Materials and Waste EF2	1	$2,629,140
	Nuclear Reactors, Materials and Waste EF3	1	$3,842,634
	Nuclear Reactors, Materials and Waste EF4	1	$4,216,428
Postal and Shipping	EF0	4	$182,995
	Postal and Shipping EF1	4	$1,320,873
	Postal and Shipping EF2	4	$2,984,803
	Postal and Shipping EF3	4	$3,200,000
	Postal and Shipping EF4	4	$3,200,000
Transportation Systems	EF0	1,251	$58,605,451
	Transportation Systems EF1	1,251	$333,242,323
	Transportation Systems EF2	1,251	$729,904,411
	Transportation Systems EF3	1,251	$1,074,125,419
	Transportation Systems EF4	1,251	$1,122,675,783
Water	EF0	56	$4,370,440

	Water EF1	56	$31,546,345
	Water EF2	56	$71,285,852
	Water EF3	56	$76,425,390
	Water EF4	56	$76,425,390
All Categories	**EF0**	**11,682**	**$1,298,878,666**
	All Categories EF1	**11,682**	**$8,881,001,012**
	All Categories EF2	**11,682**	**$20,728,261,881**
	All Categories EF3	**11,682**	**$24,087,796,533**
	All Categories EF4	**11,682**	**$24,526,209,007**

Source: GIS Analysis

The following tables provide counts and estimated damages for High Potential Loss Properties by jurisdiction in the plan. Because there is a large number of categories and events, the table is sorted by category and then by event. Totals across all categories are shown at the bottom of each table.

Table 6-148: High Potential Loss Properties Exposed to the Tornado - City Of Fayetteville

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	EF0	306	$53,887,500
	Commercial EF1	306	$318,349,352
	Commercial EF2	306	$834,651,895
	Commercial EF3	306	$1,180,712,033

	Commercial EF4	306	$1,244,427,502
Government	EF0	177	$22,034,060
	Government EF1	177	$129,329,591
	Government EF2	177	$418,247,922
	Government EF3	177	$654,139,429
	Government EF4	177	$697,902,892
Industrial	EF0	12	$4,246,804
	Industrial EF1	12	$30,653,922
	Industrial EF2	12	$69,269,228
	Industrial EF3	12	$74,263,372
	Industrial EF4	12	$74,263,372
Religious	EF0	88	$4,389,473
	Religious EF1	88	$35,337,936
	Religious EF2	88	$127,872,688
	Religious EF3	88	$203,395,721
	Religious EF4	88	$210,694,696
Residential	EF0	227	$11,381,350
	Residential EF1	227	$71,739,590

	Residential EF2	227	$185,516,839
	Residential EF3	227	$340,774,719
	Residential EF4	227	$369,899,850
Utilities	EF0	40	$691,595,126
	Utilities EF1	40	$4,992,013,505
	Utilities EF2	40	$11,280,544,293
	Utilities EF3	40	$12,093,844,330
	Utilities EF4	40	$12,093,844,330
All Categories	**EF0**	**850**	**$787,534,313**
	All Categories EF1	**850**	**$5,577,423,896**
	All Categories EF2	**850**	**$12,916,102,865**
	All Categories EF3	**850**	**$14,547,129,604**
	All Categories EF4	**850**	**$14,691,032,642**

Source: GIS Analysis

Table 6-149: High Potential Loss Properties Exposed to the Tornado - Cumberland County (Unincorporated Area)

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	EF0	128	$47,889,500
	Commercial EF1	128	$285,479,298

	Commercial EF2	128	$664,118,605
	Commercial EF3	128	$905,245,737
	Commercial EF4	128	$948,431,269
Government	EF0	62	$14,994,013
	Government EF1	62	$69,668,754
	Government EF2	62	$199,272,598
	Government EF3	62	$305,143,701
	Government EF4	62	$337,643,108
Industrial	EF0	42	$22,687,136
	Industrial EF1	42	$163,758,364
	Industrial EF2	42	$370,047,774
	Industrial EF3	42	$396,727,326
	Industrial EF4	42	$396,727,326
Religious	EF0	49	$2,748,517
	Religious EF1	49	$22,127,242
	Religious EF2	49	$80,068,906
	Religious EF3	49	$127,358,493
	Religious EF4	49	$131,928,827

Residential	EF0	618	$50,454,437
	Residential EF1	618	$389,158,920
	Residential EF2	618	$1,316,911,786
	Residential EF3	618	$2,112,059,994
	Residential EF4	618	$2,198,546,995
Utilities	EF0	51	$146,087,183
	Utilities EF1	51	$1,054,474,161
	Utilities EF2	51	$2,382,814,564
	Utilities EF3	51	$2,554,609,747
	Utilities EF4	51	$2,554,609,747
All Categories	**EF0**	**950**	**$284,860,786**
	All Categories EF1	**950**	**$1,984,666,739**
	All Categories EF2	**950**	**$5,013,234,233**
	All Categories EF3	**950**	**$6,401,144,998**
	All Categories EF4	**950**	**$6,567,887,272**

Source: GIS Analysis

Table 6-150: High Potential Loss Properties Exposed to the Tornado - Town Of Eastover

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	EF0	5	$806,629
	Commercial EF1	5	$6,017,205
	Commercial EF2	5	$12,675,305
	Commercial EF3	5	$17,711,893
	Commercial EF4	5	$18,150,924
Government	EF0	5	$407,852
	Government EF1	5	$1,818,603
	Government EF2	5	$5,064,624
	Government EF3	5	$7,716,584
	Government EF4	5	$8,611,933
Industrial	EF0	1	$65,375
	Industrial EF1	1	$471,882
	Industrial EF2	1	$1,066,321
	Industrial EF3	1	$1,143,200
	Industrial EF4	1	$1,143,200
Religious	EF0	2	$75,439

	Religious EF1	2	$607,328
	Religious EF2	2	$2,197,656
	Religious EF3	2	$3,495,616
	Religious EF4	2	$3,621,058
All Categories	**EF0**	**13**	**$1,355,295**
	All Categories EF1	**13**	**$8,915,018**
	All Categories EF2	**13**	**$21,003,906**
	All Categories EF3	**13**	**$30,067,293**
	All Categories EF4	**13**	**$31,527,115**

Source: GIS Analysis

Table 6-151: High Potential Loss Properties Exposed to the Tornado - Town Of Falcon

Category	Event	Number of Buildings At Risk	Estimated Damages
Religious	EF0	4	$102,962
	Religious EF1	4	$828,906
	Religious EF2	4	$2,999,451
	Religious EF3	4	$4,770,959
	Religious EF4	4	$4,942,168
Residential	EF0	2	$45,019
	Residential EF1	2	$362,428

	Residential EF2	2	$1,311,469
	Residential EF3	2	$2,086,037
	Residential EF4	2	$2,160,896
All Categories	**EF0**	**6**	**$147,981**
	All Categories EF1	**6**	**$1,191,334**
	All Categories EF2	**6**	**$4,310,920**
	All Categories EF3	**6**	**$6,856,996**
	All Categories EF4	**6**	**$7,103,064**

Source: GIS Analysis

Table 6-152: High Potential Loss Properties Exposed to the Tornado - Town Of Hope Mills

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	EF0	8	$2,402,688
	Commercial EF1	8	$16,671,490
	Commercial EF2	8	$38,977,462
	Commercial EF3	8	$51,746,399
	Commercial EF4	8	$54,398,866
Government	EF0	13	$3,259,028
	Government EF1	13	$13,953,813

	Government EF2	13	$37,779,597
	Government EF3	13	$57,247,790
	Government EF4	13	$64,487,981
Religious	EF0	10	$429,617
	Religious EF1	10	$3,458,682
	Religious EF2	10	$12,515,471
	Religious EF3	10	$19,907,248
	Religious EF4	10	$20,621,632
Residential	EF0	3	$205,197
	Residential EF1	3	$1,233,846
	Residential EF2	3	$3,470,448
	Residential EF3	3	$6,889,973
	Residential EF4	3	$7,555,860
Utilities	EF0	1	$28,592,857
	Utilities EF1	1	$206,386,545
	Utilities EF2	1	$466,375,455
	Utilities EF3	1	$500,000,000
	Utilities EF4	1	$500,000,000

All Categories	**EF0**	**35**	**$34,889,387**
	All Categories EF1	**35**	**$241,704,376**
	All Categories EF2	**35**	**$559,118,433**
	All Categories EF3	**35**	**$635,791,410**
	All Categories EF4	**35**	**$647,064,339**

Source: GIS Analysis

Table 6-153: High Potential Loss Properties Exposed to the Tornado - Town Of Linden

Category	Event	Number of Buildings At Risk	Estimated Damages
Government	EF0	1	$75,605
	Government EF1	1	$316,450
	Government EF2	1	$842,653
	Government EF3	1	$1,272,654
	Government EF4	1	$1,441,693
All Categories	**EF0**	**1**	**$75,605**
	All Categories EF1	**1**	**$316,450**
	All Categories EF2	**1**	**$842,653**
	All Categories EF3	**1**	**$1,272,654**
	All Categories EF4	**1**	**$1,441,693**

Source: GIS Analysis

Table 6-154: High Potential Loss Properties Exposed to the Tornado - Town Of Spring Lake

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	EF0	16	$3,356,794
	Commercial EF1	16	$20,123,970
	Commercial EF2	16	$46,387,208
	Commercial EF3	16	$66,777,575
	Commercial EF4	16	$70,342,631
Government	EF0	11	$1,217,274
	Government EF1	11	$6,513,353
	Government EF2	11	$20,167,552
	Government EF3	11	$31,317,584
	Government EF4	11	$33,828,914
Religious	EF0	8	$280,908
	Religious EF1	8	$2,261,483
	Religious EF2	8	$8,183,327
	Religious EF3	8	$13,016,491
	Religious EF4	8	$13,483,596
Residential	EF0	7	$462,974

	Residential EF1	7	$3,259,738
	Residential EF2	7	$10,683,865
	Residential EF3	7	$18,525,466
	Residential EF4	7	$19,658,333
All Categories	**EF0**	**42**	**$5,317,950**
	All Categories EF1	**42**	**$32,158,544**
	All Categories EF2	**42**	**$85,421,952**
	All Categories EF3	**42**	**$129,637,116**
	All Categories EF4	**42**	**$137,313,474**

Source: GIS Analysis

Table 6-155: High Potential Loss Properties Exposed to the Tornado - Town Of Stedman

Category	Event	Number of Buildings At Risk	Estimated Damages
Government	EF0	4	$603,751
	Government EF1	4	$2,527,036
	Government EF2	4	$6,729,062
	Government EF3	4	$10,162,869
	Government EF4	4	$11,512,745
Religious	EF0	2	$62,567

	Religious EF1	2	$503,699
	Religious EF2	2	$1,822,668
	Religious EF3	2	$2,899,156
	Religious EF4	2	$3,003,194
All Categories	**EF0**	**6**	**$666,318**
	All Categories EF1	**6**	**$3,030,735**
	All Categories EF2	**6**	**$8,551,730**
	All Categories EF3	**6**	**$13,062,025**
	All Categories EF4	**6**	**$14,515,939**

Source: GIS Analysis

Table 6-156: High Potential Loss Properties Exposed to the Tornado - Town Of Wade

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	EF0	1	$123,697
	Commercial EF1	1	$500,637
	Commercial EF2	1	$930,222
	Commercial EF3	1	$1,170,920
	Commercial EF4	1	$1,212,333
Government	EF0	1	$23,232

	Government EF1	1	$187,029
	Government EF2	1	$676,777
	Government EF3	1	$1,076,490
	Government EF4	1	$1,115,120
All Categories	**EF0**	**2**	**$146,929**
	All Categories EF1	**2**	**$687,666**
	All Categories EF2	**2**	**$1,606,999**
	All Categories EF3	**2**	**$2,247,410**
	All Categories EF4	**2**	**$2,327,453**

Source: GIS Analysis

Table 6-157: High Potential Loss Properties Exposed to the Tornado - City Of Raeford

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	EF0	14	$2,350,353
	Commercial EF1	14	$11,888,730
	Commercial EF2	14	$29,084,760
	Commercial EF3	14	$40,977,508
	Commercial EF4	14	$42,980,269
Government	EF0	26	$2,330,421
	Government EF1	26	$12,116,499

	Government EF2	26	$36,967,011
	Government EF3	26	$57,261,182
	Government EF4	26	$62,121,360
Industrial	EF0	7	$6,670,095
	Industrial EF1	7	$48,145,517
	Industrial EF2	7	$108,795,307
	Industrial EF3	7	$116,639,186
	Industrial EF4	7	$116,639,186
Religious	EF0	12	$506,621
	Religious EF1	12	$4,078,609
	Religious EF2	12	$14,758,719
	Religious EF3	12	$23,475,383
	Religious EF4	12	$24,317,811
Residential	EF0	1	$29,575
	Residential EF1	1	$177,832
	Residential EF2	1	$500,188
	Residential EF3	1	$993,036
	Residential EF4	1	$1,089,009

Utilities	EF0	1	$571,857
	Utilities EF1	1	$4,127,731
	Utilities EF2	1	$9,327,509
	Utilities EF3	1	$10,000,000
	Utilities EF4	1	$10,000,000
All Categories	**EF0**	**61**	**$12,458,922**
	All Categories EF1	**61**	**$80,534,918**
	All Categories EF2	**61**	**$199,433,494**
	All Categories EF3	**61**	**$249,346,295**
	All Categories EF4	**61**	**$257,147,635**

Source: GIS Analysis

Table 6-158: High Potential Loss Properties Exposed to the Tornado - Hoke County (Unincorporated Area)

Category	Event	Number of Buildings At Risk	Estimated Damages
Agricultural	EF0	1	$149,752
	Agricultural EF1	1	$964,588
	Agricultural EF2	1	$1,143,345
	Agricultural EF3	1	$1,143,345
	Agricultural EF4	1	$1,143,345

Commercial	EF0	19	$3,423,551
	Commercial EF1	19	$20,996,845
	Commercial EF2	19	$49,715,657
	Commercial EF3	19	$68,133,089
	Commercial EF4	19	$71,946,907
Government	EF0	33	$7,031,722
	Government EF1	33	$33,406,105
	Government EF2	33	$96,866,657
	Government EF3	33	$148,703,178
	Government EF4	33	$163,835,621
Industrial	EF0	2	$269,828
	Industrial EF1	2	$1,947,652
	Industrial EF2	2	$4,401,146
	Industrial EF3	2	$4,718,458
	Industrial EF4	2	$4,718,458
Religious	EF0	79	$4,166,082
	Religious EF1	79	$33,539,504
	Religious EF2	79	$121,364,939

	Religious EF3	79	$193,044,424
	Religious EF4	79	$199,971,936
Utilities	EF0	4	$3,431,143
	Utilities EF1	4	$24,766,385
	Utilities EF2	4	$55,965,055
	Utilities EF3	4	$60,000,000
	Utilities EF4	4	$60,000,000
All Categories	**EF0**	**138**	**$18,472,078**
	All Categories EF1	**138**	**$115,621,079**
	All Categories EF2	**138**	**$329,456,799**
	All Categories EF3	**138**	**$475,742,494**
	All Categories EF4	**138**	**$501,616,267**

Source: GIS Analysis

6.3.9 Wildfire

The following tables provide counts and values by jurisdiction relevant to Wildfire hazard vulnerability in the Cumberland-Hoke Regional HMP Area.

Table 6-159: Population Impacted by the Wildfire Hazard Wildfire

Jurisdiction	Total Population	Population At Risk		All Elderly Population	Elderly Population At Risk		All Children Population	Children At Risk	
		Number	Percent		Number	Percent		Number	Percent
Cumberland									
City Of Fayetteville	183,238	77,352	42.2%	17,329	7,315	42.2%	15,228	6,428	42.2%
Cumberland County (Unincorporated Area)	107,594	66,166	61.5%	10,175	6,257	61.5%	8,942	5,499	61.5%
Town Of Eastover	3,591	781	21.7%	340	74	21.8%	298	65	21.8%
Town Of Falcon	286	0	0%	27	0	0%	24	0	0%
Town Of Godwin	141	127	90.1%	13	12	92.3%	12	11	91.7%
Town Of Hope Mills	14,596	11,332	77.6%	1,380	1,071	77.6%	1,213	942	77.7%
Town Of Linden	104	11	10.6%	10	1	10%	9	1	11.1%
Town Of Spring Lake	8,277	4,472	54%	783	423	54%	688	372	54.1%
Town Of Stedman	983	569	57.9%	93	54	58.1%	82	48	58.5%
Town Of Wade	527	200	38%	50	19	38%	44	17	38.6%
Subtotal Cumberland	**319,337**	**161,010**	**50.4%**	**30200**	**15226**	**50.4%**	**26540**	**13383**	**50.4%**
Hoke									
City Of Raeford	5,964	4,722	79.2%	443	351	79.2%	582	461	79.2%
Hoke County (Unincorporated Area)	40,929	35,499	86.7%	3,040	2,637	86.7%	3,994	3,464	86.7%
Subtotal Hoke	**46,893**	**40,221**	**85.8%**	**3483**	**2988**	**85.8%**	**4576**	**3925**	**85.8%**
TOTAL PLAN	**366,230**	**201,231**	**54.9%**	**33683**	**18214**	**54.1%**	**31116**	**17308**	**55.6%**

Source: GIS Analysis

Table 6-160: Buildings Impacted by the Wildfire Hazard Wildfire

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings At Risk		Residential Buildings At Risk			Commercial Buildings At Risk			Public Buildings At Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Cumberland															
City Of Fayetteville	70,117	9,767	13.9 %	27,370	39%	$4,130,098,023	1,090	1.6%	$1,068,238,236	380	0.5%	$457,230,798	28,840	41.1 %	$5,655,567,056
Cumberland County (Unincorporated Area)	46,300	7,219	15.6 %	26,163	56.5 %	$3,036,382,959	1,489	3.2%	$1,022,109,534	393	0.8%	$684,963,447	28,045	60.6 %	$4,743,455,940
Town Of Eastover	1,855	0	0%	376	20.3 %	$50,318,848	15	0.8%	$16,535,222	10	0.5%	$7,515,797	401	21.6 %	$74,369,866
Town Of Falcon	169	0	0%	0	0%	$0	0	0%	$0	0	0%	$0	0	0%	$0
Town Of Godwin	82	73	89%	65	79.3 %	$6,233,297	6	7.3%	$525,479	3	3.7%	$1,195,229	74	90.2 %	$7,954,005
Town Of Hope Mills	5,519	794	14.4 %	4,036	73.1 %	$520,433,260	149	2.7%	$152,280,295	70	1.3%	$98,342,662	4,255	77.1 %	$771,056,217
Town Of Linden	106	13	12.3 %	8	7.5%	$780,576	5	4.7%	$422,307	0	0%	$0	13	12.3 %	$1,202,883
Town Of Spring Lake	2,998	595	19.8 %	1,472	49.1 %	$198,995,250	83	2.8%	$87,235,142	26	0.9%	$44,161,021	1,581	52.7 %	$330,391,413
Town Of Stedman	486	245	50.4 %	241	49.6 %	$30,113,764	19	3.9%	$7,944,045	12	2.5%	$10,041,159	272	56%	$48,098,967
Town Of Wade	315	123	39%	102	32.4 %	$7,136,260	16	5.1%	$4,230,620	5	1.6%	$2,200,010	123	39%	$13,566,890
Subtotal Cumberland	**127,947**	**18,829**	**14.7 %**	**59,833**	**46.8 %**	**$7,980,492,237**	**2,872**	**2.2%**	**$2,359,520,880**	**899**	**0.7%**	**$1,305,650,123**	**63,604**	**49.7 %**	**$11,645,663,237**
Hoke															
City Of Raeford	3,011	2,105	69.9 %	1,985	65.9 %	$274,413,271	236	7.8%	$226,156,868	126	4.2%	$104,485,522	2,347	77.9 %	$605,055,662
Hoke County (Unincorporated Area)	18,181	9,679	53.2 %	14,629	80.5 %	$1,753,477,234	800	4.4%	$303,138,588	200	1.1%	$364,681,081	15,629	86%	$2,421,296,903
Subtotal Hoke	**21,192**	**11,784**	**55.6 %**	**16,614**	**78.4 %**	**$2,027,890,505**	**1,036**	**4.9%**	**$529,295,456**	**326**	**1.5%**	**$469,166,603**	**17,976**	**84.8 %**	**$3,026,352,565**

TOTAL PLAN	**149,139**	**30,613**	**20.5%**	**76,447**	**51.3%**	**$10,008,382,742**	**3,908**	**2.6%**	**$2,888,816,336**	**1,225**	**0.8%**	**$1,774,816,726**	**81,580**	**54.7%**	**$14,672,015,802**

Source: GIS Analysis

The following tables provide counts and estimated damages for CIKR buildings by jurisdiction in the plan. Because there is a large number of sectors and events, the table is sorted by sector and then by event. Totals across all sectors are shown at the bottom of each table.

Table 6-161: Critical Facilities Exposed to the Wildfire - City Of Fayetteville

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	Wildfire Hazard	26	$22,033,869
Commercial Facilities	Wildfire Hazard	743	$770,625,841
Communications	Wildfire Hazard	3	$13,283,645
Critical Manufacturing	Wildfire Hazard	130	$160,930,600
Emergency Services	Wildfire Hazard	2	$1,866,669
Energy	Wildfire Hazard	22	$6,509,453,393
Food and Agriculture	Wildfire Hazard	63	$6,322,834
Government Facilities	Wildfire Hazard	190	$274,179,288
Healthcare and Public Health	Wildfire Hazard	88	$124,593,083
Transportation Systems	Wildfire Hazard	224	$145,391,405
All Categories	**Wildfire Hazard**	**1,491**	**$8,028,680,627**

Source: GIS Analysis

Table 6-162: Critical Facilities Exposed to the Wildfire - Cumberland County (Unincorporated Area)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	Wildfire Hazard	3	$5,363,549
Commercial Facilities	Wildfire Hazard	770	$717,931,535
Critical Manufacturing	Wildfire Hazard	176	$263,270,812
Emergency Services	Wildfire Hazard	8	$7,156,294
Energy	Wildfire Hazard	24	$1,294,105,892
Food and Agriculture	Wildfire Hazard	536	$47,092,058
Government Facilities	Wildfire Hazard	139	$279,168,985
Healthcare and Public Health	Wildfire Hazard	17	$8,074,826

Transportation Systems	Wildfire Hazard	178	$149,434,469
All Categories	**Wildfire Hazard**	**1,851**	**$2,771,598,420**

Source: GIS Analysis

Table 6-163: Critical Facilities Exposed to the Wildfire - Town Of Eastover

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	Wildfire Hazard	8	$14,979,244
Critical Manufacturing	Wildfire Hazard	2	$739,856
Energy	Wildfire Hazard	1	$892,299
Food and Agriculture	Wildfire Hazard	5	$173,016
Government Facilities	Wildfire Hazard	8	$6,336,490
Transportation Systems	Wildfire Hazard	1	$930,113
All Categories	**Wildfire Hazard**	**25**	**$24,051,018**

Source: GIS Analysis

Table 6-164: Critical Facilities Exposed to the Wildfire - Town Of Godwin

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	Wildfire Hazard	5	$1,473,367
Critical Manufacturing	Wildfire Hazard	1	$139,689
Food and Agriculture	Wildfire Hazard	3	$107,652
All Categories	**Wildfire Hazard**	**9**	**$1,720,708**

Source: GIS Analysis

Table 6-165: Critical Facilities Exposed to the Wildfire - Town Of Hope Mills

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	Wildfire Hazard	4	$2,113,484
Commercial Facilities	Wildfire Hazard	136	$131,957,587
Critical Manufacturing	Wildfire Hazard	6	$24,403,314
Emergency Services	Wildfire Hazard	2	$2,226,109
Energy	Wildfire Hazard	2	$500,236,778

Government Facilities	Wildfire Hazard	44	$70,934,045
Healthcare and Public Health	Wildfire Hazard	12	$7,808,636
Transportation Systems	Wildfire Hazard	14	$10,943,004
All Categories	**Wildfire Hazard**	**220**	**$750,622,957**

Source: GIS Analysis

Table 6-166: Critical Facilities Exposed to the Wildfire - Town Of Linden

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	Wildfire Hazard	2	$163,837
Food and Agriculture	Wildfire Hazard	3	$258,470
All Categories	**Wildfire Hazard**	**5**	**$422,307**

Source: GIS Analysis

Table 6-167: Critical Facilities Exposed to the Wildfire - Town Of Spring Lake

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	Wildfire Hazard	2	$755,511
Commercial Facilities	Wildfire Hazard	79	$66,310,096
Critical Manufacturing	Wildfire Hazard	4	$907,362
Emergency Services	Wildfire Hazard	2	$5,172,716
Government Facilities	Wildfire Hazard	10	$17,083,059
Healthcare and Public Health	Wildfire Hazard	4	$2,120,025
Transportation Systems	Wildfire Hazard	7	$27,837,126
All Categories	**Wildfire Hazard**	**108**	**$120,185,895**

Source: GIS Analysis

Table 6-168: Critical Facilities Exposed to the Wildfire - Town Of Stedman

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	Wildfire Hazard	21	$9,421,150
Critical Manufacturing	Wildfire Hazard	3	$2,222,556
Government Facilities	Wildfire Hazard	3	$4,369,670

Healthcare and Public Health	Wildfire Hazard	2	$865,506
Transportation Systems	Wildfire Hazard	2	$1,106,321
All Categories	**Wildfire Hazard**	**31**	**$17,985,203**

Source: GIS Analysis

Table 6-169: Critical Facilities Exposed to the Wildfire - Town Of Wade

Sector	Event	Number of Buildings At Risk	Estimated Damages
Commercial Facilities	Wildfire Hazard	7	$2,522,214
Critical Manufacturing	Wildfire Hazard	5	$2,219,329
Food and Agriculture	Wildfire Hazard	6	$212,726
Government Facilities	Wildfire Hazard	1	$166,784
Healthcare and Public Health	Wildfire Hazard	1	$1,220,774
Transportation Systems	Wildfire Hazard	1	$88,803
All Categories	**Wildfire Hazard**	**21**	**$6,430,630**

Source: GIS Analysis

Table 6-170: Critical Facilities Exposed to the Wildfire - City Of Raeford

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	Wildfire Hazard	4	$2,420,360
Commercial Facilities	Wildfire Hazard	187	$110,645,161
Critical Manufacturing	Wildfire Hazard	38	$109,281,897
Emergency Services	Wildfire Hazard	4	$4,114,516
Energy	Wildfire Hazard	3	$11,144,412
Food and Agriculture	Wildfire Hazard	15	$2,678,275
Government Facilities	Wildfire Hazard	71	$62,563,505
Healthcare and Public Health	Wildfire Hazard	21	$27,772,112
Postal and Shipping	Wildfire Hazard	1	$800,000
Transportation Systems	Wildfire Hazard	20	$10,022,153
Water	Wildfire Hazard	13	$600,000

All Categories	**Wildfire Hazard**	**377**	**$342,042,391**

Source: GIS Analysis

Table 6-171: Critical Facilities Exposed to the Wildfire - Hoke County (Unincorporated Area)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	Wildfire Hazard	1	$712,644
Commercial Facilities	Wildfire Hazard	296	$342,031,598
Critical Manufacturing	Wildfire Hazard	40	$29,600,430
Emergency Services	Wildfire Hazard	5	$9,672,378
Energy	Wildfire Hazard	1	$26,874
Food and Agriculture	Wildfire Hazard	524	$73,382,754
Government Facilities	Wildfire Hazard	66	$140,357,975
Healthcare and Public Health	Wildfire Hazard	2	$140,790
Postal and Shipping	Wildfire Hazard	3	$2,400,000
Transportation Systems	Wildfire Hazard	58	$59,468,899
Water	Wildfire Hazard	4	$49,707,290
All Categories	**Wildfire Hazard**	**1,000**	**$707,501,632**

Source: GIS Analysis

The following table provides counts and estimated damages for CIKR buildings across all jurisdictions, by sector, in the plan. Because there is a large number of sectors and events, the table is sorted by sector and then by event.

Table 6-172: Critical Facilities Exposed to the Wildfire (by Sector)

Sector	Event	Number of Buildings At Risk	Estimated Damages
Banking and Finance	Wildfire Hazard	40	$33,399,417
Commercial Facilities	Wildfire Hazard	2,254	$2,168,061,630
Communications	Wildfire Hazard	3	$13,283,645
Critical Manufacturing	Wildfire Hazard	405	$593,715,845
Emergency Services	Wildfire Hazard	23	$30,208,682

Energy	Wildfire Hazard	53	$8,315,859,648
Food and Agriculture	Wildfire Hazard	1,155	$130,227,785
Government Facilities	Wildfire Hazard	532	$855,159,801
Healthcare and Public Health	Wildfire Hazard	147	$172,595,752
Postal and Shipping	Wildfire Hazard	4	$3,200,000
Transportation Systems	Wildfire Hazard	505	$405,222,293
Water	Wildfire Hazard	17	$50,307,290
All Categories	**Wildfire Hazard**	**5,138**	**$12,771,241,788**

Source: GIS Analysis

The following tables provide counts and estimated damages for High Potential Loss Properties by jurisdiction in the plan. Because there is a large number of categories and events, the table is sorted by category and then by event. Totals across all categories are shown at the bottom of each table.

Table 6-173: High Potential Loss Properties Exposed to the Wildfire - City Of Fayetteville

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	Wildfire Hazard	95	$411,463,828
Government	Wildfire Hazard	62	$235,123,144
Industrial	Wildfire Hazard	4	$55,227,820
Religious	Wildfire Hazard	37	$98,487,736
Residential	Wildfire Hazard	122	$201,215,272
Utilities	Wildfire Hazard	14	$6,500,000,000
All Categories	**Wildfire Hazard**	**334**	**$7,501,517,800**

Source: GIS Analysis

Table 6-174: High Potential Loss Properties Exposed to the Wildfire - Cumberland County (Unincorporated Area)

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	Wildfire Hazard	41	$268,354,840
Government	Wildfire Hazard	39	$253,470,694
Industrial	Wildfire Hazard	14	$264,306,173

Religious	Wildfire Hazard	30	$94,994,376
Residential	Wildfire Hazard	42	$251,826,605
Utilities	Wildfire Hazard	21	$1,293,325,200
All Categories	**Wildfire Hazard**	**187**	**$2,426,277,888**

Source: GIS Analysis

Table 6-175: High Potential Loss Properties Exposed to the Wildfire - Town Of Eastover

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	Wildfire Hazard	2	$11,981,507
Government	Wildfire Hazard	3	$5,551,543
All Categories	**Wildfire Hazard**	**5**	**$17,533,050**

Source: GIS Analysis

Table 6-176: High Potential Loss Properties Exposed to the Wildfire - Town Of Hope Mills

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	Wildfire Hazard	8	$54,728,869
Government	Wildfire Hazard	13	$66,314,335
Religious	Wildfire Hazard	9	$19,538,926
Residential	Wildfire Hazard	3	$7,555,860
Utilities	Wildfire Hazard	1	$500,000,000
All Categories	**Wildfire Hazard**	**34**	**$648,137,990**

Source: GIS Analysis

Table 6-177: High Potential Loss Properties Exposed to the Wildfire - Town Of Spring Lake

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	Wildfire Hazard	11	$61,148,966
Government	Wildfire Hazard	7	$20,795,139
Religious	Wildfire Hazard	4	$6,252,486
Residential	Wildfire Hazard	7	$19,658,333

All Categories	**Wildfire Hazard**	**29**	**$107,854,924**

Source: GIS Analysis

Table 6-178: High Potential Loss Properties Exposed to the Wildfire - Town Of Stedman

Category	Event	Number of Buildings At Risk	Estimated Damages
Government	Wildfire Hazard	2	$4,202,804
Religious	Wildfire Hazard	2	$3,003,194
All Categories	**Wildfire Hazard**	**4**	**$7,205,998**

Source: GIS Analysis

Table 6-179: High Potential Loss Properties Exposed to the Wildfire - Town Of Wade

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	Wildfire Hazard	1	$1,220,774
All Categories	**Wildfire Hazard**	**1**	**$1,220,774**

Source: GIS Analysis

Table 6-180: High Potential Loss Properties Exposed to the Wildfire - City Of Raeford

Category	Event	Number of Buildings At Risk	Estimated Damages
Commercial	Wildfire Hazard	9	$35,818,538
Government	Wildfire Hazard	18	$45,237,905
Industrial	Wildfire Hazard	6	$100,439,193
Religious	Wildfire Hazard	9	$15,798,076
Residential	Wildfire Hazard	1	$1,089,009
Utilities	Wildfire Hazard	1	$10,000,000
All Categories	**Wildfire Hazard**	**44**	**$208,382,721**

Source: GIS Analysis

Table 6-181: High Potential Loss Properties Exposed to the Wildfire - Hoke County (Unincorporated Area)

Category	Event	Number of Buildings At Risk	Estimated Damages
Agricultural	Wildfire Hazard	1	$1,143,345
Commercial	Wildfire Hazard	19	$72,616,338
Government	Wildfire Hazard	23	$137,650,113

Industrial	Wildfire Hazard	2	$4,718,458
Religious	Wildfire Hazard	70	$176,512,639
Utilities	Wildfire Hazard	2	$49,491,829
All Categories	**Wildfire Hazard**	**117**	**$442,132,722**

Source: GIS Analysis

6.3.10 Winter Storm

Vulnerability—Moderate Risk

Based on historical records, Cumberland and Hoke Counties have experienced 30 and 29 winter storm events since 1996, respectively. These events are reported to have caused one death due to icy road conditions. There are no historical records for property or crop damage.

A qualitative factor in terms of vulnerability is a general lack of awareness on the part of county residents in preparing for and responding to winter storm conditions in a manner that will minimize the danger to themselves and others. This lack of awareness is especially apparent when driving/roadway conditions catch motorists off-guard.

Potential losses associated with winter storms include the cost of the removal of snow from roadways, debris clean-up, and some indirect losses from power outages, etc. All future structures and infrastructure in the region will be vulnerable to winter storms.

6.4 Priority Risk Index

The purpose of the PRI is to categorize and prioritize all potential hazards for the Cumberland and Hoke County region as high, moderate, or low risk. The summary hazard classifications generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes

The HMPC considered other conditions that affect vulnerability, such as climate variability, population increases, infrastructure expansion, and economic shifts; these changes in development did not affect any of the jurisdictions' overall vulnerability.

The application of the PRI results in numerical values that allow identified hazards to be ranked against one another (the higher the PRI value, the greater the hazard risk). PRI values are obtained by assigning varying degrees of risk to five categories for each hazard (probability, impact, spatial extent, warning time, and duration). Each degree of risk has been assigned a value (1 to 4) and weighting factor as summarized below in ***Table 6-182***. The sum of all five categories equals the final PRI value, demonstrated in the equation below (the highest possible PRI value is 4.0).

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

Table 6-182: Priority Risk Index for Cumberland and Hoke County Region

RISK ASSESSMENT CATEGORY	LEVEL	DEGREE OF RISK CRITERIA	INDEX	WEIGHT
PROBABILITY **What is the likelihood of a hazard event occurring in a given year?**	**UNLIKELY**	LESS THAN 1% ANNUAL PROBABILITY	**1**	**30%**
	POSSIBLE	BETWEEN 1 & 10% ANNUAL PROBABILITY	**2**	
	LIKELY	BETWEEN 10 &100% ANNUAL PROBABILITY	**3**	
	HIGHLY LIKELY	100% ANNUAL PROBABILTY	**4**	
IMPACT **In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?**	**MINOR**	VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES.	**1**	**30%**
	LIMITED	MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR > 1 DAY.	**2**	
	CRITICAL	MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR > 1 WEEK.	**3**	
	CATASTROPHIC	HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES > 30 DAYS.	**4**	
SPATIAL EXTENT **How large of an area could be impacted by a hazard event? Are impacts localized or regional?**	**NEGLIGIBLE**	LESS THAN 1% OF AREA AFFECTED	**1**	**20%**
	SMALL	BETWEEN 1 & 10% OF AREA AFFECTED	**2**	
	MODERATE	BETWEEN 10 & 50% OF AREA AFFECTED	**3**	
	LARGE	BETWEEN 50 & 100% OF AREA AFFECTED	**4**	
WARNING TIME **Is there usually some lead time associated with the hazard event? Have warning measures been implemented?**	**MORE THAN 24 HRS**	SELF DEFINED	**1**	**10%**
	12 TO 24 HRS	SELF DEFINED	**2**	
	6 TO 12 HRS	SELF DEFINED	**3**	
	LESS THAN 6 HRS	SELF DEFINED	**4**	
DURATION **How long does the hazard event usually last?**	**LESS THAN 6 HRS**	SELF DEFINED	**1**	**10%**
	LESS THAN 24 HRS	SELF DEFINED	**2**	
	LESS THAN 1 WEEK	SELF DEFINED	**3**	

	MORE THAN 1 WEEK	SELF DEFINED	**4**	

6.4.1 Priority Risk Index Results

Table 6-183 summarizes the degree of risk assigned to each identified hazard using the PRI method described above.

Table 6-183: Summary of PRI Results

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Dam Failure	Likely	Limited	Small	Less than 6 hrs	Less than 6 hrs	2.4
Drought	Highly Likely	Minor	Large	More than 24 hrs	More than 1 week	2.8
Earthquake	Possible	Limited	Moderate	Less than 6 hrs	Less than 6 hrs	2.3
Extreme Heat	Possible	Minor	Large	More than 24 hrs	Less than 1 week	2.1
Hurricane/Tropical Storm	Likely	Critical	Large	More than 24 hrs	Less than 24 hrs	2.9
Inland Flooding:	Possible	Critical	Moderate	6 to 12 hours	Less than 1 week	2.7
Severe Weather (thunderstorm wind, lightning, & hail)	Highly Likely	Critical	Moderate	6 to 12 hours	Less than 6 hrs	3.1
Tornado	Likely	Critical	Small	Less than 6 hrs	Less than 6 hrs	2.7
Wildfire	Highly Likely	Limited	Small	Less than 6 hrs	Less than 1 week	2.9
Winter Storm	Highly Likely	Minor	Moderate	More than 24 hrs	Less than 1 week	2.5

6.4.2 Final Risk Classifications

The results from the PRI have been classified into three categories based on the assigned risk value:

- **Low Risk** - Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium Risk** - Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High Risk** - Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread.

Table 6-184: Summary of Hazard Risk Classification

High Risk (> 2.5)	Severe Weather Hurricane/Tropical Storm Wildfire Drought Inland Flooding Tornado
Moderate Risk (2.0 – 2.5)	Dam Failure Winter Storm Earthquake Extreme Heat
Low Risk (< 2.0)	

SECTION 7: CAPABILITY ASSESSMENT

Section 7 discusses the mitigation capabilities, including planning, programs, policies and land management tools, typically used by local jurisdictions to implement hazard mitigation activities. It consists of the following subsections:

- 7.1 Overview of Capability Assessment
- 7.2 Planning and Regulatory Capability
- 7.3 Floodplain Management
- 7.4 Administrative and Technical Capability
- 7.5 Fiscal Capability
- 7.6 Conclusion on Local Capabilities

7.1 Overview of Capability Assessment

The purpose of conducting a capability assessment is to determine the ability of each local jurisdiction to implement feasible mitigation actions based on an understanding of the capacity of those agencies or departments tasked with their implementation. A capability assessment should also identify opportunities for establishing or enhancing specific mitigation policies or programs. The process of conducting a capability assessment includes developing an inventory of relevant plans, ordinances, or programs already in place; as well as assessing the local jurisdiction's resources and ability to implement existing and/or new policies. Conclusions drawn from the capability assessment should identify any existing gaps or weaknesses in existing programs and policies as well as positive measures already in place which can and should be supported through future mitigation efforts.

A capability assessment survey was completed by each participating jurisdiction which included regulatory, administrative, technical, and fiscal capabilities.

7.2 Planning and Regulatory Capability

Planning and regulatory capabilities include plans, ordinances and programs that guide development and growth within the community. Table 7.1 lists local plans, ordinances and programs currently in place for all participating jurisdictions.

Table 7-1. Planning and Regulatory Capability by Jurisdiction

Regulatory Tool (ordinances, codes, plans)	Cumberland Co	Fayetteville	Eastover	Falcon	Godwin	Hope Mills	Linden	Spring Lake	Stedman	Wade	Hoke Co	Raeford
Comprehensive Plan	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Zoning Ordinance	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y
Subdivision Ordinance	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Floodplain Ordinance	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Stormwater Ordinance	N	Y	N	N	N	Y	N	Y	N	N	Y	Y
Erosion, Sedimentation, and Pollution Control Ordinance	N	N	N	N	N	Y	N	N	N	N	N	N
Building Code	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BCEGS Rating	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Stormwater Management Program	N	Y	N	N	N	Y	N	Y	N	N	N	N
Site Plan Review Requirements	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Capital Improvements Plan	Y	Y	N	N	N	Y	N	Y	N	N	N	N
Local Emergency Operations Plan	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Flood Insurance Study or Other Engineering Study for Streams	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Repetitive Loss Plan	N	N	N	N	N	N	N	N	N	N	N	N
Elevation Certificates	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N

A description of applicable plans, ordinances and programs follows to provide more detail on the relevance of each regulatory tool in examining the capabilities for each community.

Comprehensive Plan

A Comprehensive Plan, in broad terms, is a policy statement to guide the future placement and development of community facilities. It is the basis for a community ‘s zoning, subdivision and design regulations and a community ‘s official maps and amendments to the zoning, subdivision and design ordinances. The Comprehensive Plan identifies a future vision, values, principals and goals for the community, determines the projected growth for the community and identifies policies to plan, direct and accommodate anticipated growth.

Zoning Ordinance

Zoning typically consists of both a zoning map and a written ordinance that divides the jurisdiction into zoning districts, including various residential, commercial, mixed-use and industrial districts. The zoning regulations describe what type of land use and specific activities are permitted in each district, and also regulate how buildings, signs, parking, and other construction may be placed on a lot. The zoning regulations also provide procedures for rezoning and other planning applications.

Subdivision Ordinance

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

Flood Insurance Study/Floodplain Ordinance

A Flood Insurance Study (FIS) provides information on the existence and severity of flood hazards within a community based on the 100-year flood event. The FIS also includes revised digital Flood Insurance Rate Maps (FIRMs) which reflect updated Special Flood Hazard Areas (SFHAs) and flood zones for the community.

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

Stormwater Management Program/Stormwater Ordinance

Stormwater runoff is increased when natural ground cover is replaced by urban development. Development in the watershed that drains to a river can aggravate downstream flooding, overload the community's drainage system, cause erosion, and impair water quality. A Stormwater Management Program can prevent flooding problems caused by stormwater runoff by 1) Regulating development in the floodplain to ensure that it will be protected from flooding and that it won't divert floodwaters onto other properties; 2) Regulating all development to ensure that the post-development peak runoff will not be greater than it was under pre-development conditions; and 3) Setting construction standards so buildings are protected from shallow water. A stormwater ordinance provides the community with the regulatory authority to implement its stormwater management standards.

Erosion, Sedimentation, and Pollution Control Ordinance

Surface water runoff can erode soil from development sites, sending sediment into downstream waterways. This can clog storm drains, drain tiles, culverts and ditches and reduce the water transport and storage capacity of river and stream channels, lakes and wetlands. The purpose of an erosion, sedimentation and pollution control ordinance is to minimize soil erosion and prevent off-site sedimentation by using soil erosion and sediment control practices designed in accordance with certain standards and specifications.

Site Plan Review

The purpose of the Site Plan Review Process is to review site plans for specific types of development to ensure compliance with all appropriate land development regulations and consistency with the Comprehensive Plan.

Building Code/Elevation Certificates

Building codes provide one of the best methods for addressing natural hazards. When properly designed and constructed according to code, the average building can withstand many of the impacts of natural hazards. Hazard protection standards for all new and improved or repaired buildings can be incorporated into the local building code. Building codes can ensure that the first floors of new buildings are constructed to be higher than the elevation of the 100-year flood (the flood that is expected to have a one percent chance of occurring in any given year).

Just as important as having code standards is the enforcement of the code. Adequate inspections are needed during the course of construction to ensure that the builder understands the requirements and is following them. Making sure a structure is properly elevated and anchored requires site inspections at each step. An Elevation Certificates serves as the official record that shows new buildings and substantial improvements in all identified SFHAs are properly elevated. This elevation information is needed to show compliance with the floodplain ordinance. Communities participating in the CRS are required to use the FEMA Elevation Certificate.

Capital Improvement Program

A Capital Improvement Plan (CIP) is a planning document that typically provides a five-year outlook for anticipated capital projects designed to facilitate decision makers in the replacement of capital assets. The projects are primarily related to improvement in public service, parks and recreation, public utilities and facilities. A community's mitigation strategy may include structural projects that could potentially be included in a CIP and funded through a Capital Improvement Program.

Emergency Operations Plan

An emergency operations plan outlines responsibility and the means by which resources are deployed during and following an emergency or disaster.

Repetitive Loss Plan

A repetitive loss property is defined as any insurable building for which two or more claims of more than $1,000 were paid by the NFIP within any rolling 10-year period, since 1978. Two of the claims paid must be more than 10 days apart but, within 10 years of each other. A Repetitive Loss Plan examines the cause of repetitive flooding and identifies mitigation measures to reduce or eliminate the flooding to repetitive loss properties.

7.3 Floodplain Management

The NFIP aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on new and improved structures. Overall, the program reduces the socio-economic impact of disasters by promoting the purchase and retention of general risk insurance, but also of flood insurance, specifically.

Participation in the NFIP is voluntary for local governments. In order for a county or municipality to participate in the NFIP, the community must adopt a local flood damage prevention ordinance that

requires that all new buildings and substantial improvements to existing buildings will be protected from damage by a 100-year flood event and that new development in the floodplain will not exacerbate existing flood problems or increase damage to other properties.

The Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. For CRS participating communities, flood insurance premium rates are discounted in increments of 5% (i.e., a Class 1 community would receive a 45% premium discount, while a Class 9 community would receive a 5% discount. A Class 10 is not participating in the CRS and receives no discount.

Table 7.2 provides NFIP policy and claim information for each participating jurisdiction.

Table 7-2. NFIP Policy and Claim Information by Jurisdiction

Jurisdiction	Current Effective Date	No. of Policies in Force	Insurance in Force	Closed Losses	Total Payments to Date
Cumberland Co	06/20/18	567	$144,846,200	118	$11,856,824
Fayetteville	12/18/07	1,085	$258,808,000	257	$6,667,070
Eastover	12/18/07	0	0	0	0
Falcon	12/18/07	1	$140,000	0	0
Godwin	(NSFHA)	0	0	0	0
Hope Mills	12/18/07	4	$1,092,000	4	$45,448
Linden	(NSFHA)	0	0	0	0
Spring Lake	12/18/07	16	$3,406,800	1	$13,671
Stedman	12/18/07	8	$2,282,000	1	$6,355
Wade	12/18/07	1	$280,000	0	0
Hoke Co	7/7/14	124	$30,214,500	9	$333,089
Raeford	12/18/07	5	$1,470,000	0	0
NSFHA: No Special Flood Hazard Area - All Zone C					

7.4 Administrative and Technical Capability

Administrative and technical capability refers to the community's staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. It also refers to the ability to access and coordinate these resources effectively. The personnel employed by each jurisdiction should be considered as well as the level of knowledge and technical expertise of these resources. Resources include engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, floodplain managers, and more. Table 7.3 provides a summary of the administrative and technical capabilities for each participating jurisdiction.

Table 7-3. Administrative and Technical Capability by Jurisdiction

Resources	Cumberland Co	Fayetteville	Eastover	Falcon	Godwin	Hope Mills	Linden	Spring Lake	Stedman	Wade	Hoke Co	Raeford
Planner/Engineer with knowledge of land development/land management practices	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Engineer/Professional trained in construction practices	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Planner/Engineer/ Scientist with an understanding of natural hazards	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Personnel skilled in GIS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Full-time building official	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Floodplain Manager	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Emergency Manager	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Grant Writer	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y
GIS data – Hazard Areas	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
GIS data – Critical Facilities	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
GIS data – Land use	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
GIS data – Building footprints	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
GID data – Links to Assessor's data	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Warning Systems/Services (CTY System)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

7.5 Fiscal Capability

Financial capabilities are the resources that a jurisdiction has access to or is eligible to use to fund mitigation actions. The costs associated with implementing mitigation activities vary. Some mitigation actions such as building assessment or outreach efforts require little to no costs other than staff time and existing operating budgets. Other actions, such as the acquisition of flood-prone properties, could require a substantial monetary commitment from local, State, and Federal funding sources. Some local governments may have access to a recurring source of revenue beyond property, sales, and income taxes, such as stormwater utility or development impact fees. These communities may be able to use the funds

to support local mitigation efforts independently or as the local match or cost-share often required for grant funding. Table 7.4 provides a summary of the fiscal resources for each participating jurisdiction.

Table 7-4. Fiscal Resources by Jurisdiction

Resources	Cumberland Co	Fayetteville	Eastover	Falcon	Godwin	Hope Mills	Linden	Spring Lake	Stedman	Wade	Hoke Co	Raeford
Community Development Block Grants	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Capital improvements project funding	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N
Authority to levy taxes for specific purposes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Fees for water, sewer, gas or electric services	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Impact fees for new development	N	Y	N	N	N	N	N	N	N	N	N	N
Incur debt through general obligation bonds	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Incur debt through special tax bonds	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Incur debt through private activity bonds	N	N	N	N	N	N	N	N	N	N	Y	Y

7.6 Conclusions on Local Capability

In order to form meaningful conclusions on the assessment of local capability, a quantitative scoring methodology was designed and applied to results of the Local Capability Assessment Survey. This methodology attempts to assess the overall level of capability of the Plan Area to implement hazard mitigation actions. *Local Capability Assessment Survey* This methodology attempts to assess the overall level of capability of the Plan Area to implement hazard mitigation actions.

Table 7-5 shows the results of the capability assessment using the designed scoring methodology. The capability score is based solely on the information found in existing hazard mitigation plans and readily available on the jurisdictions' government websites. The scoring methods ranking is presented as follows:

- Limited: 0-29
- Moderate: 30-59
- High: 60-100

According to the assessment, the average local capability score for all jurisdictions is 34, which falls into the moderate capability ranking.

Table 7-5: Capability Assessment Results

Jurisdiction	Overall Capability Score	Overall Capability Rating
Cumberland County	62	High
Eastover	46	Moderate
Falcon	38	Moderate
Fayetteville	68	High
Godwin	42	Moderate
Hope Mills	51	Moderate
Linden	39	Moderate
Spring Lake	37	Moderate
Stedman	35	Moderate
Wade	40	Moderate
Hoke County	58	Moderate
Raeford	49	Moderate

Source: Local Capability Assessment Survey.

As previously discussed, one of the reasons for conducting a Capability Assessment is to examine local capabilities to detect any existing gaps or weaknesses within ongoing government activities that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. These gaps or weaknesses have been identified, for each jurisdiction, in the tables found throughout this section. The participating jurisdictions used the Capability Assessment as part of the basis for the mitigation actions that are identified in Section 9; therefore, each jurisdiction addresses their ability to expand on and improve their existing capabilities through the identification of their mitigation actions.

SECTION 8: MITIGATION STRATEGY

Section 8 discusses the mitigation strategy process and mitigation action plan for the Cumberland-Hoke Regional Hazard Mitigation Plan. This section also describes how the HMPC met the following requirements from the 10-step planning process. This section consists of the following subsections:

- 8.1 Mitigation Strategy Overview
- 8.2 Goals
- 8.3 Identification and Analysis of Mitigation Activities

CFR Requirements
Requirement §201.6(c)(3)(ii): **[The mitigation strategy section 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. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.**

8.1 Participation Mitigation Strategy: Overview

The results of the planning process, the risk assessment, the goal setting, and the identification of mitigation actions led to the mitigation strategy and mitigation action plan for this HMP. The following umbrella mitigation strategy was used during development of this HMP:

Communicate the hazard information collected and analyzed through this planning process as well as HMPC success stories so that the community better understands what can happen where and what they themselves can do to be better prepared.

Implement the action plan recommendations of this plan.

Use existing rules, regulations, policies, and procedures already in existence.

Monitor multi-objective management opportunities so that funding opportunities may be shared and packaged, and broader constituent support may be garnered.

8.1.1 Continued Compliance with the NFIP

Given the flood hazards in the planning area, an emphasis will be placed on continued compliance with the NFIP and participation in the CRS. Each participating jurisdiction will meet or exceed the following minimum requirements as set by the NFIP:

- Issuing or denying floodplain development/building permits
- Inspecting all development to assure compliance with the local ordinance
- Maintaining records of floodplain development
- Assisting in the preparation and revision of floodplain maps
- Helping residents obtain information on flood hazards, floodplain map data, flood insurance and proper construction measures

8.2 Goals

CFR Requirements
Requirement §201.6(c)(3)(i): **[The mitigation strategy section shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.**

Sections 4 through 6 document the hazards and associated risks that threaten Cumberland and Hoke Counties including the vulnerability to structures, infrastructure, and critical facilities. Section 7 evaluates the capacity of the participating jurisdictions to reduce the impact of those hazards. The intent of Goal Setting is to identify areas where improvements to existing capabilities (policies and programs) can be made so that community vulnerability is reduced. Goals are also necessary to guide the review of possible mitigation measures. This Plan needs to make sure that recommended actions are consistent with what is appropriate for the communities. Mitigation goals need to reflect community priorities and should be consistent with other plans in the community.

Goals are general guidelines that explain what is to be achieved. They are usually broad-based policy type statements, long term and represent global visions. Goals help define the benefits that the plan is trying to achieve.

8.2.1 Coordination with Other Planning Efforts

The goals of this plan need to be consistent with and complement the goals of other planning efforts. The primary planning document where the goals of this Plan must complement and be consistent with is the Comprehensive Plan. The Comprehensive Plan is important as it is developed and designed to guide future growth within the community. Therefore, there should be some consistency in the overall goals and how they relate to each other.

8.2.2 Goal Setting Exercise

The HMPC conducted an exercise to outline goals for this hazard mitigation plan. The first part of the exercise included asking each committee member: “What would you most like to see in your community’s future?” and “What should the goals be of our mitigation program?”

An open discussion took place on the current goals in the Plan. Each member ranked the current goals in order of priority. The goals for this Regional Plan update have been re-affirmed.

8.2.3 Resulting Goals

At the end of the exercise, the HMPC agreed upon keeping the four general goals for this planning effort. The goals are as follows:

Goal #1

Protect properties and natural resources that are at risk of damage due to hazards and undertake cost-effective mitigation measures to minimize losses.

Goal #2

Reduce vulnerability of Cumberland and Hoke Counties and their municipalities to all hazards for existing development, future development, redevelopment and infrastructure.

Goal #3

Improve public awareness of hazards through a variety of education and outreach programs.

Goal #4

Establish and participate in local, state and federal mitigation-oriented and disaster-based programs and planning efforts to reduce damage and protect lives and property.

8.3 Identification and Analysis of Mitigation Actions

CFR Requirements
Requirement §201.6(c)(3)(ii): **[The mitigation strategy section 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. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.**

In order to identify and select mitigation projects to support the mitigation goals, each hazard identified in Section 4 - Hazard Identification was evaluated. The HMPC then analyzed viable mitigation options that supported the identified goals. The HMPC reviewed a PowerPoint presentation and handout covering the following six mitigation categories as well as examples of potential mitigation actions for each of these categories which are utilized as part of the CRS planning process:

- Prevention
- Property Protection
- Natural Resource Protection
- Emergency Services
- Structural Projects
- Public Information and Outreach

The HMPC was also provided with FEMA's *Mitigation Ideas* guidance document dated January 2013 which provides example mitigation actions organized by natural hazard. The HMPC was instructed to consider both future and existing buildings in evaluating possible mitigation actions and to also consider including projects from other plans and studies within the community including projects from the Capital Improvement Plan. A facilitated discussion then took place to examine and analyze the options. This discussion was followed by a brainstorming session that generated a list of preferred mitigation actions by hazard.

8.3.1 Prioritization Process

Once the mitigation actions were identified, the HMPC was provided with several decision-making tools, including FEMA's recommended prioritization criteria, STAPLEE sustainable disaster recovery criteria; Smart Growth principles; and others, to assist in deciding why one recommended action might be more important, more effective, or more likely to be implemented than another. To be a qualifying mitigation project, the project must meet at least four of the seven STAPLEE criteria. STAPLEE stands for the following:

- Social: Does the measure treat people fairly? (e.g. different groups, different generations)
- Technical: Is the action technically feasibly? Does it solve the problem?

