US 701 BUSINESS (MADISON STREET) AT SOULES SWAMP PROJECT

NCDOT, Priority 7

HAZARD MITIGATION PLAN



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

OCTOBER 2026

BLADEN + COLUMBUS + ROBESON COUNTIES | NC



REGIONAL

HAZARD MITIGATION

PLAN

INSIGHT PLANNING + DEVELOPMENT AECOM ESP

DRAFT | JULY 2025

Table of Contents

Section 1: Introduction **1-1**

Section 2: Planning Process **2-1**

Section 3: Planning Area Profile **3-1**

Section 4: Hazard Identification **4-1**

Section 5: Hazard Profiles **5-1**

Section 6: Vulnerability Assessment **6-1**

Section 7: Capability Assessment **7-1**

Section 8: Mitigation Strategy **8-1**

Section 9: Mitigation Action Plans **9-1**

Section 10: Plan Maintenance and Procedures **10-1**

Appendix A: Plan Adoption **A-1**

Appendix B: Local Hazard Mitigation Plan Update Checklist **B-1**

Appendix C: State and Federal Approval Letters **C-1**

Appendix D: Public Outreach Documentation **D-1**

Appendix E: Project Information Fact Sheet **E-1**

Appendix F: Public Participation Survey Results **F-1**

Appendix G: Copies of Meeting Agendas, Sign-in Sheets, and PowerPoint Slides **G-1**

SECTION 1: INTRODUCTION

Section 1 introduces the Bladen-Columbus-Robeson 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
- 1.6 Organization of the Plan

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)and the Flood Mitigation Assistance (FMA) Program, both 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 4 and North Carolina 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 The Bladen-Columbus-Robeson Region 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 and FMA programs.

1.3 Scope

This document comprises a Hazard Mitigation Plan Update for Bladen, Columbus and Robeson Counties in North Carolina.

The jurisdictions participating in this plan are the Unincorporated Areas of Bladen County: Towns of Bladenboro, Clarkton, Dublin, East Arcadia, Elizabethtown, Tar Heel, White Lake; Unincorporated Areas of Columbus County: Towns of Boardman, Bolton, Brunswick, Cerro Gordo, Chadbourn, Fair Bluff, Lake Waccamaw, Sandyfield and cities of Tabor City and Whiteville; Unincorporated Areas of Robeson County:; the City of Lumberton; and the Towns of Fairmont, Lumber Bridge, Marietta, Maxton, McDonald, Orrum, Parkton, Pembroke, Proctorville, Raynham, Red Springs, Rennert, Rowland, and St. Pauls.

Bladen County	Columbus County	Robeson County
Bladenboro	Boardman	Lumberton
Clarkton	Bolton	Fairmont
Dublin	Brunswick	Lumber Bridge
East Arcadia	Cerro Gordo	Marietta
Elizabethtown	Chadbourn	Maxton
Tar Heel	Fair Bluff	McDonald
White Lake	Lake Waccamaw	Orrum
	Sandyfield	Parkton
	Tabor City	Pembroke
	Whiteville	Proctorville
		Raynham
		Red Springs
		Rennert
		Rowland
		St. Pauls

1.4 Authority

This Hazard Mitigation Plan Update will be adopted by Bladen, Columbus and Robeson 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 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).

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).
- Also utilized the Local Mitigation Panning Handbook, 2025. The Handbook was used together with the Local Mitigation Planning Policy Guide , April 2025. The handbook offers practical approaches and examples for how communities can engage in effective planning to reduce long-term risk from natural hazards and disasters.

1.5 Plan Update

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 Bladen-Columbus and Robeson County Hazard Mitigation Plans contained risk assessments of identified hazards for the jurisdictions and mitigation strategies to address the risks and vulnerabilities from these hazards. Since that time, progress has been made by all participating jurisdictions on implementation of the mitigation strategies. This section includes an overview of the approach to updating the plan and identifies new analyses and information included in this plan update.

1.5.1 What's New in the Plan

The plan update involved a comprehensive review and update of each section of the previous plans and an assessment of the success of the participating jurisdictions in evaluating, monitoring and implementing the mitigation strategy outlined in their existing plans. The decision was made to create one regional mitigation plan (Bladen-Columbus-Robeson Regional Plan) in order to accomplish the following planning goals:

- Continue to support a more holistic regional planning effort, considering shared concerns and shareable resources;
- Conform to NCEM's preference for regional hazard mitigation planning in the state; and
- Leverage available funding and resources for mitigation planning.

Although this is not the first version of the regional hazard mitigation plan, it builds on the foundation established during the previous planning cycle, which was the first to combine separate plans for Bladen, Columbus, and Robeson Counties into a single regional document. This 2025 update reflects a continued commitment to regional coordination and includes comprehensive revisions that address changes in local development, updated hazard data, and evolving mitigation priorities.

Key Elements from previously approved county-level plans, such as mitigation actions and capability assessments remain integrated throughout the plan. However, all sections have been

reviewed and updated to incorporate the most current information available. Risk assessment components were revised using recent hazard and vulnerability data and were standardized across the regional planning area. Regional goals and mitigation strategies have also been re-evaluated to ensure alignment with current conditions and community priorities.

The Capability Assessment reflects updated capabilities for all participating jurisdictions, and the Mitigation Action Plan provides status updates for previously identified actions while introducing new actions based on this cycle's findings. The result is a fully updated regional plan that continues to meet the requirements of the Disaster Mitigation Act of 2000 and FEMA's current planning guidance.

- 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.

Table 1-1 provides a comparison of the hazards addressed in the 2023 State of North Carolina HMP as well as the existing plans for Bladen, Columbus and Robeson Counties. A final decision was made by the Mitigation Action Committee (MAC) as to which hazards should be included in the combined plan as noted in the table below.

Table 1-1: Comparison of Hazards for Plan Update

Hazards Included in Previous Plans				Final MAC Decision – Include in Bladen Columbus Robeson Plan?
State of North Carolina HMP	**Bladen County HMP**	**Columbus County HMP**	**Robeson County HMP**	
Flooding	Flooding	Flooding	Flooding	Yes
Earthquake	Earthquakes	Earthquakes	Earthquakes	Yes
Hurricanes and Coastal Hazards	Hurricanes	Hurricanes	Hurricanes	Yes
Severe Winter Weather	Severe Winter Storms	Severe Winter Storms	Severe Winter Storms	Yes
Wildfire	Wildfire	Wildfire	Wildfire	Yes
Dam Failures	Dam/Levee Failure	Dam/Levee Failure	Dam/Levee Failure	Yes
Drought	heat waves	Drought/heatwaves	Droughts/heat waves	Yes
Geological	N/A	N/A	N/A	Yes
Tornadoes/ Thunderstorms	Tornadoes; Thunderstorms/ lightning/hail	Tornadoes; Thunderstorms/ lightning/hail	Tornadoes Thunderstorms	Yes

For the 2025 update, the Mitigation Action Committee decided to add new hazards to the plan. These include Excessive Heat, Cyber and Infectious Disease (each of these are also included in the State of North Caroliona Hazard Mitigation Plan).

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 the Region.
- A discussion on climate change and its projected effect on specific hazards was included in Chapter 5 Hazard Profiles.
- The discussion on growth and development trends was enhanced utilizing current Census data.
- 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.

1.5.2 Past Goals Update

Table 1-2 provides a summary of updates to the goals from the Regional Plan as decided by the MAC. The revised goals for the Plan Update can be found in Section 8 – Mitigation Strategy.

Table 1-2: Summary of Updates to Existing Goals

Existing Goals	Counties	Carried Forward	Revised	Deleted	Plan Update Notes
Goal 1 Promote the public health, safety, and general welfare of residents and minimize public and private losses due to natural hazards.	Bladen	X			Replaced with revised Goal #1
	Columbus	X			
	Robeson		X		
Goal 2 Reduce the risk and impact of future natural disasters by regulating development in known high hazard areas.	Bladen	X			Deemed to still be applicable and relevant to the plan update
	Columbus	X			
	Robeson	X			
Goal 3 Pursue funds to reduce the risk of natural hazards to existing developments where such hazards are clearly identified, and the mitigation efforts are cost-effective.	Bladen	X			Deemed to still be applicable to the plan update
	Columbus	X			
	Robeson	X			
Goal 4 Effectively expedite post-disaster reconstruction.	Bladen	X			Replaced with new goal #4
	Columbus	X			
	Robeson			X	

Existing Goals	Counties	Carried Forward	Revised	Deleted	Plan Update Notes
Goal 5 Provide education to citizens that empower them to protect themselves and their families from natural hazards.	Bladen	X			Deemed to still be applicable and relevant to the plan update
	Columbus	X			
	Robeson	X			
Goal 6 Protect fragile natural and scenic areas of the county, particularly those that protect drinking water supplies.	Bladen	X			Replaced with revised Goal #6
	Columbus	X			
	Robeson		X		

1.5.3 Past Mitigation Strategy Update

Details on mitigation projects carried forward from the previous plans into this plan update as well as new projects, can be found in Section 9 – Mitigation Action Plan.

1.6 Organization of the Plan

The Regional Hazard Mitigation Plan is organized as follows:

- Section 1 – Introduction
- Section 2 – Planning Process
- Section 3 – Community Profile
- Section 4 – Hazard Identification
- Section 5 – Hazard Profiles
- Section 6 – Vulnerability Assessment
- Section 7 – Capability Assessment
- Section 8 – Mitigation Strategy
- Section 9 – Mitigation Action Plan
- Section 10 – Plan Maintenance
- Appendix A – Adoptions
- Appendix B – Local Mitigation Plan Review Tool
- Appendix C – Approval Letters
- Appendix D – Public Outreach
- Appendix E – Project Information Fact Sheet
- Appendix F - Public Survey
- Appendix G - Meeting Files
- Appendix H – CWPPs (Community Wildfire Protection Plans)

SECTION 2: PLANNING PROCESS

This section describes the planning process undertaken to develop the 2025 update of the Bladen Columbus Robeson Regional Hazard Mitigation Plan. Copies of the 2020 plan can be obtained by contacting each county emergency management office or NCEM's Hazard Mitigation Planning Section.

This section consists of the following eight subsections:

- 2.1 Overview of Hazard Mitigation Planning
- 2.2 History of Hazard Mitigation Planning in the Bladen Columbus Robeson Region
- 2.3 Updating the Plan in 2025
- 2.4 Bladen Columbus Robeson Regional Mitigation Action Committee
- 2.5 Community Meetings and Workshops
- 2.6 Involving the Public
- 2.7 Involving the Stakeholders
- 2.8 Documentation of Plan Progress

44 CFR Requirement
44 CFR Part 201.6(c)(1): The plan shall include documentation of the planning process used to develop the plan, including how it was prepared, who was involved in the process and how the public was involved.

2.1 OVERVIEW OF HAZARD MITIGATION PLANNING

Local hazard mitigation planning is the process of organizing community resources, identifying and assessing hazard risks, and then determining how to best minimize or manage those risks. This process informs the development of the hazard mitigation plan, and more specifically, identifies specific mitigation actions to effectively address existing and evolving risks. Each mitigation action is designed to achieve both short-term goals and a long-term vision for the community.

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

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

- Saving lives and property,
- Saving money,
- Speeding recovery following disasters,
- Reducing future vulnerability through wise development and post-disaster recovery and reconstruction,

- Expediting the receipt of pre-disaster and post-disaster grant funding, and
- Demonstrating a firm commitment to improving community health and safety.

Mitigation planning is intended to create long-term and ongoing benefits by breaking the cycle of disaster-related losses. A fundamental belief in hazard mitigation is that investments made before a disaster occurs can significantly reduce the need for post-disaster assistance by decreasing the demand for emergency response, repairs, recovery, and reconstruction. Additionally, effective mitigation practices enable residents, businesses, and industries to recover more quickly after a disaster, allowing the community's economy to get back on track sooner and with fewer interruptions.

The advantages of mitigation planning extend beyond merely reducing vulnerability to hazards. Measures such as acquiring or regulating land in high-risk areas can help achieve multiple community objectives (commonly referred to as co-benefits), including preserving open spaces, maintaining environmental health, and enhancing recreational opportunities. Therefore, it is crucial that any local mitigation planning process is integrated with other ongoing local planning efforts. Proposed mitigation strategies must also consider existing community goals and initiatives that could either support or impede their future implementation.

2.2 HISTORY OF HAZARD MITIGATION PLANNING IN THE BLADEN COLUMBUS ROBESON REGION

Prior to the development of the Bladen Columbus Robeson Regional Hazard Mitigation Plan in 2014, each of the three counties and jurisdictions participating in the regional plan had previously adopted separate county-level hazard mitigation plans. Each of the county-level plans was developed using the multi-jurisdictional planning process recommended by FEMA.

In 2014, all participating jurisdictions collaborated to create a regional plan. No new jurisdictions joined the process, and all those involved in previous planning efforts contributed to the development of the 2014 regional plan. This approach aimed to streamline planning for the jurisdictions in the Bladen Columbus Robeson Region, allowing resources to be shared among participants and reducing the administrative burdens on smaller, lower capacity communities.

The 2014 plan marked an important and successful beginning for regional hazard mitigation planning, and that success has continued into the 2025 update. For the development of the 2025 plan, all the jurisdictions that participated in the development of the 2020 plan participated in this plan’s development.

2.3 UPDATING THE PLAN IN 2025

FEMA requires hazard mitigation plans to be updated every five years to maintain eligibility for federal mitigation and public assistance funding. AECOM, Insight Planning and Development and ESP Associates, Inc. were contracted by North Carolina Emergency Management to provide professional mitigation planning services to develop the 2025 Bladen Columbus Robeson Regional Hazard Mitigation Plan.

According to the scope of work, the consultant team adhered to the mitigation planning process recommended by FEMA (Publication Series 386 and the Local Mitigation Plan Review Guide) as well as

guidelines from North Carolina Emergency Management (NCEM) mitigation planning staff. Notable changes in the 2025 update include increased emphasis on equity and inclusions, integration with climate resilience, enhanced community engagement, and inclusion of substantial damage estimates.

The 2025 update incorporated requirements from the FEMA Community Rating System (CRS) and the Community Wildfire Protection Plan (CWPP). **Tables 2.1** and **2.2** below provide an overview of how the Community Rating System and Community Wildfire Protection Plan requirements were integrated into the updated plan.

TABLE 2.1 FEMA HAZARD MITIGATION PLANNING REQUIREMENTS AND THE CRS 10-STEP PLANNING PROCESS REFERENCE TABLE

FEMA Disaster Mitigation Act Requirement	CRS Activity 510 Planning Requirement
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

TABLE 2.2 COMMUNITY WILDFIRE PROTECTION PLAN PROCESS INTEGRATION REFERENCE TABLE

CWPP Process	Hazard Mitigation Plan Integration Reference
Step 1: Convene Decisionmakers	Section 2: Planning Process
Step 2: Involve Federal Agencies	Section 2: Involving Stakeholders
Step 3: Engage Interested Parties	Section 2: Planning Process
Step 4: Establish a Community Base Map	Section 3: Community Profile
Step 5: Develop a Community Risk Assessment	Sections 4, 5 and 6: Hazard Identification, Hazard Profiles and Vulnerability Assessment Section 7: Capability Assessment
Step 6: Establish Community Hazard Reduction Priorities and Recommendations to Reduce Structural Ignitability	Section 8: Mitigation Strategy
Step 7: Develop an Action Plan and Assessment Strategy	Section 9: Mitigation Action Plans Section 10: Plan Maintenance
Step 8: Finalize the CWPP	Appendix A: Plan Adoption

Source: Preparing a Community Wildfire Protection Plan – A Handbook for Wildland-Urban Interface Communities

The Local Mitigation Plan Review Tool provides a detailed summary of FEMA's current minimum standards of acceptability for compliance with DMA 2000 and notes the location where each requirement is met within this plan. These standards are based upon FEMA's Final Rule as published in the Federal Register in Part 201 of the Code of Federal Regulations (CFR). The planning team used FEMA's Local Mitigation Planning Policy Guide (2022) and Local Mitigation Planning Handbook (2023) for reference as they completed the plan update.

The process used to prepare this plan included twelve major steps that were completed over the course of approximately eleven months beginning in January 2024. Each of these planning steps (illustrated in **Figure 2.1**) resulted in critical work products and outcomes that collectively make up the Plan. Specific plan sections are further described in Section 1: *Introduction*

FIGURE 2.1: MITIGATION PLANNING PROCESS FOR THE CABARRUS STANLY UNION REGION



2.4 THE REGIONAL MITIGATION ACTION COMMITTEE

To facilitate the initial development of the regional plan and its subsequent update, the participating jurisdictions established the Bladen Columbus Robeson Regional Hazard Mitigation Action Committee. This committee serves as a community-based planning team composed of representatives from various county departments, municipalities, and other essential stakeholders identified as critical partners in the planning process.

Starting in July 2024, the members of the Regional Hazard Mitigation Action Committee engaged in regular discussions, local meetings, and planning workshops to address and complete tasks related to the preparation of the Plan. This collaborative group coordinated all aspects of plan development and provided invaluable input throughout the process. In addition to their regular meetings, committee members maintained ongoing communication and were kept informed via an email distribution list.

Specifically, the tasks assigned to the Regional Hazard Mitigation Action Committee members included:

- Participate in Regional Hazard Mitigation Action Committee meetings and workshops,
- Provide best available data as required for the risk assessment portion of the plan,
- Provide information that will help complete the Capability Assessment section of the plan,
- Provide copies of any mitigation or hazard-related documents for review and incorporation into
- the plan,
- Support the development and update of the Mitigation Strategy, including the design and adoption of regional goal statements,
- Help design and propose appropriate mitigation actions for their department/agency for
- incorporation into the Mitigation Action Plan,
- Review and provide timely comments on all study findings and draft plan deliverables, and
- Support the adoption of the 2025 Bladen Columbus Robeson Regional Hazard Mitigation Plan.

Table 2.3 lists the members of the Regional Hazard Mitigation Action Committee who were responsible for participating in the development of the plan.

TABLE 2.3: MEMBERS OF THE BLADEN COLUMBUS ROBESON REGIONAL MITIGATION ACTION COMMITTEE

NAME	DEPARTMENT / AGENCY / TITLE	Attended Stakeholder Kickoff Meeting 10/24/24	Attended HIRA Meeting 4/17/25	Attended HIRA Mitigation Meeting 5/29/25
Bladen County and Municipalities				
Babson, Renee	Bladen County, Emergency Management Administrative Assistant	X	X	X
Coleman, Joey	Bladen County, Emergency Management	X	X	X
Elkins, Greg	Bladen County, Planning Director		X	
Martin, Sean	Town of White Lake, Town Administrator		X	
Columbus County and Municipalities				
Bray, Claudia	Town of Sandyfield, Town Clerk/Finance Officer		X	
Crosby, RaMonda	Town of Chadbourn, Finance Director	X		
Faircloth, Bobbie	Town of Fair Bluff, Project Manager	X		
Hall, Dwella	Columbus County, Program Manager Child Welfare, Adult Services, Program Integrity	X		
Livingston, Nancy	Town of Brunswick, Town Clerk			X

NAME	DEPARTMENT / AGENCY / TITLE	Attended Stakeholder Kickoff Meeting 10/24/24	Attended HIRA Meeting 4/17/25	Attended HIRA Mitigation Meeting 5/29/25
Robinson, Jason	Town of Chadbourn, Town Manager			X
Smith, Teresa	Columbus County, Emergency Services Deputy Director		X	X
Viles, Nola	Columbus County	X		
Ward, Josh	Town of Tabor City, Town Manager; Town of Brunswick, Town Planner	X	X	X
Robeson County and Municipalities				
Carter, Victoria	Town of Pembroke, Stormwater and Special Projects Program Manager	X		X
Dollinger, Stephanie	Town of St. Paul's, Town Administrator	X		
Edwards, James	Town of Marietta	X		
Hunt, Justin	Robeson County, Emergency Management Director	X	X	X
McDougald, Robert	Town of Rowland, Mayor	X		
McKell, Tammy	City of Lumberton, Emergency Management	X		
Owens, Michael	Town of St. Paul's, Police Department	X		
Pitchford, Angela	Town of Maxton, Town Manager	X	X	X
Powell, Walter	Town of Marietta, Town Council	X		
Rogers, Benton	Town of St. Paul's, Assistant Public Works Director	X		
Underwood, Doris	Town of Parkton, Mayor		X	
Other Stakeholders				
Baker, Carl	NCEM, Mitigation Plans Manager	X	X	X
Barefoot, Ashli	Insight Planning & Development, Director of Planning & Land Use			X
Brinkley, Austin	Insight Planning & Development, Senior Planner	X		
Campbell, Peyton	AECOM, Hazard Mitigation Planner		X	
Cox, Ryan	Insight Planning & Development, CEO		X	X
Graham, Melissa	Insight Planning & Development		X	
Keefe, Kelly	AECOM, Hazard Mitigation Planner		X	X
Mello, John	NCEM, Hazard Mitigation Planner	X	X	
Norris, Darren	Columbus Regional Healthcare System, Emergency Manager		X	X
Slaughter, Nathan	ESP Associates, Project Manager		X	X
Taliaferro, Danielle	Insight Planning & Development, Administrative Manager	X	X	X

Table 2.4 lists points of contact for several of the jurisdictions who elected to designate their respective

county officials to represent their jurisdiction on the planning team, generally because they did not have the time or staff to be able to attend on their own. Although these members designated county officials to represent them at in-person meetings, each was still contacted throughout the planning process and participated by providing suggestions and comments on the plan, updates to mitigation actions and the capability assessment via email and phone conversations.

TABLE 2.4: MEMBERS DESIGNATING REPRESENTATIVES TO BLADEN COLUMBUS ROBESON REGIONAL HAZARD MITIGATION ACTION COMMITTEE

JURISDICTION	NAME	DEPARTMENT / AGENCY / TITLE
Bladenboro	Maynor, Jay	Town Administrator
Boardman	Williamson, Eric	Town Mayor
Bolton	Maynor, Shawn	Town Mayor
Cerro Gordo	White, David	Town Mayor
Clarkton	Myers, Jerome	Town Mayor
Dublin	Cullip, Darren	Town Mayor
East Arcadia	Andrews, Travis	Town Mayor
Elizabethtown	Rideout, Dane	Town Manager
Fairmont	Chestnut, Jerome	Town Manager
Lake Waccamaw	Kempski, Damon	Town Manager
Lumber Bridge	Davis, William	Town Mayor
McDonald	Taylor, James	Town Mayor
Orrum	Blue, Kellie	Robeson County Manager
Proctorville	Sealy, Michael	Town Mayor
Raynham	Arnette, Debra	Town Mayor
Red Springs	Harris, Shanelle	Town Manager
Rennert	Locklear, Elizabeth	Town Mayor
Tar Heel	Allen, Sam	Town Mayor
Whiteville	Currie, Darren	City Manager

Additional participation and input from other identified stakeholders and the public was sought by the participating counties during the planning process through phone calls and the distribution of emails, advertisements, and public notices aimed at informing people on the status of the Hazard Mitigation Plan (public and stakeholder involvement is further discussed later in this section).

2.4.1 Multi-Jurisdictional Participation

The Bladen Columbus Robeson Regional Multi-Jurisdictional Hazard Mitigation Plan includes three counties, and thirty (30) incorporated municipalities. To satisfy multi-jurisdictional participation requirements, each county and its participating jurisdictions were required to perform the following tasks:

- Participate in mitigation planning workshops,
- Provide implementation status updates on previously identified mitigation actions,
- Identify completed mitigation projects (if applicable); and

- Develop and adopt (or update) their local mitigation action plan.

Each participating jurisdiction has developed a local mitigation action plan unique to their jurisdiction. This provides the means for jurisdictions to implement, monitor and track progress, and update their mitigation actions on a regular basis.

2.5 COMMUNITY MEETINGS AND WORKSHOPS

The preparation of the plan involved a series of meetings and workshops designed to facilitate discussion, build consensus, and initiate data collection efforts with local government staff, community officials, and other identified stakeholders. Importantly, these meetings and workshops encouraged ongoing input and feedback from relevant participants throughout the drafting stages of the plan. Below is a summary of the key meetings conducted during the plan update process. Meeting minutes were recorded and are documented.

Table 2.5 summarizes key meetings and workshops held by the HMPC during the development of the plan. In many cases, routine discussions and additional meetings were held by local staff to accomplish planning tasks specific to their department or agency. For example, seeking approval of specific mitigation actions for their department or agency to undertake and include in their mitigation action plan. These meetings were informal and are not documented here. Public involvement is summarized in the subsequent section.

TABLE 2.5: BLADEN COLUMBUS ROBESON REGIONAL HAZARD MITIGATION ACTION COMMITTEE MEETING SUMMARY

MEETING	MEETING TOPIC	DATE	LOCATION
HMPC Mtg #1 - Project Kick-Off	1. Introduction to DMA requirements and the planning process 2. Review HMPC responsibilities and project schedule	10/14/24	38 Legend Rd. Lumberton, NC 28358
HMPC Mtg #2 – HIRA Meeting	1. Review Draft Hazard Identification and Risk Assessment (HIRA) 2. Review asset inventory and discuss critical facilities	4/17/25	Virtual Microsoft Teams
HMPC Mtg #2 – Mitigation Meeting	1. Review Capability Assessment and Mitigation Strategies 2. Solicit comments and feedback	5/29/25	Virtual Microsoft Teams

2.6 INVOLVING THE PUBLIC

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

An important component of the mitigation planning process involved public participation. Individual resident and community-based input provides a better understanding of local concerns, increases community buy-in and support, and heightens likelihood of mitigation action implementation. As

residents become more involved in decisions that affect their safety, they are more likely to gain a greater awareness of the hazards present in their community and take the steps necessary to reduce their impact. Public awareness is a key component of any community's overall mitigation strategy aimed at making a home, neighborhood, school, business or entire planning area safer from the potential effects of hazards.

Public involvement in the development of the Bladen Columbus Robeson Regional Hazard Mitigation Plan was sought using several methods:

- Conducting open public meetings (virtual),
- Developing a project website to share project status and relevant resources,
- Providing online notices,
- Sharing the public participation survey online and in-person, and
- Making the draft plan available online for public review.

The public was provided multiple opportunities to be involved in the development of the regional plan at three distinct periods during the planning process: (1) during the drafting stage of the plan, (2) upon completion of a draft plan, but prior to official plan approval and adoption, and (3) just prior to plan adoption. **Table 2.6** summarizes public involvement efforts employed during the plan update process. Documentation of these efforts is provided in the appendices.

TABLE 2.6: BLADEN COLUMBUS ROBESON REGIONAL HAZARD MITIGATION PLAN UPDATE PUBLIC ENGAGEMENT OPPORTUNITIES AND MEASURES

OUTREACH TYPE	OUTREACH DESCRIPTION	DATE	LOCATION
Public Survey	• Shared online via municipal and county websites • Shared in-person at government and community facilities • Respondents could complete anonymously or provide name/email • Input used to inform potential mitigation strategies	-	Online Survey Monkey
Project Website	• Provides general overview of mitigation and planning process • Summarizes project-specific timeline and tasks • Links to valuable resources including HMPC meeting minutes and presentations	-	Online GoDaddy Website
Public Notices	• Project updates shared on municipal and county websites • Links provided to existing plan and draft plan	-	Online Municipal Websites

OUTREACH TYPE	OUTREACH DESCRIPTION	DATE	LOCATION
Public Meeting #1	• Introduction to DMA, CRS, and FMA requirements and planning process • Review of identified hazards and potential mitigation strategies	12/11/24	Virtual Microsoft Teams
Public Meeting #2	• Review Draft Hazard Mitigation Plan and collect public comment • Discuss public comment integrated into Final Hazard Mitigation Plan • Review approval and adoption process to ensure timely adoption	6/26/25	Virtual Microsoft Teams

Furthermore, in addition to the previously mentioned opportunities for public involvement, each participating jurisdiction will hold public meetings before the final plan is officially adopted by local governing bodies. These meetings will take place at different times once FEMA grants conditional approval of the plan. Adoption resolutions will be included in the appendices.

2.6.1 Public Participation Survey

The Regional Hazard Mitigation Committee successfully engaged residents in the mitigation planning process through the Public Participation Survey. This survey was specifically designed to gather data and insights from residents of Bladen, Columbus, and Robeson Counties.

Copies of the Public Participation Survey were distributed to the Regional Hazard Mitigation Committee, ensuring they were available for residents to complete at local public offices. Additionally, a link to an electronic version of the survey was posted on county and municipal websites as well as the designated project website. In total, 114 survey responses were received, providing valuable input for the Committee to consider updating the plan. Selected survey results are presented below. Full results can be found in appendices.

- Approximately 80 percent of survey respondents had been impacted by a disaster.
- Respondents ranked all identified hazards from no risk to high risk. Hurricanes were ranked as the highest threat, followed by Severe Weather then Flood.
- Approximately 45 percent of respondents have taken actions to make their homes more resistant to hazards.
- 61 percent of respondents do not know what office to contact regarding reducing their risks to hazards.
- Prevention and Property Protection were ranked as the most important activities for communities to pursue in reducing risks.

2.7 INVOLVING THE STAKEHOLDERS

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

At the outset of the planning process, the project consultant collaborated with the emergency management leaders from each county to initiate stakeholder outreach. At this time, a list was distributed of recommended stakeholders derived from FEMA Publication 386-1, titled *Getting Started: Building Support for Mitigation Planning,* which highlights the diverse range of stakeholders considered for participation in plan development. County emergency management leaders referenced this list while inviting stakeholders from their respective counties to engage in the planning process. Additionally, FEMA's *Local Mitigation Planning Policy Guide* (2023) and *Local Mitigation Planning Handbook* (2023) were reviewed to ensure all elements for participation were addressed.

The participating jurisdictions invited representatives from the health departments, social services departments, and planning departments to advocate for and provide insight on underserved and socially vulnerable populations in the region. In addition to staff representatives of each participating jurisdiction, the HMPC included a variety of stakeholders. The Regional Hazard Mitigation Committee actively promoted open and widespread participation in the mitigation planning process. The region also excelled in local outreach efforts by designing and distributing the Public Participation Survey. This initiative allowed local officials, residents, businesses, academics, and other private interests in the Bladen Columbus Robeson Region to engage and provide input throughout the local mitigation planning process.

2.8 DOCUMENTATION OF PLAN PROGRESS

This plan update documents the progress made in hazard mitigation planning for the participating jurisdictions in the Bladen Columbus Robeson Region. Since the initial hazard mitigation plans were developed in the late 1990s and early 2000s, numerous mitigation actions have been completed and implemented across these jurisdictions. These actions are designed to reduce the overall risk posed by natural hazards to the people and properties in the region. A detailed account of these completed actions can be found in the appendices.

Further details on the progress of plan implementation are provided in the capability assessment. Community capabilities have continued to improve in each participating jurisdiction through the adoption of new plans, policies, and programs that promote hazard mitigation at the local level. The status of local capabilities for these jurisdictions is outlined in *Section 7: Capability Assessment*. The participating jurisdictions demonstrate their ongoing commitment to hazard mitigation by reconvening every five years to update the plan and actively involving the public in the planning process.

SECTION 3 COMMUNITY PROFILE

This section of the plan provides a general overview of the Bladen Columbus Robeson Region. It consists of the following four subsections:

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

3.1 GEOGRAPHY AND THE ENVIRONMENT

The Bladen, Columbus, and Robeson Region is situated in the Coastal Plain region of eastern North Carolina. Robeson County is part of the Lumberton Micropolitan Statistical Area (MiSa).[1] The planning area includes both incorporated and unincorporated Bladen, Columbus, and Robeson counties along with 30 participating municipalities *(see Section 1: Introduction).* The region comprises a total land area of nearly 2,800 square miles. The total land area reported for each participating county is presented in **Table 3.1**.

TABLE 3.1: TOTAL LAND AREAS OF PARTICIPATING COUNTIES

County	Land Area (Sq. Mi.)	Water Area (Sq. Mi.)	Total Area (Sq. Mi.)
Bladen County	875.03 sq. mi.	12.75 sq. mi.	887.78 sq. mi.
Columbus County	938.12 sq. mi.	16.88 sq. mi.	955.00 sq. mi.
Robeson County	947.30 sq. mi.	1.96 sq. mi.	949.26 sq. mi.
Region Total	**2760.45 sq. mi.**	**31.59 sq. mi.**	**2792.04 sq. mi.**

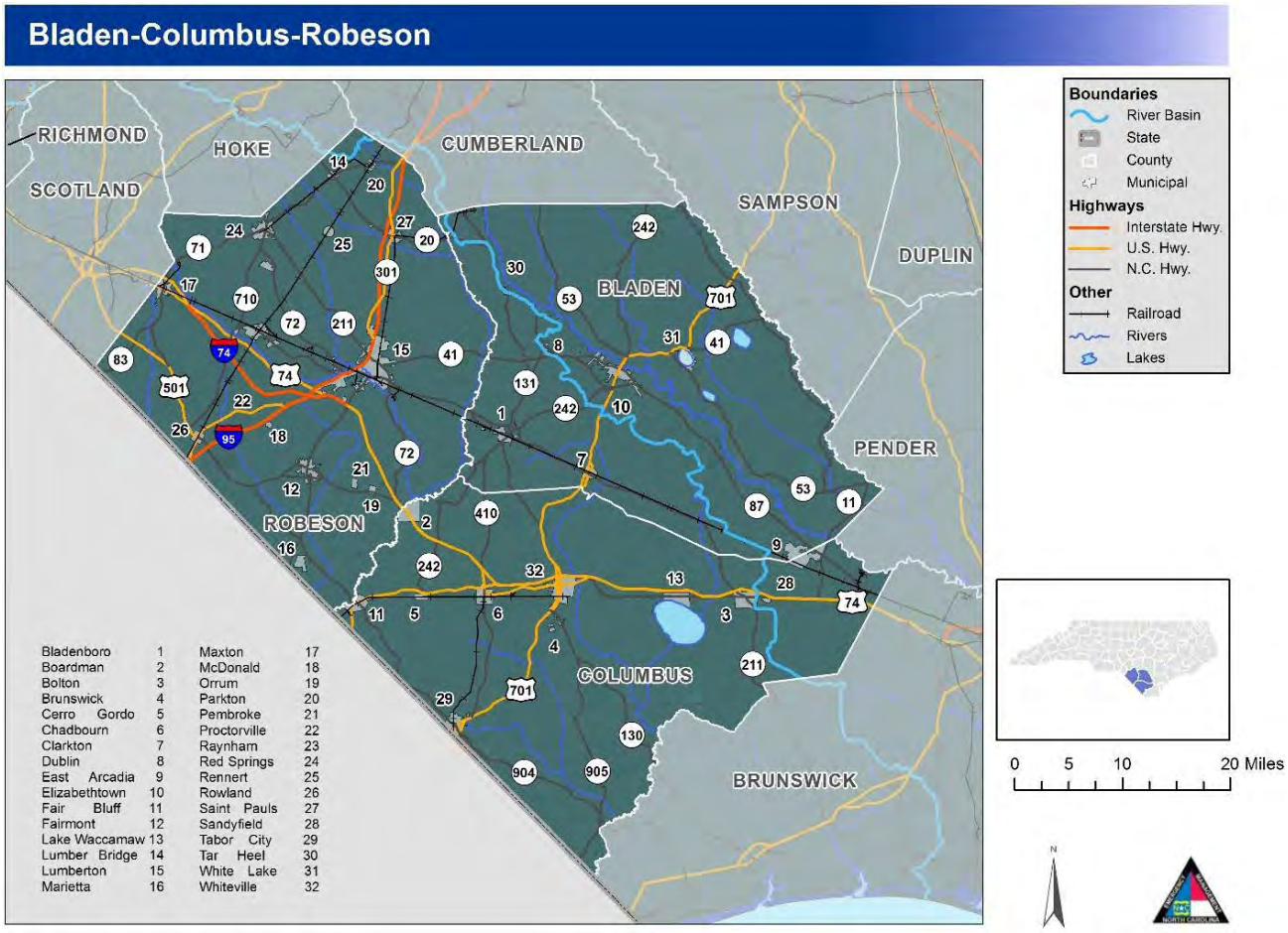
Source: United States Census Bureau

The region features predominantly flat terrain with surfaces ranging from level to gently undulating. Robeson County is characterized by a landscape of sandhills and coastal dunes, with elevations spanning from approximately 60 feet above mean sea level in the southeastern corner to around 250 feet in the northern part of the county. In swampy areas, the underlying sediments are slowly permeable, which impacts internal drainage speed.

The region is abundant in natural recreational sites, featuring four rivers, notably the Cape Fear and Lumber Rivers, and numerous natural lakes with the largest being Lake Waccamaw. These natural features support a variety of outdoor activities such as water sports, camping, fishing, and hunting. An orientation map can be found in **Figure 3.1**.

[1] A micropolitan statistical area (MiSa) is a smaller region centered around an urban area with a population between 10,000 and 50,000 people; essentially, a micropolitan area is a smaller, less populated version of a metropolitan area.

FIGURE 3.1: BLADEN COLUMBUS ROBESON REGION ORIENTATION MAP



According to the Köppen climate classification system, the Bladen Columbus Robeson Region is categorized as a humid subtropical climate like much of the eastern United States. This climate zone is characterized by mild winters and hot humid summers with significant precipitation even during the driest month. Based on the National Centers for Environmental Information (NCEI) data, the average temperatures and precipitation of each of the participating counties is presented in **Table 3.2**.

TABLE 3.2: ANNUAL AVERAGE TEMPERATURES AND PRECIPITATION OF PARTICIPATING COUNTIES

County	12-Month Avg Temp (2014-2024)	January Annual Avg Min Temp (2014-2024)	January Annual Avg Max Temp (2014-2024)	June Annual Avg Min Temp (2014-2024)	June Annual Avg Max Temp (2014-2024)	12-Month Avg. Rainfall (2014-2024)
Bladen County	58.2˚F	33.6˚F	55.7˚F	67.0˚F	87.8˚F	27.3in
Columbus County	58.8˚F	34.4˚F	56.8˚F	67.6˚F	87.6˚F	27.9in
Robeson County	58.6˚F	33.9˚F	55.6˚F	67.4˚F	89.0˚F	26.0in
Region Average	**58.5˚F**	**34.0˚F**	**56.0˚F**	**67.3˚F**	**88.1˚F**	**27.1˚F**

Source: National Centers for Environmental Information: Climate at a Glance (Time Series)

Over the last ten years, the region has exhibited a temperate climate with an average annual temperature of 58.5°F. In January, the region experiences an average minimum temperature of 34.0°F and an average maximum temperature of 56.0°F, respectively. These values indicate a moderate winter climate, which suggests that the region experiences conditions that can lead to freezing events and potential winter storms.

During the month of June, the region experiences a significant increase in temperatures. Average minimum temperatures rise to approximately 67.3°F and average maximum temperatures reach 88.1°F, indicating a shift to a warm and humid summer. This not only affects human health, potentially increasing the incidence of heat-related illnesses, but also heightens the risk of wildfires and heatwaves.

Regarding precipitation, the region averages about 27.1 inches of annual rainfall, with Bladen County receiving the highest at approximately 27.3 inches. The relatively moderate average suggests a balance between periods of heavy rain, often linked to tropical storms or hurricanes, and drier spells, making the region prone to both flooding and drought conditions depending on seasonal weather fluctuations. Overall, the precipitation patterns are shaped by the interplay of coastal influences, terrain, and weather systems that define this southeastern North Carolina region.

3.1.1 Natural Features

The Bladen, Columbus, and Robeson region is primarily encompassed by several key subbasins within two major river basins: the Lumber River Basin and the Cape Fear River Basin. Most of the area falls within the Waccamaw, Lumber, and Little Pee Dee Subbasins of the Lumber River Basin, as well as the Lower Cape Fear and Black Subbasins of the Cape Fear River Basin. These subbasins are smaller watershed units that collectively influence water flow, quality, and ecosystem health across the region.

Being part of these interconnected subbasins means that any changes in land use, agriculture, or development within the region can impact water quantity and quality downstream, affecting aquatic habitats, water supplies, and flood management. The division into multiple subbasins also indicates a diversity of hydrological characteristics, from streams and wetlands to floodplains, which support different ecosystems and regional economies

In Bladen and Columbus Counties, soil near drainageways tend to be well-drained to moderately well-drained. Conversely, soils toward the center of the interstream divides are often somewhat poorly to very poorly drained. Robeson County's soils are primarily derived from unconsolidated deposits of sand, silt, and clay laid down by water. These soils are generally nearly level to gently sloping and are highly suitable for agriculture. Well-drained soils are typically found along broad outer rims of the interstream divided adjacent to drainageways, while poorly drained soils, located farther from streams, are found on floodplains and within Carolina bays.

Robeson County's main waterway is the Lumber River, which meanders from north to south through the approximate center of the county. Major tributaries include Big Swamp, which forms the eastern boundary of the county; Big Marsh Swamp; Raft Swamp; Richland Swamp; Back Swamp; Hog Swamp; and Ashpole Swamp. Additionally, Shoe Heel Creek drains the western tip of Robeson County.

3.1.2 Parks, Preserves, and Conservation

The region is home to several state parks including Jones Lake State Park, Singletary Lake State Park, Bladen Lakes State Forest, Lake Waccamaw State Park, and Lumber River State Park. These parks help conserve vital natural habitats, including lakes, forests, and riverine ecosystems, contributing to biodiversity preservation and environmental health. These parks also support local economies by attracting tourism, outdoor recreation, and related businesses, which generate revenue and create jobs. Additionally, the parks serve as natural buffers against flooding and erosion by maintaining wetlands and forested floodplains, thereby aiding in hazard mitigation.

3.1.3 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. As of 2025 records, the Bladen Columbus Robeson Region has 25 species that are listed with the U.S. Fish and Wildlife Services as threatened, endangered, proposed endangered, proposed threatened, species of concern, or under review. **Table 3.3** summarizes these identified species below.

TABLE 3.3: THREATENED AND ENDANGERED SPECIES OF PARTICIPATING COUNTIES

Group	Common Name	Scientific Name	Federal Status	Counties
Birds	Red-Cockaded Woodpecker	Dryobates Borealis	Threatened	B, C, R
Reptiles	American Alligator	Alligator Mississippiensis	Similarity of Appearance (Threatened)	B, C, R
Clams	Atlantic Pigtoe	Fusconaia Masoni	Threatened	B
Birds	Piping Plover	Charadrius Melodus	Threatened	B, C
Mammals	Little Brown Bat	Myotis Lucifugus	Under Review	B, C, R
Reptiles	Kemp's Ridley Sea Turtle	Lepidochelys Kempii	Endangered	B, C
Flowering Plants	Rough-Leaved Loosestrife	Lysimachia Asperulaefolia	Endangered	B, C, R
Mammals	Northern Long-Eared Bat	Myotis Septentrionalis	Endangered	B, C
Flowering Plants	Pondberry	Lindera Melissifolia	Endangered	B, R
Insects	Monarch Butterfly	Danaus Plexippus	Proposed Threatened	B, C, R
Flower Plants	Michaux's Sumac	Rhus Michauxii	Endangered	B, C, R
Reptiles	Green Sea Turtle	Chelonia Mydas	Threatened	B, C
Birds	Wood Stork	Mycteria Americana	Threatened	B, C, R
Mammals	Tricolored Bat	Perimyotis Subflavus	Proposed Endangered	B, C, R
Birds	Rufa Red Knot	Calidris Canutus Rufa	Threatened	B, C
Fish	Shortnose Sturgeon	Acipenser Brevirostrum	Endangered	B, C, R

Group	Common Name	Scientific Name	Federal Status	Counties
Flowering Plants	American Chaffseed	Schwalbea Americana	Endangered	B, C, R
Fish	Waccamaw Silverside	Menidia Extensa	Threatened	C
Clams	Waccamaw Spike	Elliptio Waccamawensis	Species of Concern	C
Fish	Waccamaw Darter	Etheostoma Perlongum	Resolved Taxon	C
Snails	Magnificent Ramshorn	Planorbella Magnifica	Endangered	C
Flowering Plants	Cooley's Meadowrue	Thalictrum Cooleyi	Endangered	C
Clams	Waccamaw Fatmucket	Lampsilis Fullerkati	Status Undefined	C
Fish	Waccamaw Killifish	Fundulus Waccamensis	Species of Concern	C
Flower Plants	Canby's Dropwort	Oxypolis Canbyi	Endangered	R

Source: US Fish & Wildlife Service, Environmental Conservation Online System (ECOS)

3.2 POPULATION AND DEMOGRAPHICS

According to Census data, the Bladen Columbus Robeson Region experienced a 0.07 percent population increase between 2020 (the last plan update) and 2023. From 2000 to 2023, the region's population declined by about 6.5 percent, with Bladen and Columbus Counties experiencing declines of roughly 8 percent. Robeson County has remained relatively stable since 2020, with a slight increase. These trends suggest a shrinking or aging population. Population counts from the US Census Bureau for 2000, 2010, 2020, and 2023 for each of the participating counties are presented in **Table 3.4**.

TABLE 3.4: POPULATION COUNTS FOR PARTICIPATING COUNTIES

Jurisdiction	2000 Census Population	2010 Census Population	2020 Census Population	2023 ACS Population	% Change 2020-2023	% Change 2000-2023
Bladen County	32,278	35,190	29,606	29,591	-0.05%	-8.39%
Columbus County	54,749	58,098	50,623	50,453	-0.34%	-7.83%
Robeson County	123,339	134,168	116,530	116,858	+0.29%	-5.07%
Region Total	**210,366**	**227,456**	**196,759**	**196,902**	**+0.07%**	**-6.45%**

Source: United States Census Bureau

According to 2023 American Community Survey 5-Year Estimates, the median age in the Bladen Columbus Robeson Region was 41 years old. Of the population aged 25 years and over, 84.7 percent have a high school degree or higher and 16.8 percent have a bachelor's degree or higher. The racial characteristics of the participating jurisdictions are presented in **Table 3.5.**

TABLE 3.5: DEMOGRAPHICS OF PARTICIPATING COUNTIES

Jurisdiction	White, %	Black, %	Other Race, %	Asian, Percent	Persons of Hispanic Origin, %*	Two or More Races, %
Bladen County	54.9%	33.6%	8.8%	0.2%	9%	2.5%
Columbus County	60.2%	28.7%	6.2%	0.4%	5.5%	4.5%
Robeson County	24.8%	23.3%	47.4%	0.8%	10.5%	3.6%
Region Average	**46.6%**	**28.5%**	**20.8%**	**0.5%**	**8.3%**	**3.5%**

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

Source: United States Census Bureau

Bladen County has a diverse population, with approximately 55 percent identifying as White and about 34 percent as Black. A smaller proportion, around 9 percent, identify as Hispanic or of other racial backgrounds, while Asian residents make up less than 1 percent. The county also has a small percentage (2.5 percent) of residents identifying with two or more races.

Columbus County exhibits similar patterns, with a higher White population at approximately 60 percent, and a Black population of about 29 percent. Hispanic or other racial groups make up roughly 5.5 percent, and Asian residents are less than half a percent. The two or more races category stands at around 4.5 percent.

Robeson County shows a notably different demographic profile, with about 25 percent White residents and a substantial 47 percent identifying as Other Race, indicating a higher racial diversity. This can likely be attributed to a large population of native-American Indians (Lumbee) in the County. The Black population is approximately 23 percent, and Hispanic or of other origins make up roughly 10.5 percent. Asian representation remains minimal, under 1 percent, while the two or more races group accounts for around 3.6 percent.

The regional averages across these counties suggest that, overall, the population is predominantly White (around 47 percent) with a significant Black community (approximately 29 percent). Racial diversity is evident, with about 21 percent identifying as Other Race. Hispanic or residents of Hispanic origin constitute roughly 8 percent, and about 3.5 percent identify with two or more races.

The variations in racial and ethnic compositions across these counties highlight the importance of tailored approaches in hazard mitigation strategies that respect and address the unique cultural and social dynamics of each community. Overall, these demographics underscore the necessity for inclusive planning that engages all segments of the population to enhance resilience and preparedness in the face of potential hazards.

3.3 HOUSING, INFRASTRUCTURE, AND LAND USE

3.3.1 Housing

According to the US Census Bureau, there were 87,806 housing units in the Bladen Columbus Robeson Region in 2023. Most of these housing units are owner-occupied. Housing information for the three participating counties is presented in **Table 3.6**.

TABLE 3.6: HOUSING CHARACTERISTICS OF PARTICIPATING COUNTIES

Jurisdiction	Housing Units (2023)	Occupied Units (2023)	Owner-Occupied Housing Units (2023)	Renter-Occupied Housing Units (2023)	Median Home Value Owner-Occupied (2019-2023)
Bladen County	15,272	11,635	8,127	2,687	$125,800
Columbus County	23,560	19,227	13,893	4,133	$128,300
Robeson County	48,974	42,744	28,049	12,617	$88,600
Region	**87,806**	**73,606**	**50,069**	**19,437**	**$114,233**

Source: United States Census Bureau

The region's housing landscape is characterized by a substantial number of housing units, with Robeson County leading at 48,974 units, followed by Columbus County with 23,560 units, and Bladen County with 15,272 units. The majority of these units are occupied, totaling 73,606 across all three counties, with Robeson County accounting for the largest share at 42,744 occupied units.

Ownership remains predominant in the region. Bladen County has approximately 69.8 percent of its occupied units owner-occupied, equating to about 8,127 owner-occupied homes. Columbus County's owner-occupancy rate is slightly higher at around 72.2 percent, with 13,893 owner-occupied units. Robeson County, while slightly lower, still exhibits a majority of owner-occupied homes at approximately 65.6 percent, totaling 28,049 homes. Renter-occupied units account for roughly 23 percent to 29 percent of occupied housing across the counties, indicating a relatively stable homeownership environment.

In terms of housing values, the median home price for owner-occupied homes varies across the counties. Bladen County's median owner-occupied home value is approximately $125,800, while Columbus County's median is slightly higher at around $128,300. Robeson County's median value is lower, at about $88,600. Overall, the median owner-occupied home value for the region is approximately $114,233, reflecting regional affordability and economic differences among the counties.

Overall, the region features a predominantly owner-occupied housing market with a sizable number of homes and relatively affordable median values, especially in Robeson County, supporting stable communities with accessible homeownership opportunities.

3.3.2 Infrastructure

Transportation

Major highways are essential to hazard mitigation and community resilience, serving as critical routes for evacuation and emergency response during disasters. They enable timely access for first responders and facilitate the movement of supplies and assistance when needed most. Additionally, these transportation networks support economic stability by allowing businesses to operate efficiently, even amid disruptions. There are several major highways that cross the Bladen Columbus Robeson Region. These highways are summarized below:

- Major highways in Bladen County include US 701, NC 211, NC 201, NC 131, and NC 41. US 701 and NC 211 are major north-south routes, while NC 20 and NC 210 run east-west. Additionally, NC 131 and NC 41 also traverse the county.

- Major highways serving Columbus County are US 74/76, US 701, NC 410, NC 214, and NC 130. US 74/76 runs east-west through the northern part of the county, US 701 runs north-south, and NC 410 runs north-south through the western part of the county. NC 214 is primarily located in Columbus County and intersects with US 74/76.
- Major highways located in Robeson County include I-95 and I-74. I-95 runs north-south, while I-74 runs-east west. The two interstates intersect southwest of Lumberton. US 74, US 301, and US 501 are also important routes.

Public transportation is offered throughout the Bladen Columbus Robeson Region, which promotes social equity by connecting underserved populations to essential resources, including healthcare, education, and employment. By fostering a more interconnected and resilient community, public transportation enhances the overall quality of life for residents. As the region continues to face evolving challenges, investing in and expanding public transportation systems will be vital for building a safer and more sustainable future. Public transportation in the region is briefly summarized below:

- Bladen County provides public transportation primarily through the Bladen Area Rural Transportation System (BARTS). BARTS offers a variety of services, including general transportation for local employment, medical appointments, and disability services.
- The Columbus County Transit System offers public transportation services to its residents. This system includes both general transportation (e.g. such as grocery stores and shopping centers) and medical transportation to doctor's offices and hospitals.
- Public transportation in Robeson County is mostly provided by the South East Area Transit System (SEATS). SEATS offers human service agency transportation and general public transportation, providing rides for any purpose and to all people.

Wilmington International Airport (ILM) is the closest major airport for residents of Bladen and Columbus Counties, located approximately 60 miles from Bladenboro. It offers a range of domestic flights and serves as a convenient gateway for travelers in these areas. For residents of Robeson County, the nearest major airport is Charlotte Douglas International Airport, which is approximately a two-hour drive away and provides extensive flight options both domestically and internationally.

Within the region, smaller airports such as Fayetteville Regional Airport offer limited flight services and are a more regional option for travelers. Additionally, Raleigh-Durham International Airport is another viable alternative, providing broader flight connectivity for those willing to travel a bit further.

Utilities

Bladen, Columbus and Robeson counties are interconnected not only through shared geography, but also through the essential utility services that sustain their communities. Electrical power in the region is primarily provided by Duke Energy Progress, along with contributions from Energy United and Union Energy, ensuring that residents and businesses have reliable access to electricity. Similarly, water and sewer services are managed by a combination of county authorities and local municipalities, each playing a vital role in maintaining public health and infrastructure.

Electrical power in the Bladen Columbus Robeson Region is supplied by multiple public utilities. Utility provider information is summarized below:

- In Bladen County, the primary electric utility providers are Duke Energy Progress and Four County Electric Member Corporation. Duke Energy Progress serves the southwest corner of the county, while Four County Electric serves the rest.
- In Columbus County, the primary electric providers are Duke Energy Progress and Brunswick Electric Membership Corporation (BEMC). Some areas are also served by Four County Electric. For natural gas, Dominion Energy North Carolina (Enbridge Gas) is a provider.
- In Robeson County, Duke Energy and Lumbee River Electric Membership Corporation (LREMC) are the primary electric utility providers. The City of Lumberton provides electric service within city limits and South River Electric Membership Corporation serves some areas within the county as well.

Water and sewer services in the region are managed by various counties and towns. Water and sewer service provider information is summarized below:

- In Bladen County, water and sewer services are provided by a combination of public and private entities, including the Bladen County Water District, the Town of Bladenboro, the Lower Cape Fear Water and Sewer Authority, and Carolina Water Service.
- In Columbus County, Columbus County Public Utilities is the primary water and sewer provider. Additionally, the Lower Cape Fear Water and Sewer Authority provides wholesale raw water to the county and surrounding areas.
- In Robeson County, the Robeson County Water Department handles water treatment and distribution for the county. The City of Lumberton Public Works Department provides these services within city limits. Additionally, Carolina Water Service of North Carolina is a private utility that serves areas within the county.

Critical Facilities

There are a considerable number of critical facilities located throughout the Bladen Columbus Robeson Region. According to the data collected for *Section 6: Vulnerability Assessment*, there are 112 fire/EMS stations, 31 police stations, and 217 medical care facilities within the study area. There are three hospitals located in the Bladen Columbus Robeson Region. The Southeastern Regional Medical Center, located in Lumberton, is the largest of the three facilities, with nearly 300 hospital beds, 115 nursing home beds, and eight operating rooms.

3.3.3 Land Use

Bladen, Columbus, and Robeson counties in North Carolina each possess diverse land use profiles that are highly relevant to hazard mitigation planning. Bladen County's economy is rooted in agriculture, with a mix of farming, residential, and conservation areas, all managed through zoning regulations. Its diversified crop production enhances economic stability but also necessitates mitigation strategies for agricultural-specific hazards such as floods, droughts, or pests. Similarly, Columbus County's land use includes substantial agricultural and forestry areas alongside residential, commercial, and industrial

zones, guided by a comprehensive land use plan aimed at promoting community safety and growth management. Robeson County, the largest in the state, has a landscape dominated by agriculture and timber. Its strategic location along major highways like I-95 and Highway 74 makes it a transportation hub, increasing its vulnerability to transportation-related hazards, such as accidents or infrastructure failure.

3.4 EMPLOYMENT AND INDUSTRY

The region has a diverse economy with employment in various industries. Agriculture, business, and industry contribute to the economic growth of the region.

According to the US Census American Community Survey (2019-2023), Bladen County had a labor force of 11,886 with the top five employers including Smithfield Foods Inc., Gildan Farms LLC., Bladen County Schools, Bladen County, and CR England Inc. The annual unemployment rate was 4.3.

As of 2023 Columbus County had a labor force of 20,565 and the top five employers were Columbus County Board of Education, Columbus Regional Healthcare System, NC Department of Adult Corrections, Columbus County, and International Paper Company. The average annual unemployment rate was 4.7.

Robeson County had a labor force of 45,740 and the top five employers were Mountaire Farms Inc., Public Schools of Robeson County, Southeastern Regional Medical Center, Robeson County, and UNC Pembroke. The average unemployment rate was 6.3.

SECTION 4: HAZARD IDENTIFICATION

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 Regional Hazard Mitigation Plan. It describes how the Hazard Mitigation Planning Committee (HMPC) met the following requirements from the 10-step planning process:

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

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 the Bladen-Columbus-Robeson (BCR) Region within the State of 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:



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 process to determine the natural and man-made hazards that threaten the region. Existing hazard data from NCEM, FEMA, the National Oceanic and Atmospheric Administration (NOAA), and other authoritative 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 declaration for each county. **Table 4-1** presents a list of all major disaster declarations that have occurred in the region since 1953. This table presents the foundation for identifying which hazards pose the greatest risk to the region.

Table 4-1: Major Regional Disaster Declarations (1953-2024)

Declaration #	Date	Event Details
Robeson County		
DR-699	03/30/1984	Severe Storms, Tornadoes
DR-1134	09/06/1996	Hurricane Fran
DR-1200	01/15/1998	Flooding
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	09/04/2018	Hurricane Florence
DR-4465	10/04/2019	Hurricane Dorian
DR-4487	03/25/2020	COVID-19 Pandemic
DR-4588	03/03/2021	Tropical Storm Eta
Bladen County		
DR-724	09/11/1984	Hurricane Diana
DR-1127	07/18/1996	Hurricane Bertha
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-4019	08/31/2011	Hurricane Irene
DR-4285	10/10/2016	Hurricane Matthew
DR-4393	09/04/2018	Hurricane Florence
DR-4465	10/04/2019	Hurricane Dorian
DR-4487	03/25/2020	COVID-19 Pandemic

Declaration #	Date	Event Details
Columbus County		
DR-724	09/11/1984	Hurricane Diana
DR-1127	07/18/1996	Hurricane Bertha
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-4019	08/31/2011	Hurricane Irene
DR-4285	10/10/2016	Hurricane Matthew
DR-4393	09/04/2018	Hurricane Florence
DR-4465	10/04/2019	Hurricane Dorian
DR-4487	03/25/2020	COVID-19 Pandemic
DR-4568	10/14/2020	Hurricane Isaias

Source: FEMA

Table 4-2 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 plan. This table lists whether the hazard was included in the 2023 State of North Carolina Hazard Mitigation Plan and the 2020 Bladen-Columbus-Robeson Regional Hazard Mitigation Plan published after the latest update cycle. This table summarizes those hazards identified for inclusion in this plan as well as those that were not included. An explanation of excluded hazards is provided below.

Table 4-2: Hazard Evaluation

Hazard	Included in State Plan?	Included in 2020 Bladen-Columbus-Robeson Plan?	Identified as a significant hazard to be included in the Plan?
Coastal Hazards (Coastal Flooding, Coastal Erosion, Storm Surge & Sea Level Rise)	Yes	No	No
Dam/Levee Failure	Yes	Yes	Yes
Drought	Yes	Yes	Yes
Earthquake	Yes	Yes	Yes
Erosion	No	No	No
Excessive Heat	Yes	No	Yes
Hurricane/Tropical Storm	Yes	Yes	Yes
Inland Flooding: 100-/500-year	Yes	Yes	Yes
Severe Weather (Thunderstorm Wind, Lightning, & Hail)	Yes	Yes	Yes

Hazard	Included in State Plan?	Included in 2020 Bladen-Columbus-Robeson Plan?	Identified as a significant hazard to be included in the Plan?
Tornado	Yes	Yes	Yes
Wildfire	Yes	Yes	Yes
Severe Winter Weather	Yes	Yes	Yes
Geological (Landslides, Sinkholes)	Yes	No	No
Infectious Disease	Yes	No	Yes
Hazardous Substances	Yes	No	No
Radiological Emergency	Yes	No	No
Cybersecurity	Yes	No	Yes
Terrorism	Yes	No	No
Civil Disturbance	Yes	No	No
Electromagnetic Pulse	Yes	No	No
Food Emergency	Yes	No	No

The hazards excluded from this plan were omitted because they are either more appropriately managed by local or regional emergency services, deemed irrelevant to the Region, and/or sufficiently covered by the State of North Carolina Hazard Mitigation Plan.

SECTION 5: HAZARD PROFILES

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.

The hazards identified in **Chapter 4 – Hazard Identification**, are profiled individually in this chapter. It consists of the following subsections:

- 5.1 Cybersecurity
- 5.2 Dam/Levee Failure
- 5.3 Drought
- 5.4 Earthquake
- 5.5 Excessive Heat
- 5.6 Hurricane/Tropical Storm
- 5.7 Infectious Disease
- 5.8 Inland Flooding
- 5.9 Severe Weather
- 5.10 Tornado
- 5.11 Wildfire
- 5.12 Winter Storm
- 5.13 Hazard Profile Summary

Information provided by members of the Mitigation Action Committee (MAC) has been integrated into this chapter with information from other data sources.

Each hazard is profiled according to a specific methodology format as detailed below.