- Administrative: Are there adequate staffing, funding and other capabilities to implement the project?
- Political: Who are the stakeholders? Will there be adequate political and public support for the project?
- Legal: Does the jurisdiction have the legal authority to implement the action? Is it legal?
- Economic: Is the action cost-beneficial? Is there funding available? Will the action contribute to the local economy?
- Environmental: Does the action comply with environmental regulations? Will there be negative environmental consequences from the action?

In accordance with the DMA requirements, an emphasis was placed on the importance of a benefit-cost analysis in determining action priority. It was agreed that the following four criteria would be used to determine the priority of the action items:

- Contribution of the action to save life or property
- Availability of funding and perceived cost-effectiveness
- Available resources for implementation
- Ability of the action to address the problem

With these criteria in mind, HMPC members were asked to prioritize each mitigation project based on the actions will be identified will be prioritized, implemented and administered by each local jurisdiction. The prioritization includes emphasis on the extent to which benefits are maximized according to the cost benefit review of the proposed projects and their associated costs. The actions in the following table have been ranked based on a cost-benefit review conducted by the HMPC through the planning process. Each implementing action has been provided a priority of low, medium, or high based on this review. The following provides a breakdown of the factors utilized to conduct this cost benefit review:

- High Priority: Highly cost-effective, administratively feasible and politically feasible strategies that should be implemented in 2 fiscal years and be continued.
- Medium Priority: Strategies that have at least two of the following characteristics (but not all three) and should be implemented in 3 fiscal years: Highly cost-effective; or Administratively feasible, given current levels of staffing and resources; or Are politically popular and supportable given the current environment.
- Low Priority: Strategies that have one of the following characteristics and should be implemented in the next five years): Highly cost-effective; or Administratively feasible, given current levels of staffing and resources; or Are politically popular and supportable given the current environment.

SECTION 9: MITIGATION ACTION PLAN

CFR Requirements
Requirement §201.6(c)(3)(ii): **[The mitigation strategy section 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. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.**

This Section 9 presents the mitigation action plan developed by each participating jurisdiction. The action plans were developed to present the recommendations developed by the HMPC for how the communities can reduce the risk and vulnerability of people, property, infrastructure, and natural and cultural resources to future disaster losses. Emphasis was placed on both future and existing development. The action plan summarizes who is responsible for implementing each of the prioritized actions as well as when and how the actions will be implemented. Table 9-1 identifies new and/or revised mitigation actions for each participating jurisdiction.

It should be clarified that the actions included in this mitigation strategy are subject to further review and refinement; alternatives analyses; and reprioritization due to funding availability and/or other criteria. The participating jurisdictions are not obligated by this document to implement any or all of these projects. Rather this mitigation strategy represents the desires of each community to mitigate the risks and vulnerabilities from identified hazards.

For some actions, jurisdictions decided to qualify Low, Medium, High statements.

The actions will be identified will be prioritized, implemented and administered by each local jurisdiction. The prioritization includes emphasis on the extent to which benefits are maximized according to the cost benefit review of the proposed projects and their associated costs. The actions in the following table have been ranked based on a cost-benefit review conducted by the HMPC through the planning process. Each implementing action has been provided a priority of low, medium, or high based on this review. The following provides a breakdown of the factors utilized to conduct this cost benefit review:

- High Priority: Highly cost-effective, administratively feasible and politically feasible strategies that should be implemented in 2 fiscal years and be continued.
- Medium Priority: Strategies that have at least two of the following characteristics (but not all three) and should be implemented in 3 fiscal years: Highly cost-effective; or Administratively feasible, given current levels of staffing and resources; or Are politically popular and supportable given the current environment.
- Low Priority: Strategies that have one of the following characteristics and should be implemented in the next five years): Highly cost-effective; or Administratively feasible, given current levels of staffing and resources; or Are politically popular and supportable given the current environment.

Mitigation Action Cost Estimate are defined as follows:

- Low: less than $5k
- Medium: $6k to $20k
- High: greater than $20k

Mitigation Action Timeframe Key are defined as follows:

- Short Range: Less than 2 years
- Medium Range: 2-5 years
- Long Range: greater than 5 years

Table 9-1. Mitigation Acton Plan by Jurisdiction

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
Cumberland County and All Jurisdictions (Town of Eastover, Town of Falcon, City of Fayetteville, Town of Godwin, Town of Hope Mills, Town of Linden, Town of Spring Lake, Town of Stedman, Town of Wade)											
C1	Maintain an all hazards public education program to educate and prepare residents for all the hazards that impact Cumberland County.	To educate, enhance preparedness, and resiliency of Cumberland County and its municipal residents through public education programs that included booths at fairs, festivals and special events, websites, brochures, school programs, etc.	Cumberland County Emergency Management	$90,000	Local Operating Budget	Short Range	High	X	X	All Hazards	To Be Continued: Cumberland County Emergency Services provides an all-hazards approach public education program. The department provides public education at events such as the CCS student career day, community watch meetings, via website, and other special events upon requests.
C2	Explore the Fire Adapted Communities concept implementation in Cumberland County.	To enhance the preparedness and resiliency of Cumberland County and its municipalities to the effects of wild land fire and urban interface, through education; programs such as Fire Wise, Ready Set Go, Community Wildfire Protection Plan; Fuel Management; local codes and ordinances.	Emergency Management, NC Forest Service and Fire Marshalls	Staff Hours	Local Operating Budget and Federal	Medium Range	Low	X	X	Wildfire	In Progress: Cumberland County is currently exploring the Fire Wise program as an option for the county. There are Community Wildfire Protection Plans in place for certain communities. The most recent GC Sherwood #24 Plan completed 6/30/2016
C3	Conduct a countywide infrastructure vulnerability assessment regarding all hazards to identify priority needs for updating ill-designed or outdated critical structures.	It has been difficult to locate any comprehensive assessments of local infrastructure in Cumberland and Hoke Counties. With current and projected natural hazard occurrences, it is essential to have an accurate and comprehensive understanding of the current condition of critical facilities to ensure the ability to continue to provide for basic needs, such as water and electrical supplies, transportation routes, waste management, etc.	County/city structural and civil engineers in partnership with U.S. Army Corps of Engineers	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X		All Hazards	In Progress/partially completed: There has been envelope studies (suggested improvement) done on some of the county's critical infrastructure. Cumberland County Emergency Management recently obtain Infrastructure Protection Certificates from LSU for conducting infrastructure assessments.
C4	Conduct social vulnerability analysis to identify priority needs and opportunities that will address the specific problems vulnerable populations face from all hazards,	There exist various groups of individuals that have additional financial, social and/or environmental barriers to being resilient in the face of natural	Cumberland County Social Services Department and/or County	Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	All Hazards	**In Progress:** The department of health conducted a survey in 2018 to better understand the health

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
	including barriers to evacuation, event-specific vulnerabilities, and impediments to recovery.	hazard events. In Cumberland County, for example, groups with significant number of people affected include about 10K outdoor workers with direct exposure to extreme heat days, elderly people and especially those with existing cardiovascular conditions, and other low-income and/or minority groups. As natural hazard events increase in intensity and frequency, these groups will find it harder to safely and efficiently get out of harm's way. These groups will also have difficulty in obtaining and paying for essential components to sustain life, such as medications, utilities, and transportation to/from a place of work, etc.	Health Department								status and needs of the community they serve and use the knowledge gained to implement programs that will benefit the community. Will continue to formulate research through census data after 2020.
C5	Collaborate with NC Cooperative Extension and NC Agriculture and Forestry Adaptation Working Group to provide more local support and encouragement of forest conservation and farmland preservation measures.	Forests and farmland provide a multitude of social, economic and environmental benefits, that when looked at comprehensively, far outweigh any profit/revenue projections of residential or commercial properties. Outside of development pressure, some of the other major health risks include: (1) increasing wildfire risk, (2) increasing number and types of insects and pests, (3) lack of sufficient water during the growing season for crops, and (4) increasing damage from strong winds and flooding. It is vital, especially in the face of a changing climate, to preserve these working lands and to support higher density development in already existing urban and suburban centers.	County Board of Commissioners, Conservation District Programs, and other land preservation organizations.	TBD, Staff Hours	NC Cooperative Extension, NC Forest Service, US Department of Agriculture and NC Wildlife Resources Commission.	Short Range	Low		X	Wildfire, Flooding	To Be Continued: Cumberland County works in conjunction with NC Cooperative Extension/NC State to provide local support. Cumberland County also incorporates Voluntary Agricultural Districts into their land use plans.
C6	Include climate predictions	To properly prepare for natural	Sustainable	TBD, Staff	Existing FEMA	Short Range	Low	X	X	All Hazards	To Be Continued: In the

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
	from the Cumberland County Climate Resiliency Plan in the Regional Hazard Mitigation Plan.	hazard occurrences, it is important to include predictions that warn of: (1) increasing temperatures and extreme heat days, (2) increasing frequency and strength of severe weather events, (3) more heavy rain/flooding, and (4) more frequent and prolonged drought. Although some climate projections do not pose an immediate threat, any comprehensive mitigation plan for emergency management should at the very least, and by the very nature of the definition of "mitigation", acknowledge the changing climate and possibility of increased extreme weather and flooding events.	Sandhills and The Planning Department/Planning Director for each jurisdiction in Cumberland County	Hours	grant						2016 Cumberland-Hoke Regional Hazard Mitigation plan climate predictions from the Climate Resiliency Plan was included. Will continue to work with Dept of Environmental Quality to update any long-term climate predictions, when updates are available.
C7	Provide financial assistance for low-income residents to help with power bills and support services during extended periods of high temperature and other extreme weather.	Low-income households face challenges in keeping up with utility bills. Some low-income utility assistance programs are offered, but funds are limited. Extreme weather and increasing temperatures will place even greater pressure on these programs' ability to aid all those in need, and citizen's lives will be increasingly at stake.	Cumberland County DSS	TBD, Staff Hours	NC Department of Health and Human Services and County Department of Health	Medium Range	Medium			Extreme Heat, Winter Weather,	To Be Continued: Cumberland County participates in the statewide Crisis Intervention Program. CIP aids low-income families experiencing or in danger of heating or cooling household emergencies where there is a life-threatening or health-related emergency and timely, enough, or appropriate assistance is not available from any other source.
C8	Analyze and update local development ordinances to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Also, provide incentives for making buildings safer from wind, flooding, more energy and water efficient.	Energy and water efficiency will be increasingly important to a community's resiliency in the face of natural hazards specifically because of projections of increasing temperatures and extreme heat days, and prolonged periods of drought. Climate projections also state that precipitation will continue to follow a seasonal pattern, whereby hot, Summer months	Planning and Code Departments of each jurisdiction	Staff Hours	Local Operating Budget	Medium Range	Medium		X	Flooding, Hurricane, Severe Weather, Extreme Heat, Winter Weather	In Progress: No ordinances or incentives have been developed to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Cumberland County utilized the state building code due to lack of staff and funding.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		are classified with less precipitation and Winters with more precipitation. Extreme heat days will be specially taxing on buildings with older A/C systems or inadequate insulation and in low-income households where upkeep with rising utility costs could become a burden.									
C9	Use natural systems, more open space and green surfaces to manage stormwater in a more resilient fashion.	Impervious surfaces typically found in urban centers, such as paved roads, buildings, parking lots and pavement, drastically increase flash floods and urban flooding, which seems to be a common occurrence in Cumberland County. Coupled with the naturally flat topography of the eastern portions of the County also help to create excess runoff and subsequent urban flooding issues, especially in the Special Flood Hazard Areas (SFHA) of the County, and specifically around Blounts and Cross Creek, as referenced in various resources.	Zoning Department of each jurisdiction	Staff Hours	Local Operating Budget	Short Range	Low		X	Flooding	In Progress: There are land use plans in place/under development that encourage more open space and green surfaces.
C10	Improve access to reliable and convenient emergency shelters.	Communities with sub-standard and/or mobile homes are especially at risk from severe weather events due to structural deficiencies. Mobile homes constitute the second highest housing unit types in Cumberland County (detached single-family homes being the highest) and tend to be concentrated in certain portions of the County. Observed and projected trends in severe weather events pose a significant threat to the health and safety of these communities, and reliable and convenient emergency shelters may not be available.	County and State Emergency Services	TBD, Staff Hours	FEMA and County/State Emergency Services	Short Range	Low	X		All Hazards	Deleted: (Moved to County Actions) Cumberland County is in the process of revising its shelter operation process. We are working in conjunction with The American Red Cross throughout this process.
C11	Encourage homeowners to purchase flood insurance.	During both hurricanes Matthew and Florence multiple residential	Cumberland County	Staff time and	Department of Homeland	Short range	Low	X		Flood	New Action

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		properties were impacted by flooding. Standard homeowners' insurance does not cover flooding leaving homeowners to depend on federal assistance they may not qualify for. A federal disaster declaration does not have to be in place for flood insurance claims to be paid.	Emergency Services	resources	Security (FEMA)						
C12	Purchase new 911 dispatch technology.	Cumberland County Consistently searches for new ways to improve their emergency telecommunication system. Future improvement includes but are not limited to additional 911 consoles, and other advance technologies.	Cumberland County Emergency Services	$ 4 Million	Private, State, Local and Federal Grants	Medium range	Medium		X	All-Hazards	New Action
C13	Complete flood mitigation projects (acquisitions, elevations), with FEMA-defined and locally verified "repetitive loss properties" receiving high priority.	Cumberland County will explore all grant programs available for flood mitigation projects including acquisitions or elevations.	Cumberland County Emergency Services/ Engineering and Infrastructure	Staff time and resources, Cost associated with purchase of property or easements	FEMA mitigation grant programs (HMGP, PDM, FMA, RFC, SRL) and local funds.	Medium range	Medium	X	X	Flood	New Action
C14	Protect and enhance riparian zones around creeks and streams to control flooding.	The County will seek opportunities to protect and enhance riparian zones to not only control flooding but to also protect the natural and beneficial functions of floodplains.	Cumberland County Engineering and infrastructure	Non-profit land trusts, Clean Water Management Trust Fund, Department of Commerce—Habitat Conservation, Department of the Interior—Rivers, Trails and Conservation Assistance	Local, State, and Federal Grants	Long-range	High		X	Flood	New Action
C15	Seek grant funding to install backup generators or quick connect hook ups	Cumberland County will continue to seek funding to equip critical	Cumberland County	$ 5 Million	Local, State, and Federal	Long-range	High	X	X	All-Hazards	New Action

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
	for mobile generators on any county critical facilities.	infrastructure including emergency shelters and other annexes.	Emergency Services/Board of Commissioners		Grants. Capital Improvement projects						
C16	Relocate the Emergency Operations Center out of the 500-year flood plain.	Cumberland County's Emergency Communication Center is in the 500-year flood plain. Cumberland County will continue to search for funding opportunities to aid the redevelopment of this critical infrastructure.	Cumberland County Emergency Services	$16 Million	Local, State and Federal Grants.	Medium-range	Medium	X	X	All-Hazards	New Action
C17	Seek funding to install stream gauges with early notification systems to provide warning during future flood events.	Install gauges and build out an early-warning system to assist with management of flow from the interconnected and interdependent series of dams and water courses throughout the county, including Rockfish Creek, Little Rockfish Creek and Black River in Godwin, Bones Creek, The Little River and Upchurch's Pond near Lake Upchurch Drive. Additional stream gauges and warning system will mitigate the loss of life by providing ample warning for evacuation.	Cumberland County Emergency Services	$300,000	Local, State and Federal Grants	Medium-range	Medium		x	Flooding	New Action
C18	Critical Infrastructure Elevation.	During Hurricane Florence flooding of the sewer lift stations along the Little River in the Manchester community resulted in failure of the sewer system and sewage spilling into the river. The lift stations were inundated and caused failure of the pumps, loss of power, and damage to electrical fixtures. Elevating the power supply, control equipment, back-up power equipment, and replacing the existing pumps with submersible pumps is critical to ensure	Cumberland County Emergency Services	$400,000	Local, State, and Federal Grants	Medium range	Medium		X	Flooding	New Action

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		continuous operation.									
C19	Augmented Flood Mapping	Augmented Flood Mapping	Cumberland County Emergency Services	High	Grants, Local Operating Budget	Short Range	High	X	X	Flood, Hurricane	New Action
Cumberland County Unincorporated Areas											
CU1	Restrict Residential and Non-Compatible Uses within the Special Flood Hazard Area.	Prohibit developing within the Special Flood Hazard Area and promote the flood area as an environmental corridor and open space, while reducing potential losses during a flood hazard.	Cumberland County Planning and Inspections Department and Cumberland County Board of Commissioners	Staff Hours	Local Operating Budget	Short Range	Low		X	Flooding	To Be Continued: Zoning in most cases addresses building and land use in the 100-year flood plain.
CU2	Identify and map structures that are vulnerable to high winds.	By providing the location of structures that would be greatly impacted by high winds would assist in lessen the impact during a hazard event while also aiding emergency responders.	Cumberland County Emergency Services	To Be Determined, Staff Hours	Local Operating Budget	Short Range	Low	X	X	Hurricane, Severe Weather	Deferred: No measurable progress. No has been made in the last 5 years due to lack of staff and funding.
CU3	Develop a tree ordinance to address clear cutting.	Provide more pervious area for natural drainage, while reducing the vulnerability to localized flooding and extreme heat.	Cumberland County Planning and Inspections Department and Cumberland County Board of Commissioners	Staff Hours $5,000 - $10,000	Local Operating Budget	Medium Range	Medium	X	X	Flooding, Extreme Heat	Deferred: No measurable progress. No has been made in the last 5 years due to lack of staff and funding. There are no ordinances in unincorporated areas that address clear cutting.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
CU4	Develop a greenway program to protect natural areas along the rivers, streams, creeks and drain ways.	Provides a buffer from urban encroachment and reduces flooding.	Cumberland County and Fayetteville/Cumberland County Parks and Recreation Department	TBD, Staff Hours	Local Budget	Long Range	High		X	Flooding	In-Progress: Fayetteville-Cumberland County Parks and Recreation's Master Plan that addresses greenway management and projects is currently under development with a draft to be produced in Summer 2020. The last Master Plan was July 6, 2006.
CU5	Revise the Subdivision Ordinance requiring an additional access for emergency vehicles and to be used as an evacuation route for developments located near special flood hazard area.	This will provide an additional access for residents, public safety officials and emergency services to those developments located near a special flood hazard area, while reducing the possibility of a life-threatening situation for residents, public officials and emergency services.	Cumberland County Board of Commissioners and Cumberland County Planning & Inspections Department	Staff Hours $5,000 - $10,000	Local Operating Budget	Medium Range	Medium		X	Flooding	To Be Continued: Cumberland County Utilized the NC State Building Code. The 2018 Code increased additional access for emergency vehicles.
City of Fayetteville											
F1	Provide stormwater infrastructure improvements to mitigate reported flooding.	The stormwater program provides drainage infrastructure improvements to protect property, health and safety as associated with reported flooding. The program includes four elements: • Spot Repair Program • Major CIP Projects • Watershed Master Planning • Drainage Assistance Programs Projects identified from the four programs above are scheduled based on priority and funding availability as part of the City's Capital Improvements Program (CIP). Funding is available through the Stormwater Utility Fee, though it is not sufficient to meet	City of Fayetteville Public Services Department	$10-15 Million	Local Operating Budget	Short-Medium Range	Medium	X	X	Flooding	In-Progress: The City is hoping to move forward with final design and construction of several major CIP projects that will improve infrastructure to mitigate flooding although funds are not enough.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		all needs.									
F2	Maintain an all Hazards public education program to educate and prepare residents for all of the hazards that impact the City of Fayetteville	To educate, enhance preparedness, and resiliency of the City of Fayetteville residents through public education programs that included booths at fairs, festivals and special events, websites, brochures, school programs, and etc.	City of Fayetteville Public Services Department	TBD, Staff Hours	Local Operating Budget	Short Range	Low	X	X	All Hazards	In-Progress: Cumberland County Emergency Services provides an all-hazards approach public education program. The department provides public education at events such as the CCS student career day, community watch meetings, via website, and other special events upon requests.
F3	Explore the Fire Adapted Communities concept implementation in Cumberland County.	To enhance the preparedness and resiliency of Cumberland County and its municipalities to the effects of wild land fire and urban interface, through education; programs such as Fire Wise, Ready Set Go, Community Wildfire Protection Plan; Fuel Management; local codes and ordinances.	Emergency Management, NC Forest Service and Fire Marshalls	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X	X	Wildfire	In-Progress: Cumberland County is currently exploring the Fire Wise program as an option for the county. There are Community Wildfire Protection Plans in place for certain communities. The most recent GC Sherwood #24 Plan completed 6/30/2016.
F4	Conduct social vulnerability analysis to identify priority needs and opportunities that will address the specific problems vulnerable populations face from all hazards, including barriers to evacuation, event-specific vulnerabilities, and impediments to recovery.	There exist various groups of individuals that have additional financial, social and/or environmental barriers to being resilient in the face of natural hazard events, including the elderly, those with existing cardiovascular conditions, and low-income and/or minority groups. As natural hazard events increase in intensity and frequency, these groups will find it harder to safely and efficiently get out of harm's way. These groups will also have difficulty in obtaining and paying for essential components to sustain life, such as medications, utilities, and transportation to/from a place of work, etc. The City is exploring programs and tools to enhance resilience and support the needs of its entire population, especially vulnerable households.	City of Fayetteville Public Service Department	TBD, Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	All-Hazards	In-Progress: The City is exploring programs and tools for rainfall measuring, hotspot reporting, social vulnerability analysis, and other measures. No measurable progress due lack of funding.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		As natural hazard events increase in intensity and frequency, these groups will find it harder to safely and efficiently get out of harm's way. These groups will also have difficulty in obtaining and paying for essential components to sustain life, such as medications, utilities, and transportation to/from a place of work, etc.									
F5	Include climate predictions from the Cumberland County Climate Resiliency Plan in the Regional Hazard Mitigation Plan.	To properly prepare for natural hazard occurrences, it is important to include predictions that warn of: (1) increasing temperatures and extreme heat days, (2) increasing frequency and strength of severe weather events, (3) more heavy rain/flooding, and (4) more frequent and prolonged drought. Although some climate projections do not pose an immediate threat, any comprehensive mitigation plan for emergency management should at the very least, and by the very nature of the definition of "mitigation", acknowledge the changing climate and possibility of increased extreme weather and flooding events. The City is exploring opportunities for implementation of an Early Warning system to provide warning alerts to the public of flooded area along roadways or hazardous conditions.	The Planning Department/Planning Director for each jurisdiction in Cumberland County	Staff Hours	Existing FEMA grant	Short Range	Low	X	X	All-Hazards	To Be Continued: The City is exploring opportunities for implementation of an Early Warning System. This system would relay information about street closures and high water to emergency personnel and provide warning alerts to the public of flooded area along roadways or hazardous conditions.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
F6	Analyze and update local development ordinances to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Also, provide incentives for making buildings safer from wind, flooding, more energy and water efficient, and healthier to live in.	Energy and water efficiency will be increasingly important to a community's resiliency in the face of natural hazards specifically because of projections of increasing temperatures and extreme heat days, and prolonged periods of drought. Climate projections also state that precipitation will continue to follow a seasonal pattern, whereby hot, Summer months are classified with less precipitation and Winters with more precipitation. Extreme heat days will be specially taxing on buildings with older A/C systems or inadequate insulation and in low-income households where upkeep with rising utility costs could become a burden.	City of Fayetteville Planning and Public Services Departments	Staff Hours	Local Operating Budget	Medium Range	Medium		X	Flooding, Hurricane, Severe Weather, Extreme Heat, Winter Weather	In-Progress: Stricter development rules in drainage sensitive areas. (DSA) and /or water supply watersheds (WSW) may be considered.
F7	Use natural systems, more open space and green surfaces to manage stormwater in a more resilient fashion.	Impervious surfaces typically found in urban centers, such as paved roads, buildings, parking lots and pavement, drastically increase flash floods and urban flooding, which seems to be a common occurrence in City of Fayetteville. This, coupled with the naturally flat topography of sections of the City, generate excess runoff and subsequent urban flooding issues, especially in the Special Flood Hazard Areas (SFHA) of the County, and specifically around Blounts and Cross Creek, as referenced in various resources.	Engineering Department of each jurisdiction	Staff Hours	Local Operating Budget	Short Range	Low		X	Flooding	In Progress: Use if LID stormwater management practices will be emphasized as part of future capital improvement projects, especially those coming out of the Watershed Master Plans. Stricter development rules is DSA and/or WSW may be considered.
Town of Eastover											
E1	Restrict Residential and Non-Compatible Uses within the Special	Prohibit developing within the Special Flood Hazard Area and	Cumberland County Planning	Staff Hours	Local Operating	Short Range	Low		X	Flooding	To Be Continued: Zoning in most cases

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
	Flood Hazard Area.	promote the flood area as an environmental corridor and open space, while reducing potential losses during a flood hazard.	and Inspections Department and Town of Eastover		Budget						addresses building and land use in the 100-year flood plain.
E2	Develop a tree ordinance to address clear cutting.	Provide more pervious are for natural drainage, while reducing the vulnerability to localized flooding and extreme heat.	Cumberland County Planning and Inspections Department and Town of Eastover	Staff Hours $5,000 - $10,000	Local Operating Budget	Medium Range	Medium		X	Flooding, Extreme Heat	In Progress: No measurable progress has been made in the last 5 years due to lack of funding.
E3	Develop a greenway program as a means to protect natural areas along the rivers, streams, creeks and drain ways.	Provides a buffer from urban encroachment and reduces flooding.	Town of Eastover and Fayetteville/Cumberland County Parks and Recreation Department	Staff Hours	Local Operating Budget	Long Range	High		X	Flooding	In-Progress: Fayetteville-Cumberland County Parks and Recreation's Master Plan that addresses greenway management and projects is currently under development with a draft to be produced in Summer 2020. The last Master Plan was July 6, 2006.
E4	Revise the Subdivision Ordinance requiring an additional access for emergency vehicles and to be used as an evacuation route for developments located near special flood hazard area.	This will provide an additional access for residents, public safety officials and emergency services to those developments located near a special flood hazard area, while reducing the possibility of a life-threatening situation for residents, public officials and emergency services.	Town of Eastover and Cumberland County Planning & Inspections Department	Staff Hours $5,000 - $10,000	Local Operating Budget	Medium Range	Medium		X	Flooding	To Be Continued: Cumberland County Utilized the NC State Building Code. The 2018 Code increased additional access for emergency vehicles.
E5	Maintain an all Hazards public education program to educate and prepare residents for all of the hazards that impact Cumberland County.	To educate, enhance preparedness, and resiliency of Cumberland County and its municipal residents through public education programs that included booths at fairs, festivals and special events, websites, brochures, school programs, and etc.	Cumberland County Emergency Management and Town of Eastover officals	$90,000	Local Operating Budget	Short Range	Low	X	X	All Hazards	To Be Continued: Cumberland County Emergency Services provides an all-hazards approach public education program. The department provides public education at events such as the CCS student career day, community watch meetings, via website, and other special events upon requests
E6	Explore the Fire Adapted Communities concept implementation in Cumberland County.	To enhance the preparedness and resiliency of Cumberland County and its municipalities to the effects of wild land fire and urban	Emergency Management, NC Forest Service and Fire Marshalls	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X	X	Wildfire	In Progress: Cumberland County is currently exploring the Fire Wise program as an option for

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		interface, through education; programs such as Fire Wise, Ready Set Go, Community Wildfire Protection Plan; Fuel Management; local codes and ordinances.									the county. There are Community Wildfire Protection Plans in place for certain communities. The most recent GC Sherwood #24 Plan completed 6/30/2016
E7	Conduct a countywide infrastructure vulnerability assessment for all hazards to identify priority needs for updating ill-designed or outdated critical structures.	It has been difficult to locate any comprehensive assessments of local infrastructure in Cumberland and Hoke Counties. With current and projected natural hazard occurrences, it is essential to have an accurate and comprehensive understanding of the current condition of critical facilities to ensure the ability to continue to provide for basic needs, such as water and electrical supplies, transportation routes, waste management, etc.	County/city structural and civil engineers in partnership with U.S. Army Corps of Engineers	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X		All Hazards	In Progress/partially completed: There has been envelope studies (suggested improvement) done on some of the county's critical infrastructure. Cumberland County Emergency Management recently obtain Infrastructure Protection Certificates from LSU for conducting infrastructure assessments.
E8	Conduct social vulnerability analysis to identify priority needs and opportunities that will address the specific problems vulnerable populations face from all hazards, including barriers to evacuation, event-specific vulnerabilities, and impediments to recovery.	There exist various groups of individuals that have additional financial, social and/or environmental barriers to being resilient in the face of natural hazard events. In Cumberland County, for example, groups with significant number of people affected include about 10K outdoor workers with direct exposure to extreme heat days, elderly people and especially those with existing cardiovascular conditions, and other low-income and/or minority groups. As natural hazard events increase in intensity and frequency, these groups will find it harder to safely and efficiently get out of harm's way. These groups will also have difficulty in obtaining and paying for essential components to sustain life, such as medications, utilities, and transportation to/from a place of work, etc.	County Social Services Department and/or County Health Department and city officials	Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	All Hazards	In-Progress: The City is exploring programs and tools for rainfall measuring, hotspot reporting, social vulnerability analysis, and other measures. No measurable progress due lack of funding.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
E9	Collaborate with NC Cooperative Extension and NC Agriculture and Forestry Adaptation Working Group to provide more local support and encouragement of forest conservation and farmland preservation measures.	Forests and farmland provide a multitude of social, economic and environmental benefits, that when looked at comprehensively, far outweigh any profit/revenue projections of residential or commercial properties. Outside of development pressure, some of the other major health risks include: (1) increasing wildfire risk, (2) increasing number and types of insects and pests, (3) lack of sufficient water during the growing season for crops, and (4) increasing damage from strong winds and flooding. It is vital, especially in the face of a changing climate, to preserve these working lands and to support higher density development in already existing urban and suburban centers.	County Board of Commissioners, Conservation District Programs, and other land preservation organizations.	TBD, Staff Hours	NC Cooperative Extension, NC Forest Service, US Department of Agriculture and NC Wildlife Resources Commission.	Short Range	Low	X	X	Wildfire, Flooding	To Be Continued: Cumberland County works in conjunction with NC Cooperative Extension/NC State to provide local support. Cumberland County also incorporates Voluntary Agricultural Districts into their land use plans.
E10	Include climate predictions from the Cumberland County Climate Resiliency Plan in the Regional Hazard Mitigation Plan.	To properly prepare for natural hazard occurrences, it is important to include predictions that warn of: (1) increasing temperatures and extreme heat days, (2) increasing frequency and strength of severe weather events, (3) more heavy rain/flooding, and (4) more frequent and prolonged drought. Although some climate projections do not pose an immediate threat, any comprehensive mitigation plan for emergency management should at the very least, and by the very nature of the definition of “mitigation”, acknowledge the changing climate and possibility of increased extreme weather and flooding events.	The Planning Department/Planning Director for each jurisdiction in Cumberland County	Staff Hours	Existing FEMA grant	Short Range	Low	X	X	All Hazards	To Be Continued: In the 2016 Cumberland-Hoke Regional Hazard Mitigation plan climate predictions from the Climate Resiliency Plan was included. Will continue to work with Dept of Environmental Quality to update any long-term climate predictions, when updates are available.
E11	Provide financial assistance for low-	Low-income households face	County Health Department	TBD, Staff	NC Departme	Medium	Medium	X	X	Extreme	To Be Continued:

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
	income residents to help with power bills and support services during extended periods of high temperature and other extreme weather.	challenges in keeping up with utility bills. Some low-income utility assistance programs are offered, but funds are limited. Extreme weather and increasing temperatures will place even greater pressure on these programs' ability to aid all those in need, and citizen's lives will be increasingly at stake.		Hours	nt of Health and Human Services and County Departme nt of Health	Range				Heat, Winter Weather	Cumberland County participates in the statewide Crisis Intervention Program. CIP aids low-income families experiencing or in danger of heating or cooling household emergencies where there is a life-threatening or health-related emergency and timely, enough, or appropriate assistance is not available from any other source.
E12	Analyze and update local development ordinances to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Also, provide incentives for making buildings safer from wind, flooding, more energy and water efficient, and healthier to live in.	Energy and water efficiency will be increasingly important to a community's resiliency in the face of natural hazards specifically because of projections of increasing temperatures and extreme heat days, and prolonged periods of drought. Climate projections also state that precipitation will continue to follow a seasonal pattern, whereby hot, Summer months are classified with less precipitation and Winters with more precipitation. Extreme heat days will be specially taxing on buildings with older A/C systems or inadequate insulation and in low-income households where upkeep with rising utility costs could become a burden.	Planning and Code Departments of each jurisdiction	Staff Hours	Local Operating Budget	Medium Range	Medium		X	Flooding, Hurricane, Severe Weather, Extreme Heat, Winter Weather	In Progress: No ordinances or incentives have been developed to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Cumberland County utilized the state building code due to lack of staff and funding.
E13	Use natural systems, more open space and green surfaces to manage stormwater in a more resilient fashion.	Impervious surfaces typically found in urban centers, such as paved roads, buildings, parking lots and pavement, drastically increase flash floods and urban flooding, which seems to be a common occurrence in Cumberland County. For instance, within a 90 day period (March 1 – June 30, 2015), three flooding incidents were reported	Engineering Department of each jurisdiction	Staff Hours	Local Operating Budget	Short Range	Low		X	Flooding	In Progress: There are land use plans in place/under development that encourage more open space and green surfaces.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		due to heavy rainfall events. Use of LID stormwater management practices is mentioned only in summary in the Growth Factor Analysis, stating it "…should be emphasized in sensitive areas…" This, coupled with the naturally flat topography of the eastern portions of the County also help to create excess runoff and subsequent urban flooding issues, especially in the Special Flood Hazard Areas (SFHA) of the County, and specifically around Blounts and Cross Creek, as referenced in various resources.									
Town of Falcon											
FC1	Restrict Residential and Non-Compatible Uses within the Special Flood Hazard Area	Prohibit developing within the Special Flood Hazard Area and promote the flood area as an environmental corridor and open space, while reducing potential losses during a flood hazard.	Cumberland County Planning and Inspections Department and Town of Falcon	Staff Hours	Local Operating Budget	Short Range	Low		X	Flooding	To Be Continued: Zoning in most cases addresses building and land use in the 100-year flood plain.
FC2	Revise the Subdivision Ordinance requiring an additional access for emergency vehicles and to be used as an evacuation route for developments located near special flood hazard area.	This will provide an additional access for residents, public safety officials and emergency services to those developments located near a special flood hazard area, while reducing the possibility of a life-threatening situation for residents, public officials and emergency services.	Town of Falcon and Cumberland County Planning & Inspections Department	Staff Hours $5,000 - $10,000	Local Operating Budget	Medium Range	Medium		X	Flooding	In Progress: No measurable progress has been made in the last 5 years due to lack of funding.
FC3	Maintain an all hazards public education program to educate and prepare residents for all of the hazards that impact Cumberland County.	To educate, enhance preparedness, and resiliency of Cumberland County and its municipal residents through public education programs that included booths at fairs, festivals and special events, websites, brochures, school programs, and etc.	Cumberland County Emergency Management and Town of Falcon	$90,000	Local Operating Budget	Short Range	Low	X	X	All Hazards	To Be Continued: Cumberland County Emergency Services provides an all-hazards approach public education program. The department provides public education at events such as the CCS student career day, community watch meetings, via website, and other special events upon request.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
FC4	Explore the Fire Adapted Communities concept implementation in Cumberland County.	To enhance the preparedness and resiliency of Cumberland County and its municipalities to the effects of wild land fire and urban interface, through education; programs such as Fire Wise, Ready Set Go, Community Wildfire Protection Plan; Fuel Management; local codes and ordinances.	Emergency Management, NC Forest Service and Fire Marshalls	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X	X	Wildfire	In Progress: Cumberland County is currently exploring the Fire Wise program as an option for the county. There are Community Wildfire Protection Plans in place for certain communities. The most recent GC Sherwood #24 Plan completed 6/30/2016
FC5	Conduct a countywide infrastructure vulnerability assessment for all hazards to identify priority needs for updating ill-designed or outdated critical structures.	It has been difficult to locate any comprehensive assessments of local infrastructure in Cumberland and Hoke Counties. With current and projected natural hazard occurrences, it is essential to have an accurate and comprehensive understanding of the current condition of critical facilities to ensure the ability to continue to provide for basic needs, such as water and electrical supplies, transportation routes, waste management, etc.	County/city structural and civil engineers in partnership with U.S. Army Corps of Engineers	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X		All Hazards	In Progress/partially completed: There has been envelope studies (suggested improvement) done on some of the county's critical infrastructure. Cumberland County Emergency Management recently obtain Infrastructure Protection Certificates from LSU for conducting infrastructure assessments.
FC6	Conduct social vulnerability analysis to identify priority needs and opportunities that will address the specific problems vulnerable populations face from all hazards, including barriers to evacuation, event-specific vulnerabilities, and impediments to recovery.	There exist various groups of individuals that have additional financial, social and/or environmental barriers to being resilient in the face of natural hazard events. In Cumberland County, for example, groups with significant number of people affected include about 10K outdoor workers with direct exposure to extreme heat days, elderly people and especially those with existing cardiovascular conditions, and other low-income and/or minority groups. As natural hazard events increase in intensity and frequency, these groups will find it harder to safely and efficiently get out of harm's way. These groups will also have difficulty in obtaining and paying for essential components to	County Social Services Department and/or County Health Department	Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	All Hazards	In-Progress: The City is exploring programs and tools for rainfall measuring, hotspot reporting, social vulnerability analysis, and other measures. No measurable progress due lack of funding.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		sustain life, such as medications, utilities, and transportation to/from a place of work, etc.									
FC7	Collaborate with NC Cooperative Extension and NC Agriculture and Forestry Adaptation Working Group to provide more local support and encouragement of forest conservation and farmland preservation measures.	Forests and farmland provide a multitude of social, economic and environmental benefits, that when looked at comprehensively, far outweigh any profit/revenue projections of residential or commercial properties. Outside of development pressure, some of the other major health risks include: (1) increasing wildfire risk, (2) increasing number and types of insects and pests, (3) lack of sufficient water during the growing season for crops, and (4) increasing damage from strong winds and flooding. It is vital, especially in the face of a changing climate, to preserve these working lands and to support higher density development in already existing urban and suburban centers.	County Board of Commissioners, Conservation District Programs, and other land preservation organizations.	TBD, Staff Hours	NC Cooperative Extension, NC Forest Service, US Department of Agriculture and NC Wildlife Resources Commission.	Short Range	Low		X	Wildfire, Flooding	To Be Continued: Cumberland County works in conjunction with NC Cooperative Extension/NC State to provide local support. Cumberland County also incorporates Voluntary Agricultural Districts into their land use plans.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
FC8	Include climate predictions from the Cumberland County Climate Resiliency Plan in the Regional Hazard Mitigation Plan.	To properly prepare for natural hazard occurrences, it is important to include predictions that warn of: (1) increasing temperatures and extreme heat days, (2) increasing frequency and strength of severe weather events, (3) more heavy rain/flooding, and (4) more frequent and prolonged drought. Although some climate projections do not pose an immediate threat, any comprehensive mitigation plan for emergency management should at the very least, and by the very nature of the definition of "mitigation", acknowledge the changing climate and possibility of increased extreme weather and flooding events.	The Planning Department/Planning Director for each jurisdiction in Cumberland County	None	Existing FEMA grant	Short Range	Low	X	X	All Hazards	To Be Continued: In the 2016 Cumberland-Hoke Regional Hazard Mitigation plan climate predictions from the Climate Resiliency Plan was included. Will continue to work with Dept of Environmental Quality to update any long-term climate predictions, when updates are available.
FC9	Provide financial assistance for low-income residents to help with power bills and support services during extended periods of high temperature and other extreme weather.	Low-income households face challenges in keeping up with utility bills. Some low-income utility assistance programs are offered, but funds are limited. Extreme weather and increasing temperatures will place even greater pressure on these programs' ability to aid all those in need, and citizen's lives will be increasingly at stake.	County Health Department	TBD, Staff Hours	NC Department of Health and Human Services and County Department of Health	Medium Range	Medium		X	Extreme Heat, Winter Weather	To Be Continued: Cumberland County participates in the statewide Crisis Intervention Program. CIP aids low-income families experiencing or in danger of heating or cooling household emergencies where there is a life-threatening or health-related emergency and timely, enough, or appropriate assistance is not available from any other source.
FC10	Analyze and update local development ordinances to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of	Energy and water efficiency will be increasingly important to a community's resiliency in the face of natural hazards specifically	Planning and Code Departments of each jurisdiction	Staff Hours	Local Operating Budget	Medium Range	Medium		X	Flooding, Hurricane, Severe Weather,	In Progress: No ordinances or incentives have been developed to make buildings safer from

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
	heat waves and healthier to live in. Also, provide incentives for making buildings safer from wind, flooding, more energy and water efficient, and healthier to live in.	because of projections of increasing temperatures and extreme heat days, and prolonged periods of drought. Climate projections also state that precipitation will continue to follow a seasonal pattern, whereby hot, Summer months are classified with less precipitation and Winters with more precipitation. Extreme heat days will be specially taxing on buildings with older A/C systems or inadequate insulation and in low-income households where upkeep with rising utility costs could become a burden.								Extreme Heat, Winter Weather	wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Cumberland County utilized the state building code due to lack of staff and funding.
FC11	Use natural systems, more open space and green surfaces to manage stormwater in a more resilient fashion.	Impervious surfaces typically found in urban centers, such as paved roads, buildings, parking lots and pavement, drastically increase flash floods and urban flooding, which seems to be a common occurrence in Cumberland County. For instance, within a 90-day period (March 1 – June 30, 2015), three flooding incidents were reported due to heavy rainfall events. Use of LID stormwater management practices is mentioned only in summary in the Growth Factor Analysis, stating it "…should be emphasized in sensitive areas…" This, coupled with the naturally flat topography of the eastern portions of the County also help to create excess runoff and subsequent urban flooding issues, especially in the Special Flood Hazard Areas (SFHA) of the County, and specifically around Blounts and Cross Creek, as referenced in various resources.	Engineering Department of each jurisdiction	Staff Hours	Local Operating Budget	Short Range	Low		X	Flooding	In Progress: There are land use plans in place/under development that encourage more open space and green surfaces.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
Town of Godwin											
G1	Maintain an all hazards public education program to educate and prepare residents for all of the hazards that impact Cumberland County.	To educate, enhance preparedness, and resiliency of Cumberland County and its municipal residents through public education programs that included booths at fairs, festivals and special events, websites, brochures, school programs, and etc.	Town of Goodwin Planning Department, Cumberland County Emergency Management	$90,000	Local Operating Budget	Short Range	Low	X	X	All Hazards	To Be Continued: Cumberland County Emergency Services provides an all-hazards approach public education program. The department provides public education at events such as the CCS student career day, community watch meetings, via website, and other special events upon request.
G2	Explore the Fire Adapted Communities concept implementation in Cumberland County.	To enhance the preparedness and resiliency of Cumberland County and its municipalities to the effects of wild land fire and urban interface, through education; programs such as Fire Wise, Ready Set Go, Community Wildfire Protection Plan; Fuel Management; local codes and ordinances.	Emergency Management, NC Forest Service and Fire Marshalls	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X	X	Wildfire	In Progress: Cumberland County is currently exploring the Fire Wise program as an option for the county. There are Community Wildfire Protection Plans in place for certain communities. The most recent GC Sherwood #24 Plan completed 6/30/2016
G3	Conduct a countywide infrastructure vulnerability assessment for all hazards to identify priority needs for updating ill-designed or outdated critical structures.	It has been difficult to locate any comprehensive assessments of local infrastructure in Cumberland and Hoke Counties. With current and projected natural hazard occurrences, it is essential to have an accurate and comprehensive understanding of the current condition of critical facilities to ensure the ability to continue to provide for basic needs, such as water and electrical supplies, transportation routes, waste management, etc.	County/city structural and civil engineers in partnership with U.S. Army Corps of Engineers	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X		All Hazards	In Progress: No measurable progress has been made in the last 5 years due to lack of funding.
G4	Conduct social vulnerability analysis to identify priority needs and opportunities that will address the specific problems vulnerable populations face from all hazards, including barriers to evacuation, event-	There exist various groups of individuals that have additional financial, social and/or environmental barriers to being resilient in the face of natural hazard events. In Cumberland	County Social Services Department and/or County Health Department	Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	All Hazards	In-Progress: The City is exploring programs and tools for rainfall measuring, hotspot reporting, social vulnerability analysis, and

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
	specific vulnerabilities, and impediments to recovery.	County, for example, groups with significant number of people affected include about 10K outdoor workers with direct exposure to extreme heat days, elderly people and especially those with existing cardiovascular conditions, and other low-income and/or minority groups. As natural hazard events increase in intensity and frequency, these groups will find it harder to safely and efficiently get out of harm's way. These groups will also have difficulty in obtaining and paying for essential components to sustain life, such as medications, utilities, and transportation to/from a place of work, etc.									other measures. No measurable progress due lack of funding.
G5	Collaborate with NC Cooperative Extension and NC Agriculture and Forestry Adaptation Working Group to provide more local support and encouragement of forest conservation and farmland preservation measures.	Forests and farmland provide a multitude of social, economic and environmental benefits, that when looked at comprehensively, far outweigh any profit/revenue projections of residential or commercial properties. Outside of development pressure, some of the other major health risks include: (1) increasing wildfire risk, (2) increasing number and types of insects and pests, (3) lack of sufficient water during the growing season for crops, and (4) increasing damage from strong winds and flooding. It is vital, especially in the face of a changing climate, to preserve these working lands and to support higher density development in already existing urban and suburban centers.	County Board of Commissioners, Conservation District Programs, and other land preservation organizations.	TBD, Staff Hours	NC Cooperative Extension, NC Forest Service, US Department of Agriculture and NC Wildlife Resources Commission.	Short Range	Low		X	Wildfire, Flooding	To Be Continued: Cumberland County works in conjunction with NC Cooperative Extension/NC State to provide local support. Cumberland County also incorporates Voluntary Agricultural Districts into their land use plans.
G6	Include climate predictions from the Cumberland County Climate Resiliency Plan in the Regional Hazard Mitigation	To properly prepare for natural hazard occurrences, it is important to include predictions	The Planning Department/Planning Director for	Staff Hours	Existing FEMA grant	Short Range	Low	X	X	All Hazards	To Be Continued: In the 2016 Cumberland-Hoke Regional Hazard

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
	Plan.	that warn of: (1) increasing temperatures and extreme heat days, (2) increasing frequency and strength of severe weather events, (3) more heavy rain/flooding, and (4) more frequent and prolonged drought. Although some climate projections do not pose an immediate threat, any comprehensive mitigation plan for emergency management should at the very least, and by the very nature of the definition of "mitigation", acknowledge the changing climate and possibility of increased extreme weather and flooding events.	each jurisdiction in Cumberland County								Mitigation plan climate predictions from the Climate Resiliency Plan was included. Will continue to work with Dept of Environmental Quality to update any long-term climate predictions, when updates are available.
G7	Provide financial assistance for low-income residents to help with power bills and support services during extended periods of high temperature and other extreme weather.	Low-income households face challenges in keeping up with utility bills. Some low-income utility assistance programs are offered, but funds are limited. Extreme weather and increasing temperatures will place even greater pressure on these programs' ability to aid all those in need, and citizen's lives will be increasingly at stake.	County Health Department	TBD, Staff Hours	NC Department of Health and Human Services and County Department of Health	Medium Range	Medium	X	X	Extreme Heat, Winter Weather	To Be Continued: Cumberland County participates in the statewide Crisis Intervention Program. CIP aids low-income families experiencing or in danger of heating or cooling household emergencies where there is a life-threatening or health-related emergency and timely, enough, or appropriate assistance is not available from any other source.
G8	Analyze and update local development ordinances to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Also, provide incentives for making buildings safer from wind, flooding, more energy and water efficient, and healthier to live in.	Energy and water efficiency will be increasingly important to a community's resiliency in the face of natural hazards specifically because of projections of increasing temperatures and extreme heat days, and prolonged periods of drought. Climate projections also state that precipitation will continue to follow a seasonal pattern, whereby hot, Summer months are classified with less precipitation and Winters with	Planning and Code Departments of each jurisdiction	Staff Hours	Local Operating Budget	Medium Range	Medium		X	Flooding, Hurricane, Severe Weather, Extreme Heat, Winter Weather	In Progress: No ordinances or incentives have been developed to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Cumberland County utilized the state building code due to lack of staff and funding.

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		more precipitation. Extreme heat days will be specially taxing on buildings with older A/C systems or inadequate insulation and in low-income households where upkeep with rising utility costs could become a burden.									
G9	Use natural systems, more open space and green surfaces to manage stormwater in a more resilient fashion.	Impervious surfaces typically found in urban centers, such as paved roads, buildings, parking lots and pavement, drastically increase flash floods and urban flooding, which seems to be a common occurrence in Cumberland County. For instance, within a 90-day period (March 1 – June 30, 2015), three flooding incidents were reported due to heavy rainfall events. Use of LID stormwater management practices is mentioned only in summary in the Growth Factor Analysis, stating it "…should be emphasized in sensitive areas…" This, coupled with the naturally flat topography of the eastern portions of the County also help to create excess runoff and subsequent urban flooding issues, especially in the Special Flood Hazard Areas (SFHA) of the County, and specifically around Blounts and Cross Creek, as referenced in various resources.	Engineering Department of each jurisdiction	Staff Hours	Local Operating Budget	Short Range	Low		X	Flooding	In Progress: There are land use plans in place/under development that encourage more open space and green surfaces.
Town of Hope Mills											
H1	Creek mitigation tied to Hope Mills Lake Dam	The Town of Hope Mills made repairs to the Hope Mills Lake Dam. The lake filled back to the historical levels where there will then be a need for various activities tied to creek mitigation. These activities assisted in the preservation of the creek bank while reducing erosion levels.	Town of Hope Mills Public Works Department	Staff Hours	Local Operating Budget	Short Term	Low	X	X	Dam Failure,	In-Progress: The town marked the completion of the dam in early 2018. The town will continue to evaluate erosion issues downstream of the dam.
H2	Restrict Residential and Non-	Promote flood area as an	Town of Hope	Staff Hours	Local	Short Range	Low		X	Flooding	In-Progress: Ordinance

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
	Compatible Uses Within The 100-Year Floodplain.	environmental corridor and open space and prohibit development within the Special Flood Hazard Area, while reducing potential losses during a flood hazard.	Mills Planning Department and Storm Water Department		Operating Budget						was developed in the 2006 to address development of all structures within the 100-year flood plain. The town enforces the minimums established by the state. The Town of Hope Mills is currently working towards updating the subdivision ordinance as part of the Green Growth Toolbox initiative.
H3	Develop A Tree Ordinance To Address Clear Cutting, Protection of Existing Trees and Vegetation.	Promote an amendment to the Town of Hope Mills Tree Ordinance that ties to the conditions of approvals for all developments that anticipate the removal of trees.	Town of Hope Mills Planning Department and Inspections Department	Staff Hours $60,000-80,000	Local Operating Budget	Medium Range	Medium	X	X	Flooding, Extreme Heat	In-Progress: The Town of Hope Mills has an ordinance that addresses clear cutting adopted October 20, 2008 and Amended June 23, 2014. Before any clear cutting can be done agents must notify the Chief Building Inspector. The town is working to develop an incentivized tree cutting ordinance that protects trees and natural vegetation.
H4	Revised Subdivision Ordinance Requiring Additional Access to Be Used as An Evacuation Route for Developments Located Near Special Hazard Areas.	The Town of Hope Mills Subdivision Ordinance was recently updated to include sidewalk requirements for new construction. Evacuation routes should be studied, and language should be drafted to include requirements for evacuation routes where applicable.	Town of Hope Mills Planning Department and Inspections Department	Staff Hours $60,000-80,000	Local Operating Budget	Long Range	High		X	Flooding	In-Progress: No measurable progress made. The town plans to evaluate the need for additional access near special hazard areas in the future.
H5	Maintain an all hazards public education program to educate and prepare residents for all of the hazards that impact Cumberland County.	To educate, enhance preparedness, and resiliency of the County and its municipal residents through public education programs included booths at fairs, festivals and special events, websites, brochures, school programs, etc.	Town of Hope Mills Planning Department, Cumberland County Emergency Management	$90,000	Local Operating Budget	Short Range	Low	X	X	All Hazards	To Be Continued: Cumberland County Emergency Services provides an all-hazards approach public education program. The department provides public education at events such as the CCS student career day, community

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											watch meetings, via website, and other special events upon request.
H6	Explore the Fire Adapted Communities concept implementation in Cumberland County.	To enhance the preparedness and resiliency of Cumberland County and its municipalities to the effects of wild land fire and urban interface, through education; programs such as Fire Wise, Ready Set Go, Community Wildfire Protection Plan; Fuel Management; local codes and ordinances.	Emergency Management, NC Forest Service and Fire Marshalls	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X	X	Wildfire	In Progress: Cumberland County is currently exploring the Fire Wise program as an option for the county. There are Community Wildfire Protection Plans in place for certain communities. The most recent GC Sherwood #24 Plan completed 6/30/2016
H7	Conduct a countywide infrastructure vulnerability assessment to identify priority needs for updating ill-designed or outdated critical structures.	It has been difficult to locate any comprehensive assessments of local infrastructure in Cumberland and Hoke Counties. With current and projected natural hazard occurrences, it is essential to have an accurate and comprehensive understanding of the current condition of critical facilities to ensure the ability to continue to provide for basic needs, such as water and electrical supplies, transportation routes, waste management, etc.	County/city structural and civil engineers in partnership with U.S. Army Corps of Engineers	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X		All Hazards	In Progress/partially completed: There has been envelope studies (suggested improvement) done on some of the county's critical infrastructure. Cumberland County Emergency Management recently obtain Infrastructure Protection Certificates from LSU for conducting infrastructure assessments.
H8	Conduct social vulnerability analysis to identify priority needs and opportunities that will address the specific problems vulnerable populations face from all of hazards, including barriers to evacuation, event-specific vulnerabilities, and impediments to recovery.	There exist various groups of individuals that have additional financial, social and/or environmental barriers to being resilient in the face of natural hazard events. In Cumberland County, for example, groups with significant number of people affected include about 10K outdoor workers with direct exposure to extreme heat days, elderly people and especially those with existing cardiovascular conditions, and other low-income and/or minority groups. As natural hazard events increase in intensity and frequency, these	County Social Services Department and/or County Health Department	Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	All Hazards	In-Progress: The City is exploring programs and tools for rainfall measuring, hotspot reporting, social vulnerability analysis, and other measures. No measurable progress due lack of funding.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		groups will find it harder to safely and efficiently get out of harm's way. These groups will also have difficulty in obtaining and paying for essential components to sustain life, such as medications, utilities, and transportation to/from a place of work, etc.									
H9	Collaborate with NC Cooperative Extension and NC Agriculture and Forestry Adaptation Working Group to provide more local support and encouragement of forest conservation and farmland preservation measures.	Forests and farmland provide a multitude of social, economic and environmental benefits, that when looked at comprehensively, far outweigh any profit/revenue projections of residential or commercial properties. Outside of development pressure, some of the other major health risks include: (1) increasing wildfire risk, (2) increasing number and types of insects and pests, (3) lack of sufficient water during the growing season for crops, and (4) increasing damage from strong winds and flooding. It is vital, especially in the face of a changing climate, to preserve these working lands and to support higher density development in already existing urban and suburban centers.	County Board of Commissioners, Conservation District Programs, and other land preservation organizations.	TBD, Staff Hours	NC Cooperative Extension, NC Forest Service, US Department of Agriculture and NC Wildlife Resources Commission.	Short Range	Low		X	Wildfire, Flooding	To Be Continued: Cumberland County works in conjunction with NC Cooperative Extension/NC State to provide local support. Cumberland County also incorporates Voluntary Agricultural Districts into their land use plans.
H10	Include climate predictions from the Cumberland County Climate Resiliency Plan in the Regional Hazard Mitigation Plan.	To properly prepare for natural hazard occurrences, it is important to include predictions that warn of: (1) increasing temperatures and extreme heat days, (2) increasing frequency and strength of severe weather events, (3) more heavy rain/flooding, and (4) more frequent and prolonged drought. Although some climate projections do not pose an immediate threat, any comprehensive mitigation plan for emergency management	The Planning Department/Planning Director for each jurisdiction in Cumberland County	Staff Hours	Existing FEMA grant	Short Range	Low	X	X	All Hazards	To Be Continued: In the 2016 Cumberland-Hoke Regional Hazard Mitigation plan climate predictions from the Climate Resiliency Plan was included. Will continue to work with Dept of Environmental Quality to update any long-term climate predictions, when updates are available.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		should at the very least, and by the very nature of the definition of "mitigation", acknowledge the changing climate and possibility of increased extreme weather and flooding events.									
H11	Provide financial assistance for low-income residents to help with power bills and support services during extended periods of high temperature and other extreme weather.	Low-income households face challenges in keeping up with utility bills. Some low-income utility assistance programs are offered, but funds are limited. Extreme weather and increasing temperatures will place even greater pressure on these programs' ability to aid all those in need, and citizen's lives will be increasingly at stake.	County Health Department	TBD, Staff Hours	NC Department of Health and Human Services and County Department of Health	Medium Range	Medium	X	X	Extreme Heat, Winter Weather	To Be Continued: Cumberland County participates in the statewide Crisis Intervention Program. CIP aids low-income families experiencing or in danger of heating or cooling household emergencies where there is a life-threatening or health-related emergency and timely, enough, or appropriate assistance is not available from any other source.
H12	Analyze and update local development ordinances to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Also, provide incentives for making buildings safer from wind, flooding, more energy and water efficient, and healthier to live in.	Energy and water efficiency will be increasingly important to a community's resiliency in the face of natural hazards specifically because of projections of increasing temperatures and extreme heat days, and prolonged periods of drought. Climate projections also state that precipitation will continue to follow a seasonal pattern, whereby hot, Summer months are classified with less precipitation and Winters with more precipitation. Extreme heat days will be specially taxing on buildings with older A/C systems or inadequate insulation and in low-income households where upkeep with rising utility costs could become a burden.	Planning and Code Departments of each jurisdiction	Staff Hours $60,000-80,000	Local Operating Budget	Medium Range	Medium		X	Flooding, Hurricane, Severe Weather, Extreme Heat, Winter Weather	In-Progress: There has been no measurable progress made however, the town plans to explore zoning and building ordinances in the future.
H13	Use natural systems, more open space and green surfaces to manage stormwater in a more resilient fashion.	Impervious surfaces typically found in urban centers, such as paved roads, buildings, parking lots and pavement, drastically increase flash floods and urban	Stormwater Department	Staff Hours $50,000	Local Operating Budget	Short Range	Low		X	Flooding	In-Progress: The Town of Hope Mills is working with a Third-party Engineering company to explore ways to promote more

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		flooding, which seems to be a common occurrence in Cumberland County. For instance, within a 90-day period (March 1 – June 30, 2015), three flooding incidents were reported due to heavy rainfall events. Use of LID stormwater management practices is mentioned only in summary in the Growth Factor Analysis, stating it "…should be emphasized in sensitive areas…" This, coupled with the naturally flat topography of the eastern portions of the County also help to create excess runoff and subsequent urban flooding issues, especially in the Special Flood Hazard Areas (SFHA) of the County, and specifically around Blounts and Cross Creek, as referenced in various resources.									green/open spaces along with associated costs. The town is also working to implement the Green Growth Toolbox initiate, a program that helps to conserve wildlife and natural resources.
Town of Linden											
L1	Develop a zoning ordinance for the Town.	Zoning ordinance helps protect the health, safety and welfare of its citizens as well as reduce vulnerability to natural hazards.	Town of Linden and Cumberland County Planning & Inspections Department	Staff Hours $5,000 - $10,000	Local Operating Budget	Long Range	High		X	All Hazards	In progress: A draft has been prepared, currently working towards adoption.
L2	Provide Back-Up Power for Critical Facilities	The Town of Linden is looking to acquire generators to enhance its critical infrastructure. The generators will be used to supply power to both the town hall and the community building. The buildings provide essential services and house critical technology vital to the town's operation. The town was under mandatory evacuation orders during Hurricane Florence and experienced prolonged power outages during the event.	Town of Linden Administrators	$25,000	Local Operating Budget and EMA Grants	Medium Range	Medium	X	X	All Hazards	New Action
L3	Maintain an all hazards public	To educate, enhance	Town of Linden	$90,000	Local Operating	Short Range	Low	X	X	All Hazards	To Be Continued:

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	education program to educate and prepare residents for all of the hazards that impact Cumberland County.	preparedness, and resiliency of Cumberland County and its municipal residents through public education programs that included booths at fairs, festivals and special events, websites, brochures, school programs, and etc.	Planning Department, Cumberland County Emergency Management		Budget						Cumberland County Emergency Services provides an all-hazards approach public education program. The department provides public education at events such as the CCS student career day, community watch meetings, via website, and other special events upon request.
L4	Explore the Fire Adapted Communities concept implementation in Cumberland County.	To enhance the preparedness and resiliency of Cumberland County and its municipalities to the effects of wild land fire and urban interface, through education; programs such as Fire Wise, Ready Set Go, Community Wildfire Protection Plan; Fuel Management; local codes and ordinances.	Emergency Management, NC Forest Service and Fire Marshalls	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X	X	Wildfire	In Progress: Cumberland County is currently exploring the Fire Wise program as an option for the county. There are Community Wildfire Protection Plans in place for certain communities. The most recent GC Sherwood #24 Plan completed 6/30/2016
L5	Conduct a countywide infrastructure vulnerability assessment to identify priority needs for updating ill-designed or outdated critical structures.	It has been difficult to locate any comprehensive assessments of local infrastructure in Cumberland and Hoke Counties. With current and projected natural hazard occurrences, it is essential to have an accurate and comprehensive understanding of the current condition of critical facilities to ensure the ability to continue to provide for basic needs, such as water and electrical supplies, transportation routes, waste management, etc.	County/city structural and civil engineers in partnership with U.S. Army Corps of Engineers	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X		All Hazards	In Progress: No measurable progress has been made in the last 5 years due to lack of funding.
L6	Conduct social vulnerability analysis to identify priority needs and opportunities that will address the specific problems vulnerable populations face from all hazards, including barriers to evacuation, event-specific vulnerabilities, and impediments to recovery.	There exist various groups of individuals that have additional financial, social and/or environmental barriers to being resilient in the face of natural hazard events. In Cumberland County, for example, groups with significant number of people affected include about 10K	County Social Services Department and/or County Health Department	Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	All Hazards	In-Progress: The City is exploring programs and tools for rainfall measuring, hotspot reporting, social vulnerability analysis, and other measures. No measurable progress due lack of funding.

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		outdoor workers with direct exposure to extreme heat days, elderly people and especially those with existing cardiovascular conditions, and other low-income and/or minority groups. As natural hazard events increase in intensity and frequency, these groups will find it harder to safely and efficiently get out of harm's way. These groups will also have difficulty in obtaining and paying for essential components to sustain life, such as medications, utilities, and transportation to/from a place of work, etc.									
L7	Collaborate with NC Cooperative Extension and NC Agriculture and Forestry Adaptation Working Group to provide more local support and encouragement of forest conservation and farmland preservation measures.	Forests and farmland provide a multitude of social, economic and environmental benefits, that when looked at comprehensively, far outweigh any profit/revenue projections of residential or commercial properties. Outside of development pressure, some of the other major health risks include: (1) increasing wildfire risk, (2) increasing number and types of insects and pests, (3) lack of sufficient water during the growing season for crops, and (4) increasing damage from strong winds and flooding. It is vital, especially in the face of a changing climate, to preserve these working lands and to support higher density development in already existing urban and suburban centers.	County Board of Commissioners, Conservation District Programs, and other land preservation organizations.	TBD, Staff Hours	NC Cooperative Extension, NC Forest Service, US Department of Agriculture and NC Wildlife Resources Commission.	Short Range	Low		X	Wildfire, Flooding	To Be Continued: In the 2016 Cumberland-Hoke Regional Hazard Mitigation plan climate predictions from the Climate Resiliency Plan was included. Will continue to work with Dept of Environmental Quality to update any long-term climate predictions, when updates are available.
L8	Include climate predictions from the Cumberland County Climate Resiliency Plan in the Regional Hazard Mitigation Plan.	To properly prepare for natural hazard occurrences, it is important to include predictions that warn of: (1) increasing temperatures and extreme heat days, (2) increasing frequency and	The Planning Department/Planning Director for each jurisdiction in Cumberland County	Staff Hours	Existing FEMA grant	Short Range	Low	X	X	All Hazards	To Be Continued In the 2016 Cumberland-Hoke Regional Hazard Mitigation plan climate predictions from the Climate Resiliency Plan

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		strength of severe weather events, (3) more heavy rain/flooding, and (4) more frequent and prolonged drought. Although some climate projections do not pose an immediate threat, any comprehensive mitigation plan for emergency management should at the very least, and by the very nature of the definition of "mitigation", acknowledge the changing climate and possibility of increased extreme weather and flooding events.									was included. Will continue to work with Dept of Environmental Quality to update any long-term climate predictions, when updates are available.
L9	Provide financial assistance for low-income residents to help with power bills and support services during extended periods of high temperature and other extreme weather.	Low-income households face challenges in keeping up with utility bills. Some low-income utility assistance programs are offered, but funds are limited. Extreme weather and increasing temperatures will place even greater pressure on these programs' ability to aid all those in need, and citizen's lives will be increasingly at stake.	County Health Department	Staff Hours	NC Department of Health and Human Services and County Department of Health	Medium Range	Medium	X	X	Extreme Heat, Winter Weather	To Be Continued Cumberland County participates in the statewide Crisis Intervention Program. CIP aids low-income families experiencing or in danger of heating or cooling household emergencies where there is a life-threatening or health-related emergency and timely, enough, or appropriate assistance is not available from any other source.
L10	Analyze and update local development ordinances to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Also, provide incentives for making buildings safer from wind, flooding, more energy and water efficient, and healthier to live in.	Energy and water efficiency will be increasingly important to a community's resiliency in the face of natural hazards specifically because of projections of increasing temperatures and extreme heat days, and prolonged periods of drought. Climate projections also state that precipitation will continue to follow a seasonal pattern, whereby hot, Summer months are classified with less precipitation and Winters with more precipitation. Extreme heat days will be specially taxing on buildings with older A/C systems	Planning and Code Departments of each jurisdiction	Staff Hours	Local Operating Budget	Medium Range	Medium		X	Flooding, Hurricane, Severe Weather, Extreme Heat, Winter Weather	In Progress: No ordinances or incentives have been developed to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Cumberland County utilized the state building code due to lack of staff and funding.

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		or inadequate insulation and in low-income households where upkeep with rising utility costs could become a burden.									
L11	Use natural systems, more open space and green surfaces to manage stormwater in a more resilient fashion.	Impervious surfaces typically found in urban centers, such as paved roads, buildings, parking lots and pavement, drastically increase flash floods and urban flooding, which seems to be a common occurrence in Cumberland County. For instance, within a 90-day period (March 1 – June 30, 2015), three flooding incidents were reported due to heavy rainfall events. Use of LID stormwater management practices is mentioned only in summary in the Growth Factor Analysis, stating it "…should be emphasized in sensitive areas…" This, coupled with the naturally flat topography of the eastern portions of the County also help to create excess runoff and subsequent urban flooding issues, especially in the Special Flood Hazard Areas (SFHA) of the County, and specifically around Blounts and Cross Creek, as referenced in various resources.	Engineering Department of each jurisdiction	Staff Hours	Local Operating Budget	Short Range	Low	X	X	Flooding	In Progress: There are land use plans in place/under development that encourage more open space and green surfaces.
L12	Explore programs that identify streams that are impacted by beaver dams and creates a solution to the flooding caused by the dams.	The canal that runs through the Town of Linden is a natural habitat for beavers. As a result, beavers frequently make dams in sections of the canal preventing it from naturally draining into the little river. The town plans to explore programs such as the North Carolina Beaver Management Assistance Program, an initiative designed to help manage problems caused by beavers on private and public lands.	Town of Linden Administrators	TBD, Staff Hours	NCEM/FEMA/ Local Funds	Medium-Rage	Medium	X	X	Flooding	New
L13	Identify and remove large obstructions throughout the Town of Linden's steams and waterways.	The Town of Linden has a drainage canal that run through the main thoroughfares of its	Town of Linden	TBD, Staff Hours	NCEM/FEMA/ Local Funds	Medium-Range	Medium	X	X	Flooding	New

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		jurisdiction. As a result of major storm systems such as Hurricane Florence, large pieces of debris have impacted the ability of the canal to naturally drain into the Little river. The town plans to identify grant programs and other sources of funding to remove debris.									
Town of Spring Lake											
S1	Review and Make Necessary Changes to the Town Stormwater Ordinances. Enhance and Expand, the Cleaning and Improvement to Existing Streams and Drainage Ways.	Continue to annually review and amend the Stormwater Ordinances to provide additional provisions to clean and improve drainage ways and streams to reduce flooding.	Spring Lake Utilities Department	Staff Hours	Local Operating Budget	Long Range	High	X	X	Flooding	In-Progress: Spring Lake Utilities Department continues to improve their Stormwater Program by making necessary changes to their stormwater ordinances.
S2	Maintain an all hazards public education program to educate and prepare residents for all of the hazards that impact Cumberland County.	To educate, enhance preparedness, and resiliency of Cumberland County and its municipal residents through public education programs that included booths at fairs, festivals and special events, websites, brochures, school programs, and etc.	Spring Lake Planning Department, Cumberland County Emergency Management	$90,000	Local Operating Budget	Short Range	Low	X	X	All Hazards	To Be Continued: Cumberland County Emergency Services provides an all-hazards approach public education program. The department provides public education at events such as the CCS student career day, community watch meetings, via website, and other special events upon requests
S3	Explore the Fire Adapted Communities concept implementation in Cumberland County.	To enhance the preparedness and resiliency of Cumberland County and its municipalities to the effects of wild land fire and urban interface, through education; programs such as Fire Wise, Ready Set Go, Community Wildfire Protection Plan; Fuel Management; local codes and ordinances.	Emergency Management, NC Forest Service and Fire Marshalls	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X	X	Wildfire	In Progress: No measurable progress has been made in the last 5 years
S4	Conduct a countywide infrastructure vulnerability assessment for all hazards to identify priority needs for updating ill-designed or outdated critical structures.	It has been difficult to locate any comprehensive assessments of local infrastructure in Cumberland and Hoke Counties. With current and projected	County/city structural and civil engineers in partnership with U.S. Army Corps	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X	X	All Hazards	In Progress/partially completed: There has been envelope studies (suggested improvement) done on

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		natural hazard occurrences, it is essential to have an accurate and comprehensive understanding of the current condition of critical facilities to ensure the ability to continue to provide for basic needs, such as water and electrical supplies, transportation routes, waste management, etc.	of Engineers								some of the county's critical infrastructure. Cumberland County Emergency Management recently obtain Infrastructure Protection Certificates from LSU for conducting infrastructure assessments.
S5	Conduct social vulnerability analysis to identify priority needs and opportunities that will address the specific problems vulnerable populations face from all hazards, including barriers to evacuation, event-specific vulnerabilities, and impediments to recovery.	There exist various groups of individuals that have additional financial, social and/or environmental barriers to being resilient in the face of natural hazard events. In Cumberland County, for example, groups with significant number of people affected include about 10K outdoor workers with direct exposure to extreme heat days, elderly people and especially those with existing cardiovascular conditions, and other low-income and/or minority groups. As natural hazard events increase in intensity and frequency, these groups will find it harder to safely and efficiently get out of harm's way. These groups will also have difficulty in obtaining and paying for essential components to sustain life, such as medications, utilities, and transportation to/from a place of work, etc.	County Social Services Department and/or County Health Department	Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	All Hazards	In-Progress: The City is exploring programs and tools for rainfall measuring, hotspot reporting, social vulnerability analysis, and other measures. No measurable progress due lack of funding.
S6	Collaborate with NC Cooperative Extension and NC Agriculture and Forestry Adaptation Working Group to provide more local support and encouragement of forest conservation and farmland preservation measures.	Forests and farmland provide a multitude of social, economic and environmental benefits, that when looked at comprehensively, far outweigh any profit/revenue projections of residential or commercial properties. Outside of development pressure, some of the other	County Board of Commissioners, Conservation District Programs, and other land preservation organizations.	TBD, Staff Hours	NC Cooperative Extension, NC Forest Service, US Department of Agriculture and NC	Short Range	Low	X	X	Wildfire, Flooding	To Be Continued: Cumberland County works in conjunction with NC Cooperative Extension/NC State to provide local support. Cumberland County also incorporates Voluntary Agricultural Districts into their land use plans.

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		major health risks include: (1) increasing wildfire risk, (2) increasing number and types of insects and pests, (3) lack of sufficient water during the growing season for crops, and (4) increasing damage from strong winds and flooding. It is vital, especially in the face of a changing climate, to preserve these working lands and to support higher density development in already existing urban and suburban centers.			Wildlife Resources Commissi on.						
S7	Include climate predictions from the Cumberland County Climate Resiliency Plan in the Regional Hazard Mitigation Plan.	To properly prepare for natural hazard occurrences, it is important to include predictions that warn of: (1) increasing temperatures and extreme heat days, (2) increasing frequency and strength of severe weather events, (3) more heavy rain/flooding, and (4) more frequent and prolonged drought. Although some climate projections do not pose an immediate threat, any comprehensive mitigation plan for emergency management should at the very least, and by the very nature of the definition of "mitigation", acknowledge the changing climate and possibility of increased extreme weather and flooding events.	The Planning Department/Plan ning Director for each jurisdiction in Cumberland County	Staff Hours	Existing FEMA grant	Short Range	Low	X	X	All Hazards	To Be Continued: In the 2016 Cumberland-Hoke Regional Hazard Mitigation plan climate predictions from the Climate Resiliency Plan was included. Will continue to work with Dept of Environmental Quality to update any long-term climate predictions, when updates are available.
S8	Provide financial assistance for low-income residents to help with power bills and support services during extended periods of high temperature and other extreme weather.	Low-income households face challenges in keeping up with utility bills. Some low-income utility assistance programs are offered, but funds are limited. Extreme weather and increasing temperatures will place even greater pressure on these programs' ability to aid all those in need, and citizen's lives will be increasingly at stake.	County Health Department	Staff Hours	NC Departme nt of Health and Human Services and County Departme nt of Health	Medium Range	Medium	X	X	Extreme Heat, Winter Weather	To Be Continued: Cumberland County participates in the statewide Crisis Intervention Program. CIP aids low-income families experiencing or in danger of heating or cooling household emergencies where there is a life-threatening or health-related emergency and timely, enough, or

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											appropriate assistance is not available from any other source.
S9	Analyze and update local development ordinances to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Also, provide incentives for making buildings safer from wind, flooding, more energy and water efficient, and healthier to live in.	Energy and water efficiency will be increasingly important to a community's resiliency in the face of natural hazards specifically because of projections of increasing temperatures and extreme heat days, and prolonged periods of drought. Climate projections also state that precipitation will continue to follow a seasonal pattern, whereby hot, Summer months are classified with less precipitation and Winters with more precipitation. Extreme heat days will be specially taxing on buildings with older A/C systems or inadequate insulation and in low-income households where upkeep with rising utility costs could become a burden.	Planning and Code Departments of each jurisdiction	Staff Hours	Local Operating Budget	Medium Range	Medium		X	Flooding, Hurricane, Severe Weather, Extreme Heat, Winter Weather	In Progress: Spring Lake planning utilized the North Carolina Building code. There have not been any ordinances developed due to lack of staff and funding.
S10	Use natural systems, more open space and green surfaces to manage stormwater in a more resilient fashion.	Impervious surfaces typically found in urban centers, such as paved roads, buildings, parking lots and pavement, drastically increase flash floods and urban flooding, which seems to be a common occurrence in Cumberland County. For instance, within a 90-day period (March 1 – June 30, 2015), three flooding incidents were reported due to heavy rainfall events. Use of LID stormwater management practices is mentioned only in summary in the Growth Factor Analysis, stating it "…should be emphasized in sensitive areas…" This, coupled with the naturally flat topography of the eastern portions of the County also help to create excess runoff and subsequent urban flooding issues, especially in the Special Flood Hazard Areas (SFHA) of the	Engineering Department of each jurisdiction	Staff Hours	Local Operating Budget	Short Range	Low	X	X	Flooding	In Progress: Spring Lake does not have a recently updated Land Use plan to address the listed mitigation action due to lack of staff and funding.

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		County, and specifically around Blounts and Cross Creek, as referenced in various resources.									
Town of Stedman											
ST1	Revise the Subdivision Ordinance requiring an additional access for emergency vehicles and to be used as an evacuation route for developments located near special flood hazard area.	This will provide an additional access for residents, public safety officials and emergency services to those developments located near a special flood hazard area, while reducing the possibility of a life-threatening situation for residents, public officials and emergency services.	Town of Stedman and Cumberland County Planning & Inspections Department	Staff Hours $5,000 - $10,000	Local Operating Budget	Medium Range	Medium		X	Flooding	To Be Continued: Cumberland County Utilized the NC State Building Code. The 2018 Code increased additional access for emergency vehicles.
ST2	Maintain an all hazards public education program to educate and prepare residents for all of the hazards that impact Cumberland County.	To educate, enhance preparedness, and resiliency of Cumberland County and its municipal residents through public education programs that included booths at fairs, festivals and special events, websites, brochures, school programs, and etc.	Town of Stedman Planning Department, Cumberland County Emergency Management	$90,000	Local Operating Budget	Short Range	Low	X	X	All Hazards	To Be Continued: Cumberland County Emergency Services provides an all-hazards approach public education program. The department provides public education at events such as the CCS student career day, community watch meetings, via website, and other special events upon request.
ST3	Explore the Fire Adapted Communities concept implementation in Cumberland County.	To enhance the preparedness and resiliency of Cumberland County and its municipalities to the effects of wild land fire and urban interface, through education; programs such as Fire Wise, Ready Set Go, Community Wildfire Protection Plan; Fuel Management; local codes and ordinances.	Emergency Management, NC Forest Service and Fire Marshalls	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X	X	Wildfire	In Progress: Cumberland County is currently exploring the Fire Wise program as an option for the county. There are Community Wildfire Protection Plans in place for certain communities. The most recent GC Sherwood #24 Plan completed 6/30/2016
ST4	Conduct a countywide infrastructure vulnerability assessment to identify priority needs for updating ill-designed or outdated critical structures.	It has been difficult to locate any comprehensive assessments of local infrastructure in Cumberland and Hoke Counties. With current and projected natural hazard occurrences, it is essential to have an accurate and comprehensive understanding of the current condition of critical facilities to	County/city structural and civil engineers in partnership with U.S. Army Corps of Engineers	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X		All Hazards	In Progress: No measurable progress has been made in the last 5 years due to lack of funding.

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		ensure the ability to continue to provide for basic needs, such as water and electrical supplies, transportation routes, waste management, etc.									
ST5	Conduct social vulnerability analysis to identify priority needs and opportunities that will address the specific problems vulnerable populations face from all hazards, including barriers to evacuation, event-specific vulnerabilities, and impediments to recovery.	There exist various groups of individuals that have additional financial, social and/or environmental barriers to being resilient in the face of natural hazard events. In Cumberland County, for example, groups with significant number of people affected include about 10K outdoor workers with direct exposure to extreme heat days, elderly people and especially those with existing cardiovascular conditions, and other low-income and/or minority groups. As natural hazard events increase in intensity and frequency, these groups will find it harder to safely and efficiently get out of harm's way. These groups will also have difficulty in obtaining and paying for essential components to sustain life, such as medications, utilities, and transportation to/from a place of work, etc.	County Social Services Department and/or County Health Department	Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	All Hazards	In-Progress: The City is exploring programs and tools for rainfall measuring, hotspot reporting, social vulnerability analysis, and other measures. No measurable progress due lack of funding.
ST6	Collaborate with NC Cooperative Extension and NC Agriculture and Forestry Adaptation Working Group to provide more local support and encouragement of forest conservation and farmland preservation measures.	Forests and farmland provide a multitude of social, economic and environmental benefits, that when looked at comprehensively, far outweigh any profit/revenue projections of residential or commercial properties. Outside of development pressure, some of the other major health risks include: (1) increasing wildfire risk, (2) increasing number and types of insects and pests, (3) lack of sufficient water during the growing season for crops, and (4)	County Board of Commissioners, Conservation District Programs, and other land preservation organizations.	TBD, Staff Hours	NC Cooperative Extension, NC Forest Service, US Department of Agriculture and NC Wildlife Resources Commission.	Short Range	Low	X	X	Wildfire, Flooding	To Be Continued: Cumberland County works in conjunction with NC Cooperative Extension/NC State to provide local support. Cumberland County also incorporates Voluntary Agricultural Districts into their land use plans.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		increasing damage from strong winds and flooding. It is vital, especially in the face of a changing climate, to preserve these working lands and to support higher density development in already existing urban and suburban centers.									
ST7	Include climate predictions from the Cumberland County Climate Resiliency Plan in the Regional Hazard Mitigation Plan.	To properly prepare for natural hazard occurrences, it is important to include predictions that warn of: (1) increasing temperatures and extreme heat days, (2) increasing frequency and strength of severe weather events, (3) more heavy rain/flooding, and (4) more frequent and prolonged drought. Although some climate projections do not pose an immediate threat, any comprehensive mitigation plan for emergency management should at the very least, and by the very nature of the definition of "mitigation", acknowledge the changing climate and possibility of increased extreme weather and flooding events.	The Planning Department/Planning Director for each jurisdiction in Cumberland County	Staff Hours	Existing FEMA grant	Short Range	Low	X	X	All Hazards	To Be Continued: In the 2016 Cumberland-Hoke Regional Hazard Mitigation plan climate predictions from the Climate Resiliency Plan was included. Will continue to work with Dept of Environmental Quality to update any long-term climate predictions, when updates are available.
ST8	Provide financial assistance for low-income residents to help with power bills and support services during extended periods of high temperature and other extreme weather.	Low-income households face challenges in keeping up with utility bills. Some low-income utility assistance programs are offered, but funds are limited. Extreme weather and increasing temperatures will place even greater pressure on these programs' ability to provide assistance to all those in need, and citizen's lives will be increasingly at stake.	County Health Department	TBD, Staff Hours	NC Department of Health and Human Services and County Department of Health	Medium Range	Medium	X	X	Extreme Heat, Winter Weather	To Be Continued: Cumberland County participates in the statewide Crisis Intervention Program. CIP aids low-income families experiencing or in danger of heating or cooling household emergencies where there is a life-threatening or health-related emergency and timely, enough, or appropriate assistance is not available from any other source.
ST9	Analyze and update local development ordinances to make buildings safer from wind and flooding, more energy	Energy and water efficiency will be increasingly important to a community's resiliency in the face	Planning and Code Departments of	Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	Flooding, Hurricane, Severe	In Progress: No ordinances or incentives have been developed to

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
	and water efficient, more tolerant of heat waves and healthier to live in. Also, provide incentives for making buildings safer from wind, flooding, more energy and water efficient, and healthier to live in.	of natural hazards specifically because of projections of increasing temperatures and extreme heat days, and prolonged periods of drought. Climate projections also state that precipitation will continue to follow a seasonal pattern, whereby hot, Summer months are classified with less precipitation and Winters with more precipitation. Extreme heat days will be specially taxing on buildings with older A/C systems or inadequate insulation and in low-income households where upkeep with rising utility costs could become a burden.	each jurisdiction							Weather, Extreme Heat, Winter Weather	make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Cumberland County utilized the state building code due to lack of staff and funding.
ST10	Use natural systems, more open space and green surfaces to manage stormwater in a more resilient fashion.	Impervious surfaces typically found in urban centers, such as paved roads, buildings, parking lots and pavement, drastically increase flash floods and urban flooding, which seems to be a common occurrence in Cumberland County. For instance, within a 90-day period (March 1 – June 30, 2015), three flooding incidents were reported due to heavy rainfall events. Use of LID stormwater management practices is mentioned only in summary in the Growth Factor Analysis, stating it "…should be emphasized in sensitive areas…" This, coupled with the naturally flat topography of the eastern portions of the County also help to create excess runoff and subsequent urban flooding issues, especially in the Special Flood Hazard Areas (SFHA) of the County, and specifically around Blounts and Cross Creek, as referenced in various resources.	Engineering Department of each jurisdiction	Staff Hours	Local Operating Budget	Short Range	Low		X	Flooding	In-Progress: Stedman Land use plan under development.
Town of Wade											
W1	Revise the Subdivision Ordinance	This will provide an additional	Town of Wade	Staff	Local Operating	Medium	Medium		X	Flooding	In Progress: No

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
	requiring an additional access for emergency vehicles and to be used as an evacuation route for developments located near special flood hazard area.	access for residents, public safety officials and emergency services to those developments located near a special flood hazard area, while reducing the possibility of a life-threatening situation for residents, public officials and emergency services.	and Cumberland County Planning & Inspections Department	Hours $5,000 - $10,000	Budget	Range					measurable progress has been made in the last 5 years due to lack of funding.
W2	Maintain an all hazards public education program to educate and prepare residents for all of the hazards that impact Cumberland County.	To educate, enhance preparedness, and resiliency of Cumberland County and its municipal residents through public education programs that included booths at fairs, festivals and special events, websites, brochures, school programs, etc.	Town of Wade Planning Department, Cumberland County Emergency Management	$90,000	Local Operating Budget	Short Range	Low	X	X	All Hazards	To Be Continued: Cumberland County Emergency Services provides an all-hazards approach public education program. The department provides public education at events such as the CCS student career day, community watch meetings, via website, and other special events upon requests.
W3	Explore the Fire Adapted Communities concept implementation in Cumberland County.	To enhance the preparedness and resiliency of Cumberland County and its municipalities to the effects of wild land fire and urban interface, through education; programs such as Fire Wise, Ready Set Go, Community Wildfire Protection Plan; Fuel Management; local codes and ordinances.	Emergency Management, NC Forest Service and Fire Marshalls	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X	X	Wildfire	In Progress: Cumberland County is currently exploring the Fire Wise program as an option for the county. There are Community Wildfire Protection Plans in place for certain communities. The most recent GC Sherwood #24 Plan completed 6/30/2016
W4	Conduct a countywide infrastructure vulnerability assessment to identify priority needs for updating ill-designed or outdated critical structures.	It has been difficult to locate any comprehensive assessments of local infrastructure in Cumberland and Hoke Counties. With current and projected natural hazard occurrences, it is essential to have an accurate and comprehensive understanding of the current condition of critical facilities to ensure the ability to continue to provide for basic needs, such as water and electrical supplies, transportation routes, waste management, etc.	County/city structural and civil engineers in partnership with U.S. Army Corps of Engineers	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X		All Hazards	In Progress/partially completed: There has been envelope studies (suggested improvement) done on some of the county's critical infrastructure. Cumberland County Emergency Management recently obtain Infrastructure Protection Certificates from LSU for conducting infrastructure assessments.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
W5	Conduct social vulnerability analysis to identify priority needs and opportunities that will address the specific problems vulnerable populations face from all of hazards, including barriers to evacuation, event-specific vulnerabilities, and impediments to recovery.	There exist various groups of individuals that have additional financial, social and/or environmental barriers to being resilient in the face of natural hazard events. In Cumberland County, for example, groups with significant number of people affected include about 10K outdoor workers with direct exposure to extreme heat days, elderly people and especially those with existing cardiovascular conditions, and other low-income and/or minority groups. As natural hazard events increase in intensity and frequency, these groups will find it harder to safely and efficiently get out of harm's way. These groups will also have difficulty in obtaining and paying for essential components to sustain life, such as medications, utilities, and transportation to/from a place of work, etc.	County Social Services Department and/or County Health Department	Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	All Hazards	In-Progress: The City is exploring programs and tools for rainfall measuring, hotspot reporting, social vulnerability analysis, and other measures. No measurable progress due lack of funding.
W6	Collaborate with NC Cooperative Extension and NC Agriculture and Forestry Adaptation Working Group to provide more local support and encouragement of forest conservation and farmland preservation measures.	Forests and farmland provide a multitude of social, economic and environmental benefits, that when looked at comprehensively, far outweigh any profit/revenue projections of residential or commercial properties. Outside of development pressure, some of the other major health risks include: (1) increasing wildfire risk, (2) increasing number and types of insects and pests, (3) lack of sufficient water during the growing season for crops, and (4) increasing damage from strong winds and flooding. It is vital, especially in the face of a changing climate, to preserve these working lands and to support higher density	County Board of Commissioners, Conservation District Programs, and other land preservation organizations.	TBD, Staff Hours	NC Cooperative Extension, NC Forest Service, US Department of Agriculture and NC Wildlife Resources Commission.	Short Range	Low	X	X	Wildfire, Flooding	To Be Continued: Cumberland County works in conjunction with NC Cooperative Extension/NC State to provide local support. Cumberland County also incorporates Voluntary Agricultural Districts into their land use plans.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		development in already existing urban and suburban centers.									
W7	Include climate predictions from the Cumberland County Climate Resiliency Plan in the Regional Hazard Mitigation Plan.	To properly prepare for natural hazard occurrences, it is important to include predictions that warn of: (1) increasing temperatures and extreme heat days, (2) increasing frequency and strength of severe weather events, (3) more heavy rain/flooding, and (4) more frequent and prolonged drought. Although some climate projections do not pose an immediate threat, any comprehensive mitigation plan for emergency management should at the very least, and by the very nature of the definition of "mitigation", acknowledge the changing climate and possibility of increased extreme weather and flooding events.	The Planning Department/Planning Director for each jurisdiction in Cumberland County	TBD, Staff Hours	Existing FEMA grant	Short Range	Low	X	X	All Hazards	To Be Continued: In the 2016 Cumberland-Hoke Regional Hazard Mitigation plan climate predictions from the Climate Resiliency Plan was included. Will continue to work with Dept of Environmental Quality to update any long-term climate predictions, when updates are available.
W8	Provide financial assistance for low-income residents to help with power bills and support services during extended periods of high temperature and other extreme weather.	Low-income households face challenges in keeping up with utility bills. Some low-income utility assistance programs are offered, but funds are limited. Extreme weather and increasing temperatures will place even greater pressure on these programs' ability to aid all those in need, and citizen's lives will be increasingly at stake.	County Health Department	TBD, Staff Hours	NC Department of Health and Human Services and County Department of Health	Medium Range	Medium	X	X	Extreme Heat, Winter Weather	To Be Continued: Cumberland County participates in the statewide Crisis Intervention Program. CIP aids aid low-income families experiencing or in danger of heating or cooling household emergencies where there is a life-threatening or health-related emergency and timely, enough, or appropriate assistance is not available from any other source.
W9	Analyze and update local development ordinances to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Also, provide incentives for making buildings safer from wind, flooding, more energy and water efficient, and healthier to live in.	Energy and water efficiency will be increasingly important to a community's resiliency in the face of natural hazards specifically because of projections of increasing temperatures and extreme heat days, and prolonged periods of drought. Climate projections also state	Planning and Code Departments of each jurisdiction	Staff Hours	Local Operating Budget	Medium Range	Medium		X	Flooding, Hurricane, Severe Weather, Extreme Heat, Winter Weather	In Progress: No ordinances or incentives have been developed to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in. Cumberland

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		that precipitation will continue to follow a seasonal pattern, whereby hot, Summer months are classified with less precipitation and Winters with more precipitation. Extreme heat days will be specially taxing on buildings with older A/C systems or inadequate insulation and in low-income households where upkeep with rising utility costs could become a burden.									County utilized the state building code due to lack of staff and funding.
W10	Use natural systems, more open space and green surfaces to manage stormwater in a more resilient fashion.	Impervious surfaces typically found in urban centers, such as paved roads, buildings, parking lots and pavement, drastically increase flash floods and urban flooding, which seems to be a common occurrence in Cumberland County. For instance, within a 90-day period (March 1 – June 30, 2015), three flooding incidents were reported due to heavy rainfall events. Use of LID stormwater management practices is mentioned only in summary in the Growth Factor Analysis, stating it "…should be emphasized in sensitive areas…" This, coupled with the naturally flat topography of the eastern portions of the County also help to create excess runoff and subsequent urban flooding issues, especially in the Special Flood Hazard Areas (SFHA) of the County, and specifically around Blounts and Cross Creek, as referenced in various resources.	Engineering Department of each jurisdiction	Staff Hours	Local Operating Budget	Short Range	Low	X	X	Flooding	In Progress: There are land use plans in place/under development that encourage more open space and green surfaces.
Hoke County and All Jurisdictions (City of Raeford)											
HK1	Maintain a countywide infrastructure vulnerability assessment program to identify priority needs infrastructure and structures.	It has been difficult to locate any comprehensive assessments of local infrastructure in Hoke County and its jurisdiction. With current and projected natural hazard occurrences, it is essential to have an accurate and comprehensive understanding of	County/City Code Enforcement Officials	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X	X	All Hazards	To Be Continued: Assessments are completed as needed for various infrastructure projects.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
		the current condition of critical facilities to ensure the ability to continue to provide for basic needs, such as water and electrical supplies, transportation routes, waste management, etc.									
HK2	Survey social vulnerability analysis to identify priority needs and opportunities that will address the specific problems vulnerable populations face from all hazards, including barriers to evacuation, event-specific vulnerabilities, and impediments to recovery.	There exist various groups of individuals that have additional financial, social and/or environmental barriers to being resilient in the face of natural hazard events. As natural hazard events increase in intensity and frequency, these groups will find it harder to safely and efficiently get out of harm's way. These groups will also have difficulty in obtaining and paying for essential components to sustain life, such as medications, utilities, and transportation to/from a place of work, etc.	County Social Services Department and County Health Department	Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	All Hazards	To Be Continued: County staff are continuously seeking funding to assist with un-met needs and address the troubling issues at hand.
HK3	Collaborate with NC Cooperative Extension and NC Agriculture and Forestry Adaptation Working Group to provide more local support and encouragement of forest conservation and farmland preservation measures.	Forests and farmland provide a multitude of social, economic and environmental benefits, that when looked at comprehensively, far outweigh any profit/revenue projections of residential or commercial properties. Outside of development pressure, some of the other major health risks include: (1) increasing wildfire risk, (2) increasing number and types of insects and pests, (3) lack of sufficient water during the growing season for crops, and (4) increasing damage from strong winds and flooding. It is vital, especially in the face of a changing climate, to preserve these working lands and to support higher density development in already existing urban and suburban centers.	County Board of Commissioners, Conservation District Programs, and other land preservation organizations.	TBD, Staff Hours	NC Cooperative Extension, NC Forest Service, US Department of Agriculture and NC Wildlife Resources Commission.	Short Range	Medium	X	X	Wildfire, Flooding	In Progress: Hoke County NC Cooperative Extension now has a new 17,000 sq. ft. facility. Opportunity for education of preservation and conservation are now more feasible.
HK4	Provide financial assistance for low-income residents to help with power bills and support services during	Low-income households face challenges in keeping up with utility bills. Some low-income	County Health Department	TBD, Staff Hours	NC Department of Health	Medium Range	Medium	X		Extreme Heat, Winter	To be continued: County departments are working with grant funding and

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
	extended periods of high temperature and other extreme weather.	utility assistance programs are offered, but funds are limited. Extreme weather and increasing temperatures will place even greater pressure on these programs' ability to aid all those in need, and citizen's lives will be increasingly at stake.			and Human Services and County Departme nt of Health					Weather	other opportunities to address unmet needs.
HK5	Analyze and update local development ordinances to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in.	Energy and water efficiency will be increasingly important to a community's resiliency in the face of natural hazards specifically because of projections of increasing temperatures and extreme heat days, and prolonged periods of drought. Climate projections also state that precipitation will continue to follow a seasonal pattern, whereby hot, Summer months are classified with less precipitation and Winters with more precipitation. Extreme heat days will be specially taxing on buildings with older A/C systems or inadequate insulation and in low-income households where upkeep with rising utility costs could become a burden.	Planning and Code Departments of each jurisdiction	Staff Hours	Local Operating Budget	Medium Range	Medium	X		Flooding, Hurricane Wind, Severe Weather, Extreme Heat, Winter Storms	Delete
HK6	Use natural systems, more open space and green surfaces to manage stormwater in a more resilient fashion.	Impervious surfaces typically found in urban centers, such as paved roads, buildings, parking lots and pavement, drastically increase flash floods and urban flooding.	Engineering Department of each jurisdiction	Staff Hours	Local Operating Budget	Short Range	Medium	X		Flooding	In Progress: Hoke County Zoning is developing criteria to further address the impacts of these developments as they are built and maintained
HK7	Update records for flood prone areas in Unincorporated Hoke County and the City of Raeford. Also create a database and GIS mapping available to the public.	Hoke County Emergency Management has in the past generated a list of flood prone areas and have mapped them for internal use. The list should be updated, mapped, and the map made available to the public for their awareness.	Hoke County Emergency Management and Hoke County GIS	Staff Hours	Local Operating Budget	Short Range	Medium	X		Flooding	Complete
HK8	Consider placing signs at flood prone areas identifying them as such	While a database and map available to the public is useful, placing signs at the location of flood prone areas would alert those living in the area and drivers.	NCDOT	Estimate $2000 for signs; plus, staff labor putting the signs up.	Local Operating Budget	Short Range	Medium	X		Flooding	Complete

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
HK9	Review zoning and subdivision ordinances in conjunction with Fire Marshal's Office to ensure they are up to date and include appropriate mitigation measures.	The Hoke County Zoning Ordinance was last comprehensively reviewed and updated several years ago. The level of development in the county has grown significantly. The ordinances should be reviewed and updated to reflect current need and expected growth.	Hoke County Planning Department/ Hoke County Fire Marshal's Office	Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	All Hazards	In Progress: Hoke County Fire Marshal and Zoning working to revise ordinances.
HK10	Upgrade the Emergency Operations Center building	The Emergency Operations Center lacks some structural needs that modern operation centers typically have. Upgrading the building would make sure the center can be used for emergency operations in the event of a natural disaster.	Hoke County Emergency Management	TBD, Staff Hours	Local Operating Budget	Long Range	Medium	X		All Hazards	In Progress: Building plans have been decided upon, construction anticipated to begin in the coming months.
HK11	Conduct survey of all county owned structures to determine if there are any mitigation projects that can be undertaken to repair / upgrade them to withstand natural disasters.	County schools are inspected twice a year, but other county facilities are not. By conducting a survey of the building's county staff can identify areas that could be improved to help mitigate future issues brought about by natural disasters.	Hoke County Building Inspections, Fire Marshal, and Emergency Management	Staff Hours	Local Operating Budget	Medium Range	Medium	X		All Hazards	To Be Continued: Surveys are conducted at least annually, more if impacted by natural or manmade events.
HK12	Create website that makes flood insurance information available to the public.	Citizens should have an area they can go to find ready general information about the importance of flood insurance. The Planning Department has some brochures and information sheets available to the public, but an online resource would be available at all times.	Hoke County Planning	Staff Hours	Local Operating Budget	Short Range	Medium	X	X	Flooding	To Be Continued: This information can be found on the county's emergency information page, readyhoke.org
HK13	Coordinate with Fort Bragg on protective measures for the Red Cockaded Woodpecker and other endangered species.	There are several threatened, endangered, and protected species in Hoke County. Currently the county government is not proactive in ensuring steps are taken to prevent development from further impacting the species. Fort Bragg has had a regularly occurring program to protect species on the base. Coordinating with Fort Bragg would be a resource to help protect the endangered species.	Hoke County Planning	Staff Hours	Local Operating Budget	Short Range	Medium	X		All Hazards	Delete

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
HK14	Investigate incentives for LEED/ green structures.	Green infrastructure causes less impact on the natural environment and thus, helps mitigate future environmental issues that could exacerbate or encourage a natural or environmental disaster. Using incentives through local zoning or taxes can encourage future green development.	County Manager's Office	Staff Hours	Local Operating Budget	Short Range	Medium	X		Flooding	Delete
HK15	Amend subdivision ordinance to allow cluster developments.	Cluster developments maximize density and open space to reduce the impact of development on the environment.	Hoke County Planning	Staff Hours	Local Operating Budget	Medium Range	Medium	X		Flooding	Complete
HK16	Evaluate evacuation plans and other emergency procedures to ensure they incorporate new residential and commercial development.	Rapid growth throughout the county needs to be considered in emergency plans.	Hoke County Emergency Management	Staff Hours	Local Operating Budget	Short Range	Medium	X		All Hazards	Complete
HK17	Conduct annual progress meeting with Hazard Mitigation steering committee	Annual progress meetings keep projects on track and ensures the goals and objectives of the plan are met by the time of the next plan update.	Hazard Mitigation Steering Committee	Staff Hours	Local Operating Budget	Short Range	Medium	X		All Hazards	To Be Continued: Completed annually.
HK18	Pursue funding to relocate or demolish hazardous buildings	Rural areas of the county have abandoned or partially demolished residential and accessory structures that are potential fire hazards. Removing structures is a costly procedure. Finding a funding source to remove buildings would allow the county to remove at least one (1) or more hazardous structures a year.	Hoke County Emergency Management, Building Inspections, Planning	Staff Hours	Local Operating Budget	Medium Range	Medium	X	X	Wildfire	To Be Continued: County staff continuously searching for funding to address this matter.
City of Raeford											
R1	Conduct a countywide infrastructure vulnerability assessment to identify priority needs for updating ill-designed or outdated critical structures.	It has been difficult to locate any comprehensive assessments of local infrastructure in Cumberland and Hoke Counties. With current and projected natural hazard occurrences, it is essential to have an accurate and comprehensive understanding of the current condition of critical facilities to ensure the ability to continue to provide for basic needs, such as water and electrical supplies, transportation routes, waste management, etc.	County/city structural and civil engineers in partnership with U.S. Army Corps of Engineers	Staff Hours	Local Operating Budget and Federal	Medium Range	Medium	X	X	All Hazards	To Be Continued: Assessments are continued for various infrastructure projects.

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
R2	Collaborate with NC Cooperative Extension and NC Agriculture and Forestry Adaptation Working Group to provide more local support and encouragement of forest conservation and farmland preservation measures.	Forests and farmland provide a multitude of social, economic and environmental benefits, that when looked at comprehensively, far outweigh any profit/revenue projections of residential or commercial properties. Outside of development pressure, some of the other major health risks include: (1) increasing wildfire risk, (2) increasing number and types of insects and pests, (3) lack of sufficient water during the growing season for crops, and (4) increasing damage from strong winds and flooding. It is vital, especially in the face of a changing climate, to preserve these working lands and to support higher density development in already existing urban and suburban centers.	County and City Board of Commissioners, Conservation District Programs, and other land preservation organizations.	TBD, Staff Hours	NC Cooperative Extension, NC Forest Service, US Department of Agriculture and NC Wildlife Resources Commission.	Short Range	Medium	X	X	Wildfire, Flooding	In Progress: Hoke County NC Cooperative Extension now has a new 17,000 sq. ft. facility. Opportunity for education of preservation and conservation are now more feasible.
R3	Include climate predictions from the Cumberland County Climate Resiliency Plan in the Regional Hazard Mitigation Plan.	To properly prepare for natural hazard occurrences, it is important to include predictions that warn of: (1) increasing temperatures and extreme heat days, (2) increasing frequency and strength of severe weather events, (3) more heavy rain/flooding, and (4) more frequent and prolonged drought. Although some climate projections do not pose an immediate threat, any comprehensive mitigation plan for emergency management should at the very least, and by the very nature of the definition of “mitigation”, acknowledge the changing climate and possibility of increased extreme weather and flooding events.	City, The Planning Department/Planning Director	Staff Hours	Existing FEMA grant	Short Range	Medium	X	X	All Hazards	In Progress: No measurable progress due to lack of funding.
R4	Provide financial assistance for low-income residents to help with power bills and support services during	Low-income households face challenges in keeping up with utility bills. Some low-income	County Health Department, City Administrators	Staff Hours	NC Department of	Medium Range	Medium	X		Extreme Heat, Winter	In Progress: County departments are working with grant funding and

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
	extended periods of high temperature and other extreme weather.	utility assistance programs are offered, but funds are limited. Extreme weather and increasing temperatures will place even greater pressure on these programs' ability to aid all those in need, and citizen's lives will be increasingly at stake.			Health and Human Services and County Departme nt of Health					Weather	other opportunities to address unmet needs.
R5	Analyze and update local development ordinances to make buildings safer from wind and flooding, more energy and water efficient, more tolerant of heat waves and healthier to live in.	Energy and water efficiency will be increasingly important to a community's resiliency in the face of natural hazards specifically because of projections of increasing temperatures and extreme heat days, and prolonged periods of drought. Climate projections also state that precipitation will continue to follow a seasonal pattern, whereby hot, Summer months are classified with less precipitation and Winters with more precipitation. Extreme heat days will be specially taxing on buildings with older A/C systems or inadequate insulation and in low-income households where upkeep with rising utility costs could become a burden.	Planning and Code Departments of each jurisdiction	Staff Hours	Local Operating Budget	Medium Range	Medium	X		Hurricane, Severe Weather, Extreme Heat, Winter Weather, Flooding	In Progress: No measurable progress due to lack of funding.
R6	Use natural systems, more open space and green surfaces to manage stormwater in a more resilient fashion.	Impervious surfaces typically found in urban centers, such as paved roads, buildings, parking lots and pavement, drastically increase flash floods and urban flooding.	City Engineering Department	Staff Hours	Local Operating Budget	Short Range	Medium	X		Flooding	In Progress: Hoke County Zoning is developing criteria to further address the impacts of these developments as they are built and maintained.
R7	Update records for flood prone areas in Unincorporated Hoke County and the City of Raeford. Also create a database and GIS mapping available to the public.	Hoke County Emergency Management has in the past generated a list of flood prone areas and have mapped them for internal use. The list should be updated, mapped, and the map made available to the public for their awareness.	Hoke County Emergency Management and Hoke County GIS, City Public Works Department	Staff Hours	Local Operating Budget	Short Range	Medium	X		Flooding	In Progress: No measurable progress due to lack of funding.
R8	Provide backup power to critical facilities.	Provide backup power to critical facilities.	Hoke County Emergency Management and Hoke County GIS,	Staff Hours	Local Operating Budget	Short Range	High	X	X	All Hazards	New

Action Number	Action Description	Issue/Background Statement	Responsible Agency	Anticipated Cost	Funding Sources	Timeframe	Priority	Addresses Current Development	Addresses Future Development	Hazard Addressed	2020 Status Update
			City Public Works Department								
R9	Develop a public education and awareness campaign for print and/or social media for hazard mitigation strategies for all hazards.	Develop a public education and awareness campaign for print and/or social media for hazard mitigation strategies for all hazards.	Hoke County Emergency Management and Hoke County GIS, City Public Works Department	Staff Hours	Local Operating Budget	Short Range	High	X	X	All Hazards	New
R10	Acquire properties in the floodplain.	Acquire properties in the floodplain.	Hoke County Emergency Management and Hoke County GIS, City Public Works Department	Staff Hours	Local Operating Budget	Short Range	High	X	X	Flood	New

SECTION 10: PLAN MAINTENANCE

This Section provides an overview of the overall strategy for plan integration and maintenance and outlines the method and schedule for monitoring, evaluating, and updating the plan. The section also discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement. It consists of the following subsections:

- 10.1 Integration into Local Planning Mechanisms
- 10.2 Monitoring, Evaluating, and Updating
- 10.3 Continued Public Involvement

CFR Requirements
Requirement §201.6(c)(4): **[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.**

10.1 Integration into Local Planning Mechanisms

The DMA Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. This is Planning Step 10 of the 10-step planning process. An important implementation mechanism that is highly effective and low-cost is incorporation of the Hazard Mitigation Plan recommendations and their underlying principles into other plans and mechanisms. Where possible, plan participants will use existing plans and/or programs to implement hazard mitigation actions. As previously stated, mitigation is most successful when it is incorporated into the day-to-day functions and priorities of government and development. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms. These existing mechanisms include:

- Comprehensive Plans
- Emergency Management Plans
- Ordinances
- Flood/Stormwater Management/Master Plans
- Other plans, regulations, and practices with a mitigation focus

The HPMC has developed a process by which the principles and actions included in this hazard mitigation plan will be incorporated into other plans. During the planning process for new and updated local planning documents such as those listed above, the Cumberland County Department of Emergency Services or Hoke County Emergency Management (as appropriate) will provide a copy of the hazard mitigation plan to the advisory committee for each relevant planning document. The advisory committee will be directed to ensure that all

goals and strategies of the new or updated local planning document are consistent with the hazard mitigation plan and will not increase the spatial extent or probability of future occurrence of the hazards.

Incorporation into existing planning mechanisms will be done through the routine actions of:

- Monitoring other planning/program agendas;
- Attending other planning/program meetings;
- Participating in other planning processes; and
- Monitoring community budget meetings for other community program opportunities.

It should be noted that most jurisdictions within Cumberland Hoke Counties are participants in the county- level version of each type of plan and do not have stand-alone plans of their own. Thus, the Cumberland County Department of Emergency Services and Hoke County Emergency Management will be acting on behalf of the municipalities when sharing and advising on the incorporation of the hazard mitigation plan. Therefore, each municipality's process for integrating the hazard mitigation plan into other planning mechanisms is the same as the county level process since the planning documents are often countywide plans and ordinances. It should also be noted that municipal representatives often participate in the update of multiple community documents due to the small size of the communities and limited staff. Therefore, participation in the hazard mitigation planning process will naturally transfer to the planning processes of other local planning documents.

10.2 Monitoring, Evaluating, and Updating

The HMPC identified in Section 2 will convene annually and following a hazard event. Cumberland County Emergency Management Agency will be responsible for facilitating, coordinating, and scheduling reviews and maintenance of the plan. The review of the Hazard Mitigation Plan will be conducted as follows:

- The Cumberland County Emergency Management Agency will be responsible for leading the meeting to review the plan.
- Notices will be emailed to the members of the HMPC, federal, state, and local agencies, non-profit groups, local planning agencies, representatives of business interests, neighboring communities, and others advising them of the date, time, and place for the review.
- Local City officials will be noticed by email.
- Prior to the review, department heads and others tasked with implementation of the various activities will be queried concerning progress on each activity in their area of responsibility and asked to present a report at the review meeting.
- A copy of the current plan will be available for public comment.
- After the review meeting, a status report will be developed outlining implementation of projects over the past year.

Criteria for Annual Reviews

The criteria recommended in 44 CFR 201 and 206 will be utilized in reviewing and updating the plan. More specifically, the annual reviews will include the following information:

- Community growth or change in the past year.
- The number of substantially damaged or substantially improved structures by flood zone.
- The renovations to public infrastructure including water, sewer, drainage, roads, bridges, gas lines, and buildings.
- Natural hazard occurrences that required activation of the Emergency Operations Center (EOC) and whether or not the event resulted in a presidential disaster declaration.

- Natural hazard occurrences that were not of a magnitude to warrant activation of the EOC or a federal disaster declaration but were severe enough to cause damage in the community or closure of businesses, schools, or public services.
- The dates of hazard events descriptions.
- Documented damages due to the event.
- Closures of places of employment or schools and the number of days closed.
- Road or bridge closures due to the hazard and the length of time closed.
- Assessment of the number of private and public buildings damaged and whether the damage was minor, substantial, major, or if buildings were destroyed. The assessment will include residences, mobile homes, commercial structures, industrial structures, and public buildings, such as schools and public safety buildings.
- Review of any changes in federal, state, and local policies to determine the impact of these policies on the community and how and if the policy changes can or should be incorporated into the Hazard Mitigation Plan. Review of the status of implementation of projects (mitigation strategies) including projects completed will be noted. Projects behind schedule will include a reason for delay of implementation.

Schedule for Five-year Update

The Cumberland and Hoke Counties will submit a five-year written update to NCEM and FEMA Region IV, unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule. With this plan update anticipated to be fully approved and adopted in 2021, the next plan update will occur in 2025.

10.3 Continued Public Involvement

Continued public involvement is imperative to the overall success of the plan's implementation. The update process provides an opportunity to solicit participation from new and existing stakeholders and to publicize success stories from the plan implementation and seek additional public comment. The plan maintenance and update process will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media, and through public hearings.

Public Involvement Process for Annual Reviews

The public will be notified via the Cumberland and Hoke County websites.