Hazard Profile Methodology

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 likelihood of future flood occurrences, for example, is categorized into one of the classifications:

- *Example*: Probability Definitions for Future Flood Hazards
    - **Unlikely**: Less than 1% annual probability of flooding hazard (100 or 500-year event)

- **Possible**: Between 1% and 10% annual probability of flooding hazard (100 or 500-year event)
- **Likely**: Between 10% and 100% annual probability of flooding hazard (100 or 500-year event)
- **Highly Likely**: 100% annual probability of flooding hazard (100 or 500-year event)

Consequence and Impact Analysis (Vulnerability Problem Statements)

This section examines effects and impacts 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 Chapter 6 Vulnerability Assessment. Significance was determined by frequency of the hazard and resulting damage, including deaths/injuries and property, crops, and economic damage. Hazards occurring infrequently or having little to no impact on the planning area were determined to be of low significance and not considered a priority hazard. These criteria allow the HMPC to prioritize hazards of greatest significance and focus resources where they are most needed.

Study Area

The Bladen-Columbus-Robeson Region (referred to hereafter as "Region") includes 35 participating jurisdictions, encompassing 3 counties and 32 municipalities as listed below. **Figure 5-1** on the following page provides a base map, for reference, of the Region and the participating municipalities.

Participating Jurisdictions

Bladen County

- Town of Bladenboro
- Town of Clarkton
- Town of Dublin
- Town of East Arcadia
- Town of Elizabethtown
- Town of Tar Heel
- Town of White Lake

Columbus County

- Town of Boardman
- Town of Bolton
- Town of Brunswick
- Town of Cerro Gordo
- Town of Chadbourn
- Town of Fair Bluff
- Town of Lake Waccamaw
- Town of Sandyfield
- Town of Tabor City
- Town of Whiteville

Robeson County

- City of Lumberton
- Town of Fairmont
- Town of Lumber Bridge
- Town of Marietta
- Town of Maxton
- Town of McDonald
- Town of Orrum
- Town of Parkton
- Town of Pembroke
- Town of Proctorville
- Town of Raynham
- Town of Red Springs
- Town of Rennert
- Town of Rowland
- Town of St. Pauls

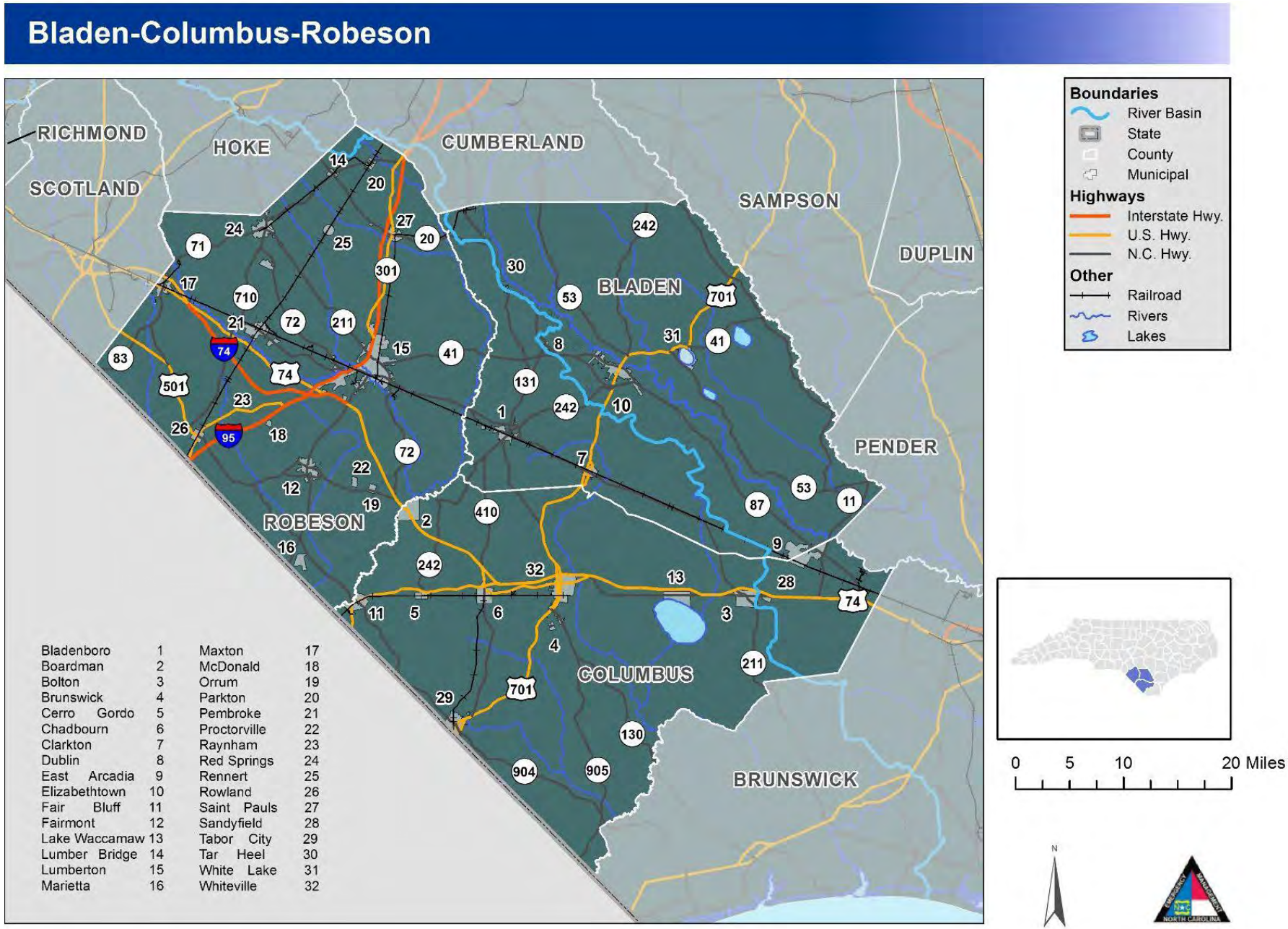


Figure 5-1: Bladen Columbus Robeson Regional Map

Past Significant Weather Events

NOAA's National Centers for Environmental Information (NCEI) [formerly known as the National Climatic Data Center (NCDC)], has been tracking severe weather since 1950. Their Storm Events Database contains an archive of destructive storm or weather data and information which includes local, intense and damaging events. NCEI receives storm data from the National Weather Service (NWS). The NWS receives their information from a variety of sources, which include but are not limited to: county, state and federal emergency management officials, local law enforcement officials, Sky Warn spotters, NWS damage surveys, newspaper clipping services, the insurance industry and the general public, among others. This database contains 1,850 severe weather events that occurred in the Region between January 1, 1950, and December 31, 2024. **Table 5-1** summarizes these events.

Table 5-1: NCEI Regional Storm Events (January 1950 – December 2024)

Type	# of Events	Property Damage	Crop Damage	Deaths (Direct)	Injuries (Direct)
Bladen County					
Cold/Wind Chill	0	$0	$0	0	0
Flash Flood	47	$15,219,000	$0	2	0
Flood	10	$20,000	$0	0	0
Hail	162	$50,200	$0	0	0
Heat	4	$0	$0	0	0
Heavy Rain	8	$10,000	$0	0	0
High Wind	9	$20,620,000	$25,000,000	1	0
Hurricane (Typhoon)	1	$100,000	$0	0	3
Lightning	13	$136,000	$500,000	0	1
Strong Wind	12	$66,000	$1,000	0	0
Thunderstorm Wind	276	$2,034,000	$17,500	0	6
Tornado	27	$30,531,000	$13,000	5	8
Tropical Storm	4	$0	$0	2	0
Winter Storm	7	$0	$0	0	0
Winter Weather	6	$30,000	$0	0	0
Total:	**586**	**$68,816,200**	**$25,531,500**	**10**	**18**
Columbus County					
Cold/Wind Chill	0	$0	$0	0	0
Flash Flood	40	$32,765,000	$10,200,000	1	1
Flood	14	$26,000	$0	0	0
Hail	175	$189,750	$5,000,000	0	0
Heat	5	$0	$0	1	15
Heavy Rain	11	$170,000	$0	0	1
High Wind	7	$18,605,000	$38,000,000	1	11
Hurricane (Typhoon)	1	$150,000	$0	0	0
Lightning	16	$398,000	$0	2	4
Strong Wind	2	$22,000	$0	0	0
Thunderstorm Wind	259	$6,085,000	$9,500	0	7

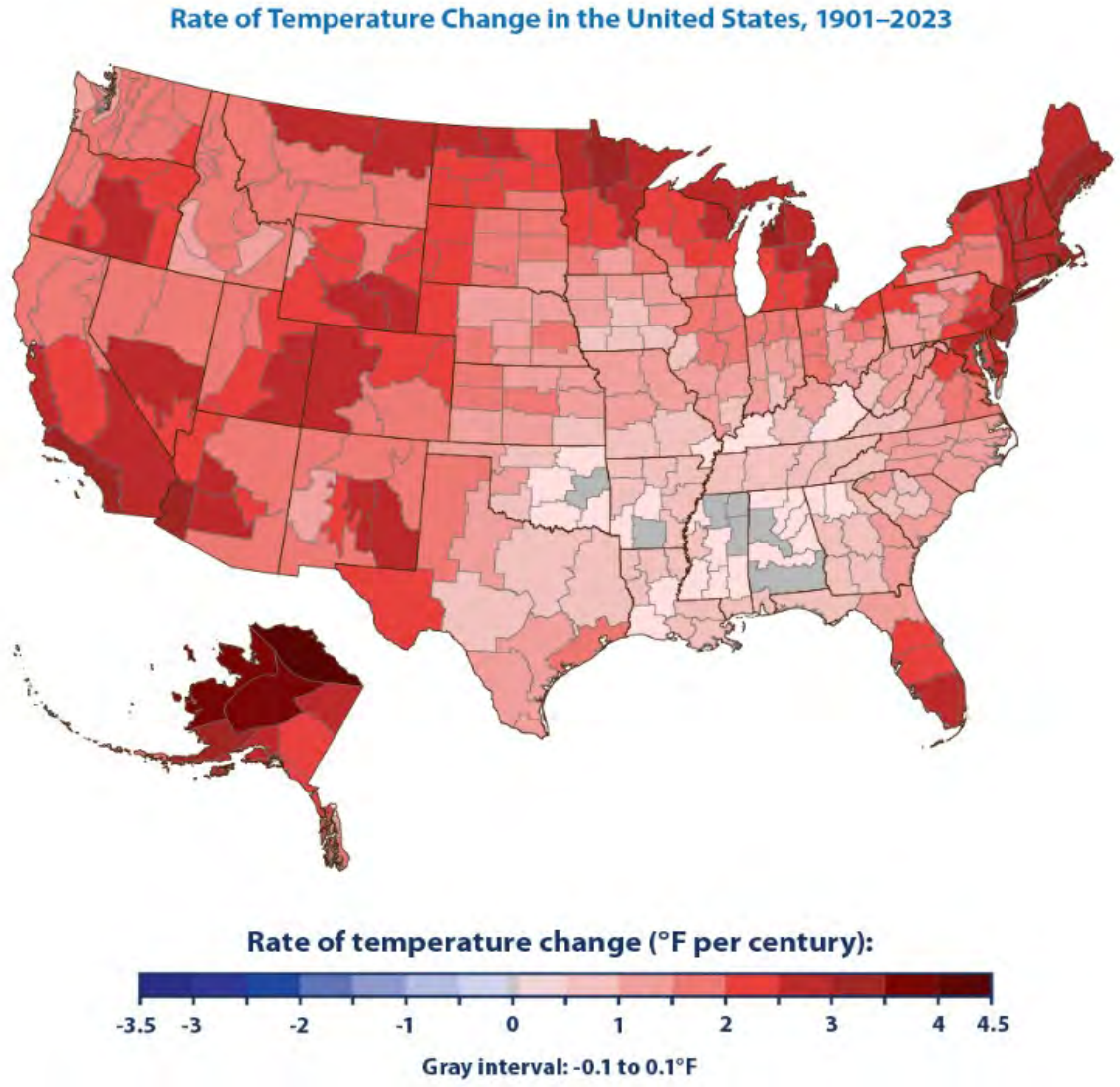
Type	# of Events	Property Damage	Crop Damage	Deaths (Direct)	Injuries (Direct)
Tornado	33	$6,625,000	$50,000	8	40
Tropical Storm	10	$91,001,000	$2,900,000	1	0
Winter Storm	5	$0	$0	0	0
Winter Weather	5	$0	$0	0	0
Total:	**583**	**$156,036,750**	**$56,105,500**	**14**	**78**
Robeson County					
Cold/Wind Chill	0	$0	$0	0	0
Flash Flood	30	$4,936,000	$0	2	0
Flood	9	$7,000	$0	0	0
Hail	171	$117,150	$50,000	0	1
Heat	5	$0	$0	1	0
Heavy Rain	10	$0	$0	0	0
High Wind	7	$24,120,000	$33,000,000	0	6
Hurricane (Typhoon)	0	$0	$0	0	0
Lightning	8	$506,500	$0	0	2
Strong Wind	10	$26,000	$0	0	0
Thunderstorm Wind	360	$4,393,000	$110,000	0	8
Tornado	49	$9,566,000	$0	6	334
Tropical Storm	7	$71,000	$0	0	0
Winter Storm	10	$20,000	$0	0	0
Winter Weather	5	$30,000	$0	0	0
Total:	**681**	**$43,792,650**	**$33,160,000**	**9**	**351**
Regional Total:	**1,850**	**$268,645,600**	**$114,797,000**	**33**	**447**

Source: NCEI Storm Events Database, February 2025

Note: Losses reflect totals for all impacted areas within a county.

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. 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 carbon dioxide (CO_2), in the atmosphere. This warming is occurring almost everywhere in the world which suggests a global cause rather than changes in localized weather patterns.



Alaska data start in 1925.

Data source: NOAA (National Oceanic and Atmospheric Administration). (2024). *Climate at a glance.* Retrieved March 25, 2024, from www.ncei.noaa.gov/access/monitoring/climate-at-a-glance

For more information, visit U.S. EPA's "Climate Change Indicators in the United States" at www.epa.gov/climate-indicators.

Since 1901, the average surface temperature across the contiguous 48 states has risen at an average rate of 0.17°F per decade. Average temperatures have risen more quickly since the late 1970s (0.32 to 0.51°F per decade). Nine of the top 10 warmest years on record for the contiguous 48 states have occurred since 1998, and 2012 and 2016 were the warmest years 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 recent iterations of the U.S. National Climate Assessment, the Region is projected to experience an additional 20-30 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 four to eight degrees Fahrenheit by 2100.

The U.S. National Climate Assessment identifies the following climate risks projected to impact the Southeast U.S., including the Region: rising temperatures and more frequent extreme heat events; increasing frequency and intensity of severe weather events; more heavy rain events and flooding; and more frequent and prolonged drought[1]. A discussion of the effect of these compounding risks on the individual hazards profiled below may be included in the Probability of Future Occurrence subsection for each hazard as applicable.

[1] U.S. National Climate Assessment series. U.S. Global Change Research Program. https://repository.library.noaa.gov/gsearch?ref=docDetails&related_series=U.S.%20National%20Climate%20Assessment

5.1 Cybersecurity

5.1.1 Hazard Description

Cyberattacks are deliberate attacks on information technology systems in an attempt to gain illegal access to a computer, or purposely cause damage. As the world and the Region become more technologically advanced and dependent upon computer systems, the threat of cyberattacks is becoming increasingly prevalent. Also known as computer network attacks, cyberattacks are difficult to recognize and typically use malicious code to alter computer data or steal information.

Mitigating and preparing for cyberattacks is challenging because of how diverse and complex attacks can be. The FBI is the lead federal agency for investigating cyberattacks by criminals, overseas adversaries, and terrorists. In North Carolina, the Department of Information Technology is the lead agency that maintains Cybersecurity and Risk Management resources.

Cyberattacks can happen in both the public and private sector. They may be carried out by a specific individual, or by groups from afar. Many attacks attempt to steal money or to disturb normal operations. According to the 2023 Verizon Report of Data Breaching, 83% of breaches involved external actors, with the majority of them being financially motivated.

There are many types of cyberattack incident patterns, which include:

- **Web App Attacks**: Incidents in which web applications were attacked, which can include exploiting code-level vulnerabilities in the application
- **Point-of-Sale Intrusions**: Remote attacks against environments where card-present retail transactions are conducted
- **Insider and Privilege Misuse**: Unapproved or malicious use of organizational resources.
- **Miscellaneous Errors**: Incidents in which unintentional actions directly compromise an attribute of a security asset
- **Physical Theft and Loss**: Incidents where an information asset went missing
- **Crimeware**: Instances involving malware that do not fit into a more specific pattern
- **Payment Card Skimmers**: Incidents involving skimming devices physically implanted on an asset that reads magnetic stripe data from payment cards
- **Cyber-espionage**: Unauthorized network or system access linked to state-affiliated actors
- **Denial-of-Service Attacks**: Any attack intended to compromise the availability of networks and systems that are designed to overwhelm systems, resulting in performance degradation or interruption of service

5.1.2 Location and Spatial Extent

Cyberattacks happen all over the world and are not restricted to a certain geographic boundary. They tend to affect the public sector rather than private sectors. Computer infrastructure across the Region may be vulnerable to this hazard.

5.1.3 Past Occurrences

In North Carolina and the Bladen Columbus Robeson Region, the North Carolina Department of Information Technology (NCDIT) specializes in cybersecurity and risk management. Within the department, the NC Information Sharing and Analysis Center gathers information on cyberattack threats within the State to raise cybersecurity preparedness. The North Carolina Joint Cybersecurity Task Force (JCTF) is also authorized to provide incident response and recovery efforts.

In 2023, North Carolina reported the highest number of cybercrimes in the "personal data breach" sector, which can be seen in the table below.

Table 5-2: North Carolina Cybercrimes and Victim Counts (2023)

Crime Type by Victim Count			
Crime Type	*Victim Count*	*Crime Type*	*Victim Count*
Advanced Fee	211	Lottery/Sweepstakes/Inheritance	119
BEC	596	Malware	20
Botnet	13	No Lead Value	1,122
Confidence/Romance	453	Non-payment/Non-Delivery	1,295
Credit Card/Check Fraud	337	Other	186
Crimes Against Children	46	Overpayment	115
Data Breach	93	Personal Data Breach	1,571
Employment	402	Phishing/Spoofing	150
Extortion	1,269	Ransomware	59
Government Impersonation	410	Real Estate	242
Harassment/Stalking	284	SIM Swap	18
IPR/Copyright and Counterfeit	33	Tech Support	1,032
Identity Theft	454	Threats of Violence	44
Investment	692		
Descriptors*			
Cryptocurrency	996	Cryptocurrency Wallet	480

Source: FBI Internet Crime Complaint Center (IC3), 2023

All counties in the Region have reported occurrences of a cyberattack within the last 5 years. Bladen County network systems were affected by a major cyberattack in November 2023. Columbus County has reported multiple cyberattacks across several years (e.g., October 2019, November 2020, May 2023). Robeson County was recently affected by a cyberattack in April 2024 as well.

5.1.4 Probability of Future Occurrence

As the world's dependency on technology grows in addition to severe past occurrences observed locally across the Region, the possibility of experiencing cyberattacks rises as well. The probability of future cybersecurity events is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability of hazard
- Possible: Between 1% and 10% annual probability of hazard
- Likely: Between 10% and 100% annual probability of hazard
- Highly Likely: 100% annual probability of hazard

Jurisdiction	Probability of Future Occurrence
Bladen County (Unincorporated Area)	Likely
Columbus County (Unincorporated Area)	Likely
Robeson County (Unincorporated Area)	Likely
City of Lumberton	Likely
City of Whiteville	Likely
Town of Bladenboro	Likely
Town of Boardman	Likely

Jurisdiction	Probability of Future Occurrence
Town of Bolton	Likely
Town of Brunswick	Likely
Town of Cerro Gordo	Likely
Town of Chadbourn	Likely
Town of Clarkton	Likely
Town of Dublin	Likely
Town of East Arcadia	Likely
Town of Elizabethtown	Likely
Town of Fair Bluff	Likely
Town of Fairmont	Likely
Town of Lake Waccamaw	Likely
Town of Lumber Bridge	Likely
Town of Marietta	Likely
Town of Maxton	Likely
Town of McDonald	Likely
Town of Orrum	Likely
Town of Parkton	Likely
Town of Pembroke	Likely
Town of Proctorville	Likely
Town of Raynham	Likely
Town of Red Springs	Likely
Town of Rennert	Likely
Town of Rowland	Likely
Town of Saint Pauls	Likely
Town of Sandyfield	Likely
Town of Tabor City	Likely
Town of Tar Heel	Likely
Town of White Lake	Likely

Source: Plan risk assessment

5.1.5 Consequence and Impact Analysis (Vulnerability)

Changing Future Conditions

Unlike other hazards discussed in this plan, changing climatic patterns are unlikely to affect the occurrence or frequency of future cyberattack incidents. Ongoing preparedness and training efforts will remain especially important as global data usage trends and cyberattack threats evolve in future years.

People
Cyberattacks may affect individuals or groups of people financially, socially, or emotionally, depending on the type of event and underlying motive.

First Responders
First responders can be impacted in the same way as the general public. Critical communications systems and other responder networks may be significantly impacted in the event of a cyberattack.

Continuity of Operations
Cyberattacks can result in utility issues, loss of internet connection, loss of account access, and/or communication disruptions which may impact operations.

Built Environment
Although this has historically been a minor concern, cyberattacks could cause increasing damage to the built environment as more jurisdictions adopt newer technologies designed to connect various building systems to the internet.

Economy
Potential economic damages include business losses, customer losses, software crashes, ransom payments, and other impacts.

Natural Environment
Although this has historically been a minor concern, cyberattacks could cause increasing damage to the natural environment if natural resource management control systems and infrastructure are targeted.

5.2 Dam/Levee Failure

5.2.1 Hazard Description

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 is 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 downstream, damaging or destroying anything in its path. Overtopping is the primary cause of earthen dam failure in the U.S.

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 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. The North Carolina Department of Environmental Quality (NCDEQ) oversees the statewide Dam Safety Program. 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. 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. 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 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 5-3: Dam Hazard Classifications

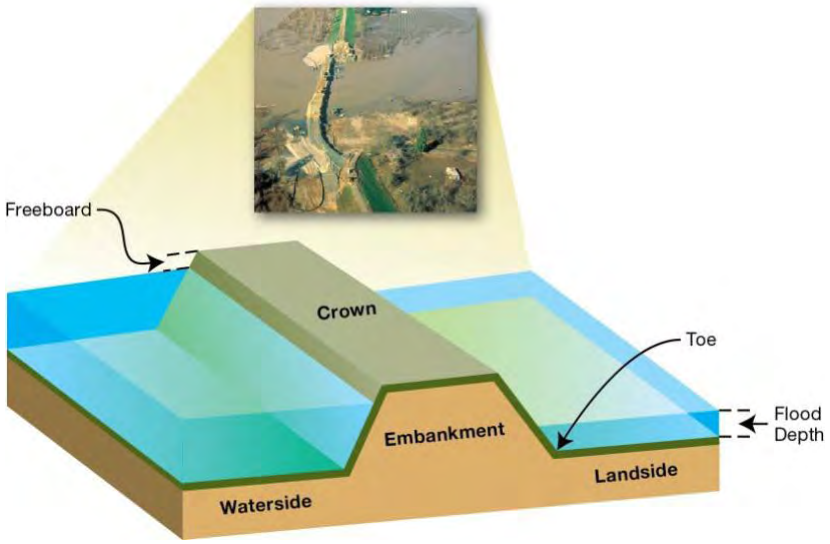
Hazard Classification	Description	Quantitative Guidelines
Low	Interruption of road service, low volume roads	Less than 25 vehicles per day
	Economic damage	Less than $30,000
Intermediate	Damage to highways, interruption of service	25 to less than 250 vehicles per day
	Economic damage	$30,000 to less 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

Source: NCDEQ

Levee Failure

FEMA defines a levee as “a man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water in order to reduce the risk from temporary flooding.” Levee systems consist of levees, floodwalls, and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices. Levees often have “interior drainage” systems that work in conjunction with the levees to take water from the landward side to the water side. An interior drainage system may include culverts, canals, ditches, storm sewers, and/or pumps.

Levees and floodwalls are constructed from the earth, compacted soil or artificial materials, such as concrete or steel. To protect against erosion and scouring, earthen levees can be covered with grass and gravel or hard surfaces like stone, asphalt, or concrete. Levees and floodwalls are typically built parallel to a waterway, most often a river, in order to reduce the risk of flooding to the area behind it. **Figure 5-2** on the following page shows the components of a typical levee.



Source: FEMA, What is a Levee Fact Sheet, August 2011

Figure 5-2: Components of a Typical Levee

Levees provide strong flood protection, but they are not failsafe. Levees are designed to protect against a specific flood level and could be overtopped during severe weather events. Levees reduce, not eliminate, the risk to individuals and structures behind them. A levee system failure or overtopping can create severe flooding and highwater velocities. It is important to remember that no levee provides protection from events for which it was not designed, and proper operation and maintenance are necessary to reduce the probability of failure.

5.2.2 Location and Spatial Extent

The tables and figures below show counts and locations of high and intermediate hazard dams in each participating jurisdiction.

Table 5-4: Counts of High, Intermediate, and Low Hazard Dams by Jurisdiction

Jurisdiction	High	Intermediate	Low
Bladen			
Bladen County (Unincorporated Area)	2	1	14
Town of Elizabethtown	1	0	0
Town of Tar Heel	0	2	0
Subtotal Bladen	**3**	**3**	**14**
Columbus			
Columbus County (Unincorporated Area)	3	0	5
Town of Tabor City	1	0	0
Subtotal Columbus	**4**	**0**	**5**
Robeson			
Robeson County (Unincorporated Area)	1	0	8
City of Lumberton	3	0	0

Jurisdiction	High	Intermediate	Low
Subtotal Robeson	**4**	**0**	**8**
Regional Total	**11**	**3**	**27**

Source: North Carolina Dam Inventory, 2025

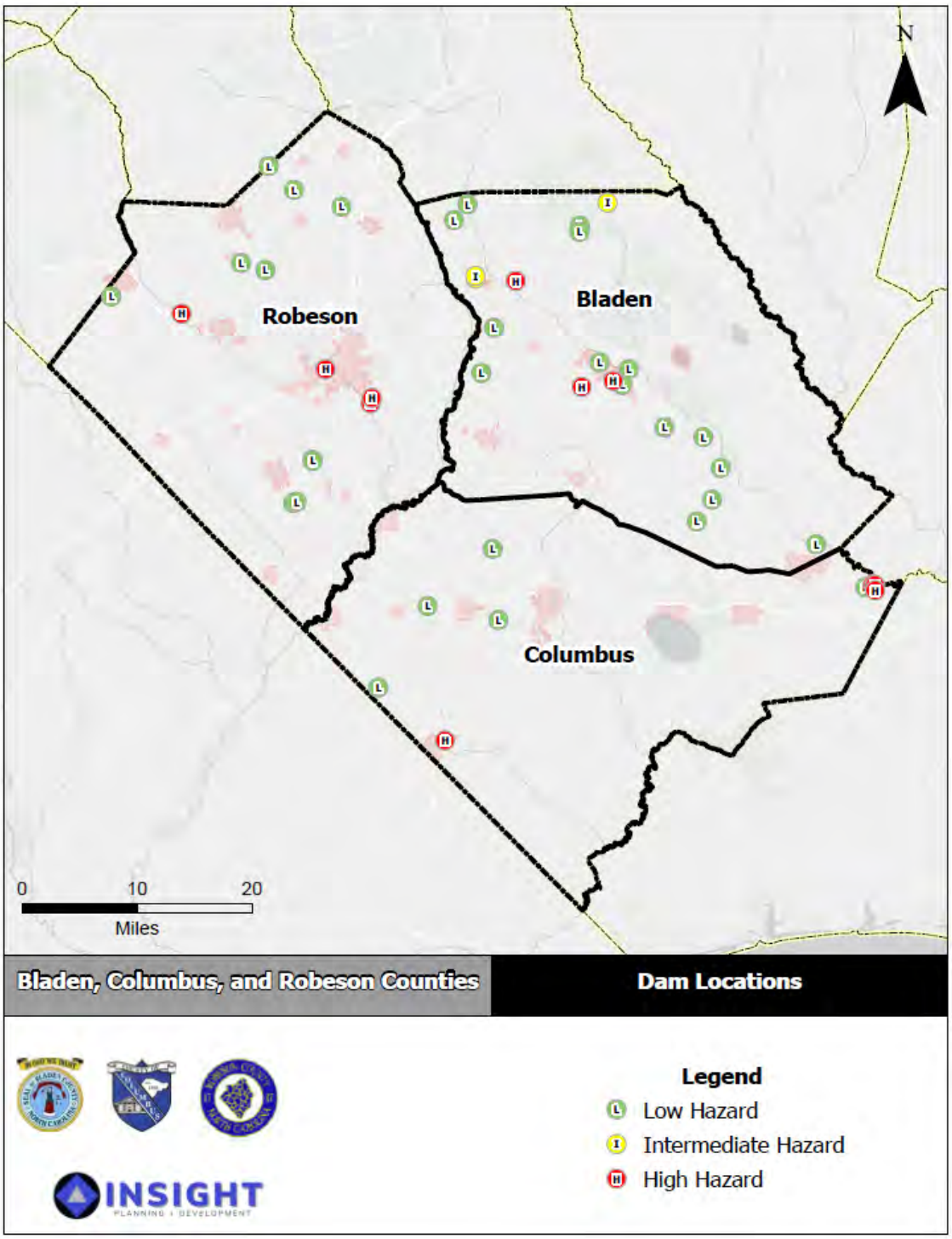


Figure 5-3: Dam Locations

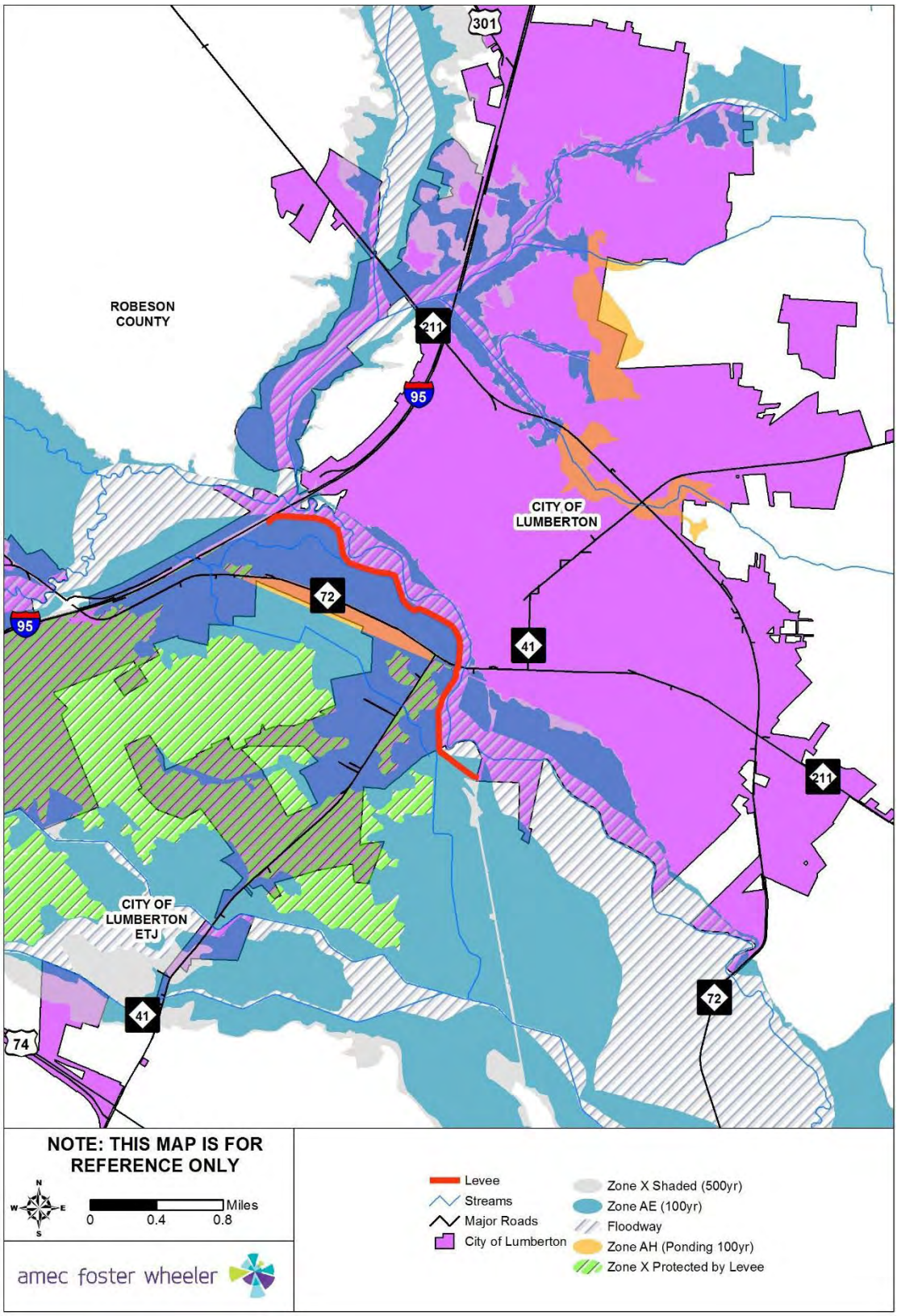


Figure 5-4: Levee Location

Levees

There is one levee located in the Region within Robeson County in the City of Lumberton. A levee

construction and channel improvement project was completed by the U.S. Soil Conservation Service (SCS) in the Jacob Swamp watershed during the 1960s. The project included improvements to the existing Jacob Swamp, Little Jacob Swamp, Gum Branch, and Cotton Mill Branch channels in order to increase their ability to remove flood water from the area. The project also included a levee along the Lumber River to prevent flooding from the Lumber River. This project was designed to prevent damage predicted by the 1% (100- year) annual chance flood, as determined using data available at that time. In order to provide this level of protection, the existing channels needed to be enlarged, and a levee needed to be installed along the Lumber River. This levee consisted of a combination of the I-95 embankment and a constructed levee from I-95 to Alamac Road. **Figure 5-4** shows the location of the levee within the City of Lumberton.

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. 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.

5.2.3 Past Occurrences

Floodwaters circumvented the Lumberton Levee during the October 2016 Hurricane Matthew event. The White Oak Dike also experienced failure days after catastrophic rainfall from Hurricane Florence (September 2018).

5.2.4 Probability of Future Occurrence

Based on the analyses performed in the North Carolina Emergency Management (NCEM) Risk Management Tool (RMT) in addition to findings of the updated plan risk assessment process, the probability of future dam failure events is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability of hazard
- Possible: Between 1% and 10% annual probability of hazard
- Likely: Between 10% and 100% annual probability of hazard
- Highly Likely: 100% annual probability of hazard

Jurisdiction	Probability of Future Occurrence
Bladen County (Unincorporated Area)	Unlikely
Columbus County (Unincorporated Area)	Unlikely
Robeson County (Unincorporated Area)	Unlikely
City of Lumberton	Unlikely
City of Whiteville	Unlikely
Town of Bladenboro	Unlikely
Town of Boardman	Unlikely

Jurisdiction	Probability of Future Occurrence
Town of Bolton	Unlikely
Town of Brunswick	Unlikely
Town of Cerro Gordo	Unlikely
Town of Chadbourn	Unlikely
Town of Clarkton	Unlikely
Town of Dublin	Unlikely
Town of East Arcadia	Unlikely
Town of Elizabethtown	Unlikely
Town of Fair Bluff	Unlikely
Town of Fairmont	Unlikely
Town of Lake Waccamaw	Unlikely
Town of Lumber Bridge	Unlikely
Town of Marietta	Unlikely
Town of Maxton	Unlikely
Town of McDonald	Unlikely
Town of Orrum	Unlikely
Town of Parkton	Unlikely
Town of Pembroke	Unlikely
Town of Proctorville	Unlikely
Town of Raynham	Unlikely
Town of Red Springs	Unlikely
Town of Rennert	Unlikely
Town of Rowland	Unlikely
Town of Saint Pauls	Unlikely
Town of Sandyfield	Unlikely
Town of Tabor City	Unlikely
Town of Tar Heel	Unlikely
Town of White Lake	Unlikely

Source: NCEM RMT & plan risk assessment

5.2.5 Consequence and Impact Analysis (Vulnerability)

Changing Future Conditions

Changing climatic patterns may not affect dams as directly when compared to other hazards. However, a significant projected increase in future extreme weather could affect dams negatively in the form of higher flooding levels, altered streamflow, structural damage, and other key risk factors. Dam failures present recurring dangers of widespread flooding, which would greatly impact the Region in a breach scenario.

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 of loss of life for people 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 people located on the river (e.g. for recreation) the vulnerability of loss of life is significant. As for the case of the Lumberton dam breach during both Matthew (2016) and Florence (2018), the West Lumberton Elementary School and public housing in the City of Lumberton were permanently closed because of structural damage and families that were forced to move away as a result.

The dams in the Region do not provide drinking water supply. As a result, the Region is not at risk of major public health threats posed by the disruption of drinking water supply from dam failure. However, the Region's population is vulnerable to minor impacts including the loss of the aesthetic or recreational use of the lakes upstream of dams following failure.

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 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 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 stretched resources or become 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. More than 2,000 structures across the City of Lumberton were damaged after Hurricane Matthew in 2016. 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 crosses 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. Breach of the White Oak Dike resulted in costly cleanup efforts in Bladen County (in Kelly) after Hurricane Florence (2018), resulting in a significant redirection of funds on behalf of the Region.

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.

5.3 Drought

5.3.1 Hazard Description

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

Droughts are typically classified into one of four types: 1) meteorological, 2) hydrologic, 3) agricultural, or 4) socioeconomic. **Table 5-5** presents definitions for these types of drought.

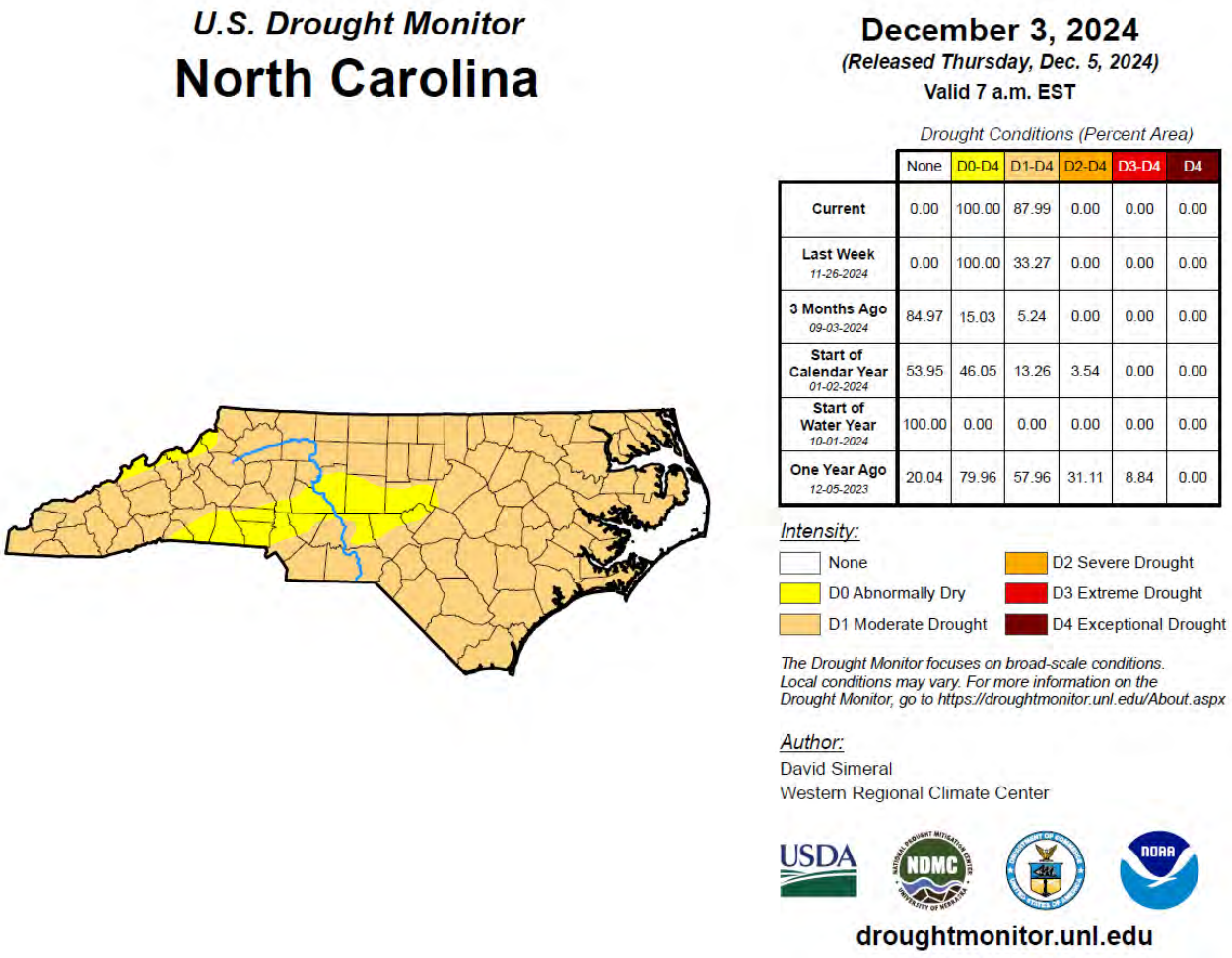
Table 5-5: Drought Classification Definitions

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

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

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

The Palmer Drought Severity Index (PDSI) is based on observed drought conditions and range from -0.5 (incipient dry spell) to -4.0 (extreme drought). Evident in **Figure 5-5**, the Palmer Drought Severity Index Summary Map for the United States, drought affects most areas of the United States but is less severe in the Eastern United States.



Source: National Drought Mitigation Center

Figure 5-5: Palmer Drought Severity Index Summary Map for the United States

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.

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 the 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.

5.3.2 Location and Spatial Extent

Drought typically covers a large area and cannot be confined to any geographic or political boundaries. According to the Palmer Drought Severity Index (PDSI), eastern North Carolina has a relatively low risk for drought hazard. However, local areas may experience much more severe and/or frequent drought events than what is represented on the Palmer Drought Severity Index map. 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.

Data from the North Carolina Drought Management Advisory Council and National Centers for Environmental Information (NCEI) were used to ascertain historical drought events in the Region. The North Carolina Drought Management Advisory Council reports data on North Carolina drought conditions from 2000 to 2024 through the North Carolina Drought Monitor. It classifies drought conditions by county on a scale of D0 to D4 (which are depicted below):

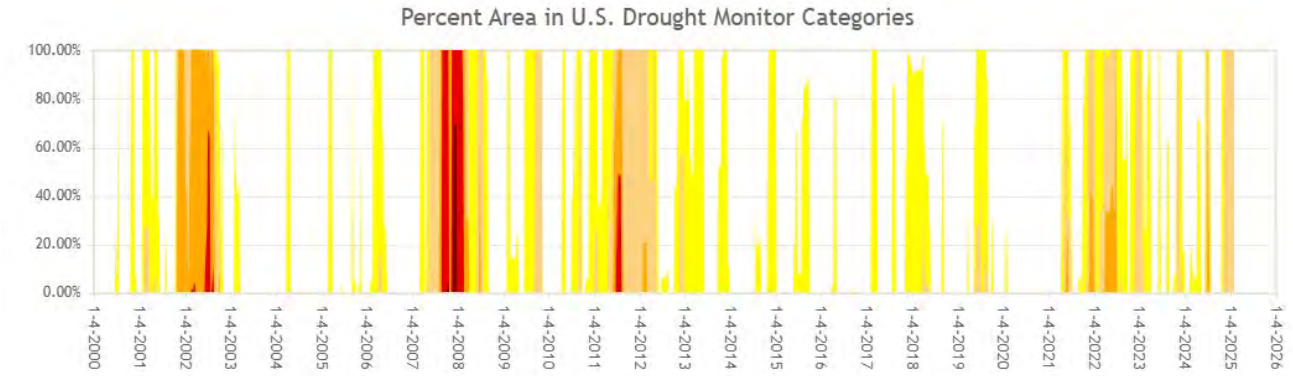
- D0: Abnormally Dry
- D1: Moderate Drought
- D2: Severe Drought
- D3: Extreme Drought
- D4: Exceptional Drought

5.3.3 Past Occurrences

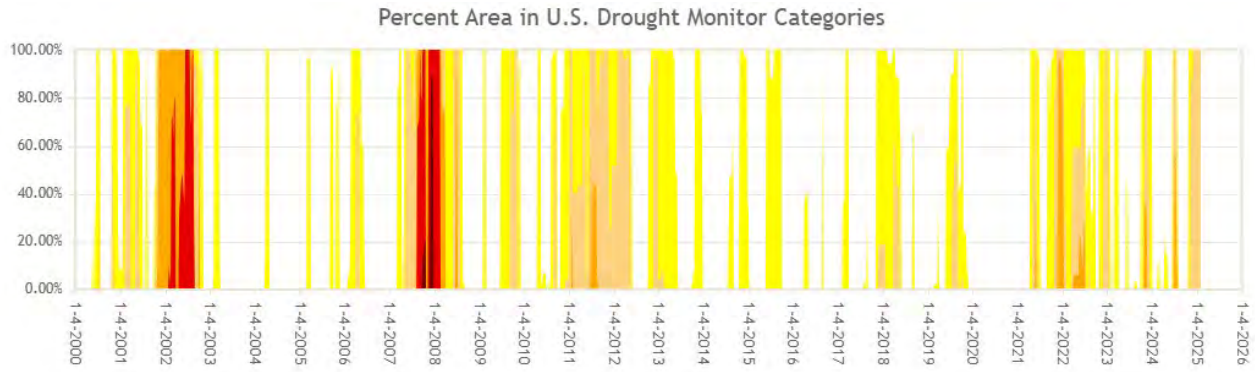
According to the North Carolina Drought Monitor, all three counties and all jurisdictions in the planning area in the Region had drought occurrences (including abnormally dry) in the last 24 years (2000-2024) (**Figure 5-6**) It should be noted that the North Carolina Drought Monitor also estimates what percentage of the county is in each classification of drought severity. For example, the most severe classification reported may be exceptional, but most of the county may be in a less severe condition.

According to the North Carolina Drought Monitor, the Region has experienced drought conditions every year since 2000. **Figure 5-6** shows the most severe classification for each year by county.

Bladen County



Robeson County



Columbus County

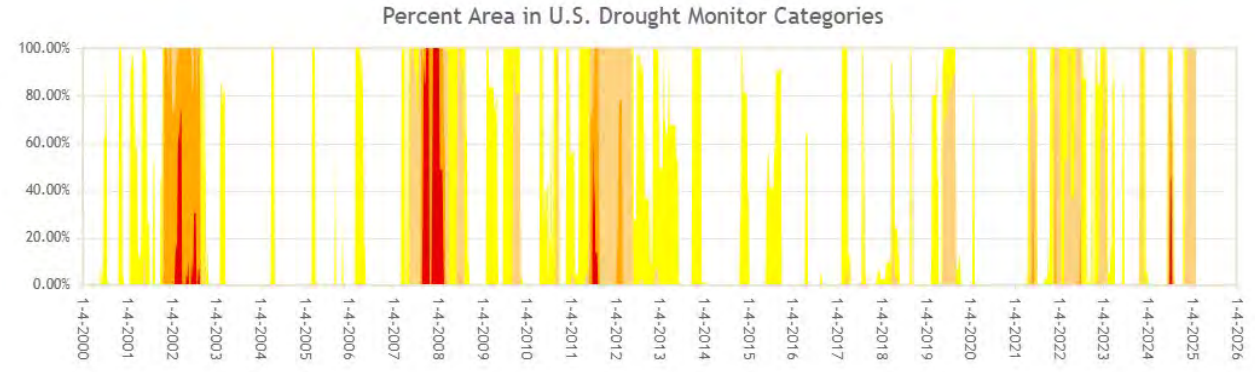


Figure 5-6: Historical Drought Occurrences

5.3.4 Probability of Future Occurrence

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

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability of hazard
- Possible: Between 1% and 10% annual probability of hazard
- Likely: Between 10% and 100% annual probability of hazard
- Highly Likely: 100% annual probability of hazard

Jurisdiction	Probability of Future Occurrence
Bladen County (Unincorporated Area)	Highly Likely
Columbus County (Unincorporated Area)	Highly Likely
Robeson County (Unincorporated Area)	Highly Likely
City of Lumberton	Highly Likely
City of Whiteville	Highly Likely
Town of Bladenboro	Highly Likely

Jurisdiction	Probability of Future Occurrence
Town of Boardman	Highly Likely
Town of Bolton	Highly Likely
Town of Brunswick	Highly Likely
Town of Cerro Gordo	Highly Likely
Town of Chadbourn	Highly Likely
Town of Clarkton	Highly Likely
Town of Dublin	Highly Likely
Town of East Arcadia	Highly Likely
Town of Elizabethtown	Highly Likely
Town of Fair Bluff	Highly Likely
Town of Fairmont	Highly Likely
Town of Lake Waccamaw	Highly Likely
Town of Lumber Bridge	Highly Likely
Town of Marietta	Highly Likely
Town of Maxton	Highly Likely
Town of McDonald	Highly Likely
Town of Orrum	Highly Likely
Town of Parkton	Highly Likely
Town of Pembroke	Highly Likely
Town of Proctorville	Highly Likely
Town of Raynham	Highly Likely
Town of Red Springs	Highly Likely
Town of Rennert	Highly Likely
Town of Rowland	Highly Likely
Town of Saint Pauls	Highly Likely
Town of Sandyfield	Highly Likely
Town of Tabor City	Highly Likely
Town of Tar Heel	Highly Likely
Town of White Lake	Highly Likely

Source: NCEM RMT & plan risk assessment

5.3.5 Consequence and Impact Analysis (Vulnerability)

Changing Future Conditions

According to findings from the 2020 North Carolina Climate Science Report, it is very likely that average temperatures and the number of very warm nights will both continue to increase throughout North

Carolina[2]. The frequency, duration, and intensity of droughts are likely to continue to increase in tandem with higher average temperatures and a higher rate of evapotranspiration.

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.

First Responders

The overall effect on first responders would be relatively limited when compared to other hazards. Exceptional drought conditions may have severe impacts on 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. Both Columbus and Bladen counties experienced mild water shortages and voluntary water shortage mandates during a 2019 drought.

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. Droughts in 2019 caused half of Columbus County (including the towns of Bolton, Brunswick, Waccamaw, Sandyfield, and Tabor) and the southeast corner of Bladen County (including the Town of East Arcadia) to experience severe damage to crops and pastures, negatively impacting local economies. 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.

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.

[2] 2020 North Carolina Climate Science Report (https://ncics.org/programs/nccsr/)

5.4 Earthquake

5.4.1 Hazard Description

An earthquake is a movement or shaking of the ground. Most earthquakes are caused by the release of stress 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 5-6**. Alternatively, a detailed description of the Modified Mercalli Intensity (MMI) Scale is given in **Table 5-7**.

Table 5-6: Richter Scale

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

Table 5-7: 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	

Scale	Intensity	Description of Effects	Corresponding Richter Scale Magnitude
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

5.4.2 Location and Spatial Extent

Approximately two-thirds of North Carolina is subject to earthquakes, with the western and southeast regions 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 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.

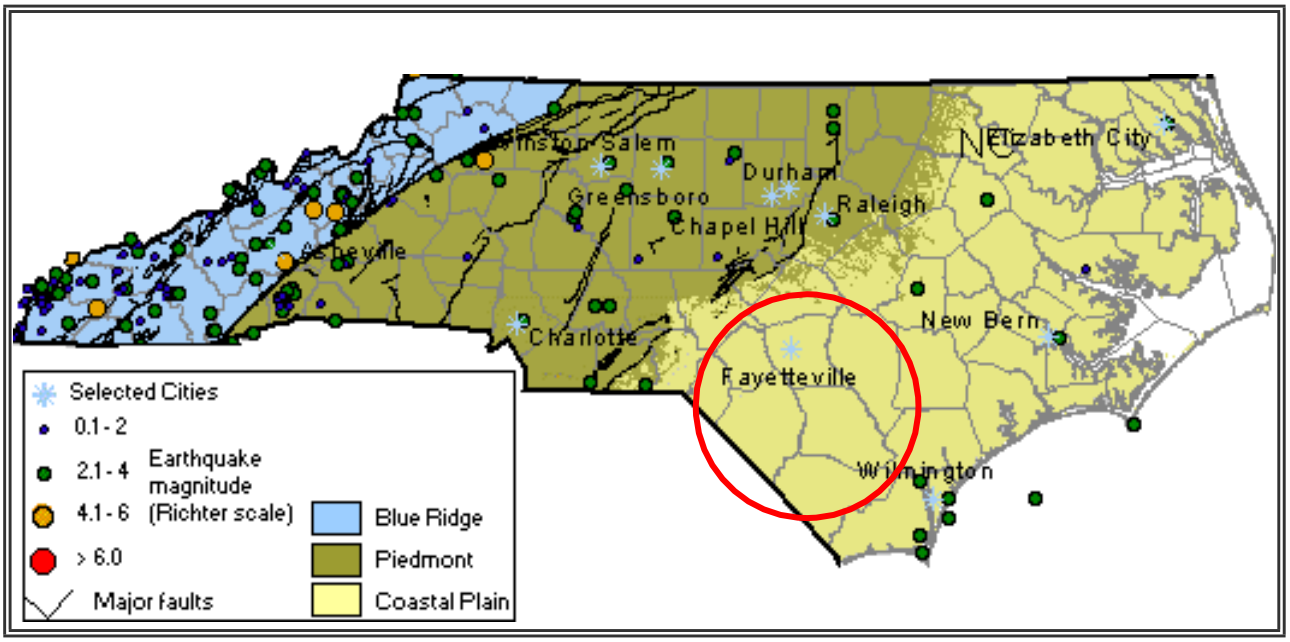
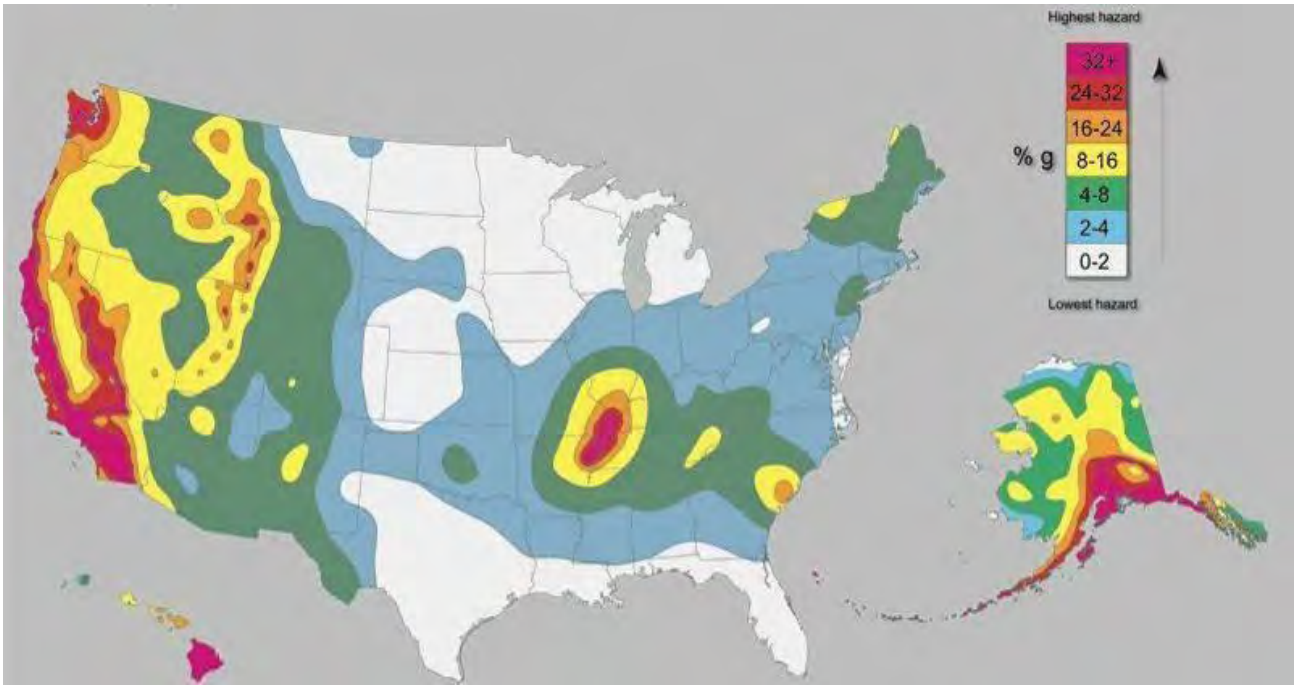


Figure 5-7: Statewide Historic Earthquake Magnitudes

Figure 5-8 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, the Region lies within an approximate zone level between 6 and 14% ground acceleration. This indicates that the Region exists within an area of moderate seismic risk.

Earthquake extent can be measured by the Richter Scale and the Modified Mercalli Intensity (MMI) scale. The most severe earthquake felt in the Region since the mid-1800s was a six (VI) on the Modified

Mercalli Intensity Scale. This event occurred in 1886, and the effects of this magnitude earthquake typically include trees swaying, suspended objects swinging, and objects falling off of shelves. Earthquakes of greater magnitude may be possible within the Region; however, this is known to be the greatest severity currently on record.



Source: United States Geological Survey

Figure 5-8: Seismic Hazard Information for North Carolina

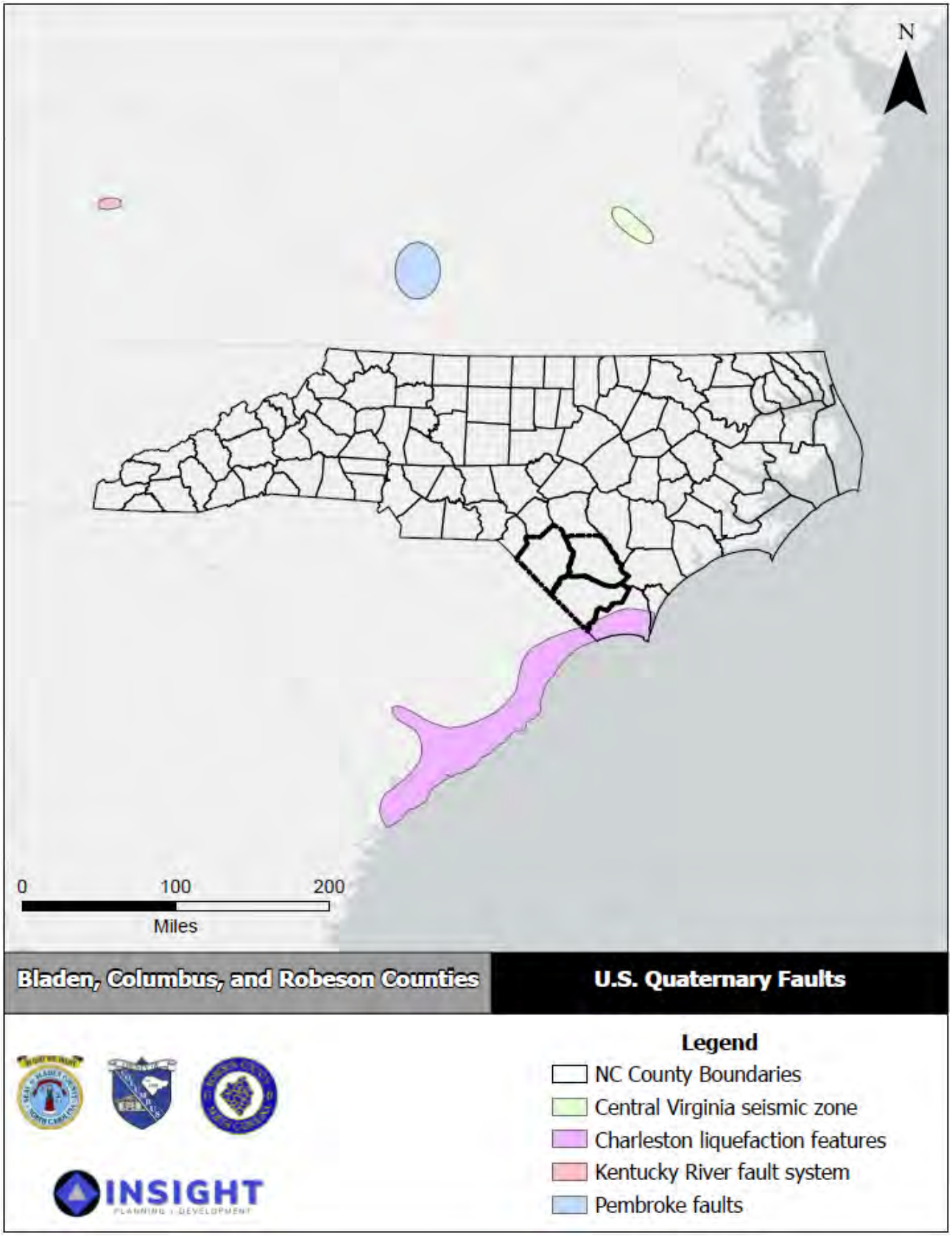


Figure 5-9: U.S. Quaternary Faults

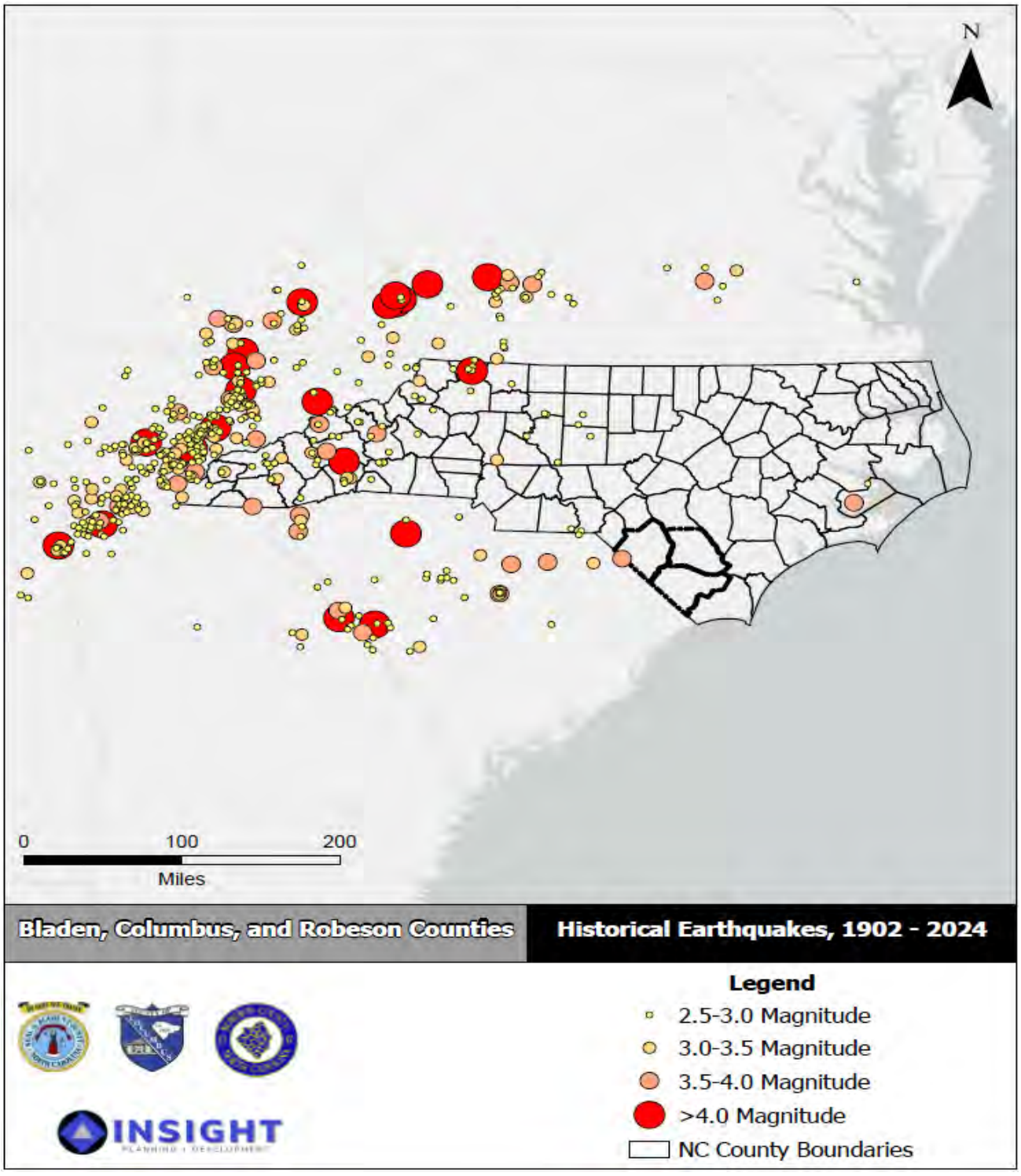


Figure 5-10: North Carolina Historical Earthquakes(1902-2024)

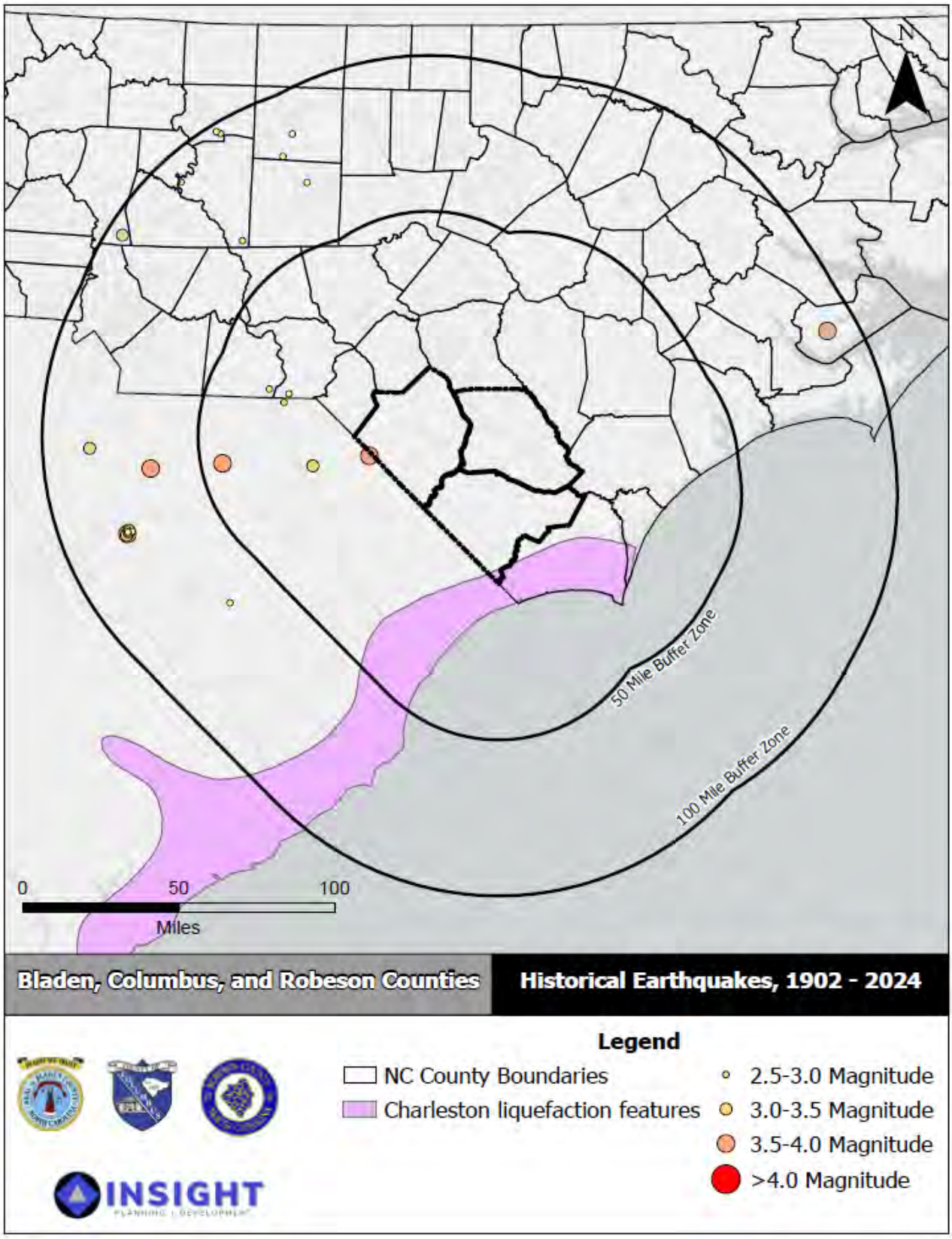


Figure 5-11: Historical Regional Earthquakes (1902-2024)

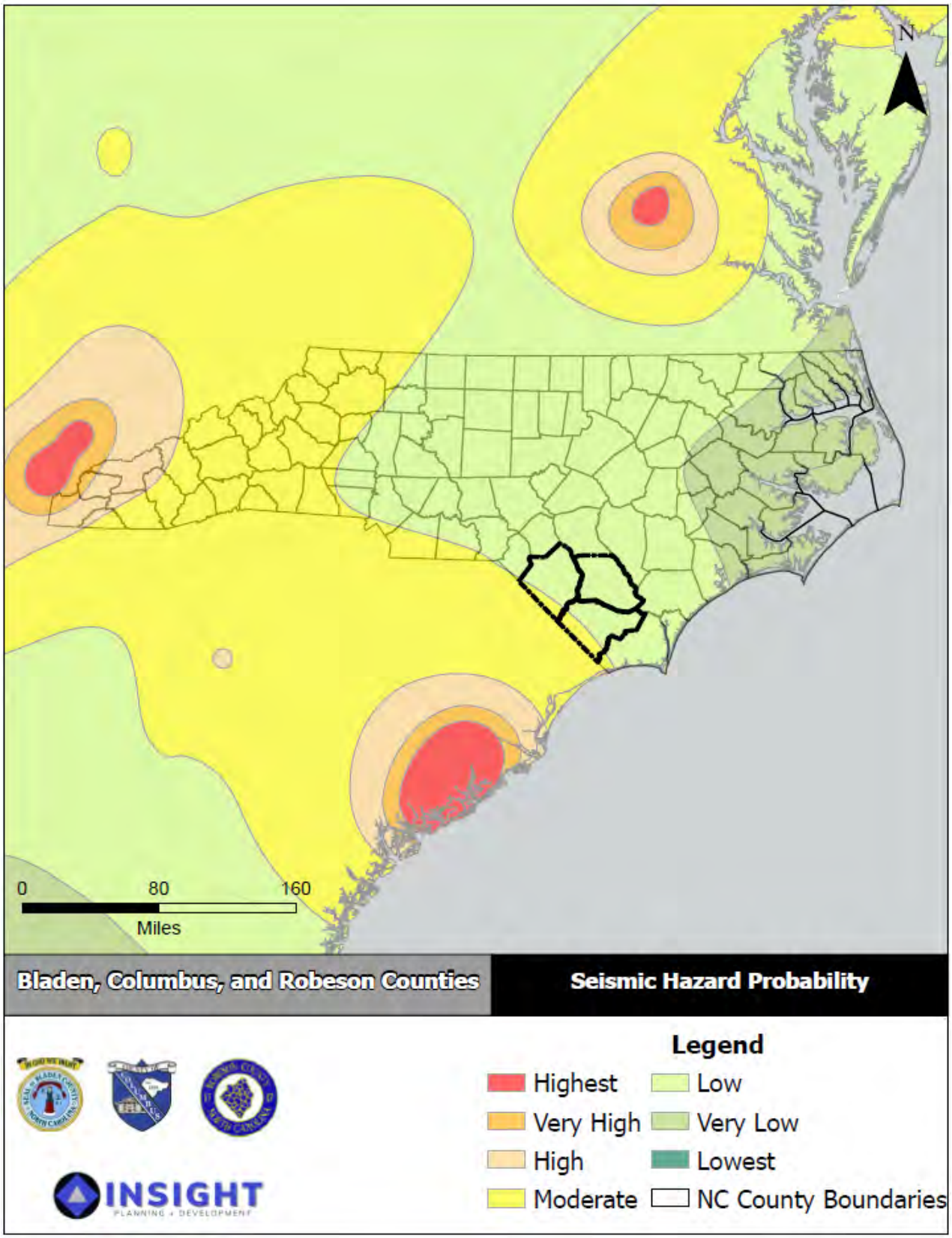


Figure 5-12: North Carolina Seismic Hazard Probability

5.4.3 Past Occurrences

Historical seismicity is an indicator of where earthquakes have happened. Paleo seismicity (the study of earthquake-induced ground failures during prehistoric times) provides further evidence as to the size and frequency of earthquakes. Since 1735, North Carolina has experienced 21 earthquakes, each of which caused at least architectural damage. From historical data, scientists from the U.S. Geological Survey (USGS) and several university research centers have produced maps that project the expected ground motion for various return periods. The last recorded damaging earthquake in which the epicenter was in North Carolina occurred in the vicinity of the Town of Hendersonville in 1981. The epicenter for the last recorded damaging event that affected the state was in Mineral Springs, Virginia in 2011. A list of earthquakes that have caused damage in North Carolina is presented below in **Table 5-8**.

Table 5-8: Earthquakes Affecting North Carolina

Date	Location	Richter Scale
12/16/1811	NE Arkansas	8.5
12/16/1811	NE Arkansas	8.0
12/16/1811	NE Arkansas	8.0
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
09/13/1976	Southwest Virginia	4.1
05/05/1981	Henderson County, NC	3.5
8/23/2011 Mineral Springs, VA 5.8 VIII V	Mineral Bluff, VA	5.8
8/9/2020	Sparta, NC	5.1

Date	Location	Richter Scale
2/3/2021	VA/NC Border	2.6
2/8/2021	VA/NC Border	1.8
2/21/2021	TN/NC Border	2.4
2/25/2021	VA/NC Border	2.2
2/26/2021	Western NC Border	1.6
3/04/2021	VA/NC Border	2
3/7/2021	Western NC Border	1.6
4/7/2021	TN/NC Border	1.6
4/17/2021	Western NC	2.0
4/20/2021	VA/NC Border	1.7
4/21/2021	VA/NC Border	2.3
4/28/2021	VA/NC Border	1.9
6/9/2021	VA/NC Border	1.9
6/21/2021	VA/NC Border	1.8
7/27/2021	Western NC Border	2.7
7/30/2021	VA/NC Border	1.7
8/17/2021	Western NC	2.7
8/23/2021	VA/NC Border	1.8
8/23/2021	VA/NC Border	1.5
8/24/2021	Western NC	2.1
9/25/2021	Western North Carolina	2.5
11/5/2021	VA/NC Border	2.0
11/21/2021	Western NC	2.4
11/24/2021	Western NC	2.0
12/5/2021	Western NC	2.3

Source: North Carolina State Hazard Mitigation Plan 2023; Southeast US Seismic Network, USGS

At least 14 earthquakes are known to have affected the Region since 1811. The strongest of these measured a VI on the Modified Mercalli Intensity (MMI) scale. **Table 5-9** provides a summary of earthquake events reported by the National Geophysical Data Center (formerly NGDC; now merged into NOAA NCEI) between 1811 and 2023.

Bladen County, NC has a very low earthquake risk, with a total of 2 earthquakes since 1811. The USGS database shows that there is a 0.36% chance of a major earthquake within 50 miles of Bladen County, NC within the next 50 years.

Columbus County, NC has a very low earthquake risk, with a total of 10 earthquakes since 1811. The USGS database shows that there is a 0.53% chance of a major earthquake within 50 miles of Columbus

County, NC within the next 50 years.

Robeson County, NC has a very low earthquake risk, with a total of 2 earthquakes since 1811. The USGS database shows that there is a 0.61% chance of a major earthquake within 50 miles of Robeson County, NC within the next 50 years.

Table 5-9: Summary of Seismic Activity in the Region

Location	Number of Occurrences	Greatest MMI Reported	Richter Scale Equivalent
Bladen County	**2**	II	--
Bladenboro	0	0	0
Clarkton	0	0	0
Dublin	0	0	0
East Acardia	0	0	0
Elizabethtown	2	II	0
Tarheel	0	0	0
White Lake	0	0	0
Unincorporated Area	0	0	0
Columbus County	**10**	**VI**	--
Boardman	0	0	0
Bolton	4	III	--
Brunswick	1	IV	4.7
Cerro Gordo	1	IV	4.5
Chadbourn	0	0	0
Fair Bluff	2	VI	0
Lake Waccamaw	1	IV	4.7
Sandyfield	0	0	0
Tabor	0	0	0
Whiteville	1	IV	4.5
Unincorporated Area	0	0	0
Robeson County	**2**	**III**	**4.5**
Fairmount	0	0	0
Lumberton	0	0	0
Lumberbridge	0	0	0
Marietta	0	0	0
Maxton	0	0	0
McDonald	0	0	0

Location	Number of Occurrences	Greatest MMI Reported	Richter Scale Equivalent
Orrum	0	0	0
Parkton	0	0	0
Pembroke	0	0	0
Proctorville	0	0	0
Raynham	0	0	0
Red Spring	1	III	--
Rennert	0	0	0
Rowland	1	III	4.5
St. Pauls	0	0	0
Unincorporated Area	0	0	0
Total	**14**	**VI**	**5.0 to 5.9**

5.4.4 Probability of Future Occurrence

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

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability of hazard
- Possible: Between 1% and 10% annual probability of hazard
- Likely: Between 10% and 100% annual probability of hazard
- Highly Likely: 100% annual probability of hazard

Jurisdiction	Probability of Future Occurrence
Bladen County (Unincorporated Area)	Possible
Columbus County (Unincorporated Area)	Possible
Robeson County (Unincorporated Area)	Possible
City of Lumberton	Possible
City of Whiteville	Possible
Town of Bladenboro	Possible
Town of Boardman	Possible
Town of Bolton	Possible
Town of Brunswick	Possible
Town of Cerro Gordo	Possible
Town of Chadbourn	Possible
Town of Clarkton	Possible
Town of Dublin	Possible

Jurisdiction	Probability of Future Occurrence
Town of East Arcadia	Possible
Town of Elizabethtown	Possible
Town of Fair Bluff	Possible
Town of Fairmont	Possible
Town of Lake Waccamaw	Possible
Town of Lumber Bridge	Possible
Town of Marietta	Possible
Town of Maxton	Possible
Town of McDonald	Possible
Town of Orrum	Possible
Town of Parkton	Possible
Town of Pembroke	Possible
Town of Proctorville	Possible
Town of Raynham	Possible
Town of Red Springs	Possible
Town of Rennert	Possible
Town of Rowland	Possible
Town of Saint Pauls	Possible
Town of Sandyfield	Possible
Town of Tabor City	Possible
Town of Tar Heel	Possible
Town of White Lake	Possible

Source: NCEM RMT & plan risk assessment

5.4.5 Consequence and Impact Analysis (Vulnerability)

Changing Future Conditions

According to the North Carolina Department of Environmental Quality (NCDEQ), despite infrequent occurrences of severe seismic events and no active fault zones in the state, North Carolina is bordered by the Middleton Place-Summerville Seismic Zone (near Charleston, SC) to the south, East Tennessee Seismic Zone to the west, and Central Virginia Seismic Zone to the north[3]. Although strong earthquakes are rare in North Carolina, there have still been several notable events recorded across susceptible regions of the state within the last 100 years alone. A single event of magnitude 5 or greater can easily cut off critical infrastructure and cause residual structural damage over a large area. Current building and development design practices may account for this hazard, but significant portions of existing development, especially in more rural or older areas, will remain vulnerable to earthquakes without any new structural interventions.

[3] NCDEQ Earthquakes (https://www.deq.nc.gov/about/divisions/energy-mineral-and-land-resources/north-carolina-geological-survey/geologic-hazards/earthquakes-north-carolina)

People

Earthquakes in the 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.

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 the Region.

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, the Region has 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 the Region.

Natural Environment

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

5.5 Excessive Heat

5.5.1 Hazard Description

Excessive heat, like drought, poses little risk to property. However, excessive heat can have devastating effects on health. Excessive heat is often referred to as "extreme heat" or a "heat wave." According to the National Oceanic and Atmospheric Administration (NOAA), there is no universal definition for extreme heat because "the definition of "extreme" can vary depending on the location and typical climate[4]." In most areas of the country, the National Weather Service generally issues alerts "when the heat index is expected to exceed 105°F-110°F for at least two consecutive days," but they also work with local partners to determine the most appropriate conditions for a specific geography[5, 6]. Each National Weather Service forecast office considers their own community's vulnerabilities, local guidelines and thresholds, forecast confidence, heat intensity and duration, occurrences during summer holidays or outdoor events, and other factors. They use this information to decide when and whether to issue a heat watch, warning, or advisory.

The State of North Carolina defines extreme heat regionally using heat index thresholds. The regional thresholds recognize that an area's typical climate conditions and relevant local factors, such as the proportion of the population engaged in outdoor work, can impact how heat affects the local population. At heat indices higher than established thresholds, negative health impacts begin to occur. The North Carolina Department of Health and Human Services (NCDHHS) uses these regional temperature thresholds to activate its Heat Health Alert System. NCDHHS sends heat alerts to county health departments and Heat Health Alert System subscribers when the daily maximum heat index is forecasted to meet or exceed the heat index threshold for their region. In the Bladen-Columbus-Robeson Region, that threshold is between 102 and 103°F.

Extreme heat can lead to heat-related illness and death. The number of extreme heat days has been increasing on average each year, putting residents at a higher risk of health impacts. In 2023, more people in the United States died of heat-related illness than any other year on record[7]. **Table 5-10** shows the dangers associated with different heat index temperatures. Some populations, such as the elderly, the young, and people with pre-existing health conditions, are more susceptible to heat danger than other segments of the population. However, everyone is at risk of health impacts from exposure to extreme heat.

Table 5-10: Heat Disorders Associated with Heat Index Temperature

Heat Index Temperature (°F)	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°	Heatstroke/sunstroke, heat cramps, and heat exhaustion likely, with prolonged exposure and/or physical activity

[4] 2024-2030 National Heat Strategy (https://cpo.noaa.gov/wp-content/uploads/2024/07/National_Heat_Strategy-2024-2030.pdf)
[5] NWS Heat Forecast Tools (https://www.weather.gov/safety/heat-index)
[6] NWS Heat Safety (https://www.weather.gov/safety/heat-ww)
[7] Associated Press Climate (https://apnews.com/article/record-heat-deadly-climate-change-humidity-south-11de21a526e1cbe7e306c47c2f12438d)

130° or higher	Heatstroke/sunstroke is highly likely with continued exposure

Source: National Weather Service, NOAA

In addition to the direct impact excessive heat has on health, heat waves can cause air pollution levels to spike. Stagnant atmospheric conditions trap pollutants. Heat accelerates the production of ground-level ozone. Excessive heat can lead to droughts, which subsequently increases wildfire risk. These compounding impacts can add unhealthy air to excessively hot temperatures. In addition, the urban heat island effect, which occurs anywhere with development – not just in large urban areas, can produce significantly higher nighttime temperatures because asphalt and concrete (which store heat longer) gradually release heat at night.

5.5.2 Location and Spatial Extent

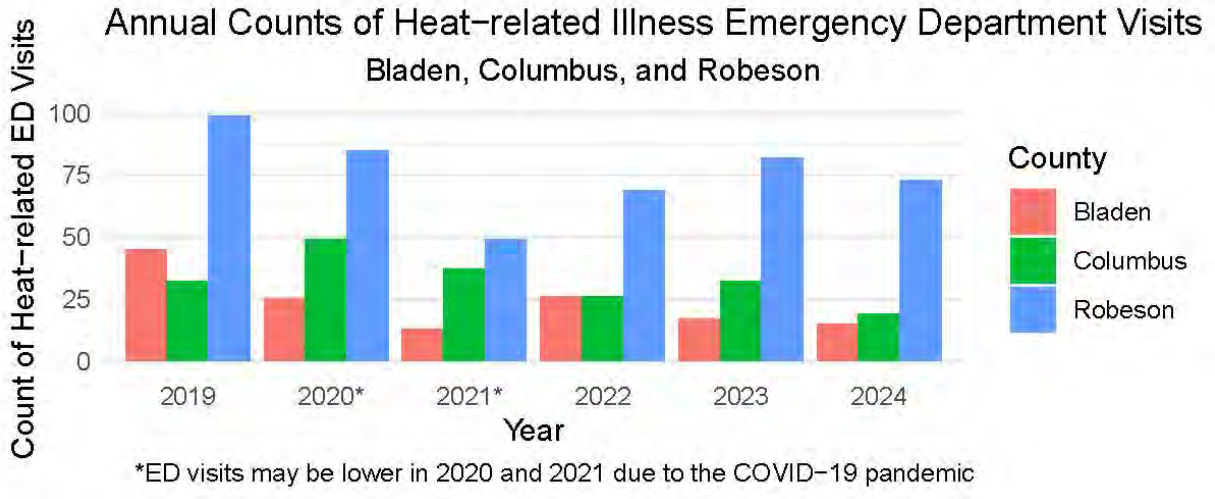
Excessive heat typically impacts a large area and cannot be confined to any geographic or political boundaries. The entire Region is susceptible to extreme heat conditions.

5.5.3 Past Occurrences

Data from the National Centers for Environmental Information (NCEI) was used to determine historical excessive heat and heat wave events in the Bladen-Columbus-Robeson Region. Between all three counties, there have been 14 recorded heat events resulting in at least 2 deaths and 15 injuries since 1950.

Residents of the Region also experience heat-related illnesses during excessive heat events. **Figure 5-13** shows the annual count of emergency department visits for heat-related illness in the Region, using public health syndromic surveillance system data from the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT). The annual count of emergency department visits for heat-related illness in Bladen County ranged from 13 visits in 2021 to 45 visits in 2019. The annual count of emergency department visits for heat-related illness in Columbus County ranged from 19 visits in 2024 to 49 visits in 2020. The annual count of emergency department visits for heat related illness in Robeson County ranged from 49 visits in 2021 to 99 visits in 2019.

Figure 5-13: Heat-related Illness Emergency Department Visits



In addition, information from the State Climate Office of North Carolina was reviewed to obtain

historical maximum temperatures in the region. Temperature information was reported in Bladen County since 1910 with a maximum reading of 105°F recorded in Elizabethtown (August 11, 2007). Temperature information was reported in Columbus County since 1954 with a maximum reading of 105°F recorded in Whiteville (June 27, 1954). Temperature information was reported in Robeson County since 1901 with a maximum reading of 108°F recorded in Lumberton (July 21, 1926).

5.5.4 Probability of Future Occurrence

The probability of future excessive heat events is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability of hazard
- Possible: Between 1% and 10% annual probability of hazard
- Likely: Between 10% and 100% annual probability of hazard
- Highly Likely: 100% annual probability of hazard

Jurisdiction	Probability of Future Occurrence
Bladen County (Unincorporated Area)	Likely
Columbus County (Unincorporated Area)	Likely
Robeson County (Unincorporated Area)	Likely
City of Lumberton	Likely
City of Whiteville	Likely
Town of Bladenboro	Likely
Town of Boardman	Likely
Town of Bolton	Likely
Town of Brunswick	Likely
Town of Cerro Gordo	Likely
Town of Chadbourn	Likely
Town of Clarkton	Likely
Town of Dublin	Likely
Town of East Arcadia	Likely
Town of Elizabethtown	Likely
Town of Fair Bluff	Likely
Town of Fairmont	Likely
Town of Lake Waccamaw	Likely
Town of Lumber Bridge	Likely
Town of Marietta	Likely
Town of Maxton	Likely
Town of McDonald	Likely
Town of Orrum	Likely

Jurisdiction	Probability of Future Occurrence
Town of Parkton	Likely
Town of Pembroke	Likely
Town of Proctorville	Likely
Town of Raynham	Likely
Town of Red Springs	Likely
Town of Rennert	Likely
Town of Rowland	Likely
Town of Saint Pauls	Likely
Town of Sandyfield	Likely
Town of Tabor City	Likely
Town of Tar Heel	Likely
Town of White Lake	Likely

Source: NCEM RMT & plan risk assessment

5.5.5 Consequence and Impact Analysis (Vulnerability)

Changing Future Conditions

According to 2022 climate summary data from the NOAA National Centers for Environmental Information, temperatures recorded since the middle of the century have steadily increased and been marked above the average consistently beyond the late 1990s. Recent summer average temperatures were also logged as the warmest reported on record for the last 16 years (2005-2020). Furthermore, the last 11 years (2010-2020) indicated the greatest number of very warm nights recorded despite no significant increase in the frequency of very hot days[8].

The State Climate Office of North Carolina provides county-specific climate projections hosted on the North Carolina Resilience Exchange[9]. These projections, which are based on the Fifth National Climate Assessment, anticipate that the number of days above 90°F in all three counties will increase significantly by the 2060s. The number of days above 95°F are anticipated to increase substantially by the 2060s – as much as several times greater than the amount that Bladen County, Columbus County, and Robeson County currently experience.

Hotter nights are also anticipated to increase substantially in the coming years. Nights that do not go below 70°F make it increasingly difficult for the human body to recover from hot days. This continuous exposure to heat can make health problems worse, especially for residents that live in homes without adequate air conditioning and among other vulnerable populations.

People

Extreme heat can lead to serious health issues such as heat exhaustion, heat rash, heat stroke, and in severe cases, even death. People suffer heat-related illness when their bodies are unable to properly cool themselves. Older adults, young children, and people with chronic medical conditions are at high

[8] NOAA NCEI 2022 State Climate Summaries (https://statesummaries.ncics.org/chapter/nc/)

[9] NC Resilience Exchange (https://www.resilienceexchange.nc.gov/understand-your-vulnerabilities)

risk for heat-related illnesses.

First Responders
Heat strains power grids and damages infrastructure, which may affect responder assistance in various ways. Aside from these direct effects, prolonged exposure to excessive heat can lead to exhaustion or even life-threatening events for the responders, like heat stroke.

Continuity of Operations
Extreme heat can have significant effects for the continuation of operations, especially in terms of critical facilities and assets. Intense heat exposure can damage equipment and machinery thereby reducing their performance and lifespan. Indirectly, it also raises the risk of heat-related illnesses for staff, especially those working outdoors.

Built Environment
Excessive heat may harm the built environment by causing or expediting the breakdown of materials and structures. Prolonged high temperatures can cause asphalt to soften, or concrete to crack owing to thermal expansion, thereby jeopardizing structural integrity of important infrastructure. The urban heat island effect intensifies the heat in cities, raising ambient temperatures. Furthermore, high temperatures can strain water infrastructure, causing pipes to rupture and affect water quality. These consequences endanger the safety, functioning, and durability of urban infrastructure. The heat may also have the potential to impact local businesses such as landscaping, recreation and tourism, and public utilities.

Economy
Because of the increased demand for cooling, high temperatures result in higher energy use, which might put a strain on electrical infrastructure and cause expensive outages. The disruption of transportation and commerce due to infrastructure damage, such as distorted rail lines and deteriorated construction materials, necessitates pricey repairs. Labor productivity also decreases in outdoor and non-air-conditioned settings, lowering production in industries such as manufacturing, agriculture, and construction.

Natural Environment
High temperatures for an extended period can lead to drought, which dries out the soil and puts stress on plants, increasing the risk of wildfires and biodiversity loss. As water bodies get higher in temperature, aquatic ecosystems are negatively impacted due to lower oxygen levels. Additionally, heat promotes the spread of invasive species and pests, which may overpower indigenous species and disrupt ecosystems.

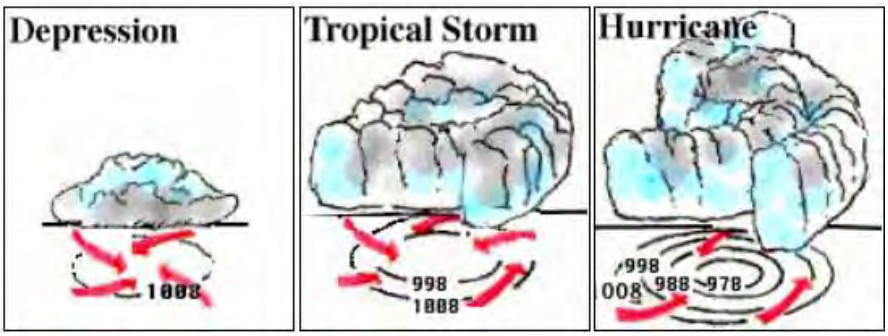
5.6 Hurricane/Tropical Storm

5.6.1 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 1 to November 30, 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 5-14.**

- **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 5-14: Life Cycle of a Hurricane

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

The key energy source for a tropical cyclone is the release of latent heat from the condensation of warm water. Their formation requires a low-pressure disturbance, warm sea surface temperature, rotational force from the spinning of the earth, and the absence of wind shear in the lowest 50,000 feet of the atmosphere. Most hurricanes and tropical storms form in the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico during the official Atlantic hurricane season, which encompasses the months of June through

November. The peak of the Atlantic hurricane season is in early to mid-September and the average number of storms that reach hurricane intensity per year in the Atlantic basin is about six.

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

The Saffir-Simpson Hurricane Wind Scale classifies hurricanes by intensity into one of five categories as shown in **Table 5-11**. 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 5-11: Saffir-Simpson Scale

Category	Maximum Sustained Wind Speed (MPH)	Minimum Surface Pressure (Millibars)
1	74–95	Greater than 980
2	96–110	979–965
3	111–129	964–945
4	130–156	944–920
5	157 +	Less than 920

Source: National Hurricane Center (2012)

The Saffir-Simpson Scale categorizes hurricane intensity linearly based upon maximum sustained winds and barometric pressure, which are combined to estimate potential damage. Categories 3, 4, and 5 are classified as “major” hurricanes and, while hurricanes within this range comprise only 20 percent of total tropical cyclone landfalls, they account for over 70 percent of the damage in the United States. **Table 5-12** describes the damage that could be expected for each category of hurricane. Damage during hurricanes may also result from spawned tornadoes, storm surge, and inland flooding associated with heavy rainfall that usually accompanies these storms.

Table 5-12: Hurricane Damage Classifications

Storm Category	Damage Level	Description of Damages	Photo Example
1	MINIMAL	No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Also, some coastal flooding and minor pier damage.	
2	MODERATE	Some roofing material, door, and window damage. Considerable damage to vegetation, mobile homes, etc. Flooding damages piers and small craft in unprotected moorings may break their moorings.	

3	EXTENSIVE	Some structural damage to small residences and utility buildings, with a minor amount of curtainwall failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures, with larger structures damaged by floating debris. Terrain may be flooded well inland.	
4	EXTREME	More extensive curtainwall failures with some complete roof structure failure on small residences. Major erosion of beach areas. Terrain may be flooded well inland.	
5	CATASTROPHIC	Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. Flooding causes major damage to lower floors of all structures near the shoreline. Massive evacuation of residential areas may be required.	

Source: National Hurricane Center; Federal Emergency Management Agency

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 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.

5.6.2 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 Region is equally susceptible to hurricanes and tropical storms, but areas closer to the Atlantic coast may experience a greater frequency of events. The maps below show all past hurricane paths through the Region.

Hurricane extent is defined by the Saffir-Simpson Scale which classifies hurricanes into Category 1 through Category 5. The greatest classification of hurricanes to traverse directly through the Region was a category 1 hurricane in Robeson County which carried tropical force winds of 70 knots upon arrival in the Region. The following list is the greatest extent of hurricane winds to pass through the area, though it should be noted that stronger storms could impact the Region without a direct hit:

- Bladen County (including jurisdictions): Tropical Storm (53 knots)
- Columbus County (including jurisdictions): Tropical Storm (62 knots)
- Robeson County (including jurisdictions): Hurricane Matthew (70 knots)

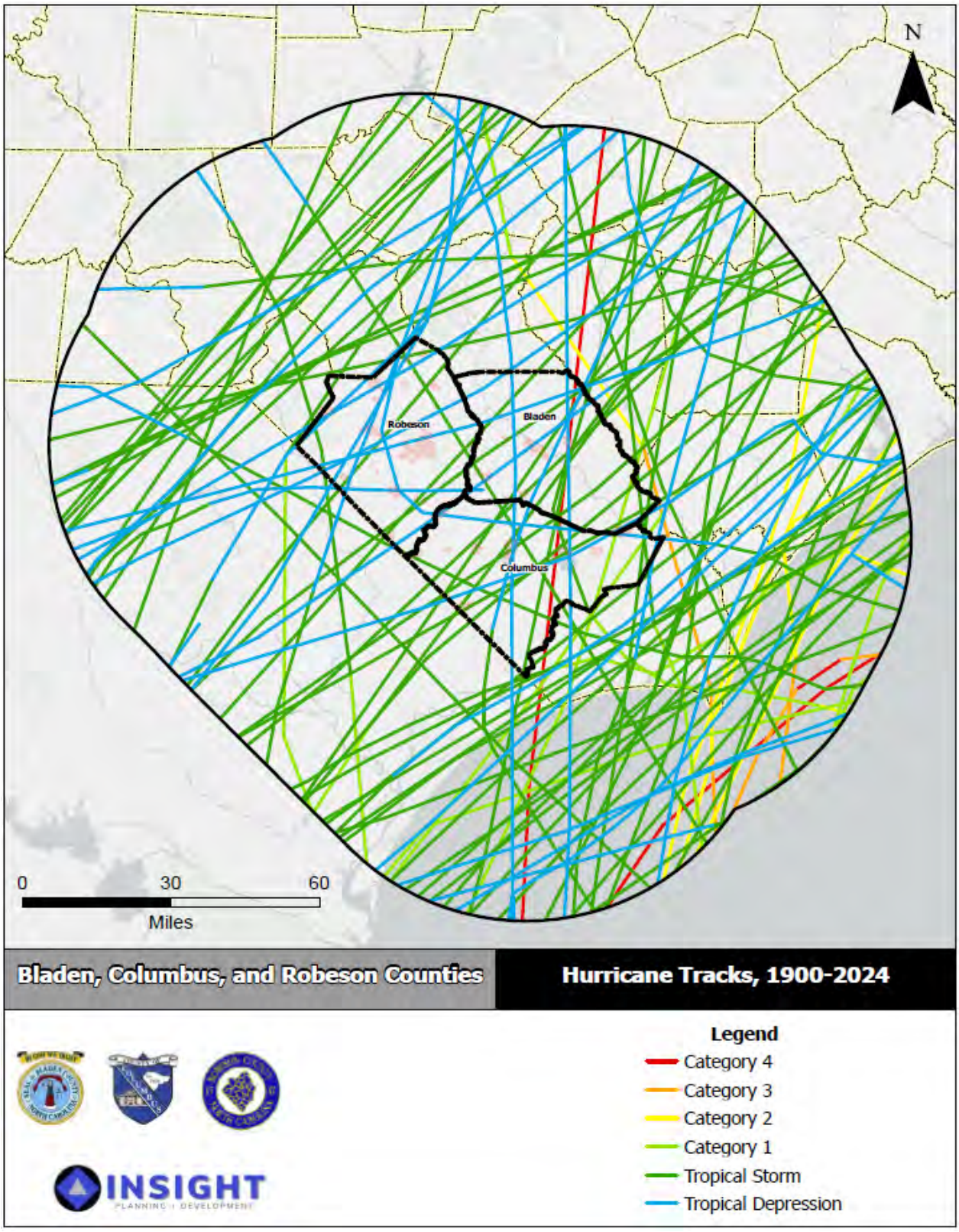


Figure 5-15: Regional Hurricane Tracks (1900-2024)

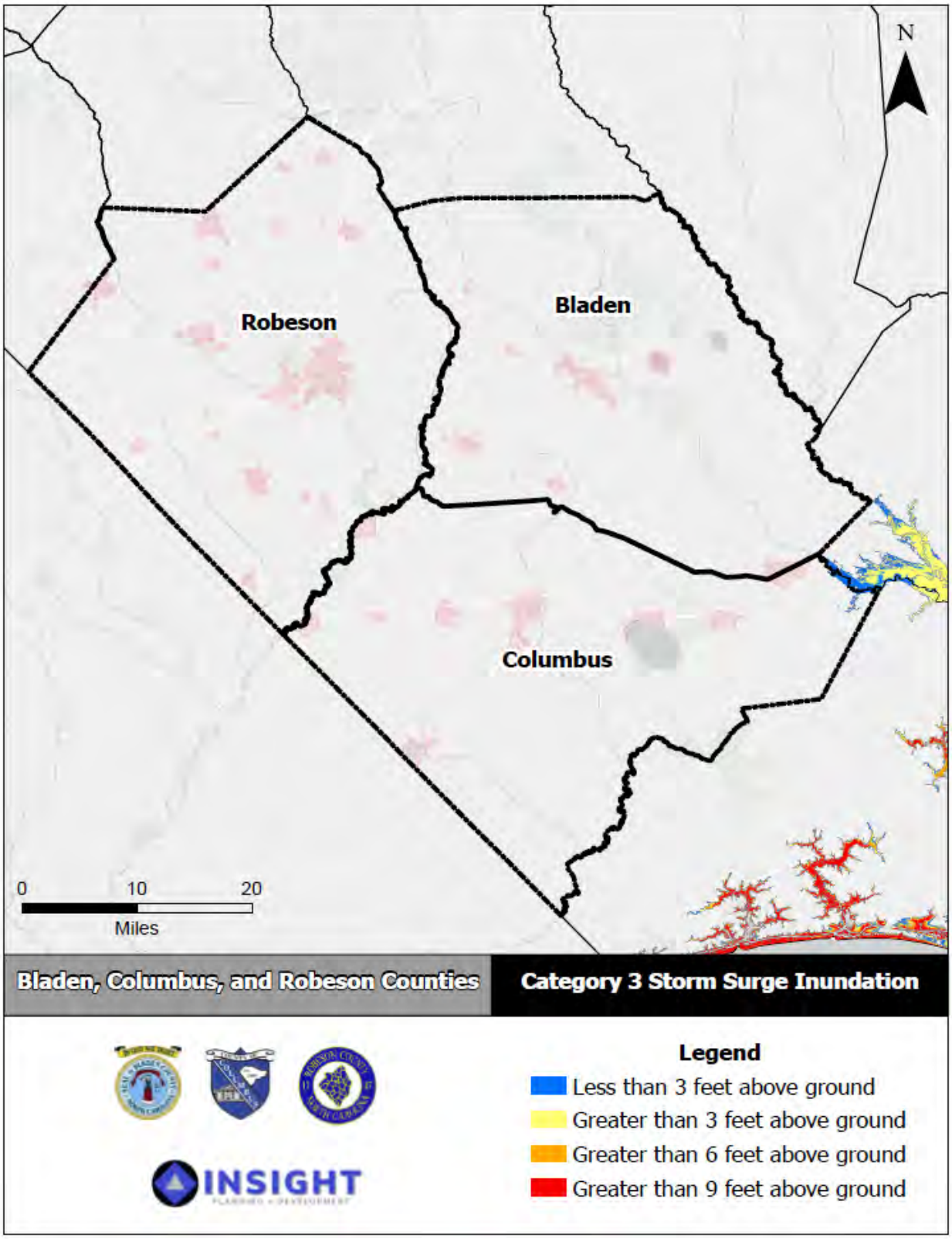


Figure 5-16: Regional Category 3 Storm Surge Inundation

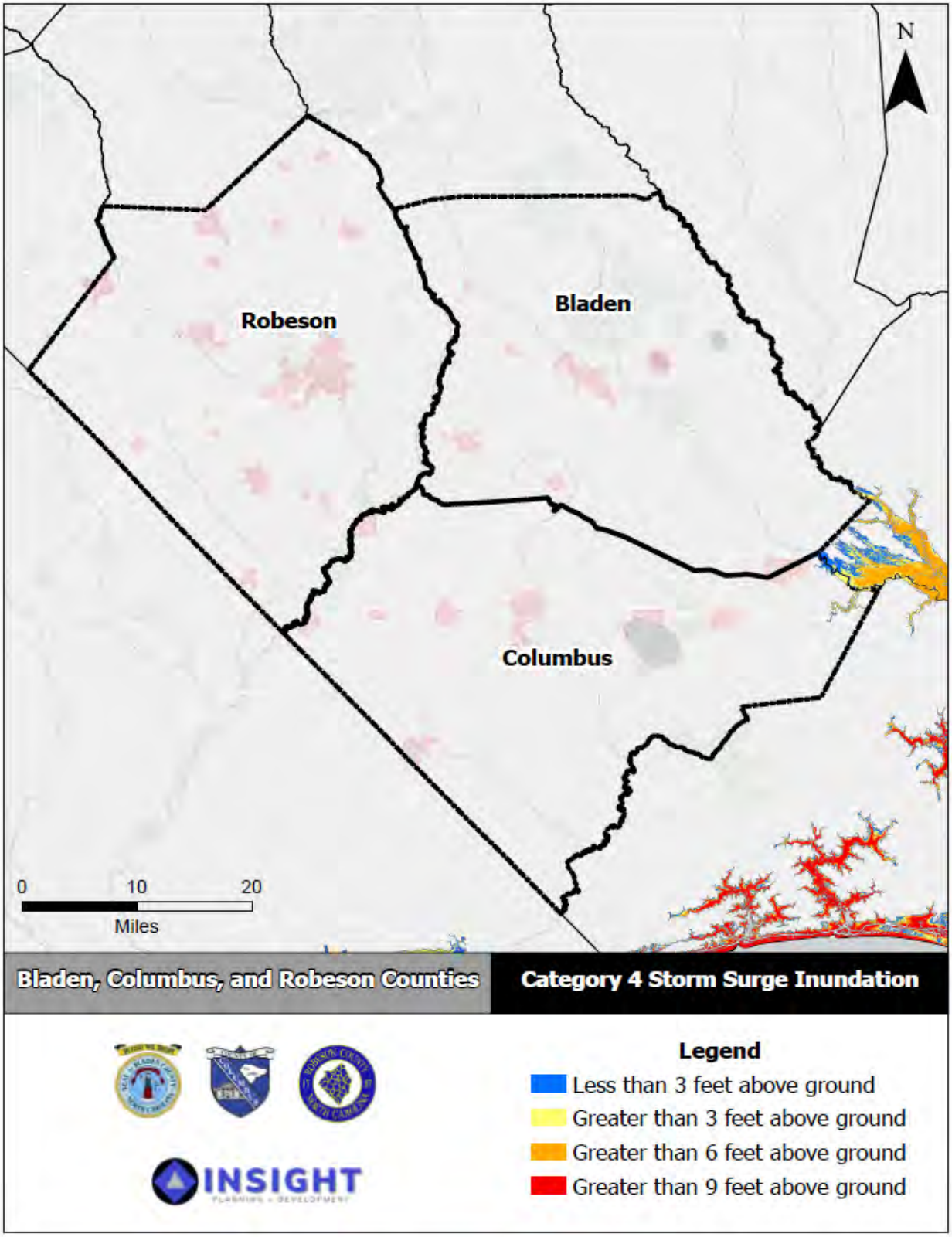


Figure 5-17: Regional Category 4 Storm Surge Inundation

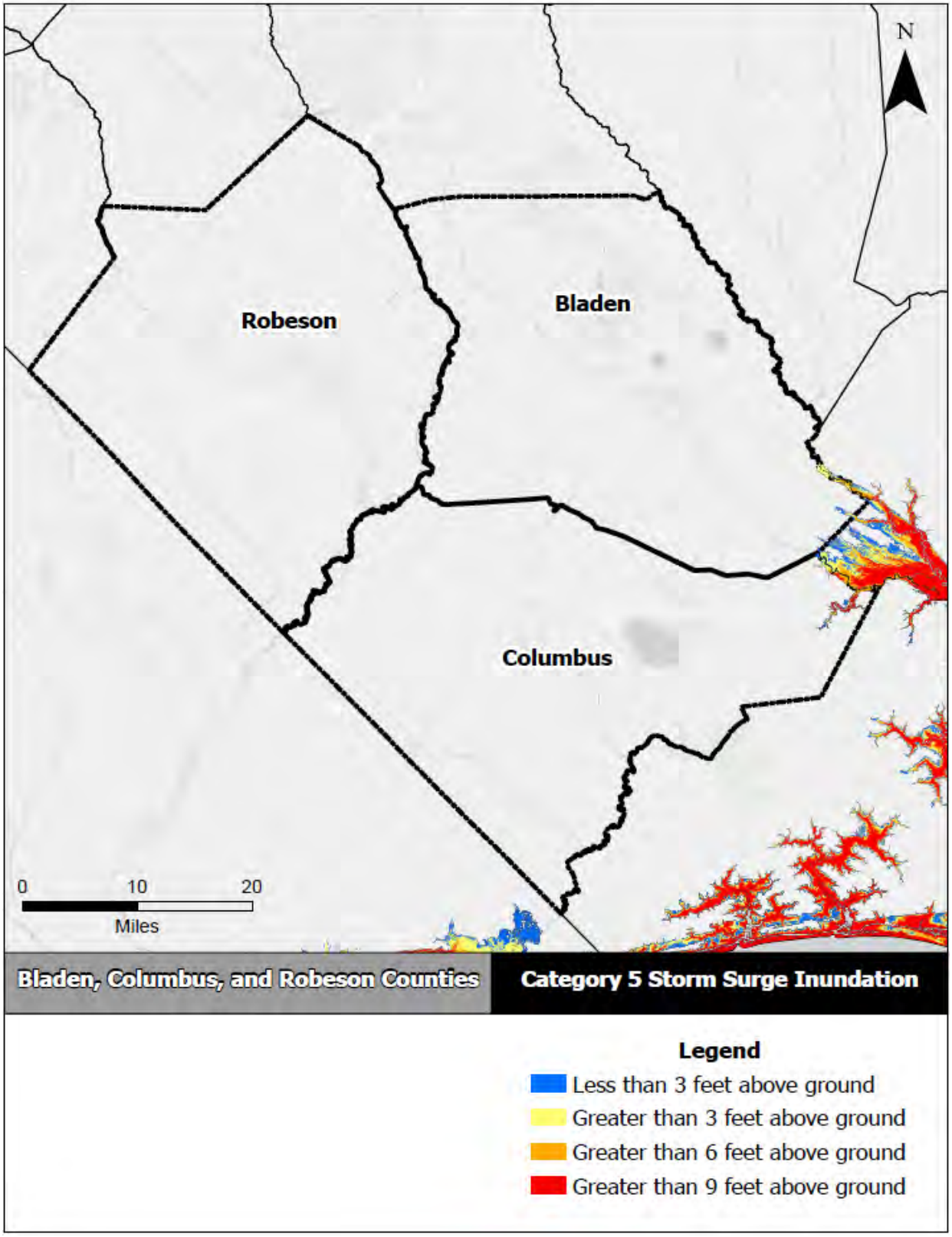


Figure 5-18: Regional Category 5 Storm Surge Inundation

5.6.3 Past Occurrences

The following provides details on significant hurricane and tropical storm events recorded in the NOAA NCEI database:

- **August 29, 2004** – Tropical Storm Gaston made landfall in Charleston County, SC and moved north toward the Region, weakening to a tropical depression by the time it reached the county. Despite lower wind speeds, precipitation levels were high. the Region received from five to seven inches of rain, causing long-lasting street flooding and river flooding. The Lumber River in Lumberton experienced record flooding, with a crest nearly eight feet above flood stage.
- **September 2, 2016** – Hurricane Hermine made landfall as a minimal category 1 hurricane near the Florida Panhandle the night of September 1st. The hurricane weakened to a tropical storm as it moved up the eastern seaboard. The storm entered southeast NC on September 2nd and moved rapidly northeast. The storm produced very heavy rainfall with flash flooding, as well as some scattered reports of wind damage impacting the Region's business and agriculture sectors. Rainfall amounts averaged around six inches, with isolated amounts around ten inches. The highest wind gusts were around 65 mph.
- **October 8, 2016** – Hurricane Matthew, a category 1, moved up the eastern seaboard, bringing very heavy rain and strong winds. Rainfall over 12 inches occurred in multiple areas of the county. Wind gusts were surprisingly high, with a gust of 67 mph at Lumberton Airport. Tropical storm force winds and flooded ground caused widespread trees and power line damage. The river gauge at the Lumber River at Lumberton failed, however the high watermark data from the U.S. Geological Survey indicated the water level may have reached over 25 feet. This exceeded the previous record by over 4 feet. This level bypassed the levee that protects parts of Lumberton from the river due to water passing under I-95 via VFR road. One elderly male died in his home on West Fifth Street on 10/9. The man had a heart condition and when power was lost, he was without oxygen. The family believes he may have died of a heart attack and then fell into flood waters which had overtaken his home from the Lumber River. The Lumber River also exceeded record levels at Boardman by about 2.5 feet. This resulted in the closure of U. S. Route 74, the main route between Wilmington and Lumberton. Numerous water rescues were required along and near the Lumber River. Many homes were flooded in Pembroke. This was one of the hardest hit counties due to the historic river flooding. The offices of the Robesonian Newspaper were flooded.

  September 14, 2018 – Hurricane Florence began as a tropical storm September 1st over the Cape Verde islands off the coast of West Africa. It peaked as a Category 4 hurricane with sustained winds of 140 mph. It made landfall as a Category 1 hurricane on Friday, September 14 over Wrightsville Beach, North Carolina. Florence produced extensive wind damage along the North Carolina coast from Cape Lookout, across Carteret, Onslow, Pender, and New Hanover Counties. Thousands of downed trees caused widespread power outages to nearly all of eastern North Carolina. The historic legacy of Hurricane Florence will be record-breaking storm surge of 9 to 14 feet devastating rainfall of 20 to 30 inches, which produced catastrophic and life- threatening flooding.
- **October 11, 2018** – Michael originated as a Category 5 hurricane that came up the Gulf of Mexico and first hit land around the Florida/Georgia border. Tropical storm Michael gradually weakened as it tracked from the South Carolina Midlands through portions of the South Carolina and North Carolina Piedmont throughout the 11th. Gusty winds increased during the daylight hours on the east side of the storm track, with numerous trees blown, especially across the Piedmont. Flooding continued east for days after the storm hit. Davidson and Randolph counties were included in the Presidential Disaster Declaration. Hurricane Michael caused multiple flash

flooding events and multiple power outages in the region due to high winds.

- **August 3, 2020** – Isaias was a Category 1 hurricane that made landfall at Ocean Isle Beach with maximum sustained winds of 85 mph. Isaias began as a tropical wave off the coast of Africa on July 23rd, 2020. A damaging storm surge occurred along the coasts of South Carolina and North Carolina. Isaias established new records for the downtown Wilmington River (Cape Fear River) gauge at 9.03 feet which broke the record set by Hurricane Florence. Peak winds of 51 mph were experienced at Elizabethtown Airport.
- **September 30, 2022 –** Hurricane Ian was a unique and challenging storm that brought widespread impacts to eastern North Carolina. Impacts to eastern NC included a prolonged period of strong NE winds beginning later in the day on Wednesday, September 28th and continuing through Friday, September 30th. These strong northeast winds created elevated tide levels and strong northeast swell, which combined with the developing strong southerly swell from the winds. The core of Ian brought extensive overwash along Hatteras Island, Ocracoke Island, and Core Banks.

NOAA's Office for Coastal Management (OCM) keeps records of all historical hurricane tracks. **Table 5-13** lists 76 hurricanes and tropical storms that have passed within 50 miles of the region as of January 2020. This is not an exhaustive list of all hurricanes that have affected the region, as storms of large magnitude can have long reaching impacts on surrounding areas.

Despite its incomplete scope, by enumerating the hurricanes that have passed close to the region, this list does provide some indication of the probability that the region will be affected by a future hurricane.

Table 5-13: Historical Hurricane Tracks in the Region

Date of Occurrence	Storm Name	Maximum Wind Speed (knots)	Storm Category
10/30/1854	NOT NAMED	35	Tropical Storm
9/15/1859	NOT NAMED	35	Tropical Storm
9/2/1867	NOT NAMED	0	Tropical Depression
9/26/1877	NOT NAMED	48	Tropical Storm
9/1/1878	NOT NAMED	44	Tropical Storm
11/18/1885	NOT NAMED	35	Tropical Storm
9/15/1886	NOT NAMED	35	Tropical Storm
9/16/1886	NOT NAMED	31	Tropical Depression
10/9/1887	NOT NAMED	0	Tropical Depression
9/8/1888	NOT NAMED	31	Tropical Depression
9/12/1889	NOT NAMED	35	Tropical Storm
7/25/1891	NOT NAMED	35	Tropical Storm
9/27/1893	NOT NAMED	35	Tropical Storm
9/22/1896	NOT NAMED	62	Tropical Storm
7/4/1901	NOT NAMED	26	Tropical Depression
9/28/1901	NOT NAMED	0	Tropical Depression

Date of Occurrence	Storm Name	Maximum Wind Speed (knots)	Storm Category
6/12/1902	NOT NAMED	31	Tropical Depression
10/7/1902	NOT NAMED	31	Tropical Depression
9/13/1904	NOT NAMED	53	Tropical Storm
10/5/1905	NOT NAMED	0	Tropical Depression
9/21/1907	NOT NAMED	31	Tropical Depression
8/26/1911	NOT NAMED	22	Tropical Depression
6/7/1912	NOT NAMED	31	Tropical Depression
8/30/1913	NOT NAMED	26	Tropical Depression
7/31/1915	NOT NAMED	31	Tropical Depression
9/19/1920	NOT NAMED	31	Tropical Depression
10/1/1927	NOT NAMED	44	Tropical Storm
8/3/1928	NOT NAMED	26	Tropical Depression
10/3/1929	NOT NAMED	35	Tropical Storm
9/3/1935	NOT NAMED	48	Tropical Storm
8/11/1940	NOT NAMED	62	Tropical Storm
9/12/1945	NOT NAMED	35	Tropical Storm
10/14/1946	NOT NAMED	26	Tropical Depression
9/20/1947	NOT NAMED	53	Tropical Storm
8/23/1949	NOT NAMED	35	Tropical Storm
8/19/1952	NOT NAMED	35	Tropical Storm
7/5/1959	CINDY	26	Tropical Depression
9/20/1959	GRACIE	53	Tropical Storm
8/20/1964	CLEO	22	Tropical Depression
6/11/1965	UNNAMED	35	Tropical Storm
7/18/1968	CELESTE	31	Tropical Depression
5/24/1970	ALMA	22	Tropical Depression
9/16/1976	SUBTROP 3	53	Tropical Storm
9/3/1977	BABE	40	Tropical Storm
8/25/1979	DAVID	40	Tropical Storm
7/25/1985	BOB	40	Tropical Storm
8/20/1985	ONE-C	22	Tropical Depression
9/22/1989	HUGO	48	Tropical Storm
5/19/1990	NOT NAMED	35	Tropical Storm
7/20/1994	NOT NAMED	31	Tropical Depression

Date of Occurrence	Storm Name	Maximum Wind Speed (knots)	Storm Category
6/3/1995	ALLISON	40	Tropical Depression
7/5/1996	BERTHA	90	Tropical Depression
8/23/1996	FRAN	65	Hurricane
10/4/1996	JOSEPHINE	45	Tropical Depression
7/16/1997	DANNY	30	Tropical Depression
8/19/1998	BONNIE	95	Hurricane
8/31/1998	EARL	50	Tropical Depression
9/7/1999	FLOYD	90	Hurricane
9/14/2000	GORDON	20	Tropical Depression
9/15/2000	HELENE	25	Tropical Depression
6/5/2001	ALLISON	25	Tropical Storm
9/20/2002	KYLE	30	Tropical Storm
8/3/2004	BONNIE	25	Tropical Storm
8/9/2004	CHARLEY	60	Tropical Depression
8/27/2004	GASTON	30	Tropical Storm
6/10/2006	ALBERTO	35	Tropical Storm
8/24/2006	ERNESTO	50	Tropical Storm
5/31/2007	BARRY	40	Tropical Storm
8/28/2008	HANNA	60	Tropical Storm
5/25/2012	BERYL	40	Tropical Storm
6/5/2013	ANDREA	40	Tropical Storm
5/6/2015	ANA	30	Tropical Depression
8/28/2016	HERMINE	55	Tropical Storm
10/8/2016	MATTHEW	60	Tropical Storm
9/14/2018	FLORENCE	80	Hurricane
10/8/2018	MICHAEL	50	Tropical Storm
10/20/2019	NESTOR	40	Tropical Storm
7/8/2020	FAY	25	Tropical Depression
8/4/2020	ISAIAS	80	Hurricane
6/21/2021	CLAUDETTE	40	Tropical Storm
7/8/2021	ELSA	45	Tropical Storm
7/2-7/3/2022	COLIN	35	Tropical Storm
9/30/-10/1/2022	IAN	70	Hurricane

Source: NOAA OCM/NCEI

5.6.4 Probability of Future Occurrence

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

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability of hazard 50-year event
- Possible: Between 1% and 10% annual probability of hazard 50-year event
- Likely: Between 10% and 100% annual probability of hazard 50-year event
- Highly Likely: 100% annual probability of hazard 50-year event

Jurisdiction	Probability of Future Occurrence
Bladen County (Unincorporated Area)	Likely
Columbus County (Unincorporated Area)	Likely
Robeson County (Unincorporated Area)	Likely
City of Lumberton	Likely
City of Whiteville	Likely
Town of Bladenboro	Likely
Town of Boardman	Likely
Town of Bolton	Likely
Town of Brunswick	Likely
Town of Cerro Gordo	Likely
Town of Chadbourn	Likely
Town of Clarkton	Likely
Town of Dublin	Likely
Town of East Arcadia	Likely
Town of Elizabethtown	Likely
Town of Fair Bluff	Likely
Town of Fairmont	Likely
Town of Lake Waccamaw	Likely
Town of Lumber Bridge	Likely
Town of Marietta	Likely
Town of Maxton	Likely
Town of McDonald	Likely
Town of Orrum	Likely
Town of Parkton	Likely
Town of Pembroke	Likely
Town of Proctorville	Likely
Town of Raynham	Likely

Jurisdiction	Probability of Future Occurrence
Town of Red Springs	Likely
Town of Rennert	Likely
Town of Rowland	Likely
Town of Saint Pauls	Likely
Town of Sandyfield	Likely
Town of Tabor City	Likely
Town of Tar Heel	Likely
Town of White Lake	Likely

Source: NCEM RMT & plan risk assessment

5.6.5 Consequence and Impact Analysis (Vulnerability)

Changing Future Conditions

North Carolina is vulnerable to the hazards of tropical storms and hurricanes due to its location along the Atlantic Coast. This inherently creates the greatest risk near low-lying coastal areas of the state, although inland areas of the western regions may still face significant impacts over time. According to 2022 climate summary data from the NOAA National Centers for Environmental Information, a storm at hurricane-level intensity makes landfall in the state roughly once every 3 years. Several periods since the late 1990s were notably active in terms of hurricane formation and local damage, including Hurricanes Dennis, Floyd, Frances, Ivan, Matthew, and Florence. Future climate models project that hurricane-associated storm intensity and rainfall rates will both increase in the future despite some annual variability in the number of landfalling hurricanes in North Carolina[10].