Public Involvement for Five-year Update

When the HMPC reconvenes for the five-year update, they will coordinate with all stakeholders participating in the planning process—including those that joined the committee since the planning process began—to update and revise the plan. In reconvening, the HMPC will develop a plan for public involvement and will be responsible for disseminating information through a variety of media channels detailing the plan update process. As part of this effort, public meetings will be held, and public comments will be solicited on the plan update draft.

Appendix A: Plan Adoption

Appendix B: Regulation Checklist

This appendix to the Cumberland Hoke Regional Hazard Mitigation Plan contains a copy of a completed Regulation Checklist from FEMA's *Local Mitigation Plan Review Tool*. This checklist provides page numbers indicating where in the Plan each element required by FEMA is met. This serves as a final internal review to confirm that the Plan meets Federal requirements.

APPENDIX B:
LOCAL MITIGATION PLAN REVIEW TOOL

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

Jurisdiction: **Cumberland and Hoke Counties, NC**	**Title of Plan:** **Cumberland-Hoke Regional Hazard Mitigation Plan**	**Date of Plan:** **December 2020 (Final Draft)**
Local Point of Contact: **Garry Crumpler**		**Address:** **131 Dick Street** **Fayetteville, NC 28301**
Title: **Emergency Management Planner**		
Agency: **Emergency Services**		
Phone Number: **(910) 438-4069**		**E-Mail:** **gcrumpler@co.cumberland.nc.us**

State Reviewer:	**Title:**	**Date:**

FEMA Reviewer:	**Title:**	**Date:**
Date Received in FEMA Region IV		
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved		

SECTION 1:

REGULATION CHECKLIST

INSTRUCTIONS: The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan (section and/or page number)**	**Met**	**Not Met**
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	**Section 1: Introduction & Section 2: Planning Process** a) Sec. 2.1, Pg. 2:1 b) Sec. 1.3, Pg. 1:4; Sec. 2.2, Pg. 2:2 c) Sec. 2.4, Pg. 2:4, Table 2:1 d) Sec. 2.3, Pg. 2:2 – 2:4 e) Sec. 2.3, Figure 2:1, Pg. 2:4		
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	**Section 2: Planning Process** a) Sec. 2.4, Pg. 2:4 – 2:8 b) Sec. 2.7, Pg. 2:16, Sec. 2.4, 2:4 to 2:8 c) Sec. 2.4, Pg. 2-4 - 2-8, Sec. 2.5, Pg. 2:8 – 2:14, and Sec. 2.7, Pg. 2:15 – 2:16		
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	**Section 2: Planning Process** a) Sec. 2.4-2.8, Pg. 2:4 – 2:16 b) Sec. 2.6, Pg. 2:14:16		
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	**Section 2: Planning Process & Section 7: Capability Assessment** a) Sec. 2, Pg. 2:1 – 2:16; Sec. 7.3.1-7.3.7, Pg. 7:3 – 7:12 b) Sec. 7.4, Pg. 7:2-7:23		
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	**Section 2: Planning Process & Section 10: Plan Maintenance** a) Sec. 2.8, Pg. 2:16 and Sec. 10.4, Pg. 10:6		

<table>
<tr><th>1. REGULATION CHECKLIST

Regulation (44 CFR 201.6 Local Mitigation Plans)</th><th>Location in Plan
(section and/or page number)</th><th>Met</th><th>Not Met</th></tr>
<tr><td>A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))</td><td>Section 10: Plan Maintenance
a) Sec. 10.1, Pg. 10:1 -10:2 and Sec. 10.3, Pg. 10:3 – 10:7
b) Sec. 10.1, Pg. 10:1 -10:2 and Sec. 10.3, Pg. 10:3 – 10:7
c) Sec. 10.3, Pg. 10:3
d) Sec. 10.3, Pg. 10:2 – 10:3</td><td></td><td></td></tr>
<tr><td colspan="4"><u>ELEMENT A: REQUIRED REVISIONS</u></td></tr>
<tr><td colspan="4">ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT</td></tr>
<tr><td>B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))</td><td>Section 1: Introduction, Section 4: Hazard Identification, & Section 5: Hazard Profiles
a) Sec. 1.5.1, Pg. 1:3 – 1:4; Sec. 4, Pg. 4:4; Sec. 5, Pg. 5:1 – 5:153
<table>
<tr><th>Hazard Type</th><th>Description</th></tr>
<tr><td>Dam Failure</td><td>5:5-5:6</td></tr>
<tr><td>Drought</td><td>5:14-5:15</td></tr>
<tr><td>Earthquake</td><td>5:21-5:23</td></tr>
<tr><td>Extreme Heat</td><td>5:32-5:33</td></tr>
<tr><td>Hurricane</td><td>5:38-5:41</td></tr>
<tr><td>Flooding</td><td>5:50-5:51</td></tr>
<tr><td>Severe Weather</td><td>5:75-5:77</td></tr>
<tr><td>Tornado</td><td>5:103-5:105</td></tr>
<tr><td>Wildfire</td><td>5:115-5:116</td></tr>
<tr><td>Winter Storm</td><td>5:134-5:135</td></tr>
</table>
b) Sec. 4, Pg. 4:3-4:4
c) Sec. 1.5.1, Pg. 1:4; Sec. 5, Pg. 5:1 – 5:153
<table>
<tr><th>Hazard Type</th><th>Location</th><th>Extent</th></tr>
<tr><td>Dam Failure</td><td>5:6-5:8</td><td>5:8-5:9</td></tr>
<tr><td>Drought</td><td>5:16-5:18</td><td>5:18</td></tr>
<tr><td>Earthquake</td><td>5:23-5:26</td><td>5:26-5:27</td></tr>
<tr><td>Extreme Heat</td><td>5:34-5:36</td><td>5:36</td></tr>
<tr><td>Hurricane</td><td>5:41-5:44</td><td>5:45</td></tr>
<tr><td>Flooding</td><td>5:51-5:65</td><td>5:65-5:67</td></tr>
<tr><td>Severe Weather</td><td>5:77-5:86</td><td>5:87</td></tr>
<tr><td>Tornado</td><td>5:106-5:109</td><td>5:110</td></tr>
<tr><td>Wildfire</td><td>5-116-5:129</td><td>5-130</td></tr>
<tr><td>Winter Storm</td><td>5:136-5:149</td><td>5:149-5:150</td></tr>
</table>
d) Sec. 5 (all spatial maps count towards this), Pg. 5-1 – 5-153</td><td></td><td></td></tr>
</table>

<table>
<tr><th>1. REGULATION CHECKLIST
Regulation (44 CFR 201.6 Local Mitigation Plans)</th><th>Location in Plan
(section and/or page number)</th><th>Met</th><th>Not Met</th></tr>
<tr><td>B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))</td><td>Section 5: Hazard Profiles
a) Sec. 5, Pg. 5:9-5:11; 5:17; 5:27; 5:33; 5:42-5:45; 5:63-5:69; 5:82-5:96; 5:105-5:107; 5:124-5:126; 5:144-5:146
b) Sec. 5, Pg. 5:12; 5:17-5:18; 5:27-5:28; 5:34; 5:45; 5:69; 5:96-5:97; 5:107-5:108; 5:126-5:127; 5:146-5:147
c) Sec. 5, Pg. 5:1 – 5:153
<table>
<tr><th>Hazard Type</th><th>Historical Occurrence</th><th>Probability of Future Occurrence</th></tr>
<tr><td>Dam Failure</td><td>5:9-5:11</td><td>5:12</td></tr>
<tr><td>Drought</td><td>5:19</td><td>5:19-5:20</td></tr>
<tr><td>Earthquake</td><td>5:30</td><td>5:30-5:31</td></tr>
<tr><td>Extreme Heat</td><td>5:37</td><td>5:37</td></tr>
<tr><td>Hurricane</td><td>5:45-5:47</td><td>5:48</td></tr>
<tr><td>Flooding</td><td>5:67-5:73</td><td>5:73-5:74</td></tr>
<tr><td>Severe Weather</td><td>5:87 -5:101</td><td>5:101</td></tr>
<tr><td>Tornado</td><td>5:110-5:112</td><td>5:112-5:113</td></tr>
<tr><td>Wildfire</td><td>5:129-5:131</td><td>5:132</td></tr>
<tr><td>Winter Storm</td><td>5:149-5:151</td><td>5:152</td></tr>
</table></td><td></td><td></td></tr>
<tr><td>B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))</td><td>Section 6: Vulnerability Assessment
a) Sec. 6.3, Pg. 6:10 – 6:311
b) Sec. 6.3, Pg. 6:10-6:311; Sec. 6.4.1, Pg. 6:314
<table>
<tr><th>Hazard Type</th><th>Hazard's Impact</th><th>Vulnerability (Section 6)</th></tr>
<tr><td>Dam Failure</td><td>5:12-5:13</td><td>6-10</td></tr>
<tr><td>Drought</td><td>5:20-5:21</td><td>6-11</td></tr>
<tr><td>Earthquake</td><td>5:31-5:32</td><td>6-12</td></tr>
<tr><td>Extreme Heat</td><td>5:37-5:38</td><td>6-83</td></tr>
<tr><td>Hurricane</td><td>5:48-5:49</td><td>6-84</td></tr>
<tr><td>Flooding</td><td>5:74-5:75</td><td>6-149</td></tr>
<tr><td>Severe Weather</td><td>5:102</td><td>6-165</td></tr>
<tr><td>Tornado</td><td>5:113-5:114</td><td>6-231</td></tr>
<tr><td>Wildfire</td><td>5:134</td><td>6-298</td></tr>
<tr><td>Winter Storm</td><td>5:153-5:154</td><td>6-311</td></tr>
</table></td><td></td><td></td></tr>
<tr><td>B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))</td><td>Section 5: Hazard Profiles
a) Sec.5.6.5, Pg. 5:72 – 5:73</td><td></td><td></td></tr>
<tr><td colspan="4"><u>ELEMENT B: REQUIRED REVISIONS</u></td></tr>
<tr><td colspan="4">ELEMENT C. MITIGATION STRATEGY</td></tr>
<tr><td>C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))</td><td>Section 7: Capability Assessment & Section 9: Mitigation Action Plan
a) Sec. 7.3, Pg. 7:2-7:7; Sec. 9, Pg. 9:1-9:54</td><td></td><td></td></tr>
</table>

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or page number)	**Met**	**Not Met**
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	**Section 7: Capability Assessment, Section 5: Hazard Profiles, Section 8: Mitigation Strategy, Section 9: Mitigation Actions,** a) Sec. 7.3, Pg. 7:4 -7:5, Sec. 5.1.2, Pg.5-4; Sec. 5.6, Pg. 5:43 - 5:64; Sec. 8, Pg. 8-1, Sec. 9, Pg. 9:1-9:54;		
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	**Section 8: Mitigation Strategy** a) Sec 8.2.3, Pg. 8:2-8:3 b) Sec 8.2.3 and 8.3, Pg. 8:2-8:3		
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	**Section 9: Mitigation Action Plan & Section 8: Mitigation Strategy** a) Sec. 9, Pg. 9:1-9:54; Sec 8.2.3, Pg. 8:2-8:3 b) Sec. 9, Pg. 9:1-9:54; Sec 8.2.3, Pg. 8:2-8:3 c) Sec. 9, Pg. 9:1-9:54; Sec 8.2.3, Pg. 8:2-8:3		
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	**Section 8: Mitigation Strategy & Section 9: Mitigation Action Plan** a) Sec 8.3.1, Pg. 8:3-8:4; Sec. 9, Pg. 9:1-9:54; b) Sec 8.3.1, Pg. 8:3-8:4; Sec. 9, Pg. 9:1-9:54 c) Sec. 9, Pg. 9:1-9:54		
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	**Section 2: Planning Process, Section 7: Capability Assessment, Section 9: Mitigation Action Plan, Section 10: Plan Maintenance** a) Sec. 10.1, Pg. 10:1-10:3 b) Sec. 2.1, Pg.2:1-2:2; Sec. 7.3, Pg. 7:4-7:5 c) Sec. 9, Pg. 9:1-9:54; Sec. 10.1, Pg. 10:1-10:3 d) Sec. 10.1, Pg. 10:1-10:3; Sec. 7, Pg. 7:1-7:7 e) Sec. 10.1, Pg. 10:1-10:3; Sec. 2.2, Pg. 2:6-2:13		
ELEMENT C: REQUIRED REVISIONS			
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	**Section 1: Introduction,** a) Pg. 1-5, Sec. 1.5 **Section 6: Vulnerability Assessment** a) Pg. 303, Sec. 6.4		
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	**Section 9: Mitigation Action Plan;** a) Sec. 9.2, Pg. 9:1 – 9:54;		

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	**Section 9: Mitigation Action Plan & Section 8: Mitigation Strategy** a) Sec 9, Pg. 9:1-9:54; Sec. 8.3, Pg. 8:4		
ELEMENT D: REQUIRED REVISIONS			
ELEMENT E. PLAN ADOPTION			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	Appendix A (adoption pending FEMA approval)		
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	Appendix A (adoption pending FEMA approval)		
ELEMENT E: REQUIRED REVISIONS			
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)			
F1.			
F2.			
ELEMENT F: REQUIRED REVISIONS			

SECTION 2:
PLAN ASSESSMENT

INSTRUCTIONS: The purpose of the Plan Assessment is to offer the local community more comprehensive feedback to the community on the quality and utility of the plan in a narrative format. The audience for the Plan Assessment is not only the plan developer/local community planner, but also elected officials, local departments and agencies, and others involved in implementing the Local Mitigation Plan. The Plan Assessment must be completed by FEMA. The Assessment is an opportunity for FEMA to provide feedback and information to the community on: 1) suggested improvements to the Plan; 2) specific sections in the Plan where the community has gone above and beyond minimum requirements; 3) recommendations for plan implementation; and 4) ongoing partnership(s) and information on other FEMA programs, specifically RiskMAP and Hazard Mitigation Assistance programs. The Plan Assessment is divided into two sections:

1. Plan Strengths and Opportunities for Improvement
2. Resources for Implementing Your Approved Plan

Plan Strengths and Opportunities for Improvement is organized according to the plan Elements listed in the Regulation Checklist. Each Element includes a series of italicized bulleted items that are suggested topics for consideration while evaluating plans, but it is not intended to be a comprehensive list. FEMA Mitigation Planners are not required to answer each bullet item, and should use them as a guide to paraphrase their own written assessment (2-3 sentences) of each Element.

The Plan Assessment must not reiterate the required revisions from the Regulation Checklist or be regulatory in nature, and should be open-ended and to provide the community with suggestions for improvements or recommended revisions. The recommended revisions are suggestions for improvement and are not required to be made for the Plan to meet Federal regulatory requirements. The italicized text should be deleted once FEMA has added comments regarding strengths of the plan and potential improvements for future plan revisions. It is recommended that the Plan Assessment be a short synopsis of the overall strengths and weaknesses of the Plan (no longer than two pages), rather than a complete recap section by section.

Resources for Implementing Your Approved Plan provides a place for FEMA to offer information, data sources and general suggestions on the overall plan implementation and maintenance process. Information on other possible sources of assistance including, but not limited to, existing publications, grant funding or training opportunities, can be provided. States may add state and local resources, if available.

A. Plan Strengths and Opportunities for Improvement

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

Element A: Planning Process

Element B: Hazard Identification and Risk Assessment

Element C: Mitigation Strategy

Element D: Plan Update, Evaluation, and Implementation (*Plan Updates Only*)

B. Resources for Implementing Your Approved Plan

SECTION 3:
MULTI-JURISDICTION SUMMARY SHEET (OPTIONAL)

INSTRUCTIONS: For multi-jurisdictional plans, a Multi-jurisdiction Summary Spreadsheet may be completed by listing each participating jurisdiction, which required Elements for each jurisdiction were 'Met' or 'Not Met,' and when the adoption resolutions were received. This Summary Sheet does not imply that a mini-plan be developed for each jurisdiction; it should be used as an optional worksheet to ensure that each jurisdiction participating in the Plan has been documented and has met the requirements for those Elements (A through E).

MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/borough/ township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Require-ments
1	Cumberland County Unincorporated Areas	County	Gene Booth	131 Dick Street Fayetteville, NC 28301	wbooth@co.cumberland.nc.us	(910) 850-8166						
2	Fayetteville	City	David Nash	433 Hay Street Fayetteville, NC 28301	dnash@ci.fay.nc.us	(910) 433-1995						
3	Eastover	Town	Kim Nazarchyk	3863 Dunn Rd Eastover, NC 2831	townmanager@eastovernc.com	(910) 323-0707						
4	Falcon	Town	Belinda White	7156 West St, Falcon, NC 28342	townoffalcon@embarqmail.com	(910) 980-1355						

MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/borough/ township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Require-ments
5	Godwin	Town	Willie Burnette	PO Box 10 Godwin, NC 28344	tog@ncrrbiz.com	(910) 980-1000						
6	Hope Mills	Town	John Ellis	5770 Rockfish Rd. Hope Mills, NC 28348	jwellis@townofhopemills.com	(910) 426-4116						
7	Linden	Town	Ruby Hendges	PO Box 130 Linden, NC 28356	lindentownhall@embarqmail.com	(910) 980-0119						
8	Spring Lake	Town	Paul Hoover	300 Ruth Street, Spring Lake, NC 28390	phoover@spring-lake.org	910) 703 - 8908						
9	Stedman	Town	Billy Horne	PO Box 220, Stedman, NC 28391	stedmanboc@ncrrbiz.com	(910) 323-1892						
10	Wade	Town	Cindy Burchett	PO Box 127, Wade, NC 28395-0127	townofwade@nc.rr.com	(910) 485-3502						
11	Hoke County Unincorporated Areas	County	Freddy Johnson	429 E. Central Ave Raeford, NC 28376	fjohnson@hokecounty.org	(910) 875-4126						

MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/borough/ township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Require-ments
12	Raeford	Town	Freddy Johnson	429 E. Central Ave Raeford, NC 28376	fjohnson@hokecounty.org	(910) 875-4126						

Appendix C: State and Federal Approval Letters

Appendix D: Public Outreach Strategy

This appendix to the Cumberland Hoke Regional Hazard Mitigation Plan contains a copy of the Public Outreach Strategy to guide the public outreach element of the mitigation planning process.

Public Outreach Strategy

Project Summary

The counties of Cumberland and Hoke, in coordination with their participating municipal jurisdictions, are updating their regional hazard mitigation plan that covers the two-county area. The Cumberland Hoke Regional Hazard Mitigation Plan will identify local policies and actions for reducing risk and future losses from natural hazards such as floods, severe storms, wildfires, and winter weather.

The plan will also serve to meet key federal planning regulations which require local governments to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance, including funding for hazard mitigation projects. These mitigation planning requirements stem from the Disaster Mitigation Act of 2000, which was passed by the U.S. Congress in October of 2000. This Act amended federal law to require that all states and local governments must have hazard mitigation plans in place in order to be eligible to apply for funding under such programs as the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation (PDM) program.

Public Outreach

A key element in the mitigation planning process is the discussion it promotes among community members about creating a safer, more disaster-resilient community. A plan that accurately reflects the community's values and priorities is likely to have greater legitimacy and "buy-in" and greater success in implementing mitigation actions and projects to reduce risk.[1] Therefore, the purpose of the Cumberland Hoke Regional Hazard Mitigation Plan Public Outreach Strategy is to:

- Generate public interest;
- Solicit citizen input; and
- Engage additional partners in the planning process.

The following specific public outreach opportunities and methods have been identified for citizens and targeted stakeholders to participate at various points in the mitigation planning process, and are presented in more detail on the following pages:

1. In-person public meetings (2)
2. Public information website (including social media integration)
3. Project information fact sheet
4. Planning resources
5. Public participation survey

[1] FEMA, *Local Mitigation Planning Handbook*, March 2013.

OUTREACH METHOD 1
In-Person Public Meetings (2)
AVAILABILITY
February 27, 2020 and at each jurisdiction council meeting for adoption.
BRIEF DESCRIPTION
two public meetings will be scheduled at key points in the project timeline, one following the kick-off meeting with the Regional Hazard Mitigation Planning Committee, one following completion of the draft risk and capability assessments and one following completion of the draft plan (and prior to the plan's local adoption). These meetings will be coordinated and arranged by Johnston County with facilitation support from AECOM.
DETAILS
For all public meetings: • The purpose will be to inform the public on the process and current status of the regional planning process, as well as gain input to the process during the drafting stage and prior to plan completion and approval • AECOM will prepare presentation and handout materials as needed to help facilitate two-way communication with public meeting attendees
LEAD AGENCY
Cumberland County/AECOM

OUTREACH METHOD 2
Public Information Website (including Social Media Integration)
AVAILABILITY
November 2019
BRIEF DESCRIPTION
A project information website will be hosted by North Carolina Emergency Management and will be available to the general public and to members of the Hazard Mitigation Planning Committee for the duration of the project at the following web address: https://gis.aecomonline.net/IRISK2/NCHMP.aspx?region=9. The primary purpose of this site will be to share information relevant to the 2020 Cape Fear Regional Hazard Mitigation Plan planning process.
DETAILS
Specific resources to be included on this site include: • Project information fact sheet • Drafts of Regional Hazard Mitigation Plan sections • List of Local Jurisdiction Leads • List of project tasks and subtasks with schedule • PowerPoint files from Hazard Mitigation Planning Committee meetings • PDFs of existing county-level hazard mitigation plans for reference during the plan update process • Links to planning resources, including recently published FEMA hazard mitigation planning guidance • Social media integration including, but not limited to, Facebook, Twitter, Tumblr, and Pinterest
LEAD AGENCY
Cumberland County/NCEM/AECOM

OUTREACH METHOD 3
Project Information Fact Sheet
AVAILABILITY
November 2019
BRIEF DESCRIPTION
A 1-page (double-sided) project information fact sheet will be available online in PDF format for the duration of the project. The primary purpose of this document will be to provide information on the regional planning process and to provide project contact information and links for interested parties to engage in the planning effort. This resource will be available on the project information website described above in Outreach Method 2. Printed copies may be made available on an as-needed basis.
DETAILS

Specific information to be provided in this fact sheet includes:
• Project overview
• Overview of the regional hazard mitigation planning process, including:
  ○ Public outreach
  ○ Risk assessment
  ○ Capability assessment
  ○ Mitigation strategy development
  ○ Plan maintenance
  ○ Plan adoption
• Explanation of project leadership
• Project schedule
• Contact information and links to project information website
• Project graphics/illustrations

LEAD AGENCY
Cumberland County/AECOM

OUTREACH METHOD 4
Planning Resources
AVAILABILITY
November 2019
BRIEF DESCRIPTION
Mitigation planning resources will be made available for Hazard Mitigation Planning Committee members and other interested parties in order to promote education and participation in the mitigation planning process.
DETAILS

Specific planning resources will include:
• FEMA mitigation planning guidance
  ○ *Local Mitigation Planning Handbook*
  ○ *Mitigation Ideas*
  ○ *Integrating Hazard Mitigation Into Local Planning*
• Other appropriate planning resources as identified throughout the duration of the planning process

LEAD AGENCY
Cumberland County/AECOM

OUTREACH METHOD 5

Public Participation Survey

AVAILABILITY

November 2019 to October 2020

BRIEF DESCRIPTION

An online public participation survey will be hosted by AECOM using the SurveyMonkey web hosting service and will be open to the public for a duration of approximately four months. The primary purpose of this survey will be to solicit input from any interested parties in the planning area and will be used so that individuals throughout the planning area have the opportunity to provide valuable information and feedback to the project team. The online survey will give individuals that are unable to attend the in-person meetings the opportunity to participate in the plan update process. Information from the online survey will allow the project team to better understand the types of hazards that most concern the public and the mitigation actions that are of particular interest. The survey will be made accessible through hyperlinks posted on the project information website and can be circulated via email, Facebook, etc. Additionally, hard copies of the survey will be distributed at the in-person public meetings. The feedback received will be evaluated and incorporated into the Hazard Mitigation Planning Committee's decision making process and the final plan.

DETAILS

Types of specific questions to be asked as part of this survey may include:

- Personal history with natural hazards
- Natural hazard concerns
- Perception of vulnerable community assets
- Importance of community assets
- Priorities concerning natural hazard preparedness
- Steps local government can take to reduce natural hazard risk
- Types of mitigation activities deemed important
- Personal interest in natural hazard mitigation
- Effective ways to communicate with residents
- Location in the floodplain
- Questions regarding flood insurance
- Personal actions to mitigate property
- Mitigation activities planned for the respondent's household
- Location within the planning area
- Age (optional)*
- Gender (optional)
- Highest level of education (optional)
- Length of time living in the planning area
- Ownership of property versus rental status
- Type of dwelling
- Open comments**

** All information will be kept strictly confidential*

*** Information will be processed and summarized by AECOM in order to produce summary statistics and summary responses*

LEAD AGENCY

Cumberland County/AECOM

Appendix E: Project Information Fact Sheet

This appendix to the Cumberland Hoke Regional Hazard Mitigation Plan contains a copy of the project information fact sheet that was developed to communicate information about the project to the general public and stakeholders, and to provide talking points for Hazard Mitigation Planning Committee members.

Fact Sheet

Cumberland-Hoke Regional Hazard Mitigation Plan

Natural hazards have the potential to cause property damage, loss of life, economic hardship, and threats to public health and safety. Hazard mitigation measures are the things we do today to be more protected in the future. They are actions taken before a disaster happens to reduce the impact of future hazard events on people and property in the community. Mitigation reduces the risk of loss and creates a more resilient and sustainable community.

Project Overview

The counties of Cumberland and Hoke, in coordination with their participating municipal jurisdictions, are preparing a **regional hazard mitigation plan** that will cover the two-county area. The Cumberland-Hoke Regional Hazard Mitigation Plan will identify local policies and actions for reducing risk and future losses from natural hazards such as floods, severe storms, wildfires, and winter weather.

The plan will also serve to meet key federal planning regulations which require local governments to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance, including funding for hazard mitigation projects.

These requirements stem from the Disaster Mitigation Act of 2000 which was passed by the President in October of 2000. This Act mandates that all states and local governments must have hazard mitigation plans in place in order to be eligible to apply for funding under such programs as the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation (PDM) program.

The Planning Process

The planning process for the Cumberland-Hoke Regional Hazard Mitigation Plan will consist of six main phases described in detail in the following sections: **public outreach, risk assessment, capability assessment, mitigation strategy development, plan maintenance, and plan adoption.**

Public Outreach

The goals of the public outreach strategy for this planning effort are to: generate public interest, solicit citizen input, and engage additional partners in the planning process.

Public outreach will include two open public meetings, a project information website (the Cumberland-Hoke Hazard Mitigation Planning website located at https://gis.aecomonline.net/IRISK2/NCHMP.aspx?region=9), a web-based public participation survey (https://www.surveymonkey.com/r/K67QRZD), and updates and information shared through social media, such as on Facebook.

Risk Assessment
The desired outcomes of a risk assessment are an evaluation of each identified hazard's potential impacts on the people, economy, and built and natural environments in the planning area plus an understanding of each participating jurisdiction's overall vulnerability and most significant risks. These potential impacts and a thorough understanding of the overall vulnerability can be used to create problem statements and identify mitigation actions to reduce risk.

Capability Assessment
Each participating jurisdiction has a unique set of capabilities, including authorities, policies, programs, staff, funding, and other resources available to accomplish mitigation and reduce long-term vulnerability. By reviewing the existing capabilities in each jurisdiction, the planning team can identify capabilities that currently reduce disaster losses or could be used to reduce losses in the future.

Mitigation Strategy Development
The primary purpose of mitigation planning is to systematically identify policies, actions, and activities to reduce the impact that future natural hazard occurrences will have on people and property in the planning area. Mitigation strategy development includes long-range mitigation goals common to the planning area and short-term mitigation actions specific to each participating jurisdiction.

Plan Maintenance
Plan maintenance is the process established to track the plan's implementation and to aid in updating the plan every five years. These procedures help to ensure that the mitigation strategy is implemented according to the plan. They also provide the foundation for an ongoing mitigation program, standardize long-term monitoring of hazard-related activities, integrate mitigation principles into local officials' daily job responsibilities, and maintain momentum through continued engagement and accountability in the plan's progress.

Plan Adoption
Each participating jurisdiction seeking plan approval must adopt the plan. Adoption by the local governing body demonstrates the community's commitment to implementing the mitigation strategy and authorizes responsible agencies to execute their actions. The final plan is not approved until the community adopts the plan and FEMA receives documentation of formal adoption by the governing body of the jurisdictions requesting approval.

Project Leadership
This regional planning effort is being led by the Cumberland County Emergency Management, with technical assistance from AECOM. A local Hazard Mitigation Planning Committee made up of local officials, representatives, and stakeholders has been established to guide this process. In addition, local points of contact have been established for each of the four counties as well as all of the participating municipal jurisdictions. Planning committee meetings and open public meetings will be scheduled to occur at key points throughout the project timeline.

Schedule
The planning process began in November 2019 and a fully updated plan is expected to be ready for review by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency by December 2020. Draft documents will be available on the project information website at various stages in the planning process.

For More Information
To learn more about this project, or to find out how you can be involved, please contact Garry Crumpler, Cumberland County Emergency Management Planner, at (910) 438-4069 or gcrumpler@co.cumberland.nc.us. Additional information and regular updates throughout the duration of this project can be found on the Cape Fear Hazard Mitigation Planning website at https://gis.aecomonline.net/IRISK2/NCHMP.aspx?region=9.

Appendix F: Public Participation Survey

This appendix to the Cumberland Hoke Regional Hazard Mitigation Plan contains a summary of the results obtained through the public participation survey offered from November 2019 to October 2020. The survey was conducted online through SurveyMonkey, an online survey software provider, and was also made available in print form at public meetings and at other locations throughout the planning area. These written responses were added to the online database and are reflected in the summary report provided in this appendix.

There was a total of 57 surveys completed by the public. Of those 57 surveys, here are some key facts:

- 94% of residents have experienced or been impacted by a disaster.
    - Hurricane was the most common at 90% with Wildfire at the least common at only 3%

- 85% of the residents stated they were very concerned about their community being impacted by Hurricane and 83% stated they were not concerned about Earthquake.

- 60% of the residents ranked *People: Loss of life and/or injuries* as the most vulnerable to being susceptible to natural hazards and 61% ranked *Cultural/Historic: Damage or loss of libraries, museums, historic properties, etc.* as the least vulnerable.

- When asked which assets are most important 85-92% said *Fire, Police and EMS stations*, *Major Roads and Bridges* and *Hospitals and Medical Facilities.*

- 89% stated that *protecting critical facilities (hospitals, police stations, fire stations, etc.)* is most important for planning against natural hazards.

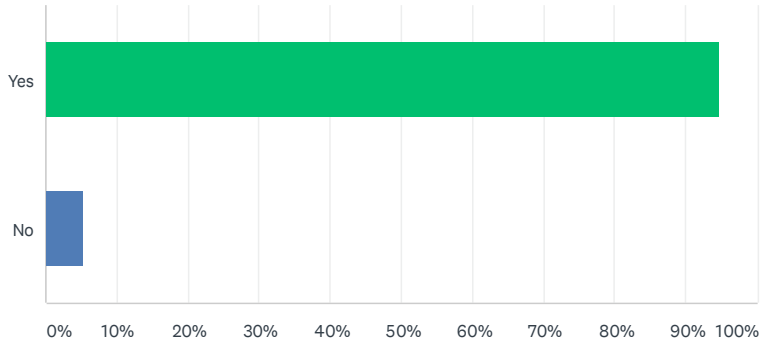
- 71% of the residents stated that the *internet (social media)* is the best way for them to receive information about natural hazards. 68% also stated *mobile messages/alerts* were the best ways.

- Only 8% of the residents live in a floodplain.

- 43% of the residents have lived in the Cumberland Hoke area for 20 years or more.

Q1 Have you ever experienced or been impacted by a natural disaster?

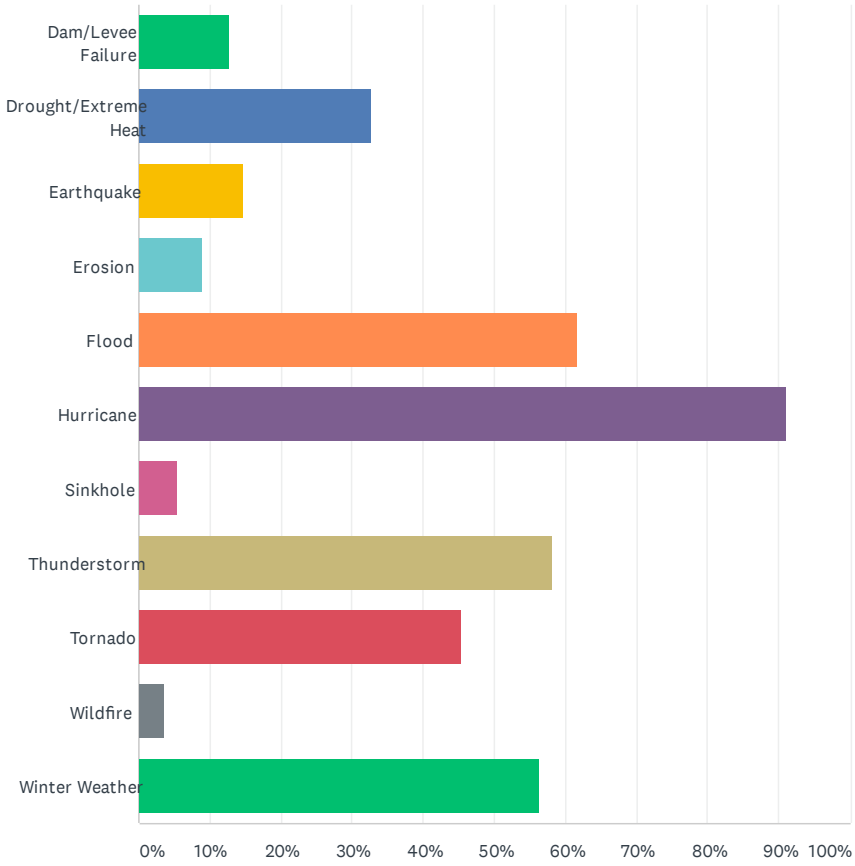
Answered: 57 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	94.74%	54
No	5.26%	3
TOTAL		57

Q2 If yes, Which of these natural hazards have you experienced or been impacted by? (Check all that apply.)

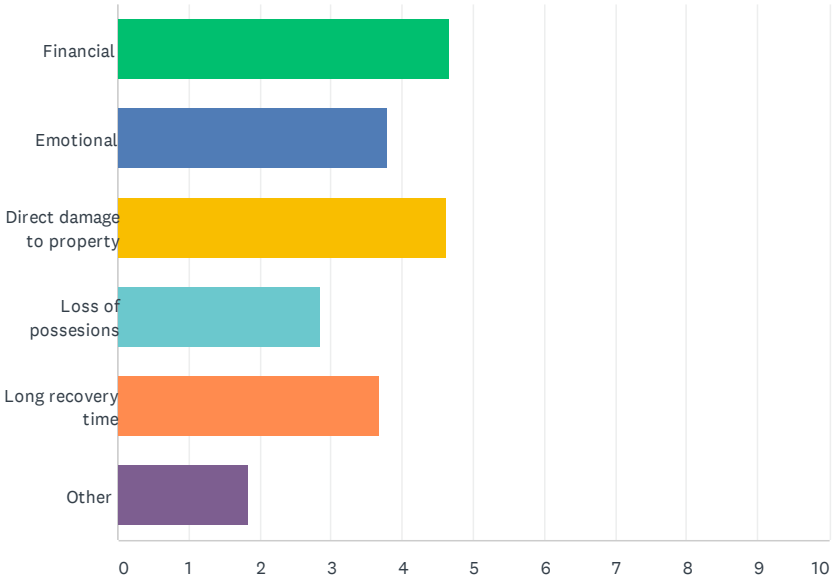
Answered: 55 Skipped: 2



ANSWER CHOICES	RESPONSES	
Dam/Levee Failure	12.73%	7
Drought/Extreme Heat	32.73%	18
Earthquake	14.55%	8
Erosion	9.09%	5
Flood	61.82%	34
Hurricane	90.91%	50
Sinkhole	5.45%	3
Thunderstorm	58.18%	32
Tornado	45.45%	25
Wildfire	3.64%	2
Winter Weather	56.36%	31
Total Respondents: 55		

Q3 What was the most difficult part for you in recovering from past disasters that you have experienced? (1 being most difficult and 6 being least difficult.)

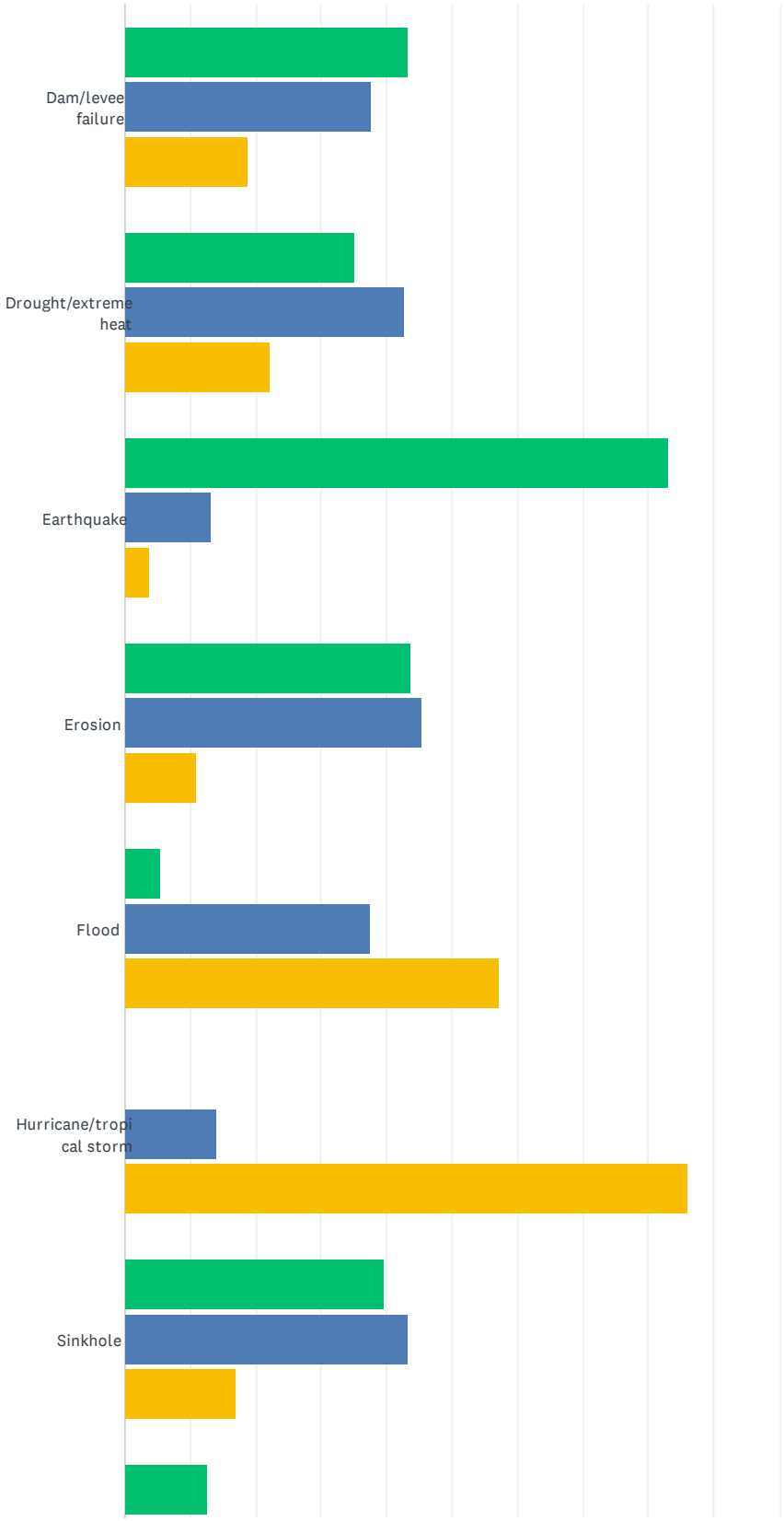
Answered: 54 Skipped: 3

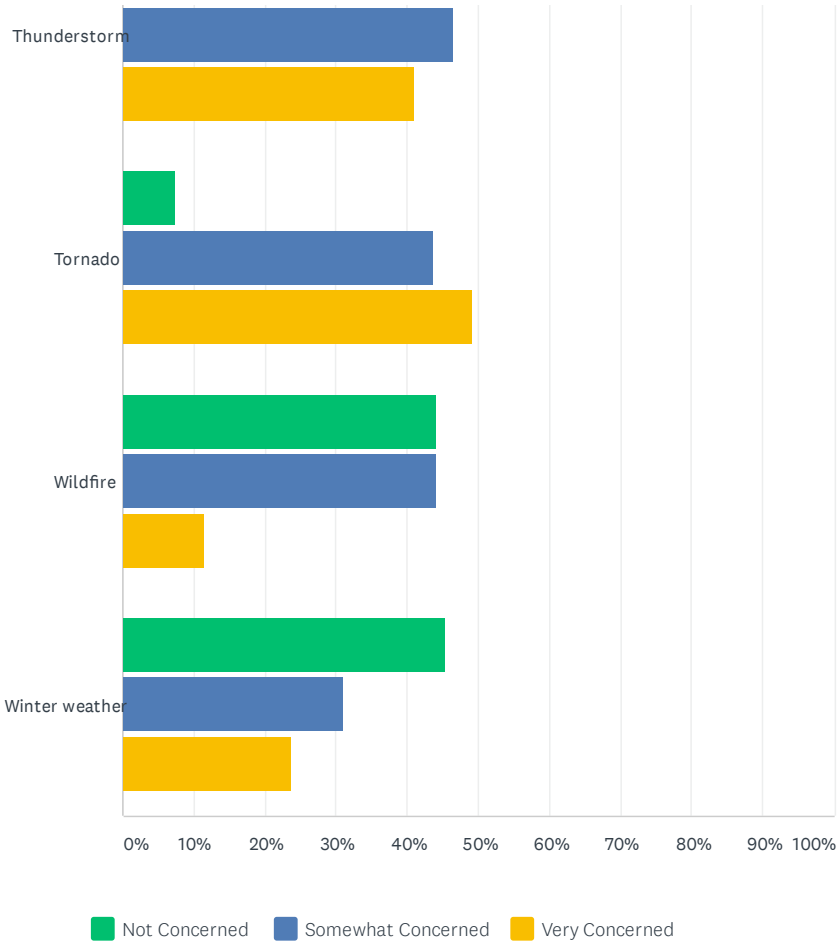


	1	2	3	4	5	6	TOTAL	SCORE
Financial	31.11% 14	28.89% 13	24.44% 11	6.67% 3	8.89% 4	0.00% 0	45	4.67
Emotional	15.22% 7	17.39% 8	26.09% 12	19.57% 9	15.22% 7	6.52% 3	46	3.78
Direct damage to property	28.57% 14	26.53% 13	26.53% 13	16.33% 8	2.04% 1	0.00% 0	49	4.63
Loss of possesions	4.88% 2	7.32% 3	9.76% 4	34.15% 14	34.15% 14	9.76% 4	41	2.85
Long recovery time	19.15% 9	21.28% 10	10.64% 5	14.89% 7	25.53% 12	8.51% 4	47	3.68
Other	12.50% 4	0.00% 0	3.13% 1	3.13% 1	6.25% 2	75.00% 24	32	1.84

Q4 How concerned are you about the possibility of your community being impacted by each of these natural hazards? (Check the corresponding circle for each natural hazard.)

Answered: 57 Skipped: 0

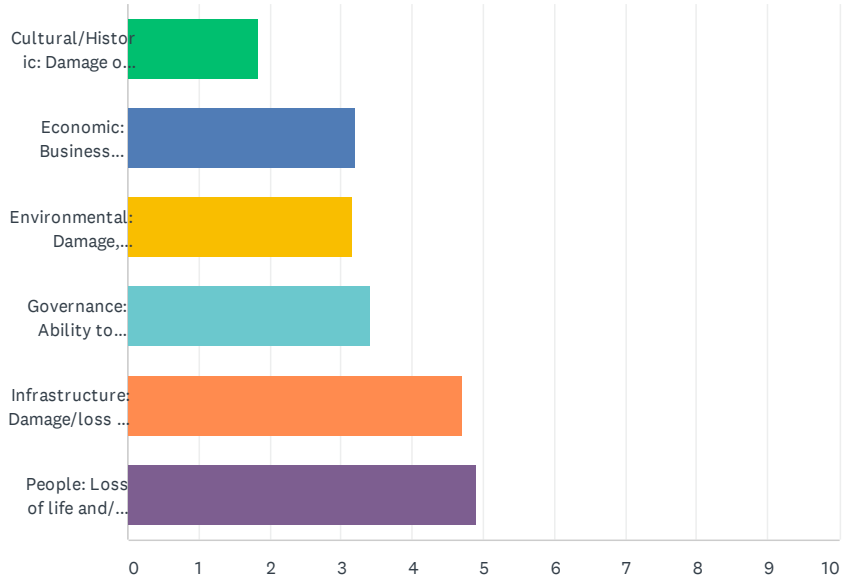




	NOT CONCERNED	SOMEWHAT CONCERNED	VERY CONCERNED	TOTAL	WEIGHTED AVERAGE
Dam/levee failure	43.40% 23	37.74% 20	18.87% 10	53	1.75
Drought/extreme heat	35.19% 19	42.59% 23	22.22% 12	54	1.87
Earthquake	83.02% 44	13.21% 7	3.77% 2	53	1.21
Erosion	43.64% 24	45.45% 25	10.91% 6	55	1.67
Flood	5.36% 3	37.50% 21	57.14% 32	56	2.52
Hurricane/tropical storm	0.00% 0	14.04% 8	85.96% 49	57	2.86
Sinkhole	39.62% 21	43.40% 23	16.98% 9	53	1.77
Thunderstorm	12.50% 7	46.43% 26	41.07% 23	56	2.29
Tornado	7.27% 4	43.64% 24	49.09% 27	55	2.42
Wildfire	44.23% 23	44.23% 23	11.54% 6	52	1.67
Winter weather	45.45% 25	30.91% 17	23.64% 13	55	1.78

Q5 Community assets are features, characteristics, or resources that either make a community unique or allow the community to function. In your opinion, which of the following categories are most at risk to the impacts caused by natural hazards within the county? (Please rank the community assets in order of vulnerability, 1 being most at risk and 6 least at risk.) Please note, the list will automatically re-order itself as you make your selections.

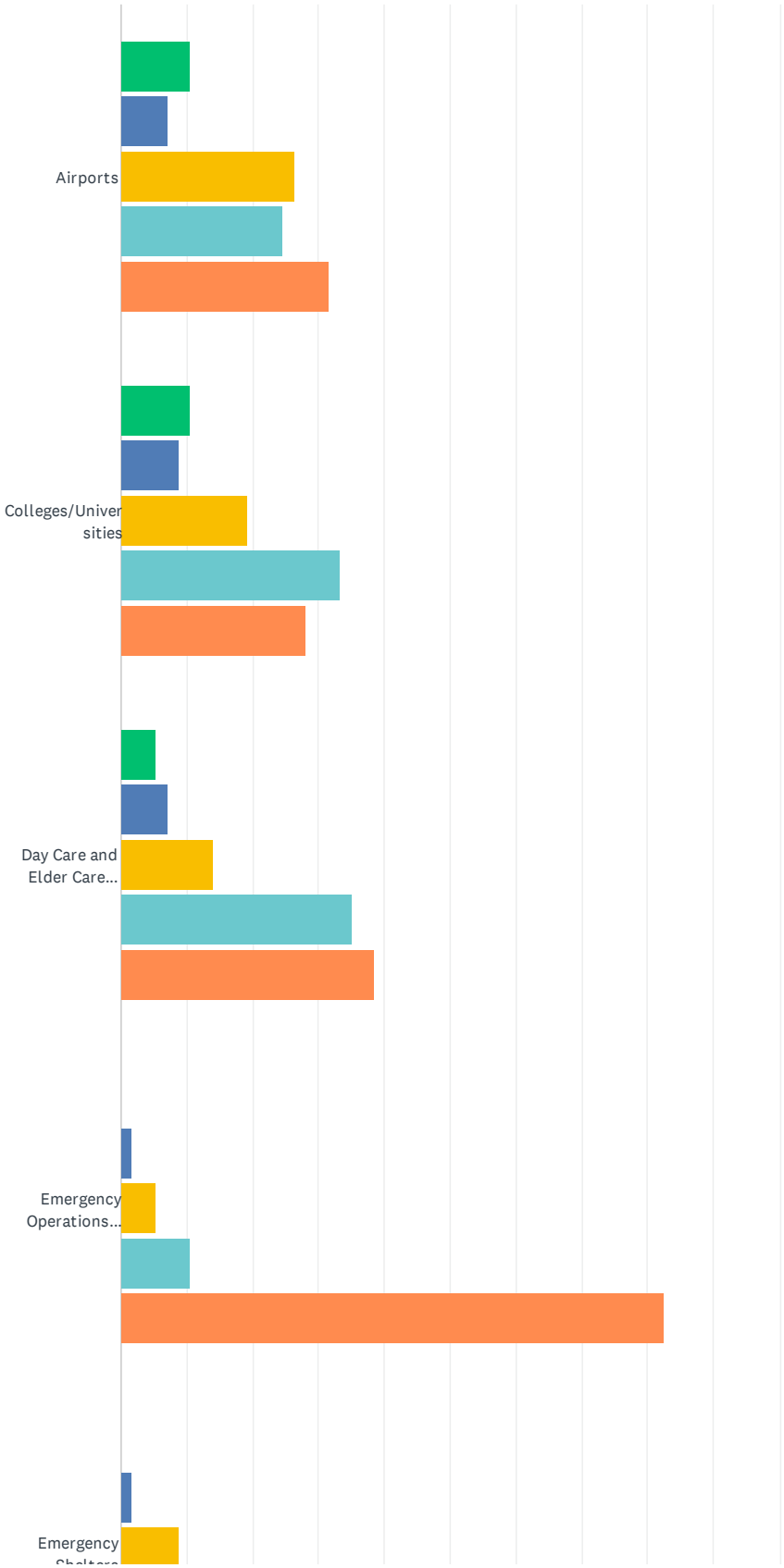
Answered: 56 Skipped: 1

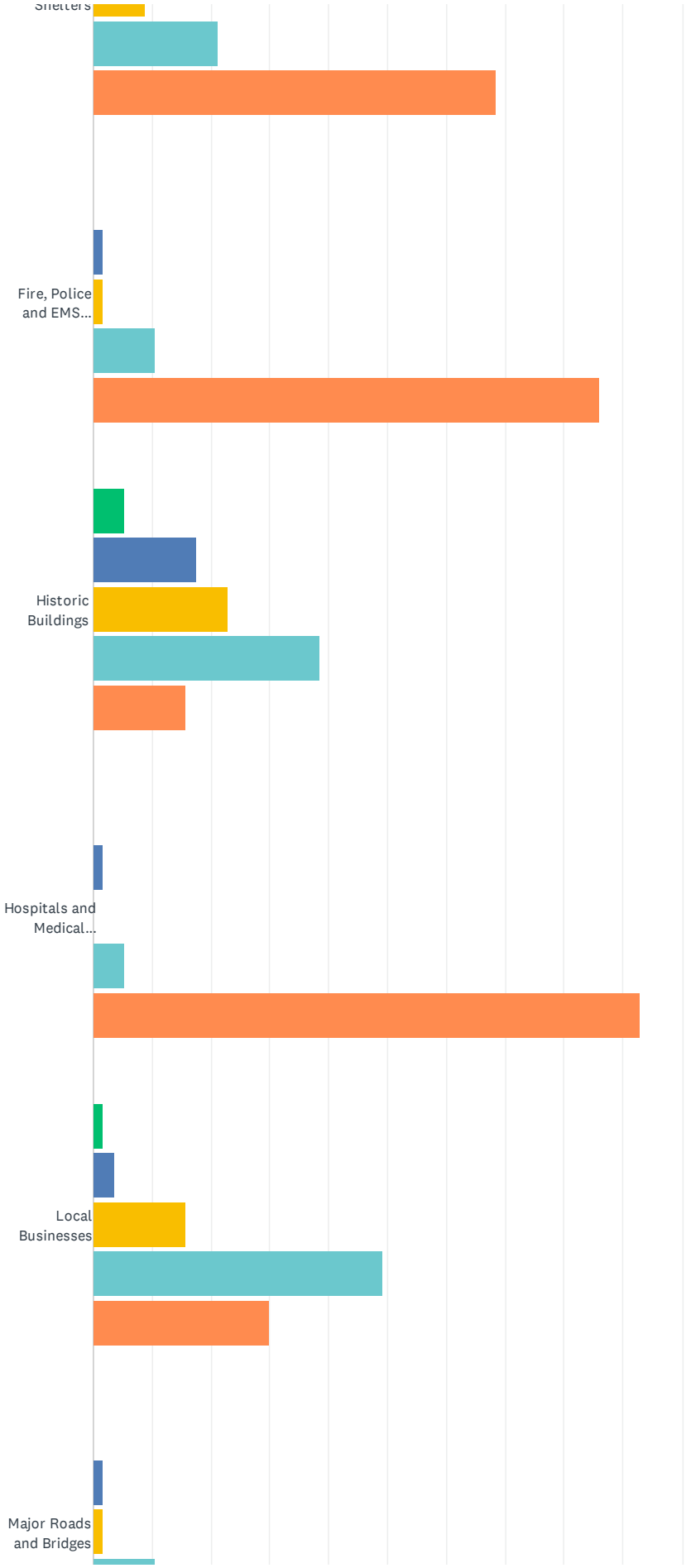


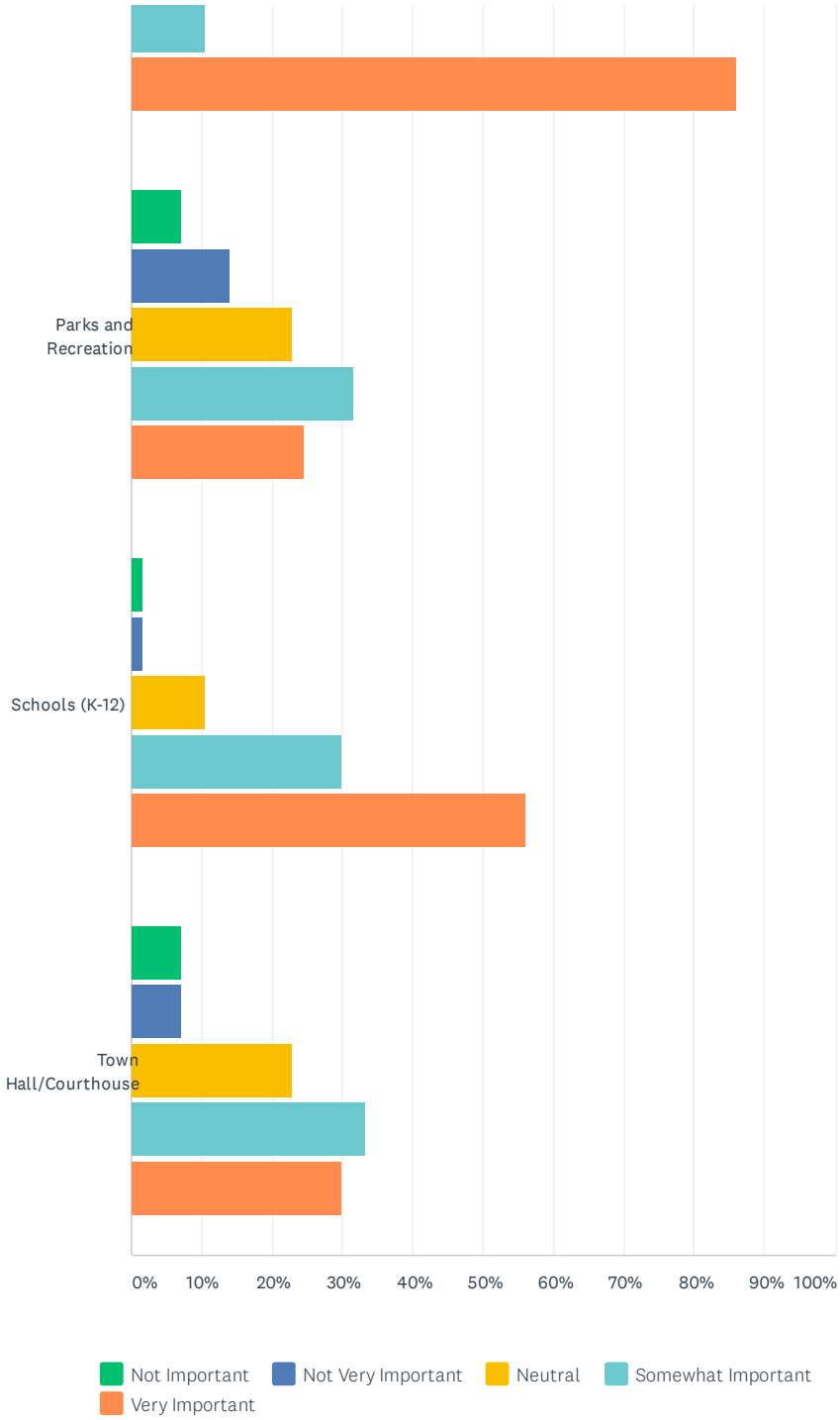
	1	2	3	4	5	6	TOTAL	SCORE
Cultural/Historic: Damage or loss of libraries, museums, historic properties, etc.	4.08% 2	4.08% 2	4.08% 2	8.16% 4	18.37% 9	61.22% 30	49	1.84
Economic: Business interruptions/closures, job losses, etc.	4.08% 2	14.29% 7	16.33% 8	32.65% 16	28.57% 14	4.08% 2	49	3.20
Environmental: Damage, contamination or loss of forests, wetlands, waterways, etc.	8.00% 4	6.00% 3	28.00% 14	18.00% 9	32.00% 16	8.00% 4	50	3.16
Governance: Ability to maintain order and/or provide public amenities and services	4.00% 2	22.00% 11	26.00% 13	22.00% 11	10.00% 5	16.00% 8	50	3.40
Infrastructure: Damage/loss of roads, bridges, utilities, schools, etc.	21.15% 11	48.08% 25	17.31% 9	9.62% 5	1.92% 1	1.92% 1	52	4.71
People: Loss of life and/or injuries	60.00% 33	9.09% 5	9.09% 5	9.09% 5	7.27% 4	5.45% 3	55	4.89

Q6 How important is each of the following specific community assets to you? (Check the appropriate circle for each asset.)