People

Hurricanes may affect human beings in several 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. 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

[10] NOAA NCEI 2022 State Climate Summaries (https://statesummaries.ncics.org/chapter/nc/)

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 damage 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 damage can be so severe that it may take days to weeks to restore.

Additionally, flooding as a result of hurricanes and tropical storms can cause severe damage to the built environment. The Town of Bolton in Columbus County experienced a 77 percent[1] loss in its treated water system after water distribution pipes were compromised by Hurricane Florence (2018).

Economy

Economic damage includes property damage from wind, rain and floods, and also include intangibles such as business interruption and additional living expenses. Damage to infrastructure utilities include roads, water and power, and municipal buildings.

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.

5.7 Infectious Disease

5.7.1 Hazard Description

For the purposes of this plan, this section will assess infectious diseases, vector-borne diseases, and foreign animal diseases within the Region.

Infectious Disease

Communicable, or infectious, diseases are conditions that result in clinically evident illnesses which are transmissible directly from one person to another or indirectly through vectors such as insects, air, water, blood, or other objects. The impact of communicable disease can range from the mild effects of the common cold to the extreme lethality of pneumonic plague or anthrax. The public health system in the United States was developed in large part as a response to the often urgent need to respond to or prevent outbreaks of communicable diseases. Through public health methods of disease reporting, vaccinations, vector control, and effective treatments, most communicable diseases are well controlled in the United States and across the Region. However, control systems can fail and when people come together from locations outside of the state, outbreaks can occur, even in the most modern of communities. In this section, some of the more significant potential communicable disease concerns are described.

The threats discussed in this section usually do not occur on a regular basis, though some are more frequent. The diseases described herein do not originate from intentional exposure (such as through terrorist actions) but do present significant issues and concerns for the public health community. There are numerous infectious diseases that rarely, if ever, occur in the State of North Carolina, such as botulism or bubonic plague. Some highly dangerous diseases which could potentially be used as biological weapons, such as anthrax, pneumonic plague, and smallpox, are safely housed and controlled in laboratory settings such as at the Center for Disease Control and Prevention (CDC). Other diseases have not (yet) mutated into a form that can infect humans or otherwise lie dormant in nature.

There have been several significant viral outbreaks from emerging diseases in recent years of both national and international importance. The Zika virus and West Nile virus are viruses that are typically passed to humans or animals by mosquitoes and have made major news as emergent disease threats. Meanwhile, diseases that are spread directly between human beings such as Severe Acute Respiratory Syndrome (SARS) and Ebola have also been identified as serious threats. While each of these conditions caused a great deal of public health concern when they were first identified, SARS has virtually disappeared, West Nile virus occurs with low frequency and causes serious disease in only a very small percentage of cases, Ebola has been contained and a vaccine is in development, and many people infected with Zika will not experience symptoms from the disease.

Other communicable diseases pose a much more frequent threat to the citizens of the region. Some of the infectious diseases of greatest concern include coronavirus, influenza, particularly in a pandemic form, as well as norovirus, and multiple antibiotic-resistant superbugs. Even in one of its normal year-to-year variants, influenza (commonly referred to as “flu”) can result in serious illness and even death in young children, the elderly and immune-compromised persons. But there is always the potential risk of the emergence of influenza in one of the pandemic H1N1 forms, such as in the “Spanish Flu” outbreak of 1918-19, which killed over 50 million people worldwide. Every year, North Carolina sees hundreds of cases of influenza, leading to hundreds of hours of lost productivity in businesses due to sick employees. Of note, a vaccine for influenza is produced every year and, according to the CDC, is highly effective in preventing the disease.

Norovirus is recognized as the leading cause of foodborne-disease outbreaks in the United States. The virus can cause diarrhea, vomiting, and stomach pain, and is easily spread from person to person through contaminated food or water and by surface-to-surface contact. Especially vulnerable populations to this virus include those living or staying in nursing homes and assisted living facilities and other healthcare facilities such as hospitals. Norovirus could also be a threat in the event of large public gatherings such as sporting events, concerts, festivals, and so forth. North Carolina often experiences norovirus outbreaks on an annual basis. No vaccine or treatment exists for the Norovirus, making it especially dangerous for the public in the event of an outbreak.

Additionally, the recent and ongoing global pandemic caused by the SARS-related coronavirus, COVID-19 (Severe Acute Respiratory Syndrome Coronavirus 2 or SARS-CoV-2), has persisted for multiple years resulting in over 774 million reported cases and over 7 million deaths worldwide as of 2024 according to the World Health Organization. The disease spread rapidly following its initial discovery in 2019, eventually leading to the broader COVID-19 pandemic on a global scale. The contagious virus spreads between people through contaminated respiratory droplets and other airborne particles. Its evolving nature and high transmission rates continue to pose a significant threat.

Vector-Borne Diseases

Bacterial, viral, and parasitic diseases that are transmitted by mosquitoes, ticks and fleas are collectively called "vector-borne diseases" (the insects and arthropods are the "vectors" that carry the diseases). Although the term "vector" can also apply to other carriers of disease — such as mammals that can transmit rabies or rodents that can transmit hantavirus — those diseases are generally called zoonotic (animal-borne) diseases.

The most common vector-borne diseases found in North Carolina and the Bladen-Columbus-Robeson Region by extension are carried by ticks and mosquitoes. The tick-borne illnesses most often seen in the state are Rocky Mountain Spotted Fever, ehrlichiosis, Lyme disease and Southern Tick-Associated Rash Illness (STARI). The most frequent mosquito-borne illnesses, or "arboviruses," in North Carolina include La Crosse encephalitis, West Nile virus and Eastern equine encephalitis. An outbreak of the West Nile Virus began showing up in the United States in 1999, with North Carolina reporting 63 cases from that time through the end of 2016.

Foreign Animal Diseases (FADs)

As defined in the 2023 North Carolina State Hazard Mitigation Plan, Foreign Animal Disease (FAD) is recognized as an animal disease or pest not known to exist in a country of interest (e.g., United States) or any of its associated territories. A FAD in the United States, and specifically North Carolina, could prove to be extremely detrimental to agricultural producers and broader public health if it manages to spread over a large area. The North Carolina Department of Agriculture and Consumer Services (NCDA&CS) is designated to lead a statewide response in the event of a potential FAD outbreak. There are several diseases of future clinical significance in North Carolina: African swine fever, Dourine, contagious bovine pleuropneumonia (CBPP), foot and mouth disease (FMD), highly pathogenic avian influenza (HPAI), and Glanders among other emerging pathogens.

Public health threats can occur at any time and can have varying impacts. Discussions between public health professionals, planning officials, and first response agencies are essential to facilitate safe, effective, and collaborative efforts toward outbreaks.

5.7.2 Location and Spatial Extent

Extent is difficult to measure for an infectious disease event as the extent is largely dependent on the type of disease and on the effect that it has on the population (discussed above). Extent can be somewhat defined by the number of people impacted, which depends on the type of disease and could easily number in the tens of thousands across the state.

5.7.3 Past Occurrences

Infectious Disease

Influenza is historically the most common infectious disease that has occurred in the Bladen-Columbus-Region. Cases of the flu tend to occur in the late fall and early winter months. In recent years, substantial cases of influenza and influenza-like illnesses have been reported in hospitals. According to the North Carolina Department of Health and Human Services (NCDHHS), there were over 30,000 positive tests and 319 influenza-associated deaths during the 2023-2024 influenza season[11]. The Bladen-Columbus-Robeson Region is part of both Flu Surveillance Region 3 (Robeson County and Bladen County) and Region 4 (Columbus County). For more information about these regions, see the regional maps included in the NCDHHS annual influenza surveillance summaries. Region 3 also reported the highest seasonal percentage of ED visits for influenza-like illness (ILI) at 8% in December 2023. The primary respiratory viruses treated during the 2023-2024 season included influenza subtype A(H1N1)pdm09.

A COVID-19 Pandemic disaster declaration was declared for North Carolina on March 25, 2020, with an incident period of over 3 years. Between March 7, 2020, and May 10, 2023, NCDHHS reported 3,501,404 total cases and 29,059 total deaths due to COVID-19 statewide. This included over 12,161 total cases and 150 total deaths in Bladen County, 19,329 total cases and 300 total deaths in Columbus County, and 52,675 total cases and 605 total deaths in Robeson County.

Vector-Borne Diseases

In 2016, North Carolina state health officials encouraged citizens to take preventative measures against mosquito bites to avoid contracting the Zika virus. Over $477,500 was allocated from the Governor's yearly budget to develop an infrastructure to detect, prevent, control, and respond to the Zika virus and other vector-borne illnesses[12]. More recently, state officials have encouraged citizens to "Fight the Bite" against both mosquito and tick bites to avoid serious vector-borne diseases after nearly 700 cases were reported in 2022[13].

Foreign Animal Diseases (FADs)

No significant cases have been reported in the region.

5.7.4 Probability of Future Occurrence

The probability of future infectious disease events is shown in the table below, by jurisdiction.

[11] NCDHHS Respiratory Disease Surveillance Summaries (https://flu.ncdhhs.gov/data.htm)

[12] NCDHHS Press Release, August 2016 (https://www.ncdhhs.gov/news/press-releases/nc-prepared-zika-virus-risk-local-virus-carrying-mosquitoes-low)

[13] NCDHHS Press Release, March 2023 (https://www.ncdhhs.gov/news/press-releases/2023/03/30/ncdhhs-urges-north-carolinians-fight-bite-insect-repellant-and-other-prevention-tools-avoid-tick-and)

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability of hazard
- Possible: Between 1% and 10% annual probability of hazard
- Likely: Between 10% and 100% annual probability of hazard
- Highly Likely: 100% annual probability of hazard

Jurisdiction	Probability of Future Occurrence
Bladen County (Unincorporated Area)	Possible
Columbus County (Unincorporated Area)	Possible
Robeson County (Unincorporated Area)	Possible
City of Lumberton	Possible
City of Whiteville	Possible
Town of Bladenboro	Possible
Town of Boardman	Possible
Town of Bolton	Possible
Town of Brunswick	Possible
Town of Cerro Gordo	Possible
Town of Chadbourn	Possible
Town of Clarkton	Possible
Town of Dublin	Possible
Town of East Arcadia	Possible
Town of Elizabethtown	Possible
Town of Fair Bluff	Possible
Town of Fairmont	Possible
Town of Lake Waccamaw	Possible
Town of Lumber Bridge	Possible
Town of Marietta	Possible
Town of Maxton	Possible
Town of McDonald	Possible
Town of Orrum	Possible
Town of Parkton	Possible
Town of Pembroke	Possible
Town of Proctorville	Possible
Town of Raynham	Possible
Town of Red Springs	Possible
Town of Rennert	Possible

Jurisdiction	Probability of Future Occurrence
Town of Rowland	Possible
Town of Saint Pauls	Possible
Town of Sandyfield	Possible
Town of Tabor City	Possible
Town of Tar Heel	Possible
Town of White Lake	Possible

Source: NCEM RMT & plan risk assessment

5.7.5 Consequence and Impact Analysis (Vulnerability)

Changing Future Conditions

According to the Centers for Disease Control and Prevention (CDC), changing climatic patterns of milder winters, warmer summers, and fewer days of frost may be making it easier for infectious diseases and vector diseases to expand to new geographic regions and infect greater numbers of people. Between 2004 and 2018, the number of reported illnesses from mosquito, tick, and flea bites more than doubled, with more than 760,000 cases reported in the United States. Additionally, nine new germs spread by mosquitoes and ticks were discovered or introduced into the United States during this time. In 2012, a mild winter, early spring, and a hot summer also set the stage for an outbreak of West Nile Virus disease in the United States, resulting in more than 5,600 illnesses and 286 deaths[14].

People

Infectious illnesses can spread quickly through communities, resulting in broad health consequences, particularly for vulnerable groups like the elderly, children, and people with underlying health issues. The spectrum of health issues can vary from minor rashes to extended fever and potentially more severe conditions. This might overload hospitals and clinics, making it harder to get prompt treatment and raising the possibility of severe consequences. Additionally, quarantine and isolation procedures can cause psychological and social anguish.

First Responders

As first responders are in close contact with infected people in uncontrolled settings, these people are at a higher risk of exposure. This might make them vulnerable to increased infection rates, illness, or even fatalities, which would reduce the number of available workers at crisis moments.

Continuity of Operations

Widespread infectious diseases disrupt vital functions due to workforce absenteeism. In critical positions, staff availability may be significantly impacted by illness, quarantine, and caregiving duties, while regional outbreaks can cause delays in the delivery of emergency goods and services.

Built Environment

The rapid spread of diseases necessitates speedy adaptation, which might put a strain on the existing infrastructure. To aid in isolation or quarantine measures, facilities like schools, hospitals, and public structures may get overburdened. Repurposing structures that were not initially intended for medical use can put strain on the layouts and hygiene. In extreme scenarios, public spaces may

[14] CDC National Center for Emerging and Zoonotic Infectious Disease (NCEZID) (https://www.cdc.gov/ncezid/index.html)

also need to be redesigned to facilitate social distance, touchless technology, etc.

Economy

If the situation is severe, the outbreaks can result in a reduced workforce, lower consumer spending, and temporary disruptions in production and supply chains, all of which stifle economic activity. Service industries and small enterprises are especially susceptible to closure or large revenue losses. Public budgets might be strained if funds are allocated to emergency response and healthcare.

Natural Environment

As these diseases are often contagious, the increased use of single-use products (mask, PPE etc.) to prevent spreading may put a strain on waste management systems and cause pollution, resulting in soil and water contamination. Although quarantine and lockdown procedures can provide a brief respite from pollution and human activity, giving ecosystems a chance to recover, these benefits are often fleeting.

5.8 Inland Flooding

5.8.1 Hazard Description

Flooding is defined as 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 Region 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:*** The Region has 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.
- ***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

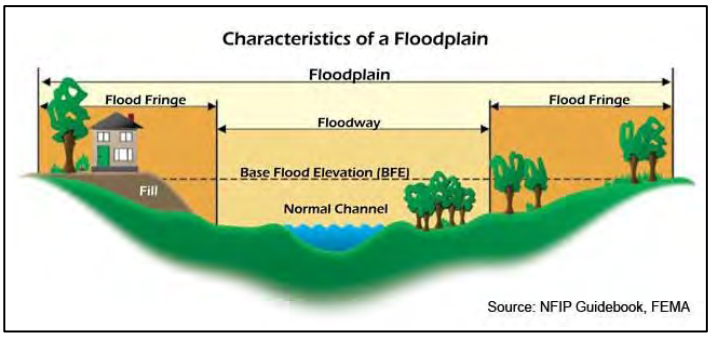


Figure 5-19: Characteristics of a Floodplain

The area adjacent to a channel is the floodplain, as shown in **Figure 5-19**. 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 floodwater exceeds 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.

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 damage. Participation in the NFIP allows 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.

5.8.2 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 the Region

Flood 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 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.

Zone	Description
AH	Zone AH is the flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.
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.

There are areas in the Region that are susceptible to flood events. Special flood hazard areas in the Region were mapped using Geographic Information System (GIS) and FEMA Digital Flood Insurance Rate Maps (DFIRM). This includes Zone AE (1-percent annual chance floodplain with elevation) and Zone X500 (0.2-percent annual chance floodplain). The figures below reflect the mapped flood zones for the Region. Note that there is no Special Flood Hazard Area for Brunswick, Dublin, East Arcadia, Raynham, Tar Heel, and White Lake so no maps have been provided for these communities.

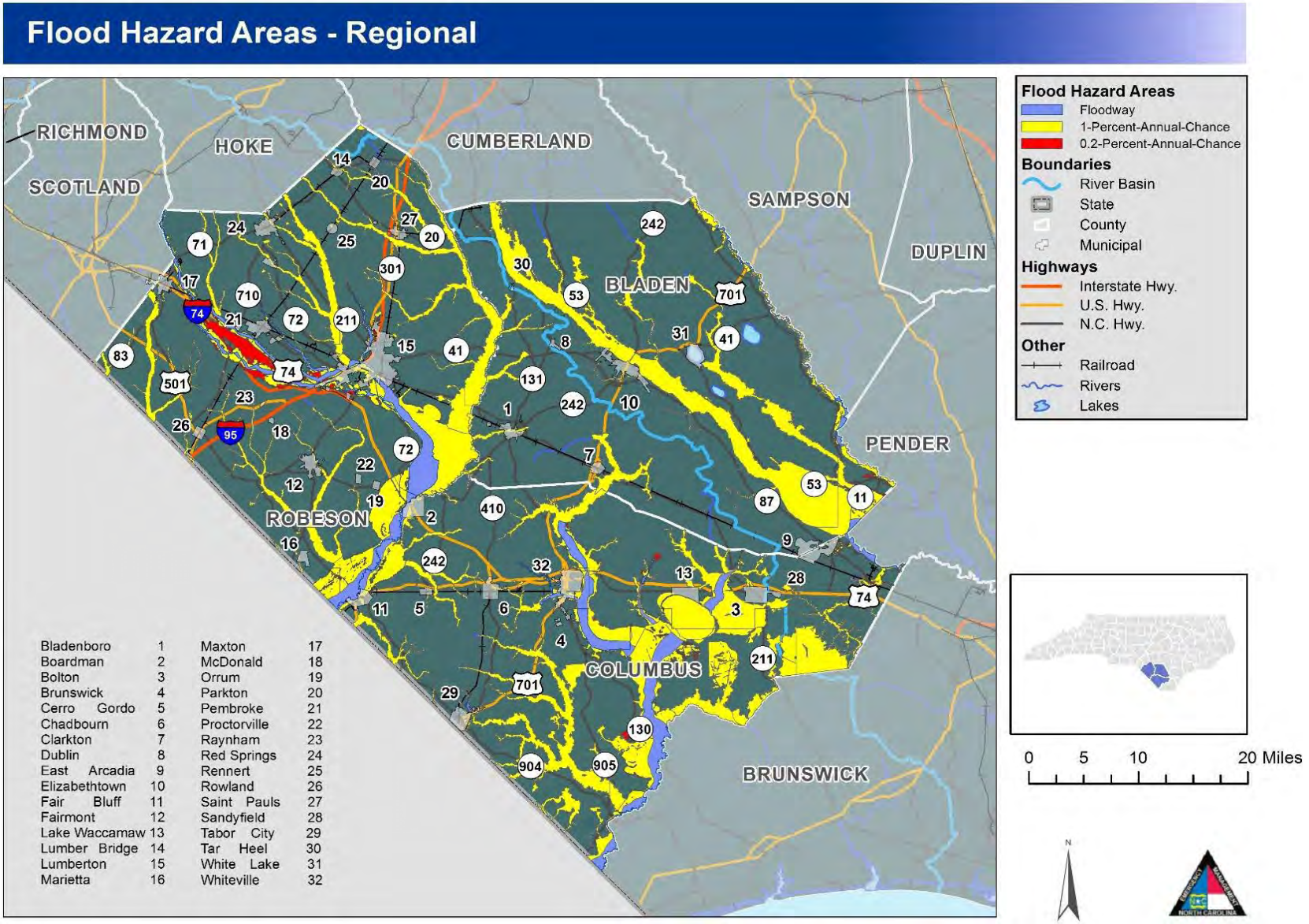


Figure 5-20: Flood Hazard Areas - Regional

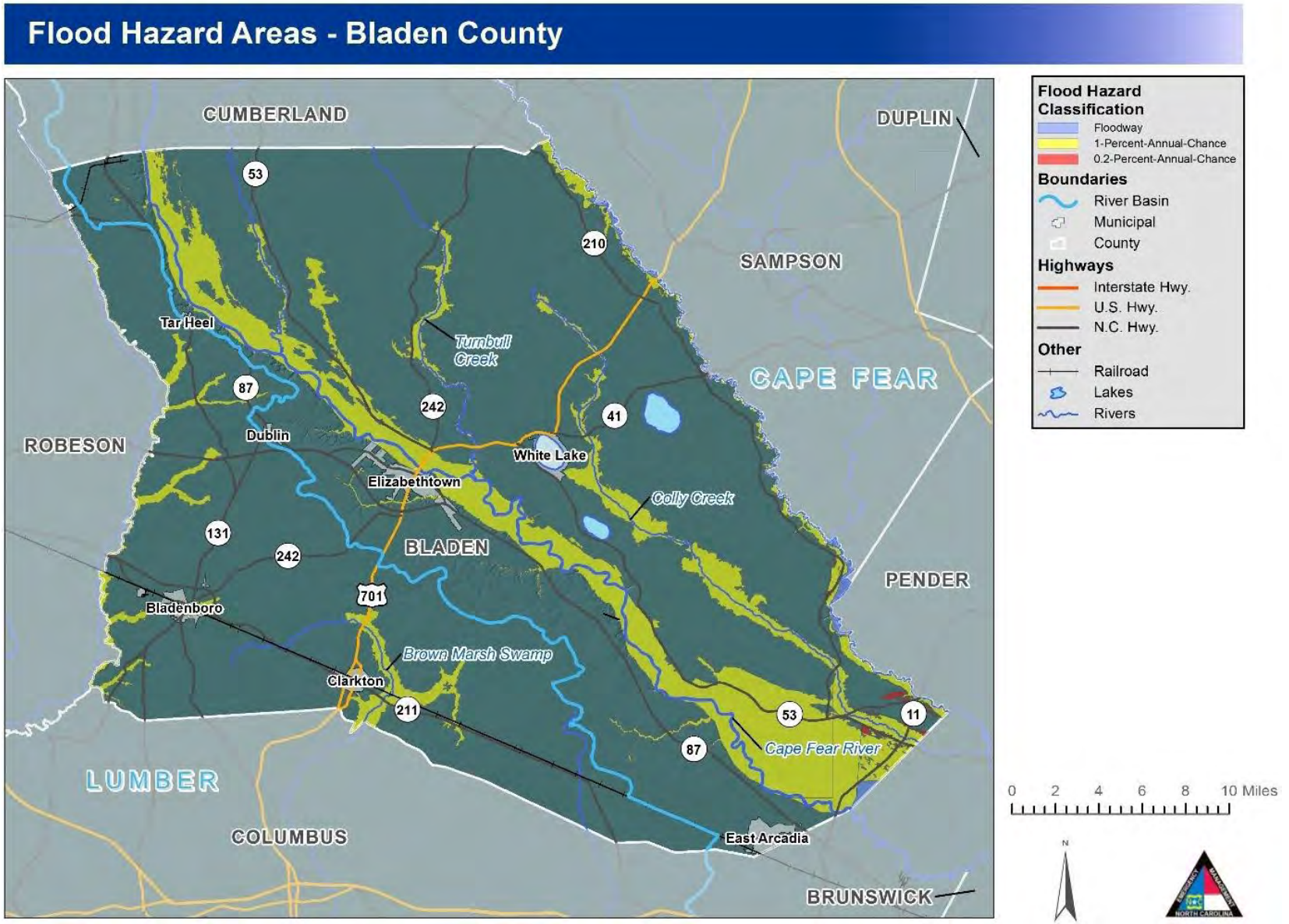


Figure 5-21: Flood Hazard Areas – Bladen County

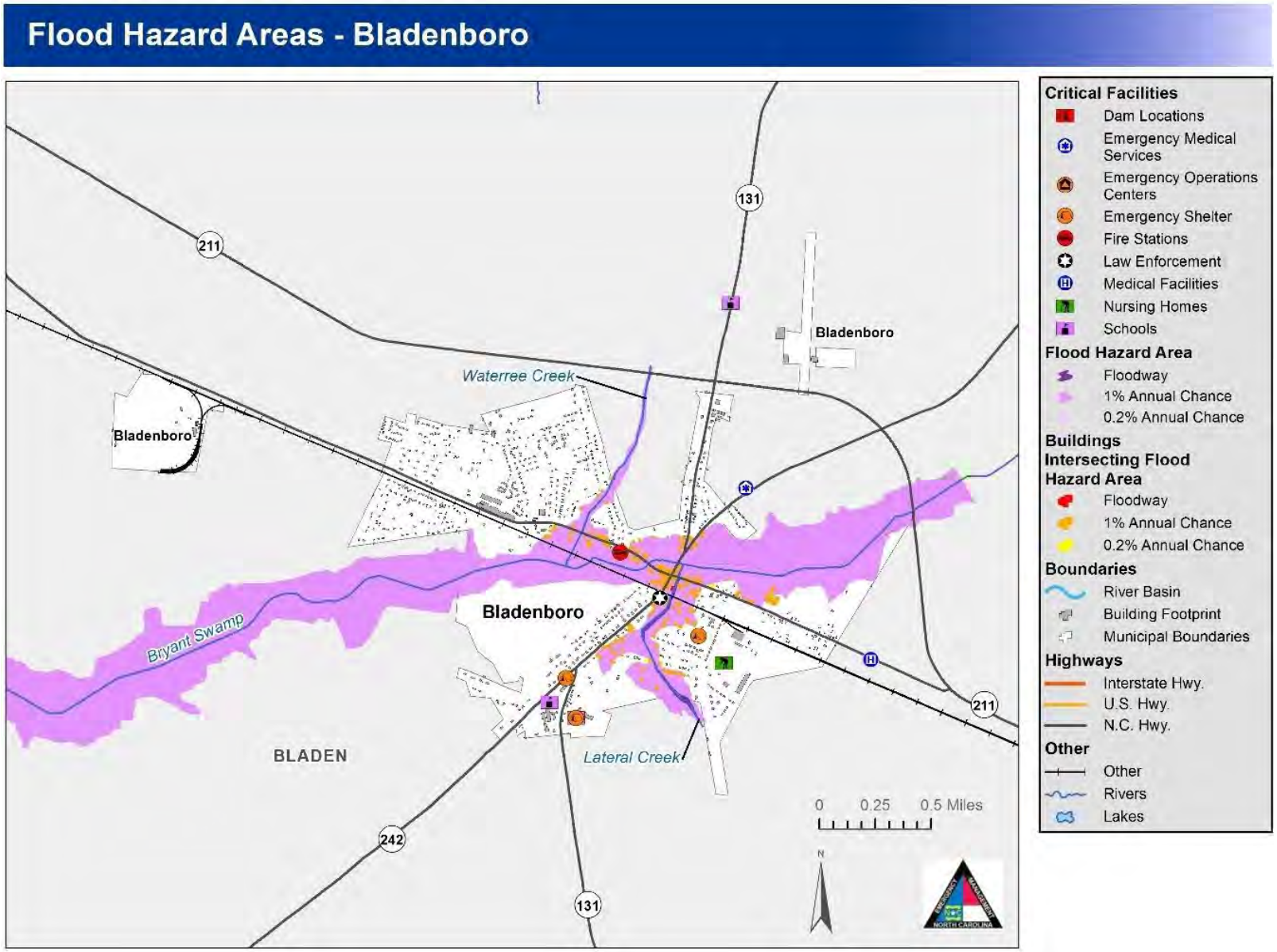


Figure 5-22: Flood Hazard Areas – Bladenboro

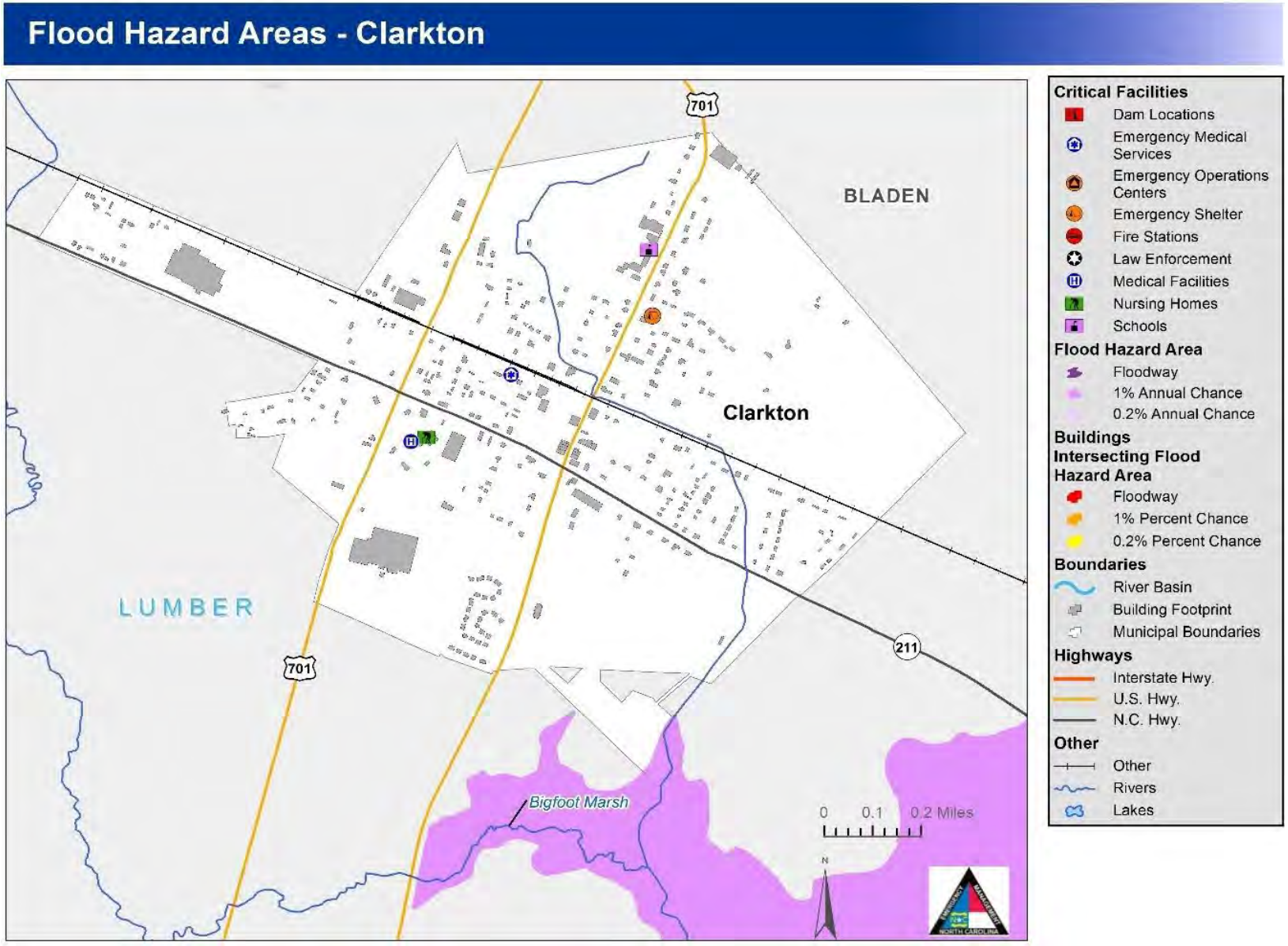


Figure 5-23: Flood Hazard Areas – Clarkton

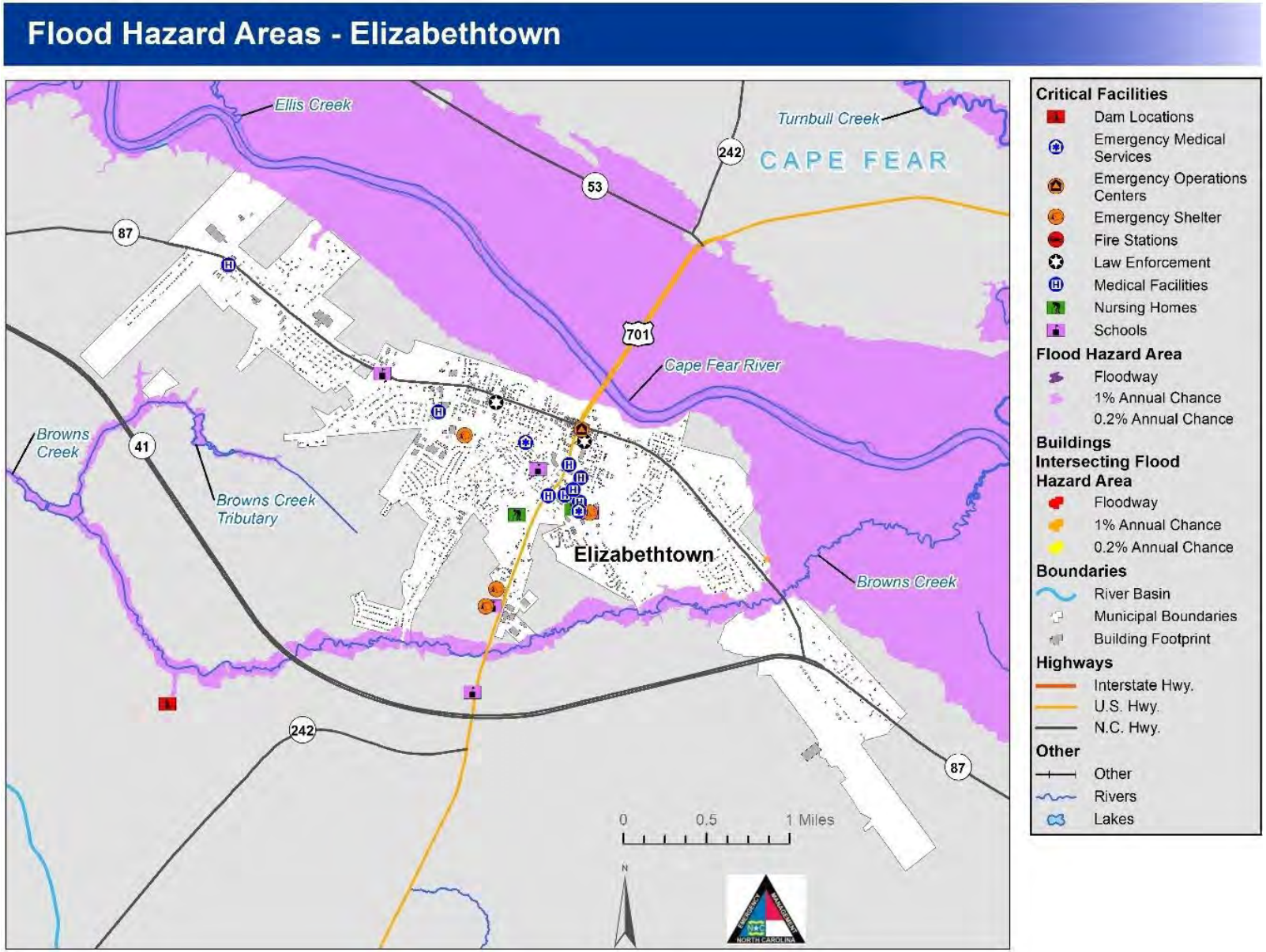


Figure 5-24: Flood Hazard Areas - Elizabethtown

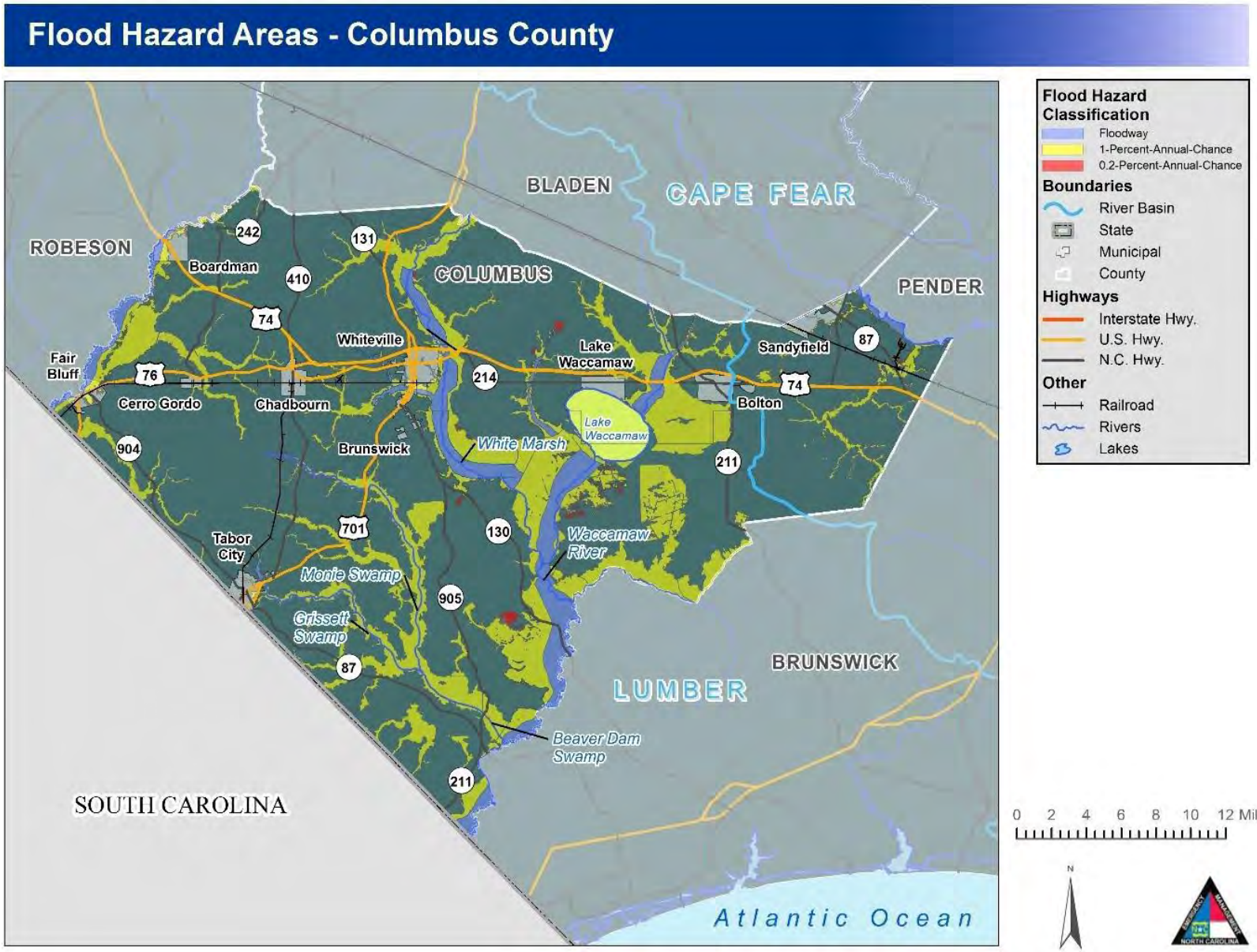


Figure 5-25: Flood Hazard Areas – Columbus County

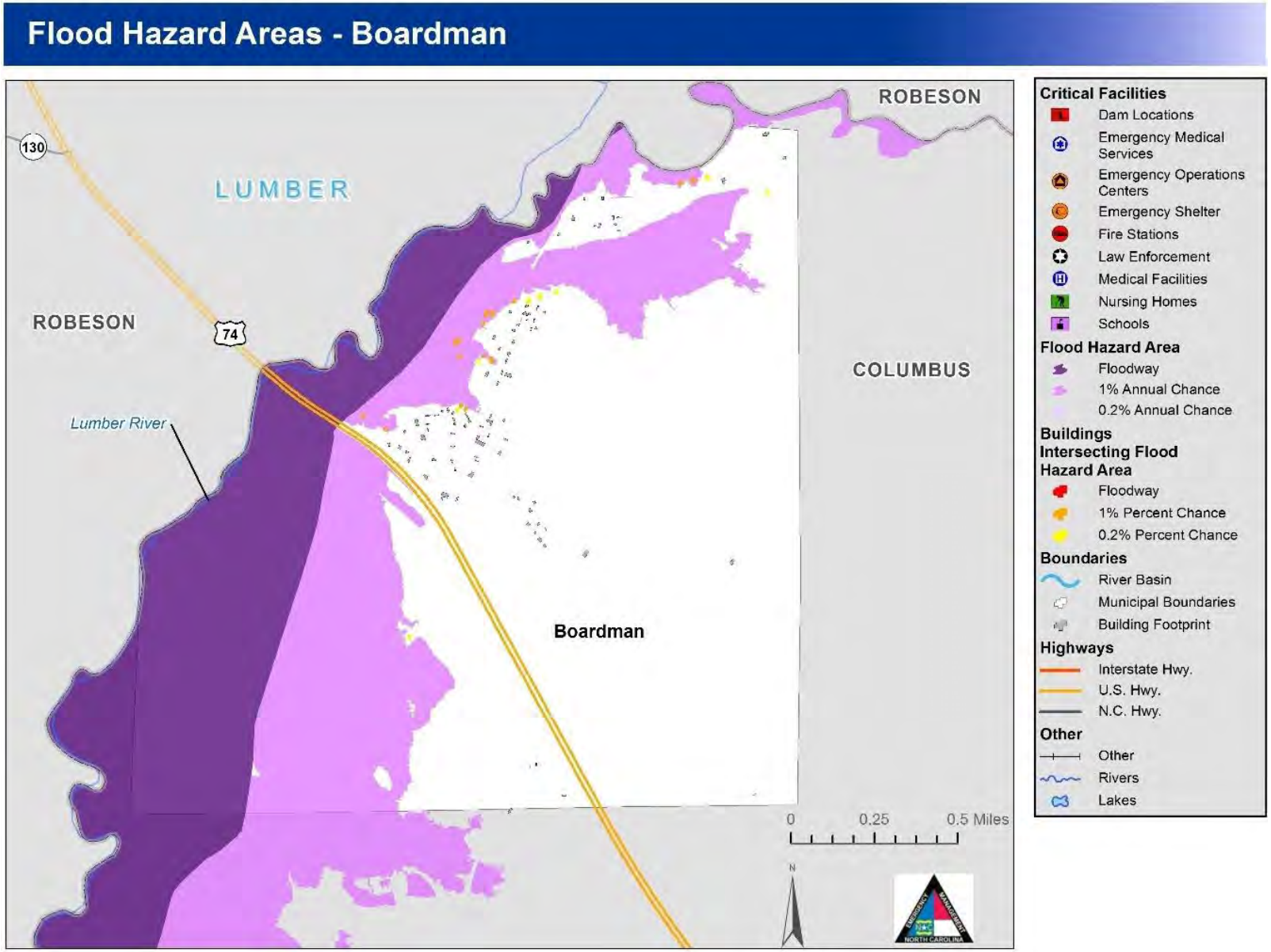


Figure 5-26: Flood Hazard Areas - Boardman

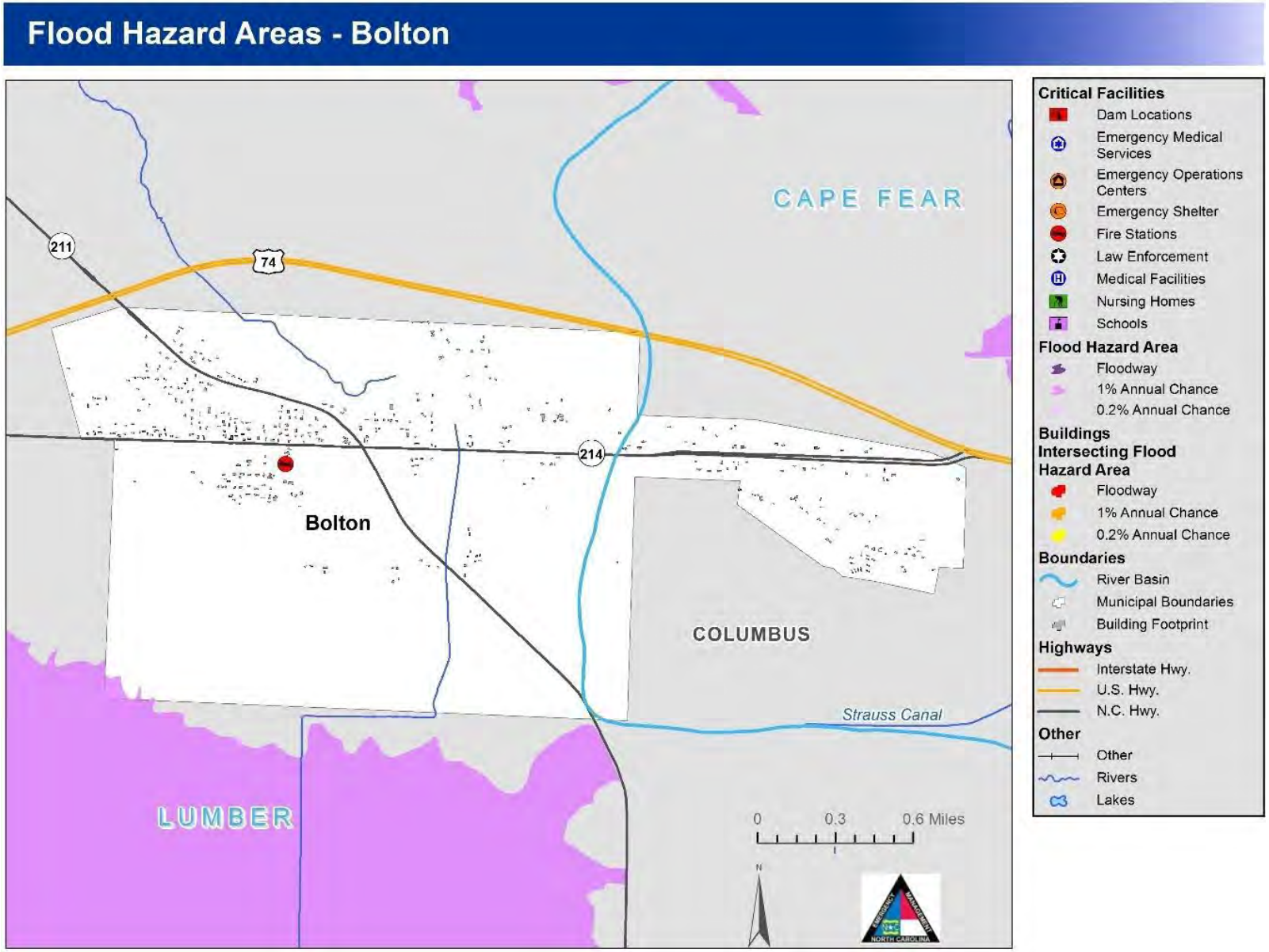


Figure 5-27: Flood Hazard Areas - Bolton

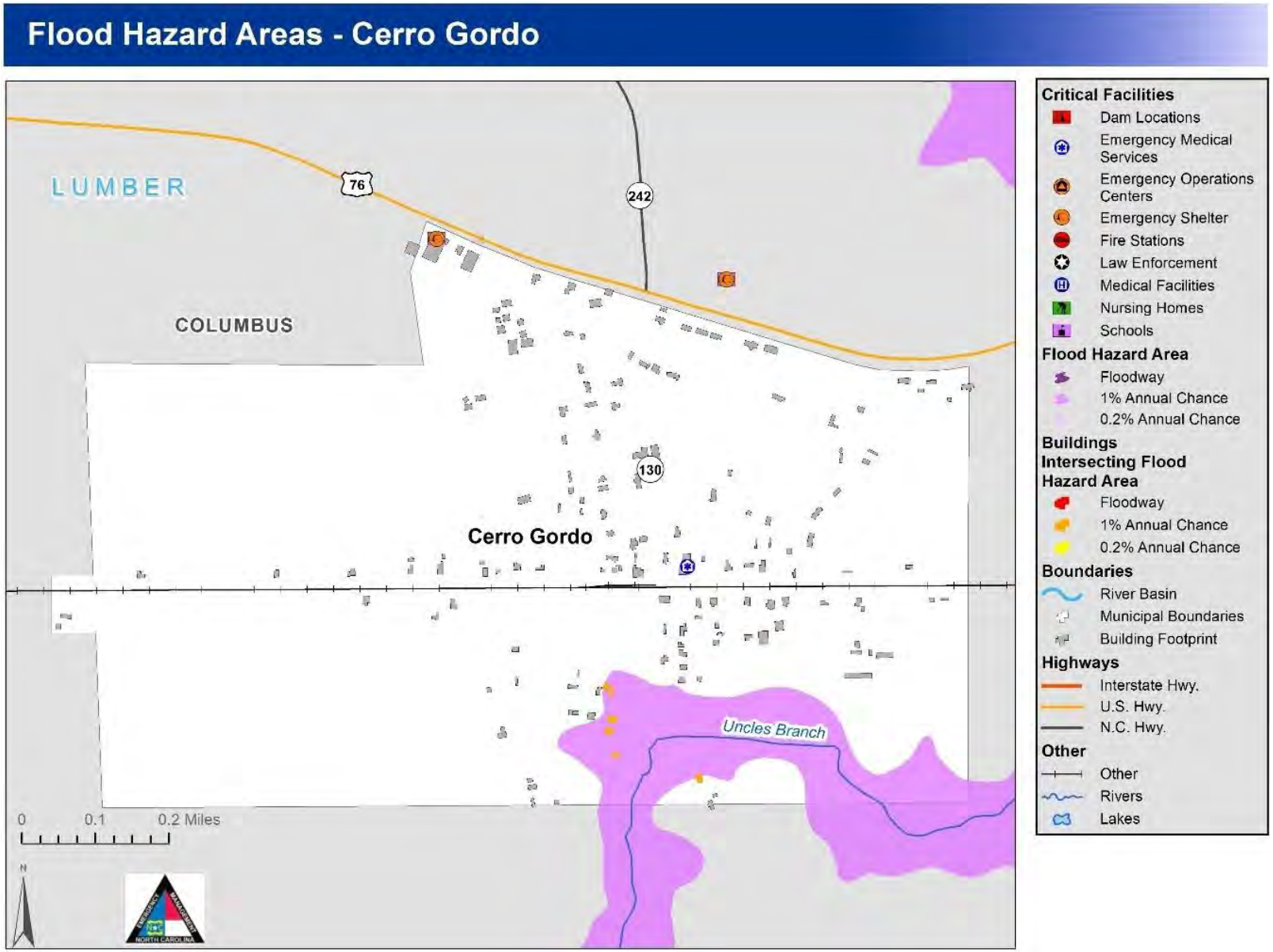


Figure 5-28: Flood Hazard Areas – Cerro Gordo

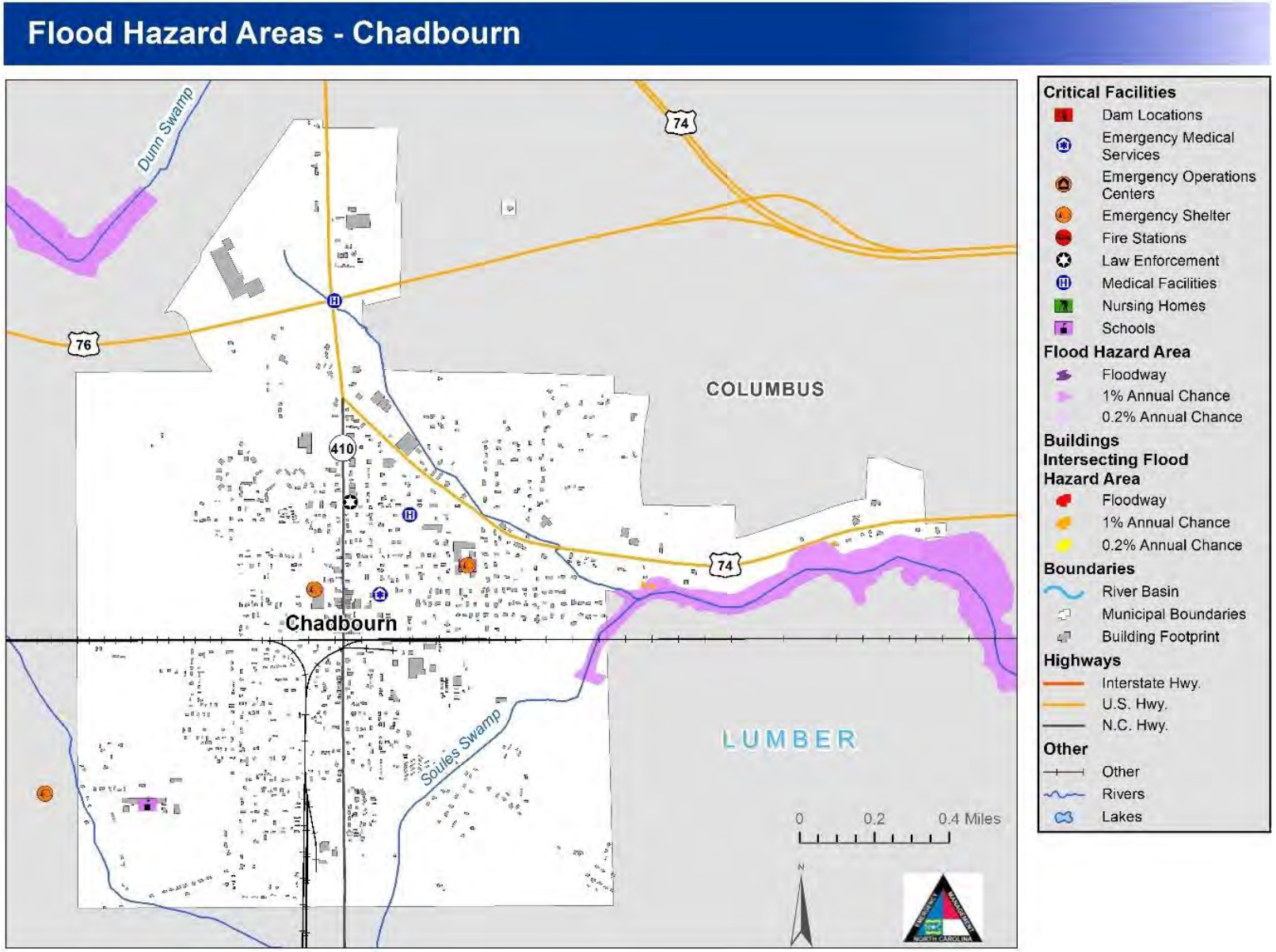


Figure 5-29: Flood Hazard Areas - Chadbourn

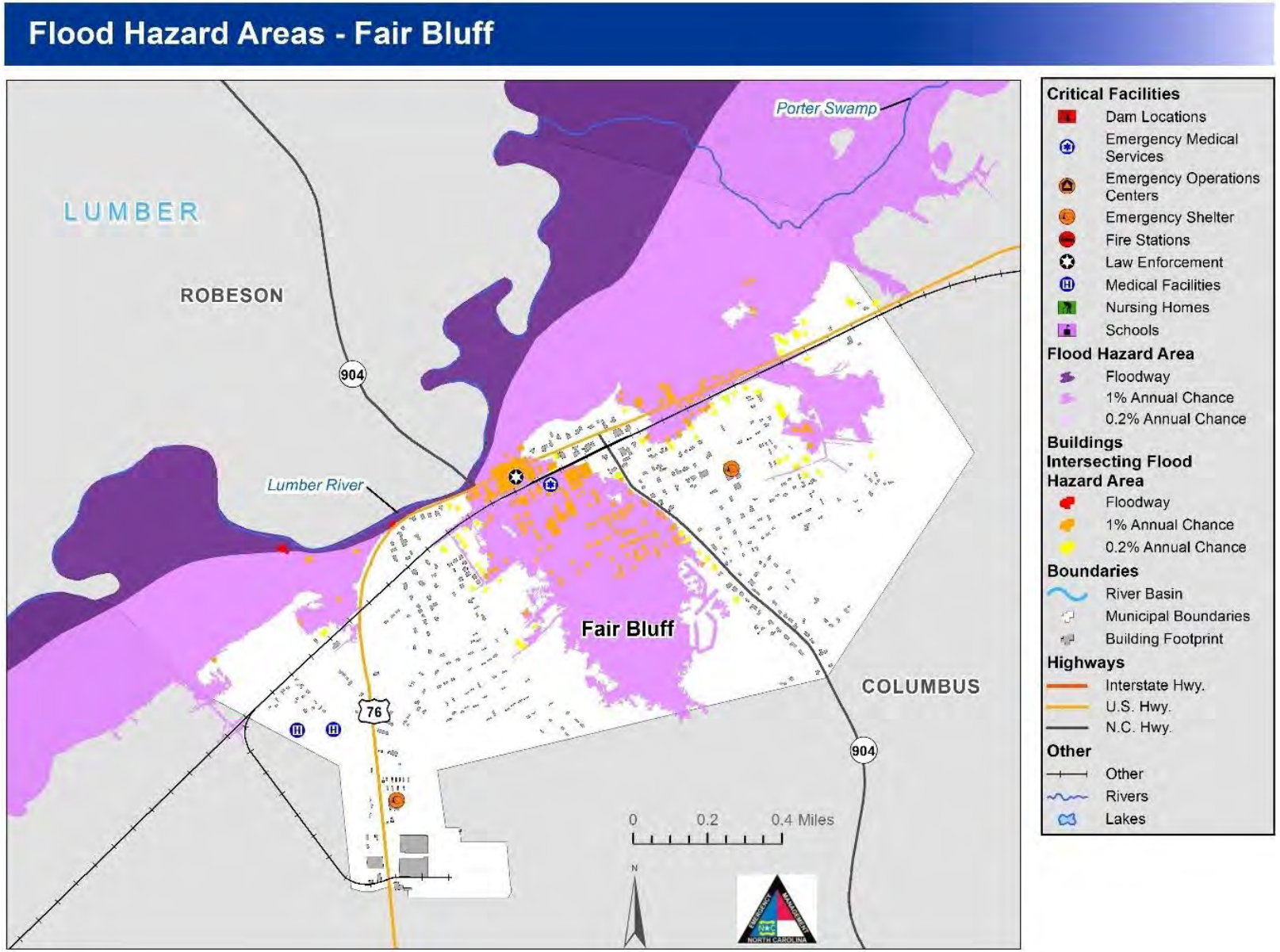


Figure 5-30: Flood Hazard Areas – Fair Bluff

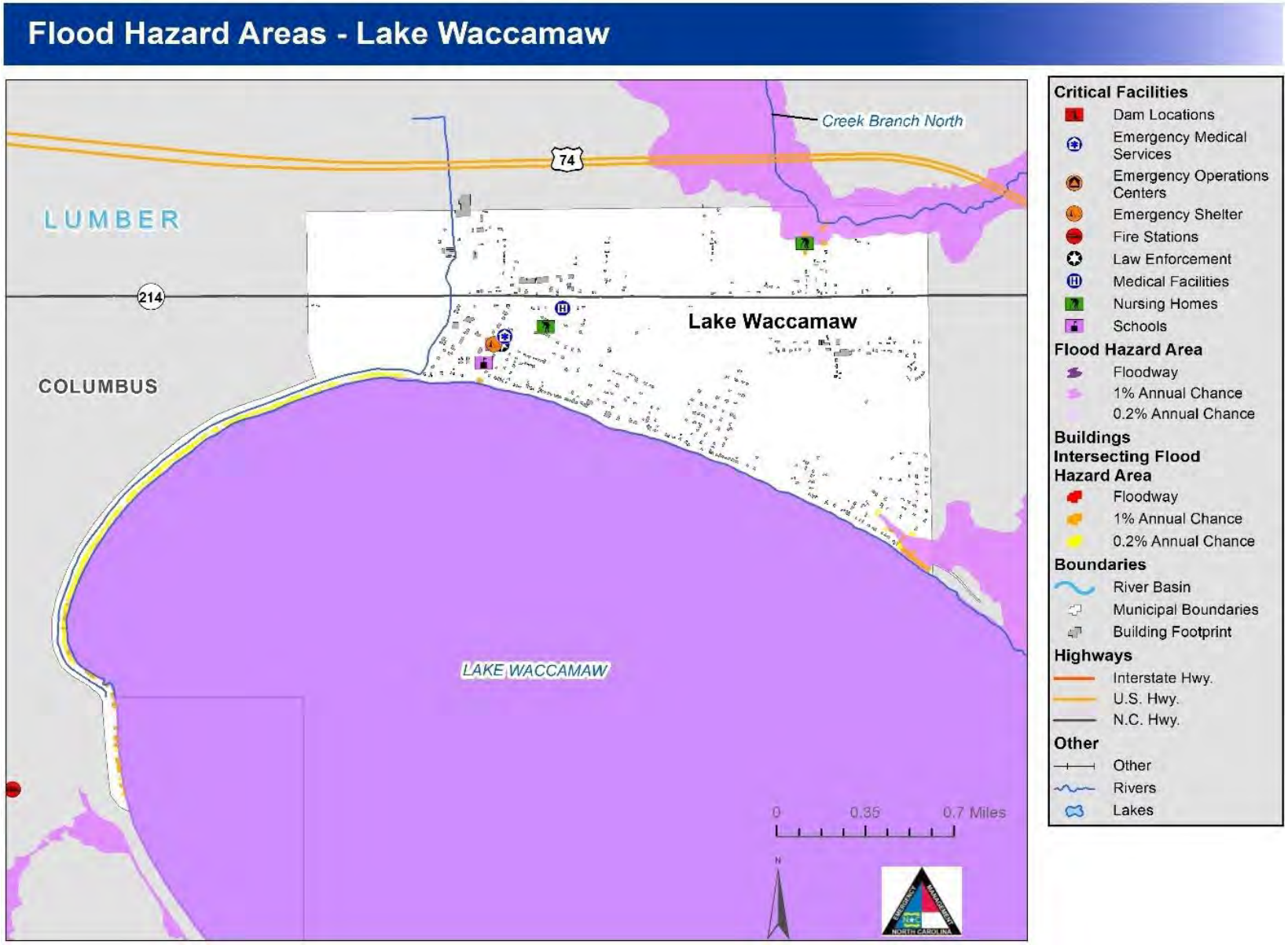


Figure 5-31: Flood Hazard Areas – Lake Waccamaw

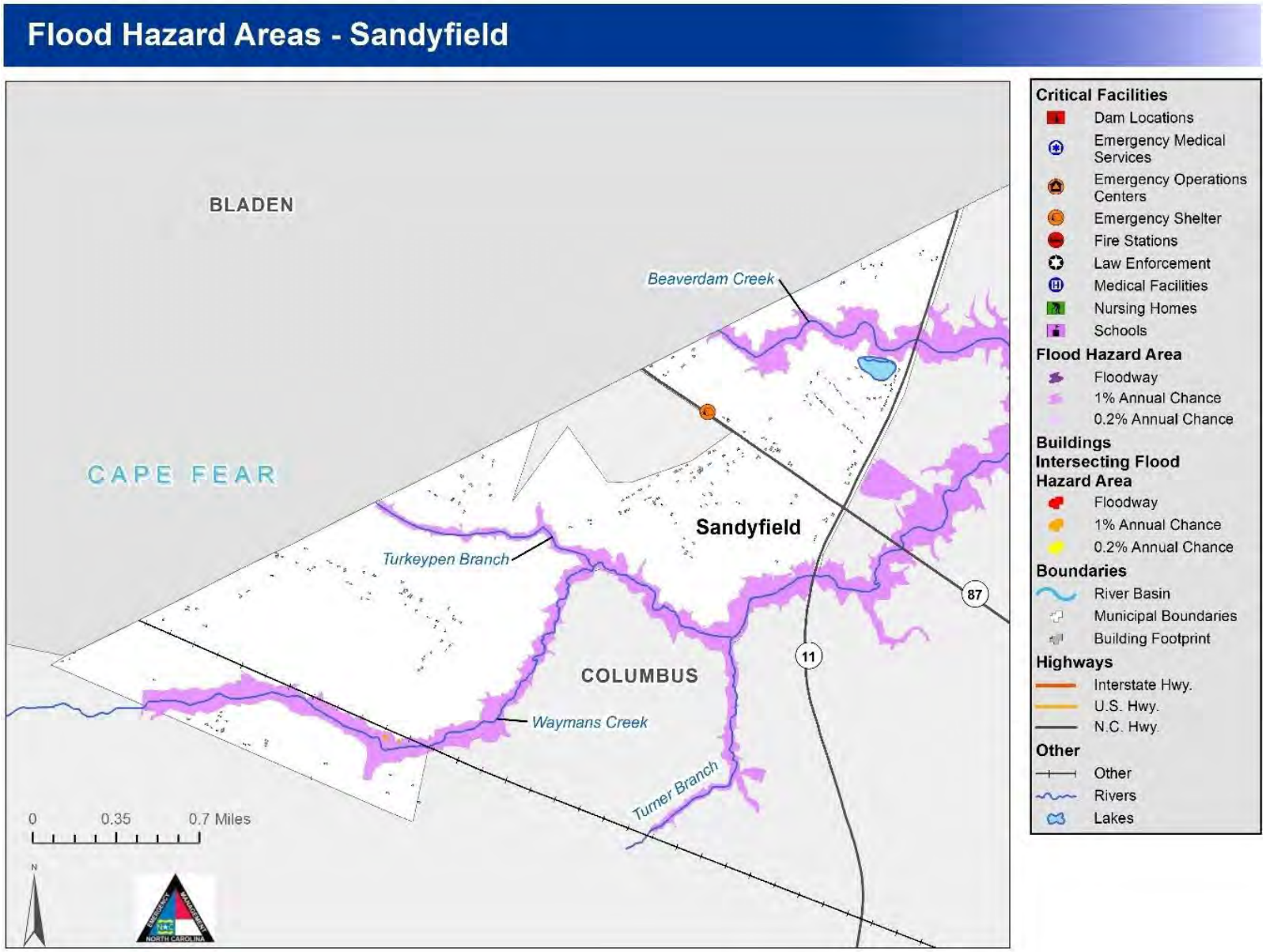


Figure 5-32: Flood Hazard Areas – Sandyfield

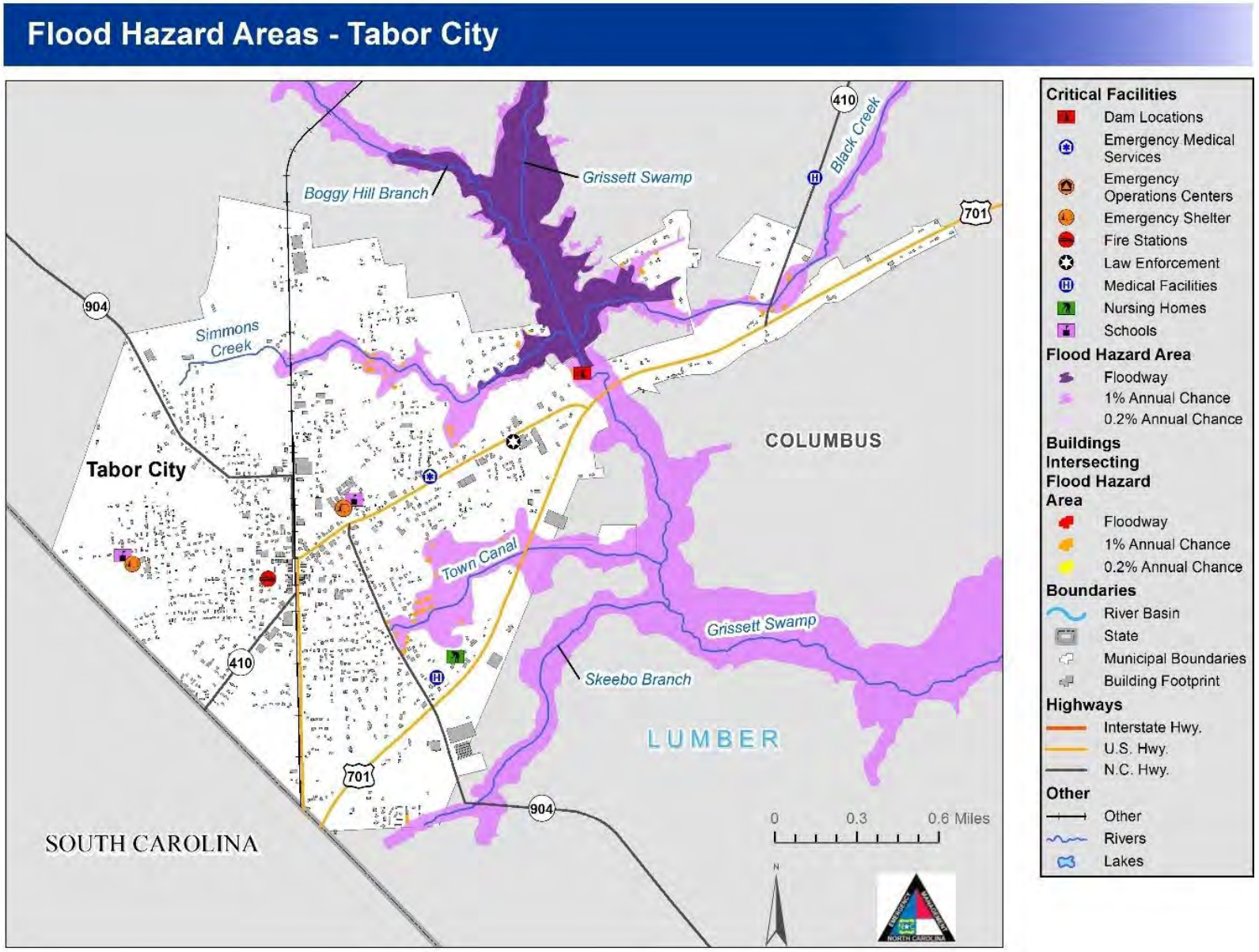


Figure 5-33: Flood Hazard Areas – Tabor City

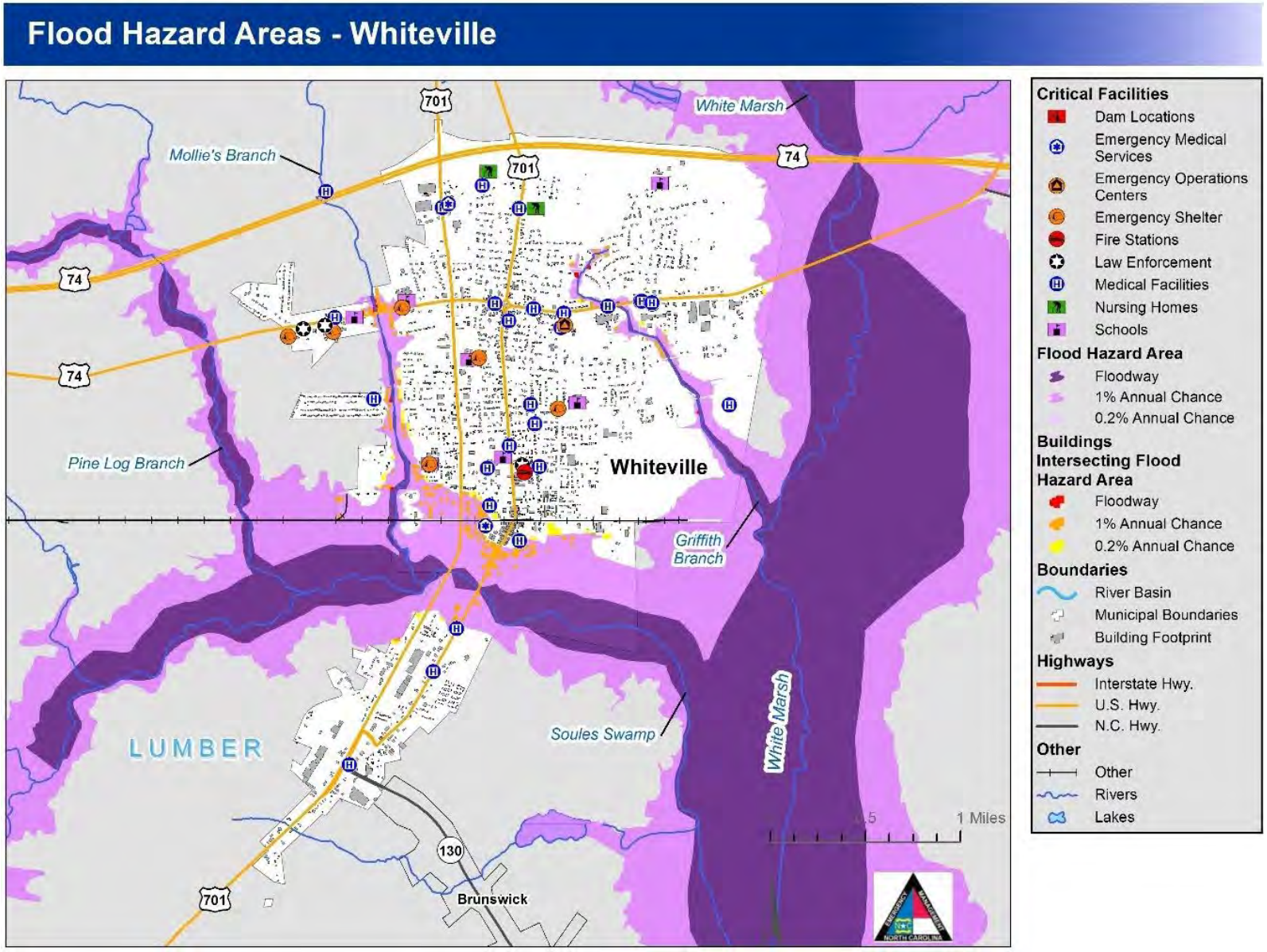


Figure 5-34: Flood Hazard Areas - Whiteville

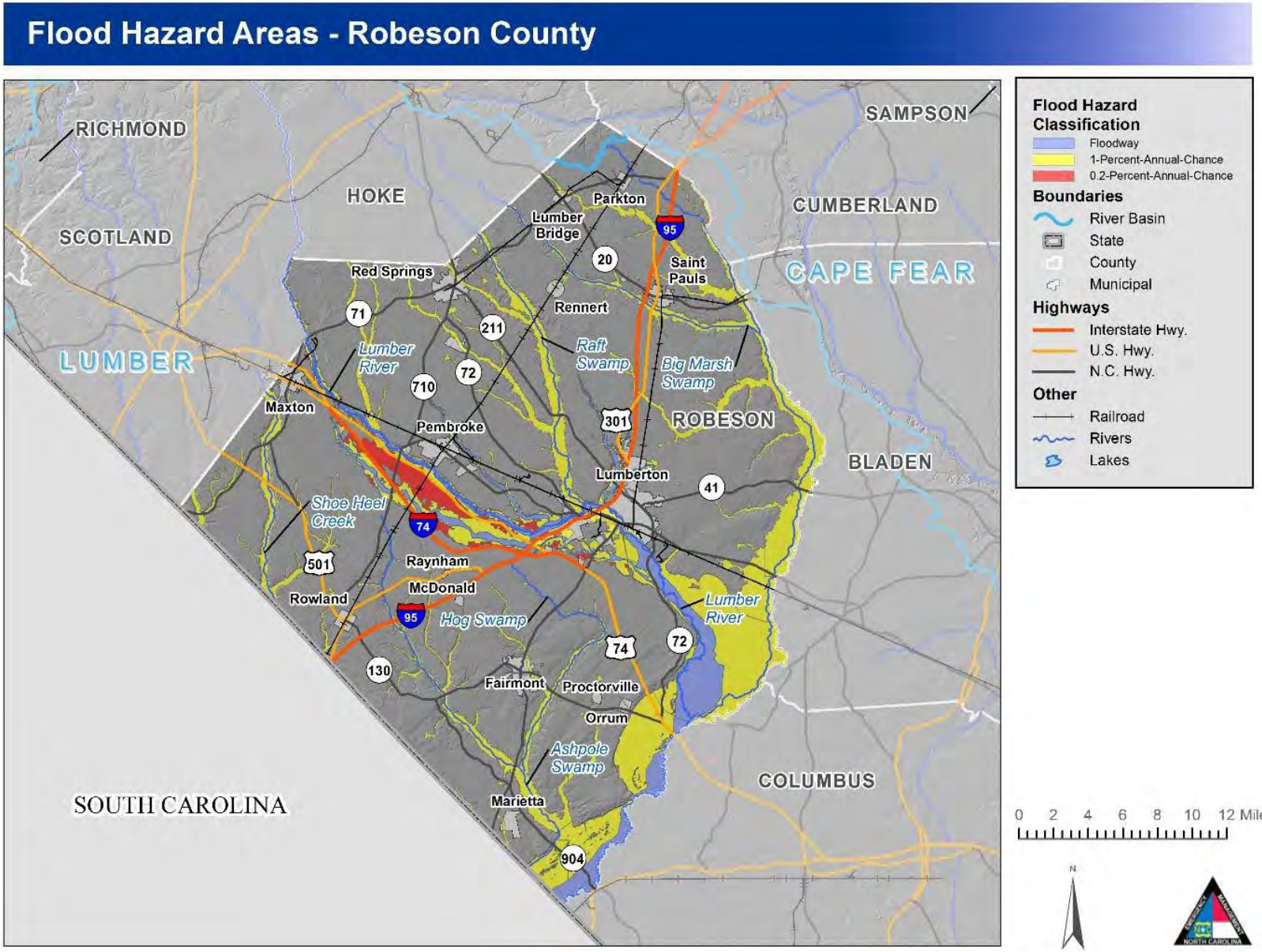


Figure 5-35: Flood Hazard Areas – Robeson County

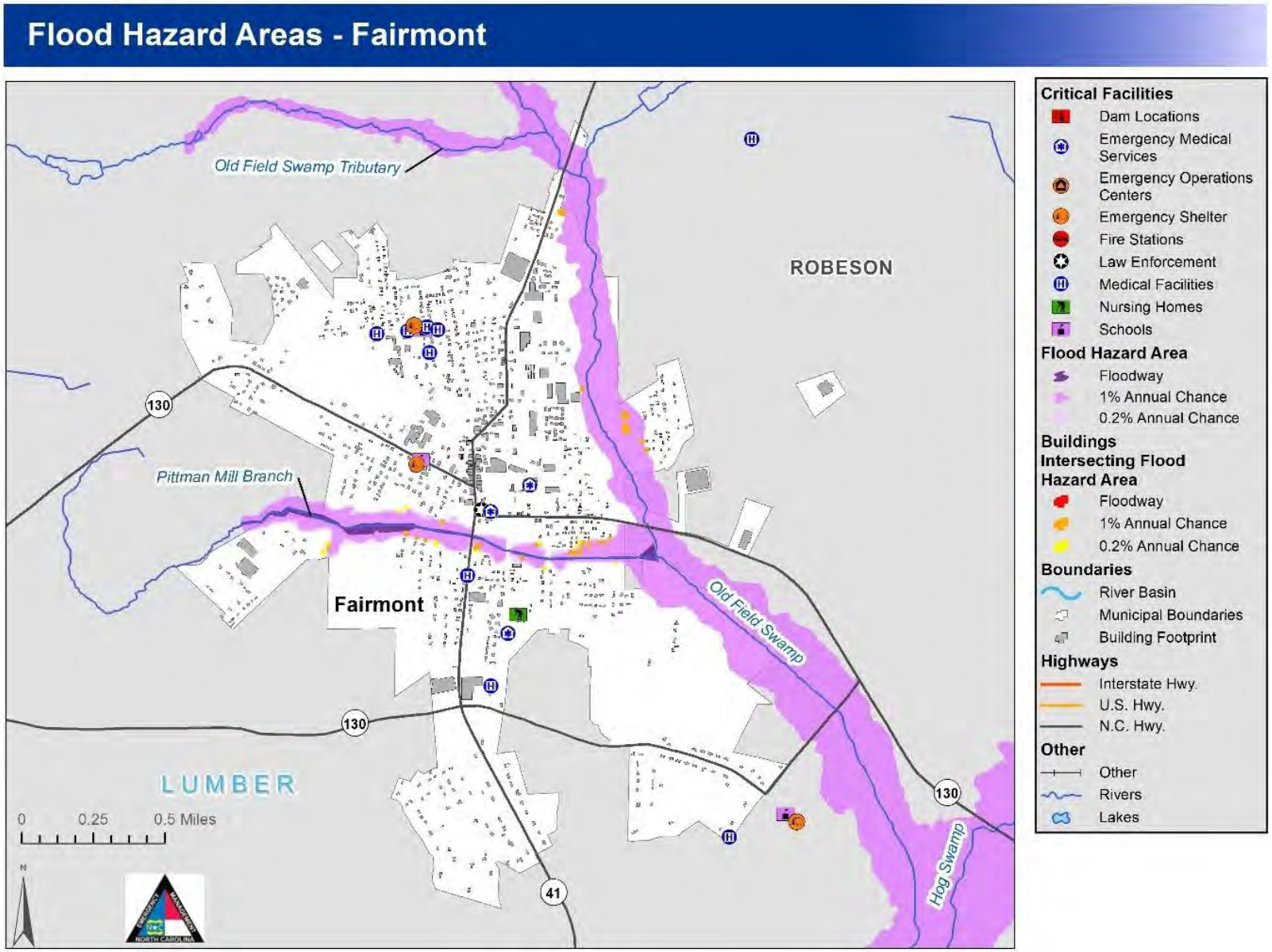


Figure 5-36: Flood Hazard Areas - Fairmont

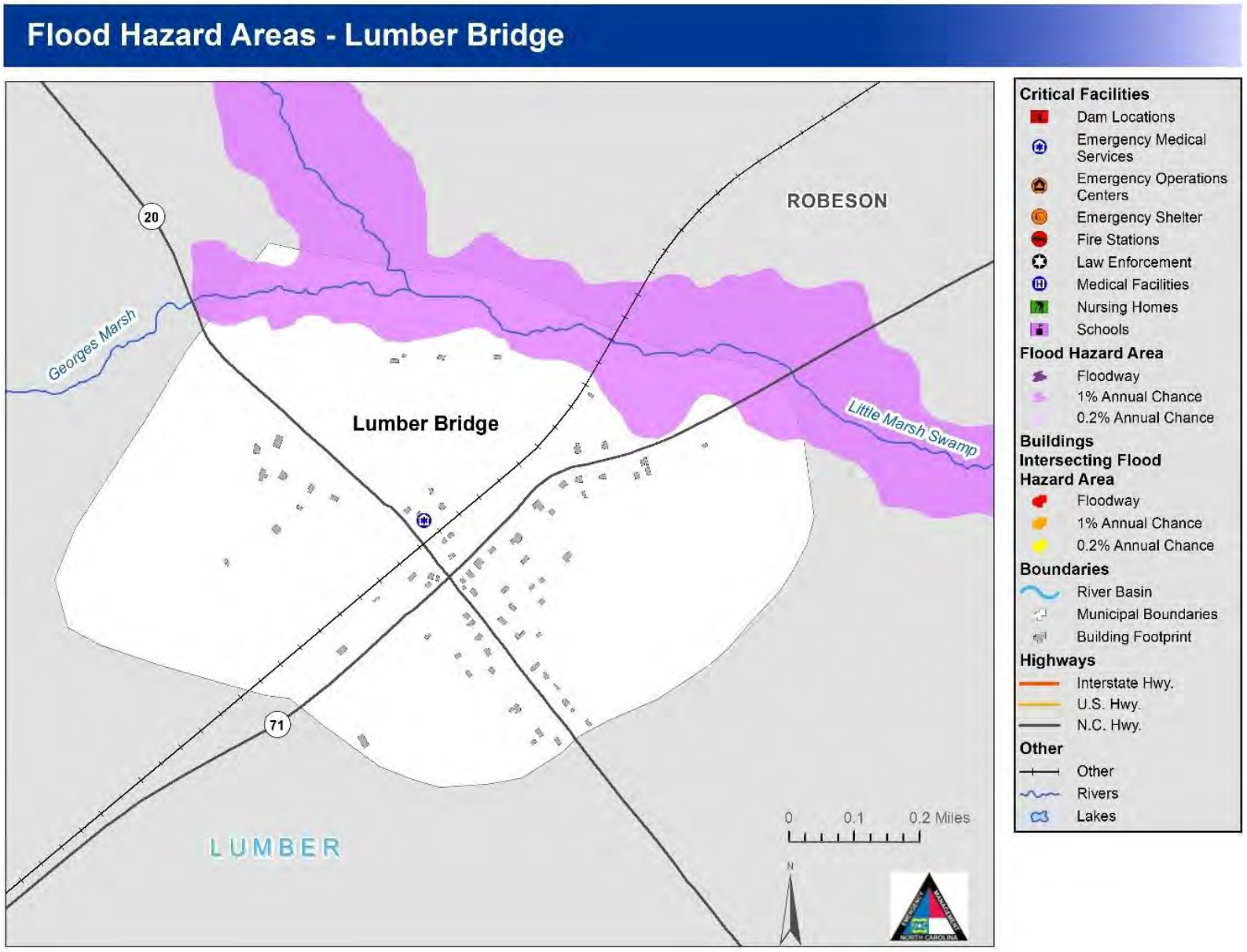


Figure 5-37: Flood Hazard Areas – Lumber Bridge

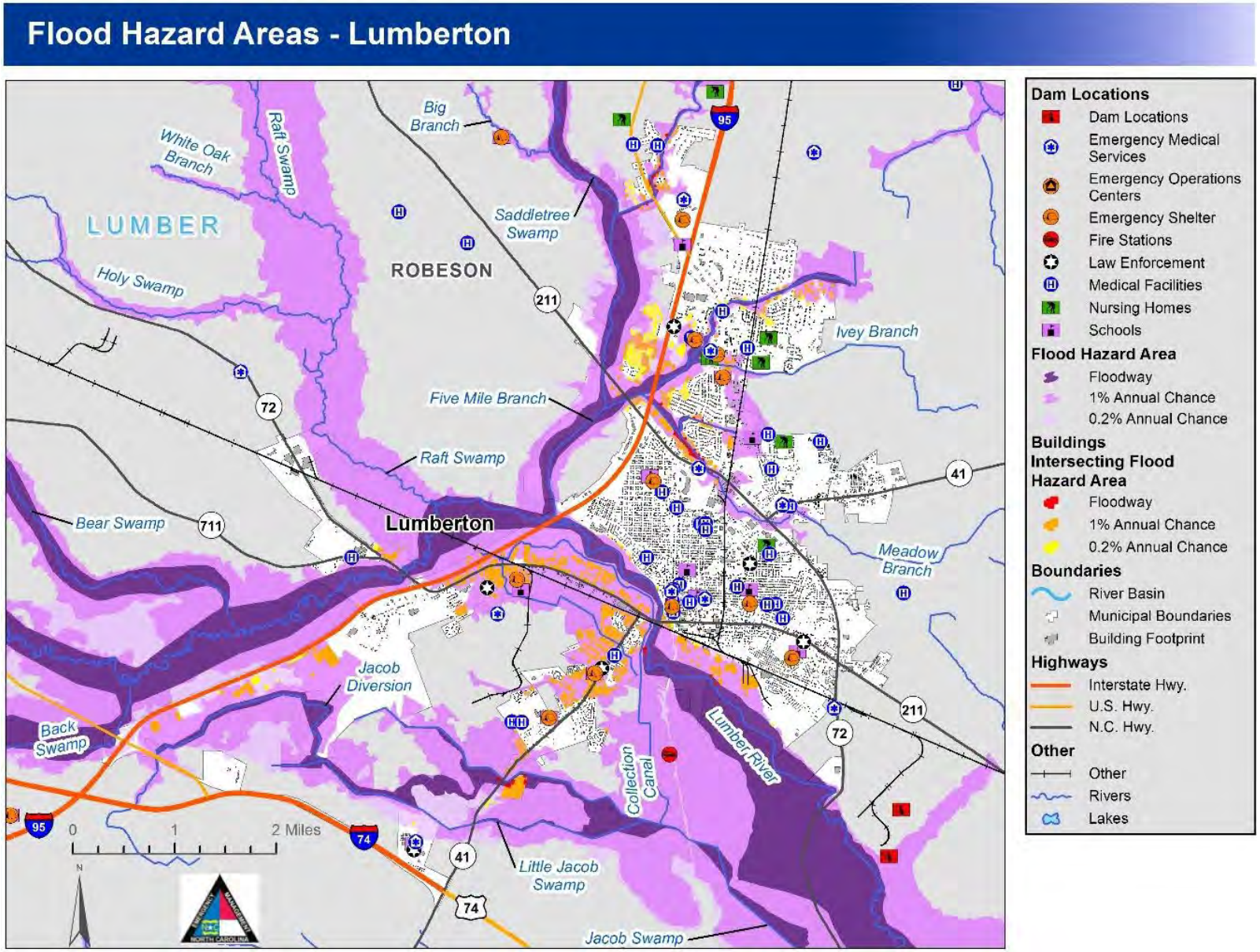


Figure 5-38: Flood Hazard Areas - Lumberton

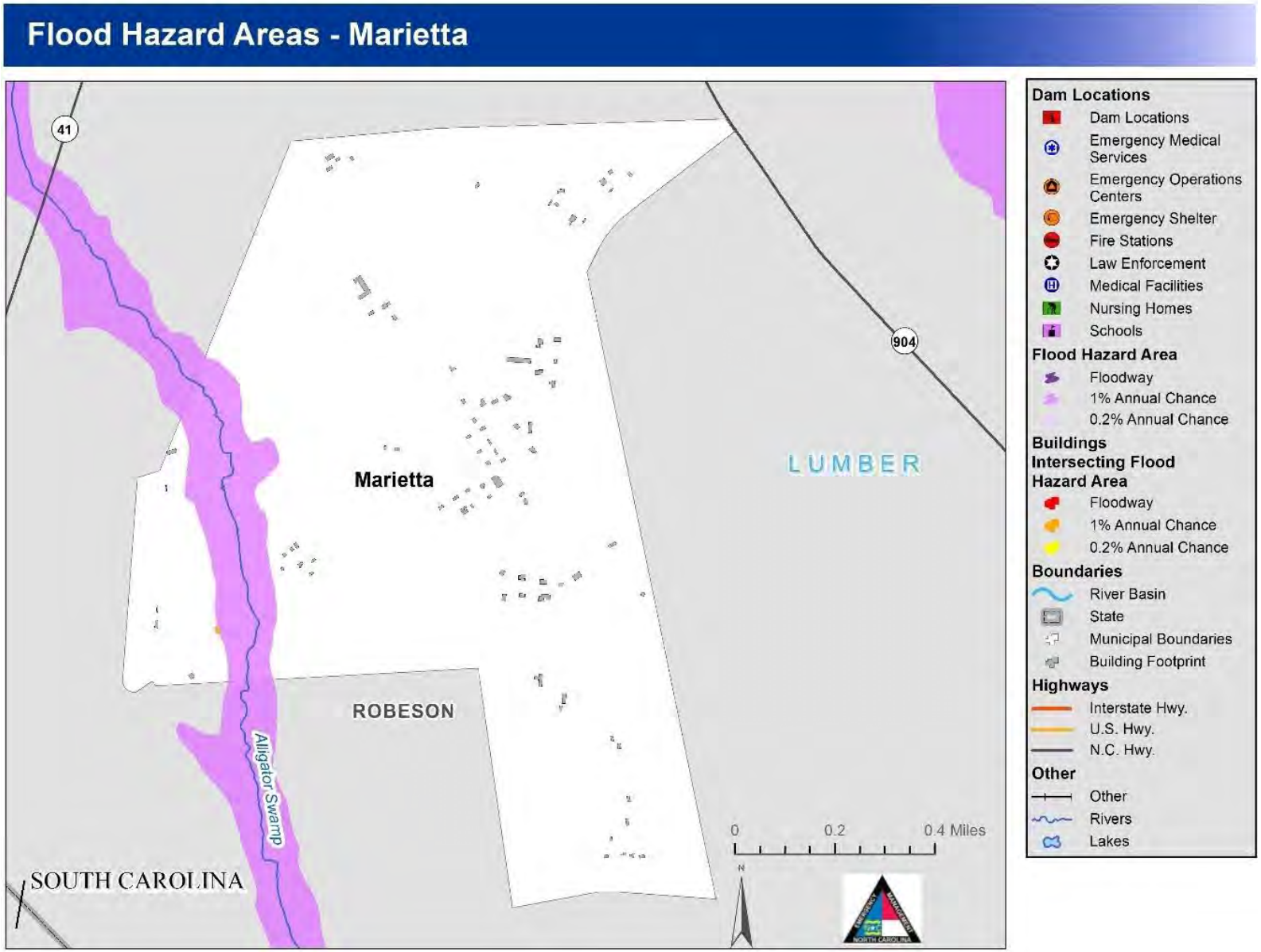


Figure 5-39: Flood Hazard Areas - Marietta

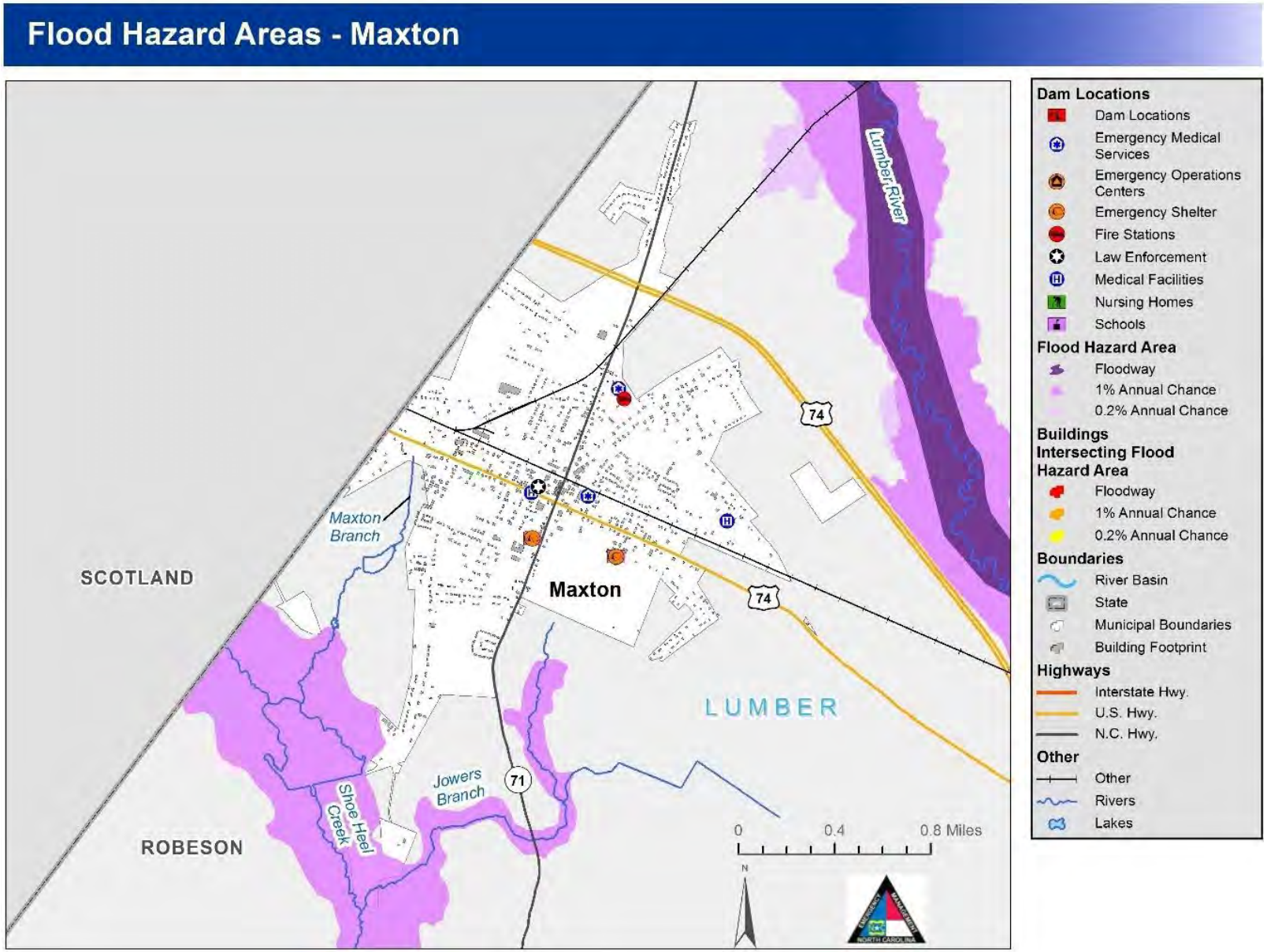


Figure 5-40: Flood Hazard Areas - Maxton

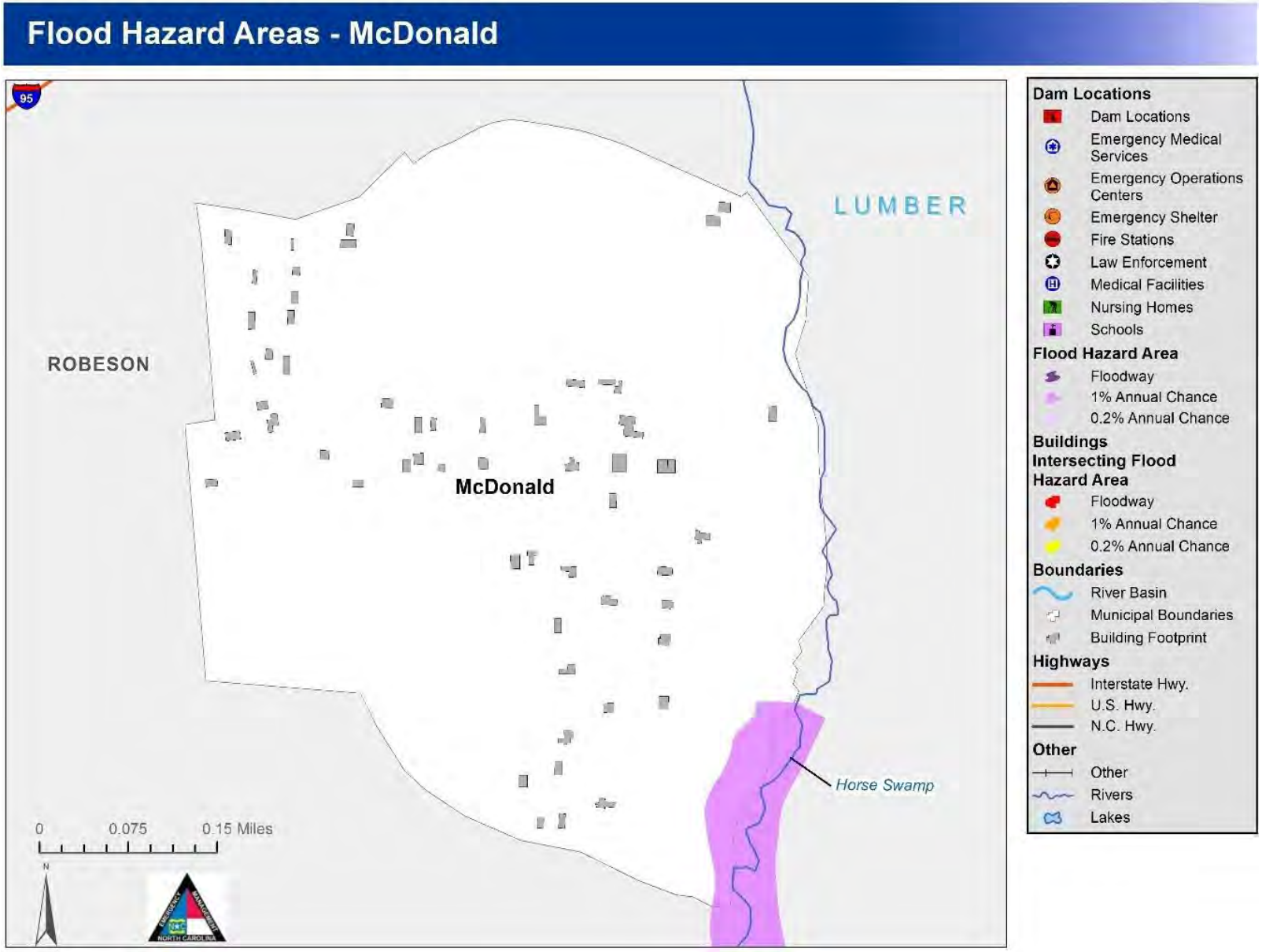


Figure 5-41: Flood Hazard Areas - McDonald

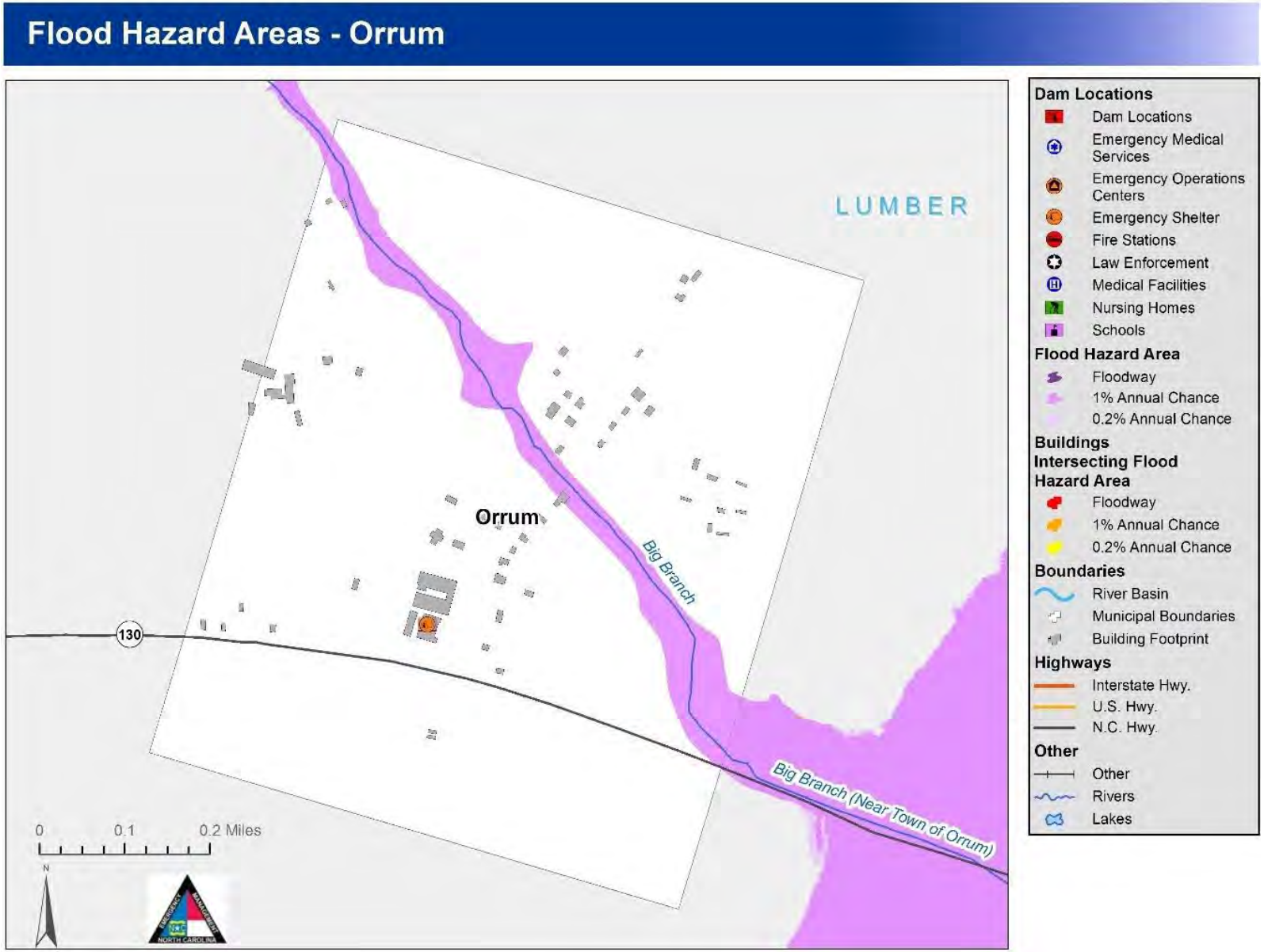


Figure 5-42: Flood Hazard Areas - Orrum

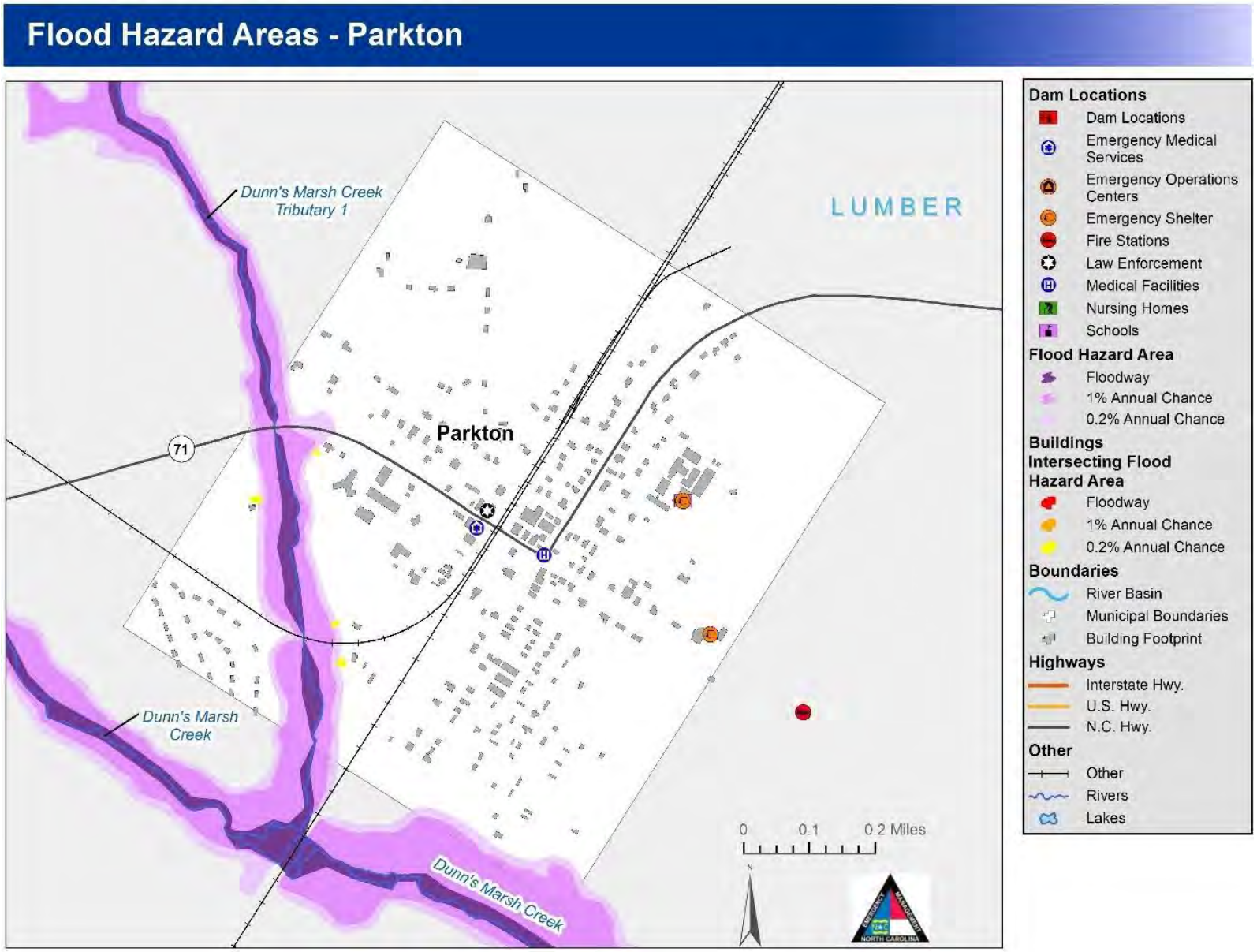


Figure 5-43: Flood Hazard Areas - Parkton

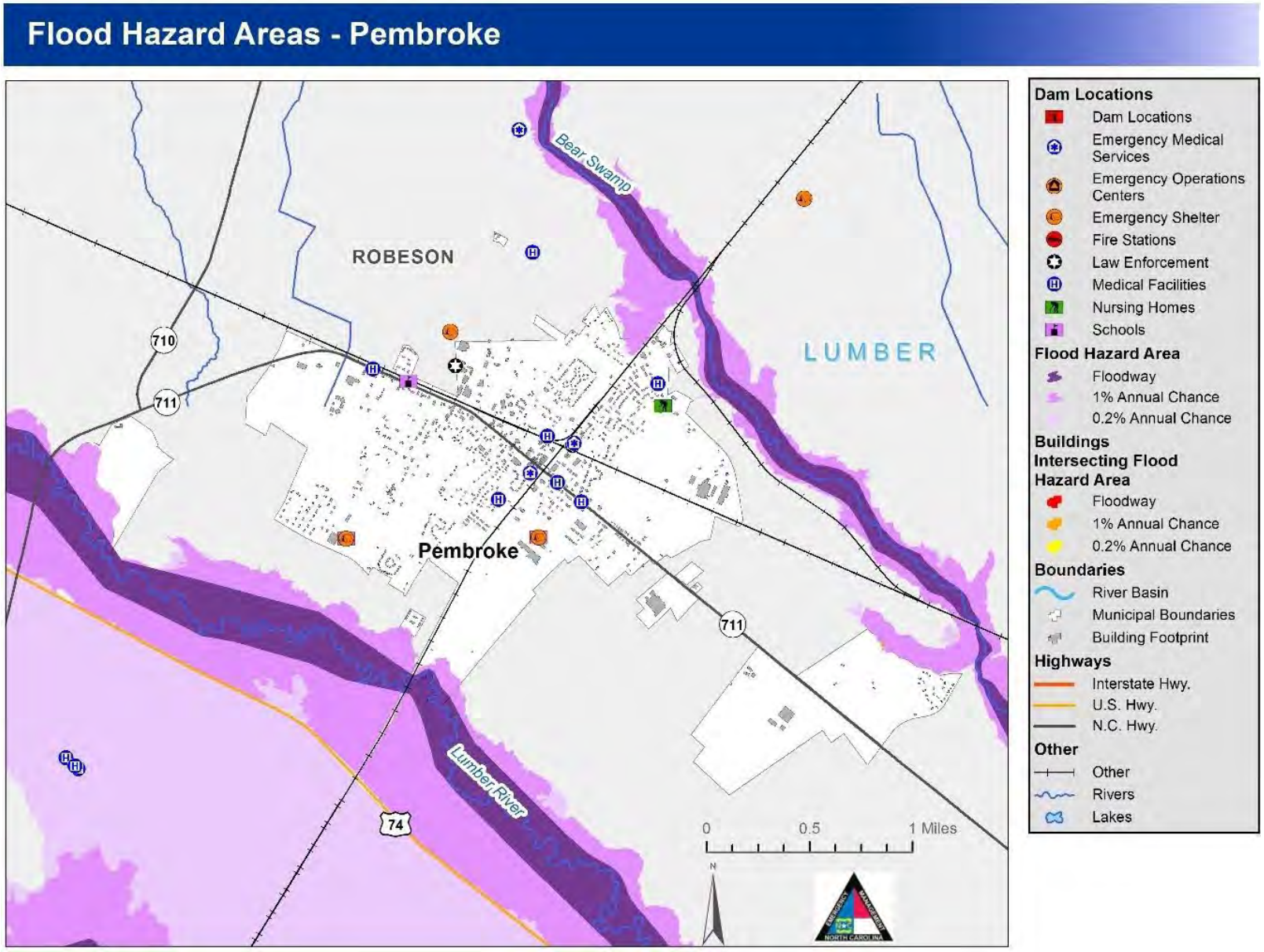


Figure 5-44: Flood Hazard Areas - Pembroke

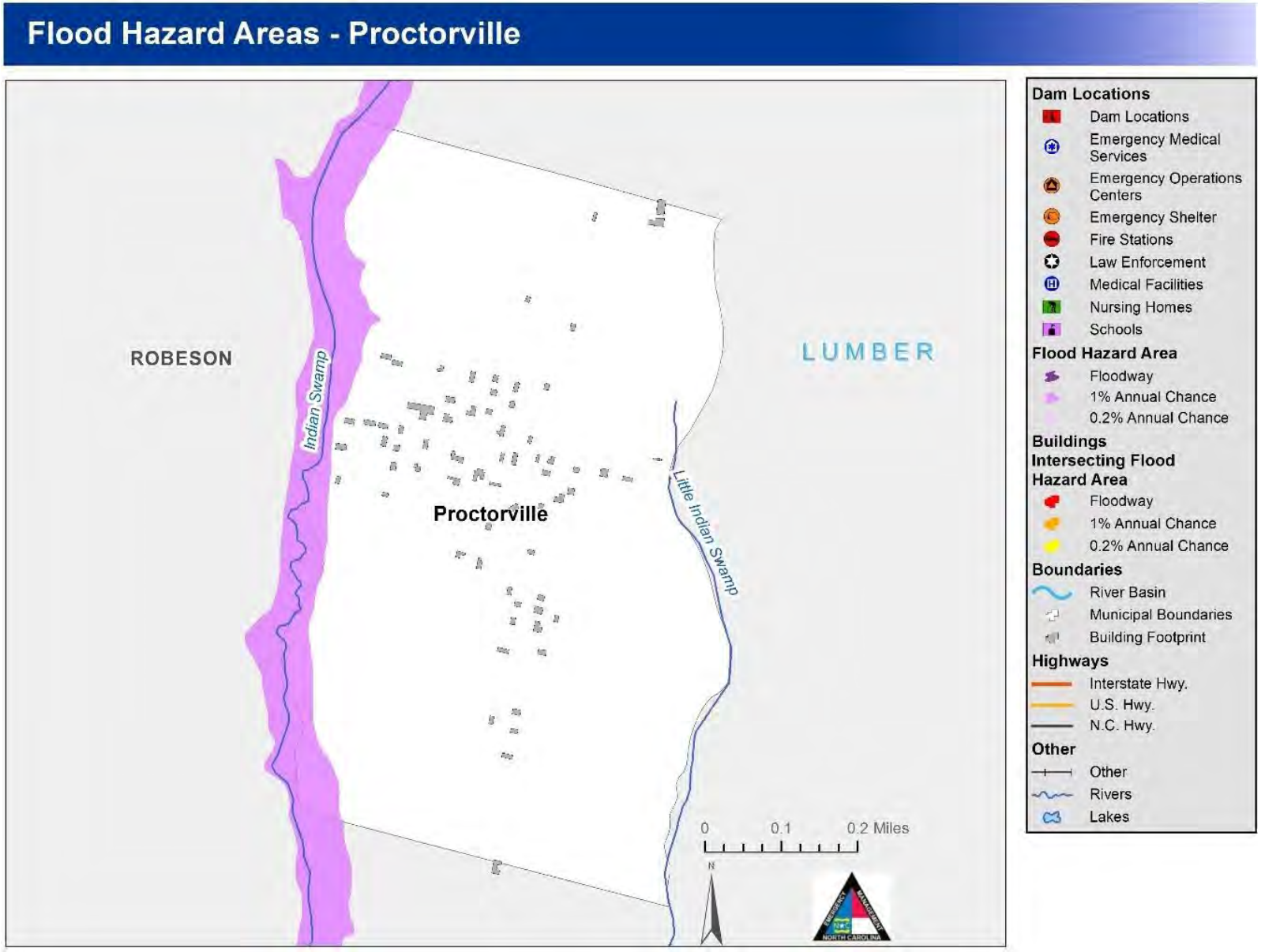


Figure 5-45: Flood Hazard Areas - Proctorville

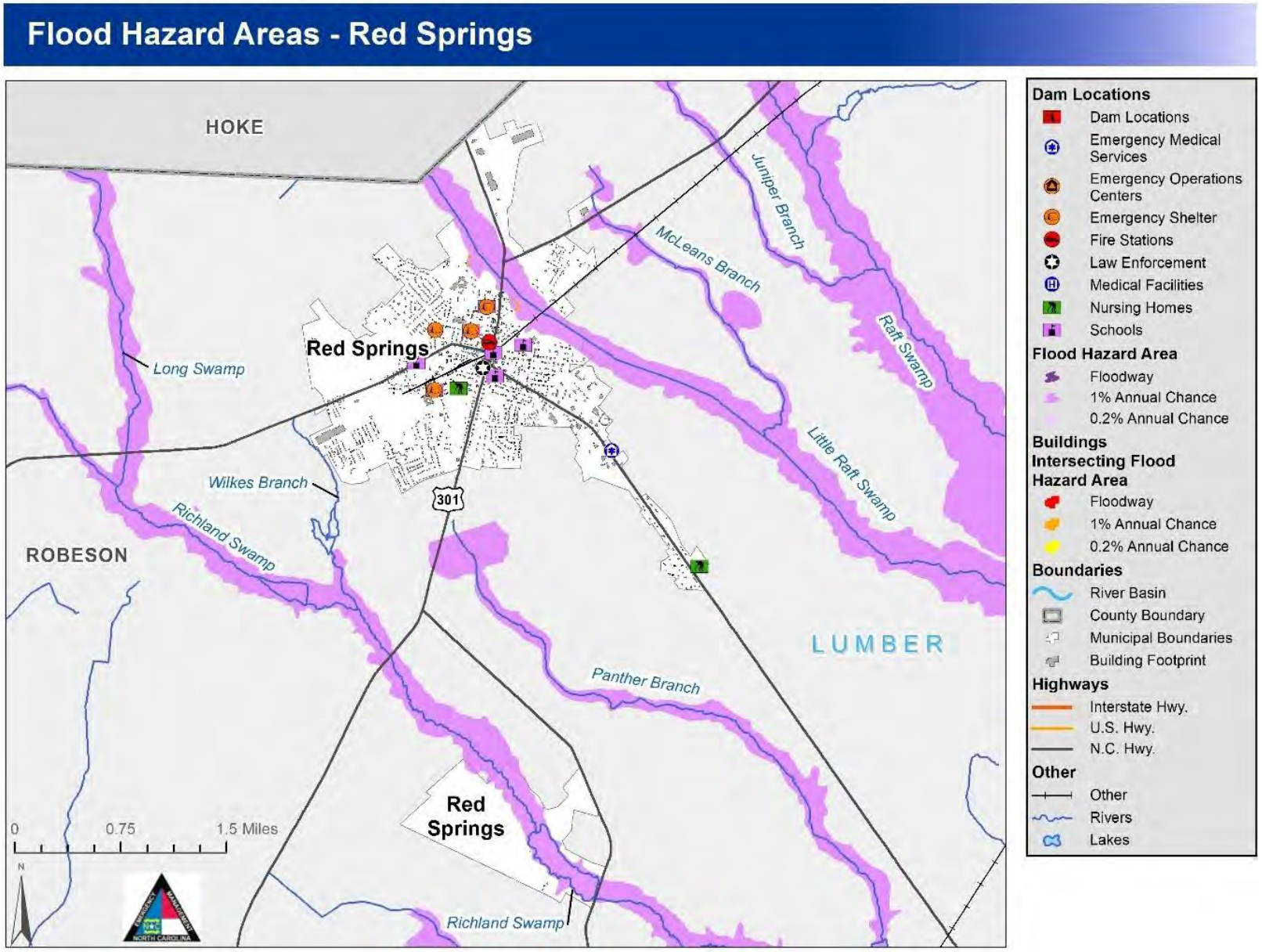


Figure 5-46: Flood Hazard Areas – Red Springs

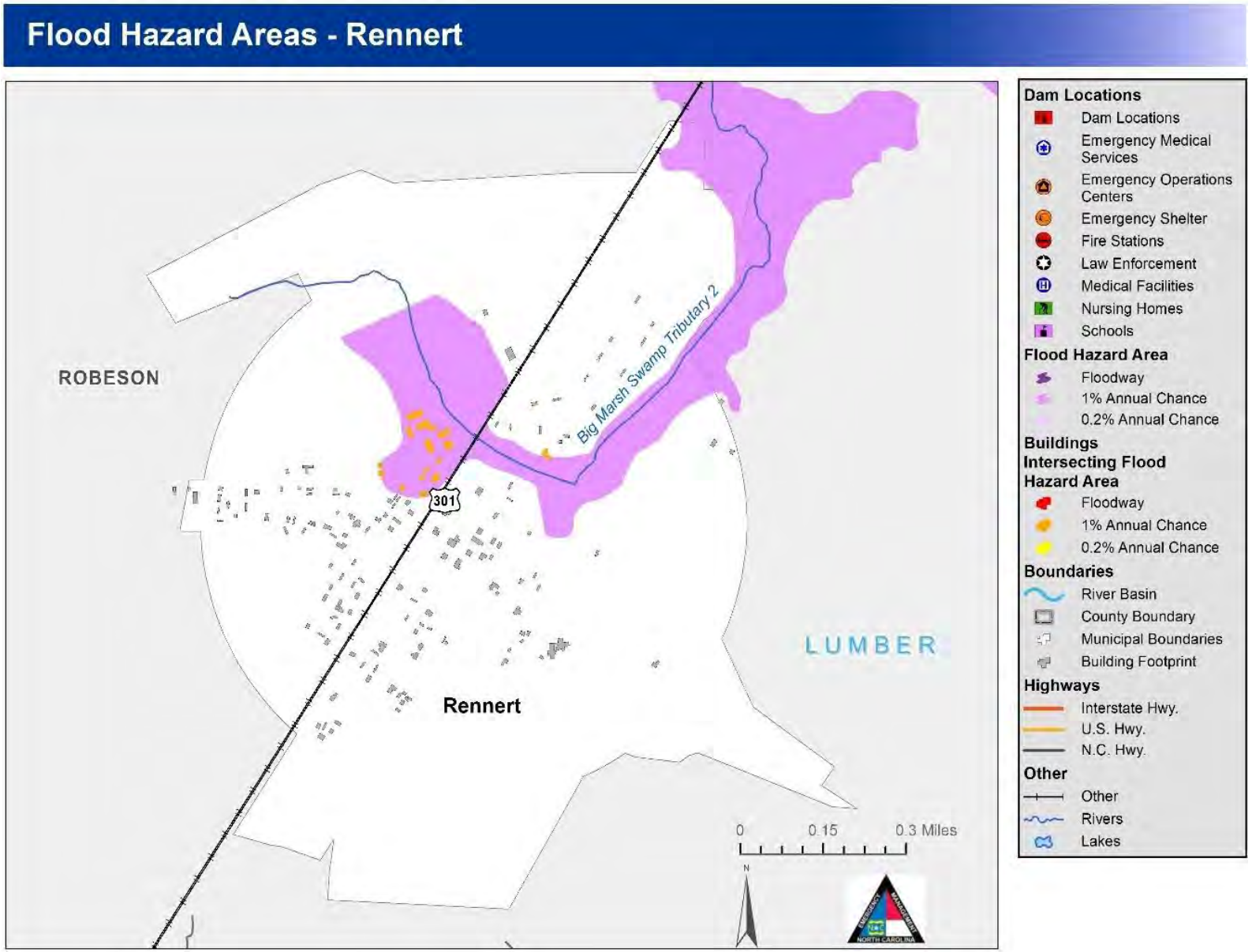


Figure 5-47: Flood Hazard Areas - Rennert

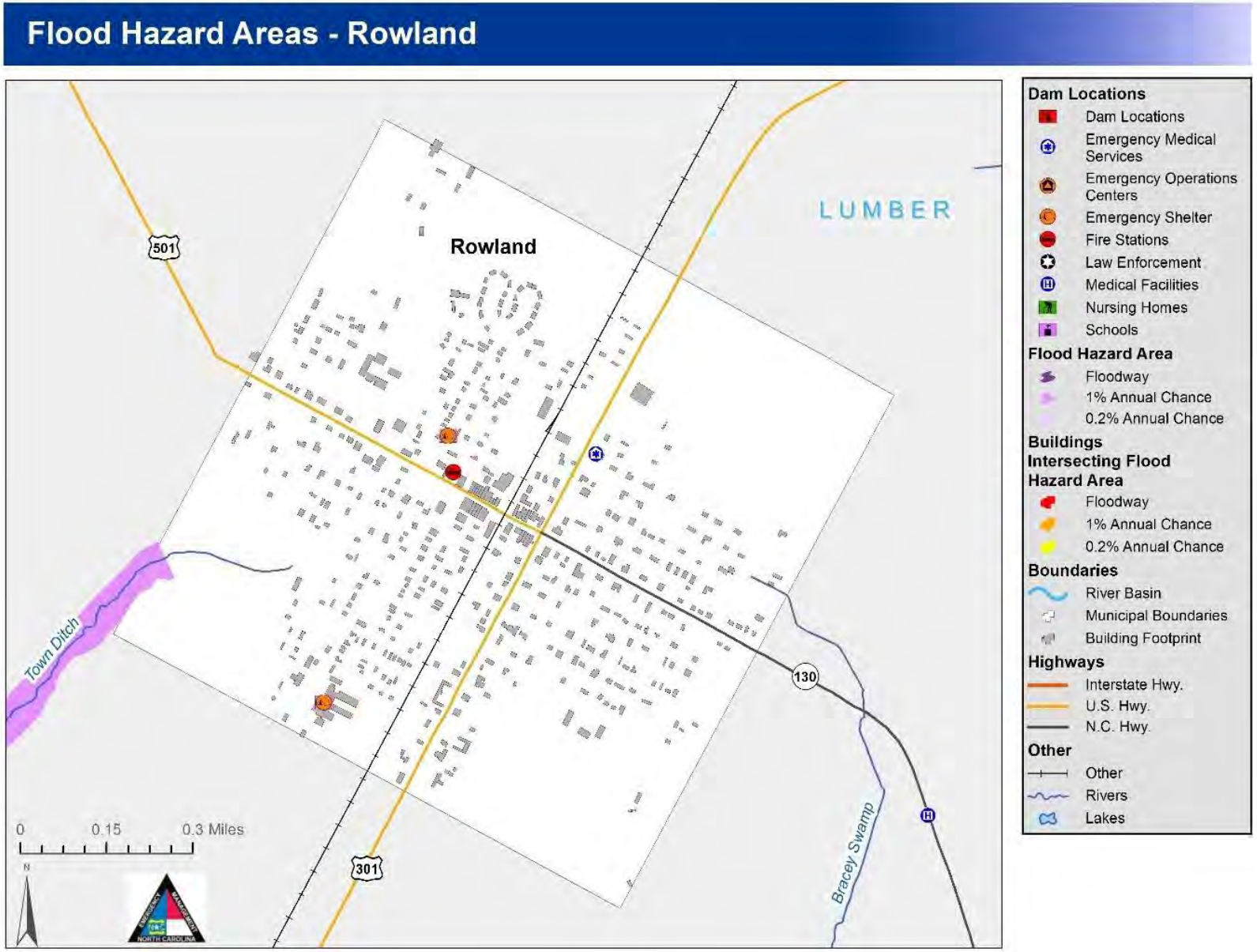


Figure 5-48: Flood Hazard Areas - Rowland

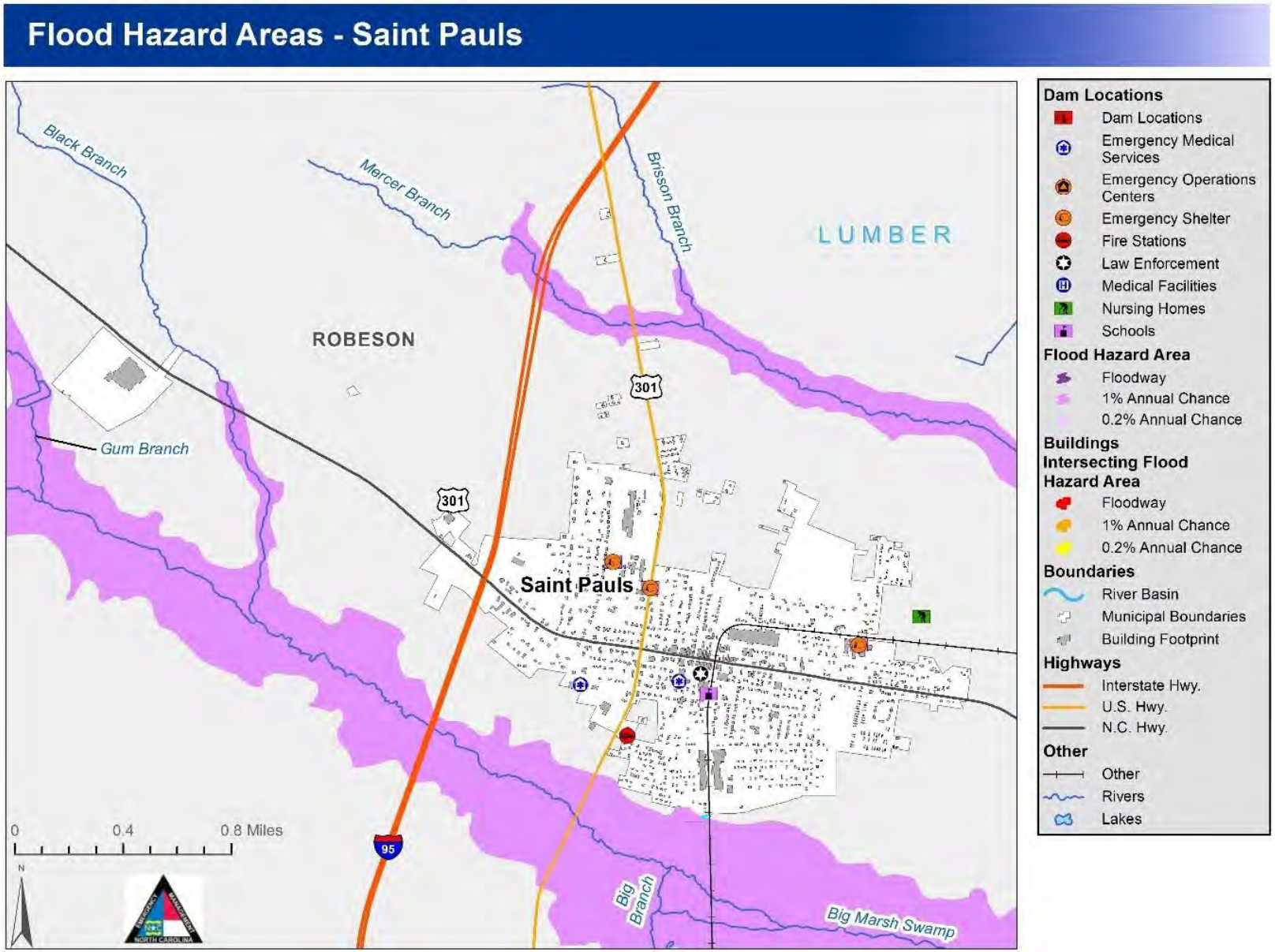


Figure 5-49: Flood Hazard Areas – Saint Pauls

Flood Extent

The following table provides peak river stage data according to the U.S. Geological Survey (USGS) which shows the highest recorded peak river stage for all jurisdictions.