Answered: 57 Skipped: 0



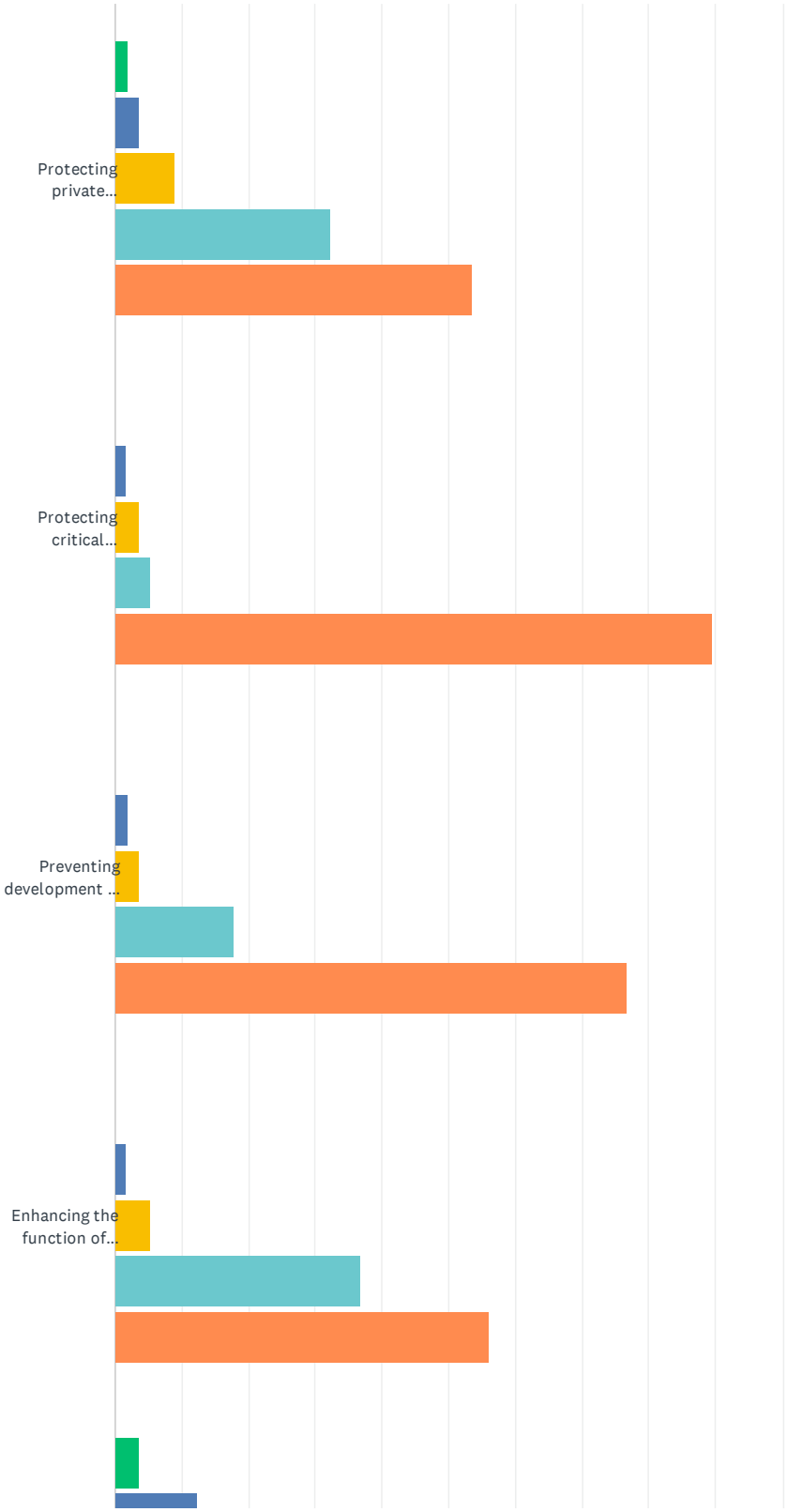

Shelters
Fire, Police and EMS...
Historic Buildings
Hospitals and Medical...
Local Businesses
Major Roads and Bridges

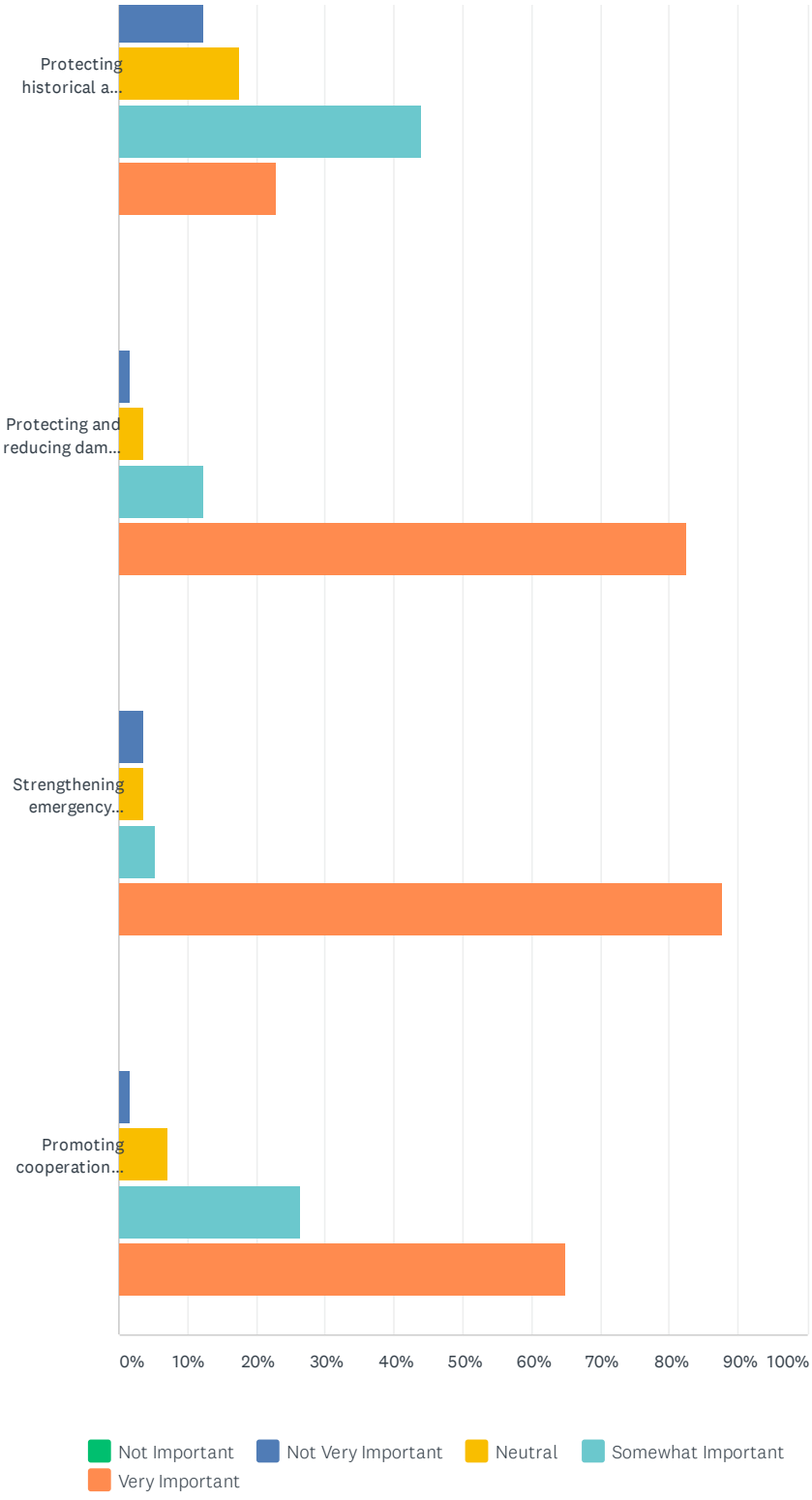

Parks and Recreation
Schools (K-12)
Town Hall/Courthouse
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Not Important
Not Very Important
Neutral
Somewhat Important
Very Important

	NOT IMPORTANT	NOT VERY IMPORTANT	NEUTRAL	SOMEWHAT IMPORTANT	VERY IMPORTANT	TOTAL	WEIGHTED AVERAGE
Airports	10.53% 6	7.02% 4	26.32% 15	24.56% 14	31.58% 18	57	3.60
Colleges/Universities	10.53% 6	8.77% 5	19.30% 11	33.33% 19	28.07% 16	57	3.60
Day Care and Elder Care Facilities	5.26% 3	7.02% 4	14.04% 8	35.09% 20	38.60% 22	57	3.95
Emergency Operations Centers	0.00% 0	1.75% 1	5.26% 3	10.53% 6	82.46% 47	57	4.74
Emergency Shelters	0.00% 0	1.75% 1	8.77% 5	21.05% 12	68.42% 39	57	4.56
Fire, Police and EMS Stations	0.00% 0	1.75% 1	1.75% 1	10.53% 6	85.96% 49	57	4.81
Historic Buildings	5.26% 3	17.54% 10	22.81% 13	38.60% 22	15.79% 9	57	3.42
Hospitals and Medical Facilities	0.00% 0	1.75% 1	0.00% 0	5.26% 3	92.98% 53	57	4.89
Local Businesses	1.75% 1	3.51% 2	15.79% 9	49.12% 28	29.82% 17	57	4.02
Major Roads and Bridges	0.00% 0	1.75% 1	1.75% 1	10.53% 6	85.96% 49	57	4.81
Parks and Recreation	7.02% 4	14.04% 8	22.81% 13	31.58% 18	24.56% 14	57	3.53
Schools (K-12)	1.75% 1	1.75% 1	10.53% 6	29.82% 17	56.14% 32	57	4.37
Town Hall/Courthouse	7.02% 4	7.02% 4	22.81% 13	33.33% 19	29.82% 17	57	3.72

Q7 Natural hazards can have a significant impact on a community, but planning for these types of events can help lessen the impacts. Please tell us how important each statement is to you by checking the appropriate circle for each.

Answered: 57 Skipped: 0

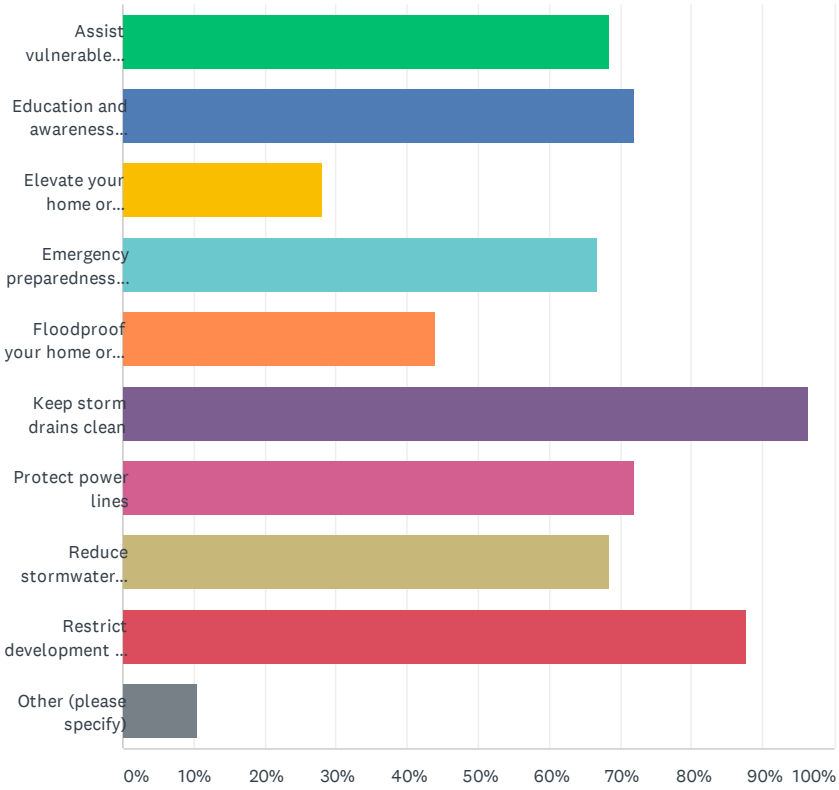



Protecting historical a...
Protecting and reducing dam...
Strengthening emergency...
Promoting cooperation...
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Not Important
Not Very Important
Neutral
Somewhat Important
Very Important

	NOT IMPORTANT	NOT VERY IMPORTANT	NEUTRAL	SOMEWHAT IMPORTANT	VERY IMPORTANT	TOTAL	WEIGHTED AVERAGE
Protecting private property	1.79% 1	3.57% 2	8.93% 5	32.14% 18	53.57% 30	56	4.32
Protecting critical facilities (for example, hospitals, police stations, fire stations, etc.)	0.00% 0	1.75% 1	3.51% 2	5.26% 3	89.47% 51	57	4.82
Preventing development in hazard areas	0.00% 0	1.79% 1	3.57% 2	17.86% 10	76.79% 43	56	4.70
Enhancing the function of natural features (for example, streams, wetlands, etc.)	0.00% 0	1.75% 1	5.26% 3	36.84% 21	56.14% 32	57	4.47
Protecting historical and cultural landmarks	3.51% 2	12.28% 7	17.54% 10	43.86% 25	22.81% 13	57	3.70
Protecting and reducing damage to utilities	0.00% 0	1.75% 1	3.51% 2	12.28% 7	82.46% 47	57	4.75
Strengthening emergency services (for example, police, fire, ambulance)	0.00% 0	3.51% 2	3.51% 2	5.26% 3	87.72% 50	57	4.77
Promoting cooperation among public agencies, citizens, non-profit organizations, and businesses	0.00% 0	1.75% 1	7.02% 4	26.32% 15	64.91% 37	57	4.54

Q8 What are some steps that you and/or your local government could take to reduce or eliminate the risk of future natural hazard damages in your neighborhood? (Check all that apply)

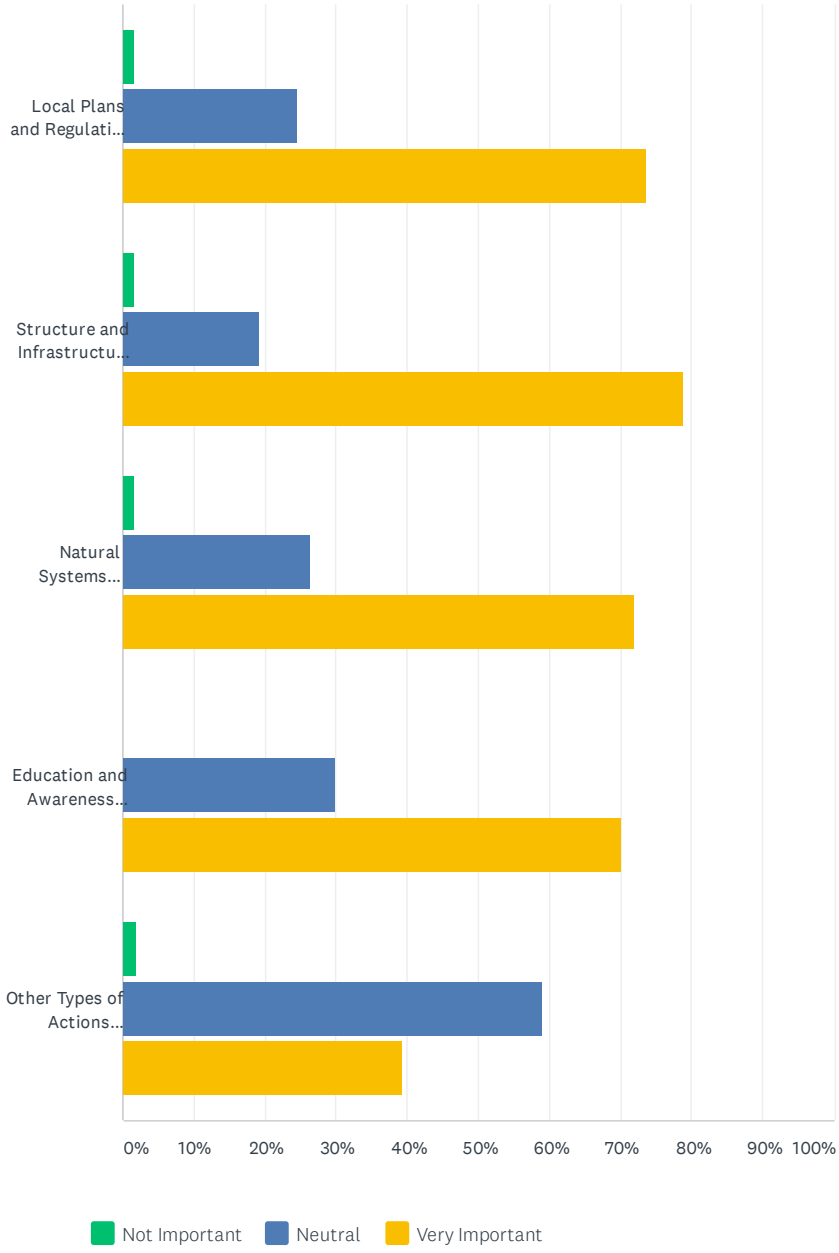
Answered: 57 Skipped: 0



ANSWER CHOICES	RESPONSES	
Assist vulnerable populations	68.42%	39
Education and awareness activities	71.93%	41
Elevate your home or business	28.07%	16
Emergency preparedness kits	66.67%	38
Floodproof your home or business	43.86%	25
Keep storm drains clean	96.49%	55
Protect power lines	71.93%	41
Reduce stormwater runoff	68.42%	39
Restrict development in floodplain areas	87.72%	50
Other (please specify)	10.53%	6
Total Respondents: 57		

Q9 A number of community-wide activities can reduce risk from natural hazards. Please tell us how important you think each one is for your community to consider pursuing.

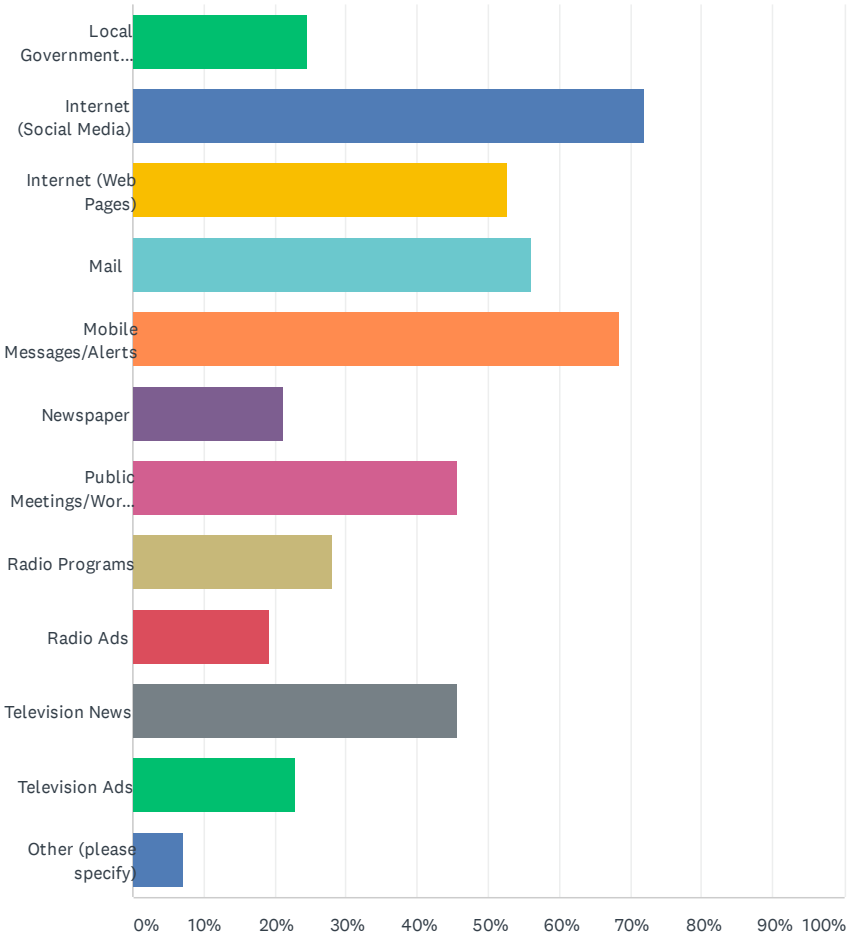
Answered: 57 Skipped: 0



	NOT IMPORTANT	NEUTRAL	VERY IMPORTANT	TOTAL	WEIGHTED AVERAGE
Local Plans and Regulations (Government policies or codes that influence the way land and buildings are developed and built.)	1.75% 1	24.56% 14	73.68% 42	57	2.72
Structure and Infrastructure Projects (Modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area.)	1.75% 1	19.30% 11	78.95% 45	57	2.77
Natural Systems Protection (Actions that minimize damage and losses and also preserve or restore the functions of natural systems.)	1.75% 1	26.32% 15	71.93% 41	57	2.70
Education and Awareness Programs (Actions that inform and educate citizens, elected officials and property owners about hazards and potential ways to mitigate them.)	0.00% 0	29.82% 17	70.18% 40	57	2.70
Other Types of Actions (Actions that are related to mitigation in ways that make sense to the local government that do not fall into one of the categories above.)	1.79% 1	58.93% 33	39.29% 22	56	2.38

Q10 What are the most effective ways for you to receive information about how to make your home and neighborhood more resistant to natural hazards? (Check all that apply)

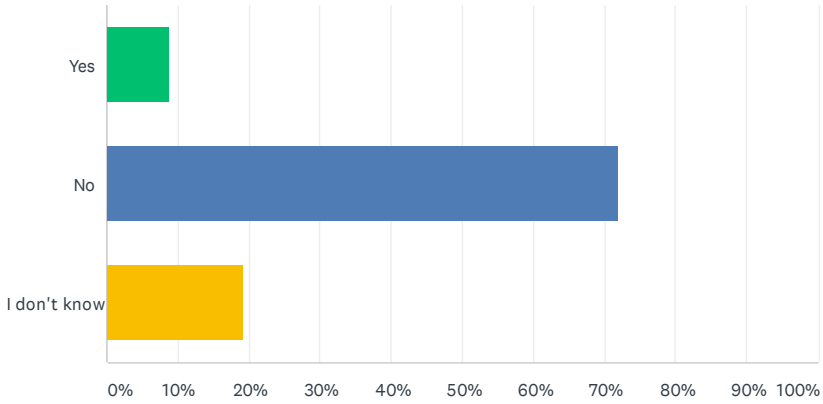
Answered: 57 Skipped: 0



ANSWER CHOICES	RESPONSES	
Local Government Channel	24.56%	14
Internet (Social Media)	71.93%	41
Internet (Web Pages)	52.63%	30
Mail	56.14%	32
Mobile Messages/Alerts	68.42%	39
Newspaper	21.05%	12
Public Meetings/Workshops	45.61%	26
Radio Programs	28.07%	16
Radio Ads	19.30%	11
Television News	45.61%	26
Television Ads	22.81%	13
Other (please specify)	7.02%	4
Total Respondents: 57		

Q11 Is your home located in a floodplain?

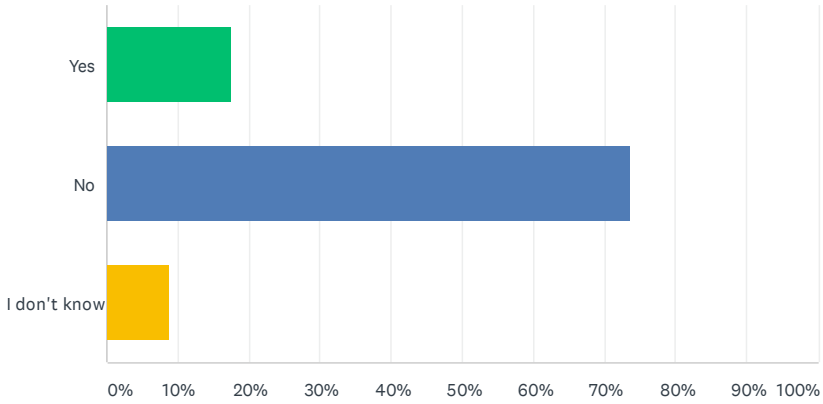
Answered: 57 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	8.77%	5
No	71.93%	41
I don't know	19.30%	11
TOTAL		57

Q12 Do you have flood insurance?

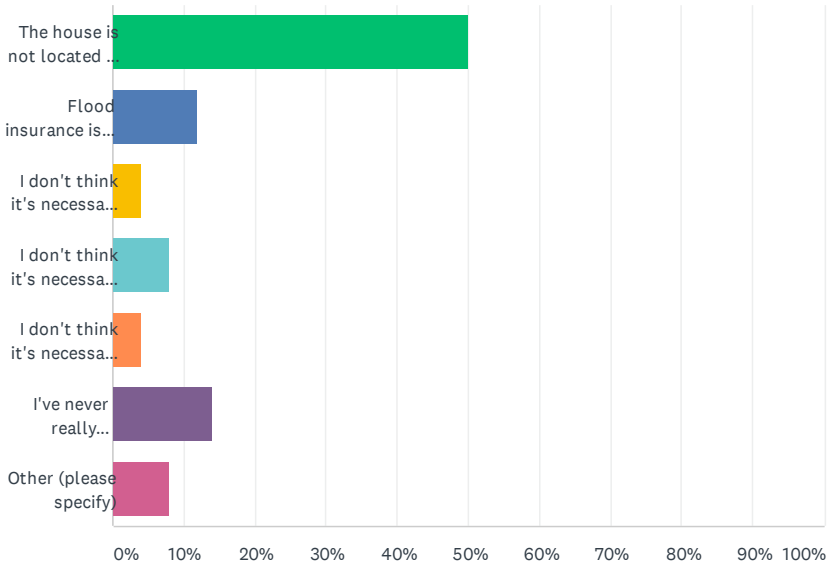
Answered: 57 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	17.54%	10
No	73.68%	42
I don't know	8.77%	5
TOTAL		57

Q13 If you answered “No” to the previous question, why not?

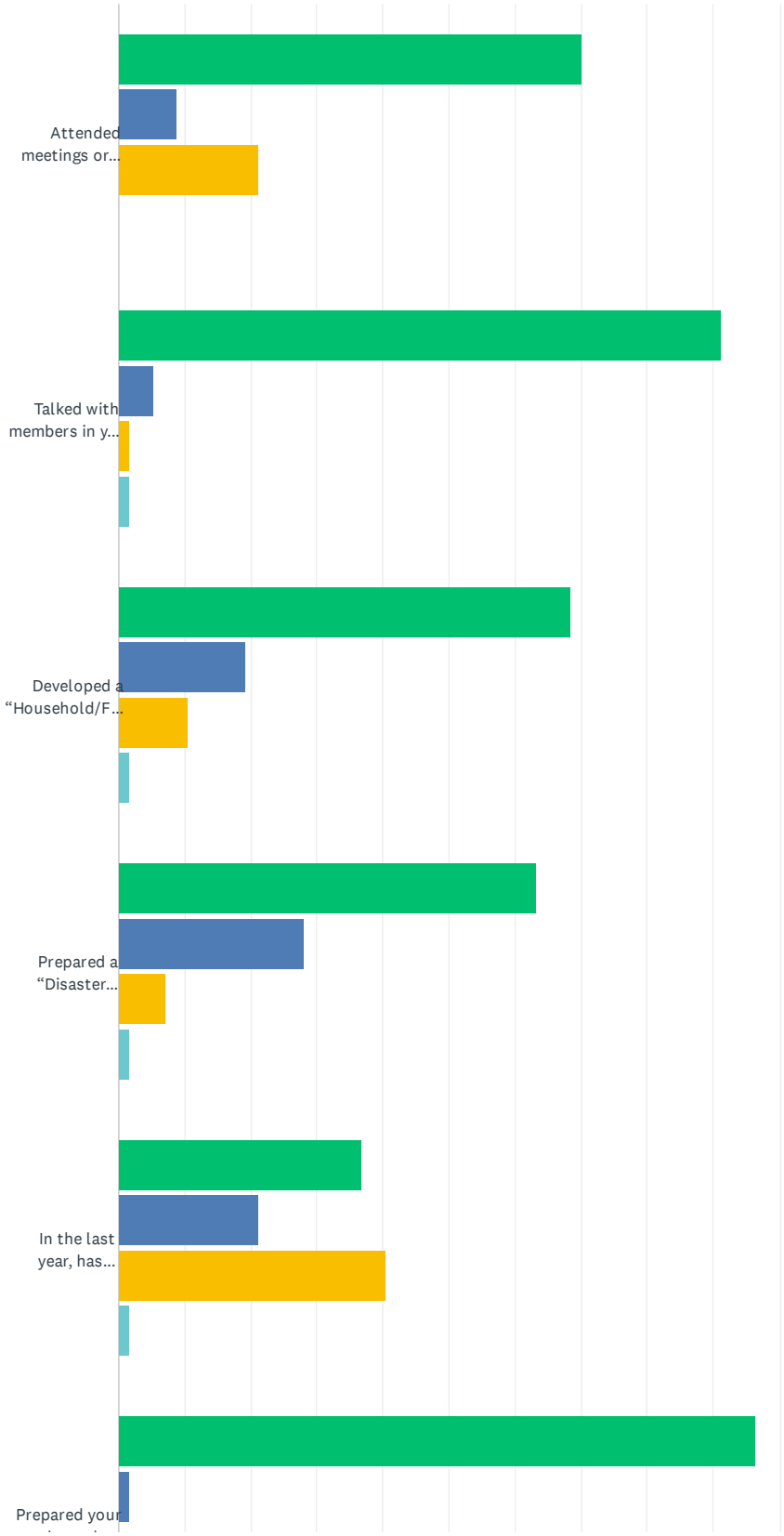
Answered: 50 Skipped: 7

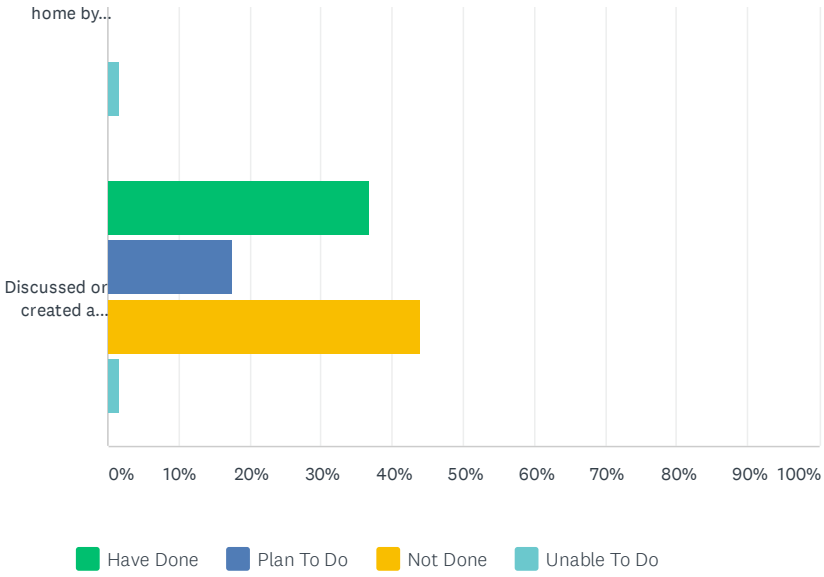


ANSWER CHOICES	RESPONSES	
The house is not located in a floodplain	50.00%	25
Flood insurance is too expensive	12.00%	6
I don't think it's necessary because it never floods	4.00%	2
I don't think it's necessary because I’m elevated or otherwise protected	8.00%	4
I don't think it's necessary because I have homeowners insurance	4.00%	2
I've never really considered it	14.00%	7
Other (please specify)	8.00%	4
TOTAL		50

Q14 In the following list, please check the activities that you have done in your household, plan to do in the near future, have not done, or are unable to do. (Please check one response for each preparedness activity.)

Answered: 57 Skipped: 0

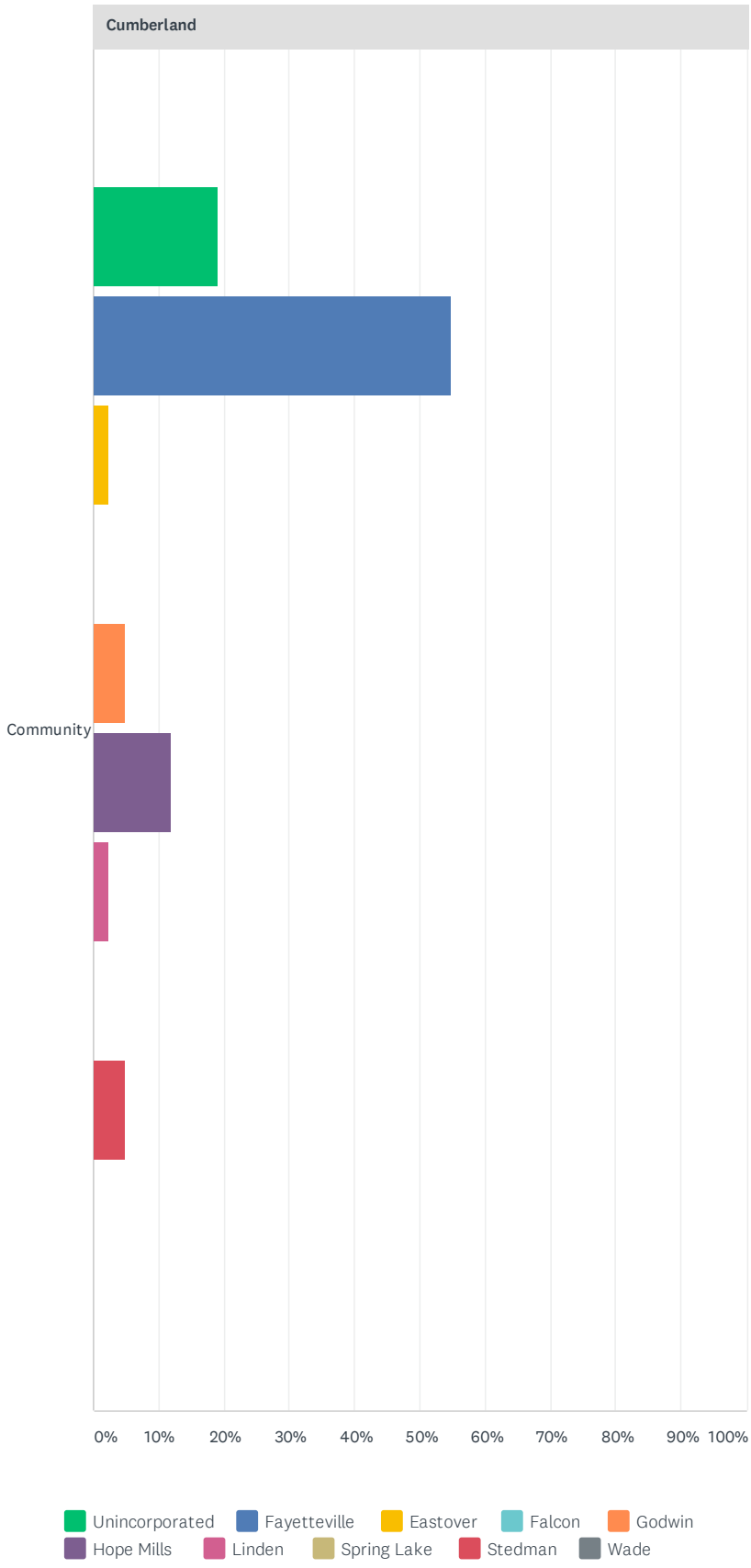


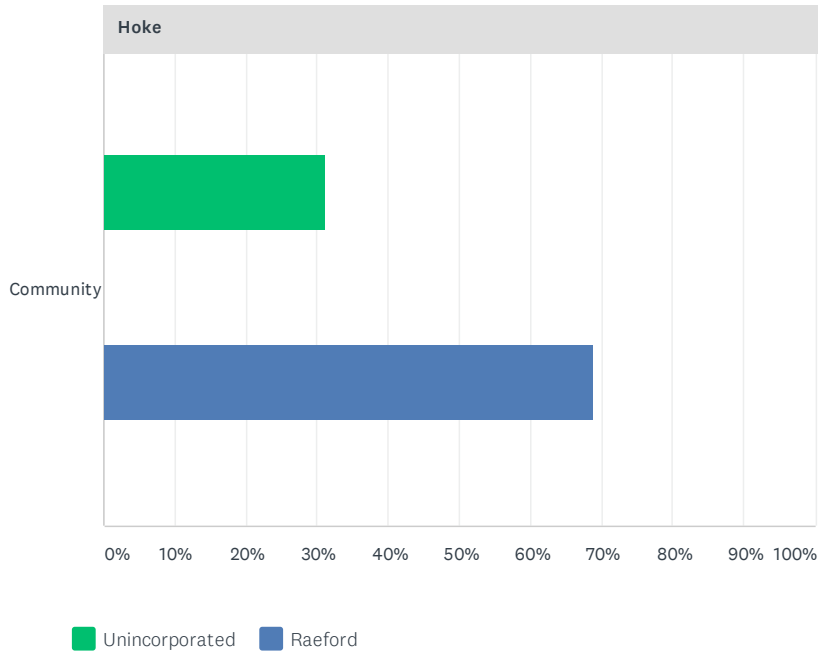


	HAVE DONE	PLAN TO DO	NOT DONE	UNABLE TO DO	TOTAL
Attended meetings or received written information on natural disasters or emergency preparedness?	70.18% 40	8.77% 5	21.05% 12	0.00% 0	57
Talked with members in your household about what to do in case of a natural disaster or emergency?	91.23% 52	5.26% 3	1.75% 1	1.75% 1	57
Developed a “Household/Family Emergency Plan” in order to decide what everyone would do in the event of a disaster?	68.42% 39	19.30% 11	10.53% 6	1.75% 1	57
Prepared a “Disaster Supply Kit” (stored extra food, water, batteries or other emergency supplies)?	63.16% 36	28.07% 16	7.02% 4	1.75% 1	57
In the last year, has anyone in your household been trained in First Aid or Cardio-Pulmonary Resuscitation (CPR)?	36.84% 21	21.05% 12	40.35% 23	1.75% 1	57
Prepared your home by installing smoke detectors on each level of the house?	96.49% 55	1.75% 1	0.00% 0	1.75% 1	57
Discussed or created a utility shutoff procedure in the event of a natural disaster?	36.84% 21	17.54% 10	43.86% 25	1.75% 1	57

Q15 In which community do you live?

Answered: 56 Skipped: 1





Cumberland

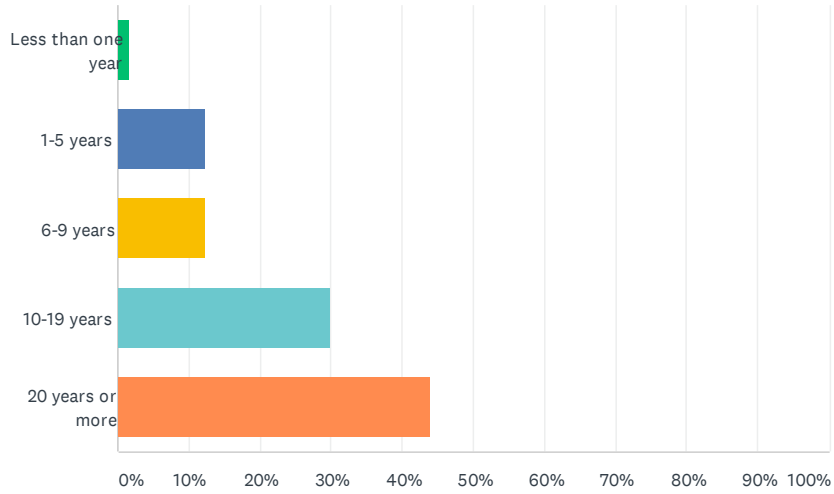
	UNINCORPORATED	FAYETTEVILLE	EASTOVER	FALCON	GODWIN	HOPE MILLS	LINDEN	SPRING LAKE	STEDMAN	WA
Community	19.05% 8	54.76% 23	2.38% 1	0.00% 0	4.76% 2	11.90% 5	2.38% 1	0.00% 0	4.76% 2	0.0

Hoke

	UNINCORPORATED	RAEFORD	TOTAL
Community	31.25% 5	68.75% 11	16

Q16 How long have you lived in the Cumberland-Hoke region?

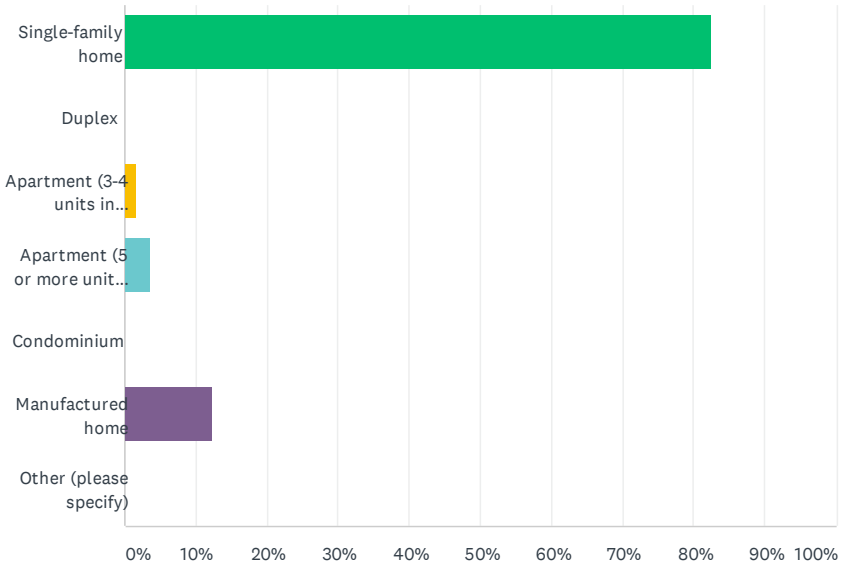
Answered: 57 Skipped: 0



ANSWER CHOICES	RESPONSES	
Less than one year	1.75%	1
1-5 years	12.28%	7
6-9 years	12.28%	7
10-19 years	29.82%	17
20 years or more	43.86%	25
TOTAL		57

Q17 What type of building do you live in?

Answered: 57 Skipped: 0



ANSWER CHOICES	RESPONSES	
Single-family home	82.46%	47
Duplex	0.00%	0
Apartment (3-4 units in structure)	1.75%	1
Apartment (5 or more units in structure)	3.51%	2
Condominium	0.00%	0
Manufactured home	12.28%	7
Other (please specify)	0.00%	0
TOTAL		57

Q18 Additional Comments

Answered: 18 Skipped: 39

Sign-In Sheet

Cumberland-Hoke Hazard Mitigation Plan Public Meeting 1	Date:	2/27/20
Location: E.E. Miller Recreation Center	Time:	18:30-20:00

#	Print Name	Community	E-Mail
1	Mike Moen	Middle Creek	mike.moen2@outlook.com
2	Melode Dickerson	Hope Mills	bluskyforever1015@aol.com
3	Gene Booth	Cumberland County	wbooth@co.cumberland.nc.us
4	Gregory Dickerson	Hope Mills	Fyrdawg45@aol.com
5	Steve Rogers	Fay	homesafehomeinventory.com
6	Jill Upchurch	Raeford (Puppy Creek)	jupchurch135@yahoo
7	Gary Crumpler	Cumberland County	gcrumpler@co.cumberland.nc.us
8			
9			
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Cumberland County NC - Emergency Services

@CumberlandCountyNC911

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NWS Raleigh Winter Storm Briefing - 9:30 AM Thursday, Feb 20, 2020

Like Comment Share

Cumberland County NC - Emergency Services
February 13 at 9:49 AM ·

The first public meeting to discuss the Cumberland-Hoke Regional Hazard Mitigation Plan has been set for Thursday, Feb. 27 from 6:30 p.m. to 8 p.m. The meeting will be held at the E.E. Miller Recreation Center located at 1347 Rim Road in Fayetteville. We look forward to seeing you there.

Cumberland County NC Government

Government Organization

Send Message

Cumberland County NC Government
February 13 at 7:51 AM ·

Like Page

The very first public meeting regarding the Cumberland-Hoke Regional Hazard Mitigation plan has been set and we would like your input. https://bit.ly/2HI2pSc

2

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Arielle Foster
July 25, 2019 at 10:10 PM

I had to be transported to the ER and received better care on the way than after arrival. Thank you!

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Jason Faragoi
April 19, 2019 at 5:53 AM

This is the latest from the National Weather Service. The storm has ... See More

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Jason Faragoi
April 8, 2019 at 8:43 PM

https://www.facebook.com/102994339801934/posts/1788529287915089/ Have been trying to post this. Please be safe out there.

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The Fayetteville Observer

Cumberland Matters: Hazard mitigation survey needs input

By Jon Soles

Posted Feb 16, 2020 at 8:01 AM

Two major hurricanes that brought historic flooding to Cumberland County in the past few years have raised the profile of natural disasters in the area. Planners updating the Cumberland-Hoke Regional Hazard Mitigation Plan are seeking involvement from the public.

The first public meeting to discuss the Cumberland-Hoke Regional Hazard Mitigation Plan will be held Feb. 27 from 6:30 to 8 p.m. at the E.E. Miller Recreation Center located at 1347 Rim Road in Fayetteville.

Disasters can be predicted and anticipated, but no one knows the outcome ahead of time. That's why hazard mitigation planning is important. Cumberland and Hoke counties, in coordination with their participating municipal jurisdictions, are updating the Cumberland Hoke Regional Hazard Mitigation Plan. The plan identifies local policies and actions for reducing risk and future losses from natural hazards such as floods, severe storms, wildfires, and winter weather. The public meeting will allow citizens to obtain information and provide feedback regarding the plan.

Anyone interested or who would like to share ideas for helping our community become more resilient to future natural disasters should attend. The community is invited to come share thoughts and concerns about the community's resiliency against natural disasters and leave comments for the final decision-making process.

Cumberland and Hoke counties also have invited members of the public to participate in a short public opinion survey which can be accessed by following surveymonkey.com/r/9VGHWBR.

For more information, email Cumberland County Emergency Management Coordinator, Hendrix Valenzuela at hvalenzuela@co.cumberland.nc.us or Emergency Management Planner Garry Crumpler at gcrumpler@co.cumberland.nc.us.

To view the current plan, go to co.cumberland.nc.us/emergency-services and click on the Emergency Management tab.

Early voting

One-Stop early voting is underway at seven locations in Cumberland County. You can vote at the Board of Elections office in the E. Newton Smith Center, 227 Fountainhead Lane, Monday through Friday from 8 a.m. to 5 p.m. and Feb. 29 from 8 a.m. to 3 p.m.

One-Stop voting at six other locations will be held Monday through Friday from 8 a.m. to 7:30 p.m. and Feb. 29 from 8 a.m. to 3 p.m. The Fayetteville locations are Cliffdale Recreation Center, 6404 Cliffdale Road; North Regional Library, 855 McArthur Road; East Regional Library, 4809 Clinton Road; and Smith Recreation Center, 1520 Slater Ave. Hope Mills locations are the Hope Mills Recreation Center, 5766 Rockfish Road; and J.D. Pone Recreation Center, 2964 School Road.

For more information, call 910-678-7733 or go to co.cumberland.nc.us/election-board.

Cumberland Update

Monday: Board of Commissioners regular meeting. Begins at 6:45 p.m. in Room 118 of the Cumberland County Courthouse, 117 Dick St. Anyone wishing to speak during the public comment period should register with the clerk to the Board of Commissioners before the start of the meeting.

Tuesday: Get a Gold Smile. Free dental education program for parents and children. Will be held from 8 a.m. to 5 p.m. in third-floor auditorium, Health Department, 1235 Ramsey St., Fayetteville. Call 910-433-3890 for information.

Jon Soles is the public information specialist for Cumberland County Government. You can reach him at 910-321-6579 or jsoles@co.cumberland.nc.us.

CUMBERLAND COUNTY
NORTH CAROLINA

News Release

For Immediate Release **Nov. 27, 2019**

Contact: Hendrix Valenzuela
Cumberland County Emergency Management Coordinator
Telephone: 910-321-6960, E-mail: hvalenzuela@co.cumberland.nc.us

Contact: Andrew Jacobs
Hoke County Emergency Management Coordinator
Phone: 910-875-4126, Email: cjacobs@hokecounty.org

Cumberland-Hoke Regional Hazard Mitigation Plan Update

FAYETTEVILLE – Cumberland and Hoke counties have begun the process to update the five-year the Cumberland-Hoke Regional Hazard Mitigation Plan. The committee met Nov. 14 at the Lake Rim Recreation Center. Meetings to provide information and gather feedback from the public will be scheduled and announced next year.

The current Cumberland-Hoke Regional Hazard Mitigation Plan was adopted in 2016. The committee is made up of county and city departments, citizens and stakeholders from both counties. A comprehensive hazard mitigation plan helps a community to protect lives and property, avoid damage, reduce or eliminate future damages by guiding new development, speed post-disaster recovery and avoid interruptions caused by hazards.

Topics discussed at the Nov. 14 meeting were a project overview, review of the current plan, a process to update the plan, capability assessment and a strategy for public outreach and participation. Hazards included in the current 2016 – 2021 Regional Hazard Mitigation Plan include floods, earthquakes, hurricanes, winter storms, severe thunderstorms, wildfires, dam/levee failure and tornadoes.

To view the current plan, visit Cumberland County Emergency Services online at co.cumberland.nc.us/emergency-services and click on the Emergency Management tab. Residents may also look up information such as flood zones and fire districts on the County's GIS website at opendata.co.cumbelrand.nc.us/.

For more information, call Cumberland County Emergency Management Coordinator Hendrix Valenzuela at 910-321-6960 or Hoke County Emergency Management Coordinator Andrew Jacobs at 910-875-4126.

###

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News Release Full Story

Public Survey Vital for Cumberland-Hoke Regional Hazard Mitigation Plan

Feb 07, 2020

Cumberland and Hoke counties are in the process of updating the existing Cumberland-Hoke Regional Hazard Mitigation Plan. Hazard mitigation plans are used to understand risks from natural hazards such as severe weather and develop long-term strategies that will reduce the impacts of future events on people, property, and the environment.

The counties are working in collaboration with AECOM, a planning and consulting company to update the plan, utilizing funds appropriated by the North Carolina Division of Emergency Management. With adoption of the updated plan, Cumberland and Hoke Counties will maintain eligibility to apply for federal funding towards natural hazard mitigation projects such as home elevation, and buyouts. This planning process includes a wide range of representatives from city and county government, emergency management, members of the public, and organizations within the community.

Community involvement and feedback are vital to the success of the plan. Cumberland County invites members of the public to participate in a short public opinion survey. This survey is designed to help understand the concerns citizens of Cumberland County have about the hazards which their communities face.

Survey responses are confidential and participation in this survey is voluntary. Your completed survey indicates your willingness to participate. Thank you for taking the time to help your community with the preparation of our mitigation plan.

If you have questions regarding this survey, please contact Emergency Management Planner I, Garry Crumpler at gcrumpler@co.cumberland.nc.us or Cumberland County Emergency Management Coordinator, Hendrix Valenzuela at hvalenzuela@co.cumberland.nc.us.

A public meeting regarding the survey is forthcoming. The Cumberland-Hoke Regional Mitigation Plan Update survey can be accessed by following https://www.surveymonkey.com/r/9VGHWBR

Cumberland County Government

Judge E. Maurice Braswell Courthouse

117 Dick Street, Fayetteville, NC 28301

News Release Full Story

Public Meeting Scheduled for Cumberland-Hoke Regional Hazard Mitigation Plan

Feb 13, 2020

FAYETTEVILLE – The first public meeting to discuss the Cumberland-Hoke Regional Hazard Mitigation Plan has been set for Thursday, Feb. 27 from 6:30 p.m. to 8 p.m. The meeting will be held at the E.E. Miller Recreation Center located at 1347 Rim Road in Fayetteville.

The counties of Cumberland and Hoke, in coordination with their participating municipal jurisdictions, are updating a regional hazard mitigation plan that covers the two-county area. The Cumberland Hoke Regional Hazard Mitigation Plan identifies local policies and actions for reducing risk and future losses from natural hazards such as floods, severe storms, wildfires, and winter weather. At the meeting, we invite the community to participate by sharing thoughts and comments about the Cumberland-Hoke Regional Hazard Mitigation Plan.

If you have questions regarding the public meeting, please contact Emergency Management Planner Garry Crumpler at gcrumpler@co.cumberland.nc.us, Cumberland County Emergency Management Coordinator Hendrix Valenzuela at hvalenzuela@co.cumberland.nc.us or Hoke County Emergency Management Coordinator Charles Jacobs at cjacobs@hokecounty.org.

Appendix G: Meeting Files

Cumberland-Hoke Regional Hazard Mitigation Plan

Project Kickoff Meeting

November 14, 2019
9:00 a.m. – 11:00 a.m.
1455 Hoke Loop Road, Fayetteville, NC, 28314
Lake Rim Recreational Center

AGENDA

1. Welcome and Introductions

2. Project Overview
    - Purpose, scope and schedule
    - Roles and responsibilities

3. Plan Update Process
    - Planning team organization, including official adoption
    - Leveraging existing resources
    - Communication, including websites, social media, etc.