Table 5-15: USGS Peak River Stage Data

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
Bladen County			
Bladen County	140.3 ft	FIRM Panel 3720038400J	Less than 1 foot of backwater flooding street and local roadways
Bladenboro	115.4 ft	FIRM Panel 3720026900J	Less than a half foot of backwater flooding street and local roadways
Clarkton	N/A	N/A	Less than a half foot of backwater flooding street and local roadways
Dublin	N/A	N/A	Less than 1 foot of backwater flooding street and local roadways
East Arcadia	43.7 ft	FIRM Panel 3720220200L	Between 2-4 feet of backwater flooding street and local roadways
Elizabethtown	120.4 ft	FIRM Panel 3720130000J	Less than 1-2 feet of backwater flooding street and local roadways
Tar Heel	N/A	N/A	Less than a half foot of backwater flooding street and local roadways
White Lake	55.4 ft	FIRM Panel 3720136200J	Less than 1 foot of backwater flooding street and local roadways
Columbus County			
Columbus County	104.2 ft	FIRM Panel 3720012600J	Less than 1 foot of backwater flooding street and local roadways
Boardman	84.2 ft	FIRM Panel 3720021500L	Less than a half foot of backwater flooding street and local roadways
Bolton	N/A	N/A	than a half foot of backwater flooding street and local roadways
Brunswick	N/A	N/A	Less than a half foot of backwater flooding street and local roadways
Cerro Gordo	83.3 ft	FIRM Panel 3720022000K	Less than 1 foot 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
Chadbourn	90 ft	FIRM Panel 3720024000J	Less than 1 foot of backwater flooding street and local roadways
Fair Bluff	65.8 ft	FIRM Panel 3710929000K	Less than 1 foot of backwater flooding street and local roadways
Lake Waccamaw	54 ft	FIRM Panel 3720125100J	Less than 1 foot of backwater flooding street and local roadways
Sandyfield	46.2 ft	FIRM Panel 3720220200L	Less than a half foot of backwater flooding street and local roadways
Tabor City	91.4 ft	FIRM Panel 3720012400K	Less than 1 foot of backwater flooding street and local roadways
Whiteville	77.7 ft	FIRM Panel 3720029100K	Less than 1 foot of backwater flooding street and local roadways
Robeson County			
Robeson County	218.9 ft	FIRM Panel 3710930800K	Between 3-4 feet of backwater flooding street and local roadways
Fairmont	126.8 ft	FIRM Panel 3710926700J	Between 3 feet of backwater flooding street and local roadways
Lumber Bridge	182.1 ft	FIRM Panel 3710946000K	Between 1-2 feet of backwater flooding street and local roadways
Lumberton	140.8 ft	FIRM Panel 3710939400K	Between 1-2 feet of backwater flooding street and local roadways
Marietta	80.1 ft	FIRM Panel 3710926200K	Less than 1 foot of backwater flooding street and local roadways
Maxton	189.7 ft	FIRM Panel 3710838400K	Between 2-3 feet of backwater flooding street and local roadways
McDonald	133.2 ft	FIRM Panel 3710924800J	Between 1-2 feet of backwater flooding street and local roadways
Orrum	101.2 ft	FIRM Panel 3710928600J	Between 1-2 feet of backwater flooding street and local roadways
Parkton	178.6 ft	FIRM Panel 3710949200J	Between 2-3 feet of backwater flooding street and local roadways
Pembroke	170.6 ft	FIRM Panel 3710934400K	Between 1-2 feet of backwater flooding street and local roadways
Proctorville	101.2 ft	FIRM Panel 3710928600J	Between 1-2 feet of backwater flooding street and local roadways
Raynham	N/A	N/A	Less than a half foot 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
Red Springs	203.9 ft	FIRM Panel 3710934800K	Between 2-3 feet of backwater flooding street and local roadways
Rennert	184.8 ft	FIRM Panel 3710936800J	Between 2-3 feet of backwater flooding street and local roadways
Rowland	128.8 ft	FIRM Panel 3710920800J	Between 2-3 feet of backwater flooding street and local roadways
Saint Pauls	157.9 ft	FIRM Panel 3710938800J	Between 1-2 feet of backwater flooding street and local roadways
Shannon	N/A	N/A	Less than a half foot of backwater flooding street and local roadways

5.8.3 Past Occurrences

The following historical occurrences since 2008 have been identified based on the National Centers for Environmental Information (NCEI) Storm Events database **Table 5-16**. It should be noted that only those historical occurrences listed in the NCEI 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 Flooding Occurrences (2008-2025)

Location	Date	Type	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Bladen County						
Bladen County (Unincorporated Area)	09/08/08	Flood	0	0	$10,000	$0
Bladen County (Unincorporated Area)	06/30/13	Flood	0	0	$0	$0
Bladen County (Unincorporated Area)	08/03/14	Flood	0	0	$0	$0
Bladen County (Unincorporated Area)	09/08/14	Flood	0	0	$0	$0
Bladen County (Unincorporated Area)	09/02/16	Flash Flood	0	0	$0	$0
Bladen County (Unincorporated Area)	09/02/16	Flash Flood	0	0	$0	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$350,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$250,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$75,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$750,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$50,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$75,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	2	0	$75,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$250,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$50,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$75,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$50,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$50,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$100,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$200,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$100,000	$0
Bladen County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$75,000	$0
Bladen County (Unincorporated Area)	09/14/18	Flash Flood	0	0	$0	$0
Bladen County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0
Bladen County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0
Bladen County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0
Bladen County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0
Bladen County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0

Location	Date	Type	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Bladen County (Unincorporated Area)	09/16/18	Flash Flood	0	0	$150,000	$0
Bladen County (Unincorporated Area)	09/16/18	Flash Flood	0	0	$10,000	$0
Bladen County (Unincorporated Area)	09/16/24	Flash Flood	0	0	$3,000	$0
Town of Bladenboro	10/08/16	Flash Flood	0	0	$50,000	$0
Town of Bladenboro	10/08/16	Flash Flood	0	0	$1,000,000	$0
Town of Bladenboro	09/16/18	Flash Flood	0	0	$10,000	$0
Town of Clarkton	08/03/14	Flood	0	0	$5,000	$0
Town of East Arcadia	09/15/18	Flash Flood	0	0	$20,000	$0
Town of Elizabethtown	09/08/14	Flood	0	0	$0	$0
Town of Elizabethtown	08/06/15	Flood	0	0	$0	$0
Town of Elizabethtown	10/08/16	Flash Flood	0	0	$75,000	$0
Town of Elizabethtown	10/08/16	Flash Flood	0	0	$250,000	$0
Town of White Lake	10/08/16	Flash Flood	0	0	$1,000,000	$0
Town of White Lake	10/06/23	Flood	0	0	$0	$0
Subtotal Bladen	***42 Events***	**--**	***2***	***0***	***$5,208,000***	***$0***
Columbus County						
City of Whiteville	07/09/11	Flood	0	0	$10,000	$0
City of Whiteville	10/02/15	Flood	0	0	$0	$0
City of Whiteville	08/05/16	Flash Flood	0	0	$0	$0
City of Whiteville	09/02/16	Flash Flood	0	0	$0	$0
City of Whiteville	09/15/18	Flash Flood	0	0	$40,000	$0
City of Whiteville	09/16/18	Flash Flood	0	0	$20,000	$0
City of Whiteville	06/16/20	Flood	0	0	$0	$0
City of Whiteville	06/16/20	Flash Flood	0	0	$100,000	$0
City of Whiteville	07/31/23	Flash Flood	0	0	$1000	$0
Columbus County (Unincorporated Area)	06/25/13	Flood	0	0	$10,000	$0
Columbus County (Unincorporated Area)	06/27/13	Flood	0	0	$0	$0
Columbus County (Unincorporated Area)	06/30/13	Flood	0	0	$0	$0
Columbus County (Unincorporated Area)	06/30/13	Flood	0	0	$0	$0
Columbus County (Unincorporated Area)	08/03/14	Flood	0	0	$0	$0

Location	Date	Type	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Columbus County (Unincorporated Area)	08/09/14	Flood	0	0	$0	$0
Columbus County (Unincorporated Area)	10/02/15	Flood	0	0	$0	$0
Columbus County (Unincorporated Area)	08/03/16	Flood	0	0	$0	$0
Columbus County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$500,000	$0
Columbus County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$150,000	$0
Columbus County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$1,000,000	$0
Columbus County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$500,000	$0
Columbus County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$250,000	$0
Columbus County (Unincorporated Area)	07/09/17	Flash Flood	0	0	$7,000	$0
Columbus County (Unincorporated Area)	07/09/17	Flood	0	0	$4,000	$0
Columbus County (Unincorporated Area)	05/28/18	Flash Flood	0	0	$0	$0
Columbus County (Unincorporated Area)	05/28/18	Flash Flood	0	0	$0	$0
Columbus County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$20,000	$0
Columbus County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$30,000	$0
Columbus County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0
Columbus County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0
Columbus County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0
Columbus County (Unincorporated Area)	05/21/20	Flash Flood	0	0	$0	$0
Columbus County (Unincorporated Area)	05/28/20	Flood	0	0	$0	$0
Columbus County (Unincorporated Area)	05/28/20	Flash Flood	0	0	$4,000	$0
Columbus County (Unincorporated Area)	07/19/21	Flash Flood	0	0	$0	$0
Columbus County (Unincorporated Area)	07/31/23	Flash Flood	0	0	$1,000	$0
Columbus County (Unincorporated Area)	08/27/23	Flood	0	0	$0	$0
Columbus County (Unincorporated Area)	08/31/23	Flash Flood	0	0	$0	$0
Columbus County (Unincorporated Area)	09/16/24	Flash Flood	0	0	$10,000	$0
Town of Chadbourn	08/03/14	Flood	0	0	$2,000	$0
Town of Chadbourn	08/31/23	Flash Flood	0	0	$0	$0
Town of Tabor City	08/31/23	Flash Flood	0	0	$0	$0
Subtotal Columbus	***42 Events***	--	***0***	***0***	***$2,689,000***	***$0***
Robeson County						

Location	Date	Type	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
City of Lumberton	09/09/08	Flood	0	0	$0	$0
City of Lumberton	07/11/12	Flood	0	0	$0	$0
City of Lumberton	06/26/15	Flood	0	0	$0	$0
City of Lumberton	06/26/15	Flood	0	0	$0	$0
City of Lumberton	10/08/16	Flash Flood	0	0	$250,000	$0
City of Lumberton	09/15/18	Flash Flood	1	0	$20,000	$0
City of Lumberton	09/15/18	Flash Flood	1	0	$10,000	$0
City of Lumberton	09/15/18	Flash Flood	0	0	$20,000	$0
Robeson County (Unincorporated Area)	05/16/10	Flood	0	0	$5,000	$0
Robeson County (Unincorporated Area)	08/19/11	Flood	0	0	$2,000	$0
Robeson County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$2,000,000	$0
Robeson County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$500,000	$0
Robeson County (Unincorporated Area)	10/08/16	Flash Flood	0	0	$2,000,000	$0
Robeson County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0
Robeson County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0
Robeson County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0
Robeson County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0
Robeson County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0
Robeson County (Unincorporated Area)	09/15/18	Flash Flood	0	0	$10,000	$0
Robeson County (Unincorporated Area)	09/16/18	Flash Flood	0	0	$20,000	$0
Robeson County (Unincorporated Area)	09/16/18	Flash Flood	0	0	$30,000	$0
Robeson County (Unincorporated Area)	11/12/20	Flash Flood	0	0	$0	$0
Robeson County (Unincorporated Area)	08/31/23	Flash Flood	0	0	$0	$0
Town of Fairmont	09/01/20	Flash Flood	0	0	$0	$0
Town of Red Springs	07/01/13	Flood	0	0	$0	$0
Town of Rennert	07/01/13	Flood	0	0	$0	$0
Town of Rowland	06/20/23	Flash Flood	0	0	$10,000	$0
Town of Saint Pauls	06/27/13	Flood	0	0	$0	$0
Subtotal Robeson	***28 Events***	--	***2***	***0***	***$4,927,000***	***$0***
TOTAL PLAN	**112 Events**	--	**4**	**0**	**$12,824,000**	**$0**

Source: NCEI Storm Events Database

Table 5-17 provides a summary of this information by jurisdiction. It is important to note that many of the events attributed to the county are countywide or cover large areas. 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 Jurisdiction

Jurisdiction	Number of Occurrences	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Bladen County					
Bladen County (Unincorporated Area)	31	2	0	$2,798,000	$0
Town of Bladenboro	3	0	0	$1,060,000	$0
Town of Clarkton	1	0	0	$5,000	$0
Town of East Arcadia	1	0	0	$20,000	$0
Town of Elizabethtown	4	0	0	$325,000	$0
Town of White Lake	2	0	0	$1,000,000	$0
Subtotal Bladen	***42***	***2***	***0***	***$5,208,000***	***$0***
Columbus County					
City of Whiteville	9	0	0	$171,000	$0
Columbus County (Unincorporated Area)	30	0	0	$2,516,000	$0
Town of Chadbourn	2	0	0	$2,000	$0
Town of Tabor City	1	0	0	$0	$0
Subtotal Columbus	***42***	***0***	***0***	***$2,689,000***	***$0***
Robeson County					
City of Lumberton	8	2	0	$300,000	$0
Robeson County (Unincorporated Area)	15	0	0	$4,617,000	$0
Town of Red Springs	1	0	0	$0	$0
Town of Red Springs	1	0	0	$0	$0
Town of Rennert	1	0	0	$0	$0
Town of Rowland	1	0	0	$10,000	$0
Town of Saint Pauls	1	0	0	$0	$0
Subtotal Robeson	***28***	***2***	***0***	***$4,927,000***	***$0***
TOTAL PLAN	**112**	**4**	**0**	**$12,824,000**	**$0**

Source: NCEI Storm Events Database

5.8.4 Repetitive Loss Properties

Many of North Carolina's insured flood 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). The table below lists repetitive loss data by county, according to the latest 2024 FEMA records.

Table 5-18: Repetitive Loss Property Counts by Jurisdiction

Jurisdiction	Residential Repetitive Loss Properties	Non-Residential/Commercial Repetitive Loss Properties	Total Repetitive Losses Count
Bladen County (Unincorporated Area)	16	1	38
Town of Bladenboro	7	4	32
Town of Clarkton	0	0	0
Town of Dublin	0	0	0
Town of East Arcadia	0	0	0
Town of Elizabethtown	3	0	7
Town of Tar Heel	0	0	0
Town of White Lake	1	0	2
Bladen County Totals	**27**	**5**	**79**
Columbus County (Unincorporated Area)	37	1	36
City of Whiteville	7	19	104
Town of Boardman	0	0	0
Town of Bolton	0	0	0
Town of Brunswick	0	0	0
Town of Cerro Gordo	0	0	0
Town of Chadbourn	1	0	9
Town of Fair Bluff	9	1	20
Town of Lake Waccamaw	10	0	38
Town of Sandyfield	0	0	0
Town of Tabor City	5	0	16
Columbus County Totals	**69**	**21**	**223**
Robeson County (Unincorporated Area)	1	0	2
City of Lumberton	234	16	542
Town of Fairmont	1	0	3
Town of Lumber Bridge	0	0	0
Town of Marietta	0	0	0
Town of Maxton	10	0	22
Town of McDonald	0	0	0
Town of Orrum	2	0	4
Town of Parkton	0	0	0
Town of Pembroke	7	0	15
Town of Proctorville	0	0	0
Town of Raynham	0	0	0
Town of Red Springs	1	0	2

Jurisdiction	Residential Repetitive Loss Properties	Non-Residential/Commercial Repetitive Loss Properties	Total Repetitive Losses Count
Town of Rennert	0	0	0
Town of Rowland	11	0	25
Town of Saint Pauls	2	0	4
Robeson County Totals	**269**	**16**	**619**

Source: FEMA NFIP, December 2024

5.8.5 Probability of Future Occurrences

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

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability of hazard
- Possible: Between 1% and 10% annual probability of hazard
- Likely: Between 10% and 100% annual probability of hazard
- Highly Likely: 100% annual probability of hazard

Jurisdiction	Probability of Future Occurrence
Bladen County (Unincorporated Area)	Likely
Columbus County (Unincorporated Area)	Likely
Robeson County (Unincorporated Area)	Likely
City of Lumberton	Likely
City of Whiteville	Likely
Town of Bladenboro	Likely
Town of Boardman	Likely
Town of Bolton	Likely
Town of Brunswick	Likely
Town of Cerro Gordo	Likely
Town of Chadbourn	Likely
Town of Clarkton	Likely
Town of Dublin	Likely
Town of East Arcadia	Likely
Town of Elizabethtown	Likely
Town of Fair Bluff	Likely
Town of Fairmont	Likely
Town of Lake Waccamaw	Likely
Town of Lumber Bridge	Likely
Town of Marietta	Likely

Jurisdiction	Probability of Future Occurrence
Town of Maxton	Likely
Town of McDonald	Likely
Town of Orrum	Likely
Town of Parkton	Likely
Town of Pembroke	Likely
Town of Proctorville	Likely
Town of Raynham	Likely
Town of Red Springs	Likely
Town of Rennert	Likely
Town of Rowland	Likely
Town of Saint Pauls	Likely
Town of Sandyfield	Likely
Town of Tabor City	Likely
Town of Tar Heel	Likely
Town of White Lake	Likely

Source: NCEM RMT & plan risk assessment

5.8.6 Consequence and Impact Analysis (Vulnerability)

Changing Future Conditions

Changing climatic patterns may translate to increasingly dangerous severe weather, stronger storms, and significant changes in rainfall which can all exacerbate flood risks across different regions. The 2020 North Carolina Climate Science Report notes that there is an upward trend in the number of heavy rainfall events (3 inches or more per day), with the last four years (2015-2018) demonstrating the greatest number of events since 1900. A warmer atmosphere also contributes to increased evaporation and greater atmospheric water availability when it rains. Current projections in the report indicate it is likely that annual total precipitation in North Carolina will increase and very likely for extreme precipitation frequency and intensity due to related increases in atmospheric water vapor content[15]. Additionally, greater intensity and frequency of flooding could also present a variety of extreme public health and emergency management challenges.

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 pathogens.

[15] 2020 North Carolina Climate Science Report (https://ncics.org/programs/nccsr/)

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 local water system loses pressure, a boil order may be issued to avoid using 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 which may prolong response time.

Continuity of Operations

Floods can severely disrupt normal operations, especially when there is a loss of power. In 2018, Hurricane Florence caused major flooding in Lake Waccamaw that resulted in damages to their sewer treatment plant[16]. For a detailed analysis of critical facilities at risk to flooding, see **Chapter 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. For a detailed analysis of properties at risk to flooding, see **Chapter 6 Vulnerability Assessment**.

An example of flooding impacts on the Region's built environment followed in the aftermath of Hurricane Matthew, as the Dublin Fire Department and other areas of the town flooded. It was noted that farm fields resembled lakes, and roadways became rivers and streams[17]. Two men from Clarkton also died during Hurricane Matthew when their vehicle was submerged in flood waters near Rosendale Road[18].

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 businesses 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.

[16] https://www.wwaytv3.com/2020/05/29/heavy-rains-bring-flooding-concerns-to- columbus-county/
[17] https://bladenonline.com/hurricane-matthew-causing-flooding-throughout-bladen-county/
[18] https://www.cbs17.com/news/2-die-in-submerged-vehicle-in-nc- as-hurricane-matthew-impacts-state/

5.9 Severe Weather (Thunderstorm Wind, Lightning & Hail)

5.9.1 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 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 can produce 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 more than $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.

5.9.2 Location and Spatial Extent

The entirety of the Region including all assets located within the Counties and each jurisdiction can be considered at risk to severe weather events. This includes the entire population and all critical facilities, buildings (commercial and residential), and infrastructure. Figures below show the locations for recorded thunderstorm and lightning events with data ranging from 1987 to 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 the map for event type “lightning” records an 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.

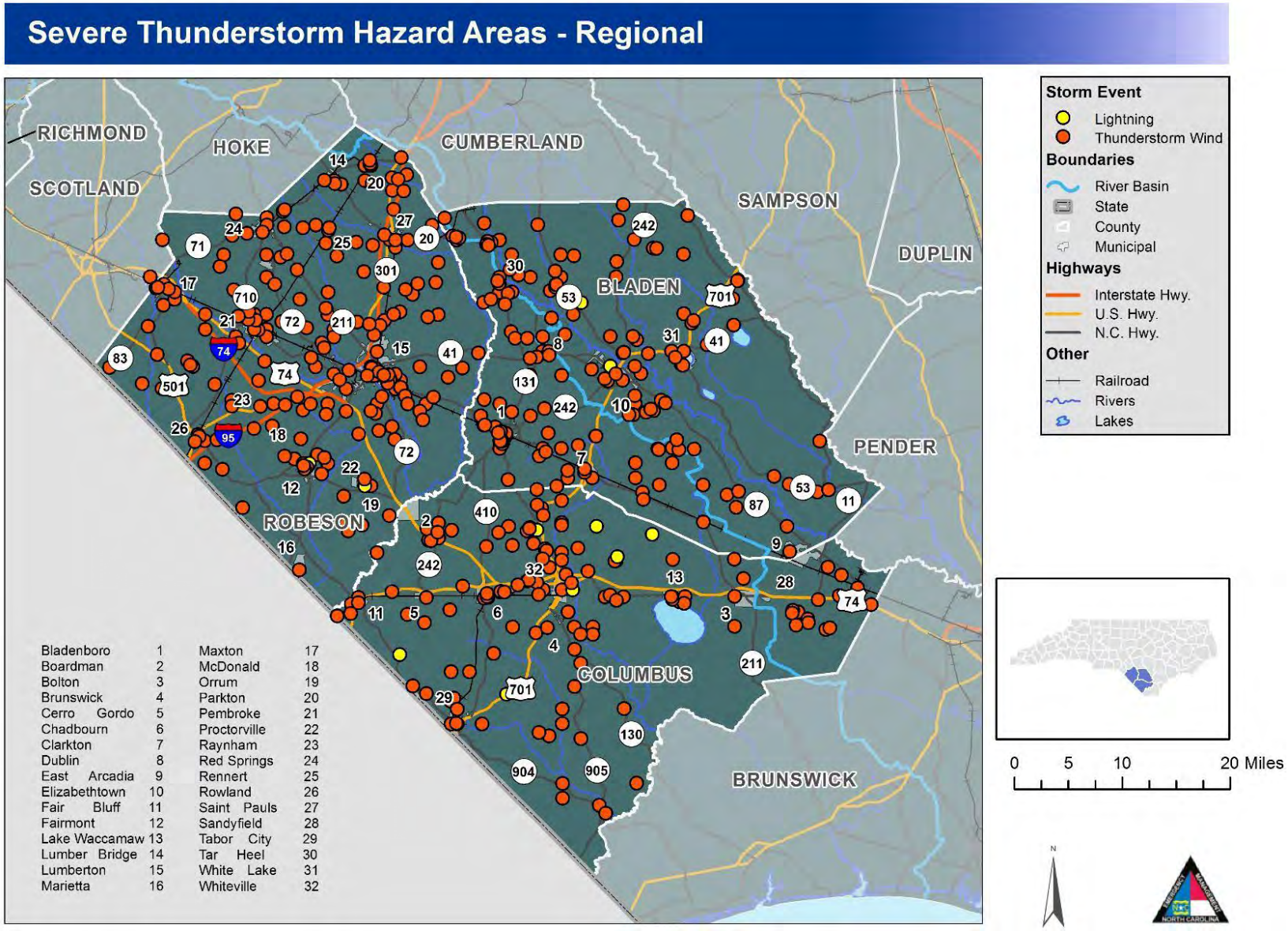


Figure 5-50: Severe Thunderstorm Hazard Areas - Regional

The figure below shows the average annual cloud-to-ground lightning strikes in the Region with “High” being > 100 strikes per year, “Medium” 99-50 strikes per year and “Low” being < 50 strikes per year.

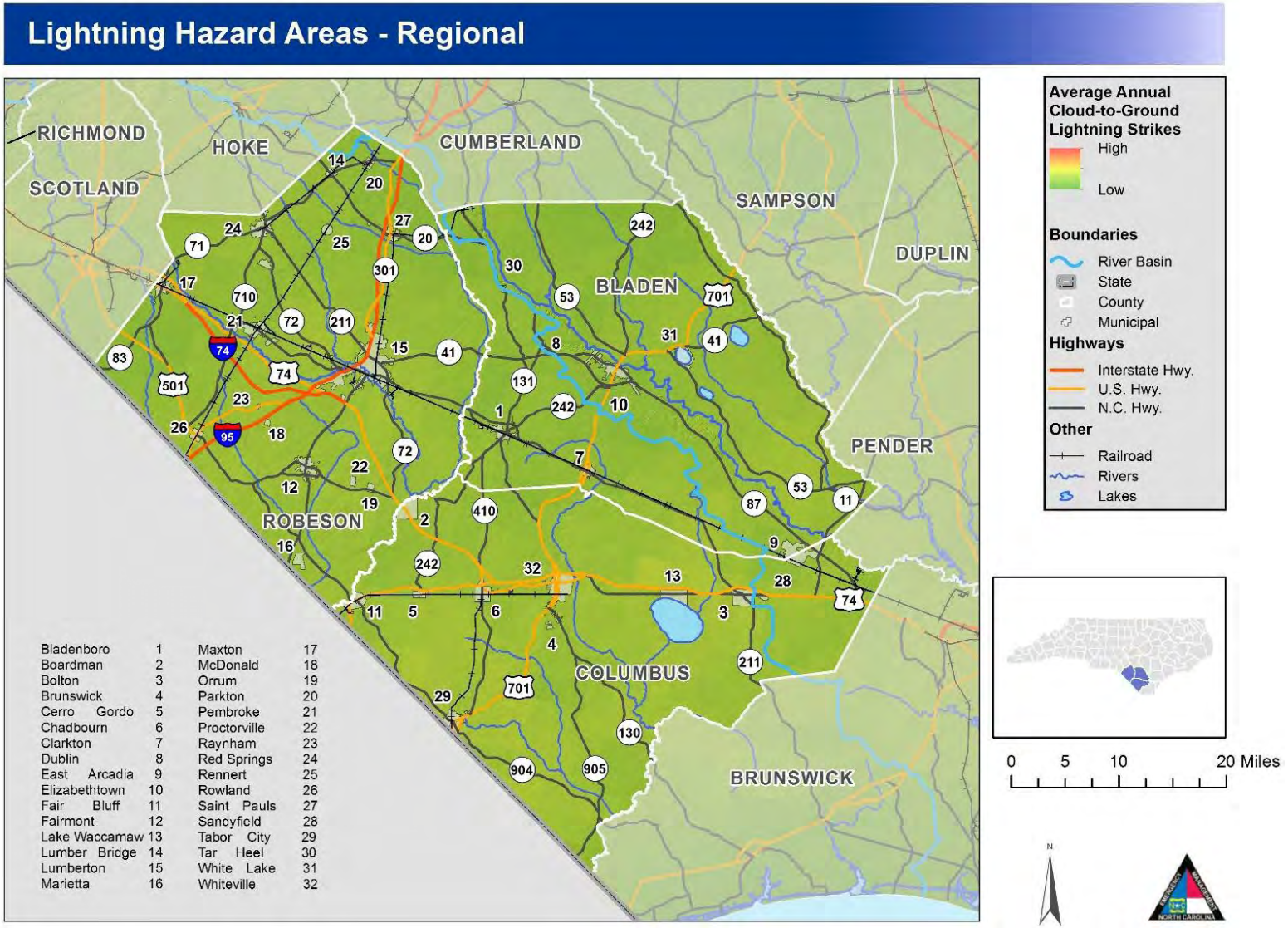


Figure 5-51: Lightning Hazard Areas - Regional

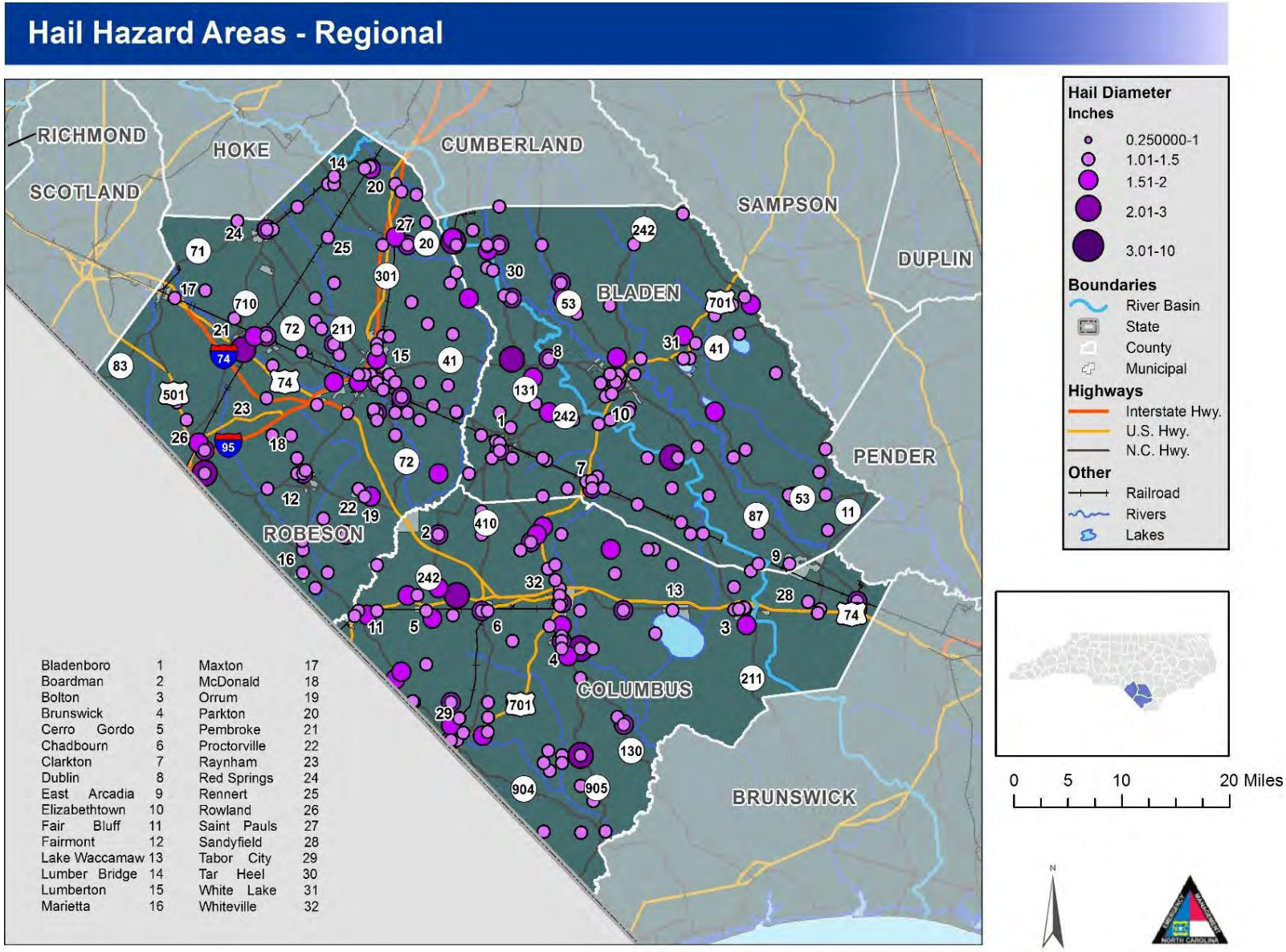


Figure 5-52: Hail Hazard Areas - Regional

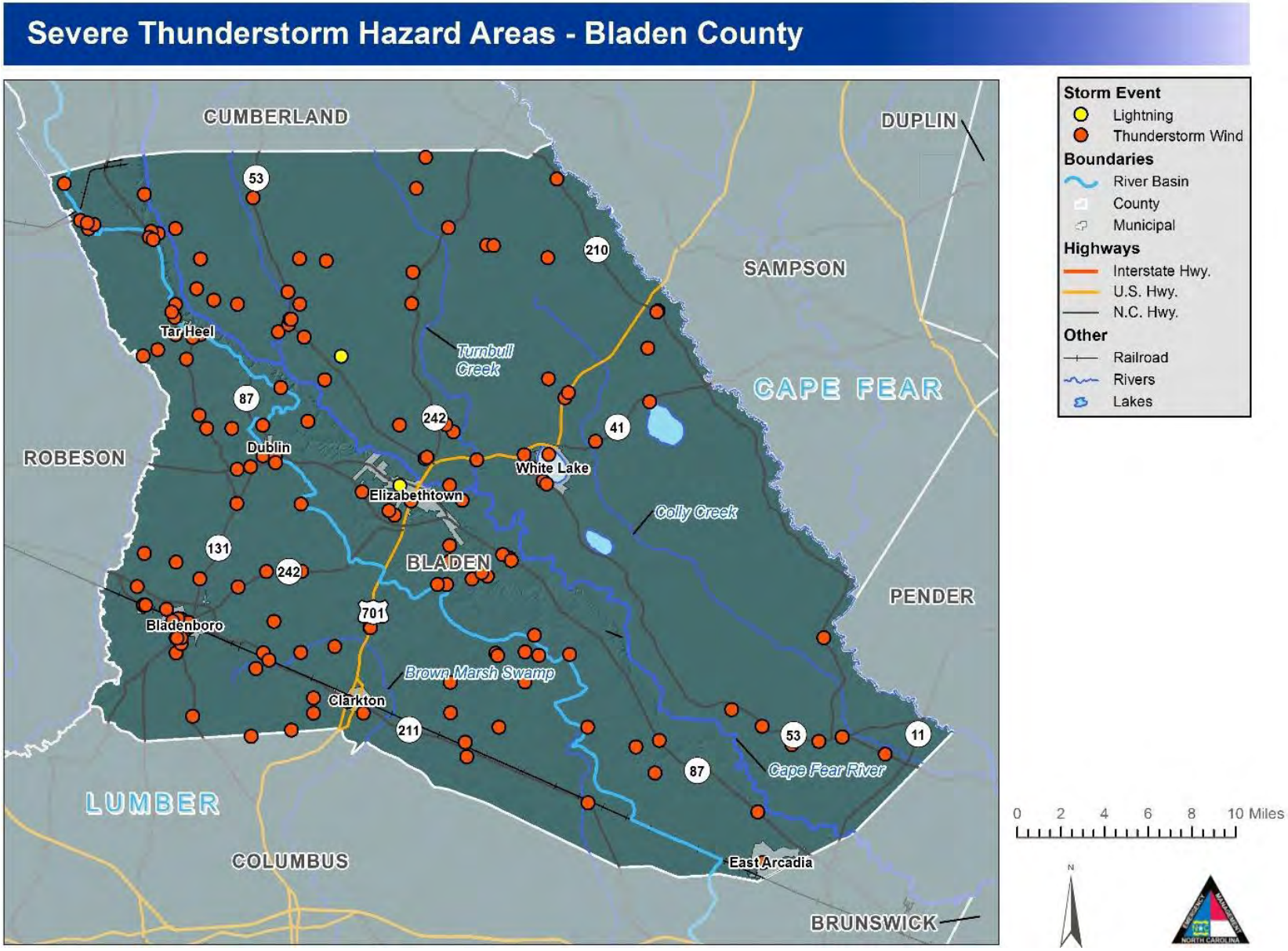


Figure 5-53: Severe Thunderstorm Hazard Areas – Bladen County

The figure below shows the average annual cloud-to-ground lightning strikes in the county with “High” being > 100 strikes per year, “Medium” 99-50 strikes per year and “Low” being < 50 strikes per year.

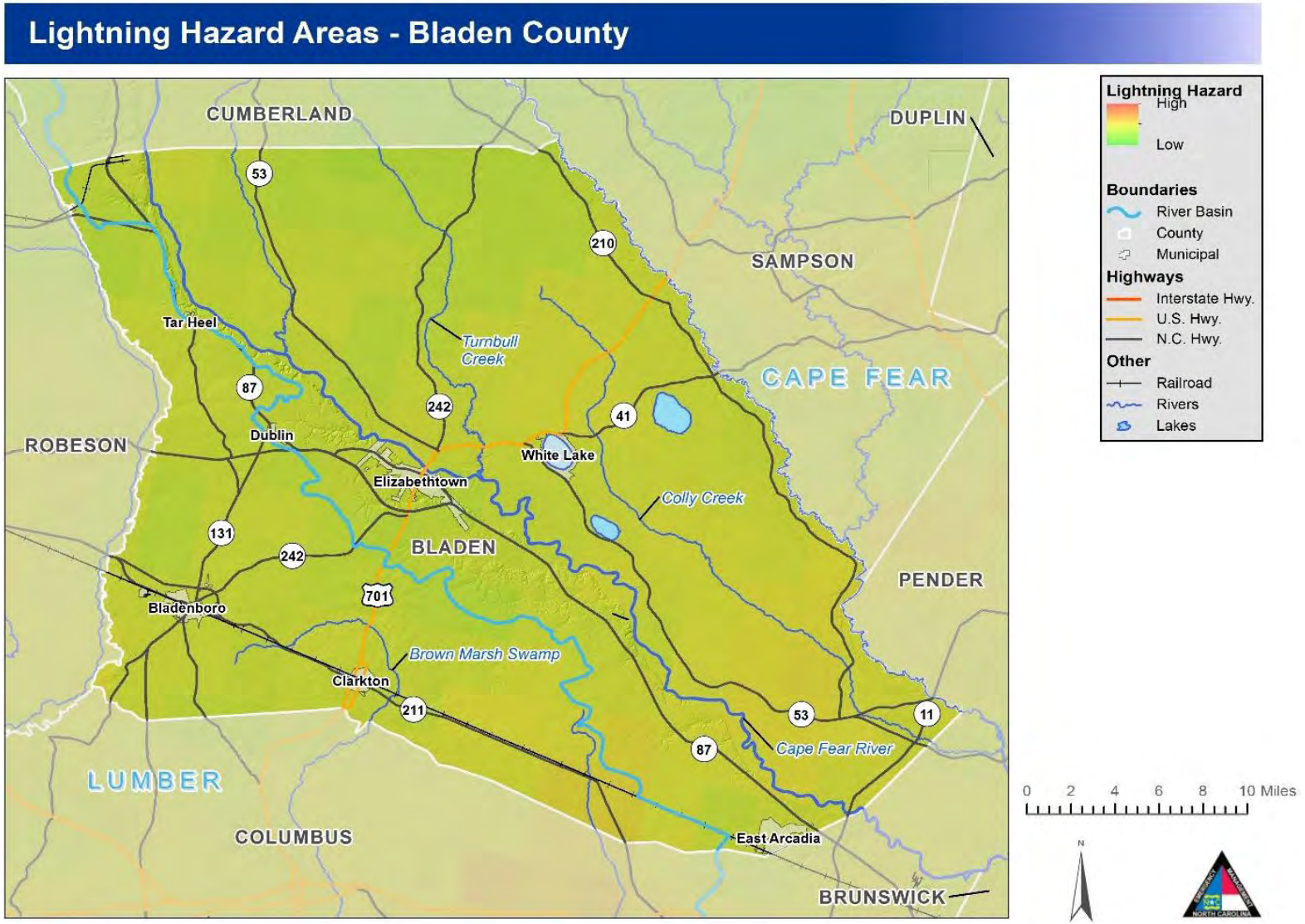


Figure 5-54: Lightning Hazard Areas – Bladen County

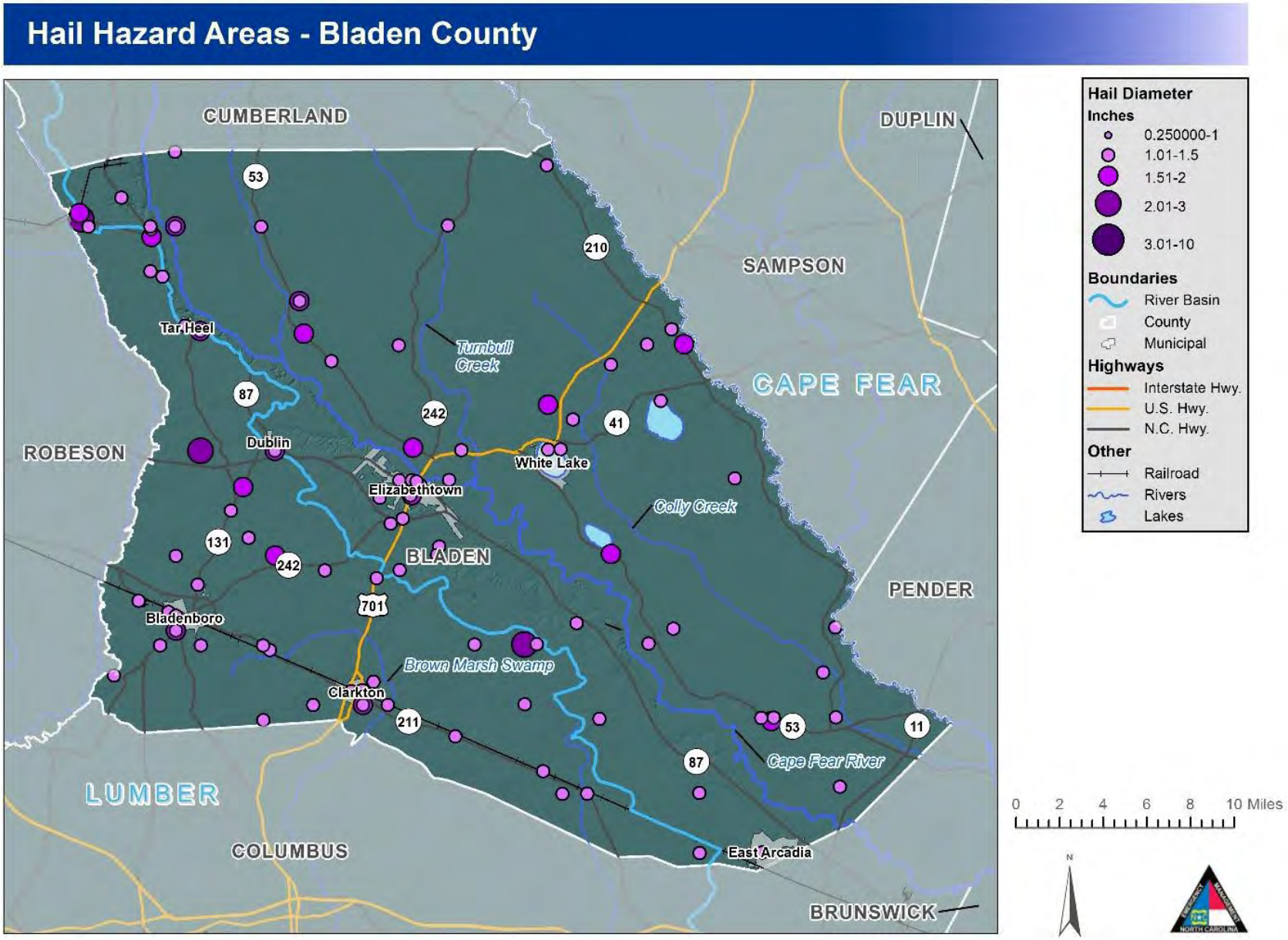


Figure 5-55: Hail Hazard Areas – Bladen County

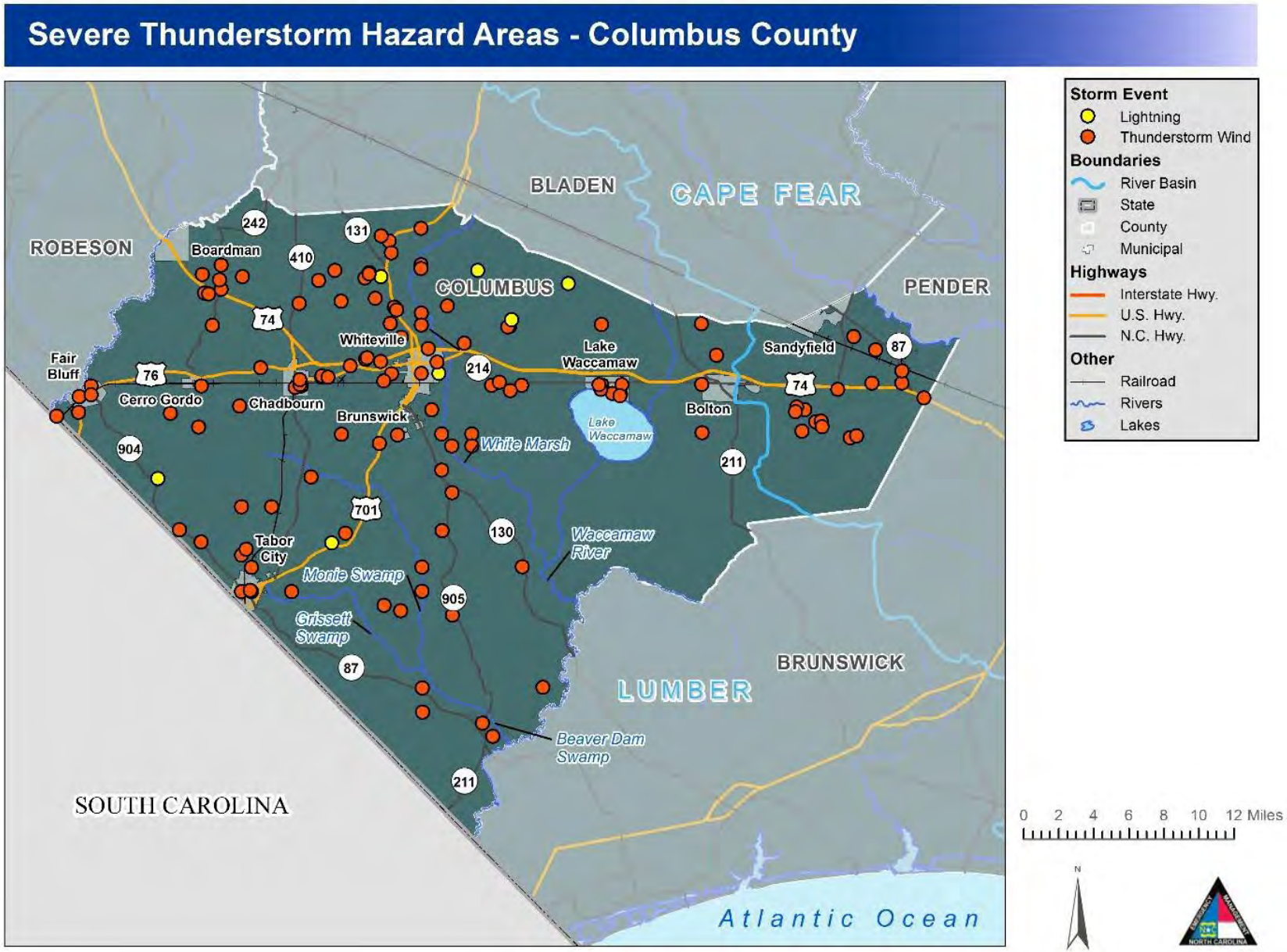


Figure 5-56: Severe Thunderstorm Hazard Areas – Columbus County

The figure below shows the average annual cloud-to-ground lightning strikes in the county with “High” being > 100 strikes per year, “Medium” 99-50 strikes per year and “Low” being < 50 strikes per year.

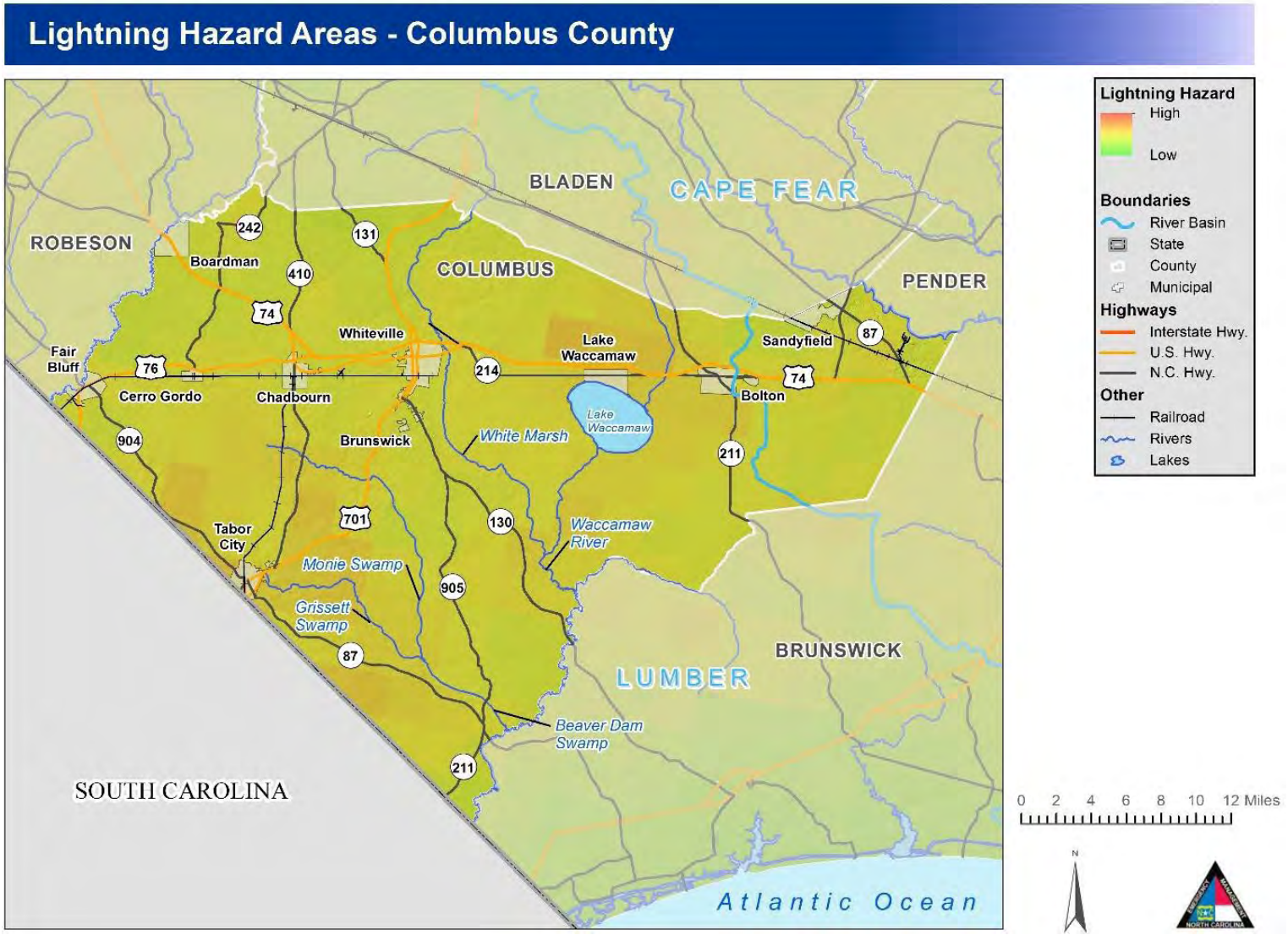


Figure 5-57: Lightning Hazard Areas – Columbus County

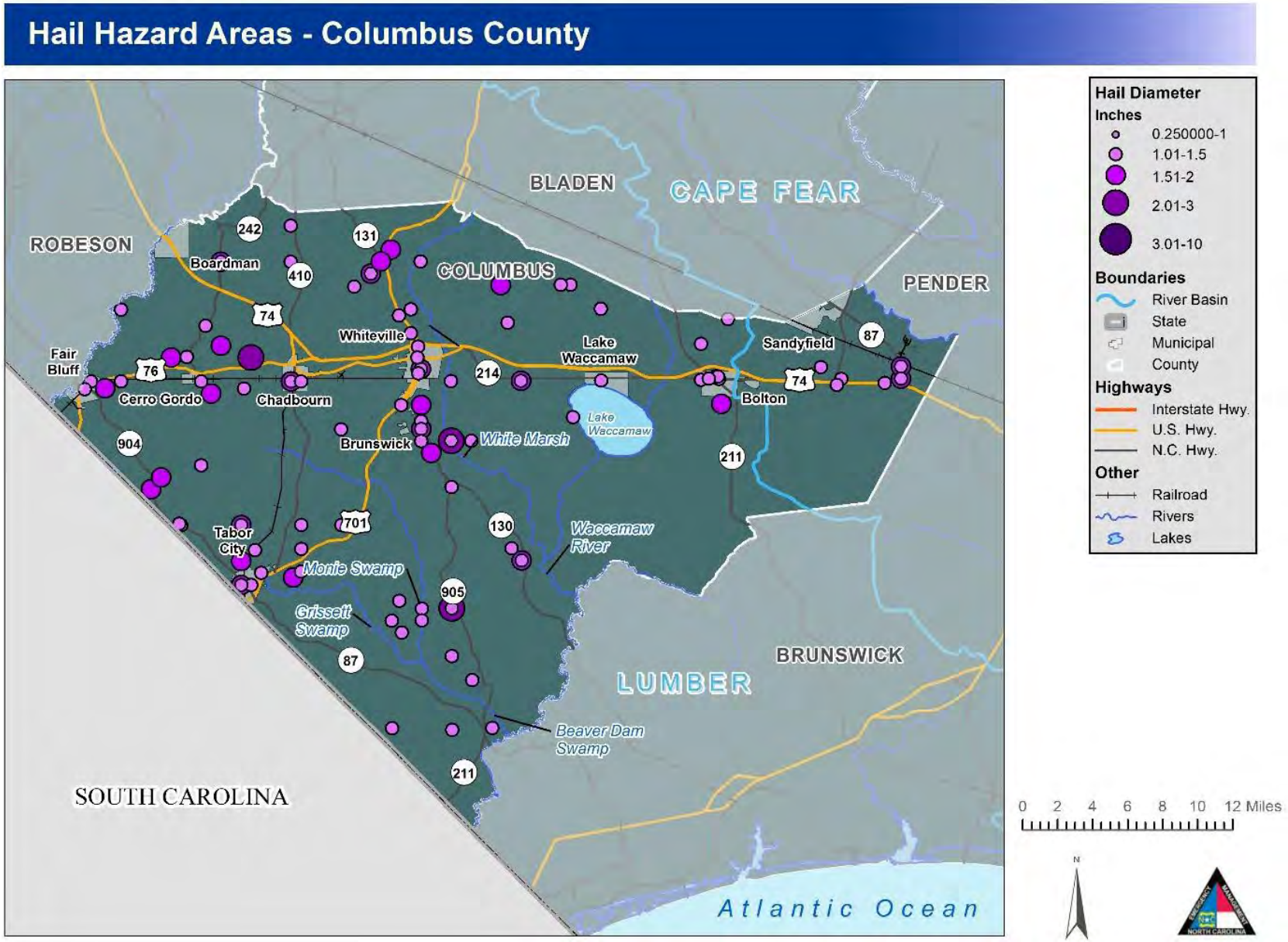


Figure 5-58: Hail Hazard Areas – Columbus County

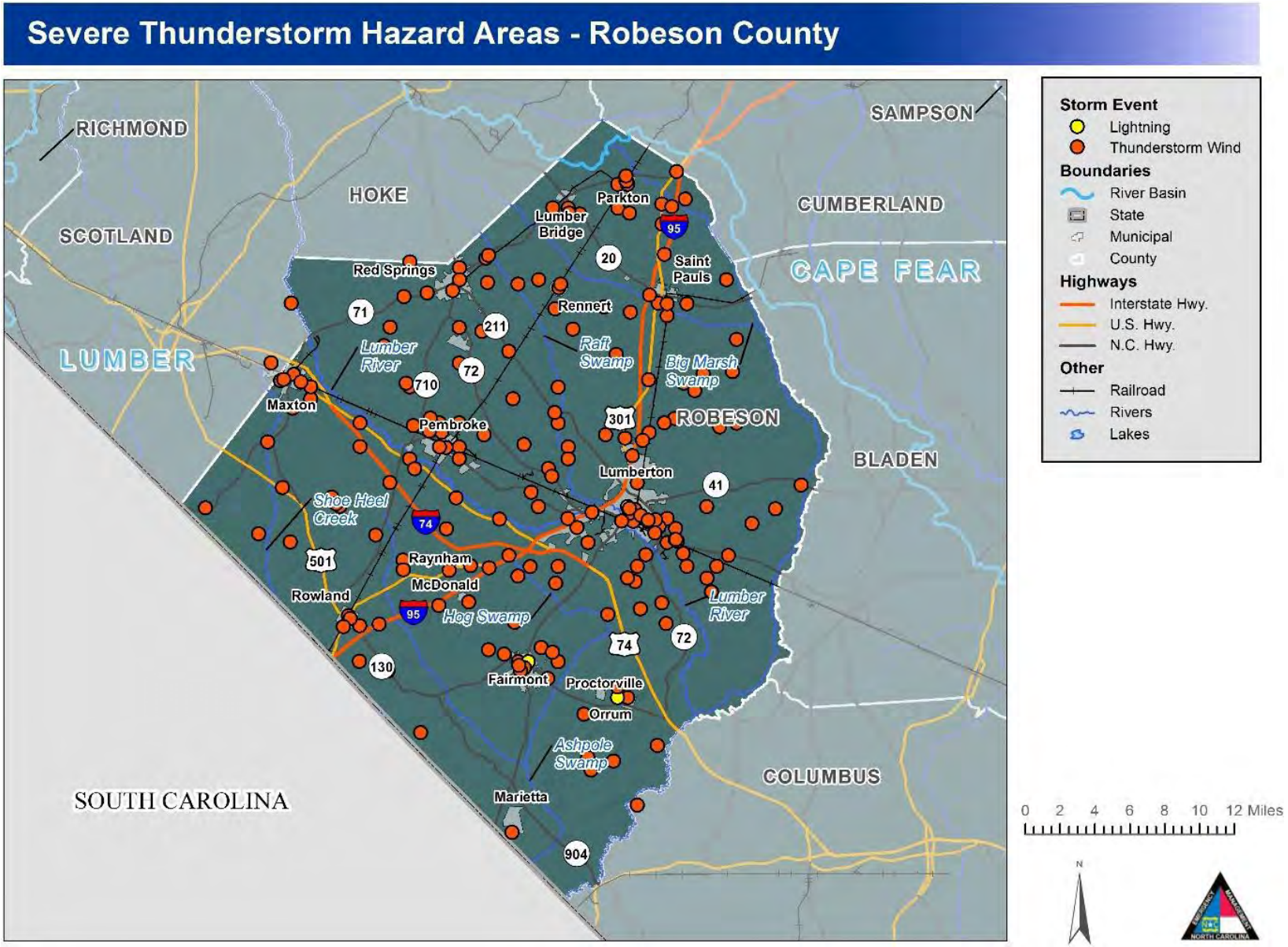


Figure 5-59: Severe Thunderstorm Hazard Areas – Robeson County

The figure below shows the average annual cloud-to-ground lightning strikes in the county with “High” being > 100 strikes per year, “Medium” 99-50 strikes per year and “Low” being < 50 strikes per year.

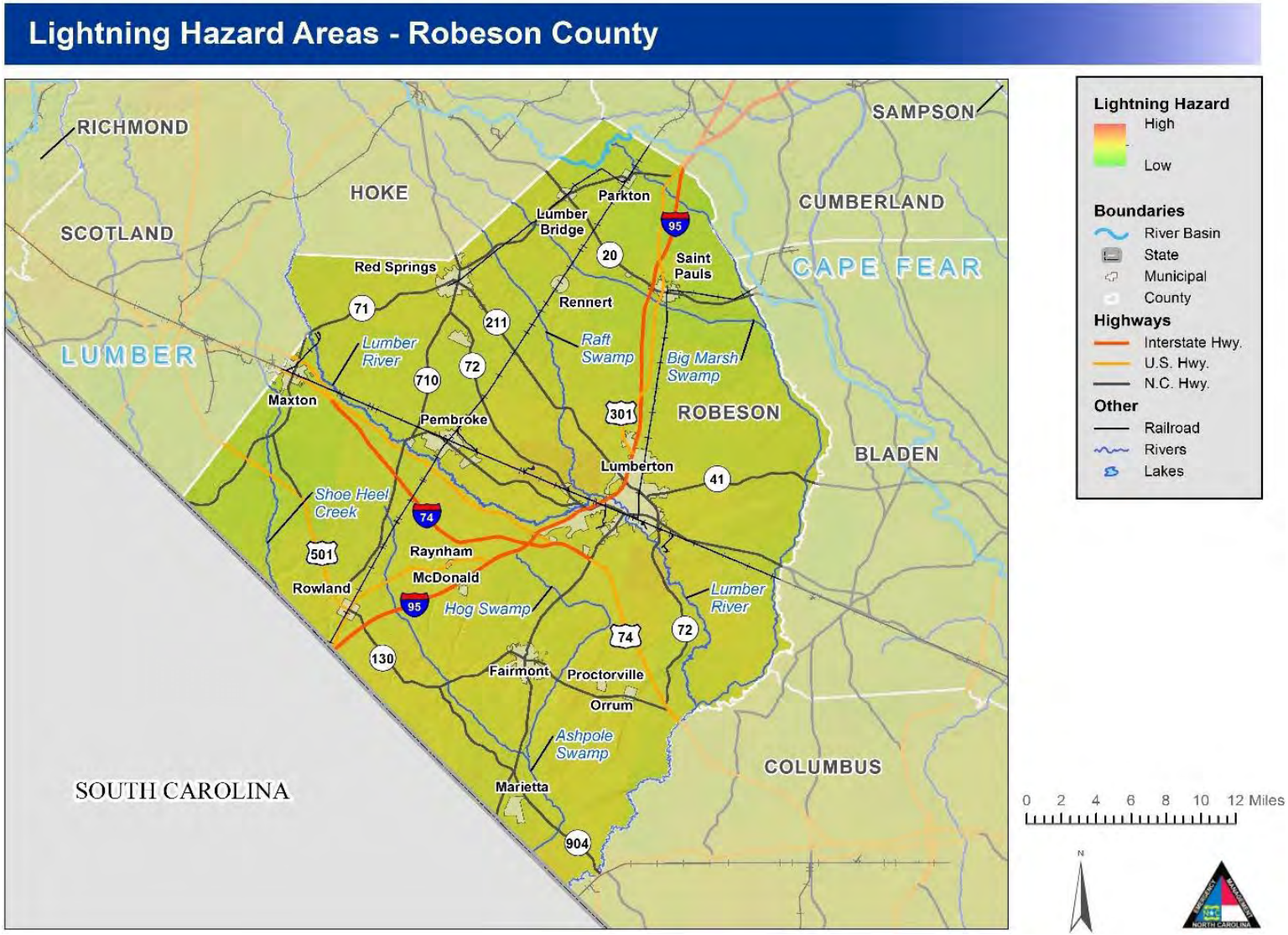


Figure 5-60: Lightning Hazard Areas – Robeson County

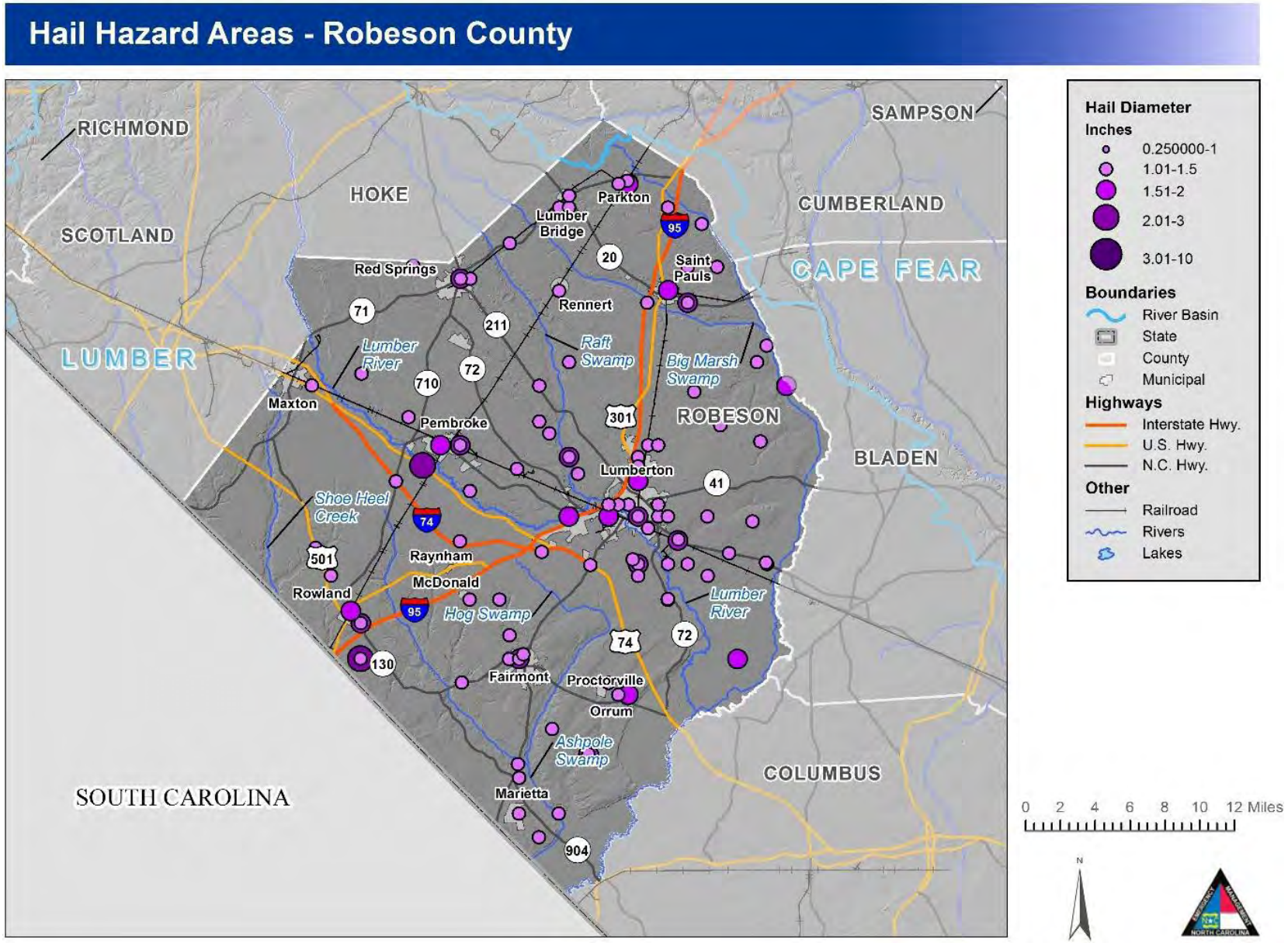


Figure 5-61: Hail Hazard Areas – Robeson County

Thunderstorm extent is defined by the number of thunder events and wind speeds reported. According to a 69-year history from NCEI, the strongest recorded wind event in the Region was reported on May 11, 2009, at 109 knots (approximately 125 mph). It should be noted that future events may exceed these historical occurrences.

Table 5-19: NCEI Thunderstorm Wind Extent by Jurisdiction

Jurisdiction	Date of Event	Magnitude
Bladen County		
Bladen County	4/16/2011	70 kts
Bladenboro	6/15/2009	78 kts
Clarkton	9/6/1999	75 kts
Dublin	4/1/2001	70 kts
East Arcadia	4/28/2011	56 kts
Elizabethtown	4/16/2011	70 kts
Tar Heel	7/31/1998	65 kts
White Lake	6/3/2000	65 kts
Columbus County		
Whiteville	4/17/2006	70 kts
Columbus County	6/15/1998	75 kts
Boardman	No Data	No Data
Bolton	4/3/2006	60 kts
Brunswick	4/19/2019	52 kts
Cerro Gordo	10/23/2017	52 kts
Chadbourn	1/17/2013	65 kts
Fair Bluff	5/4/2009	52 kts
Lake Waccamaw	6/4/1998	70 kts
Sandyfield	No Data	No Data
Tabor City	3/8/2005	70 kts
Robeson County		
Lumberton	5/31/2003	70 kts
Robeson County	5/11/2009	109 kts
Fairmont	6/14/2002	70 kts
Lumber Bridge	5/27/1998	70 kts
Marietta	6/26/2013	50 kts
Maxton	3/16/2002	90 kts
Mcdonald	No Data	No Data

Jurisdiction	Date of Event	Magnitude
Orrum	6/29/2010	52 kts
Parkton	5/30/2019	61 kts
Pembroke	5/2/2003	70 kts
Proctorville	11/16/2011	50 kts
Raynham	5/11/2009	61 kts
Red Springs	4/1/2001	78 kts
Rennert	5/16/2010	52 kts
Rowland	4/16/2011	65 kts
Saint Pauls	2/21/2014	52 kts

*Magnitude is depicted in knots

5.9.3 Past Occurrences

Table 5-20 shows details for severe weather events reported by NCEI since 2009 for the Region. There have been over 500 recorded events causing 4 injuries and over $2M in property damage.

Table 5-20: Historical Severe Weather Occurrences (2009-2025)

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Bladen County							
Bladen County (Unincorporated Area)	6/15/09	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	6/10/10	Hail	1.00 in.	0	0	$3,000	$0
Bladen County (Unincorporated Area)	7/13/11	Thunderstorm Wind	56 kts. EG	0	0	$5,000	$0
Bladen County (Unincorporated Area)	7/13/11	Hail	1.25 in.	0	0	$1,000	$0
Bladen County (Unincorporated Area)	7/30/11	Thunderstorm Wind	50 kts. EG	0	0	$4,000	$0
Bladen County (Unincorporated Area)	6/27/13	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Bladen County (Unincorporated Area)	6/27/13	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Bladen County (Unincorporated Area)	5/27/14	Thunderstorm Wind	56 kts. EG	0	0	$6,000	$0
Bladen County (Unincorporated Area)	4/20/24	Hail	1.25 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	6/15/09	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Bladen County (Unincorporated Area)	6/20/10	Thunderstorm Wind	50 kts. EG	0	0	$0	$2,000
Bladen County (Unincorporated Area)	6/19/11	Hail	1.00 in.	0	0	$1,000	$0
Bladen County (Unincorporated Area)	5/9/12	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Bladen County (Unincorporated Area)	6/10/13	Thunderstorm Wind	52 kts. EG	0	0	$7,000	$0
Bladen County (Unincorporated Area)	6/13/13	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	6/13/13	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	7/15/16	Thunderstorm Wind	65 kts. EG	0	0	$12,000	$0
Bladen County (Unincorporated Area)	3/1/17	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	4/26/19	Thunderstorm Wind	56 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	5/8/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Bladen County (Unincorporated Area)	6/15/09	Thunderstorm Wind	78 kts. EG	0	1	$48,000	$0
Bladen County (Unincorporated Area)	7/5/11	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	3/22/12	Hail	1.00 in.	0	0	$500	$0
Bladen County (Unincorporated Area)	3/22/12	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Bladen County (Unincorporated Area)	6/10/13	Hail	0.75 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	7/13/15	Hail	1.00 in.	0	0	$750	$0
Bladen County (Unincorporated Area)	7/5/11	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Bladen County (Unincorporated Area)	9/3/13	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	8/5/15	Thunderstorm Wind	52 kts. EG	0	0	$4,000	$0
Bladen County (Unincorporated Area)	4/19/19	Thunderstorm Wind	56 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	7/23/19	Thunderstorm Wind	56 kts. EG	0	0	$2,000	$0
Bladen County (Unincorporated Area)	1/3/22	Thunderstorm Wind	52 kts. MG	0	0	$0	$0
Bladen County (Unincorporated Area)	4/20/09	Hail	0.88 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	5/4/09	Hail	0.88 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	6/29/10	Thunderstorm Wind	52 kts. EG	0	0	$7,000	$0
Bladen County (Unincorporated Area)	7/13/11	Thunderstorm Wind	56 kts. EG	0	0	$2,000	$0
Bladen County (Unincorporated Area)	7/13/11	Hail	0.88 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	8/20/11	Lightning		0	0	$5,000	$0
Bladen County (Unincorporated Area)	6/27/13	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	5/27/14	Thunderstorm Wind	54 kts. EG	0	0	$2,500	$0
Bladen County (Unincorporated Area)	6/18/15	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	7/23/15	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	4/19/19	Thunderstorm Wind	56 kts. EG	0	0	$10,000	$0
Bladen County (Unincorporated Area)	1/3/22	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Bladen County (Unincorporated Area)	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$500
Bladen County (Unincorporated Area)	5/15/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Bladen County (Unincorporated Area)	4/20/09	Hail	0.88 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	1/25/10	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Bladen County (Unincorporated Area)	7/24/14	Thunderstorm Wind	52 kts. EG	0	0	$10,000	$0
Bladen County (Unincorporated Area)	6/24/15	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Bladen County (Unincorporated Area)	5/29/09	Hail	0.75 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	7/29/13	Thunderstorm Wind	53 kts. MG	0	0	$500	$0
Bladen County (Unincorporated Area)	7/29/13	Thunderstorm Wind	52 kts. EG	0	0	$3,500	$0
Bladen County (Unincorporated Area)	7/29/13	Hail	0.88 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	8/6/15	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	2/24/16	Thunderstorm Wind	56 kts. MG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	5/3/16	Hail	1.75 in.	0	0	$1,000	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Bladen County (Unincorporated Area)	5/8/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Bladen County (Unincorporated Area)	6/22/11	Thunderstorm Wind	50 kts. EG	0	0	$6,000	$0
Bladen County (Unincorporated Area)	6/22/11	Thunderstorm Wind	50 kts. EG	0	0	$4,000	$0
Bladen County (Unincorporated Area)	7/1/12	Thunderstorm Wind	54 kts. EG	0	0	$1,500	$0
Bladen County (Unincorporated Area)	7/1/12	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	6/13/13	Hail	1.25 in.	0	0	$1,000	$0
Bladen County (Unincorporated Area)	6/13/13	Hail	1.25 in.	0	0	$1,500	$0
Bladen County (Unincorporated Area)	6/13/13	Hail	1.25 in.	0	0	$1,500	$0
Bladen County (Unincorporated Area)	4/28/14	Hail	1.00 in.	0	0	$500	$0
Bladen County (Unincorporated Area)	7/10/14	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	6/9/15	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	8/26/15	Thunderstorm Wind	65 kts. EG	0	0	$5,000	$0
Bladen County (Unincorporated Area)	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Bladen County (Unincorporated Area)	4/12/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Bladen County (Unincorporated Area)	4/12/24	Thunderstorm Wind	53 kts. MG	0	0	$0	$0
Bladen County (Unincorporated Area)	5/15/24	Hail	1.75 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	12/26/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	4/14/09	Hail	0.75 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	6/16/10	Hail	0.88 in.	0	0	$1,000	$0
Bladen County (Unincorporated Area)	6/27/11	Thunderstorm Wind	56 kts. EG	0	0	$5,000	$0
Bladen County (Unincorporated Area)	8/19/11	Thunderstorm Wind	50 kts. EG	0	0	$750	$0
Bladen County (Unincorporated Area)	3/25/12	Hail	1.00 in.	0	0	$1,000	$0
Bladen County (Unincorporated Area)	7/1/12	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Bladen County (Unincorporated Area)	7/1/12	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	8/2/12	Hail	1.75 in.	0	0	$3,000	$0
Bladen County (Unincorporated Area)	9/18/12	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Bladen County (Unincorporated Area)	7/8/16	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Bladen County (Unincorporated Area)	6/24/18	Thunderstorm Wind	60 kts. EG	0	0	$5,000	$0
Bladen County (Unincorporated Area)	6/24/18	Thunderstorm Wind	60 kts. EG	0	0	$2,000	$0
Bladen County (Unincorporated Area)	9/9/19	Hail	1.00 in.	0	0	$0	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Bladen County (Unincorporated Area)	12/11/23	Thunderstorm Wind	51 kts. MG	0	0	$0	$0
Bladen County (Unincorporated Area)	6/14/17	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Bladen County (Unincorporated Area)	7/7/23	Lightning		0	0	$0	$500,000
Bladen County (Unincorporated Area)	4/20/09	Hail	0.88 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	6/1/09	Hail	0.88 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	1/25/10	Thunderstorm Wind	50 kts. EG	0	0	$6,000	$0
Bladen County (Unincorporated Area)	6/22/11	Thunderstorm Wind	50 kts. EG	0	0	$5,000	$0
Bladen County (Unincorporated Area)	6/22/11	Hail	1.00 in.	0	0	$1,000	$0
Bladen County (Unincorporated Area)	7/1/12	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	7/1/12	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	7/7/23	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Bladen County (Unincorporated Area)	5/15/24	Hail	2.75 in.	0	0	$4,000	$0
Bladen County (Unincorporated Area)	5/15/24	Hail	1.75 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	4/6/09	Thunderstorm Wind	52 kts. EG	0	0	$10,000	$0
Bladen County (Unincorporated Area)	5/16/22	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Bladen County (Unincorporated Area)	7/13/11	Thunderstorm Wind	56 kts. EG	0	0	$2,000	$0
Bladen County (Unincorporated Area)	5/22/12	Hail	0.88 in.	0	0	$0	$0
Bladen County (Unincorporated Area)	7/8/10	Hail	0.75 in.	0	0	$500	$0
Bladen County (Unincorporated Area)	6/22/11	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Bladen County (Unincorporated Area)	7/9/13	Thunderstorm Wind	52 kts. EG	0	0	$15,000	$0
Bladen County (Unincorporated Area)	9/3/13	Thunderstorm Wind	52 kts. EG	0	0	$3,500	$0
Bladen County (Unincorporated Area)	5/3/16	Thunderstorm Wind	56 kts. EG	0	0	$8,000	$0
Bladen County (Unincorporated Area)	5/3/16	Hail	1.75 in.	0	0	$1,500	$0
Bladen County (Unincorporated Area)	5/3/16	Hail	2.50 in.	0	0	$5,000	$0
Bladen County (Unincorporated Area)	4/15/18	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Bladen County (Unincorporated Area)	4/15/18	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Bladen County (Unincorporated Area)	4/15/18	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Bladen County (Unincorporated Area)	4/15/18	Thunderstorm Wind	52 kts. EG	0	0	$10,000	$0
Bladen County (Unincorporated Area)	4/19/19	Thunderstorm Wind	56 kts. EG	0	0	$4,000	$0
Bladen County (Unincorporated Area)	7/18/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Bladen County (Unincorporated Area)	6/15/09	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	8/22/09	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Bladen County (Unincorporated Area)	8/22/09	Thunderstorm Wind	54 kts. EG	0	0	$20,000	$0
Bladen County (Unincorporated Area)	8/22/09	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Bladen County (Unincorporated Area)	9/3/13	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Bladen County (Unincorporated Area)	4/28/14	Lightning		0	0	$25,000	$0
Bladen County (Unincorporated Area)	4/28/14	Thunderstorm Wind	50 kts. EG	0	0	$250	$0
Bladen County (Unincorporated Area)	4/28/14	Hail	1.75 in.	0	0	$3,000	$0
Bladen County (Unincorporated Area)	4/28/14	Hail	1.00 in.	0	0	$1,500	$0
Bladen County (Unincorporated Area)	4/13/20	Thunderstorm Wind	61 kts. EG	0	0	$10,000	$0
Bladen County (Unincorporated Area)	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of Bladenboro	6/26/09	Thunderstorm Wind	52 kts. EG	0	0	$30,000	$0
Town of Bladenboro	6/29/10	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Bladenboro	2/24/12	Hail	1.00 in.	0	0	$500	$0
Town of Bladenboro	3/22/12	Hail	1.00 in.	0	0	$500	$0
Town of Bladenboro	3/22/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Bladenboro	3/22/12	Hail	1.00 in.	0	0	$500	$0
Town of Bladenboro	5/22/12	Hail	1.00 in.	0	0	$1,000	$0
Town of Bladenboro	6/27/13	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Bladenboro	9/3/13	Thunderstorm Wind	52 kts. EG	0	0	$2,000	$0
Town of Bladenboro	9/3/13	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of Bladenboro	6/27/15	Thunderstorm Wind	52 kts. EG	0	0	$4,000	$0
Town of Bladenboro	5/31/19	Thunderstorm Wind	56 kts. EG	0	0	$10,000	$0
Town of Bladenboro	5/22/20	Thunderstorm Wind	52 kts. EG	0	0	$500	$0
Town of Bladenboro	5/29/21	Thunderstorm Wind	52 kts. EG	0	0	$0	$0
Town of Bladenboro	8/1/21	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of Bladenboro	1/3/22	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of Dublin	5/4/09	Thunderstorm Wind	52 kts. EG	0	0	$0	$0
Town of Dublin	5/14/11	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Dublin	4/26/12	Hail	0.88 in.	0	0	$0	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Town of Dublin	7/1/12	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of Dublin	7/5/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Dublin	6/10/13	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Dublin	1/11/14	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Dublin	2/21/14	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Dublin	6/9/15	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Dublin	5/2/16	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of Dublin	3/18/17	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Dublin	4/19/19	Thunderstorm Wind	56 kts. EG	0	0	$2,000	$0
Town of Dublin	4/12/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of Dublin	5/8/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of Dublin	5/8/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of East Arcadia	4/28/11	Thunderstorm Wind	56 kts. EG	0	0	$10,000	$0
Town of Elizabethtown	5/29/09	Hail	1.00 in.	0	0	$0	$0
Town of Elizabethtown	5/29/09	Hail	1.75 in.	0	0	$0	$0
Town of Elizabethtown	5/29/09	Hail	1.00 in.	0	0	$0	$0
Town of Elizabethtown	6/1/09	Hail	0.88 in.	0	0	$0	$0
Town of Elizabethtown	4/16/11	Thunderstorm Wind	70 kts. EG	0	0	$60,000	$0
Town of Elizabethtown	6/22/11	Hail	1.00 in.	0	0	$1,000	$0
Town of Elizabethtown	7/13/11	Lightning		0	0	$20,000	$0
Town of Elizabethtown	8/19/11	Thunderstorm Wind	50 kts. EG	0	0	$4,500	$0
Town of Elizabethtown	3/24/12	Hail	1.00 in.	0	0	$500	$0
Town of Elizabethtown	6/1/12	Hail	1.00 in.	0	0	$1,000	$0
Town of Elizabethtown	7/1/12	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of Elizabethtown	8/2/12	Hail	0.88 in.	0	0	$500	$0
Town of Elizabethtown	8/2/12	Hail	1.00 in.	0	0	$3,000	$0
Town of Elizabethtown	2/21/14	Thunderstorm Wind	54 kts. EG	0	0	$2,000	$0
Town of Elizabethtown	4/28/14	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of Elizabethtown	4/28/14	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of Elizabethtown	4/28/14	Hail	1.75 in.	0	0	$3,000	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Town of Elizabethtown	4/28/14	Hail	0.75 in.	0	0	$200	$0
Town of Elizabethtown	6/27/15	Thunderstorm Wind	52 kts. EG	0	0	$4,000	$0
Town of Elizabethtown	3/1/17	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Elizabethtown	3/18/17	Hail	1.00 in.	0	0	$500	$0
Town of Elizabethtown	6/24/18	Thunderstorm Wind	50 kts. EG	0	0	$10,000	$0
Town of Elizabethtown	5/7/21	Hail	1.75 in.	0	0	$0	$0
Town of Elizabethtown	5/7/21	Hail	1.00 in.	0	0	$0	$0
Town of Elizabethtown	5/7/21	Hail	2.00 in.	0	0	$0	$0
Town of Elizabethtown	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$15,000	$15,000
Town of Tar Heel	6/25/10	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Tar Heel	7/1/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Tar Heel	9/3/13	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of Tar Heel	9/3/13	Thunderstorm Wind	52 kts. EG	0	0	$18,000	$0
Town of Tar Heel	2/21/14	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Town of Tar Heel	5/27/14	Thunderstorm Wind	56 kts. EG	0	0	$1,000	$0
Town of Tar Heel	5/3/16	Hail	1.00 in.	0	0	$500	$0
Town of White Lake	6/18/11	Thunderstorm Wind	51 kts. EG	0	0	$5,000	$0
Town of White Lake	6/22/11	Hail	1.75 in.	0	0	$3,000	$0
Town of White Lake	7/13/11	Thunderstorm Wind	56 kts. EG	0	0	$4,000	$0
Town of White Lake	5/16/12	Hail	1.00 in.	0	0	$250	$0
Town of White Lake	7/1/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of White Lake	7/1/12	Thunderstorm Wind	52 kts. EG	0	0	$2,000	$0
Town of White Lake	6/10/13	Thunderstorm Wind	50 kts. EG	0	0	$4,000	$0
Town of White Lake	2/21/14	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of White Lake	6/19/14	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of White Lake	6/19/14	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Town of White Lake	5/21/15	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of White Lake	8/6/15	Thunderstorm Wind	56 kts. EG	0	0	$50,000	$0
Town of White Lake	8/6/15	Hail	1.25 in.	0	0	$1,000	$0
Town of White Lake	5/7/21	Hail	1.00 in.	0	0	$0	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Town of White Lake	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of White Lake	4/12/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of White Lake	5/10/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of White Lake	5/10/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of White Lake	7/15/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Subtotal Bladen	**212 Events**			***0***	***1***	***$691,700***	***$517,500***
Columbus County							
City of Whiteville	4/20/09	Hail	0.75 in.	0	0	$0	$0
City of Whiteville	5/11/09	Hail	0.75 in.	0	0	$0	$0
City of Whiteville	6/15/09	Thunderstorm Wind	54 kts. EG	0	0	$3,000	$0
City of Whiteville	6/26/09	Thunderstorm Wind	50 kts. MG	0	0	$1,000	$0
City of Whiteville	4/5/11	Thunderstorm Wind	56 kts. EG	0	0	$4,000	$0
City of Whiteville	4/16/11	Hail	1.00 in.	0	0	$500	$0
City of Whiteville	4/28/11	Hail	1.75 in.	0	0	$3,000	$0
City of Whiteville	5/10/11	Hail	1.00 in.	0	0	$1,000	$0
City of Whiteville	5/10/11	Hail	1.00 in.	0	0	$1,000	$0
City of Whiteville	6/27/11	Lightning		0	0	$1,000	$0
City of Whiteville	6/27/11	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
City of Whiteville	8/14/11	Lightning		0	1	$0	$0
City of Whiteville	5/9/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
City of Whiteville	6/1/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
City of Whiteville	6/1/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
City of Whiteville	5/27/14	Thunderstorm Wind	54 kts. EG	0	0	$1,000	$0
City of Whiteville	5/27/14	Thunderstorm Wind	54 kts. EG	0	0	$1,000	$0
City of Whiteville	6/22/15	Hail	0.75 in.	0	0	$500	$0
City of Whiteville	6/22/15	Hail	1.00 in.	0	0	$1,000	$0
City of Whiteville	6/24/15	Hail	1.00 in.	0	0	$500	$0
City of Whiteville	7/23/15	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
City of Whiteville	7/23/15	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
City of Whiteville	7/23/15	Thunderstorm Wind	50 kts. EG	0	0	$700	$0
City of Whiteville	5/3/16	Hail	1.00 in.	0	0	$500	$0
City of Whiteville	5/3/16	Hail	0.88 in.	0	0	$0	$0
City of Whiteville	5/3/16	Hail	1.00 in.	0	0	$0	$0
City of Whiteville	5/3/16	Hail	0.88 in.	0	0	$250	$0
City of Whiteville	6/5/16	Thunderstorm Wind	50 kts. EG	0	0	$4,000	$0
City of Whiteville	7/7/16	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
City of Whiteville	10/23/17	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
City of Whiteville	10/23/17	Thunderstorm Wind	52 kts. EG	0	0	$15,000	$0
City of Whiteville	3/1/18	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
City of Whiteville	1/3/22	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
City of Whiteville	1/9/24	Thunderstorm Wind	60 kts. EG	0	0	$10,000	$0
City of Whiteville	5/10/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Columbus County (Unincorporated Area)	4/5/11	Thunderstorm Wind	56 kts. EG	0	0	$6,000	$0
Columbus County (Unincorporated Area)	4/19/19	Thunderstorm Wind	56 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	12/2/09	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Columbus County (Unincorporated Area)	6/18/15	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	5/8/24	Hail	1.75 in.	0	0	$0	$0
Columbus County (Unincorporated Area)	5/15/12	Hail	1.00 in.	0	0	$1,000	$0
Columbus County (Unincorporated Area)	4/19/19	Thunderstorm Wind	56 kts. EG	0	0	$10,000	$0
Columbus County (Unincorporated Area)	6/26/09	Thunderstorm Wind	55 kts. EG	0	0	$100,000	$0
Columbus County (Unincorporated Area)	8/21/11	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	3/1/18	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	5/10/11	Hail	1.00 in.	0	0	$1,000	$0
Columbus County (Unincorporated Area)	5/11/09	Thunderstorm Wind	51 kts. MG	0	0	$0	$0
Columbus County (Unincorporated Area)	4/28/11	Hail	1.00 in.	0	0	$1,000	$0
Columbus County (Unincorporated Area)	4/28/11	Hail	2.00 in.	0	0	$5,000	$0
Columbus County (Unincorporated Area)	7/13/11	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	4/26/12	Hail	1.00 in.	0	0	$1,000	$0
Columbus County (Unincorporated Area)	5/9/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Columbus County (Unincorporated Area)	8/2/12	Thunderstorm Wind	50 kts. EG	0	0	$12,000	$0
Columbus County (Unincorporated Area)	1/17/13	Thunderstorm Wind	65 kts. EG	0	0	$30,000	$0
Columbus County (Unincorporated Area)	6/18/13	Thunderstorm Wind	50 kts. EG	0	0	$4,000	$0
Columbus County (Unincorporated Area)	8/5/15	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Columbus County (Unincorporated Area)	8/5/15	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Columbus County (Unincorporated Area)	8/5/15	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Columbus County (Unincorporated Area)	8/23/17	Thunderstorm Wind	52 kts. EG	0	0	$4,000	$0
Columbus County (Unincorporated Area)	1/3/22	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Columbus County (Unincorporated Area)	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$500
Columbus County (Unincorporated Area)	4/14/09	Hail	1.75 in.	0	0	$0	$0
Columbus County (Unincorporated Area)	5/22/12	Hail	1.00 in.	0	0	$500	$0
Columbus County (Unincorporated Area)	7/6/16	Lightning		0	0	$10,000	$0
Columbus County (Unincorporated Area)	6/1/12	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Columbus County (Unincorporated Area)	6/10/13	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Columbus County (Unincorporated Area)	7/23/12	Hail	1.00 in.	0	0	$1,000	$0
Columbus County (Unincorporated Area)	6/2/18	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Columbus County (Unincorporated Area)	5/8/24	Hail	1.75 in.	0	0	$0	$0
Columbus County (Unincorporated Area)	7/13/11	Thunderstorm Wind	56 kts. EG	0	0	$5,000	$0
Columbus County (Unincorporated Area)	8/2/12	Thunderstorm Wind	50 kts. EG	0	0	$4,000	$0
Columbus County (Unincorporated Area)	7/7/16	Thunderstorm Wind	54 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	4/28/11	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	6/22/11	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	9/3/13	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Columbus County (Unincorporated Area)	1/11/14	Thunderstorm Wind	52 kts. EG	0	0	$2,000	$0
Columbus County (Unincorporated Area)	6/18/15	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	5/3/16	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	7/11/16	Thunderstorm Wind	56 kts. EG	0	0	$3,000	$0
Columbus County (Unincorporated Area)	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$500
Columbus County (Unincorporated Area)	5/10/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Columbus County (Unincorporated Area)	5/10/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Columbus County (Unincorporated Area)	7/1/12	Thunderstorm Wind	52 kts. EG	0	0	$4,000	$0
Columbus County (Unincorporated Area)	7/1/12	Hail	1.00 in.	0	0	$1,000	$0
Columbus County (Unincorporated Area)	5/21/15	Thunderstorm Wind	61 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	5/21/15	Thunderstorm Wind	61 kts. EG	0	0	$5,000	$0
Columbus County (Unincorporated Area)	5/21/15	Thunderstorm Wind	61 kts. EG	0	0	$8,000	$0
Columbus County (Unincorporated Area)	5/21/15	Thunderstorm Wind	61 kts. EG	0	0	$8,000	$0
Columbus County (Unincorporated Area)	5/21/15	Thunderstorm Wind	61 kts. EG	0	0	$6,000	$0
Columbus County (Unincorporated Area)	5/21/15	Thunderstorm Wind	61 kts. EG	0	0	$4,000	$0
Columbus County (Unincorporated Area)	5/21/15	Thunderstorm Wind	61 kts. EG	0	0	$3,000	$0
Columbus County (Unincorporated Area)	5/21/15	Thunderstorm Wind	61 kts. EG	0	0	$3,000	$0
Columbus County (Unincorporated Area)	5/21/15	Thunderstorm Wind	61 kts. EG	0	0	$8,000	$0
Columbus County (Unincorporated Area)	4/28/11	Hail	2.75 in.	0	0	$5,000	$0
Columbus County (Unincorporated Area)	6/10/13	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Columbus County (Unincorporated Area)	5/29/14	Hail	1.00 in.	0	0	$250	$0
Columbus County (Unincorporated Area)	6/24/15	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$500
Columbus County (Unincorporated Area)	5/5/09	Lightning		0	0	$20,000	$0
Columbus County (Unincorporated Area)	7/1/12	Hail	1.00 in.	0	0	$500	$0
Columbus County (Unincorporated Area)	6/26/13	Thunderstorm Wind	50 kts. EG	0	0	$3,500	$0
Columbus County (Unincorporated Area)	6/18/15	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	9/29/20	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	6/15/21	Thunderstorm Wind	56 kts. EG	0	0	$0	$0
Columbus County (Unincorporated Area)	6/15/21	Thunderstorm Wind	61 kts. EG	0	0	$0	$0
Columbus County (Unincorporated Area)	5/10/11	Hail	0.88 in.	0	0	$0	$0
Columbus County (Unincorporated Area)	5/22/12	Hail	0.88 in.	0	0	$0	$0
Columbus County (Unincorporated Area)	7/15/14	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Columbus County (Unincorporated Area)	7/15/14	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Columbus County (Unincorporated Area)	5/16/22	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Columbus County (Unincorporated Area)	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$1,000
Columbus County (Unincorporated Area)	6/22/19	Thunderstorm Wind	61 kts. EG	0	0	$5,000	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Columbus County (Unincorporated Area)	8/10/23	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Columbus County (Unincorporated Area)	8/21/11	Thunderstorm Wind	50 kts. EG	0	0	$500	$0
Columbus County (Unincorporated Area)	4/20/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Columbus County (Unincorporated Area)	6/23/11	Hail	1.00 in.	0	0	$1,000	$0
Columbus County (Unincorporated Area)	5/28/17	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Columbus County (Unincorporated Area)	5/15/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Columbus County (Unincorporated Area)	10/23/17	Thunderstorm Wind	52 kts. EG	0	0	$2,000	$0
Columbus County (Unincorporated Area)	4/27/12	Hail	1.00 in.	0	0	$1,000	$0
Columbus County (Unincorporated Area)	6/23/11	Thunderstorm Wind	56 kts. EG	0	0	$10,000	$0
Columbus County (Unincorporated Area)	3/24/12	Hail	1.00 in.	0	0	$500	$0
Columbus County (Unincorporated Area)	7/7/16	Thunderstorm Wind	54 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	4/14/09	Hail	1.75 in.	0	0	$0	$0
Columbus County (Unincorporated Area)	7/11/16	Hail	1.00 in.	0	0	$0	$0
Columbus County (Unincorporated Area)	7/11/16	Thunderstorm Wind	54 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	5/16/22	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Columbus County (Unincorporated Area)	5/3/16	Hail	1.00 in.	0	0	$500	$0
Columbus County (Unincorporated Area)	5/10/11	Hail	1.75 in.	0	0	$5,000	$0
Columbus County (Unincorporated Area)	5/10/11	Hail	1.75 in.	0	0	$5,000	$0
Columbus County (Unincorporated Area)	6/27/11	Hail	1.00 in.	0	0	$500	$0
Columbus County (Unincorporated Area)	7/13/11	Thunderstorm Wind	56 kts. EG	0	0	$4,000	$0
Columbus County (Unincorporated Area)	5/9/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	7/23/12	Lightning		0	0	$5,000	$0
Columbus County (Unincorporated Area)	8/11/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	7/11/16	Thunderstorm Wind	56 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	9/9/19	Thunderstorm Wind	56 kts. EG	0	0	$2,000	$0
Columbus County (Unincorporated Area)	5/10/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Columbus County (Unincorporated Area)	4/27/12	Hail	1.00 in.	0	0	$1,000	$0
Columbus County (Unincorporated Area)	9/8/12	Lightning		0	0	$5,000	$0
Columbus County (Unincorporated Area)	6/24/18	Thunderstorm Wind	50 kts. EG	0	0	$500	$0
Columbus County (Unincorporated Area)	6/23/12	Hail	0.88 in.	0	0	$0	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Columbus County (Unincorporated Area)	7/19/16	Thunderstorm Wind	50 kts. EG	0	0	$4,000	$0
Columbus County (Unincorporated Area)	6/1/09	Hail	1.75 in.	0	0	$0	$0
Columbus County (Unincorporated Area)	5/15/12	Hail	0.75 in.	0	0	$0	$0
Columbus County (Unincorporated Area)	8/15/22	Thunderstorm Wind	61 kts. EG	0	0	$0	$0
Columbus County (Unincorporated Area)	7/26/23	Lightning		0	1	$0	$0
Columbus County (Unincorporated Area)	5/28/17	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	6/24/18	Thunderstorm Wind	55 kts. EG	0	0	$1,000	$0
Columbus County (Unincorporated Area)	6/24/18	Thunderstorm Wind	50 kts. EG	0	0	$500	$0
Columbus County (Unincorporated Area)	8/7/23	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of Boardman	1/9/24	Thunderstorm Wind	65 kts. EG	0	0	$3,000	$1,000
Town of Boardman	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$500
Town of Bolton	9/30/11	Thunderstorm Wind	50 kts. EG	0	0	$1,500	$0
Town of Bolton	5/22/12	Hail	1.00 in.	0	0	$500	$0
Town of Bolton	5/22/12	Hail	0.88 in.	0	0	$250	$0
Town of Brunswick	4/19/19	Thunderstorm Wind	52 kts. EG	0	0	$2,000	$0
Town of Cerro Gordo	4/28/11	Hail	1.75 in.	0	0	$3,000	$0
Town of Cerro Gordo	8/21/11	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of Cerro Gordo	5/23/12	Hail	1.50 in.	0	0	$1,500	$0
Town of Cerro Gordo	5/23/12	Hail	1.75 in.	0	0	$1,750	$0
Town of Cerro Gordo	7/2/15	Hail	0.88 in.	0	0	$0	$0
Town of Cerro Gordo	10/23/17	Thunderstorm Wind	52 kts. EG	0	0	$10,000	$0
Town of Cerro Gordo	10/23/17	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of Cerro Gordo	9/8/21	Thunderstorm Wind	52 kts. EG	0	0	$0	$0
Town of Cerro Gordo	1/3/22	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of Cerro Gordo	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$500
Town of Fair Bluff	5/4/09	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Town of Fair Bluff	5/23/12	Hail	1.75 in.	0	0	$1,750	$0
Town of Fair Bluff	7/7/16	Thunderstorm Wind	54 kts. EG	0	0	$1,000	$0
Town of Fair Bluff	5/5/20	Hail	1.00 in.	0	0	$0	$0
Town of Lake Waccamaw	12/2/09	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Town of Lake Waccamaw	9/28/11	Thunderstorm Wind	52 kts. EG	0	0	$6,000	$0
Town of Lake Waccamaw	6/27/13	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Town of Lake Waccamaw	7/28/14	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Lake Waccamaw	6/18/15	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of Lake Waccamaw	6/5/16	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Town of Tabor City	10/15/12	Hail	1.00 in.	0	0	$1,000	$0
Town of Tabor City	2/24/16	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Town of Tabor City	5/28/17	Thunderstorm Wind	52 kts. EG	0	0	$2,000	$0
Town of Tabor City	7/7/17	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Town of Tabor City	4/19/19	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of Tabor City	4/19/19	Thunderstorm Wind	52 kts. EG	0	0	$30,000	$0
Town of Tabor City	4/7/22	Hail	1.50 in.	0	0	$0	$0
Subtotal Columbus	***184 Events***	--	--	***0***	***2***	***$538,950***	***$4,500***
Robeson County							
City of Lumberton	4/27/10	Hail	0.88 in.	0	0	$0	$0
City of Lumberton	5/23/10	Hail	0.88 in.	0	0	$3,000	$0
City of Lumberton	2/28/11	Hail	0.75 in.	0	0	$0	$0
City of Lumberton	4/5/11	Thunderstorm Wind	56 kts. EG	0	0	$2,000	$0
City of Lumberton	4/16/11	Thunderstorm Wind	63 kts. MG	0	0	$4,000	$0
City of Lumberton	6/12/11	Thunderstorm Wind	50 kts. EG	0	0	$4,000	$0
City of Lumberton	6/12/11	Lightning		0	1	$0	$0
City of Lumberton	8/21/11	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
City of Lumberton	8/29/11	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
City of Lumberton	7/11/16	Thunderstorm Wind	56 kts. EG	0	0	$10,000	$0
City of Lumberton	7/19/16	Thunderstorm Wind	56 kts. EG	0	0	$1,000	$0
City of Lumberton	7/19/16	Thunderstorm Wind	52 kts. EG	0	0	$250	$0
City of Lumberton	7/19/16	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
City of Lumberton	7/19/16	Thunderstorm Wind	56 kts. EG	0	0	$1,000	$0
City of Lumberton	7/19/16	Thunderstorm Wind	56 kts. EG	0	0	$1,500	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
City of Lumberton	7/19/16	Thunderstorm Wind	56 kts. EG	0	0	$2,000	$0
City of Lumberton	6/18/18	Thunderstorm Wind	55 kts. EG	0	0	$500	$0
City of Lumberton	6/18/18	Thunderstorm Wind	50 kts. EG	0	0	$10,000	$0
City of Lumberton	4/20/24	Hail	1.50 in.	0	0	$0	$0
City of Lumberton	4/20/24	Hail	4.50 in.	0	0	$0	$0
City of Lumberton	5/8/24	Hail	1.75 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	4/16/11	Hail	1.00 in.	0	0	$2,000	$0
Robeson County (Unincorporated Area)	9/3/13	Hail	0.88 in.	0	0	$500	$0
Robeson County (Unincorporated Area)	5/11/09	Thunderstorm Wind	109 kts. EG	0	1	$813,000	$0
Robeson County (Unincorporated Area)	4/27/10	Hail	0.88 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	6/29/10	Hail	0.75 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	6/29/10	Thunderstorm Wind	52 kts. MG	0	0	$10,000	$0
Robeson County (Unincorporated Area)	6/16/11	Hail	1.00 in.	0	0	$2,000	$0
Robeson County (Unincorporated Area)	6/24/11	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Robeson County (Unincorporated Area)	6/24/11	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Robeson County (Unincorporated Area)	5/15/12	Hail	1.00 in.	0	0	$1,000	$0
Robeson County (Unincorporated Area)	7/19/16	Thunderstorm Wind	54 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	5/22/20	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	4/22/23	Hail	1.00 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	6/12/11	Thunderstorm Wind	52 kts. EG	0	0	$4,000	$0
Robeson County (Unincorporated Area)	3/18/17	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Robeson County (Unincorporated Area)	6/24/18	Thunderstorm Wind	55 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	6/25/18	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	8/3/22	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	8/3/22	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	4/20/24	Hail	1.50 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	7/1/12	Hail	1.00 in.	0	0	$1,000	$0
Robeson County (Unincorporated Area)	8/15/23	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	6/5/14	Thunderstorm Wind	61 kts. EG	0	0	$25,000	$0
Robeson County (Unincorporated Area)	9/8/21	Thunderstorm Wind	50 kts. EG	0	0	$0	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Robeson County (Unincorporated Area)	4/16/11	Hail	1.00 in.	0	0	$2,000	$0
Robeson County (Unincorporated Area)	5/22/11	Hail	1.00 in.	0	0	$1,000	$0
Robeson County (Unincorporated Area)	6/18/11	Thunderstorm Wind	50 kts. EG	0	0	$4,000	$0
Robeson County (Unincorporated Area)	2/21/14	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Robeson County (Unincorporated Area)	4/20/24	Hail	1.75 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	6/14/10	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Robeson County (Unincorporated Area)	7/27/10	Hail	0.88 in.	0	0	$500	$0
Robeson County (Unincorporated Area)	7/27/10	Thunderstorm Wind	56 kts. MG	0	0	$11,000	$4,000
Robeson County (Unincorporated Area)	4/28/11	Thunderstorm Wind	61 kts. MG	0	0	$0	$0
Robeson County (Unincorporated Area)	4/28/11	Hail	1.75 in.	0	0	$3,000	$0
Robeson County (Unincorporated Area)	5/23/12	Hail	1.00 in.	0	0	$1,000	$0
Robeson County (Unincorporated Area)	7/19/16	Thunderstorm Wind	56 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	7/19/16	Thunderstorm Wind	56 kts. EG	0	0	$1,500	$0
Robeson County (Unincorporated Area)	7/19/16	Thunderstorm Wind	56 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	7/21/12	Hail	1.00 in.	0	0	$750	$0
Robeson County (Unincorporated Area)	7/21/12	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Robeson County (Unincorporated Area)	2/24/16	Thunderstorm Wind	52 kts. EG	0	0	$35,000	$0
Robeson County (Unincorporated Area)	5/16/10	Thunderstorm Wind	52 kts. EG	0	0	$4,000	$0
Robeson County (Unincorporated Area)	5/16/10	Thunderstorm Wind	52 kts. EG	0	0	$4,000	$0
Robeson County (Unincorporated Area)	5/23/10	Hail	1.00 in.	0	0	$10,000	$0
Robeson County (Unincorporated Area)	5/11/09	Hail	0.75 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	7/27/10	Thunderstorm Wind	52 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	3/25/12	Hail	1.00 in.	0	0	$1,000	$0
Robeson County (Unincorporated Area)	6/27/15	Thunderstorm Wind	56 kts. EG	0	0	$5,000	$0
Robeson County (Unincorporated Area)	6/27/15	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Robeson County (Unincorporated Area)	6/18/18	Thunderstorm Wind	51 kts. MG	0	0	$0	$0
Robeson County (Unincorporated Area)	8/2/18	Thunderstorm Wind	52 kts. MG	0	0	$0	$0
Robeson County (Unincorporated Area)	4/6/22	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	1/9/24	Thunderstorm Wind	54 kts. MG	0	0	$0	$0
Robeson County (Unincorporated Area)	6/18/11	Thunderstorm Wind	50 kts. EG	0	0	$2,500	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Robeson County (Unincorporated Area)	5/22/12	Hail	1.00 in.	0	0	$500	$0
Robeson County (Unincorporated Area)	7/1/12	Hail	1.50 in.	0	0	$1,000	$0
Robeson County (Unincorporated Area)	7/1/12	Hail	1.00 in.	0	0	$500	$0
Robeson County (Unincorporated Area)	7/10/12	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Robeson County (Unincorporated Area)	6/13/13	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	6/26/13	Thunderstorm Wind	54 kts. EG	0	0	$2,000	$0
Robeson County (Unincorporated Area)	8/23/14	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	6/19/15	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	1/4/23	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	5/23/10	Hail	1.00 in.	0	0	$5,000	$0
Robeson County (Unincorporated Area)	4/5/11	Thunderstorm Wind	56 kts. EG	0	0	$6,000	$0
Robeson County (Unincorporated Area)	6/18/11	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	6/26/13	Thunderstorm Wind	54 kts. EG	0	0	$2,000	$0
Robeson County (Unincorporated Area)	5/29/14	Hail	0.75 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	8/26/23	Thunderstorm Wind	50 kts. EG	0	0	$10,000	$0
Robeson County (Unincorporated Area)	5/8/24	Hail	1.75 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	5/23/10	Hail	0.75 in.	0	0	$1,000	$0
Robeson County (Unincorporated Area)	5/27/11	Hail	0.75 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	6/26/13	Thunderstorm Wind	54 kts. EG	0	0	$15,000	$0
Robeson County (Unincorporated Area)	4/19/19	Thunderstorm Wind	56 kts. EG	0	0	$5,000	$0
Robeson County (Unincorporated Area)	4/19/13	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	2/21/14	Thunderstorm Wind	52 kts. EG	0	0	$2,000	$0
Robeson County (Unincorporated Area)	5/3/16	Hail	1.00 in.	0	0	$500	$0
Robeson County (Unincorporated Area)	6/17/22	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	6/23/11	Thunderstorm Wind	56 kts. EG	0	0	$15,000	$0
Robeson County (Unincorporated Area)	6/26/13	Thunderstorm Wind	54 kts. EG	0	0	$2,000	$0
Robeson County (Unincorporated Area)	5/2/16	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Robeson County (Unincorporated Area)	6/11/18	Thunderstorm Wind	60 kts. EG	0	0	$50,000	$0
Robeson County (Unincorporated Area)	5/3/22	Thunderstorm Wind	52 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	4/20/24	Hail	1.75 in.	0	0	$0	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Robeson County (Unincorporated Area)	4/20/24	Hail	1.75 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	5/28/10	Thunderstorm Wind	52 kts. EG	0	0	$2,000	$0
Robeson County (Unincorporated Area)	4/20/24	Hail	1.00 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	5/27/11	Hail	1.75 in.	0	0	$3,000	$0
Robeson County (Unincorporated Area)	5/14/11	Hail	1.00 in.	0	0	$1,000	$0
Robeson County (Unincorporated Area)	8/21/11	Thunderstorm Wind	52 kts. EG	0	0	$2,000	$0
Robeson County (Unincorporated Area)	8/21/11	Thunderstorm Wind	52 kts. EG	0	0	$2,500	$0
Robeson County (Unincorporated Area)	4/19/13	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Robeson County (Unincorporated Area)	8/23/14	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	8/23/14	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	7/19/16	Thunderstorm Wind	56 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	7/10/17	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	5/22/20	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	5/8/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	6/18/11	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Robeson County (Unincorporated Area)	7/21/12	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Robeson County (Unincorporated Area)	7/4/16	Thunderstorm Wind	56 kts. EG	0	0	$12,000	$0
Robeson County (Unincorporated Area)	8/15/23	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	5/11/09	Thunderstorm Wind	61 kts. EG	0	0	$30,000	$0
Robeson County (Unincorporated Area)	5/11/09	Thunderstorm Wind	61 kts. EG	0	0	$15,000	$0
Robeson County (Unincorporated Area)	7/5/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	6/9/13	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Robeson County (Unincorporated Area)	2/24/16	Thunderstorm Wind	65 kts. EG	0	2	$45,000	$0
Robeson County (Unincorporated Area)	1/3/22	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	8/15/23	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	4/5/11	Thunderstorm Wind	56 kts. EG	0	0	$2,000	$0
Robeson County (Unincorporated Area)	5/29/14	Hail	0.88 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	5/2/16	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Robeson County (Unincorporated Area)	5/8/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	5/28/10	Thunderstorm Wind	52 kts. EG	0	0	$2,000	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Robeson County (Unincorporated Area)	6/17/14	Thunderstorm Wind	54 kts. EG	0	0	$4,000	$0
Robeson County (Unincorporated Area)	11/17/10	Thunderstorm Wind	52 kts. EG	0	0	$8,000	$0
Robeson County (Unincorporated Area)	7/21/12	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Robeson County (Unincorporated Area)	1/30/13	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Robeson County (Unincorporated Area)	4/19/13	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	6/26/13	Thunderstorm Wind	54 kts. EG	0	0	$2,000	$0
Robeson County (Unincorporated Area)	2/21/14	Thunderstorm Wind	52 kts. EG	0	0	$9,000	$0
Robeson County (Unincorporated Area)	8/23/14	Thunderstorm Wind	50 kts. EG	0	0	$1,500	$0
Robeson County (Unincorporated Area)	5/2/16	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	4/6/17	Hail	0.75 in.	0	0	$0	$0
Robeson County (Unincorporated Area)	7/25/10	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	6/26/15	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	6/18/11	Thunderstorm Wind	50 kts. EG	0	0	$20,000	$0
Robeson County (Unincorporated Area)	8/29/11	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	6/26/15	Hail	0.88 in.	0	0	$250	$0
Robeson County (Unincorporated Area)	7/5/16	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	6/24/18	Thunderstorm Wind	55 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	1/31/13	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Robeson County (Unincorporated Area)	5/3/16	Hail	1.25 in.	0	0	$500	$0
Robeson County (Unincorporated Area)	4/12/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Robeson County (Unincorporated Area)	6/18/11	Thunderstorm Wind	50 kts. EG	0	0	$4,000	$0
Robeson County (Unincorporated Area)	9/3/14	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Robeson County (Unincorporated Area)	6/19/14	Thunderstorm Wind	52 kts. EG	0	0	$3,000	$0
Robeson County (Unincorporated Area)	8/15/23	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of Fairmont	5/29/09	Hail	1.13 in.	0	0	$0	$0
Town of Fairmont	7/16/09	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Fairmont	5/23/10	Thunderstorm Wind	52 kts. EG	0	0	$15,000	$0
Town of Fairmont	5/23/10	Thunderstorm Wind	52 kts. EG	0	0	$15,000	$0
Town of Fairmont	4/5/11	Thunderstorm Wind	56 kts. EG	0	0	$2,000	$0
Town of Fairmont	5/10/11	Hail	1.25 in.	0	0	$1,000	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Town of Fairmont	6/12/11	Thunderstorm Wind	50 kts. EG	0	0	$4,000	$0
Town of Fairmont	11/16/11	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Fairmont	4/26/12	Hail	1.00 in.	0	0	$1,000	$0
Town of Fairmont	1/30/13	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Town of Fairmont	6/19/14	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of Fairmont	6/19/14	Lightning		0	0	$150,000	$0
Town of Fairmont	6/18/15	Thunderstorm Wind	52 kts. EG	0	0	$10,000	$0
Town of Fairmont	7/11/16	Thunderstorm Wind	56 kts. EG	0	0	$15,000	$0
Town of Fairmont	7/23/17	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Town of Fairmont	8/23/17	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Town of Fairmont	6/22/19	Thunderstorm Wind	61 kts. EG	0	0	$20,000	$0
Town of Fairmont	4/22/23	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of Lumber Bridge	6/29/10	Thunderstorm Wind	50 kts. EG	0	0	$1,500	$0
Town of Lumber Bridge	5/22/11	Hail	0.88 in.	0	0	$0	$0
Town of Lumber Bridge	5/22/11	Thunderstorm Wind	52 kts. EG	0	0	$7,000	$0
Town of Lumber Bridge	5/22/11	Hail	1.25 in.	0	0	$1,000	$0
Town of Lumber Bridge	7/1/12	Hail	1.25 in.	0	0	$750	$0
Town of Lumber Bridge	7/1/12	Hail	0.75 in.	0	0	$0	$0
Town of Lumber Bridge	7/10/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Marietta	5/29/09	Hail	0.75 in.	0	0	$0	$0
Town of Marietta	6/26/13	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Town of Marietta	8/15/23	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of Maxton	5/11/09	Thunderstorm Wind	61 kts. EG	0	0	$5,000	$0
Town of Maxton	6/23/11	Thunderstorm Wind	65 kts. EG	0	0	$15,000	$0
Town of Maxton	7/5/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Maxton	6/19/15	Thunderstorm Wind	52 kts. EG	0	0	$5,000	$0
Town of Maxton	7/11/16	Thunderstorm Wind	56 kts. EG	0	0	$15,000	$0
Town of Maxton	7/19/19	Thunderstorm Wind	52 kts. EG	0	0	$10,000	$0
Town of Mc Donalds	5/10/11	Hail	1.50 in.	0	0	$2,000	$0
Town of Mc Donalds	7/5/12	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Town of Mc Donalds	6/27/15	Thunderstorm Wind	56 kts. EG	0	0	$5,000	$0
Town of Mc Donalds	3/1/18	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Town of Mc Donalds	8/1/21	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of Mc Donalds	3/17/22	Thunderstorm Wind	65 kts. EG	0	0	$0	$0
Town of Orrum	6/16/10	Lightning		0	0	$1,500	$0
Town of Orrum	6/29/10	Thunderstorm Wind	52 kts. EG	0	0	$34,000	$0
Town of Orrum	5/10/24	Hail	1.00 in.	0	0	$0	$0
Town of Parkton	8/29/11	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Parkton	7/1/12	Hail	1.75 in.	0	0	$1,250	$0
Town of Parkton	7/10/12	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Town of Parkton	6/26/13	Thunderstorm Wind	54 kts. EG	0	0	$13,000	$0
Town of Parkton	9/3/14	Thunderstorm Wind	50 kts. EG	0	0	$500	$0
Town of Parkton	4/9/15	Hail	1.25 in.	0	0	$1,000	$0
Town of Parkton	7/10/17	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Parkton	5/30/19	Thunderstorm Wind	52 kts. EG	0	0	$50,000	$0
Town of Parkton	5/30/19	Thunderstorm Wind	61 kts. EG	0	0	$50,000	$0
Town of Parkton	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$50,000
Town of Parkton	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Pembroke	4/16/11	Hail	1.75 in.	0	0	$10,000	$0
Town of Pembroke	6/12/11	Thunderstorm Wind	52 kts. EG	0	0	$4,000	$0
Town of Pembroke	5/29/14	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Pembroke	2/24/16	Thunderstorm Wind	52 kts. EG	0	0	$8,000	$0
Town of Pembroke	2/24/16	Hail	3.00 in.	0	0	$25,000	$0
Town of Pembroke	4/20/24	Hail	1.00 in.	0	0	$0	$0
Town of Proctorville	5/14/11	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Proctorville	8/19/11	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Town of Proctorville	11/16/11	Thunderstorm Wind	50 kts. EG	0	0	$3,000	$0
Town of Proctorville	6/26/13	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Town of Proctorville	4/22/23	Hail	1.00 in.	0	0	$0	$0
Town of Proctorville	5/10/24	Hail	1.75 in.	0	0	$0	$0