4. Review and Discussion of Existing Plan

5. Capability Assessment Surveys

6. Public Participation Survey
    - Public outreach and stakeholder engagement strategy
    - Discussion of questions to ask the public

7. Mitigation Goals
    - Review existing mitigation goals

8. "Mayor for a Day"
    - Hazard identification and assessment exercise
    - Includes discussion of existing and new hazards

9. Break

10. Exercise Results and Discussion

11. Mitigation Action Plans
    - Creation of new actions
    - Update of existing actions

12. Maintaining Momentum and Implementing the Plan
    - Keeping the public and stakeholders involved
    - Plan Maintenance Procedures

13. Reviewing the Final Draft
    - Status on plan sections
    - Review/comment process
    - Suggested areas of focus

14. Questions and Open Discussion
    - Potential opportunities for this plan update
    - Potential obstacles or barriers
    - Other local issues, concerns or ideas

15. Next Steps
    - Discuss time/date/location for Hazard Mitigation Planning Team Meeting #2

Cumberland County / Hoke County Regional Hazard Mitigation Plan Kickoff 11/14/2019

Name	Email	Organization	Title	Initials
Adam Johnson (ajohnson2@co.cumberland.nc.us)	ajohnson2@co.cumberland.nc.us	CC 911	911 Manager	~~AJ~~
Anthony Kelly	AKelly@ci.fay.nc.us			
Belinda White	townoffalcon@embarqmail.com			
Brent Edwards	brent.edwards@aecom.com	AECOM	Planner	~~BE~~
Charles Jacobs	cjacobs@hokecounty.org	Hoke EM	Coordinator	CJ
Christy Horne	CHorne.tos@ncrrbiz.com			
Cindy Burchett	kburchett@nc.rr.com			
David Akers	dakers@sremc.com	South River EMC	VP of Operations	DA
David McNeill	David.mcneill@duke-energy.com			
David Nash	dnash@ci.fay.nc.us	City of Fayetteville	Sr. Planner	DMN
Dianne Curtis	dianne.curtis@ncdps.gov			
Elizabeth Bass	townclerk@eastovernc.com			
Gene Booth (wbooth@co.cumberland.nc.us)	wbooth@co.cumberland.nc.us			
Hendrix Valenzuela	hvalenzuela@co.cumberland.nc.us	CUMBERLAND EM	EM COORDINATOR	HV
Jacqueline Cooper-Kelly	tog@ncrrbiz.com			
James Bullard	jbullard@capefearvalley.com	Hoke EMS / CFVMSH	Director	JB
Jason Faragoi	jfaragoi@co.cumberland.nc.us	Cumberland County	EM Planner	
Jeffery Brown (jbrown@co.cumberland.nc.us)	jbrown@co.cumberland.nc.us			
Joel Acciardo	JCacciardo@townofhopemills.com			
Jonelle Kimbrough	jonelle@sustainablesandhills.org	Sustainable Sandhills	Executive Director	JK
Kelly Keefe	kelly.keefe@aecom.com	AECOM	Senior Planner	KK
Kevin Lowther (klowther@co.cumberland.nc.us)	klowther@co.cumberland.nc.us			
Kittie Elrod	kittiemne@gmail.com			
Mark Walters	mark.walters@lumbeeriver.com			
McKenzie Houston	mckenzie.houston@aecom.com	AECOM	GIS	MMH
Melissa Pereira	mayoradmin@spring-lake.org			
Melton Brown	mpbrown@spring-lake.org	SLPD	Admin Services	MB
Mike King	chiefking.tos@ncrrbiz.com	Stedman PD	Chief	AML
Moisbiell Alvarez	MAlvarez@ci.fay.nc.us			
Rawls Howard	rhoward@co.cumberland.nc.us	Cumberland County	Director of Plan & Inspections	RH
Ray Jackson	ray.jackson@faypwc.com			
Rebecca Johnson	rjohnson.tos@ncrrbiz.com			
Reid Southerland	reid.southerland@ncdps.gov	NCEM	Area Coordinator	RS
Rhonda Webb	rdwebb@spring-lake.org			
Richard Jenkins	rjenkins@ccsonc.org			
Zach Sheon	Zsheon@hornetty.org	Hornett County EM	EM Coordinator	ZS
Andrew McLean	andrew.mclean3@redcross.org	Red Cross	Disaster Program Specialist	AM

Cumberland County / Hoke County Regional Hazard Mitigation Plan Kickoff 11/14/2019

Robert Godwin	rgodwin@capefearvalley.com	CFVHS	EM Coordinator	
Robin Lorenzen	robin.lorenzen@ncdps.gov			
Rufus Smith III	rsmith@co.cumberland.nc.us	Cumberland County	Comp Planning	
Scott Bullard	sbullard@ci.fay.nc.us	FFD	EMC	
Thompson, Ron L.	ron.thompson@redcross.org			
Tiffany Shadik	tshadik@townofhopemills.com			
Tony McKinnon	tonydmckinnonsr@gmail.com			
Tracy Jackson (trjackson@co.cumberland.nc.us)	trjackson@co.cumberland.nc.us	CC ADMIN.	ASST. CO. MGR.	
W. Scott Weaver	wsweaver64@gmail.com	1183 Mallory 28314	Resident	
Wayne Dudley	wdudley@co.cumberland.nc.us	CUMB. COUNTY ENG.	ENG. TECH. II	WD
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Garry Crumpler	gcrumpler@co.cumberland.nc.us	Cumberland Count	EM Planner	
Jimmy Stewart	Jstewart@hokecounty.us	Hoke Co. 911	Director	
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Andy Connor	AConnor@HokeCounty.dc	Hoke Inspections	Director	
BRAD DEAN	bdean@townofhopemills.com	Hope Mills PD	Deputy Chief	
Melvin Lewis	mlewis25@uncfsu.edu	Fay State Univ	Emer Mgmt	
ROBERT FARRELL	rfarrell@hokecounty.org	HOKE PLANNING		
Tai Davis	tdavis079@uncfsu.edu	Fayetteville State	Director of Facilities Ops	
Daniel Edwards	DEdwards@ci.fay.nc.us	Fayetteville Public Service	Assistant Director	
MARK VAN AUKEN	mark.vanauken@arcadis.com	ARCADIS	REPRESENTING CITY OF FAYETTEVILLE	

Cumberland-Hoke Regional Hazard Mitigation Plan Kickoff Meeting

Kelly Keefe – Lead Planner

Brent Edwards – Planner

November 14, 2019

AECOM

Agenda

- Project Overview
- Capability Assessments
- Public Participation Survey
- Mitigation Goals
- Hazard Exercise
- Mitigation Actions
- Review of Final Draft
- Adoption Process
- Next Steps
- Open Discussion

Vision and Purpose

– Goal of hazard mitigation planning:

Make communities hazard and disaster resilient

– Purpose

Identify local policies and actions that can be implemented over the long term to reduce risk and future losses from hazards

Vision and Purpose

– Comprehensive hazard mitigation planning prepares a community to:

  – Protect lives and property
  – Avoid damages and save dollars
  – Reduce or eliminate future damages by guiding new development
  – Speed post-disaster recovery
  – Avoid interruptions caused by hazards

Mitigation Planning Cycle

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Where are we in Process?

- Initiated Kickoff Meeting
- Identified Planning Team
- Create initial DRAFT plan

➢Review Goals

➢Review Hazards

➢Discuss Actions

➢Discuss Capabilities

❖Provide Specific Comments

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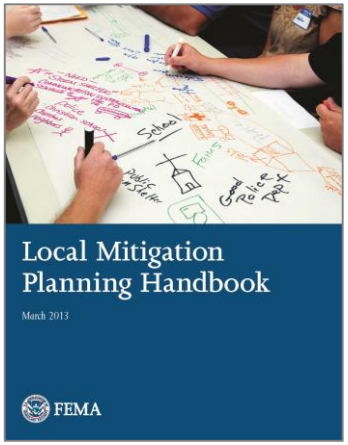
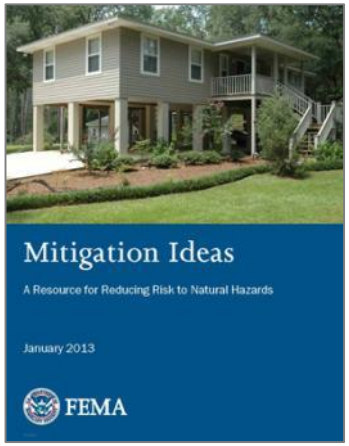
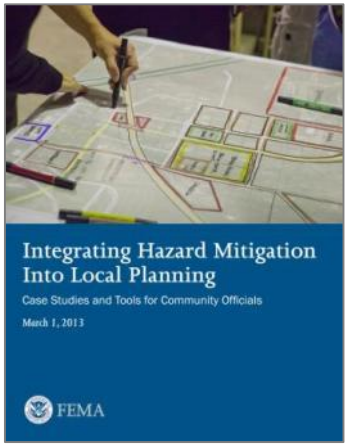
Planning Resources

- FEMA planning guidance
  - *Local Mitigation Planning Handbook*
  - *Mitigation Ideas*
  - *Integrating Hazard Mitigation Into Local Planning*







- Links to other online planning resources

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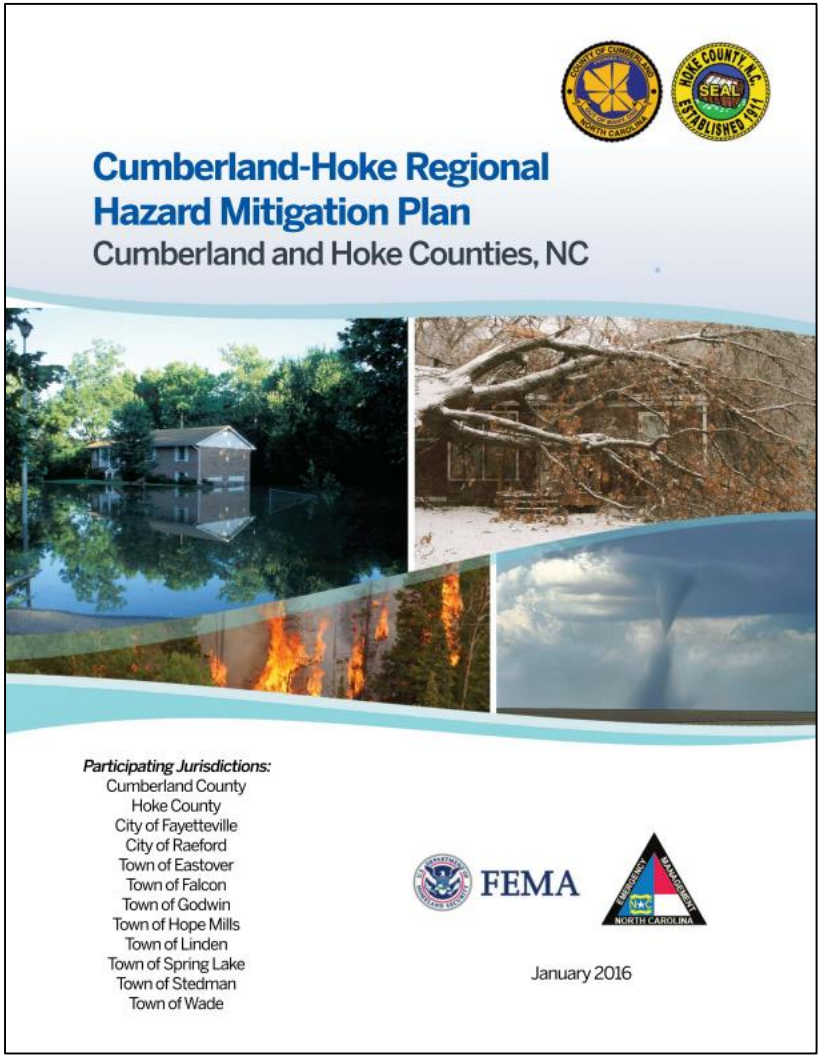
Review of Existing Plan

Review and Discussion of Existing Plans

- 2016 Cumberland-Hoke Regional Hazard Mitigation Plan



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Capability Assessment

Capability Assessment Survey

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Education and outreach capability
- Political capability
- Self assessment

Local Capability Assessment Survey Methodology

- Point system for capability ranking
  - 0-29 points = Limited overall capability
  - 30-59 points = Moderate overall capability
  - 60-100 points = High overall capability

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Public Outreach Strategy

Public Outreach Strategy

- Goals
  - Generate public interest
  - Solicit citizen input
  - Engage additional partners in the planning process
- Identification of specific opportunities for participation
  - In-person meetings
  - Project information website
  - Web-based survey(s)
  - Social media (Facebook, Twitter, RSS, etc.)
- Products/resources
  - Project information fact sheet

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Mitigation Strategy

Mitigation Strategy

- Strategies
- Goals
- Objectives
- Actions

Vision Statement

- Captures the overall purpose of the planning process
- Expresses the outcome that the participating jurisdictions seek to accomplish as the plan is implemented
- Helps drive the planning process
- Unites the planning team around a common purpose
- Provides a foundation for the rest of the planning process
- Communicates the reason for the plan to stakeholders, elected officials and the public

Vision Statement

"Through a coordinated regional planning effort, create and implement an effective hazard mitigation plan that will identify and prioritize risk reduction measures for natural hazards in order to protect the health, safety, quality of life, environment, and economy of the Cumberland-Hoke area."

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Goals

- Goal #1 - Protect properties and natural resources that are at risk of damage due to hazards and undertake cost-effective mitigation measures to minimize losses.
- Goal #2 - Reduce vulnerability of Cumberland and Hoke Counties and their municipalities to all hazards for existing development, future development, redevelopment and infrastructure.
- Goal #3 - Improve public awareness of hazards through a variety of education and outreach programs.
- Goal #4 - Establish and participate in local, state and federal mitigation-oriented and disaster-based programs and planning efforts to reduce damage and protect lives and property.

Hazards Addressed

- Dam/Levee Failure
- Drought
- Earthquake
- Erosion
- Extreme Heat
- Flood
- Hurricane and Tropical Storm
- Landslide
- Winter Weather
- Thunderstorm, Lightning and Hail
- Tornado
- Wildfire

Hazard Identification Exercise

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Hazard Identification Exercise Results

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Mitigation Action Plans

Actions

- Discuss Actions
  - ? What is the best process of completion?
  - ? What is each action's priority? (High/Medium/Low)
  - ? What is action's funding source?
  - ? What is needed to complete the action? (funding/resources)

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Plan Maintenance Procedures

Plan Maintenance Questions

- What will be the schedule for any ongoing meetings of the HMPC, prior to the next 5-year plan update?
  - Annual meetings, bi-annual meetings, “as-needed” meetings, etc.
- To what extent will you seek to integrate the regional plan with other local plans, policies and programs?
  - Comprehensive plans, land use plans, emergency operations plans, etc.
- What other implementation strategies can you use?

Draft Review

Adoption Process

Next Steps

- AECOM to receive information discussed to incorporate
- Create draft plan
- Discussion on next meeting and public meeting

Questions?

Thank You!

kelly.keefe@aecom.com

brent.edwards@aecom.com

Cumberland-Hoke Regional Hazard Mitigation Plan

Hazard Mitigation Planning Committee Meeting #2

January 16, 2020
9:00 a.m. – 11:00 a.m.
Lake Rim Recreation Center
1455 Hoke Loop Rd. Fayetteville NC 28314

AGENDA

1. Welcome and Introductions
2. Risk Assessment Discussion
3. Capability Assessment Update
4. Updating Mitigation Action Plans (MAP)
5. Break
6. Review and Update Process
7. Adoption Process
8. Open Discussion
9. Next Steps

Ordered by First Name

Cumberland-Hoke County Regional Hazard Mitigation Plan Meeting
Date: 1/16/2020
Time: 09:00-11:00

Name	Email	Orgainization	Title	Initial
Adam Johnson (ajohnson2@co.cumberland.nc.us)	ajohnson2@co.cumberland.nc.us			
Andrew Mclean	andrew.mclean3@redcross.org			
Andy Connor	Aconnor@hokecounty.org	Hoke County	INSPECTIONS DIRECTOR	AC
Anthony Kelly	AKelly@ci.fay.nc.us			
Belinda White	townoffalcon@embarqmail.com			
Brad Dean	badean@townofhopemills.com			
Brent Edwards	brent.edwards@aecom.com			
Bruce Morrison	brucemorrison@ccs.k12.nc.us	Cumb Co. School Safety	Director Safety - Security	
Bryan A Marley	BMARLEY@hokecounty.org	HOKE CO. EM	DIRECTOR	BAM
Charles Jacobs	cjacobs@hokecounty.org			
Christina King	christina.king@redcross.org			
Christy Horne	CHorne.tos@ncrrbiz.com			
Cindy Burchett	kburchett@nc.rr.com			
Daniel Edwards	dedwards@ci.fay.nc.us			
David Akers	dakers@sremc.com			
David McNeill	David.mcneill@duke-energy.com			
David Nash	dnash@ci.fay.nc.us			
Dianne Curtis	dianne.curtis@ncdps.gov			
Dianne Curtis	dianne.curtis@ncdps.gov			
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Edwardine Marrone	edwardine.marrone@fema.dhs.gov			
Elizabeth Bass	townclerk@eastovernc.com			
Freddy Johnson	fjohnsonsr@stoneypointfire.com	CCFCA / PMFD	CHIEF	RAM
Garry Crumpler	gcrumpler@co.cumberland.nc.us	CCES	EM Planner	
Gene Booth (wbooth@co.cumberland.nc.us)	wbooth@co.cumberland.nc.us	CCES	Director	WYB
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Jacazza Jones	jacazza.jones@ncdps.gov	NCEM Hazard Mitigation	HM Planner	
Jacqueline Cooper-Kelly	tog@ncrrbiz.com			
James Bullard	jbullard@capefearvalley.com			
Jason Faragoi	jfaragoi@co.cumberland.nc.us	CCES	EM Planner	
Jeffery Brown (jbrown@co.cumberland.nc.us)	jbrown@co.cumberland.nc.us			
Jimmy Stewart	jstewart@hokecounty.org			
Joel Acciardo	JCacciardo@townofhopemills.com			
Jon Soles	jsoles@co.cumberland.nc.us	Cumb. County Govt.	PIO	
Jonelle Kimbrough	jonelle@sustainablesandhills.org			

Cumberland-Hoke Regional Hazard Mitigation Plan

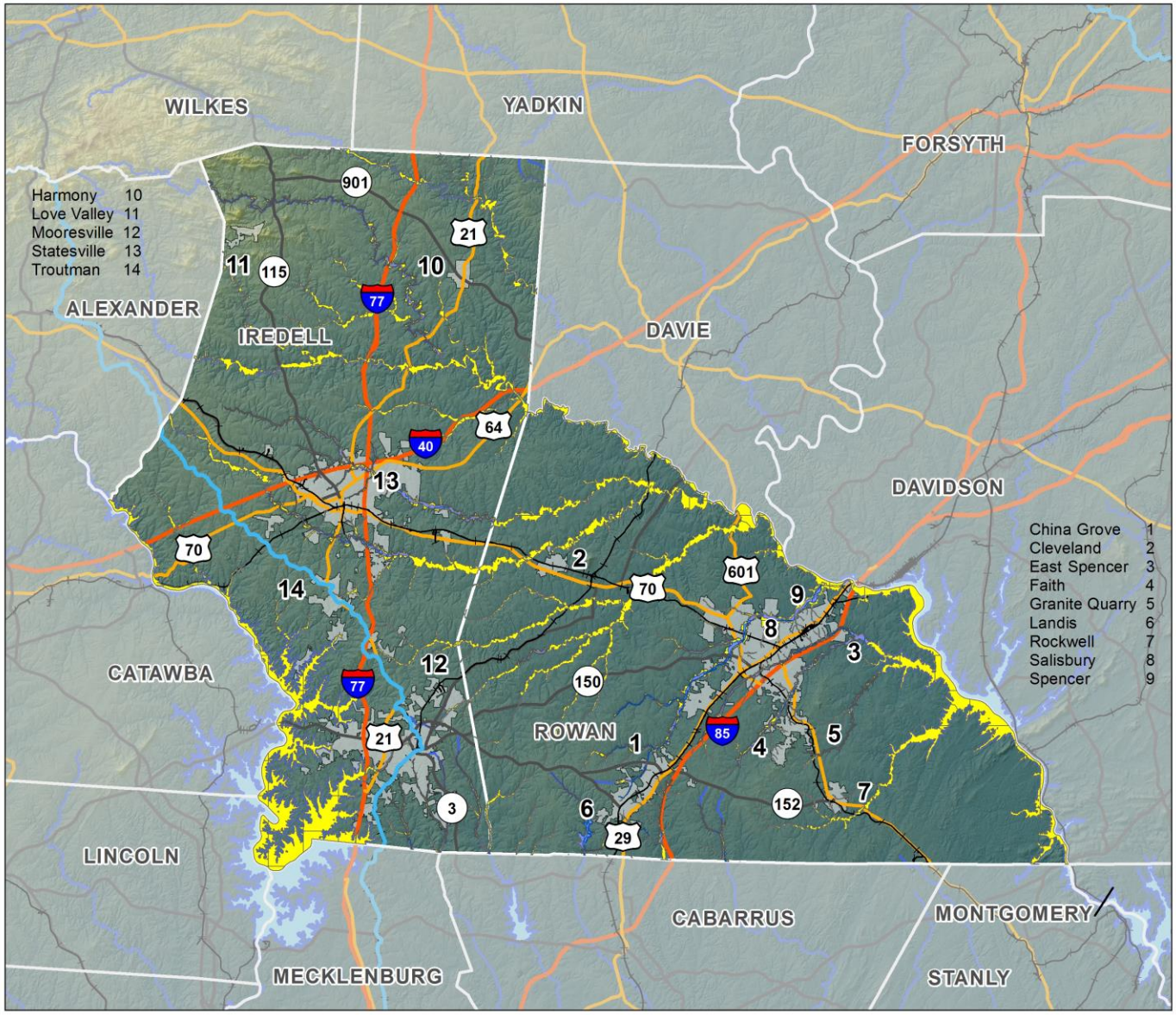
HMPC Meeting #2

AECOM

Kelly Keefe, Lead Planner
Brent Edwards, Planner

AECOM

Flood Hazard Areas - Regional

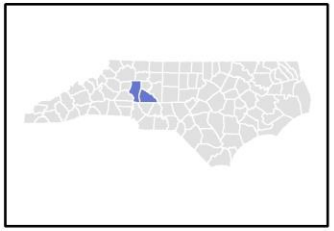


Flood Hazard Areas
- Floodway
- 1-Percent-Annual-Chance
- 0.2-Percent-Annual-Chance

Boundaries
- River Basin
- County
- Municipal

Highways
- Interstate Hwy.
- U.S. Hwy.
- N.C. Hwy.

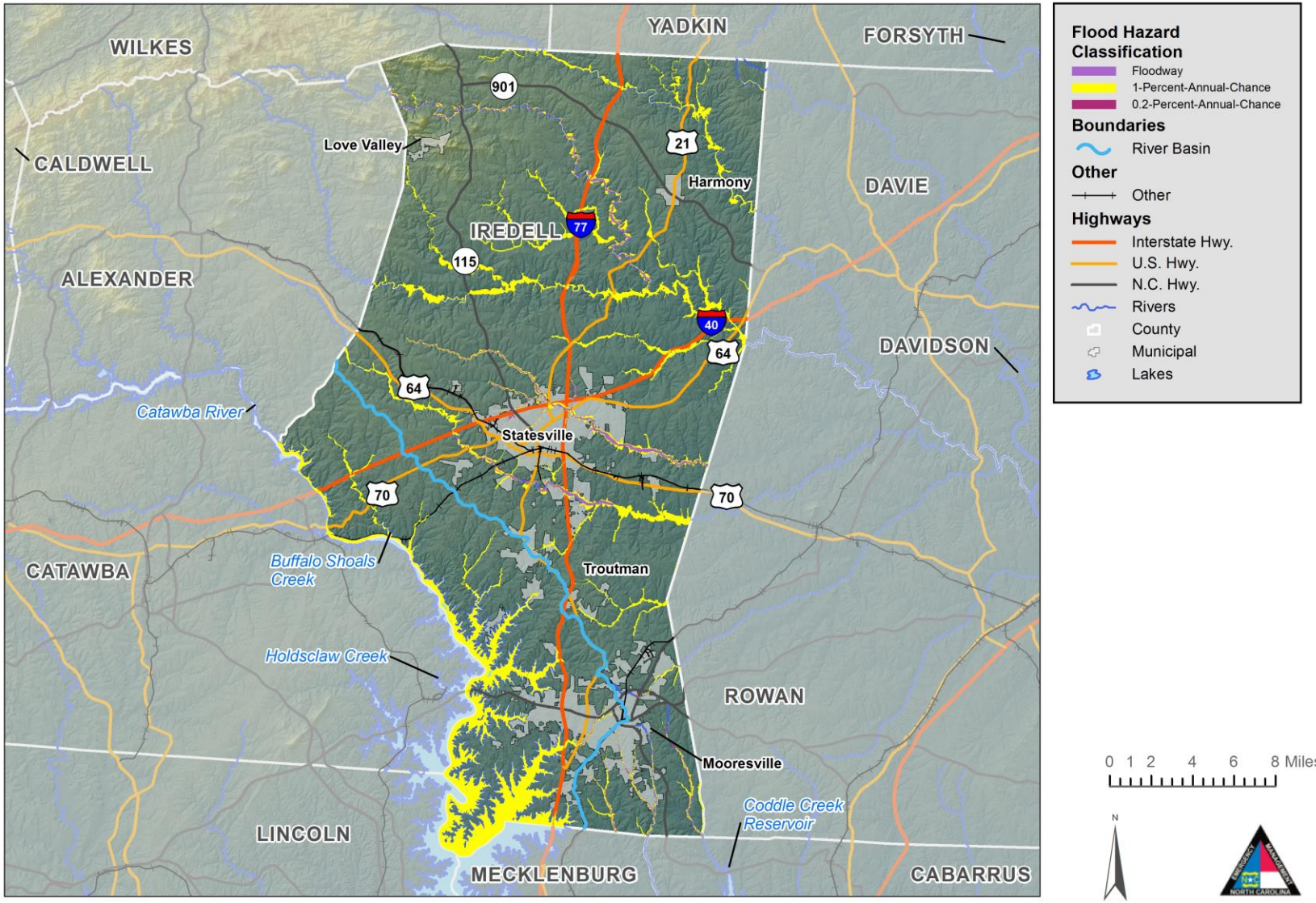
Other
- Railroad
- Rivers
- Lakes



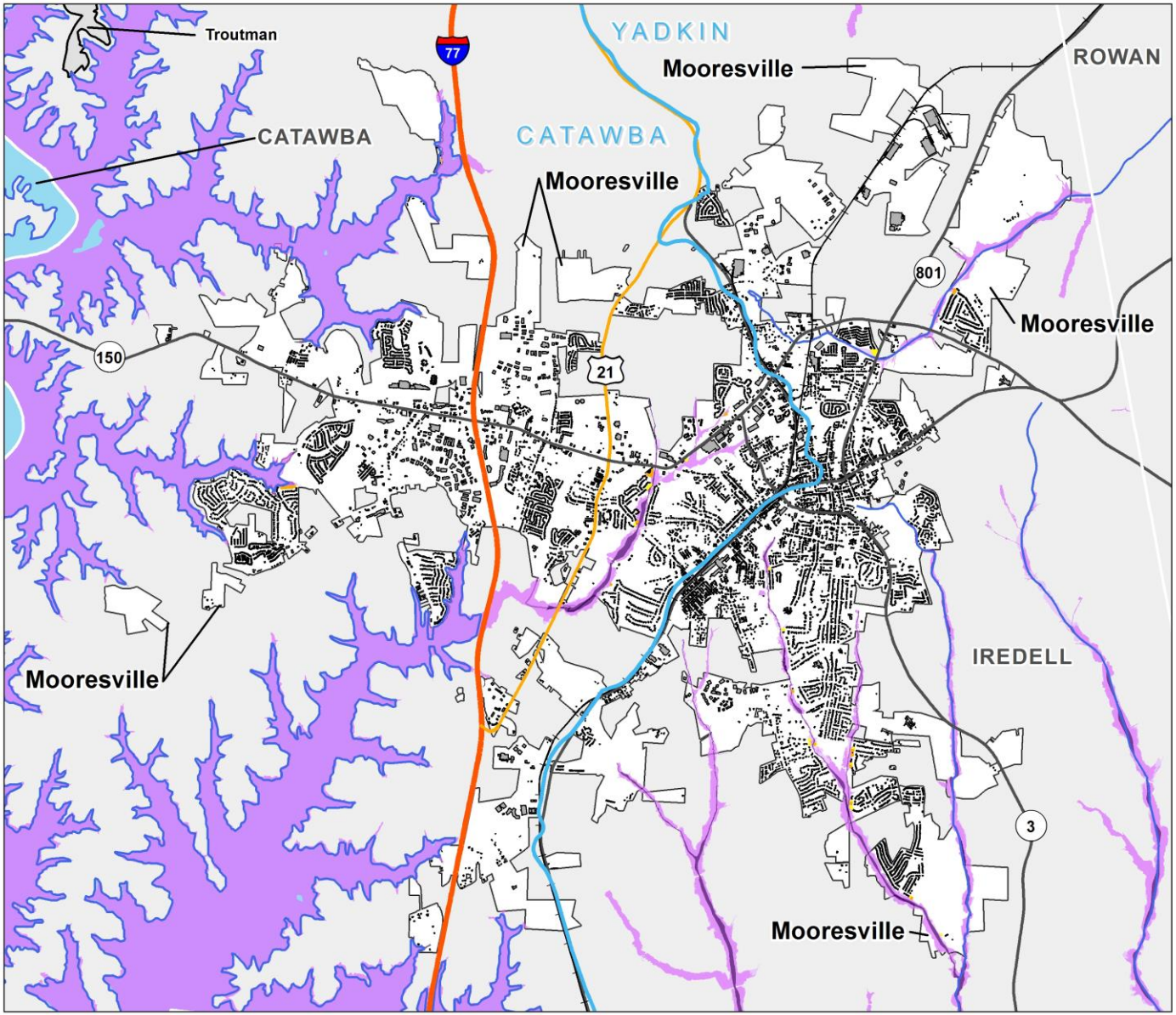
0 1 2 4 6 8 10 Miles

N

Flood Hazard Areas - Iredell County



Flood Hazard Areas - Mooresville



Flood Hazard Area
- Floodway
- 1% Annual Chance
- 0.2% Annual Chance

Buildings Intersecting Flood Hazard Area
- Floodway
- 1% Percent Annual Chance
- 0.2% Percent Annual Chance

Boundaries
- River Basin
- Building Footprint
- Municipal

Highways
- Interstate Hwy.
- U.S. Hwy.
- N.C. Hwy.

Other
- Other
- Rivers
- Lakes

0 1 2 Miles

N

Agenda

- Welcome and introductions
- Risk assessment discussion
- Capability assessment
- Mitigation Action Plan update
- Open discussion
- Next steps

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Handouts

- Meeting agenda
- Meeting sign-in sheet
- Public Outreach Strategy
- Capability Assessment Survey
- Safe Growth Survey
- Sample maps

Public Outreach Strategy

Public Outreach Strategy

- Refer to handout
- Goals
  - Generate public interest
  - Solicit citizen input
  - Engage additional partners in the planning process
- Outreach opportunities and resources
  - In-person public meetings (2)
  - Project information website with social media integration
  - Project information fact sheet
  - Web-based public participation survey
  - Links to planning resources for interested parties

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In-Person Public Meetings (2)

- Scheduled at key points during the project timeline
  - Following completion of the draft risk and capability assessments
  - Following completion of the draft plan
- Inform the public on the process and current status of the regional planning process
- Gain input to the process during the drafting stage and prior to plan completion and approval
- AECOM will prepare presentation and handout materials to help facilitate two-way communication with public meeting attendees

Project Information Fact Sheet

Alexander County North Carolina | CATAWBA

Fact Sheet

Unifour Regional Hazard Mitigation Plan

Natural hazards have the potential to cause property damage, loss of life, economic hardship, and threats to public health and safety. Hazard mitigation measures are the things we do today to be more protected in the future. They are actions taken before a disaster happens to reduce the impact of future hazard events on people and property in the community. Mitigation reduces the risk of loss and creates a more resilient and sustainable community.

Project Overview

The counties of Alexander, Burke, Caldwell and Catawba, in coordination with their participating municipal jurisdictions, are preparing a **regional hazard mitigation plan** that will cover the four-county Unifour area. The Unifour Regional Hazard Mitigation Plan will identify local policies and actions for reducing risk and future losses from natural hazards such as floods, severe storms, wildfires, and winter weather. It will build upon four separate hazard mitigation plans that were initially prepared by each county in coordination with their municipalities.

The plan will also serve to meet key federal planning regulations which require local governments to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance, including funding for hazard mitigation projects.

These mitigation planning requirements stem from the Disaster Mitigation Act of 2000, which was passed by the U.S. Congress in October of 2000. This Act amended federal law to require that all states and local governments must have hazard mitigation plans in place in order to be eligible to apply for funding under such programs as the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation (PDM) program.

The Planning Process

The planning process for the Unifour Regional Hazard Mitigation Plan will consist of six main phases described in detail in the following sections: **public outreach**, **risk assessment**, **capability assessment**, **mitigation strategy development**, **plan maintenance**, and **plan adoption**. The end result will be a new regional hazard mitigation plan based in part on the existing plans of the four separate counties and based in part on this new planning effort.

Above: The plan update process being followed for the Unifour Regional Hazard Mitigation Plan.

Public Outreach

The goals of the public outreach strategy for this planning effort are to: generate public interest, solicit citizen input, and engage additional partners in the planning process.

Public outreach will include two open public meetings, a project information website at http://www.catawbacountync.gov/emergencyServices/hazard/regionalPlan.asp, a web-based public participation survey (accessible through the website), and updates and information shared via social media, such as on Facebook.

Risk Assessment

The desired outcomes of a risk assessment are an evaluation of each hazard's potential impacts on the people, economy, and built and natural environments in the planning area plus an understanding of each participating jurisdiction's overall vulnerability and most significant risks. These potential impacts and a thorough understanding of the overall vulnerability can be used to create problem statements and identify and prioritize mitigation actions to reduce risk.

Capability Assessment

Each participating jurisdiction has a unique set of capabilities, including authorities, policies, programs, staff, funding, and other resources available to accomplish mitigation and reduce long-term vulnerability. By reviewing the existing capabilities in each jurisdiction, the planning team can identify capabilities that currently reduce disaster losses or could be used to reduce losses in the future.

Mitigation Strategy Development

The primary purpose of mitigation planning is to systematically identify policies, actions, and activities to reduce the impact that future natural hazard occurrences will have on people and property in the planning area. Mitigation strategy development includes long-range mitigation goals common to the planning area and short-term mitigation actions specific to each participating jurisdiction.

Plan Maintenance

Plan maintenance is the process established to track the plan's implementation and to aid in updating the plan every five years. These procedures help to ensure that the mitigation strategy is implemented according to the plan. They also provide the foundation for an ongoing mitigation program, standardize long-term monitoring of hazard-related activities, integrate mitigation principles into local officials' daily job responsibilities, and maintain momentum through continued engagement and accountability in the plan's progress.

Plan Adoption

Each participating jurisdiction seeking plan approval must adopt the plan. Adoption by the local governing body demonstrates the community's commitment to implementing the mitigation strategy and authorizes responsible agencies to execute their actions. The final plan is not approved until the community adopts the plan and FEMA receives documentation of formal adoption by the governing body of the jurisdictions requesting approval.

Project Leadership

This regional planning effort is being led by the Catawba County Planning, Parks & Development office and Catawba County Emergency Services, with technical assistance from AECOM. A local Hazard Mitigation Planning Committee made up of local officials, representatives, and stakeholders has been established to guide this process. In addition, local points of contact have been established for each of the four counties as well as all of the participating municipal jurisdictions. Planning committee meetings and open public meetings will be scheduled to occur at key points throughout the project timeline.

Schedule

The planning process began in June 2013 and a fully updated plan is expected to be ready for review by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency by January 2014. Draft documents will be available on the project information website at various stages in the planning process.

For More Information

To learn more about this project, or to find out how you can be involved, please contact Mary George, Catawba County Assistant Planning Director, at (828) 465-8264 or mary@catawbacountync.gov.

Additional information and regular updates throughout the duration of this project can be found on the Unifour Hazard Mitigation Planning website at http://www.catawbacountync.gov/emergencyServices/hazard/regionalPlan.asp.

Alexander County North Carolina | CATAWBA

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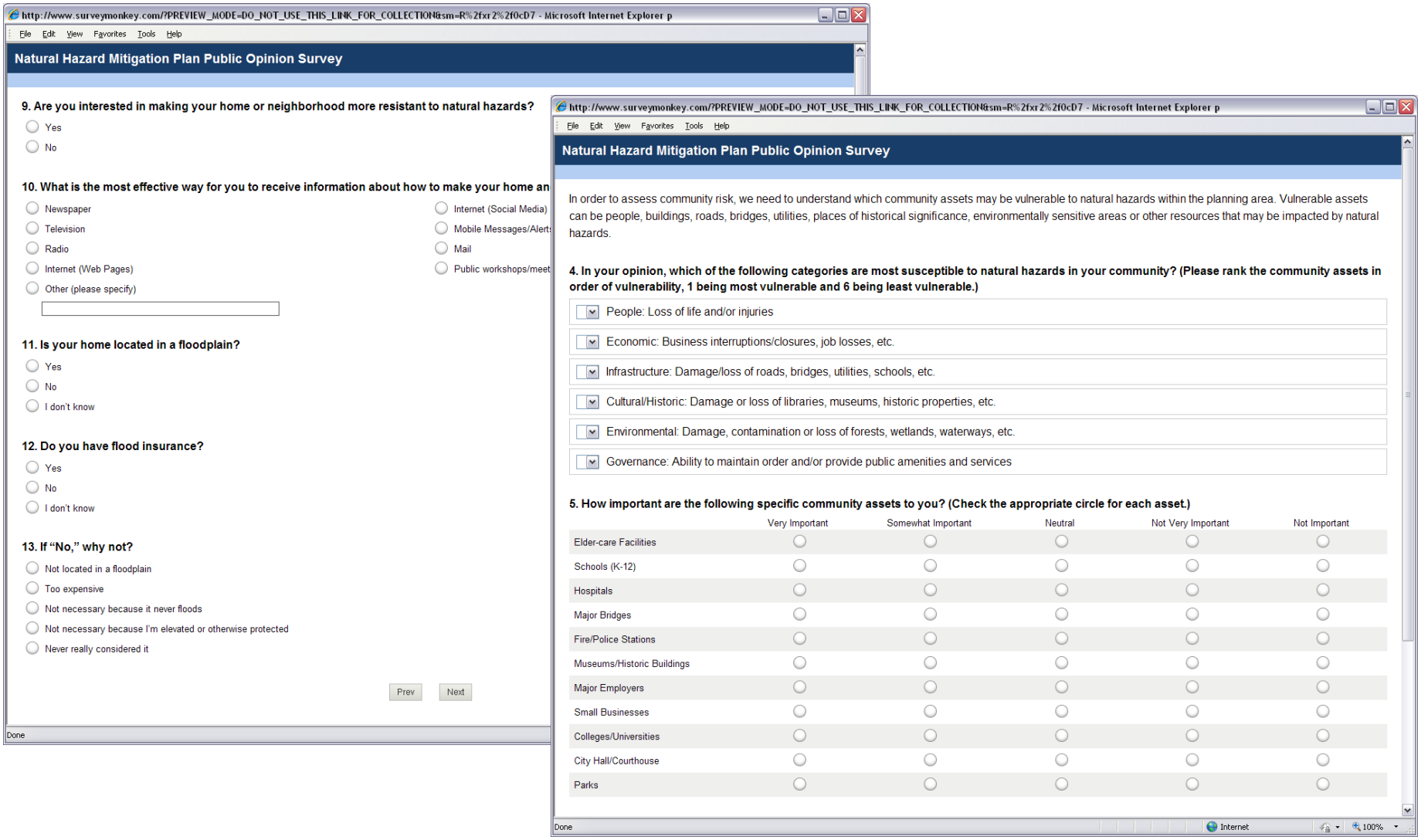
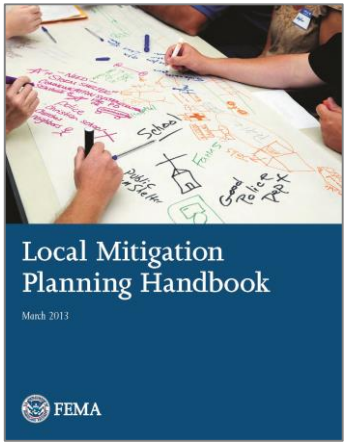
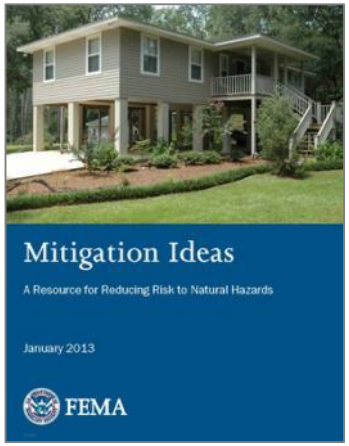
Online Public Participation Survey

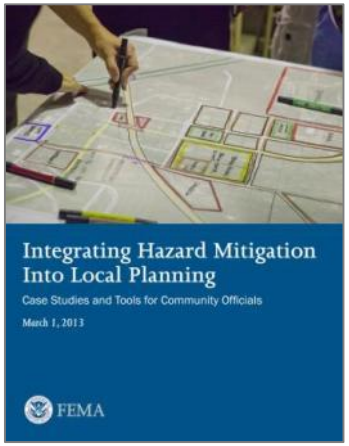


Planning Resources

- FEMA mitigation planning guidance
  - *Local Mitigation Planning Handbook*
  - *Mitigation Ideas*
  - *Integrating Hazard Mitigation Into Local Planning*







- Links to other online planning resources

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Hazard Identification Exercise and Risk Assessment Recommendations

“Mayor For the Day”

- Dam/levee failure
- Drought/extreme heat
- Earthquake
- Erosion
- Flood
- Hail
- Hurricane
- Landslide
- Lightning
- Nor’easter
- Thunderstorm
- Tornado
- Wildfire
- Winter weather

Capability Assessment/ Safe Growth Survey

Capability Assessment Survey

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Education and outreach capability
- Political capability
- Self assessment
- Deadline

Safe Growth Survey

- Comprehensive Plan
  - Land use
  - Transportation
  - Environmental management
  - Public safety
- Zoning ordinance
- Subdivision regulations
- Capital improvement program and infrastructure policies
- Other

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Vision Statement and Mitigation Goals

Vision Statement

- Captures the overall purpose of the planning process
- Expresses the outcome that the participating jurisdictions seek to accomplish as the plan is implemented
- Helps drive the planning process
- Unites the planning team around a common purpose
- Provides a foundation for the rest of the planning process
- Communicates the reason for the plan to stakeholders, elected officials and the public

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Vision Statement

"Through a cohesive regional planning effort, create and implement an effective hazard mitigation plan that will identify and reduce risk to natural hazards in order to protect the health, safety, quality of life, environment and economy of the Cumberland Hoke area."

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Open Discussion

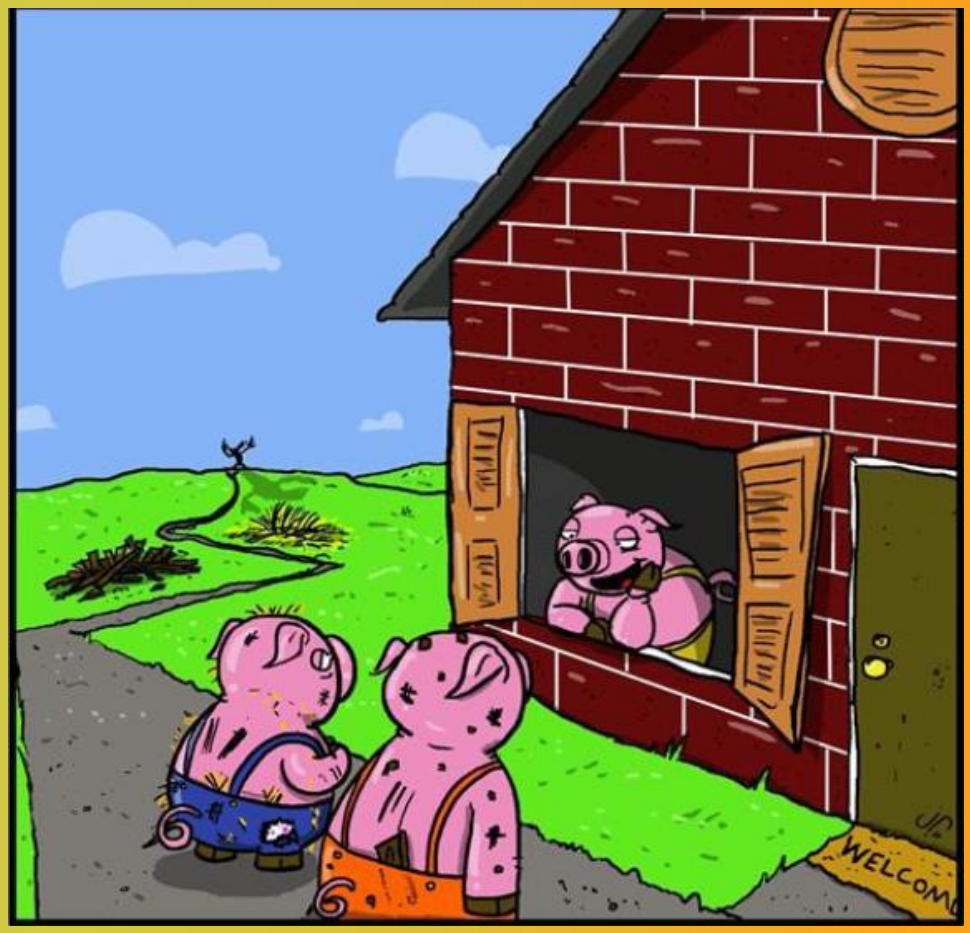
Next Steps

- Final draft risk assessment results
- Final draft capability assessment results
- Next meeting (Mitigation Strategy Workshop)

Thank You

Kelly.keefe@aecom.com

Brent.edwards@aecom.com



“Mitigation isn’t so funny now, is it?”

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Cumberland-Hoke Regional Hazard Mitigation Plan

Hazard Mitigation Planning Committee Meeting #3

February 27, 2020
9:00 a.m. – 11:00 a.m.
Lake Rim Recreation Center
1455 Hoke Loop Rd. Fayetteville NC 28314

AGENDA

1. Welcome and Introductions
2. Mitigation Actions Update Workshop
3. Next Steps

Cumberland-Hoke County Regional Hazard Mitigation Plan Meeting

Date: 2/27/2020 Time: 09:00-11:00

Name (Last, First, MI)		Email	Organization	Title	Initial
Acciardo	Joel	JCacciardo@townofhopemills.com			
Akers	David	dakers@sremc.com			
Alvarez	Moisbiell	MAlvarez@ci.fay.nc.us			
Baker	Marc	mbaker@co.cumberland.nc.us	CCES	EM Intern	MB
Bass	Elizabeth	townclerk@eastovernc.com			
Booth	Gene	wbooth@co.cumberland.nc.us			
Brown	Jeffery	jbrown@co.cumberland.nc.us			
Brown	Melton	mpbrown@spring-lake.org			
Bullard	James	jbullard@capefearvalley.com			
Bullard	Scott	sbullard@ci.fay.nc.us	FFD	EMC	
Burchett	Cindy	kburchett@nc.rr.com			
Connor	Andy	aconnor@hokecounty.org			
Cooper-Kelly	Jacqueline	tog@ncrrbiz.com			
Crew	John	John.Crew@ncdps.gov			
Crumpler	Garry	gcrumpler@co.cumberland.nc.us	CCES	EM Planner	
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Davis	Tia	tdavis87@unsfus.eud			
Dean	Brad	badean@townofhopemills.com			
Dickson	Ed	Ed.Dickson@freese.com	CITY OF FAYETTEVILLE (REP)	CONSULTANT	EAD
Dudley	Wayne	wdudley@co.cumberland.nc.us			
Edward	Brent	brent.edwards@aecom.com			
Edwards	Daniel	dedwards@ci.fay.nc.us			
Elrod	Kittie	kittiemne@gmail.com			
Faragoi	Jason	jfaragoi@co.cumberland.nc.us	CCES	EM Planner	
Farrell	Robert	rfarrell@hokecounty.org	Hoke Planning	Planner	RAF
Godwin	Robert	rgodwin@capefearvalley.com	CFVH	EM Coordinator	RG
Hodges	Charles	clhodges@townofhopemills.com			
Horne	Christy	CHorne.tos@ncrrbiz.com			
Houston	McKenzie	mckenzie.houston@aecom.com			
Howard	Rawls	rhoward@co.cumberland.nc.us	Cumberland County Planning	Director	RL
Jackson	Ray	ray.jackson@faypwc.com			

Cumberland-Hoke County Regional Hazard Mitigation Plan Meeting

Date: 2/27/2020 Time: 09:00-11:00

Jackson	Tracy	trjackson@co.cumberland.nc.us			
Jacobs	Charles	cjacobs@hokecounty.org	HCEM	EM Co-director	CAJ
Jenkins	Richard	rjenkins@ccsonc.org			
Johnson	Adam	ajohnson2@co.cumberland.nc.us			
Johnson	Freddy	fjohnsonsr@stoneypointfire.com			
Johnson	Rebecca	rjohnson.tos@ncrrbiz.com			
Jones	Jacazza	jacazza.jones@ncdps.gov			
Keefe	Kelly	kelly.keefe@aecom.com	AECOM	Planner	KJK
Kelly	Anthony	AKelly@ci.fay.nc.us			
Kimbrough	Jonelle	jonelle@sustainablesandhills.org	Sustainable Sandhills	Executive Director	jk
King	Christina	christina.king@redcross.org			
King	Mike	chiefking.tos@ncrrbiz.com			
Lewis	Melvin	mlewis25@uncfsu.edu			
Lorenzen	Robin	robin.lorenzen@ncdps.gov			
Lowther	Kevin	klowther@co.cumberland.nc.us			
Marley	Bryan	bmarley@hokecounty.org	HOKE CO. EM	EMERGENCY MANAGEMENT	BAM
Marrone	Edwardine	edwardine.marrone@fema.dhs.gov			
Mckinnon	Tony	tonydmckinnonsr@gmail.com			
Mclean	Andrew	andrew.mclean3@redcross.org			
McNeill	David	David.mcneill@duke-energy.com			
Morrison	Bruce	brucemorrison@ccs.k12.nc.us			
Nash	David	dnash@ci.fay.nc.us			
Pereira	Melissa	mayoradmin@spring-lake.org			
Shadik	Tiffany	tshadik@townofhopemills.com			
Shean	Zach	zshean@harnett.org			
Smith III	Rufus	rsmith@co.cumberland.nc.us			
Soles	Jon	jsoles@co.cumberland.nc.us			
Southerland	Reid	reid.southerland@ncdps.gov	NCEM	Area Coordinator	RS
Stewart	James	jstewart@hokecounty.org			
Tedder	Sandra	stedder@hokecounty.org			
Thompson	Ron L.	ron.thompson@redcross.org			
Valenzuela	Hendrix	hvalenzuela@co.cumberland.nc.us	CCES/EM	EM COORDINATOR	HV
Van Auken	Mark	mark.vanauken@arcadis.com			

Cumberland-Hoke County Regional Hazard Mitigation Plan Meeting

Date: 2/27/2020 Time: 09:00-11:00

Villines	Hilton	hvillines@hokecounty.org			
Walters	Mark	mark.walters@lumbeeriver.com			
Weaver	Scott W.	wsweaver64@gmail.com			
Webb	Rhonda	rdwebb@spring-lake.org			
White	Belinda	townoffalcon@embarqmail.com			
Worley	Leighanna	lworley@wilsonsmillsnc.org			
Brown	Beth	eabrown@townofhopemillscom	Town of Hope Mills	Stormwater/ Floodplain	EAB
McLAUGHLIN	CHANCER	cmclaughlin@townofhopemills.com	TOWN OF HOPE MILLS	PLANNING & ECONOMIC DEVELOPM	CFM
STEINMETZ	DAVE	DSTEINMETZ@CI.FAY.NC.US	CITY OF FAYETTEVILLE	AD DEVSER	
Walters	Jaimie	jwalters@co.cumberland.nc.us	Cumberland Co. Planning	Planner	JW
Autry	Ronald	TownManager@eastoverNC.com	Town of Eastover	Interim Manager	
Maw	Sandra	Zin.maw@arcadis.com	Arcadis for City of Fayetteville	Water Engineer	
OVERBY	LARRY	LARRYOVERBY@HOTMAIL.COM	TOWN OF LINDEN	COMMISSIONER	350

Cumberland-Hoke Regional Hazard Mitigation Plan

Hazard Mitigation Planning Committee Meeting #4

May 7, 2020
9:00 a.m. – 11:00 a.m.
Microsoft Teams (Virtual)

AGENDA

1. Welcome and Introductions
2. Capability Assessment Review
3. Mitigation Actions Update Workshop
4. Reviewing the Draft Plan
5. Adoption Process
6. Next Steps

CUMBERLAND-HOKE REGIONAL HAZARD MITIGATION PLAN MEETING

May 7, 2020 9:00 a.m. to 10:00 a.m.

PLEASE PRINT INFORMATION REQUESTED BELOW

NAME	TITLE/AFFILIATION	PHONE	EMAIL
Larry Overby	Town of Linden		larryoverby@hotmail.com
Rawls Howard	Cumberland County/Planning and Inspections Director	910-678-7600	rhoward@co.cumberland.nc.us
David J. McNeill	Duke energy Communication Director	910-944-5322	david.mcneill@duke-energy.com
David Thornton			
Dave Steinmetz	City of Fayetteville		dsteinmetz@ci.fay.nc.us
Sandy Taylor			
Murray Bryant			

CUMBERLAND-HOKE REGIONAL HAZARD MITIGATION PLAN MEETING

NAME	TITLE/AFFILIATION	PHONE	EMAIL
Jason Faragoi	Emergency Management Planner		jfaragoi@co.cumberland.nc.us
Mark Van Auken	Program Manager, City of Fayetteville		mark.vanauken@arcadis.com
Bryan A Marley	Emergency Management Director/Hoke County		bmarley@hokecounty.org
Robert Godwin	Director at Cape Fear Valley Health System		rgodwin@capefearvalley.com
Scott Bullard	Emergency Management Coordinator/City of Fayetteville	(910) 433-1789	sbullard@ci.fay.nc.us
Melvin Lewis	Director of Emergency Management/Environmental Health and Safety; Fayetteville State University	(910) 672-1456	mlewis25@uncfsu.edu

Jonelle Kimbrough	Executive Director		jonelle@sustainablesandhills.org
Sandra Maw	Water Engineer		zin.maw@arcadis.com

NAME	TITLE/AFFILIATION	PHONE	EMAIL
Mark Walters	American Red Cross		mark.walters@lumbeeriver.com
Chance McLaughlin	Development & Development Administrator/Town of Hope Mills		cmclaughlin@townofhopemills.com
Beth Brown	Stormwater Technician/Town of Hope Mills		eabrown@townofhopemills.com
Ronnie Autry	City Manager		
Garry Crumpler	Cumberland County		gcrumpler@co.cumberland.nc.us

Appendix H: CWPP's

The
Beaver Dam
Community Wildfire Protection Plan

AN ACTION PLAN FOR WILDFIRE MITIGATION

Date: 7/27/2009

Prepared By: Craig Gottfried

Organization: North Carolina Forest Service

Contact Information:

Address: 1905 Baywood Road
Eastover, NC 28301

Phone: 910-483-1535

E-Mail: craig.gottfried@ncagr.gov

Fax: 910-485-0944

DOI Name: BEAVERDAM FD E001

DOI Number: NC10094962

This plan is a collaborative effort between various entities. The signing representatives listed in this plan comprise the core decision-making team responsible for this report and mutually agree on the plan's contents and are committed to act on its recommendations. The objectives are to set clear priorities for the implementation of wildfire mitigation in this fire district. This includes prioritized recommendations for the fire district as a whole and also for community members where appropriate.

CWPP Signature Page(s)

County Fire Marshal

Name: Randy Beeman
Address: PO Box 1829
Fayetteville, NC 28302
Phone Number: 910-321-6736
E-Mail: rbeeman@co.cumberland.nc.us
Signature: _____ Signed? Yes

Fire Department Representative

Name: Harold Shirley
Address: 11042 NC Highway 210 South
Roseboro, NC 28382
Phone Number: 910-531-4171
E-Mail:
Signature: _____ Signed? Yes

North Carolina Forest Service

Name: Craig Gottfried
Address: 1905 Baywood Road
Eastover, NC 28301
Phone Number: 910-483-1535
E-Mail: craig.gottfried@ncagr.gov
Signature: _____ Signed? Yes

County Fire Marshal

Name: Randy Beeman
Address: PO Box 1829
Fayetteville, NC 28302
Phone Number: 910-321-6736
E-Mail: rbeeman@co.cumberland.nc.us
Signature: _____ Signed? Yes

The following federal and other interested parties were consulted and involved in the preparation of this report.

Name	Organization

Mutual Aid

Number	Name
NC10094894	AMMON FD
NC10192396	AUTRYVILLE E001
NC10096020	ROSEBORO
NC10096187	STEDMAN FD
NC10096210	SUNNYSIDE FD

PLAN CONTENTS

Beaver Dam

1) FIRE DISTRICT AND PRE-ATTACK INFORMATION

A. PRIMARY FIRE STATION:

County: Cumberland **County ID Number:** 026
Name: Beaver Dam 026
Latitude: 34.91580 **Longitude:** -78.59800
Street: 11042 NC Highway 210 South
City: Roseboro **State:** NC **Zip Code:** 28382
Mailing Address (if different):
City: **State:** **Zip Code:**
Phone Number: 910-531-4171 **Fax Number:**
Email Address: st26@intrstar.net
Ground Directions: HWY 210 on South Side of Highway 210

B. RESOURCE CAPACITY:

PERSONNEL

Number of Paid Firefighters:	1	**Number of Volunteer Firefighters:**	26
Number Trained in Wildland Fire:	15	**Number Trained in Fire Prevention:**	26
Number Trained in Hazard Assessment:	0	**Number of Pick Up Firefighters (if Applicable):**	0

EQUIPMENT

Apparatus Type	Description	Quantity
Engine Type 1	1000 GPM	3
Engine Type 3	150 GPM 250 Gallons	1
Rescue Vehicle	Tools and Supplies	1

C. INCIDENT PLANS AND INTELLEGENCE

INCIDENT MANAGEMENT INFRASTRUCTURE LOCATION(S)

1 **Incident Command Post (ICP):** Evergreen Church
ICP Latitude: 34.94746 **ICP Longitude:** -78.61969
ICP Street Address: 9626 NC Highway 210 South
City: Autryville **State:** NC **Zip Code:** 28318
Paved Parking Acres: 0 **Unpaved Parking Acres:** 1 **Entrances:** 2
 # Buildings: 1 **Indoor Square Footage:** 4000
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: Off Hwy 210 SE, on the east side

Comments: Beaver Dam

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2 **Incident Command Post (ICP):** Beaver Dam Church
ICP Latitude: 34.88725 **ICP Longitude:** -78.58887
ICP Street Address: 4693 Beaver Dam Church Road
City: Roseboro **State:** NC **Zip Code:** 28382
Paved Parking Acres: 1 **Unpaved Parking Acres:** 1 **Entrances:** 2
 # Buildings: 1 **Indoor Square Footage:** 2500
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ☐ **Internet Service**
Ground Directions: Heading Sourthbound on Hwy 210, turn right onto Beaver Dam Rd.

Comments: Beaver Dam

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3 **Incident Command Post (ICP):** Sharon Church
ICP Latitude: 34.86298 **ICP Longitude:** -78.63931
ICP Street Address: 9957 Turnbull Road
City: Fayetteville **State:** NC **Zip Code:** 28312
Paved Parking Acres: 0 **Unpaved Parking Acres:** 1 **Entrances:** 2
 # Buildings: 1 **Indoor Square Footage:** 2500
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ☐ **Internet Service**
Ground Directions: North Side of Turnbull Rd., on corner of Sharon Church and Turnbull Rd.

Comments: Beaver Dam

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1 **Staging Area:** Evergreen Church
Latitude: 34.94746 **Longitude:** -78.61969
Street Address: 9626 Nc Highway 210 S
City: Autryville **State:** NC **Zip Code:** 28318
Paved Parking Acres: 1 **Unpaved Parking Acres:** 2 **Entrances:** 1
 # Buildings: 1 **Indoor Square Footage:** 4000
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ☐ **Internet Service**
Ground Directions: SE on Hwy 210, on East side

Comments: Beaver Dam

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2 **Staging Area:** Beaver Dam Church
Latitude: 34.88725 **Longitude:** -78.58887
Street Address: Beaver Dam Church Rd.
City: Roseboro **State:** NC **Zip Code:** 28382
Paved Parking Acres: 1 **Unpaved Parking Acres:** 1 **Entrances:** 2
 # Buildings: 1 **Indoor Square Footage:** 2500
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ☐ **Internet Service**
Ground Directions: Heading Southbound on 210, turn right onto Beaver Dam Rd.

Comments: Beaver Dam

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3 **Staging Area:** Sharon Church
Latitude: 34.86298 **Longitude:** -78.63931
Street Address: 9957 Turnbull Rd
City: Fayetteville **State:** NC **Zip Code:** 28312
Paved Parking Acres: 1 **Unpaved Parking Acres:** 1 **Entrances:** 2
 # Buildings: 1 **Indoor Square Footage:** 2500
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ☐ **Internet Service**
Ground Directions: North side of Turnbull Road, on the corner of Sharon church and Turnbull Rd.

Comments: Beaver Dam

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1 **Nearest Medical Facility:** Cape Fear Valley Medical Center
Latitude: 35.03220 **Longitude:** -78.93345 **Phone Number:** 910-615-4000
Street Address: 1638 Owen Drive
City: Fayetteville **State:** NC **Zip Code:** 28304
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ☐ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Take 53 north from Bladen. Continue on 210 west/north. Take 95 south. Take MLK Jr Fwy. Left on 401 BUS. Left onto Village Dr. Right on Owen Dr.

---

2 **Nearest Medical Facility:** UNC Hospital
Latitude: 35.90423 **Longitude:** -79.05000 **Phone Number:** 919-966-4131
Street Address: 101 Manning Drive
City: Chapel Hill **State:** NC **Zip Code:** 27514
Trauma Center Level: I ■ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: West on Durham-Chapel Hill Blvd. from I-40. Slight left on Fordham Blvd. Right on Manning Dr.

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3 **Nearest Medical Facility:** Wake Medical Center
Latitude: 35.78400 **Longitude:** -78.58800 **Phone Number:** 919-350-8000
Street Address: 3000 New Bern Avenue
City: Raleigh **State:** NC **Zip Code:** 27610
Trauma Center Level: I ☐ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Located at the intersection of Luther Rd. and New Bern Ave.

VEHICLE ACCESS

Roads Paved (Percentage): 75 - 99%
Average Road Grade: 0 - 9%
Maximum Road Grade: 0 - 9%
Maximum time to provide fire services to community: 10 - 14 Minutes

AVIATION

Airport	Three Letter Designation
FAYETTEVILLE RGNL/GRANNIS FIELD	FAY

Manager:

Latitude: 34.99120 **Longitude:** -78.88030 ■ **Has Fuel: Jet A** ■ **Has Fuel: Aviation Gasoline**

CTAF/UNICOM: UNICOM: 122.95 **Elevation:** 189 ft

Runway: **Length** 7,709 ft **Width** 150 ft **Surface Type** Paved

Ground Directions:

HELICOPTER LANDING ZONES

1 **Helispot:** Beaver Dam Fire Station **Capacity:** Type 1 - 3
Latitude: 34.91580 **Longitude:** -78.59800
Ground Directions: Highway 210 on South side of Hwy 210

Comments:

WATER RESOURCES

Percent of Fire District in reach of hydrants or connected to county water: 0 - 24%

1 **Water Source:** Mac Bourdeoux Pond **Contact Telephone:**

Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False

Type: Pond **Water Source Acess:** Private (Restricted)

Latitude: 34.93683 **Longitude:** -78.58965

Ground Directions: From SE Hwy 210, turn left on Ruth Wilsom Rd and follow until you see a pond on the left side

Comments: Beaver Dam

D. COMMUNITY INFORMATION

FIRE DISTRICT SIZE & DEMOGRAPHICS

Estimated Acres:	52,313	**Number of Lots:**	1,822
Number of Structures:	919	**Percentage Residential:**	40 %

Estimated Population Growth (next 30 Years): Below Average

Majority Population is Full-Time: True **If NOT Full Time please indicate what Percentage of Population is part-time**

HAZARD ASSESSMENT RATING (from NFPA 1144):

WILDFIRE HISTORY & FUEL TYPE

Relative Frequency:	An estimate of 12 wildland fires per year
Common Causes:	arson, debris burning
Area of Future Concern:	No Areas of Future Concern recommended at this time
Additional Comments:	None at this time
Dominant Vegetation (Fuel Type):	Timber
Dominant Building Construction Type:	Brick and wood frame construction
Wildfire History or Fuel Type Notes:	Loblolly Pines and bay bushes are the dominant vegetation.

2) FIRE DISTRICT BASE MAP AND OTHER VISUALS

Minimally should include fire district boundary, major roads, fire Stations, ICPs, staging areas, medical facilities, helispots, water resources, and local, state, and federal ownership boundaries on the base map. May want to include: major land marks, police stations, evacuations routes, forest service offices, and large forest land parcel boundaries. Attach or insert community base map and other visuals.

3) RECOMMEDATIONS AND ACTION ITEMS

A. FUEL MITIGATION SITES

B. AREAS OF CONCERN

1 Area Name: Big White Bay-Beaver Dam

Hazard Rating: Extreme

Latitude: 34.89630 **Longitude:** -78.62688 **Number of Homes:** 6 **Number of Lots:** 6

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Only one road in and out of subdivision with narrow, non-surfaced roads with limited fire service access capabilities. No fuel clearance zones around homes. No water sources.

Notes: From a wildfire standpoint, this area poses a great threat, but the Wildland Urban Interface problem is not great due to a very low number of homes and structures.

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	7	Predominant Veg.	20	Roof Composition	3	Placement of Utilities	0
Road Width	4	Fuel Clearance Zone	25	**Building Construction**		**Total**	
All-Season Road Cond.	7	**Topography**		Building Construction	5	Total Number of Scoresheets Completed	1
Fire Service Access	5	Slope	1	Building Setback	0	Total Points	116
Fire Service Turnaround	5	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	5	Miscellaneous	13	Water Source Avail.	10		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Do prescribed burning in area surrounding homes to mitigate fuel loads and hazards.	Fuel Reduction			NC Division of Forest Resources

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Install Pressurized Hydrants. Widen and upgrade roads and build turnarounds to improve fire service access. Create an additional entrance/exit to improve ingress and egress. Encourage homeowners to create fuel clearance zones around their homes.	Infrastructure Improvement			County / Landowner

Notes:

2 Area Name: Norris Road- Beaver Dam

Hazard Rating: High

Latitude: 34.91321 **Longitude:** -78.57726 **Number of Homes:** 15 **Number of Lots:** 15

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Low water availability in the community. One road in and out. No fire service turnarounds. Little fuel clearance zoning around homes.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	7	Predominant Veg.	20	Roof Composition	3	Placement of Utilities	3
Road Width	2	Fuel Clearance Zone	20	**Building Construction**		**Total**	
All-Season Road Cond.	0	**Topography**		Building Construction	5	Total Number of Scoresheets Completed	1
Fire Service Access	5	Slope	1	Building Setback	0	Total Points	93
Fire Service Turnaround	5	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	0	Miscellaneous	6	Water Source Avail.	10		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Clear fule zone around homes	Fuel Reduction			Landowner

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Install pressurized hydrants. Create an additional road to be used an entrance/exit to community. Build cul-de-sacs and shorten dead end roads to improve fire service and EMS access.	Infrastructure Improvement			County

Notes:

C. FIRE PREVENTION PROGRAMS

1 Project Name: Beaver Dam Elementary School Education **Population Reached:** Elementary School Children

Project Description: School program

Age Group Targeted (select all that apply)	>50	50 - 35	34 - 20	19 - 15	14 - 10	9 - 6	<6
	True	False	False	False	False	True	True

Community(s) Targeted (if applicable): Beaver Dam

Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
	10/14/2013	10/14/2013	VFD	VFD

Notes: This event is done ever year

D. PREPAREDNESS ACTIONS

1 Preparedness Item: New Equipment

Planning Office: Fire Department

Preparedness Need: Brush Truck 250 gal/150GPM

Preparedness Action

Category Equipment Purchase

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
Apply for a state or federal grant for a new brush truck that meet NWCG type 6			State or Federal grant	Fire Department

Notes: No planning to date

---

4) ADDITIONAL COMMENTS:

5) ATTACHMENTS:

The
Hillcrest
Community Wildfire Protection Plan

AN ACTION PLAN FOR WILDFIRE MITIGATION

Date: 7/13/2009

Prepared By: Brandon Morgan

Organization: North Carolina Forest Service

Contact Information:

Address: 531 Cicero Beatty Road
Raeford, NC 28376

Phone: 910-875-2808

E-Mail: brandon.morgan@ncagr.gov

Fax:

DOI Name: HILLCREST FD

DOI Number: NC10095515

This plan is a collaborative effort between various entities. The signing representatives listed in this plan comprise the core decision-making team responsible for this report and mutually agree on the plan's contents and are committed to act on its recommendations. The objectives are to set clear priorities for the implementation of wildfire mitigation in this fire district. This includes prioritized recommendations for the fire district as a whole and also for community members where appropriate.

CWPP Signature Page(s)

County Fire Marshal

Name: Bryan Marley
Address: 429 E. Central Avenue
Raeford, NC 28376
Phone Number: 910-308-1000
E-Mail: bmarley@hokecounty.org
Signature: _____ Signed? Yes

Fire Department Representative

Name: Michael Scott
Address: 2909 Highway 401 Business
Raeford, NC 28376
Phone Number: 910-875-8888
E-Mail: hillcrestfd@hokecounty.org
Signature: _____ Signed? Yes

North Carolina Forest Service

Name: Jonathan McColl
Address: 531 Cicero Beatty Road
Raeford, NC 28376
Phone Number: 910-309-8954
E-Mail: jonathan.mccoll@ncagr.gov
Signature: _____ Signed? Yes

The following federal and other interested parties were consulted and involved in the preparation of this report.

Name	Organization

Mutual Aid

Number	Name
NC10095785	N RAEFORD FD
NC10095957	PUPPY CREEK FD
NC10095963	RAEFORD
NC10096009	ROCKFISH FD
NC10096196	STONEWALL FD

PLAN CONTENTS

Hillcrest

1) FIRE DISTRICT AND PRE-ATTACK INFORMATION

A. PRIMARY FIRE STATION:

County: Hoke **County ID Number:** 047
Name: Hillcrest Fire Department
Latitude: 34.99298 **Longitude:** -79.18564
Street: 2909 Highway 401 Business
City: Raeford **State:** NC **Zip Code:** 28376
Mailing Address (if different): PO Box 949
City: Raeford **State:** NC **Zip Code:** 28376
Phone Number: 910-975-8888 **Fax Number:** 910-975-7685
Email Address: hillcrestfd@hokecounty.org
Ground Directions: Corner of US 401 and Hillcrest Dr.

B. RESOURCE CAPACITY:

PERSONNEL

Number of Paid Firefighters:	3	**Number of Volunteer Firefighters:**	39
Number Trained in Wildland Fire:	20	**Number Trained in Fire Prevention:**	20
Number Trained in Hazard Assessment:	0	**Number of Pick Up Firefighters (if Applicable):**	0

EQUIPMENT

Apparatus Type	Description	Quantity
Engine Type 1	1000 gallons/ 1500 gpm	2
Engine Type 6	250 gallons/ 250 gpm	2
Water Tender Type 3	1000 gallons/ 1500 gpm	1
Rescue Vehicle	no water capacity; portable command post	1

C. INCIDENT PLANS AND INTELLEGENCE

INCIDENT MANAGEMENT INFRASTRUCTURE LOCATION(S)

1 **Incident Command Post (ICP):** Hillcrest Fire Department
ICP Latitude: 34.99298 **ICP Longitude:** -79.18564
ICP Street Address: 2909 Highway 401 Business
City: Raeford **State:** NC **Zip Code:** 28376
Paved Parking Acres: 1 **Unpaved Parking Acres:** 1 **Entrances:** 2
 # Buildings: 1 **Indoor Square Footage:** 9000
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: Corner of US 401 and Hillcrest Dr.

Comments:

1 **Staging Area:** East Hoke Middle School
Latitude: 35.00666 **Longitude:** -79.17232
Street Address: 4702 Fayetteville Rd.
City: Raeford **State:** NC **Zip Code:** 28376
Paved Parking Acres: 1 **Unpaved Parking Acres:** 6 **Entrances:** 6
 # Buildings: 1 **Indoor Square Footage:** 80000
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: Corner of Fayetteville Rd. and Club Pond Rd.

Comments: Telephone #: (910) 875-5048

---

2 **Staging Area:** Don Steed Elementary School
Latitude: 35.98260 **Longitude:** -79.15975
Street Address: 800 Phillippi Church Rd.
City: Raeford **State:** NC **Zip Code:** 28376
Paved Parking Acres: 2 **Unpaved Parking Acres:** 2 **Entrances:** 8
 # Buildings: 1 **Indoor Square Footage:** 80000
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: Corner of Phillippi Church Rd. and Posey Farm Rd.

Comments: Telephone #: (910) 875-1125

---

1 **Nearest Medical Facility:** Cape Fear Valley Medical Center
Latitude: 35.03220 **Longitude:** -78.93345 **Phone Number:** 910-615-4000
Street Address: 1638 Owen Drive
City: Fayetteville **State:** NC **Zip Code:** 28304
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ☐ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Take 53 north from Bladen. Continue on 210 west/north. Take 95 south. Take MLK Jr Fwy. Left on 401 BUS. Left onto Village Dr. Right on Owen Dr.

---

2 **Nearest Medical Facility:** Moore Regional Hospital
Latitude: 35.20670 **Longitude:** -79.45699 **Phone Number:** 910-715-1000
Street Address: 155 Memorial Drive
City: Pinehurst **State:** NC **Zip Code:** 28374
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Located at intersection of Hwy. 211 and Memorial Drive in Moore County.

---

3 **Nearest Medical Facility:** UNC Hospital
Latitude: 35.90423 **Longitude:** -79.05000 **Phone Number:** 919-966-4131
Street Address: 101 Manning Drive
City: Chapel Hill **State:** NC **Zip Code:** 27514
Trauma Center Level: I ■ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: West on Durham-Chapel Hill Blvd. from I-40. Slight left on Fordham Blvd. Right on Manning Dr.

---

4 **Nearest Medical Facility:** Wake Medical Center
Latitude: 35.78400 **Longitude:** -78.58800 **Phone Number:** 919-350-8000
Street Address: 3000 New Bern Avenue
City: Raleigh **State:** NC **Zip Code:** 27610
Trauma Center Level: I ☐ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Located at the intersection of Luther Rd. and New Bern Ave.

---

5 **Nearest Medical Facility:** Cape Fear Valley Health Pavilion Hoke
Latitude: 35.03020 **Longitude:** -79.10680 **Phone Number:** 910-904-8025
Street Address: 300 Medical Pavilion Dr
City: Raeford **State:** NC **Zip Code:** 28376
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ☐ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: On Fayetteville Rd across from Paraclete.

---

6 **Nearest Medical Facility:** FirstHealth Hoke Community Hospital
Latitude: 35.02107 **Longitude:** -79.14963 **Phone Number:** 910-878-6000
Street Address: 6408 Fayetteville Rd
City: Raeford **State:** NC **Zip Code:** 28376
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions:

VEHICLE ACCESS

Roads Paved (Percentage): 75 - 99%
Average Road Grade: 0 - 9%
Maximum Road Grade: 0 - 9%
Maximum time to provide fire services to community: < 10 Minutes

AVIATION

Airport	Three Letter Designation
P K AIRPARK	5W4

Manager:

Latitude: 35.01990 **Longitude:** -79.19100 ■ **Has Fuel: Jet A** ■ **Has Fuel: Aviation Gasoline**

CTAF/UNICOM: CTAF/UNICOM: 123.0 **Elevation:** 304 ft

Runway: Length 3,402 ft **Width** 60 ft **Surface Type** Paved

Ground Directions:

MOORE COUNTY	SOP

Manager:

Latitude: 35.23800 **Longitude:** -79.38830 ■ **Has Fuel: Jet A** ■ **Has Fuel: Aviation Gasoline**

CTAF/UNICOM: CTAF/UNICOM: 123.05 **Elevation:** 459 ft

Runway: Length 6,502 ft **Width** 150 ft **Surface Type** Paved

Ground Directions:

HELICOPTER LANDING ZONES

1 **Helispot:** East Hoke Elementary School **Capacity:** Type 1 - 3
Latitude: 35.00666 **Longitude:** -79.17232
Ground Directions: Corner of Fayetteville Rd. and Club Pond Rd.
Comments: Hillcrest Fire District

---

2 **Helispot:** Don Steed Elementary School **Capacity:** Type 1 - 3
Latitude: 35.98260 **Longitude:** -79.15975
Ground Directions: Corner of Phillippi Church Rd. and Posey Farm Rd.
Comments: Hillcrest Fire District

WATER RESOURCES

Percent of Fire District in reach of hydrants or connected to county water: 75 - 99%

1 **Water Source:** Food Lion Shopping Center Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 35.00609 **Longitude:** -79.17771
Ground Directions: 401 Business behind shopping center

Comments: Hillcrest Fire District

---

2 **Water Source:** Club Pond **Contact Telephone:**
Uses: **Ground:** False **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 34.99200 **Longitude:** -79.16800
Ground Directions: On Club Pond Rd. north of Rockfish Rd.

Comments: Hillcrest Fire District

---

3 **Water Source:** Savannah Chase Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 35.01355 **Longitude:** -79.16831
Ground Directions: Corner of Fayetteville Rd. and Northwoods Dr.

Comments: Hillcrest Fire District

D. COMMUNITY INFORMATION

FIRE DISTRICT SIZE & DEMOGRAPHICS

Estimated Acres: 8,500 **Number of Lots:** 3,850
Number of Structures: 3,461 **Percentage Residential:** 50 %
Estimated Population Growth (next 30 Years): High

Majority Population is Full-Time: True **If NOT Full Time please indicate what Percentage of Population is part-time**

HAZARD ASSESSMENT RATING (from NFPA 1144): High

WILDFIRE HISTORY & FUEL TYPE

Relative Frequency: 10 wildland fires per year
Common Causes: Debris burning and incendiary
Area of Future Concern: Riverbrooke development
Additional Comments: Riverbrooke is a new development off of Rockfish Rd and 401 Business that is currently being built in phases
Dominant Vegetation (Fuel Type): Timber
Dominant Building Construction Type: Wood frame construction, asphalt singles, vinyl siding
Wildfire History or Fuel Type Notes:

2) FIRE DISTRICT BASE MAP AND OTHER VISUALS

Minimally should include fire district boundary, major roads, fire Stations, ICPs, staging areas, medical facilities, helispots, water resources, and local, state, and federal ownership boundaries on the base map. May want to include: major land marks, police stations, evacuations routes, forest service offices, and large forest land parcel boundaries. Attach or insert community base map and other visuals.

3) RECOMMEDATIONS AND ACTION ITEMS

A. FUEL MITIGATION SITES

1 Project Name: Mid Atlantic Mitigation **Acres:** 65

Latitude: 35.98824 **Longitude:** -79.17162

Landowner Name: Hoke County **Dominant Fuel Type:** Hardwood Litter

Planning Office: Mid Atlantic Mitigation LLC **Risks:** High wildland fire risks due to presence of pines

Mitigation Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
Planting hardwoods in place of pines	1/1/2009	1/1/2010	Mid Atlantic Inc.	Hoke County

Notes:

B. AREAS OF CONCERN

1 Area Name: Peck's Lane **Hazard Rating:** Extreme

Latitude: 35.00340 **Longitude:** -79.20795 **Number of Homes:** 7 **Number of Lots:** 15

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Only one road in and out of subdivision. Road width is less than 20ft and all roads are unpaved. There are no turnaround capabilities and a majority of the dead end roads are greater than 300 ft. in length. There are minimal fuel clearance zones around houses and no water availability within the subdivision.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	7	Predominant Veg.	20	Roof Composition	3	Placement of Utilities	5
Road Width	4	Fuel Clearance Zone	25	**Building Construction**		**Total**	
All-Season Road Cond.	3	**Topography**		Building Construction	10	Total Number of Scoresheets Completed	1
Fire Service Access	5	Slope	1	Building Setback	0	Total Points	122
Fire Service Turnaround	5	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	5	Miscellaneous	13	Water Source Avail.	10		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action	Planned Date	Completed Date	Activity to be Completed by
Category: Fuel Reduction Reduce the amount of fuels surrounding the structures an create defensible space. **Notes:**			NC Forest Service and County
Category: Infrastructure Improvement Install pressurized hydrants in the community. **Notes:**			Fire department or county
Category: Infrastructure Improvement Improve roads and create fire service turnarounds. . **Notes:**			County
Category: Awareness Introduce Firewise **Notes:**			NC Forest Service and Fire Department

2 Area Name: Scurlock Community **Hazard Rating:** High

Latitude: 34.98537 **Longitude:** -79.17023 **Number of Homes:** 423 **Number of Lots:** 423

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Heavy pines located near subdivision. Fuel clearance zone between vegetation and structures is not sufficient.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	7
Road Width	2
All-Season Road Cond.	0
Fire Service Access	0
Fire Service Turnaround	5
Street Signs	0

Vegetation

Predominant Veg.	20
Fuel Clearance Zone	15

Topography

Slope	1

Additional Rating Factors

Miscellaneous	5

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	8
Building Setback	0

Available Fire Protection

Water Source Avail.	0
Organized Response	1
Fixed Fire Protection	5

Placement of Utilities

Placement of Utilities	5

Total

Total Number of Scoresheets Completed	1
Total Points	77

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Recommend Firewise to this community	Awareness			NC Forest Service and Fire Department Personnel

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Increase fuel clearence zones around indiviual homes.	Fuel Reduction			

Notes:

3 Area Name: Savannah Chase Subdivision **Hazard Rating:** Moderate

Latitude: 35.00879 **Longitude:** -79.16728 **Number of Homes:** 100 **Number of Lots:** 100

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Only one road in and out of subdivision with dead end roads greater than 300 ft. in length.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	7	Predominant Veg.	10	Roof Composition	3	Placement of Utilities	0
Road Width	2	Fuel Clearance Zone	10	**Building Construction**		**Total**	
All-Season Road Cond.	0	**Topography**		Building Construction	10	Total Number of Scoresheets Completed	1
Fire Service Access	5	Slope	1	Building Setback	0	Total Points	68
Fire Service Turnaround	1	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	3	Miscellaneous	10	Water Source Avail.	0		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Include an additional entrance/exit in the subdivision	Infrastructure Improvement			County

Notes:

4 Area Name: Heritage Villiage **Hazard Rating:** Moderate

Latitude: 34.99092 **Longitude:** -79.15510 **Number of Homes:** 250 **Number of Lots:** 250

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Only one road in and out of subdivision. Narrow road (less than 20 ft) with minimal turnaround capability for fire trucks and large equipment.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	7
Road Width	4
All-Season Road Cond.	0
Fire Service Access	5
Fire Service Turnaround	2
Street Signs	3

Vegetation

Predominant Veg.	10
Fuel Clearance Zone	10

Topography

Slope	1

Additional Rating Factors

Miscellaneous	7

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	3
Building Setback	0

Available Fire Protection

Water Source Avail.	0
Organized Response	1
Fixed Fire Protection	5

Placement of Utilities

Placement of Utilities	0

Total

Total Number of Scoresheets Completed	1
Total Points	61

Action Items

Action	Planned Date	Completed Date	Activity to be Completed by
Category: Infrastructure Improvement Widen roads and add more turnarounds. Possibly create an emergency exit to subdivision.			County

Notes:

C. FIRE PREVENTION PROGRAMS

1 Project Name: Fire Prevention Week **Population Reached:** Public Schools

Project Description: School Programs

Age Group Targeted (select all that apply)	>50	50 - 35	34 - 20	19 - 15	14 - 10	9 - 6	<6
	True	False	False	False	True	True	True

Community(s) Targeted (if applicable):

Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
		10/15/2013		Fire Department and NCFS

Notes: project is done annualy

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2 Project Name: Open House **Population Reached:** Hillcrest Community

Project Description: Fire Department Open House

Age Group Targeted (select all that apply)	>50	50 - 35	34 - 20	19 - 15	14 - 10	9 - 6	<6
	True	True	True	True	True	True	True

Community(s) Targeted (if applicable):

Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
		10/1/2013		Hillcrest VFD

Notes: The fire department wishes to continue the fire station open houses

---

3 Project Name: Turkey Festival **Population Reached:** Hillcrest Community

Project Description: Parade

Age Group Targeted (select all that apply)	>50	50 - 35	34 - 20	19 - 15	14 - 10	9 - 6	<6
	True	True	True	True	True	True	True

Community(s) Targeted (if applicable):

Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
		9/15/2013	Hilllcrest VFD	Fire Department

Notes: The fire department wishes to continue participating in the Thanksgiving day parade

---

D. PREPAREDNESS ACTIONS

1 Preparedness Item: Wildland Fire Suppression

Planning Office: NCFS

Preparedness Need: Training

Preparedness Action

Category Other

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
Present Wildland Fire Suppression to fire department.	11/1/2014		State	NCFS

Notes:

---

4) ADDITIONAL COMMENTS:

5) ATTACHMENTS: NC Community Assessment Scoresheet

The
Eastover
Community Wildfire Protection Plan

AN ACTION PLAN FOR WILDFIRE MITIGATION

Date: 7/27/2009

Prepared By: Craig Gottfried

Organization: North Carolina Forest Service

Contact Information:

Address: 1905 Baywood Road
Eastover, NC 28301

Phone: 910-483-1535

E-Mail: craig.gottfried@ncagr.gov

Fax: 910-485-0944

DOI Name: FLEA HILL FD

DOI Number: NC10095365

This plan is a collaborative effort between various entities. The signing representatives listed in this plan comprise the core decision-making team responsible for this report and mutually agree on the plan's contents and are committed to act on its recommendations. The objectives are to set clear priorities for the implementation of wildfire mitigation in this fire district. This includes prioritized recommendations for the fire district as a whole and also for community members where appropriate.

CWPP Signature Page(s)

County Fire Marshal

Name: Randy Beeman
Address: PO Box 1829
Fayetteville, NC 28302
Phone Number: 910-321-6736
E-Mail: rbeeman@co.cumberland.nc.us
Signature: _____ Signed? Yes

Name: Randy Beeman
Address: PO Box 1829
Fayetteville, NC 28302
Phone Number: 910-321-6736
E-Mail: rbeeman@co.cumberland.nc.us
Signature: _____ Signed? Yes

Fire Department Representative

Name: Mark McLaurin
Address: 3405 Dunn Road
Fayetteville, NC 28301
Phone Number: 919-483-3770
E-Mail: efd01@nc.rr.com
Signature: _____ Signed? Yes

North Carolina Forest Service

Name: Craig Gottfried
Address: 1905 Baywood Road
Eastover, NC 28301
Phone Number: 910-483-1535
E-Mail: craig.gottfried@ncagr.gov
Signature: _____ Signed? Yes

The following federal and other interested parties were consulted and involved in the preparation of this report.

Name	Organization

Mutual Aid

Number	Name
NC10094980	BETHANY FD
NC10095425	GODWIN FALCON FD
NC10096328	WADE FD

PLAN CONTENTS

Eastover

1) FIRE DISTRICT AND PRE-ATTACK INFORMATION

A. PRIMARY FIRE STATION:

County: Cumberland **County ID Number:** 026
Name: Eastover 01
Latitude: 35.09092 **Longitude:** -78.78893
Street: 3405 Dunn Road
City: Eastover **State:** NC **Zip Code:** 28301
Mailing Address (if different):
City: **State:** **Zip Code:**
Phone Number: 919-483-3770 **Fax Number:**
Email Address: efd0101@nc.rr.com
Ground Directions: I-95 Business to 301N, turn onto Dunn Rd.

B. RESOURCE CAPACITY:

PERSONNEL

Number of Paid Firefighters:	13	**Number of Volunteer Firefighters:**	44
Number Trained in Wildland Fire:	0	**Number Trained in Fire Prevention:**	13
Number Trained in Hazard Assessment:	0	**Number of Pick Up Firefighters (if Applicable):**	0

EQUIPMENT

Apparatus Type	Description	Quantity
Engine Type 1	1500 GPM/100gal	1
Engine Type 6	200 Gallons	1
Water Tender Type 1	450 GPM/1200gal	1
Boat (11' - 16')	Zodiac Boat	1
Rescue Vehicle	Rehab/Mobile command Center with 4-wheel drive	1
Rescue Vehicle	EMS Truck	1

C. INCIDENT PLANS AND INTELLEGENCE

INCIDENT MANAGEMENT INFRASTRUCTURE LOCATION(S)

1 **Incident Command Post (ICP):** Eastover Fire Department
ICP Latitude: 35.09076 **ICP Longitude:** -78.78963
ICP Street Address: 3405 Dunn Road
City: Eastover **State:** NC **Zip Code:** 28312
Paved Parking Acres: 1 **Unpaved Parking Acres:** 0 **Entrances:** 2
 # Buildings: 1 **Indoor Square Footage:** 5000
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: I-95 Business to 301N, turn onto Dunn Rd.

Comments: Eastover

1 **Staging Area:** Eastover Fire Department
Latitude: 35.09076 **Longitude:** -78.78963
Street Address: 3405 Dunn Rd.
City: Eastover **State:** NC **Zip Code:** 28312
Paved Parking Acres: 1 **Unpaved Parking Acres:** 0 **Entrances:** 2
 # Buildings: 1 **Indoor Square Footage:** 5000
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: I-95 Business to 301N turn onto Dunn Rd.

Comments: Eastover Fire District

---

2 **Staging Area:** Eastover Central School (soccer field)
Latitude: 35.12260 **Longitude:** -78.76227
Street Address: 5174 Dunn Rd
City: Fayetteville **State:** NC **Zip Code:** 28312
Paved Parking Acres: 1 **Unpaved Parking Acres:** 2 **Entrances:** 2
 # Buildings: 1 **Indoor Square Footage:** 4500
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: Corner of Pembroke and Dunn Rd.

Comments: Eastover

---

3 **Staging Area:** Armstrong Elementary School
Latitude: 35.09076 **Longitude:** -78.78963
Street Address: 3395 Dunn Rd
City: Eastover **State:** NC **Zip Code:** 28312
Paved Parking Acres: 1 **Unpaved Parking Acres:** 2 **Entrances:** 2
 # Buildings: 2 **Indoor Square Footage:** 10000
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: Take Highway 301 to Dunn Rd

Comments: Eastover Fire District

---

1 **Nearest Medical Facility:** Cape Fear Valley Medical Center
Latitude: 35.03220 **Longitude:** -78.93345 **Phone Number:** 910-615-4000
Street Address: 1638 Owen Drive
City: Fayetteville **State:** NC **Zip Code:** 28304
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ☐ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Take 53 north from Bladen. Continue on 210 west/north. Take 95 south. Take MLK Jr Fwy. Left on 401 BUS. Left onto Village Dr. Right on Owen Dr.

---

2 **Nearest Medical Facility:** UNC Hospital
Latitude: 35.90423 **Longitude:** -79.05000 **Phone Number:** 919-966-4131
Street Address: 101 Manning Drive
City: Chapel Hill **State:** NC **Zip Code:** 27514
Trauma Center Level: I ■ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: West on Durham-Chapel Hill Blvd. from I-40. Slight left on Fordham Blvd. Right on Manning Dr.

---

3 **Nearest Medical Facility:** Wake Medical Center
Latitude: 35.78400 **Longitude:** -78.58800 **Phone Number:** 919-350-8000
Street Address: 3000 New Bern Avenue
City: Raleigh **State:** NC **Zip Code:** 27610
Trauma Center Level: I ☐ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Located at the intersection of Luther Rd. and New Bern Ave.

VEHICLE ACCESS

Roads Paved (Percentage): 75 - 99%
Average Road Grade: 0 - 9%
Maximum Road Grade: 0 - 9%
Maximum time to provide fire services to community: 10 - 14 Minutes

AVIATION

Airport	Three Letter Designation
FAYETTEVILLE RGNL/GRANNIS FIELD	FAY

Manager:

Latitude: 34.99120 **Longitude:** -78.88030 ■ **Has Fuel: Jet A** ■ **Has Fuel: Aviation Gasoline**
CTAF/UNICOM: UNICOM: 122.95 **Elevation:** 189 ft
Runway: **Length** 7,709 ft **Width** 150 ft **Surface Type** Paved
Ground Directions:

HELICOPTER LANDING ZONES

1 **Helispot:** Eastover Central Elementry (Soccer field) **Capacity:** Type 1 - 3
Latitude: 35.12260 **Longitude:** -78.76227
Ground Directions: At the intersection of Dunn and Pembroke Ln.
Comments: The phone number of the school is (910) 483-8997

WATER RESOURCES

Percent of Fire District in reach of hydrants or connected to county water: 50 - 74%

1 **Water Source:** Edmund Bullard **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 35.14004 **Longitude:** -78.78323
Ground Directions: On Seaham Drive on the corner of Coleman Rd.

Comments: Catfish Farm, Eastover Fire District.

---

2 **Water Source:** Baywood Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 35.09516 **Longitude:** -78.77578
Ground Directions: Intersection of Baywood Rd and I-95

Comments:

---

3 **Water Source:** Game Rd. Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 35.16316 **Longitude:** -78.80916
Ground Directions: Intersection of Game Rd. and River Rd.

Comments:

D. COMMUNITY INFORMATION

FIRE DISTRICT SIZE & DEMOGRAPHICS

Estimated Acres: 1,287 **Number of Lots:** 1,287
Number of Structures: 711 **Percentage Residential:** 50 %
Estimated Population Growth (next 30 Years): Average

Majority Population is Full-Time: True **If NOT Full Time please indicate what Percentage of Population is part-time**

HAZARD ASSESSMENT RATING (from NFPA 1144): Moderate

WILDFIRE HISTORY & FUEL TYPE

Relative Frequency: 6 fires per year
Common Causes: Debris burning, Incendiary
Area of Future Concern: Baywood, Murphy Road
Additional Comments: N/A
Dominant Vegetation (Fuel Type): Timber
Dominant Building Construction Type: Wood Frames
Wildfire History or Fuel Type Notes: Fuel Type is mostly pine/hardwood.

2) FIRE DISTRICT BASE MAP AND OTHER VISUALS

Minimally should include fire district boundary, major roads, fire Stations, ICPs, staging areas, medical facilities, helispots, water resources, and local, state, and federal ownership boundaries on the base map. May want to include: major land marks, police stations, evacuations routes, forest service offices, and large forest land parcel boundaries. Attach or insert community base map and other visuals.

3) RECOMMEDATIONS AND ACTION ITEMS

A. FUEL MITIGATION SITES

B. AREAS OF CONCERN

1 Area Name: Murphy Road-Eastover **Hazard Rating:** High

Latitude: 35.08055 **Longitude:** -78.77979 **Number of Homes:** 20 **Number of Lots:** 24

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: No water sources available. No fire service turnarounds available.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	0	Predominant Veg.	20	Roof Composition	3	Placement of Utilities	5
Road Width	0	Fuel Clearance Zone	10	**Building Construction**		**Total**	
All-Season Road Cond.	0	**Topography**		Building Construction	5	Total Number of Scoresheets Completed	1
Fire Service Access	0	Slope	1	Building Setback	0	Total Points	75
Fire Service Turnaround	5	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	0	Miscellaneous	10	Water Source Avail.	10		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Install Pressurized Hydrants. Create fire service turnarounds.	Infrastructure Improvement			County

Notes:

2 Area Name: Baywood-Eastover **Hazard Rating:** Moderate

Latitude: 35.06513 **Longitude:** -78.76639 **Number of Homes:** 250 **Number of Lots:** 250

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Pine Plantation adjacent to neighborhood.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	0
Road Width	2
All-Season Road Cond.	0
Fire Service Access	5
Fire Service Turnaround	2
Street Signs	0

Vegetation

Predominant Veg.	20
Fuel Clearance Zone	10

Topography

Slope	1

Additional Rating Factors

Miscellaneous	9

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	10
Building Setback	0

Available Fire Protection

Water Source Avail.	0
Organized Response	1
Fixed Fire Protection	5

Placement of Utilities

Placement of Utilities	0

Total

Total Number of Scoresheets Completed	1
Total Points	68

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Prescribed Burning in pine plantation.	Fuel Reduction			NCFS or Private Contractor

Notes:

C. FIRE PREVENTION PROGRAMS

1 Project Name: Fire Prevention Week **Population Reached:** Schools

Project Description: School programs

Age Group Targeted (select all that apply)	>50	50 - 35	34 - 20	19 - 15	14 - 10	9 - 6	<6
	True	False	False	False	True	True	True

Community(s) Targeted (if applicable):

Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
	10/15/2013	10/15/2013	State	NCFS

Notes:

---

2 Project Name: Smoke Dectector Distribution **Population Reached:** Community Home Owners

Project Description: Smoke Dector Give Away

Age Group Targeted (select all that apply)	>50	50 - 35	34 - 20	19 - 15	14 - 10	9 - 6	<6
	False	True	True	True	False	False	False

Community(s) Targeted (if applicable):

Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
			Fire Deparments	VFD

Notes: Usually occures in November around Fire Prevention Week

---

3 Project Name: Heritage Day Parade and Ball Park Parade **Population Reached:** Community

Project Description: The NCFS and fire department participates in the local community parades each year.

Age Group Targeted (select all that apply)	>50	50 - 35	34 - 20	19 - 15	14 - 10	9 - 6	<6
	True	True	True	True	True	True	True

Community(s) Targeted (if applicable):

Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
			Sate and VFD	NCFS and VDF

Notes:

D. PREPAREDNESS ACTIONS

1 Preparedness Item: Wildland Fire Suppression Training

Planning Office: NCFS

Preparedness Need: Wildland Fire Suppression Training

Preparedness Action

Category Other

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
Provide wildland fire suppression training to the VFD Fire Deparment.			NCFS	NCFS

Notes: It has been four to five years since the last training class.

---

4) ADDITIONAL COMMENTS: For DOI Name: Flea Hill FD is now Eastover FD. Vander is also Mutual Aid for Eastover but does not appear in drop down menu.

5) ATTACHMENTS:

The
Vander Fire Department
Community Wildfire Protection Plan

AN ACTION PLAN FOR WILDFIRE MITIGATION

Date: 7/27/2009

Prepared By: Criag Gottfried

Organization: North Carolina Forest Service

Contact Information:

Address: 1905 Baywood Road
Eastover, NC 28301

Phone: 910-483-1535

E-Mail: criag.gottfried@ncagr.gov

Fax: 910-485-0944

DOI Name: SUNNYSIDE FD

DOI Number: NC10096210

This plan is a collaborative effort between various entities. The signing representatives listed in this plan comprise the core decision-making team responsible for this report and mutually agree on the plan's contents and are committed to act on its recommendations. The objectives are to set clear priorities for the implementation of wildfire mitigation in this fire district. This includes prioritized recommendations for the fire district as a whole and also for community members where appropriate.

CWPP Signature Page(s)

County Fire Marshal

Name: Randy Beeman
Address: PO Box 1829
Fayetteville, NC 28302
Phone Number: 910-321-6736
E-Mail: rbeeman@co.cumberland.nc.us
Signature: _____ Signed? Yes

Name: Randy Beeman
Address: PO Box 1829
Fayetteville, NC 28302
Phone Number: 910-321-6736
E-Mail: rbeeman@co.cumberland.nc.us
Signature: _____ Signed? Yes

Fire Department Representative

Name: David Chavis
Address: 3509 Clinton Road
Fayetteville, NC 28312
Phone Number: 910-483-5042
E-Mail: vfd02201@nc.rr.com
Signature: _____ Signed? Yes

North Carolina Forest Service

Name: Craig Gottfried
Address: 1905 Baywood Road
Eastover, NC 28301
Phone Number: 910-483-1535
E-Mail: craig.gottfried@ncagr.gov
Signature: _____ Signed? Yes

The following federal and other interested parties were consulted and involved in the preparation of this report.

Name	Organization

Mutual Aid

Number	Name
NC10094960	BEAVER DAM TS FD
NC10094980	BETHANY FD
NC10095358	FAYETTEVILLE
NC10095365	FLEA HILL FD
NC10096187	STEDMAN FD

PLAN CONTENTS

Vander Fire Department

1) FIRE DISTRICT AND PRE-ATTACK INFORMATION

A. PRIMARY FIRE STATION:

County: Cumberland **County ID Number:** 026
Name: Vander Fire Department 02
Latitude: 35.03400 **Longitude:** -78.79700
Street: 3509 Clinton Road
City: Fayetteville **State:** NC **Zip Code:** 28312
Mailing Address (if different):
City: **State:** **Zip Code:**
Phone Number: 910-483-5042 **Fax Number:**
Email Address: vfd02@nc.rr.com
Ground Directions: From I-95 S merge onto NC Hwy 24 toward Fayetteville. Turn Left at Downing Rd/ NC-1834. Turn Left at Acord St. Turn Left at Clinton Rd/ NC-1006.

B. RESOURCE CAPACITY:

PERSONNEL

Number of Paid Firefighters:	32	**Number of Volunteer Firefighters:**	26
Number Trained in Wildland Fire:	58	**Number Trained in Fire Prevention:**	58
Number Trained in Hazard Assessment:	0	**Number of Pick Up Firefighters (if Applicable):**	0

EQUIPMENT

Apparatus Type	Description	Quantity
Engine Type 1	2000 GPM 1250 Gallons	1
Engine Type 1	1500 GPM 1000 Gallons	1
Engine Type 6	125 GPM 250 Gallons	1
Water Tender Type 2	750 GPM 3000 Gallons	1
Water Tender Type 3	450 GPM 1500 Gallons	1
Command Truck	Mobile Command Unit	1
Ambulance	State Certified Ambulance	1

A. PRIMARY FIRE STATION:

County: Cumberland **County ID Number:** 026
Name: Vander Sub Station 08
Latitude: 34.93900 **Longitude:** -78.77100
Street: 4960 Taber Church Road
City: Fayetteville **State:** NC **Zip Code:** 28312
Mailing Address (if different):
City: **State:** **Zip Code:**
Phone Number: **Fax Number:**
Email Address:
Ground Directions: From I-95 S Take exit 49 for NC-53/NC-210 toward Fayetteville. Turn Left at Cedar Creek Rd/ NC-210/NC-53. Follow Ceder Creek Rd/ NC-53. Turn Right atNC-2023/ Tabor Church Rd.

B. RESOURCE CAPACITY:

PERSONNEL

Number of Paid Firefighters:	0	**Number of Volunteer Firefighters:**	0
Number Trained in Wildland Fire:	0	**Number Trained in Fire Prevention:**	0
Number Trained in Hazard Assessment:	0	**Number of Pick Up Firefighters (if Applicable):**	0

EQUIPMENT

Apparatus Type	Description	Quantity
Engine Type 1	2000 GPM 1250 Gallons	0
Engine Type 6	125 GPM 250 Gallons	1
Water Tender Type 3	450 GPM 1500 Gallons	1

C. INCIDENT PLANS AND INTELLEGENCE

INCIDENT MANAGEMENT INFRASTRUCTURE LOCATION(S)

1 **Incident Command Post (ICP):** Vander Fire Department
ICP Latitude: 35.03324 **ICP Longitude:** -78.79634
ICP Street Address: 3509 Clinton Road
City: Fayetteville **State:** NC **Zip Code:** 28312
Paved Parking Acres: 0 **Unpaved Parking Acres:** 0 **Entrances:** 4
 # Buildings: 1 **Indoor Square Footage:** 7200
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: Located near the intersection of Rock Hill Rd. and Clinton Rd.

Comments: Paved parking approximately 0.25 acres.

---

2 **Incident Command Post (ICP):** Vander Sub-Station 08
ICP Latitude: 34.93931 **ICP Longitude:** -78.77012
ICP Street Address: 4960 Tabor Church Road
City: Fayetteville **State:** NC **Zip Code:** 28312
Paved Parking Acres: 0 **Unpaved Parking Acres:** 0 **Entrances:** 4
 # Buildings: 1 **Indoor Square Footage:** 4800
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: Located on the corner of Dudley Rd. and Tabor Church Rd.

Comments: Paved parking approximately 0.5 acres.

---

1 **Staging Area:** Vander Fire Department
Latitude: 35.03324 **Longitude:** -78.79634
Street Address: 3509 Clinton Rd.
City: Fayetteville **State:** NC **Zip Code:** 28312
Paved Parking Acres: 0 **Unpaved Parking Acres:** 0 **Entrances:** 4
 # Buildings: 1 **Indoor Square Footage:** 7200
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: Neat the Rock Hill Rd. and Clinton Rd. junction.

Comments: Paved parking approximately 0.25 acres.

---

2 **Staging Area:** Vander Sub-Station 08
Latitude: 34.93931 **Longitude:** -78.77012
Street Address: 4960 Tabor Church Rd.
City: Fayetteville **State:** NC **Zip Code:** 28312
Paved Parking Acres: 0 **Unpaved Parking Acres:** 0 **Entrances:** 4
 # Buildings: 1 **Indoor Square Footage:** 4800
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: Located on the corner of Dudley Rd. and Tabor Church Rd.

Comments: Paved parking approximately 0.50acres.

---

3 **Staging Area:** Monsanto Parking Lot
Latitude: 34.98600 **Longitude:** -78.78400
Street Address: 3426 Cedar Creek Rd.
City: Fayetteville **State:** NC **Zip Code:** 28312
Paved Parking Acres: 8 **Unpaved Parking Acres:** 0 **Entrances:** 2
 # Buildings: 4 **Indoor Square Footage:** 0
☐ **Utilities (Water/Sewer)** ☐ **Telephone Service** ☐ **Internet Service**
Ground Directions: Located on the corner of Cedar Creek Rd. and John B. Carter Rd.

Comments: Also an Incident Command Post and Helispot.

---

1 **Nearest Medical Facility:** Cape Fear Valley Medical Center
Latitude: 35.03220 **Longitude:** -78.93345 **Phone Number:** 910-615-4000
Street Address: 1638 Owen Drive
City: Fayetteville **State:** NC **Zip Code:** 28304
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ☐ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Take 53 north from Bladen. Continue on 210 west/north. Take 95 south. Take MLK Jr Fwy. Left on 401 BUS. Left onto Village Dr. Right on Owen Dr.

---

2 **Nearest Medical Facility:** UNC Hospital
Latitude: 35.90423 **Longitude:** -79.05000 **Phone Number:** 919-966-4131
Street Address: 101 Manning Drive
City: Chapel Hill **State:** NC **Zip Code:** 27514
Trauma Center Level: I ■ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: West on Durham-Chapel Hill Blvd. from I-40. Slight left on Fordham Blvd. Right on Manning Dr.

---

3 **Nearest Medical Facility:** Wake Medical Center
Latitude: 35.78400 **Longitude:** -78.58800 **Phone Number:** 919-350-8000
Street Address: 3000 New Bern Avenue
City: Raleigh **State:** NC **Zip Code:** 27610
Trauma Center Level: I ☐ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Located at the intersection of Luther Rd. and New Bern Ave.

VEHICLE ACCESS

Roads Paved (Percentage): 75 - 99%
Average Road Grade: 0 - 9%
Maximum Road Grade: 0 - 9%
Maximum time to provide fire services to community: < 10 Minutes

AVIATION

Airport	Three Letter Designation
FAYETTEVILLE RGNL/GRANNIS FIELD	FAY

Manager:

Latitude: 34.99120 **Longitude:** -78.88030 ■ **Has Fuel: Jet A** ■ **Has Fuel: Aviation Gasoline**

CTAF/UNICOM: UNICOM: 122.95 **Elevation:** 189 ft

Runway: **Length** 7,709 ft **Width** 150 ft **Surface Type** Paved

Ground Directions:

HELICOPTER LANDING ZONES

1 **Helispot:** Baywood and Maxwell **Capacity:** Type 1 - 3
Latitude: 35.05200 **Longitude:** -78.76500
Ground Directions: Located east of the Baywood and Downing Rd. junction.
Comments: Sod Field

---

2 **Helispot:** Monsanto Parking Lot **Capacity:** Type 1 - 3
Latitude: 34.98600 **Longitude:** -78.78400
Ground Directions: Located on the corner Cedar Creek Rd. and John B. Carter Rd.
Comments: 6-8 acres, also a staging area and Incident Command Post

---

3 **Helispot:** Hayfield **Capacity:** Type 1 - 3
Latitude: 34.95700 **Longitude:** -78.76400
Ground Directions: Located on the corner of Culberth Rd. and Cedar Creek Rd.
Comments: Owned by Tommy West

---

4 **Helispot:** OK Farms **Capacity:** Type 1 - 3
Latitude: 34.94500 **Longitude:** -78.71500
Ground Directions: 3621 Bogie Island Rd.
Comments: Owned by Tommy West

WATER RESOURCES

Percent of Fire District in reach of hydrants or connected to county water: 25 - 49%

1 **Water Source:** Dudley's Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 34.95800 **Longitude:** -78.75000
Ground Directions: Located near the corner of Stedman Cedar Creek Rd. and John Hall Rd.

Comments:

---

2 **Water Source:** Underwood's Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 34.85900 **Longitude:** -78.79800
Ground Directions: North of Stedman Cedar Creek Rd. and Huffman Dr. junction.

Comments:

---

3 **Water Source:** Dennis Byrd Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 35.03300 **Longitude:** -78.80100
Ground Directions: Near Joy Rd. and Clinton Dr. junction.

Comments:

---

4 **Water Source:** Ronnie Mosely Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 35.05300 **Longitude:** -78.79700
Ground Directions: Located at Hummingbird Pl. and Nebular Rd. junction.

Comments:

---

5 **Water Source:** Week's Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 35.02600 **Longitude:** -78.81000
Ground Directions: On Sunnyside School Rd., east of Interstate 95.

Comments:

---

6 **Water Source:** Bayfield Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 35.04300 **Longitude:** -78.76900
Ground Directions: Near Baywood Rd.and NC Hwy 24 juction.

Comments: Owned by Joe Strickland

---

7 **Water Source:** Cape Fear River **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: River/Stream **Water Source Acess:** Private
Latitude: 34.96700 **Longitude:** -78.77300
Ground Directions: Located on the western border of Vander fire district.

Comments:

D. COMMUNITY INFORMATION

FIRE DISTRICT SIZE & DEMOGRAPHICS

Estimated Acres:	43,459	**Number of Lots:**	6,309
Number of Structures:	4,995	**Percentage Residential:**	50 %
Estimated Population Growth (next 30 Years):	Average		
Majority Population is Full-Time:	True	**If NOT Full Time please indicate what Percentage of Population is part-time**	

HAZARD ASSESSMENT RATING (from NFPA 1144):

WILDFIRE HISTORY & FUEL TYPE

Relative Frequency:	An estimate of 44 wildland fires per year
Common Causes:	Arson and debris burning
Area of Future Concern:	No Areas of Future Concern located at this time
Additional Comments:	No additional comments at this time
Dominant Vegetation (Fuel Type):	Timber
Dominant Building Construction Type:	Wood frame construction
Wildfire History or Fuel Type Notes:	

2) FIRE DISTRICT BASE MAP AND OTHER VISUALS

Minimally should include fire district boundary, major roads, fire Stations, ICPs, staging areas, medical facilities, helispots, water resources, and local, state, and federal ownership boundaries on the base map. May want to include: major land marks, police stations, evacuations routes, forest service offices, and large forest land parcel boundaries. Attach or insert community base map and other visuals.

3) RECOMMEDATIONS AND ACTION ITEMS

A. FUEL MITIGATION SITES

B. AREAS OF CONCERN

1 Area Name: AB Smith **Hazard Rating:** High

Latitude: 34.92000 **Longitude:** -78.72400 **Number of Homes:** 7 **Number of Lots:** 5

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Heavy fuel load in the area. Water sources are unavailable.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	0
Road Width	2
All-Season Road Cond.	0
Fire Service Access	0
Fire Service Turnaround	5
Street Signs	0

Vegetation

Predominant Veg.	25
Fuel Clearance Zone	25

Topography

Slope	1

Additional Rating Factors

Miscellaneous	7

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	5
Building Setback	0

Available Fire Protection

Water Source Avail.	10
Organized Response	1
Fixed Fire Protection	5

Placement of Utilities

Placement of Utilities	5

Total

Total Number of Scoresheets Completed	2
Total Points	94

Action Items

Action **Category:** Infrastructure Improvement

Planned Date | **Completed Date** | **Activity to be Completed by**: NCDFR

Pressurized hydrants needed in the area.

Notes:

Action **Category:** Fuel Reduction

Planned Date | **Completed Date** | **Activity to be Completed by**: NCFS and Private Contractors

Reduction of fuels would benefit the area.

Notes:

---

2 Area Name: Tabor Church/Johnson **Hazard Rating:** High

Latitude: 34.89808 **Longitude:** -78.78727 **Number of Homes:** 30 **Number of Lots:** 30

Dominant Fuel Type: Timber (Grass Understory) **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Cul-de-sacs are not present, pressurized water hydrants are unavailable

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	0	Predominant Veg.	20	Roof Composition	15	Placement of Utilities	5
Road Width	2	Fuel Clearance Zone	10	**Building Construction**		**Total**	
All-Season Road Cond.	0	**Topography**		Building Construction	5	Total Number of Scoresheets Completed	2
Fire Service Access	0	Slope	1	Building Setback	0	Total Points	84
Fire Service Turnaround	5	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	0	Miscellaneous	5	Water Source Avail.	10		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action	Category: Infrastructure Improvement	Planned Date	Completed Date	Activity to be Completed by
Cul-de-sacs are needed. Presseurized water hydrants are needed.				County and HOA

Notes:

3 Area Name: Fields Rd. **Hazard Rating:** High

Latitude: 34.99102 **Longitude:** -78.83825 **Number of Homes:** 30 **Number of Lots:** 30

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Fire hydrants are not available

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	0
Road Width	2
All-Season Road Cond.	0
Fire Service Access	0
Fire Service Turnaround	0
Street Signs	0

Vegetation

Predominant Veg.	20
Fuel Clearance Zone	3

Topography

Slope	1

Additional Rating Factors

Miscellaneous	19

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	5
Building Setback	0

Available Fire Protection

Water Source Avail.	10
Organized Response	1
Fixed Fire Protection	5

Placement of Utilities

Placement of Utilities	5

Total

Total Number of Scoresheets Completed	2
Total Points	74

Action Items

Action	Planned Date	Completed Date	Activity to be Completed by
Category: Infrastructure Improvement Pressurized water hydrants are needed in the area.			County

Notes:

4 Area Name: Sanderosa **Hazard Rating:** High

Latitude: 35.06675 **Longitude:** -78.77632 **Number of Homes:** 35 **Number of Lots:** 35

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: One way in and out. Pressurized water source unavailable.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	7
Road Width	0
All-Season Road Cond.	0
Fire Service Access	0
Fire Service Turnaround	0
Street Signs	0

Vegetation

Predominant Veg.	20
Fuel Clearance Zone	10

Topography

Slope	1

Additional Rating Factors

Miscellaneous	5

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	5
Building Setback	0

Available Fire Protection

Water Source Avail.	10
Organized Response	1
Fixed Fire Protection	5

Placement of Utilities

Placement of Utilities	5

Total

Total Number of Scoresheets Completed	2
Total Points	72

Action Items

Action	Planned Date	Completed Date	Activity to be Completed by
Category: Infrastructure Improvement Pressurized water hydrants needed in the area.			County

Notes:

5 Area Name: AB Carter **Hazard Rating:** High

Latitude: 35.00400 **Longitude:** -78.79400 **Number of Homes:** 100 **Number of Lots:** 0

Dominant Fuel Type: Timber (Grass Understory) **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Homes adjacent to pine plantations.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	0
Road Width	2
All-Season Road Cond.	0
Fire Service Access	0
Fire Service Turnaround	2
Street Signs	0

Vegetation

Predominant Veg.	20
Fuel Clearance Zone	10

Topography

Slope	1

Additional Rating Factors

Miscellaneous	7

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	10
Building Setback	0

Available Fire Protection

Water Source Avail.	5
Organized Response	1
Fixed Fire Protection	5

Placement of Utilities

Placement of Utilities	5

Total

Total Number of Scoresheets Completed	2
Total Points	71

Action Items

Action	Planned Date	Completed Date	Activity to be Completed by
Category: Fuel Reduction Reduction of fuels in the area.			NCFS and Private Contractors

Notes:

C. FIRE PREVENTION PROGRAMS

1 Project Name: Community Parades **Population Reached:** Vander Community

Project Description:

Age Group Targeted (select all that apply)	>50	50 - 35	34 - 20	19 - 15	14 - 10	9 - 6	<6
	True	True	True	True	True	True	True

Community(s) Targeted (if applicable):

Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
			Fire Department	Fire Department

Notes:

---

2 Project Name: Fire Prevention Week **Population Reached:** Sunnyside and Seabrooke Elementary Schools

Project Description:

Age Group Targeted (select all that apply)	>50	50 - 35	34 - 20	19 - 15	14 - 10	9 - 6	<6
	True	False	False	False	True	True	True

Community(s) Targeted (if applicable):

Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
	10/1/2009	10/1/2009	Fire Department	Fire Department

Notes:

D. PREPAREDNESS ACTIONS

1 Preparedness Item: New Equipment

Planning Office: Fire Department

Preparedness Need: New tankers and a rescue pumper.

Preparedness Action

Category Equipment Purchase

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
Replace their water tenders with new 2000 GPM water tenders.			State or Federal grants	Fire Department

Notes: No planning to date

---

4) ADDITIONAL COMMENTS:

The DOI for Vander Fire Distict does not appear in th DOI menu. Also, Flea Hill FD is now Eastover FD (for Mutual Aid).

5) ATTACHMENTS:

The
Gray's Creek Shelterwood #24
Community Wildfire Protection Plan

AN ACTION PLAN FOR WILDFIRE MITIGATION

Date: 6/30/2016

Prepared By: Craig Gottfried

Organization: North Carolina Forest Service

Contact Information:

Address: 1905 Baywood Rd
Eastover, NC 28312

Phone: 910-483-1535

E-Mail: craig.gottfried@ncagr.gov

Fax: 910-485-0944

DOI Name: GRAYS CREEK FD

DOI Number: NC10095444

This plan is a collaborative effort between various entities. The signing representatives listed in this plan comprise the core decision-making team responsible for this report and mutually agree on the plan's contents and are committed to act on its recommendations. The objectives are to set clear priorities for the implementation of wildfire mitigation in this fire district. This includes prioritized recommendations for the fire district as a whole and also for community members where appropriate.

CWPP Signature Page(s)

North Carolina Forest Service

Name: Craig Gottfried
Address: 1905 Baywood Rd
Eastover, NC 28312
Phone Number: 910-483-1535
E-Mail:
Signature: _____ Signed? Yes

County Fire Marshal

Name: Randy Beeman
Address: P. O. Box 1829
Fayetteville, NC 28302
Phone Number: 910-303-7566
E-Mail: rbeeman@co.cumberland.nc.us
Signature: _____ Signed? Yes

Fire Department Representative

Name: Joe Marsh
Address: 2661 Sandhill Rd
Fayetteville, NC 28306
Phone Number: 910-485-3793
E-Mail: gcfd2401@nc.rr.com
Signature: _____ Signed? Yes

The following federal and other interested parties were consulted and involved in the preparation of this report.

Name	Organization

Mutual Aid

Number	Name
NC10095202	COTTON FD
NC10095444	GRAYS CREEK FD
NC10095886	PEARCES MILL FD
NC10096210	SUNNYSIDE FD

PLAN CONTENTS

Gray's Creek Shelterwood #24

1) FIRE DISTRICT AND PRE-ATTACK INFORMATION

A. PRIMARY FIRE STATION:

County: Cumberland **County ID Number:** 026
Name: Gray's Creek Shelterwood #24
Latitude: 34.93100 **Longitude:** -78.85417
Street: 2661 Sandhill Rd
City: Fayetteville **State:** NC **Zip Code:** 28306
Mailing Address (if different):
City: **State:** **Zip Code:**
Phone Number: 910-483-1816 **Fax Number:** 910-483-7234
Email Address: gcfd24@nc.rr.com
Ground Directions: Near the intersection of Hwy 87 and Sandhill Rd

B. RESOURCE CAPACITY:

PERSONNEL

Number of Paid Firefighters:	4	**Number of Volunteer Firefighters:**	40
Number Trained in Wildland Fire:	15	**Number Trained in Fire Prevention:**	6
Number Trained in Hazard Assessment:	0	**Number of Pick Up Firefighters (if Applicable):**	37

EQUIPMENT

Apparatus Type	Description	Quantity
Engine Type 1	1250 GPM 1000 gallon	2
Engine Type 6	75 GPM 215 gallon	2
Engine Type 1	1250 GPM 1500 gallon	1

C. INCIDENT PLANS AND INTELLEGENCE

INCIDENT MANAGEMENT INFRASTRUCTURE LOCATION(S)

1 **Incident Command Post (ICP):** Gray's Creek Shelterwood #24
ICP Latitude: 34.93100 **ICP Longitude:** -78.85417
ICP Street Address: 2661 Sandhill Rd
City: Fayetteville **State:** NC **Zip Code:** 28306
Paved Parking Acres: 1 **Unpaved Parking Acres:** 0 **Entrances:** 2
 # Buildings: 3 **Indoor Square Footage:** 5594
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: On Hwy 87 South, turn right onto Sandhill Rd. Fire station is 100 ft on the right.

Comments:

1 **Staging Area:** Hwy 87 Foodlion Plaza
Latitude: 34.92997 **Longitude:** -78.85582
Street Address: 5102 NC Hwy 87 South
City: Fayetteville **State:** NC **Zip Code:** 28306
Paved Parking Acres: 1 **Unpaved Parking Acres:** 0 **Entrances:** 3
 # Buildings: **Indoor Square Footage:**
■ **Utilities (Water/Sewer)** ☐ **Telephone Service** ☐ **Internet Service**
Ground Directions: Hwy 87 and Sandhill Rd

Comments:

---

1 **Nearest Medical Facility:** Cape Fear Valley Medical Center
Latitude: 35.03220 **Longitude:** -78.93345 **Phone Number:** 910-615-4000
Street Address: 1638 Owen Drive
City: Fayetteville **State:** NC **Zip Code:** 28304
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ☐ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Take 53 north from Bladen. Continue on 210 west/north. Take 95 south. Take MLK Jr Fwy. Left on 401 BUS. Left onto Village Dr. Right on Owen Dr.

VEHICLE ACCESS

Roads Paved (Percentage): 75 - 99%
Average Road Grade: 0 - 9%
Maximum Road Grade: 0 - 9%
Maximum time to provide fire services to community: < 10 Minutes

AVIATION

Airport	Three Letter Designation
FAYETTEVILLE RGNL/GRANNIS FIELD	FAY

Manager:
Latitude: 34.99120 **Longitude:** -78.88030 ■ **Has Fuel: Jet A** ■ **Has Fuel: Aviation Gasoline**
CTAF/UNICOM: UNICOM: 122.95 **Elevation:** 189 ft
Runway: **Length** 7,709 ft **Width** 150 ft **Surface Type** Paved
Ground Directions:

HELICOPTER LANDING ZONES

1 **Helispot:** Gray's Creek Airport **Capacity:** Type 1 - 3
Latitude: 34.89833 **Longitude:** -78.84500
Ground Directions: 7154 Butler Nursery Rd.--Off Hwy 87, turn onto Butler Nursery Rd across from School Rd. Airport will be on the left about 0.3 miles.
Comments: Phone number 910-483-4114 Manager- Dale Smith

WATER RESOURCES

Percent of Fire District in reach of hydrants or connected to county water: 25 - 49%

1 **Water Source:** Cape Fear River **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: River/Stream **Water Source Acess:** Private
Latitude: 34.96700 **Longitude:** -78.77300
Ground Directions: Located on the western border of Vander fire district.

Comments:

---

2 **Water Source:** Fords Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** False **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 34.95317 **Longitude:** -78.80117
Ground Directions: Off McFayden Rd between Gainey Rd and Bulter Nursery Rd on the west side of road.

Comments:

---

3 **Water Source:** Gainey Rd Ponds **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 34.95553 **Longitude:** -78.78857
Ground Directions: At the end of Gainey Rd

Comments:

---

4 **Water Source:** Labrador Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 34.92706 **Longitude:** -78.88844
Ground Directions: End of Labrador Dr off Cypress Lakes Road.

Comments:

---

5 **Water Source:** Mathews Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** False **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 34.95417 **Longitude:** -78.84217
Ground Directions: At the corner of Hwy 87 north and Butler Nursery Rd.

Comments:

---

6 **Water Source:** Pates Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** False **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 34.91817 **Longitude:** -78.81800
Ground Directions: Turn on Blossom Rd off Hwy 87. Turn left at stop sign. Turn left onto dirt road about .75 mile in the curve.

Comments:

D. COMMUNITY INFORMATION

FIRE DISTRICT SIZE & DEMOGRAPHICS

Estimated Acres: 29,605 **Number of Lots:** 5,321

Number of Structures: 4,265 **Percentage Residential:** 90 %

Estimated Population Growth (next 30 Years): High

Majority Population is Full-Time: True **If NOT Full Time please indicate what Percentage of Population is part-time**

HAZARD ASSESSMENT RATING (from NFPA 1144): Moderate

WILDFIRE HISTORY & FUEL TYPE

Relative Frequency: An estimate of 6-8 wildfires a year.

Common Causes: debris burning, incediary

Area of Future Concern: Halsey Loop and Gray's Creek Ch Rd/Blossom Rd

Additional Comments:

Dominant Vegetation (Fuel Type): Southern Rough

Dominant Building Construction Type: wood frame

Wildfire History or Fuel Type Notes: Predominate vegetation type is southern rough.

2) FIRE DISTRICT BASE MAP AND OTHER VISUALS

Minimally should include fire district boundary, major roads, fire Stations, ICPs, staging areas, medical facilities, helispots, water resources, and local, state, and federal ownership boundaries on the base map. May want to include: major land marks, police stations, evacuations routes, forest service offices, and large forest land parcel boundaries. Attach or insert community base map and other visuals.

3) RECOMMEDATIONS AND ACTION ITEMS

A. FUEL MITIGATION SITES

1 Project Name: **Acres:**

Latitude: **Longitude:**

Landowner Name: **Dominant Fuel Type:**

Planning Office: **Risks:**

Mitigation Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by

Notes:

B. AREAS OF CONCERN

1 Area Name: Gray's Creek- Halsey Loop **Hazard Rating:** High

Latitude: 34.94949 **Longitude:** -78.86817 **Number of Homes:** 40 **Number of Lots:** 50

Dominant Fuel Type: Southern Rough **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Numerous homes next to large wood area.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	7
Road Width	4
All-Season Road Cond.	3
Fire Service Access	5
Fire Service Turnaround	5
Street Signs	5

Vegetation

Predominant Veg.	20
Fuel Clearance Zone	25

Topography

Slope	1

Additional Rating Factors

Miscellaneous	5

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	5
Building Setback	0

Available Fire Protection

Water Source Avail.	3
Organized Response	1
Fixed Fire Protection	5

Placement of Utilities

Placement of Utilities	3

Total

Total Number of Scoresheets Completed	1
Total Points	100

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Reduce fuel loads through controlled burning	Fuel Reduction	11/1/2017		NCFS or private contractor

Notes:

2 Area Name: Henry's Place Subdivision **Hazard Rating:** Moderate

Latitude: 34.90938 **Longitude:** -78.84879 **Number of Homes:** 41 **Number of Lots:** 46

Dominant Fuel Type: Southern Rough **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Subdivision as well as home parcels adjacent to large wood area.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	7
Road Width	0
All-Season Road Cond.	0
Fire Service Access	0
Fire Service Turnaround	0
Street Signs	3

Vegetation

Predominant Veg.	20
Fuel Clearance Zone	10

Topography

Slope	1

Additional Rating Factors

Miscellaneous	0

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	0
Building Setback	0

Available Fire Protection

Water Source Avail.	3
Organized Response	1
Fixed Fire Protection	1

Placement of Utilities

Placement of Utilities	3

Total

Total Number of Scoresheets Completed	1
Total Points	52

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Information and Education programs in the community.	Awareness			

Notes:

C. FIRE PREVENTION PROGRAMS

1 Project Name: Fire Prevention Week **Population Reached:** Gray's Creek area schools

Project Description: Smokey School Program

Age Group Targeted (select all that apply)	>50	50 - 35	34 - 20	19 - 15	14 - 10	9 - 6	<6
	True	False	False	False	False		True

Community(s) Targeted (if applicable): Gray's Creek

Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
	10/10/2016		State	NCFS

Notes:

D. PREPAREDNESS ACTIONS

1 Preparedness Item: Wildland Fire Suppression Training

Planning Office: NCFS

Preparedness Need: Wildland fire suppression training

Preparedness Action

Category Other

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
Train fire department in wildfire suppression and triage			State	NCFS

Notes:

---

4) ADDITIONAL COMMENTS:

Mutual Aid Gray's Creek FD station #18. Sunnyside FD is Vander FD

5) ATTACHMENTS:

The
Rockfish
Community Wildfire Protection Plan

AN ACTION PLAN FOR WILDFIRE MITIGATION

Date: 7/14/2009

Prepared By: Brandon Morgan

Organization: North Carolina Forest Service

Contact Information:

Address: 531 Cicero Beatty Road
Raeford, NC 28376

Phone: 910-875-2808

E-Mail: brandon.morgan@ncagr.gov

Fax:

DOI Name: ROCKFISH FD

DOI Number: NC10096009

This plan is a collaborative effort between various entities. The signing representatives listed in this plan comprise the core decision-making team responsible for this report and mutually agree on the plan's contents and are committed to act on its recommendations. The objectives are to set clear priorities for the implementation of wildfire mitigation in this fire district. This includes prioritized recommendations for the fire district as a whole and also for community members where appropriate.

CWPP Signature Page(s)

County Fire Marshal

Name: Bryan Marley
Address: 429 E. Central Avenue
Raeford, NC 28376
Phone Number: 910-308-1000
E-Mail: bmarley@hokecounty.org
Signature: _____ Signed? Yes

Fire Department Representative

Name: Todd Wood
Address: 7600 Philippi Church Road
Raeford, NC 28376
Phone Number: 910-875-4660
E-Mail: Rockfishfire@aol.com
Signature: _____ Signed? Yes

North Carolina Forest Service

Name: Jonathan McColl
Address: 531 Cicero Beatty Road
Raeford, NC 28376
Phone Number: 910-309-8954
E-Mail: jonathan.mccoll@ncagr.gov
Signature: _____ Signed? Yes

The following federal and other interested parties were consulted and involved in the preparation of this report.

Name	Organization

Mutual Aid

Number	Name
NC10095358	FAYETTEVILLE
NC10095876	PARKTON
NC10095957	PUPPY CREEK FD
NC10096196	STONEWALL FD
NC10096197	STONEY POINT 13 FD

PLAN CONTENTS

Rockfish

1) FIRE DISTRICT AND PRE-ATTACK INFORMATION

A. PRIMARY FIRE STATION:

County: Hoke **County ID Number:** 047
Name: Rockfish Fire Department
Latitude: 34.99207 **Longitude:** -79.06563
Street: 7600 Philippi Church Road
City: Raeford **State:** NC **Zip Code:** 28376
Mailing Address (if different):
City: **State:** **Zip Code:**
Phone Number: 910-875-4660 **Fax Number:** 910-875-6162
Email Address: rockfishfire@aol.com
Ground Directions: Corner of Phillippi Church Rd. and Rockfish Rd.

B. RESOURCE CAPACITY:

PERSONNEL

Number of Paid Firefighters:	3	**Number of Volunteer Firefighters:**	50
Number Trained in Wildland Fire:	12	**Number Trained in Fire Prevention:**	15
Number Trained in Hazard Assessment:	0	**Number of Pick Up Firefighters (if Applicable):**	0

EQUIPMENT

Apparatus Type	Description	Quantity
Engine Type 1	1000 gallons/ 1250 gpm	3
Engine Type 6	225 gallons/ 200 gpm	1
Rescue Vehicle	Equipment truck; no water capacity	1
First Responder Vehicle	Ford Excursion	1

C. INCIDENT PLANS AND INTELLEGENCE

INCIDENT MANAGEMENT INFRASTRUCTURE LOCATION(S)

1 **Incident Command Post (ICP):** Rockfish Primary Fire Department
ICP Latitude: 34.99207 **ICP Longitude:** -79.06563
ICP Street Address: 7600 Phillipi Church Road
City: Raeford **State:** NC **Zip Code:** 28376
Paved Parking Acres: 0 **Unpaved Parking Acres:** 1 **Entrances:** 2
 # Buildings: 2 **Indoor Square Footage:** 10700
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: Corner of Phillippi Church Rd. and Rockfish Rd.

Comments: 0.1 of paved parking. Most of the parking is done across the road and beside the fire department on a private lot. 1 acre of unpaved parking between these 2 acres.

1 **Staging Area:** Polymer Technologies Inc. (Rubber Plant)

Latitude: 34.99079 **Longitude:** -79.06831

Street Address: 140 School Rd.

City: Raeford **State:** NC **Zip Code:** 28376

Paved Parking Acres: 0 **Unpaved Parking Acres:** 1 **Entrances:** 2

 # Buildings: 1 **Indoor Square Footage:** 25000

■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**

Ground Directions: Corner of Phillippi Church Dr. and School Dr.

Comments: Telephone #: (910) 848-2000

1 **Nearest Medical Facility:** Cape Fear Valley Health Pavilion Hoke
Latitude: 35.03020 **Longitude:** -79.10680 **Phone Number:** 910-904-8025
Street Address: 300 Medical Pavilion Dr
City: Raeford **State:** NC **Zip Code:** 28376
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ☐ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: On Fayetteville Rd across from Paraclete.

---

2 **Nearest Medical Facility:** Cape Fear Valley Medical Center
Latitude: 35.03220 **Longitude:** -78.93345 **Phone Number:** 910-615-4000
Street Address: 1638 Owen Drive
City: Fayetteville **State:** NC **Zip Code:** 28304
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ☐ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Take 53 north from Bladen. Continue on 210 west/north. Take 95 south. Take MLK Jr Fwy. Left on 401 BUS. Left onto Village Dr. Right on Owen Dr.

---

3 **Nearest Medical Facility:** FirstHealth Hoke Community Hospital
Latitude: 35.02107 **Longitude:** -79.14963 **Phone Number:** 910-878-6000
Street Address: 6408 Fayetteville Rd
City: Raeford **State:** NC **Zip Code:** 28376
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions:

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4 **Nearest Medical Facility:** Moore Regional Hospital
Latitude: 35.20670 **Longitude:** -79.45699 **Phone Number:** 910-715-1000
Street Address: 155 Memorial Drive
City: Pinehurst **State:** NC **Zip Code:** 28374
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Located at intersection of Hwy. 211 and Memorial Drive in Moore County.

---

5 **Nearest Medical Facility:** UNC Hospital
Latitude: 35.90423 **Longitude:** -79.05000 **Phone Number:** 919-966-4131
Street Address: 101 Manning Drive
City: Chapel Hill **State:** NC **Zip Code:** 27514
Trauma Center Level: I ■ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: West on Durham-Chapel Hill Blvd. from I-40. Slight left on Fordham Blvd. Right on Manning Dr.

---

6 **Nearest Medical Facility:** Wake Medical Center
Latitude: 35.78400 **Longitude:** -78.58800 **Phone Number:** 919-350-8000
Street Address: 3000 New Bern Avenue
City: Raleigh **State:** NC **Zip Code:** 27610
Trauma Center Level: I ☐ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Located at the intersection of Luther Rd. and New Bern Ave.

VEHICLE ACCESS

Roads Paved (Percentage): 75 - 99%
Average Road Grade: 0 - 9%
Maximum Road Grade: 0 - 9%
Maximum time to provide fire services to community: < 10 Minutes

AVIATION

Airport	Three Letter Designation
P K AIRPARK	5W4

Manager:

Latitude: 35.01990 **Longitude:** -79.19100 ■ **Has Fuel: Jet A** ■ **Has Fuel: Aviation Gasoline**

CTAF/UNICOM: CTAF/UNICOM: 123.0 **Elevation:** 304 ft

Runway: Length 3,402 ft **Width** 60 ft **Surface Type** Paved

Ground Directions:

MOORE COUNTY SOP

Manager:

Latitude: 35.23800 **Longitude:** -79.38830 ■ **Has Fuel: Jet A** ■ **Has Fuel: Aviation Gasoline**

CTAF/UNICOM: CTAF/UNICOM: 123.05 **Elevation:** 459 ft

Runway: Length 6,502 ft **Width** 150 ft **Surface Type** Paved

Ground Directions:

HELICOPTER LANDING ZONES

1 **Helispot:** Rockfish Elementary School **Capacity:** Type 1 - 3
Latitude: 34.99476 **Longitude:** -79.08730
Ground Directions: Northside of Rockfish Rd., south of Galatia Church Rd.
Comments: Field next to the school parking lot. Rockfish Fire District

---

2 **Helispot:** D.R. Allen **Capacity:** Type 1 - 3
Latitude: 34.97685 **Longitude:** -79.07772
Ground Directions: West of Phillippi Church Rd.
Comments: Rockfish Fire District

WATER RESOURCES

Percent of Fire District in reach of hydrants or connected to county water: 75 - 99%

1 **Water Source:** McLauchlin Lake **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** True
Type: Lake **Water Source Acess:** Private (Restricted)
Latitude: 34.99533 **Longitude:** -79.07928
Ground Directions: Corner of Rockfish Rd. and Overlake Rd.

Comments: Rockfish Fire District

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2 **Water Source:** Wrights Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** False **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 34.97738 **Longitude:** -79.06683
Ground Directions: Corner of Sandy Bottom and King

Comments: Rockfish Fire District

---

3 **Water Source:** Twelve Oaks **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** False **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 34.99476 **Longitude:** -79.08730
Ground Directions: Corner of Lakeridge and Camden

Comments: Rockfish Fire District

D. COMMUNITY INFORMATION

FIRE DISTRICT SIZE & DEMOGRAPHICS

Estimated Acres: 10,002 **Number of Lots:** 3,250
Number of Structures: 2,894 **Percentage Residential:** 50 %
Estimated Population Growth (next 30 Years): High

Majority Population is Full-Time: True **If NOT Full Time please indicate what Percentage of Population is part-time**

HAZARD ASSESSMENT RATING (from NFPA 1144): High

WILDFIRE HISTORY & FUEL TYPE

Relative Frequency: Average 8-9 wildland fires per year
Common Causes: Debris burning
Area of Future Concern: No areas located at this time
Additional Comments: N/A
Dominant Vegetation (Fuel Type): Timber
Dominant Building Construction Type: Wood frame construction with asphalt shingles and vinyl siding
Wildfire History or Fuel Type Notes:

2) FIRE DISTRICT BASE MAP AND OTHER VISUALS

Minimally should include fire district boundary, major roads, fire Stations, ICPs, staging areas, medical facilities, helispots, water resources, and local, state, and federal ownership boundaries on the base map. May want to include: major land marks, police stations, evacuations routes, forest service offices, and large forest land parcel boundaries. Attach or insert community base map and other visuals.

3) RECOMMEDATIONS AND ACTION ITEMS

A. FUEL MITIGATION SITES

1 Project Name: Acres:

Latitude: **Longitude:**

Landowner Name: **Dominant Fuel Type:**

Planning Office: **Risks:**

Mitigation Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by

Notes:

B. AREAS OF CONCERN

1 Area Name: Camp Rockfish

Hazard Rating: Extreme

Latitude: 34.95069 **Longitude:** -79.05312 **Number of Homes:** 35 **Number of Lots:** 35

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Only one road in and out of subdivision. Non-surfaced narrow roads with no turnaround capabilities and long dead end roads. Minimal fuel clearance zone around homes. No pressurized water sources available.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	7	Predominant Veg.	20	Roof Composition	3	Placement of Utilities	5
Road Width	4	Fuel Clearance Zone	25	**Building Construction**		**Total**	
All-Season Road Cond.	3	**Topography**		Building Construction	10	Total Number of Scoresheets Completed	2
Fire Service Access	5	Slope	1	Building Setback	0	Total Points	119
Fire Service Turnaround	5	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	5	Miscellaneous	10	Water Source Avail.	10		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Introduce Firewise to the community	Awareness			NC Forest Service and Fire Department
Notes:				
Prescribe burn designated stands on Camp Rockfish to reduce fuel loading	Fuel Reduction	1/15/2015		NCFS
Notes:				
Mechanically reduce fuel loading in the woodland adajcent to the buidlings located on Camp Rockfish.	Fuel Reduction	7/16/2012	7/16/2012	NCFS ARRA Crew
Notes:				
Add an aditional entrance/exit to improve ingress and egress. Improve the quality and width of the roads	Infrastructure Improvement			County
Notes:				
Install a dry hydrant to provide a water source to fire departments.	Infrastructure Improvement	10/15/2010	10/15/2010	
Notes:				

2 Area Name: Arabia (Missionville Rd.)

Hazard Rating: Extreme

Latitude: 34.94909 **Longitude:** -79.06823 **Number of Homes:** 20 **Number of Lots:** 20

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Only one road available to access the community. Non-surfaced narrow roads with limited fire service access and no available turnarounds. Street signs are not present in this community. Minimal fuel clearance zone around homes. Water sources are not available.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	7	Predominant Veg.	20	Roof Composition	3	Placement of Utilities	5
Road Width	4	Fuel Clearance Zone	25	**Building Construction**		**Total**	
All-Season Road Cond.	3	**Topography**		Building Construction	10	Total Number of Scoresheets Completed	2
Fire Service Access	0	Slope	1	Building Setback	0	Total Points	114
Fire Service Turnaround	5	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	5	Miscellaneous	10	Water Source Avail.	10		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action	Planned Date	Completed Date	Activity to be Completed by
Category: Infrastructure Improvement			
Add an additional road to increase ingress and egress. Improve the quality and width of the roads. .			County
Notes:			

Action	Planned Date	Completed Date	Activity to be Completed by
Category: Fuel Reduction			
Increase fuel clearance zones around houses.			Homeowners
Notes:			

Action	Planned Date	Completed Date	Activity to be Completed by
Category: Infrastructure Improvement			
Install pressurized hydrants			Fire Department/County
Notes:			

Action	Planned Date	Completed Date	Activity to be Completed by
Category: Infrastructure Improvement			
Install metal/reflective street signs			Homeowners
Notes:			

3 Area Name: Myra **Hazard Rating:** High

Latitude: 34.95850 **Longitude:** -79.05709 **Number of Homes:** 42 **Number of Lots:** 57

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: One road in and out. Limited fire service access. No cul-de-sacs for fire and emergency service access. Limited water sources available for fire protection. Limited fuel clearance zoning around homes.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	7	Predominant Veg.	20	Roof Composition	3	Placement of Utilities	5
Road Width	3	Fuel Clearance Zone	20	**Building Construction**		**Total**	
All-Season Road Cond.	4	**Topography**		Building Construction	5	Total Number of Scoresheets Completed	2
Fire Service Access	5	Slope	1	Building Setback	0	Total Points	104
Fire Service Turnaround	5	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	0	Miscellaneous	15	Water Source Avail.	5		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action **Category:** Infrastructure Improvement — **Planned Date** — **Completed Date** — **Activity to be Completed by:** County

Improve the road conditions by paving and widening all roads and creating fire service access roads and turnarounds.

Notes:

Action **Category:** Awareness — **Planned Date** — **Completed Date** — **Activity to be Completed by:** NCFS and Fire Department

Introduce Firewise Program

Notes:

Action **Category:** Fuel Reduction — **Planned Date** — **Completed Date** — **Activity to be Completed by:** Homeowners

Encourage homeowners to create fuel clearance zones around their homes.

Notes:

Action **Category:** Infrastructure Improvement — **Planned Date** — **Completed Date** — **Activity to be Completed by:** County

Install pressurized hydrant.

Notes:

---

4 Area Name: Dogwood **Hazard Rating:** High

Latitude: 34.96645 **Longitude:** -79.09681 **Number of Homes:** 55 **Number of Lots:** 55

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Dead-end roads are 300ft in length or greater. No fire service turnarounds. Heavy fuel loading and no fuel clearance zones around homes.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	0
Road Width	4
All-Season Road Cond.	0
Fire Service Access	5
Fire Service Turnaround	5
Street Signs	0

Vegetation

Predominant Veg.	20
Fuel Clearance Zone	25

Topography

Slope	1

Additional Rating Factors

Miscellaneous	15

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	10
Building Setback	0

Available Fire Protection

Water Source Avail.	0
Organized Response	1
Fixed Fire Protection	5

Placement of Utilities

Placement of Utilities	5

Total

Total Number of Scoresheets Completed	2
Total Points	99

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Introduce Firewise Program	Awareness			NCFS and Fire Department

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Create fire service access roads with turnarounds. .	Infrastructure Improvement			County

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Encourage homeowners to create fuel clearance zones around their homes	Fuel Reduction			Homeowners

Notes:

5 Area Name: McLauchlin Lakes **Hazard Rating:** High

Latitude: 34.99412 **Longitude:** -79.08030 **Number of Homes:** 30 **Number of Lots:** 35

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Only one road in and out. No dry hydrant installed at McLauchlin Lake.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	7
Road Width	4
All-Season Road Cond.	3
Fire Service Access	5
Fire Service Turnaround	5
Street Signs	3

Vegetation

Predominant Veg.	20
Fuel Clearance Zone	10

Topography

Slope	1

Additional Rating Factors

Miscellaneous	10

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	5
Building Setback	0

Available Fire Protection

Water Source Avail.	10
Organized Response	1
Fixed Fire Protection	5

Placement of Utilities

Placement of Utilities	5

Total

Total Number of Scoresheets Completed	1
Total Points	97

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Introduce Firewise	Awareness			NCFS and Fire Department

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Install dry hydrant at Mclauchlin Lake	Infrastructure Improvement			County

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Construct an additional entrance/exit.	Infrastructure Improvement			County

Notes:

6 Area Name: Twelve Oaks **Hazard Rating:** High

Latitude: 34.95788 **Longitude:** -79.04144 **Number of Homes:** 89 **Number of Lots:** 109

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: One road in and out. Dead-end roads are greater than 300 ft. in length. Limited fuel clearance zoning around homes.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	7	Predominant Veg.	20	Roof Composition	3	Placement of Utilities	0
Road Width	2	Fuel Clearance Zone	20	**Building Construction**		**Total**	
All-Season Road Cond.	0	**Topography**		Building Construction	9	Total Number of Scoresheets Completed	2
Fire Service Access	5	Slope	1	Building Setback	0	Total Points	90
Fire Service Turnaround	2	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	0	Miscellaneous	15	Water Source Avail.	0		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Introduce Firewise program	Awareness			NC DFR and Fire Department.

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Create an additional entrance/exit to improve the ingress and egress.	Infrastructure Improvement			County

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Encourage homeowners to create fuel clearance zones around their homes.	Fuel Reduction			Homeowner

Notes:

7 Area Name: Country Walk **Hazard Rating:** High

Latitude: 34.99160 **Longitude:** -79.07296 **Number of Homes:** 160 **Number of Lots:** 160

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Only one road in and out of subdivision.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	7	Predominant Veg.	20	Roof Composition	3	Placement of Utilities	0
Road Width	2	Fuel Clearance Zone	15	**Building Construction**		**Total**	
All-Season Road Cond.	0	**Topography**		Building Construction	10	Total Number of Scoresheets Completed	2
Fire Service Access	5	Slope	1	Building Setback	0	Total Points	85
Fire Service Turnaround	0	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	0	Miscellaneous	15	Water Source Avail.	1		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action	Category: Awareness	Planned Date	Completed Date	Activity to be Completed by
Introduce Firewise				NC DFR and Fire Department

Notes:

Action	Category: Infrastructure Improvement	Planned Date	Completed Date	Activity to be Completed by
Add an aditional road for ingress and egress				County

Notes:

8 Area Name: Koonce Rd. **Hazard Rating:** High

Latitude: 34.99071 **Longitude:** -79.09238 **Number of Homes:** 10 **Number of Lots:** 40

Dominant Fuel Type: Hardwood Litter **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Only one road in and out of community with an unpaved and narrow road.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	7
Road Width	0
All-Season Road Cond.	7
Fire Service Access	5
Fire Service Turnaround	3
Street Signs	0

Vegetation

Predominant Veg.	25
Fuel Clearance Zone	3

Topography

Slope	1

Additional Rating Factors

Miscellaneous	10

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	5
Building Setback	0

Available Fire Protection

Water Source Avail.	3
Organized Response	1
Fixed Fire Protection	5

Placement of Utilities

Placement of Utilities	3

Total

Total Number of Scoresheets Completed	2
Total Points	81

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Introduce Firewise	Awareness			NC DFR and Fire Department

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Improve the quality and width of the roads. Add an additional road for ingress and egress.	Infrastructure Improvement			County

Notes:

9 Area Name: RavenWood **Hazard Rating:** High

Latitude: 34.98011 **Longitude:** -79.05318 **Number of Homes:** 1 **Number of Lots:** 6

Dominant Fuel Type: Timber **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: One road in and out.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	7	Predominant Veg.	20	Roof Composition	3	Placement of Utilities	0
Road Width	2	Fuel Clearance Zone	10	**Building Construction**		**Total**	
All-Season Road Cond.	0	**Topography**		Building Construction	10	Total Number of Scoresheets Completed	2
Fire Service Access	0	Slope	1	Building Setback	0	Total Points	76
Fire Service Turnaround	2	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	0	Miscellaneous	15	Water Source Avail.	0		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action	Category: Awareness	Planned Date	Completed Date	Activity to be Completed by
Introduce Firewise program				NC DFR and Fire Department

Notes:

Action	Category: Infrastructure Improvement	Planned Date	Completed Date	Activity to be Completed by
Create an additional entrance/exit to community.				County

Notes:

C. FIRE PREVENTION PROGRAMS

1 Project Name: Public Education **Population Reached:** Elementary Schools and Daycares

Project Description: Conduct fire prevention presentations.

Age Group Targeted (select all that apply)	>50	50 - 35	34 - 20	19 - 15	14 - 10	9 - 6	<6
	True	False	False	False	True	True	True

Community(s) Targeted (if applicable):

Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
	10/15/2013	10/15/2013	State	NCFS/Fire Department

Notes: These programs are conducte on an annual basis

D. PREPAREDNESS ACTIONS

1 Preparedness Item: New Equipment

Planning Office: Rockfish Fire Department

Preparedness Need: Equipment to aid in fighting grass/wildland fires is needed

Preparedness Action

Category Equipment Purchase

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
The Rockfish Fire Department has indicated that they are in need of: 2 Indian Back Packs Pumps 4 Fire Rakes 10 pairs of Goggles			Federal or State Grants	Rockfish Fire Department

Notes: No planning to date

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4) ADDITIONAL COMMENTS:

5) ATTACHMENTS: NC Community Assessment Scoresheet

The
Pine Hill
Community Wildfire Protection Plan

AN ACTION PLAN FOR WILDFIRE MITIGATION

Date: 7/13/2009

Prepared By: Brandon Morgan

Organization: North Carolina Forest Service

Contact Information:

Address: 531 Cicero Beatty Road
Raeford, NC 28376

Phone: 910-875-2808

E-Mail: brandon.morgan@ncagr.gov

Fax:

DOI Name: PINE HILL FD

DOI Number: NC10095908

This plan is a collaborative effort between various entities. The signing representatives listed in this plan comprise the core decision-making team responsible for this report and mutually agree on the plan's contents and are committed to act on its recommendations. The objectives are to set clear priorities for the implementation of wildfire mitigation in this fire district. This includes prioritized recommendations for the fire district as a whole and also for community members where appropriate.

CWPP Signature Page(s)

County Fire Marshal

Name: Bryan Marley
Address: 429 E. Central Avenue
Raeford, NC 28376
Phone Number: 910-308-1000
E-Mail: bmarley@hokecounty.org
Signature: _____ Signed? Yes

Fire Department Representative

Name: Tommy Jean Nelson
Address: 2685 Ashemont Road
Aberdeen, NC 28315
Phone Number: 910-695-5996
E-Mail: pinehill7@ windstream.net
Signature: _____ Signed? Yes

North Carolina Forest Service

Name: Jonathan McColl
Address: 531 Cicero Beatty Road
Raeford, NC 28376
Phone Number: 910-309-8954
E-Mail: jonathan.mccoll@ncagr.gov
Signature: _____ Signed? Yes

The following federal and other interested parties were consulted and involved in the preparation of this report.

Name	Organization

Mutual Aid

Number	Name
NC10094873	ABERDEEN
NC10095216	CRESTLINE FD
NC10095785	N RAEFORD FD
NC10095785	N RAEFORD FD
NC10095912	PINEBLUFF
NC10095957	PUPPY CREEK FD
NC10096308	W HOKE FD

PLAN CONTENTS

Pine Hill

1) FIRE DISTRICT AND PRE-ATTACK INFORMATION

A. PRIMARY FIRE STATION:

County: Hoke **County ID Number:** 047
Name: Pine Hill
Latitude: 35.05468 **Longitude:** -79.38600
Street: 2685 Ashemont Road
City: Aberdeen **State:** NC **Zip Code:** 28315
Mailing Address (if different): PO Box 486
City: Aberdeen **State:** NC **Zip Code:**
Phone Number: 910-281-3876 **Fax Number:** 910-281-0699
Email Address: pinehill7@windstream.net
Ground Directions: From Hwy 211 turn onto Ashemont Rd. the department in located on the corner of Ashemont and Callaway

B. RESOURCE CAPACITY:

PERSONNEL

Number of Paid Firefighters:	1	**Number of Volunteer Firefighters:**	22
Number Trained in Wildland Fire:	1	**Number Trained in Fire Prevention:**	23
Number Trained in Hazard Assessment:	3	**Number of Pick Up Firefighters (if Applicable):**	0

EQUIPMENT

Apparatus Type	Description	Quantity
Engine Type 1	1250 gpm/ 1000 gallons	2
Engine Type 6	250 gallons	2
Cargo Van	Equipment van; no water capacity	1
Water Tender Type 3	1230 gpm/ 1000 gallons	1

C. INCIDENT PLANS AND INTELLEGENCE

INCIDENT MANAGEMENT INFRASTRUCTURE LOCATION(S)

1 Incident Command Post (ICP): Pine Hill Fire Department
ICP Latitude: 35.05468 **ICP Longitude:** -79.38600
ICP Street Address: 2685 Ashemont Road
City: Aberdeen **State:** NC **Zip Code:** 28315
Paved Parking Acres: 1 **Unpaved Parking Acres:** 3 **Entrances:** 2
 # Buildings: 1 **Indoor Square Footage:** 6000
■ **Utilities (Water/Sewer)** ■ **Telephone Service** ■ **Internet Service**
Ground Directions: From Hwy 211, turn onto Ashemont Rd. The station is located at the corner of Ashemont and Calloway
Comments:

1 Staging Area: Carolina Horsepark
Latitude: 35.01799 **Longitude:** -79.36378
Street Address: 2814 Montrose Rd.
City: Aberdeen **State:** NC **Zip Code:** 28315
Paved Parking Acres: 0 **Unpaved Parking Acres:** 4 **Entrances:** 0
 # Buildings: 0 **Indoor Square Footage:** 0
☐ **Utilities (Water/Sewer)** ☐ **Telephone Service** ☐ **Internet Service**
Ground Directions: Intersection of Calloway Rd and Montrose Rd in Western Hoke Co. 5 Points Community. 4 miles from NC 211 and Calloway Rd. intersection.
Comments: Large open field in Pinehill Fire District

---

1 Nearest Medical Facility: Moore Regional Hospital
Latitude: 35.20670 **Longitude:** -79.45699 **Phone Number:** 910-715-1000
Street Address: 155 Memorial Drive
City: Pinehurst **State:** NC **Zip Code:** 28374
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Located at intersection of Hwy. 211 and Memorial Drive in Moore County.

---

2 Nearest Medical Facility: Cape Fear Valley Medical Center
Latitude: 35.03220 **Longitude:** -78.93345 **Phone Number:** 910-615-4000
Street Address: 1638 Owen Drive
City: Fayetteville **State:** NC **Zip Code:** 28304
Trauma Center Level: NA ☐ **Facility Has Burn Unit** ☐ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Take 53 north from Bladen. Continue on 210 west/north. Take 95 south. Take MLK Jr Fwy. Left on 401 BUS. Left onto Village Dr. Right on Owen Dr.

---

3 Nearest Medical Facility: UNC Hospital
Latitude: 35.90423 **Longitude:** -79.05000 **Phone Number:** 919-966-4131
Street Address: 101 Manning Drive
City: Chapel Hill **State:** NC **Zip Code:** 27514
Trauma Center Level: I ■ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: West on Durham-Chapel Hill Blvd. from I-40. Slight left on Fordham Blvd. Right on Manning Dr.

---

4 Nearest Medical Facility: Wake Medical Center
Latitude: 35.78400 **Longitude:** -78.58800 **Phone Number:** 919-350-8000
Street Address: 3000 New Bern Avenue
City: Raleigh **State:** NC **Zip Code:** 27610
Trauma Center Level: I ☐ **Facility Has Burn Unit** ■ **Facility Has Air Service**
Medical Facility Type: Primary Care (Hospital)
Ground Directions: Located at the intersection of Luther Rd. and New Bern Ave.

VEHICLE ACCESS

Roads Paved (Percentage): 75 - 99%
Average Road Grade: 0 - 9%
Maximum Road Grade: 0 - 9%
Maximum time to provide fire services to community: < 10 Minutes

AVIATION

Airport	Three Letter Designation
P K AIRPARK	5W4

Manager:

Latitude: 35.01990 **Longitude:** -79.19100 ■ **Has Fuel: Jet A** ■ **Has Fuel: Aviation Gasoline**

CTAF/UNICOM: CTAF/UNICOM: 123.0 **Elevation:** 304 ft

Runway: Length 3,402 ft **Width** 60 ft **Surface Type** Paved

Ground Directions:

MOORE COUNTY SOP

Manager:

Latitude: 35.23800 **Longitude:** -79.38830 ■ **Has Fuel: Jet A** ■ **Has Fuel: Aviation Gasoline**

CTAF/UNICOM: CTAF/UNICOM: 123.05 **Elevation:** 459 ft

Runway: Length 6,502 ft **Width** 150 ft **Surface Type** Paved

Ground Directions:

HELICOPTER LANDING ZONES

1 **Helispot:** Armando's Grill **Capacity:** Type 1 - 3

Latitude: 35.04904 **Longitude:** -79.43457

Ground Directions: Located on the corner of 15-501 and Ashemont Rd.

Comments: Pinehill Fire District

---

2 **Helispot:** Ashely Heights Baptist Church Field **Capacity:** Type 1 - 3

Latitude: 35.09025 **Longitude:** -79.37022

Ground Directions: Located on the corner of Pinehurst and Worth St.

Comments: Pinehill Fire District

WATER RESOURCES

Percent of Fire District in reach of hydrants or connected to county water: 75 - 99%

1 **Water Source:** Pine Hill Fire Department Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** False **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 35.05634 **Longitude:** -79.38517
Ground Directions: Located behind the Pine Hill fire department on Ashemont Rd.

Comments: Pinehill Fire District

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2 **Water Source:** Billy William's Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** False **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 35.08042 **Longitude:** -79.40196
Ground Directions: Corner of Quewhiffle Rd. and Reservation Rd.

Comments: Pinehill Fire Distrct

---

3 **Water Source:** Loop Rd. Pond **Contact Telephone:**
Uses: **Ground:** True **Helicopter:** True **Fixed-Wing Use:** False
Type: Pond **Water Source Acess:** Private (Restricted)
Latitude: 35.03655 **Longitude:** -79.38011
Ground Directions: Located on the corner of Loop Rd. and Montrose

Comments: Pinehill Fire District

D. COMMUNITY INFORMATION

FIRE DISTRICT SIZE & DEMOGRAPHICS

Estimated Acres: 20,669 **Number of Lots:** 1,450
Number of Structures: 1,001 **Percentage Residential:** 25 %
Estimated Population Growth (next 30 Years): Average

Majority Population is Full-Time: True **If NOT Full Time please indicate what Percentage of Population is part-time**

HAZARD ASSESSMENT RATING (from NFPA 1144): High

WILDFIRE HISTORY & FUEL TYPE

Relative Frequency: 10-15 wildland fires per year
Common Causes: Debris burning and incendiary
Area of Future Concern:
Additional Comments:
Dominant Vegetation (Fuel Type): Timber (Grass Understory)
Dominant Building Construction Type: Wood frame construction, asphalt shingles and vinyl siding
Wildfire History or Fuel Type Notes:

2) FIRE DISTRICT BASE MAP AND OTHER VISUALS

Minimally should include fire district boundary, major roads, fire Stations, ICPs, staging areas, medical facilities, helispots, water resources, and local, state, and federal ownership boundaries on the base map. May want to include: major land marks, police stations, evacuations routes, forest service offices, and large forest land parcel boundaries. Attach or insert community base map and other visuals.

3) RECOMMEDATIONS AND ACTION ITEMS

A. FUEL MITIGATION SITES

1 Project Name: HJ Blue Farm — Acres: 3,500

Latitude: 35.04152 **Longitude:** -79.39555
Landowner Name: H.J. Blue **Dominant Fuel Type:** Timber (Grass Understory)
Planning Office: HJ Blue Farm **Risks:** Large area of long-leaf pines and loblolly

Mitigation Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
Prescribed burning	1/10/2015		Private landowner	NC Forest Service

Notes: This area has been indicated as an Area of Concern but no assessments were done because there are no houses or structures on the property.

2 Project Name: Nature Conservancy Land — Acres: 250

Latitude: 35.04414 **Longitude:** -79.36224
Landowner Name: The Nature Conservancy **Dominant Fuel Type:** Timber (Grass Understory)
Planning Office: The Nature Conservancy **Risks:** Large area of long-leaf pines and loblolly

Mitigation Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
Prescribed burning	1/10/2015		The Nature Conservancy	NC Forest Service and Nature Conservancy

Notes: This area has been indicated as an Area of Concern but no assessments were done because there are no houses or structures on the property.

3 Project Name: NC Department of Agriculture — Acres: 300

Latitude: 35.06715 **Longitude:** -79.36028
Landowner Name: State Of North Carolina **Dominant Fuel Type:** Timber (Grass Understory)
Planning Office: North Carolina Department Of Agriculture **Risks:** Large area of long-leaf pines and loblolly

Mitigation Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
Prescribed burning	1/10/2015		Federal	US Department of Agriculture

Notes: This area has been indicated as an Area of Concern but no assessments were done because there are no houses or structures on the property.

B. AREAS OF CONCERN

1 Area Name: Nighthawk Loop **Hazard Rating:** Extreme

Latitude: 35.06907 **Longitude:** -79.42485 **Number of Homes:** 30 **Number of Lots:** 0

Dominant Fuel Type: Timber (Grass Understory) **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Unpaved and narrow roads consisting of deep sand; houses are not clearly marked with street addresses; no water sources available

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	7	Predominant Veg.	25	Roof Composition	3	Placement of Utilities	5
Road Width	4	Fuel Clearance Zone	10	**Building Construction**		**Total**	
All-Season Road Cond.	7	**Topography**		Building Construction	5	Total Number of Scoresheets Completed	1
Fire Service Access	5	Slope	1	Building Setback	0	Total Points	118
Fire Service Turnaround	5	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	5	Miscellaneous	20	Water Source Avail.	10		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Street Adress signs present and install road signs	Infrastructure Improvement			homeowners

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Pave and widen roads; install at least one pressurized hydrant	Fuel Reduction			County

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Reduce fuels by mowing and doing prescribed burning in the surrounding area.	Fuel Reduction			NC DFR

Notes:

2 Area Name: Paradise Ln. (located off of Horseshoe Rd.) **Hazard Rating:** Extreme

Latitude: 35.07525 **Longitude:** -79.40750 **Number of Homes:** 10 **Number of Lots:** 5

Dominant Fuel Type: Timber (Grass Understory) **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Unpaved and narrow dirt roads; no turnarounds, overgrown grasses and trees; one road in and out; no water sources

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	7
Road Width	4
All-Season Road Cond.	7
Fire Service Access	5
Fire Service Turnaround	5
Street Signs	5

Vegetation

Predominant Veg.	25
Fuel Clearance Zone	10

Topography

Slope	1

Additional Rating Factors

Miscellaneous	20

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	5
Building Setback	0

Available Fire Protection

Water Source Avail.	10
Organized Response	1
Fixed Fire Protection	5

Placement of Utilities

Placement of Utilities	5

Total

Total Number of Scoresheets Completed	1
Total Points	118

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Reduce fuel loading around houses and increase defensible space.	Fuel Reduction	1/10/2015		Homeowners

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Install at least one hydrant; pave and widen roads; construct a turnaround.	Infrastructure Improvement			County

Notes:

3 Area Name: Horseshoe Rd. **Hazard Rating:** High

Latitude: 35.08192 **Longitude:** -79.40450 **Number of Homes:** 30 **Number of Lots:** 0

Dominant Fuel Type: Timber (Grass Understory) **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: One road in and one road out. Narrow roads with no fire service turnarounds or access roads. No street signs present.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access

Ingress and Egress	7
Road Width	4
All-Season Road Cond.	0
Fire Service Access	5
Fire Service Turnaround	5
Street Signs	5

Vegetation

Predominant Veg.	20
Fuel Clearance Zone	3

Topography

Slope	1

Additional Rating Factors

Miscellaneous	15

Roofing Assembly

Roof Composition	3

Building Construction

Building Construction	5
Building Setback	0

Available Fire Protection

Water Source Avail.	1
Organized Response	1
Fixed Fire Protection	5

Placement of Utilities

Placement of Utilities	5

Total

Total Number of Scoresheets Completed	1
Total Points	85

Action Items

Action **Category:** Awareness — **Planned Date** — **Completed Date** — **Activity to be Completed by:** NCFSand Fire Department

Introduce Firewise Program

Notes:

Action **Category:** Infrastructure Improvement — **Planned Date** — **Completed Date** — **Activity to be Completed by:** Homeowners

Include metal and reflective steet signs throughout the community. Create fire service turnarounds and access roads. Create an additional entrance and exit to improve ingress and egress.

Notes:

---

4 Area Name: Loop Rd. **Hazard Rating:** High

Latitude: 35.03621 **Longitude:** -79.37460 **Number of Homes:** 100 **Number of Lots:** 0

Dominant Fuel Type: Timber (Grass Understory) **Contact Person:**

Address:

City: **State:** **Zip Code:**

Dominant Risk: Fuel zones around homes. Private drives/roads narrow and no turnarounds.

Notes:

Wildfire Hazard & Risk Assessment - Average Scores

Means of Access		Vegetation		Roofing Assembly		Placement of Utilities	
Ingress and Egress	7	Predominant Veg.	25	Roof Composition	3	Placement of Utilities	5
Road Width	0	Fuel Clearance Zone	10	**Building Construction**		**Total**	
All-Season Road Cond.	0	**Topography**		Building Construction	5	Total Number of Scoresheets Completed	1
Fire Service Access	0	Slope	1	Building Setback	0	Total Points	75
Fire Service Turnaround	0	**Additional Rating Factors**		**Available Fire Protection**			
Street Signs	0	Miscellaneous	10	Water Source Avail.	3		
				Organized Response	1		
				Fixed Fire Protection	5		

Action Items

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Increase widths or private drives, and create turnarounds.	Infrastructure Improvement			homeowners

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Complete fuel reduction measures, and increase defensible space around homes.	Fuel Reduction			homeowners

Notes:

Action	Category:	Planned Date	Completed Date	Activity to be Completed by
Introduce Firewise	Awareness			NC DFR and Fire Department

Notes:

C. FIRE PREVENTION PROGRAMS

1 Project Name: Church Outreach **Population Reached:** Local Church Communities

Project Description: Fire Prevention

Age Group Targeted (select all that apply)	>50	50 - 35	34 - 20	19 - 15	14 - 10	9 - 6	<6
	True	True	True	True	True	True	True

Community(s) Targeted (if applicable):

Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
	1/10/2015		Fire Department	Fire Department

Notes:

---

2 Project Name: Elementary School Outreach **Population Reached:** Elementary Schools

Project Description: School Outreach programs.

Age Group Targeted (select all that apply)	>50	50 - 35	34 - 20	19 - 15	14 - 10	9 - 6	<6
	True	False	False	False	True	True	True

Community(s) Targeted (if applicable):

Action

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
			fire department	fire department

Notes: The fire department wishes to continue their public education programs.

D. PREPAREDNESS ACTIONS

1 Preparedness Item: Equipment Purchase

Planning Office: Pinehill Fire Department

Preparedness Need: New Brush Truck

Preparedness Action

Category Equipment Purchase

Action	Planned Date	Completed Date	Funding Source	Activity to be Completed by
The Pine Hill fire department is looking into grants to purchase a new brush truck (300 gallons/ 100 gpm) for their station.	7/1/2009		Federal or State grants	Pine Hill fire department

Notes: The fire department has not yet completed this grant

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4) ADDITIONAL COMMENTS:

5) ATTACHMENTS: NC Community Assessment Scoresheet