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Town of Proctorville	5/10/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of Raynham	5/11/09	Thunderstorm Wind	61 kts. EG	0	0	$15,000	$0
Town of Raynham	4/5/11	Thunderstorm Wind	56 kts. EG	0	0	$2,000	$0
Town of Raynham	6/27/15	Thunderstorm Wind	56 kts. EG	0	0	$5,000	$0
Town of Red Springs	5/28/10	Hail	0.75 in.	0	0	$1,000	$0
Town of Red Springs	6/23/11	Thunderstorm Wind	56 kts. EG	0	0	$2,000	$0
Town of Red Springs	6/28/11	Thunderstorm Wind	56 kts. EG	0	0	$9,000	$0
Town of Red Springs	6/26/13	Thunderstorm Wind	54 kts. EG	0	0	$12,000	$0
Town of Red Springs	4/28/14	Hail	1.00 in.	0	0	$150	$0
Town of Red Springs	6/24/17	Thunderstorm Wind	50 kts. EG	0	0	$2,000	$0
Town of Red Springs	4/13/20	Thunderstorm Wind	61 kts. EG	0	0	$5,000	$0
Town of Red Springs	1/9/24	Thunderstorm Wind	50 kts. EG	0	0	$0	$50,000
Town of Rennert	5/16/10	Thunderstorm Wind	52 kts. EG	0	0	$4,000	$0
Town of Rennert	4/5/11	Thunderstorm Wind	56 kts. EG	0	0	$2,000	$0
Town of Rennert	5/27/11	Hail	0.88 in.	0	0	$0	$0
Town of Rennert	7/13/11	Thunderstorm Wind	56 kts. EG	0	0	$3,000	$0
Town of Rennert	6/26/13	Thunderstorm Wind	54 kts. EG	0	0	$2,000	$0
Town of Rennert	6/26/13	Thunderstorm Wind	54 kts. EG	0	0	$2,000	$0
Town of Rennert	6/26/15	Thunderstorm Wind	50 kts. EG	0	0	$1,000	$0
Town of Rowland	4/16/11	Thunderstorm Wind	65 kts. EG	0	0	$50,000	$0
Town of Rowland	7/5/12	Thunderstorm Wind	52 kts. EG	0	0	$1,500	$0
Town of Rowland	7/5/12	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of Rowland	6/19/14	Thunderstorm Wind	52 kts. EG	0	0	$1,000	$0
Town of Rowland	4/19/19	Thunderstorm Wind	56 kts. EG	0	0	$2,000	$0
Town of St Pauls	2/21/14	Thunderstorm Wind	52 kts. EG	0	0	$2,000	$0
Town of St Pauls	2/24/16	Hail	1.75 in.	0	0	$3,000	$0
Town of St Pauls	2/24/16	Hail	1.75 in.	0	0	$3,000	$0
Town of St Pauls	6/18/18	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Town of St Pauls	8/7/23	Thunderstorm Wind	50 kts. EG	0	0	$0	$0
Subtotal Robeson	***254 Events***	*--*	*--*	***0***	***4***	***$2,021,400***	***$104,000***

Location	Date	Type	Mag	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
TOTAL PLAN	**650 Events**	--	**–**	**0**	**6**	**$26,300,50**	**$532,400**

Source: NCEI Storm Events Database

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

- **September 5, 1996** – Winds sustained 50 mph and gusted near 70 mph, with nearly 6 inches of rain as the outskirts of Hurricane Fran crossed Robeson County Thursday evening. There were 45 injuries associated with the storm and during cleanup efforts over the following few days, and one man died while clearing a tree on Friday. Ten homes and 20 businesses suffered major damage, and schools had $500,000 worth of damage.
- **May 27, 1998** – Hail up to an inch diameter fell as thunderstorms tracked southeast. Downburst winds in Orrum caused major damage to two homes, and minor damage to 8 others, resulting in $80,000 in property damage.
- **March 3, 1999** – A cold front crossed the area with powerful wind gusts. In Prospect, a woman was blown off her porch, while in Rennert a mobile home was overturned, injuring 3. Trees were downed onto power lines and an electric power substation was knocked out, with a loss of power to 11,000 customers. Damage occurred to schools, homes and businesses.
- **August 28, 2001** – Lightning struck a business (body shop) on Roberts Avenue in Lumberton. The resulting fire completely destroyed the building, as well as caused second degree burns to the owner. Property damage was estimated at $300,000.
- **March16,2002**–ANWSStormsurveydeterminedthatstraightlinethunderstormwindsproduce extensive damage to a trailer park in the northern part of Robeson County. 18 structures in all were damaged. 8 mobile homes were completely destroyed with one double wide trailer moved 10 feet off its foundation. A large metal electrical tower in the area was also blown down. A woman was injured in her mobile home during the event, dislocating her elbow. Large hail was also produced from the strong thunderstorm, with 2.5" hail reported in the area. Total property damages were estimated at $750,000.
- **May 3, 2003 –** Golf ball sized hall fell in Lumberton causing damage to the roofs of homes and cars on Broadridge Road and in Long Branch. The hail also completely destroyed a strawberry crop, estimated at $50,000 worth of damage.
- **May 11, 2009** – A super-cell thunderstorm with damaging winds accelerated as it moved across Robeson County. Numerous trees and power lines were down and there was considerable structural damage. A National Weather Service Storm Survey concluded that a wet microburst produced a swath of damaging straight-line winds up to 125 mph. The microburst damage began near the intersection of Wilton Drive and Gem Road. Several trees were uprooted or snapped off and minor to moderate damage was observed to roof shingles and to siding. Significant damage was observed to the east of NC Highway 72. Numerous large trees were snapped off or uprooted along NC Highway 72 and significant structural damage occurred to approximately 8 homes on Sadie Drive. One of these homes was completely destroyed and another lost its entire roof. Several sheds and outbuildings were destroyed in this area. One adult woman suffered broken bones. The damage had a maximum path width of 350 yards and a path length of 2.25 miles. The Robeson County Emergency Manager estimated the damage at $813,000.
- **April 16, 2011** – A powerful storm system that had moved across the Deep South during previous days, swept across the eastern Carolinas during the afternoon and evening hours. Instability and shear values were highly supportive of super-cell thunderstorms. The result was a large outbreak of severe weather including strong and deadly tornadoes across eastern North Carolina. Golf ball sized hail was reported near UNC Pembroke and lasted for about 15 minutes.
- **March 5, 2012** – A tight pressure gradient produced strong wind gusts over much of the Carolinas. The gusts caused structural damage to a mobile home at the Sandy Acres Mobile Home Park in Red Springs, resulting in $10,000 worth of property damage.

- **June 19, 2014** – Lightning struck the Lumber River Electric Company building at the corner of Main and Red Cross Streets in Fairmont. The resulting fire destroyed the interior of the structure. Property damage was estimated at $150,000.
- **February 24, 2016** – Deep low pressure lifting north across the Ohio River Valley brought a warm front through the area during the morning. In the wake of the warm front, the atmosphere destabilized, and this helped to bring very strong winds aloft to the surface. Supercells produced some very large hail and damaging winds. In Pembroke, hail of about 3 inches or greater was measured, and property damage was estimated at $25,000.

5.9.4 Probability of Future Occurrences

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

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability of hazard
- Possible: Between 1% and 10% annual probability of hazard
- Likely: Between 10% and 100% annual probability of hazard
- Highly Likely: 100% annual probability of hazard

Jurisdiction	Probability of Future Occurrence
Bladen County (Unincorporated Area)	Highly Likely
Columbus County (Unincorporated Area)	Highly Likely
Robeson County (Unincorporated Area)	Highly Likely
City of Lumberton	Highly Likely
City of Whiteville	Highly Likely
Town of Bladenboro	Highly Likely
Town of Boardman	Highly Likely
Town of Bolton	Highly Likely
Town of Brunswick	Highly Likely
Town of Cerro Gordo	Highly Likely
Town of Chadbourn	Highly Likely
Town of Clarkton	Highly Likely
Town of Dublin	Highly Likely
Town of East Arcadia	Highly Likely
Town of Elizabethtown	Highly Likely
Town of Fair Bluff	Highly Likely
Town of Fairmont	Highly Likely
Town of Lake Waccamaw	Highly Likely
Town of Lumber Bridge	Highly Likely
Town of Marietta	Highly Likely
Town of Maxton	Highly Likely

Jurisdiction	Probability of Future Occurrence
Town of Mcdonald	Highly Likely
Town of Orrum	Highly Likely
Town of Parkton	Highly Likely
Town of Pembroke	Highly Likely
Town of Proctorville	Highly Likely
Town of Raynham	Highly Likely
Town of Red Springs	Highly Likely
Town of Rennert	Highly Likely
Town of Rowland	Highly Likely
Town of Saint Pauls	Highly Likely
Town of Sandyfield	Highly Likely
Town of Tabor City	Highly Likely
Town of Tar Heel	Highly Likely
Town of White Lake	Highly Likely

Source: NCEM RMT & plan risk assessment

5.9.5 Consequence and Impact Analysis (Vulnerability)

Changing Future Conditions

Changing climatic patterns may result in more frequent and more severe storms (e.g., thunderstorms, lightning, and/or hail) throughout the Region. According to the National Aeronautics and Space Administration (NASA), severe storm events are likely to become more frequent and intense throughout the Southeast in the future due to radical changes in weather extremes and environmental conditions[19].

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.

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

[19] NASA Climate Change Effects (https://science.nasa.gov/climate-change/effects/)

roads and bridges. In October 2016, Hurricane Matthew flooded Lumberton (Robeson County) south and east of the I-95 crossing over the Lumber River[20].

Economy

Economic damages include property damage from wind, lightning and hail, and other 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.

[20] https://www.usgs.gov/media/images/hurricane-matthew-flooding-interstate-95-robeson-county-nc

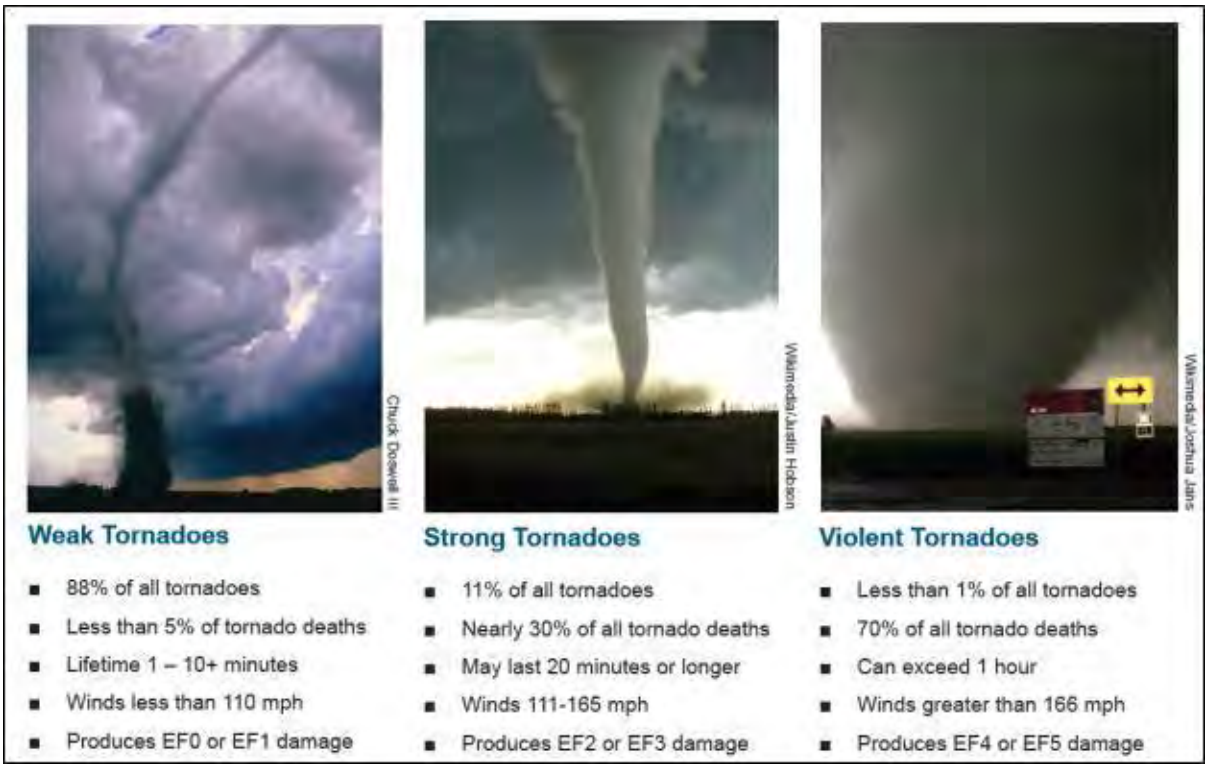
5.10 Tornado

5.10.1 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 paths 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

Figure 5-62: Types of Tornadoes

Prior to February 1, 2007, tornado intensity was measured by the Fujita (F) scale. This scale was revised and is now the Enhanced Fujita (EF) 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 considers the materials affected and the construction of structures damaged by a tornado. **Table 5-21** shows the wind speeds associated with the enhanced Fujita scale

ratings and the damage that could result at different levels of intensity.

Table 5-21: Enhanced Fujita Scale

Storm Category	Damage Level	3 Second Gust (mph)	Description of Damages	Photo Example
F0	GALE	65–85	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages to sign boards	
F1	WEAK	86–110	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages might be destroyed.	
F2	STRONG	111–135	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.	
F3	SEVERE	136–165	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.	
F4	DEVASTATING	166–200	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.	
F5	INCREDIBLE	200+	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel re-enforced concrete structures badly damaged.	

5.10.2 Location and Spatial Extent

Although tornadoes can occur in most locations, most of the tornado activity in the United States exists in the Midwest and Southeast. An exact season does not exist for tornadoes; however, most occur within the period of early spring to middle summer (February – June). **Figure 5-63** shows tornado activity in the United States based on the number of recorded tornadoes per 1,000 square miles.

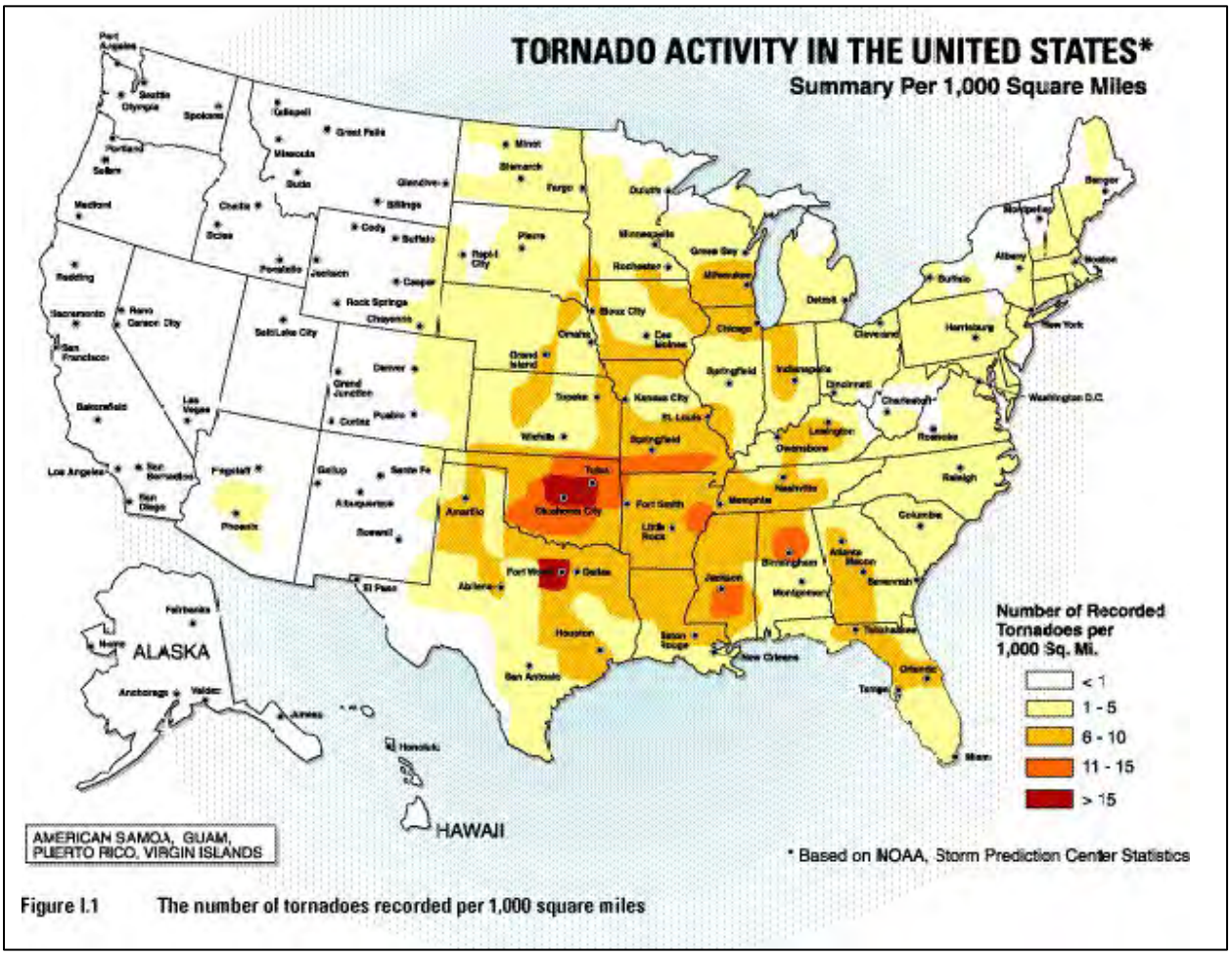


Figure 5-63: Tornado Activity in the United States

Tornadoes occur throughout the state of North Carolina, and thus in the Region. Tornadoes typically impact a relatively small area, but damage may be extensive. Event locations are completely random, and it is not possible to predict specific areas that are more susceptible to tornado strikes over time. Therefore, it is assumed that the Region is uniformly exposed to this hazard. The figures below illustrate the paths of previous tornadoes in the Region.

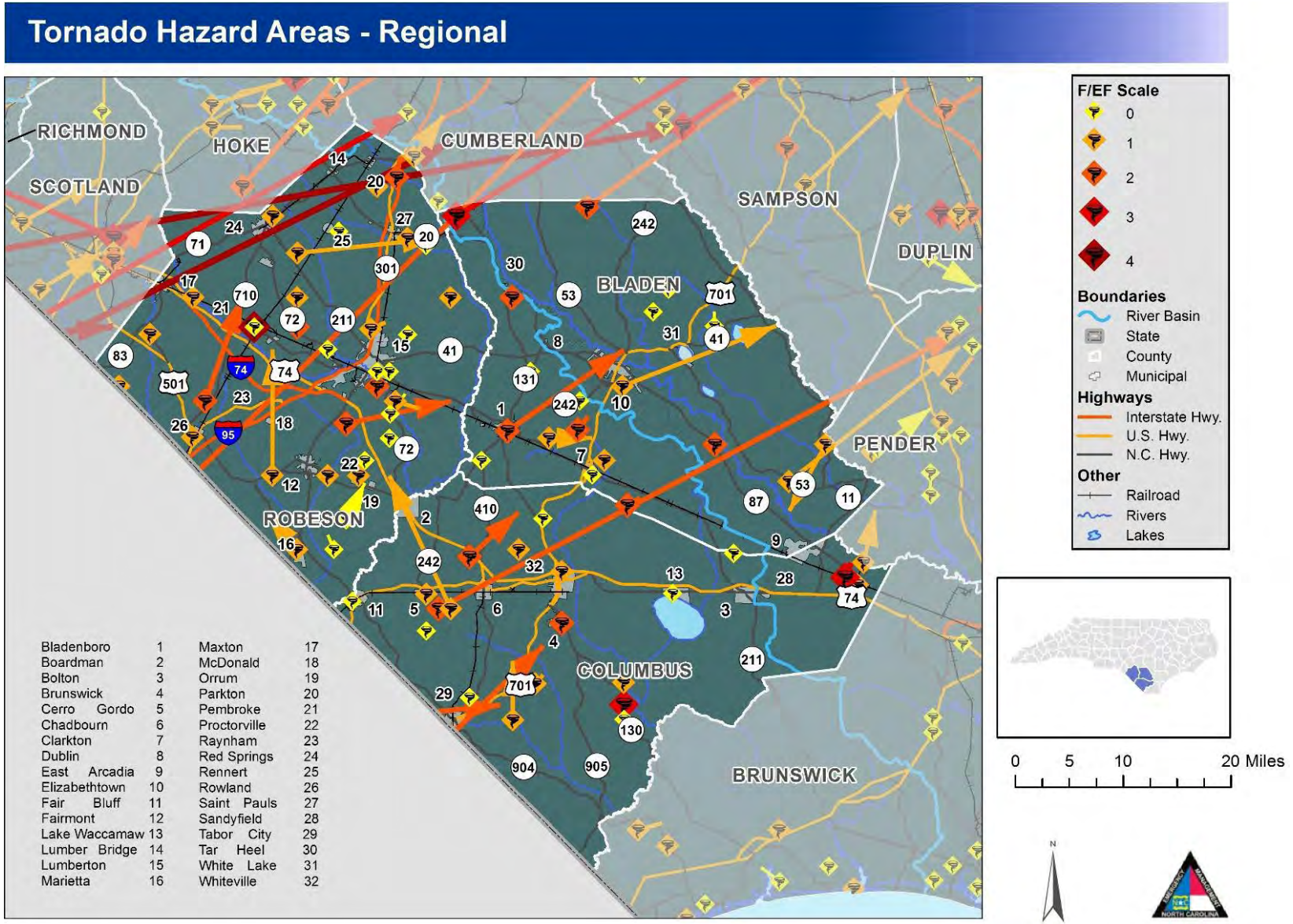


Figure 5-64: Tornado Hazard Areas - Regional

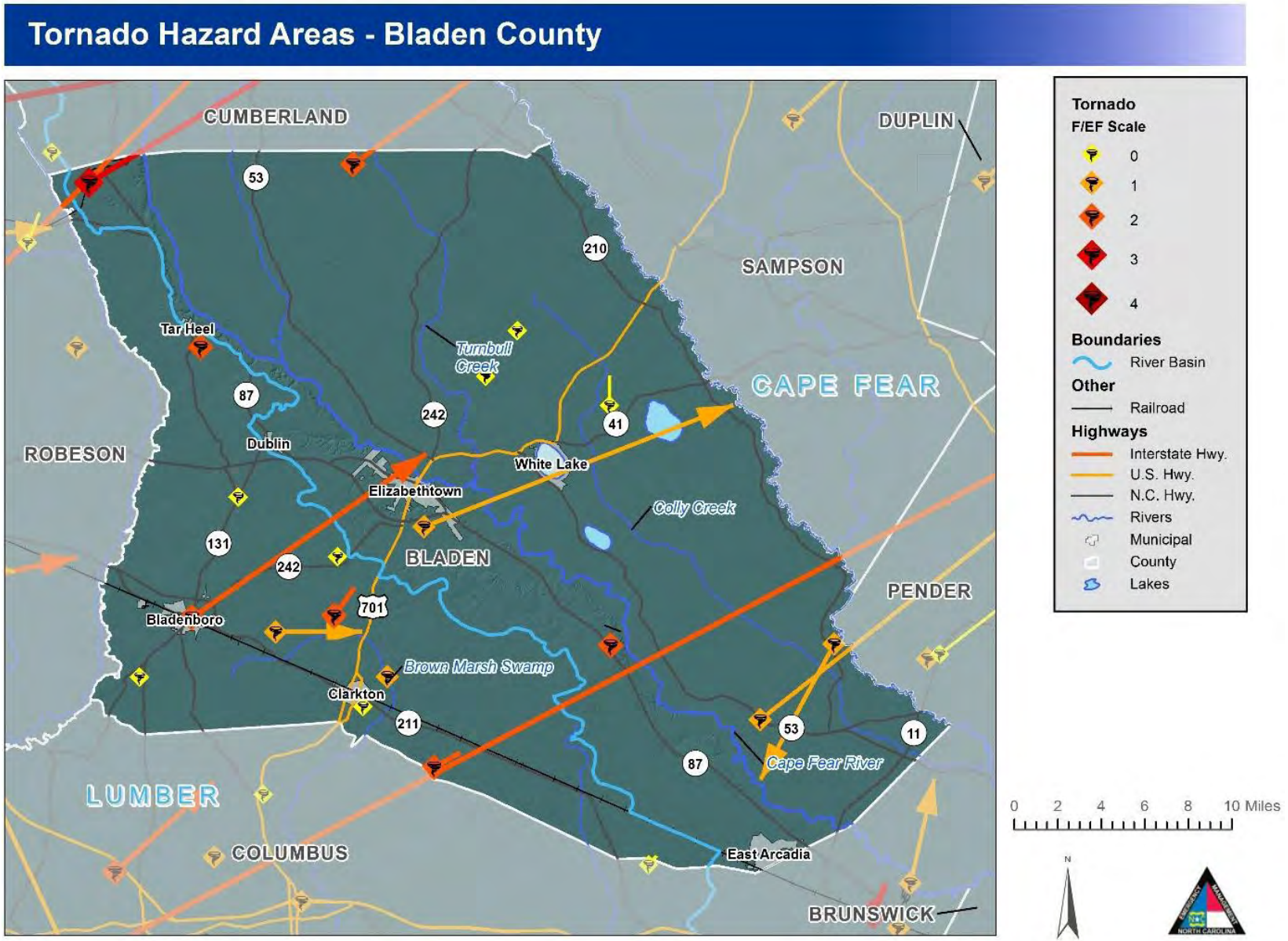


Figure 5-65: Tornado Hazard Areas – Bladen County

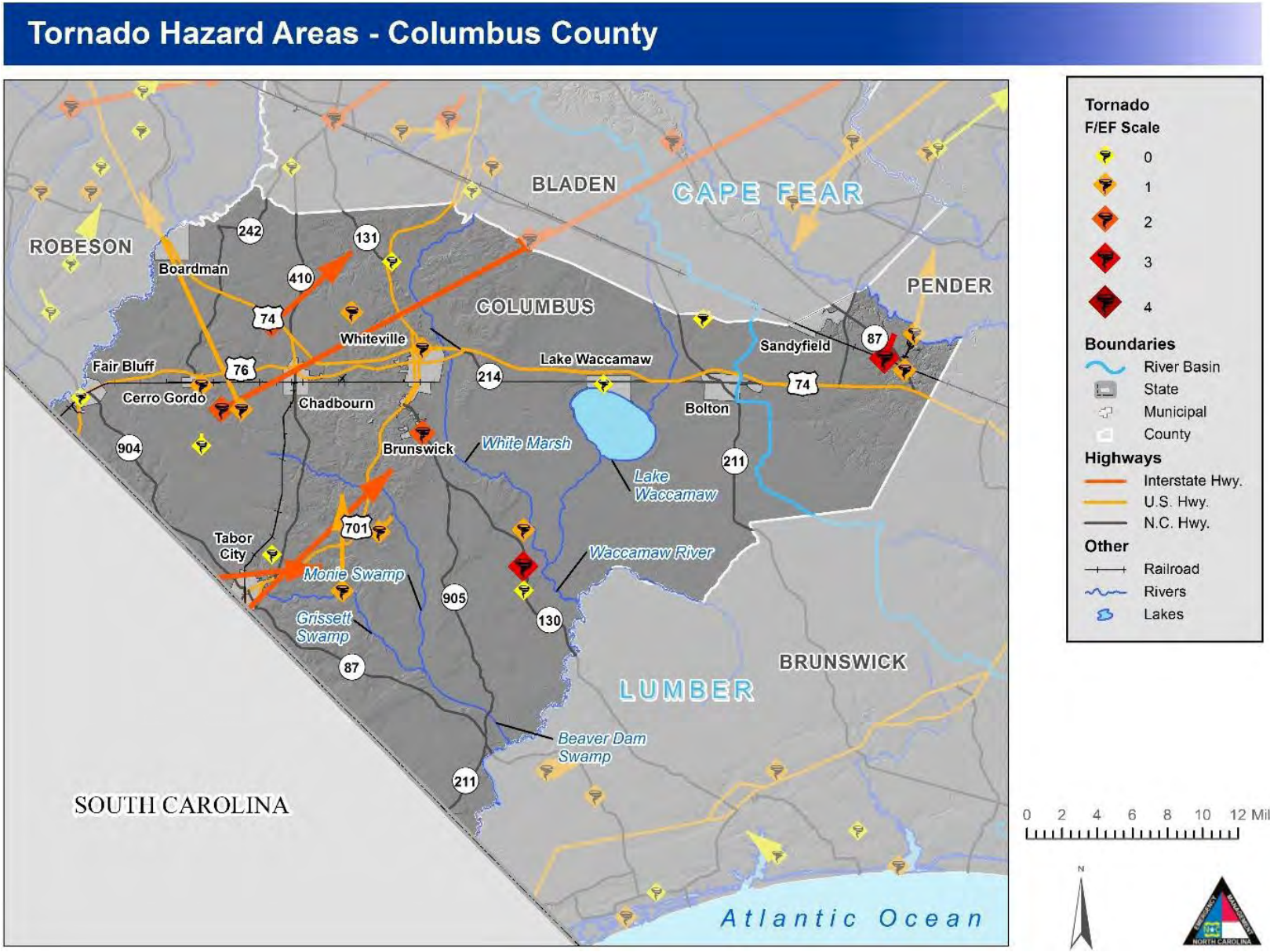


Figure 5-66: Tornado Hazard Areas – Columbus County

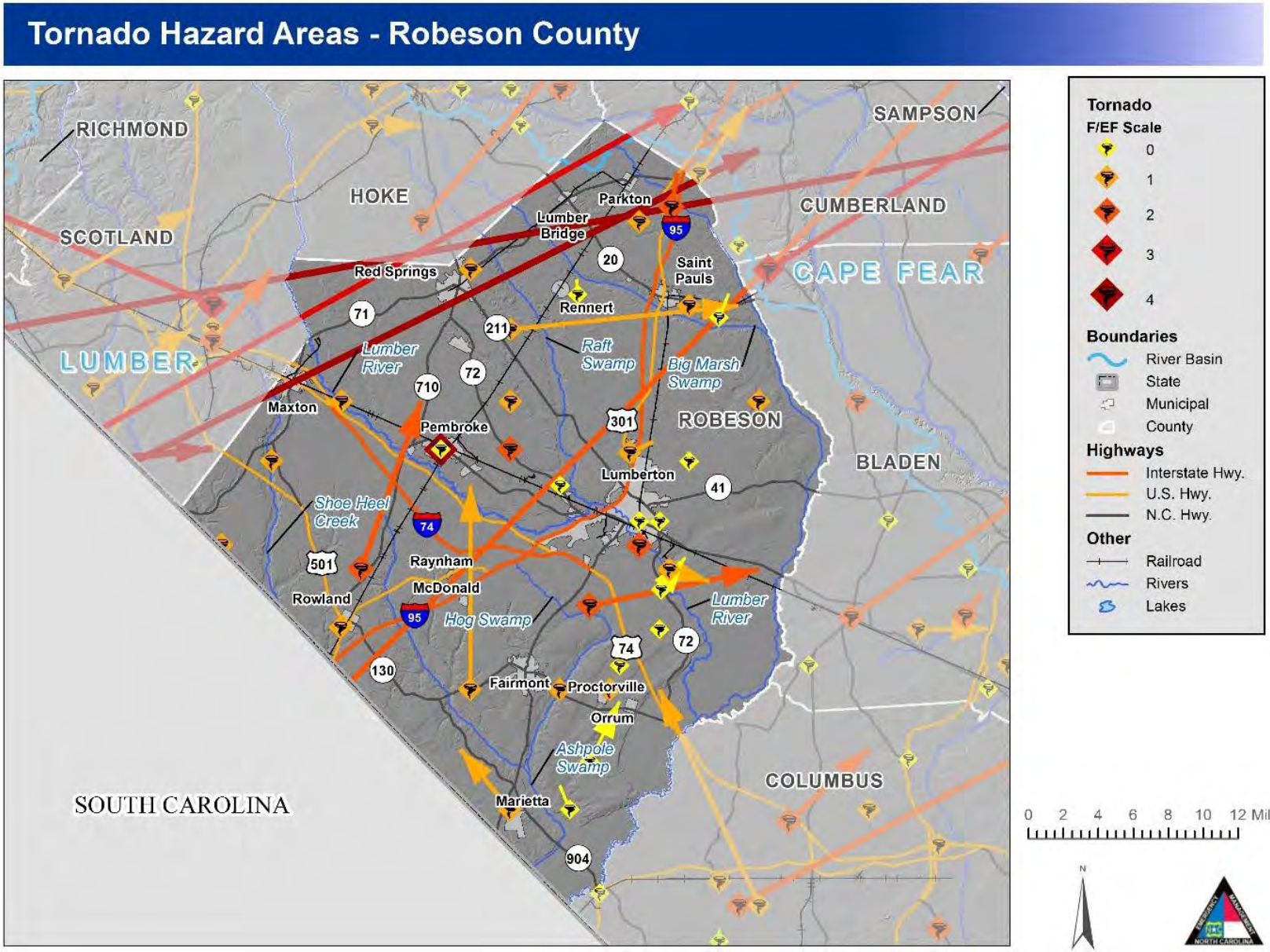


Figure 5-67: Tornado Hazard Areas – Robeson County

Tornado hazard extent is measured by tornado occurrences in the US provided by the Fujita/Enhanced Fujita Scale. The following table provides the highest recorded events in the jurisdictions (except Clarkton, Dublin, East Arcadia, Tarheel, White Lake, Boardman, Bolton, Brunswick, Chadbourn, Sandyfield, Lumber Bridge, Maxton, McDonald, Orrum, Parkton, Proctorville, Raynham, Rennert, and Rowland; which haven't experienced tornadoes in their jurisdictions) in the Region below:

Table 5-22: NCEI Tornado Event Extent by Jurisdiction

Jurisdiction	Event Date	Magnitude
Bladen County (Unincorporated)	04/06/09	EF2
Bladen County (Unincorporated)	04/16/11	EF2
Columbus County (Unincorporated)	10/09/50	EF3
Robeson County (Unincorporated)	04/08/57	EF4
City of Lumberton	07/19/63	EF2
City of Whiteville	04/17/06	EF1
Town of Bladenboro	04/16/11	EF2
Town of Cerro Gordo	03/03/91	EF1
Town of Elizabethtown	09/11/60	EF1
Town of Fair Bluff	03/15/08	EF0
Town of Fairmont	09/29/63	EF2
Town of Lake Waccamaw	07/02/03	EF0
Town of Marietta	09/07/04	EF1
Town of Pembroke	04/08/57	EF4
Town of Red Springs	05/15/75	EF1
Town of Saint Pauls	07/05/97	EF1
Town of Tabor City	03/28/84	EF2

5.10.3 Past Occurrences

The following historical occurrences since 1950 have been identified based on the NCEI Storm Events database **Table 5-23**. It should be noted that only those historical occurrences listed in the NCEI database are shown here and that other, unrecorded or unreported events may have occurred within the planning area during this timeframe.

Table 5-23: Historical Tornado Occurrences (1950-2025)

Location	Date	Magnitude	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Bladen County						
Bladen County (Unincorporated Area)	03/04/66	EF1	0	0	$25,000	$0
Bladen County (Unincorporated Area)	08/21/79	EF0	0	0	$30	$0
Bladen County (Unincorporated Area)	03/28/84	EF3	0	0	$25,000,000	$0
Bladen County (Unincorporated Area)	07/01/90	EF2	0	0	$250,000	$0
Bladen County (Unincorporated Area)	05/11/96	EF0	0	0	$0	$0
Bladen County (Unincorporated Area)	11/08/96	EF0	0	0	$0	$0
Bladen County (Unincorporated Area)	12/07/96	EF0	0	0	$5,000	$0
Bladen County (Unincorporated Area)	10/26/97	EF1	0	0	$250,000	$0
Bladen County (Unincorporated Area)	06/13/98	EF1	0	0	$0	$0
Bladen County (Unincorporated Area)	06/13/98	EF1	0	0	$25,000	$0
Bladen County (Unincorporated Area)	04/15/99	EF2	0	5	$200,000	$0
Bladen County (Unincorporated Area)	07/02/03	EF1	0	0	$20,000	$10,000
Bladen County (Unincorporated Area)	10/25/07	EF0	0	0	$0	$0
Bladen County (Unincorporated Area)	03/28/09	EF2	0	0	$200,000	$0
Bladen County (Unincorporated Area)	03/28/09	EF0	0	0	$1,000	$0
Bladen County (Unincorporated Area)	04/06/09	EF2	0	0	$300,000	$0
Bladen County (Unincorporated Area)	04/16/11	EF2	3	0	$1,000,000	$0
Bladen County (Unincorporated Area)	04/16/11	EF2	0	4	$250,000	$0
Bladen County (Unincorporated Area)	04/28/11	EF0	0	0	$0	$0
Bladen County (Unincorporated Area)	04/28/11	EF0	0	0	$0	$0
Bladen County (Unincorporated Area)	08/21/11	EF0	0	0	$0	$0
Bladen County (Unincorporated Area)	10/01/12	EF0	0	0	$2,500	$0
Bladen County (Unincorporated Area)	10/01/12	EF0	0	0	$4,000	$0
Bladen County (Unincorporated Area)	09/05/19	EF0	0	0	$20,000	$0
Bladen County (Unincorporated Area)	06/02/21	EF0	0	0	$0	$0
Bladen County (Unincorporated Area)	09/27/24	EF1	0	0	$0	$0
Town of Bladenboro	04/16/11	EF2	1	0	$3,100,000	$0
Town of Clarkton	09/27/24	EF0	0	0	$3,000	$3,000

Location	Date	Magnitude	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Town of Elizabethtown	09/11/60	EF1	0	0	$25,000	$0
Town of White lake	09/27/24	EF0	0	0	$0	$0
Subtotal Bladen	***30 Events***	--	***4***	***9***	***$30,680,530***	***$13,000***
Columbus County						
City of Whiteville	04/17/06	EF1	0	0	$10,000	$0
City of Whiteville	04/28/11	EF0	0	0	$0	$0
Columbus County (Unincorporated Area)	10/09/50	EF3	0	3	$250,000	$0
Columbus County (Unincorporated Area)	06/02/59	EF1	0	0	$25,000	$0
Columbus County (Unincorporated Area)	10/04/64	EF2	0	0	$250,000	$0
Columbus County (Unincorporated Area)	12/01/67	EF2	0	0	$0	$0
Columbus County (Unincorporated Area)	09/06/74	EF1	0	2	$250,000	$0
Columbus County (Unincorporated Area)	05/24/75	EF1	0	0	$2,500	$0
Columbus County (Unincorporated Area)	06/07/83	EF2	0	0	$250,000	$0
Columbus County (Unincorporated Area)	03/03/91	EF0	0	0	$0	$0
Columbus County (Unincorporated Area)	04/26/96	EF0	0	0	$0	$0
Columbus County (Unincorporated Area)	03/08/98	EF0	0	0	$20,000	$0
Columbus County (Unincorporated Area)	09/07/04	EF1	0	0	$700,000	$0
Columbus County (Unincorporated Area)	05/20/05	EF1	0	0	$200,000	$0
Columbus County (Unincorporated Area)	11/16/06	EF3	8	20	$500,000	$0
Columbus County (Unincorporated Area)	04/16/11	EF0	0	0	$0	$0
Columbus County (Unincorporated Area)	04/16/11	EF1	0	0	$35,000	$0
Columbus County (Unincorporated Area)	04/28/11	EF0	0	0	$27,000	$0
Columbus County (Unincorporated Area)	10/01/12	EF0	0	0	$4,000	$500
Columbus County (Unincorporated Area)	10/01/12	EF0	0	0	$10,000	$0
Columbus County (Unincorporated Area)	05/21/15	EF1	0	0	$75,000	$0
Columbus County (Unincorporated Area)	09/16/18	EF1	0	0	$250,000	$0
Columbus County (Unincorporated Area)	09/05/19	EF0	0	0	$30,000	$0
Columbus County (Unincorporated Area)	04/13/20	EF1	0	0	$100,000	$0
Columbus County (Unincorporated Area)	10/11/20	EF1	0	0	$60,000	$0
Columbus County (Unincorporated Area)	06/02/21	EF0	0	0	$200,000	$0

Location	Date	Magnitude	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Columbus County (Unincorporated Area)	05/14/24	EF0	0	0	$20,000	$0
Columbus County (Unincorporated Area)	05/14/24	EF0	0	0	$1,000	$0
Town of Cerro Gordo	03/03/91	EF1	0	3	$250,000	$0
Town of Chadbourn	12/24/20	EF0	0	0	$1,000	$0
Town of Fair Bluff	03/15/08	EF0	0	0	$0	$0
Town of Lake Waccamaw	07/02/03	EF0	0	0	$5,000	$0
Town of Tabor City	03/28/84	EF2	0	0	$2,500,000	$0
Subtotal Columbus	***33 Events***	--	***8***	***28***	***$6,025,500***	***$500***
Robeson County						
City of Lumberton	07/19/63	EF2	0	0	$25,000	$0
City of Lumberton	09/06/96	EF0	0	0	$0	$0
City of Lumberton	03/08/98	EF0	0	0	$10,000	$0
City of Lumberton	09/07/04	EF0	0	0	$0	$0
City of Lumberton	04/16/11	EF1	0	0	$3,000,000	$0
Robeson County (Unincorporated Area)	04/08/57	EF4	0	6	$250,000	$0
Robeson County (Unincorporated Area)	04/08/57	EF4	0	8	$250,000	$0
Robeson County (Unincorporated Area)	02/27/58	EF0	0	0	$2,500	$0
Robeson County (Unincorporated Area)	02/19/63	EF1	0	0	$2,500	$0
Robeson County (Unincorporated Area)	02/16/75	EF1	0	1	$25,000	$0
Robeson County (Unincorporated Area)	05/15/75	EF1	0	0	$2,500	$0
Robeson County (Unincorporated Area)	05/15/76	EF2	3	4	$250,000	$0
Robeson County (Unincorporated Area)	03/04/77	EF1	0	4	$250,000	$0
Robeson County (Unincorporated Area)	04/19/78	EF1	0	0	$2,500	$0
Robeson County (Unincorporated Area)	06/03/78	EF1	0	0	$2,500	$0
Robeson County (Unincorporated Area)	03/23/79	EF2	0	9	$250,000	$0
Robeson County (Unincorporated Area)	08/21/79	EF0	0	0	$0	$0
Robeson County (Unincorporated Area)	05/20/80	EF1	0	0	$25,000	$0
Robeson County (Unincorporated Area)	04/14/84	EF1	0	0	$25,000	$0
Robeson County (Unincorporated Area)	09/16/96	EF0	0	0	$0	$0
Robeson County (Unincorporated Area)	03/08/98	EF1	0	3	$100,000	$0

Location	Date	Magnitude	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Robeson County (Unincorporated Area)	03/20/98	EF1	0	1	$20,000	$0
Robeson County (Unincorporated Area)	04/15/99	EF2	1	4	$200,000	$0
Robeson County (Unincorporated Area)	04/15/99	EF1	0	0	$20,000	$0
Robeson County (Unincorporated Area)	08/18/01	EF0	0	0	$25,000	$0
Robeson County (Unincorporated Area)	09/07/04	EF0	0	0	$0	$0
Robeson County (Unincorporated Area)	09/07/04	EF0	0	0	$3,000	$0
Robeson County (Unincorporated Area)	11/15/08	EF0	0	0	$50,000	$0
Robeson County (Unincorporated Area)	03/27/09	EF0	0	0	$5,000	$0
Robeson County (Unincorporated Area)	03/27/09	EF2	0	1	$35,000	$0
Robeson County (Unincorporated Area)	04/16/11	EF1	0	0	$1,500,000	$0
Robeson County (Unincorporated Area)	04/28/11	EF0	0	0	$0	$0
Robeson County (Unincorporated Area)	09/06/11	EF0	0	0	$20,000	$0
Robeson County (Unincorporated Area)	02/21/14	EF0	0	0	$9,000	$0
Robeson County (Unincorporated Area)	06/27/15	EF1	0	0	$40,000	$0
Robeson County (Unincorporated Area)	06/27/15	EF1	0	0	$20,000	$0
Robeson County (Unincorporated Area)	05/23/17	EF0	0	0	$100,000	$0
Robeson County (Unincorporated Area)	09/16/18	EF0	0	0	$0	$0
Robeson County (Unincorporated Area)	09/16/18	EF0	0	0	$0	$0
Robeson County (Unincorporated Area)	06/17/22	EF0	0	0	$0	$0
Robeson County (Unincorporated Area)	05/14/24	EF0	0	0	$0	$0
Robeson County (Unincorporated Area)	05/14/24	EF0	0	0	$10,000	$0
Robeson County (Unincorporated Area)	05/14/24	EF0	0	0	$5,000	$0
Town of Fairmont	09/29/63	EF2	0	0	$250,000	$0
Town of Marietta	09/07/04	EF1	0	0	$200,000	$0
Town of Pembroke	04/08/57	EF4	0	21	$250,000	$0
Town of Pembroke	03/04/77	EF0	0	0	$25,000	$0
Town of Red Springs	05/15/75	EF1	0	0	$25,000	$0
Town of Saint Pauls	07/05/97	EF1	0	0	$20,000	$0
Town of Saint Pauls	02/21/14	EF0	0	0	$11,000	$0
Subtotal Robeson	***50 Events***	--	***4***	***62***	***$7,330,500***	***$0***

Location	Date	Magnitude	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Total Plan	**113 Events**	--	**16**	**99**	**$44,036,530**	**$1,800**

Source: NCEI Storm Events Database

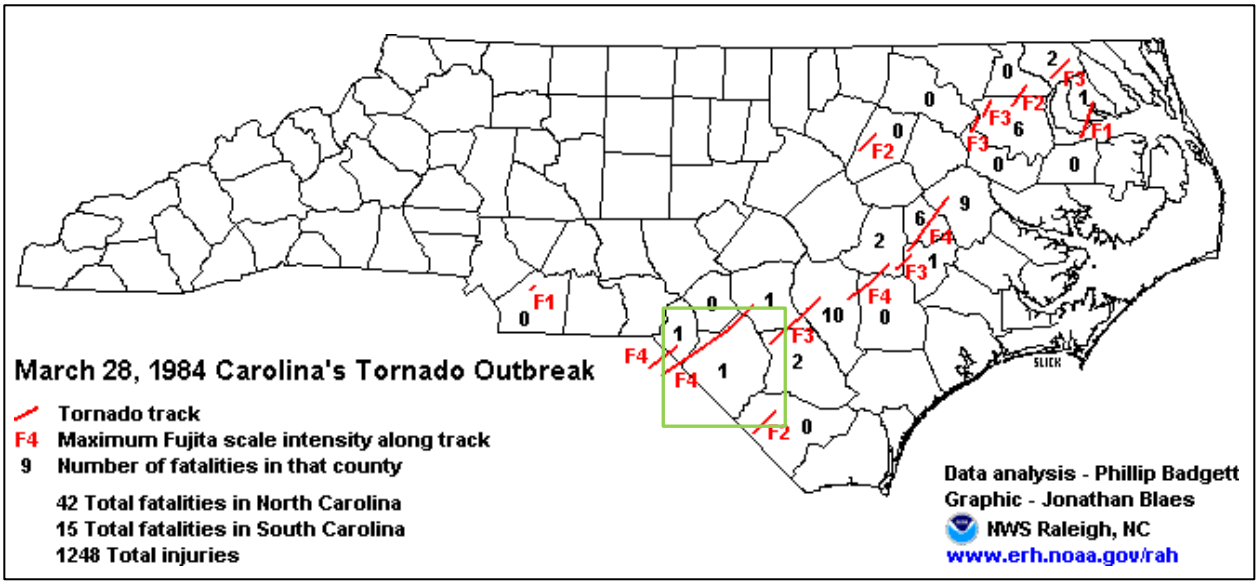
Table 5-24 provides a summary of this information by jurisdiction. It is important to note that many of the events attributed to the county are countywide or cover large areas. The individual counts by jurisdiction are for those events that are only attributed to that one jurisdiction.

Table 5-24: Summary of Historical Tornado Occurrences by Jurisdiction

Jurisdiction	Number of Occurrences	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Bladen County					
Bladen County (Unincorporated Area)	26	3	9	$27,552,530	$10,000
Town of Bladenboro	1	1	0	$3,100,000	$0
Town of Clarkton	1	0	0	$3,000	$3,000
Town of Elizabethtown	1	0	0	$25,000	$0
Town of White lake	1	0	0	$0	$0
Subtotal Bladen	***30***	***4***	***9***	***$30,680,530***	***$13,000***
Columbus County					
City of Whiteville	2	0	0	$10,000	$0
Columbus County (Unincorporated Area)	26	8	25	$3,259,500	$500
Town of Cerro Gordo	1	0	3	$250,000	$0
Town of Chadbourn	1	0	0	$1,000	$0
Town of Fair Bluff	1	0	0	$0	$0
Town of Lake Waccamaw	1	0	0	$5,000	$0
Town of Tabor City	1	0	0	$2,500,000	$0
Subtotal Columbus	***33***	***8***	***28***	***$6,025,500***	***$500***
Robeson County					
City of Lumberton	5	0	0	$3,035,000	$0
Robeson County (Unincorporated Area)	38	4	41	$3,499,500	$0
Town of Fairmont	1	0	0	$250,000	$0
Town of Marietta	1	0	0	$200,000	$0
Town of Pembroke	2	0	21	$275,000	$0
Town of Red Springs	1	0	0	$25,000	$0

Jurisdiction	Number of Occurrences	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Town of Saint Pauls	2	0	0	$31,000	$0
Subtotal Robeson	***50***	***4***	***62***	***$7,330,500***	***$0***
Total Plan	**113**	**16**	**99**	**$44,036,530**	**$1800**

Source: NCEI Storm Events Database



Note: Green square indicates the location of Bladen, Columbus and Robeson Counties.

Figure 5-68: 1984 Tornado Outbreak

5.10.4 Probability of Future Occurrences

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

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability of hazard EF2 event
- Possible: Between 1% and 10% annual probability of hazard EF2 event
- Likely: Between 10% and 100% annual probability of hazard EF2 event
- Highly Likely: 100% annual probability of hazard EF2 event

Jurisdiction	Probability of Future Occurrence
Bladen County (Unincorporated Area)	Likely
Columbus County (Unincorporated Area)	Likely
Robeson County (Unincorporated Area)	Likely
City of Lumberton	Likely
City of Whiteville	Likely
Town of Bladenboro	Likely
Town of Boardman	Likely
Town of Bolton	Likely
Town of Brunswick	Likely
Town of Cerro Gordo	Likely
Town of Chadbourn	Likely
Town of Clarkton	Likely
Town of Dublin	Likely

Jurisdiction	Probability of Future Occurrence
Town of East Arcadia	Likely
Town of Elizabethtown	Likely
Town of Fair Bluff	Likely
Town of Fairmont	Likely
Town of Lake Waccamaw	Likely
Town of Lumber Bridge	Likely
Town of Marietta	Likely
Town of Maxton	Likely
Town of Mcdonald	Likely
Town of Orrum	Likely
Town of Parkton	Likely
Town of Pembroke	Likely
Town of Proctorville	Likely
Town of Raynham	Likely
Town of Red Springs	Likely
Town of Rennert	Likely
Town of Rowland	Likely
Town of Saint Pauls	Likely
Town of Sandyfield	Likely
Town of Tabor City	Likely
Town of Tar Heel	Likely
Town of White Lake	Likely

Source: NCEM RMT & plan risk assessment

5.10.5 Consequence and Impact Analysis (Vulnerability)

Changing Future Conditions

Tornadoes are among the most difficult hazards to investigate related to changing climatic patterns, partially because they are small and short-lived events when compared against wildfires, heat waves, and other hazards with a larger temporal or spatial distribution. However, the clustering of tornado systems has appeared to increase in recent years despite few changes in the total number of systems observed[21]. According to 2022 climate summary data from the NOAA National Centers for Environmental Information, tornadoes can be produced by hurricanes and severe thunderstorm systems, with the largest outbreak of 30 confirmed tornadoes and 24 deaths in North Carolina reported as of April 16, 2011.

[21] Brooks et al. (2014). Increased variability of tornado occurrence in the United States. *Science* **346**(6207). https://doi.org/10.1126/science.1257460

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. In April 2020, more than 10,000 power outages were reported in Robeson County following a storm event that led to tornados in surrounding counties.

Built Environment

The weakest tornadoes, EF0, 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 from windborne debris that tornadoes turn into missiles. Mobile homes are particularly susceptible to damage and fatalities during tornadoes.

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, 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 are most close to repair damage.

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.

5.11 Wildfire

5.11.1 Hazard Description

A wildfire is an uncontained fire that spreads through the environment. Wildfires can 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 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.

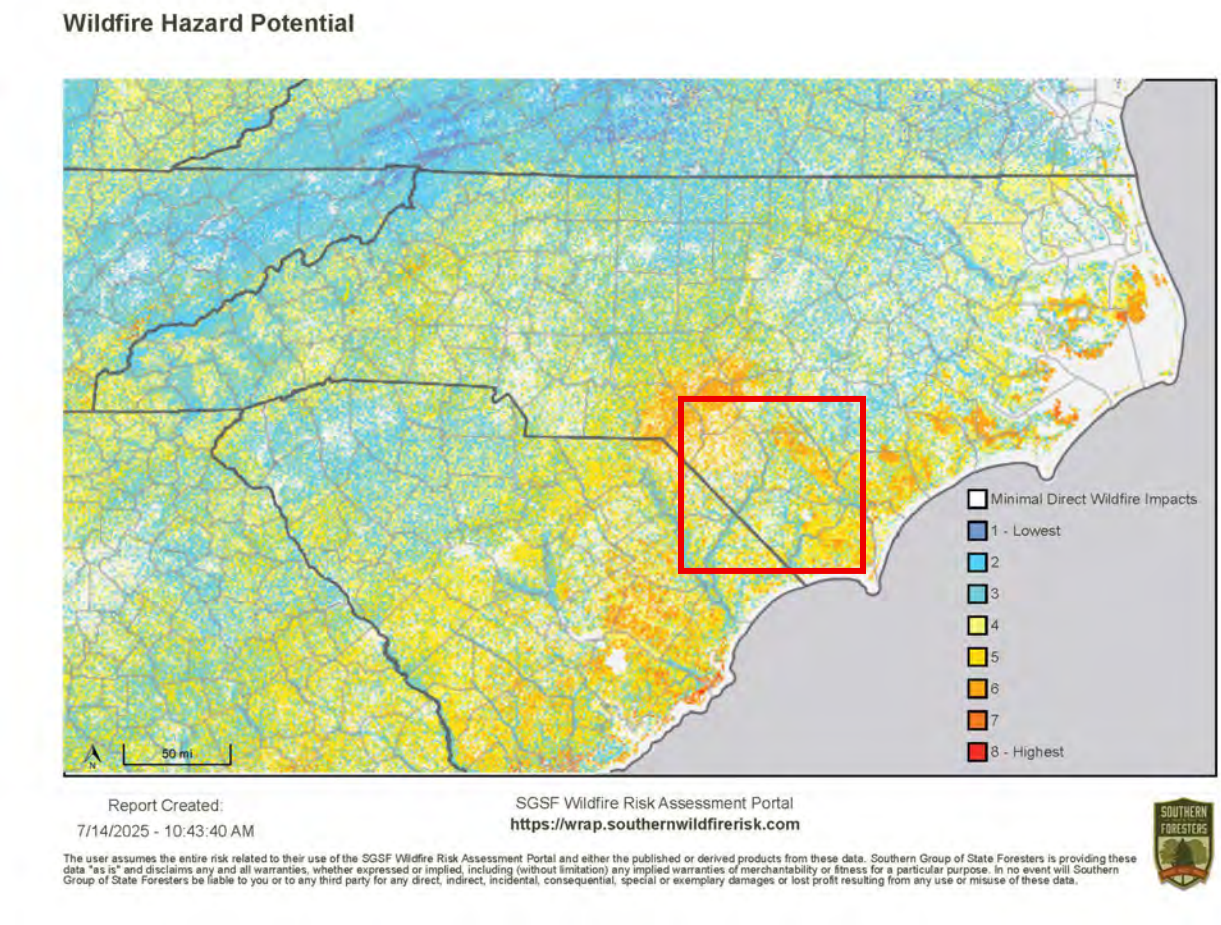
Generally, wildfires are started by humans, either through arson or carelessness. Fire intensity is controlled by both short-term weather conditions and longer-term vegetation conditions. During intense fires, understory vegetation, such as leaves, small branches, and other organic materials that accumulate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

5.11.2 Location and Spatial Extent

The entire region is at risk of a wildfire occurrence. However, several factors such as drought conditions or high levels of fuel on the forest floor may make wildfire more likely. Conversely, areas of high development limit wildfire risk. It is also important to note, areas in the urban-wildland interface (where development abuts forest or open land) are particularly susceptible to wildfire hazard. When large wildfires burn on these open lands, it can be difficult to stop its spread to the built environment, thus endangering structures and population. The expansion of residential development from urban centers 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 or vegetative fuels. Population growth within the WUI substantially increases the risk of wildfire.

To identify specific potential wildfire hazard areas within the planning area, a GIS-based data layer called the Wildland Fire Susceptibility Index (WFSI) was obtained from the North Carolina Forest Service (NCFS). The WFSI is a component layer derived from the Southern Wildfire Risk Assessment (SWRA), a multi-year project to assess and quantify wildfire risk for the 13 Southern states. The WFSI is a value between 0 and 1. It was developed consistently with the mathematical calculation process for determining the probability of an acre burning. The WFSI integrates the probability of an acre igniting and the expected final fire size based on the rate of spread in four weather percentile categories into a single measure of wildland fire susceptibility. Due to some necessary assumptions, mainly fuel homogeneity, it is not the true probability. But since all areas of the planning area have this value determined consistently, it allows for comparison and ordination of areas as to the likelihood of an acre burning.

Wildfire could potentially occur anywhere in the region. **Figure 5-69** below shows areas of the state with a high probability of experiencing a wildfire event. The Region is located within one of the highest probability categories.



Source: Southern Wildfire Risk Assessment (SWRA)

Figure 5-69: North Carolina Wildfire Hazard Potential Map

The figures below illustrate the level of wildfire potential for the planning area based on the WFSI data provided by NCFS. Areas with a WFSI value of 0.01–0.05 were considered to be at moderate risk to the wildfire hazard. Areas with a WFSI value greater than 0.05 were considered to be at high risk to the wildfire hazard. Areas with a WFSI value less than 0.01 were considered to not be at risk to the wildfire hazar

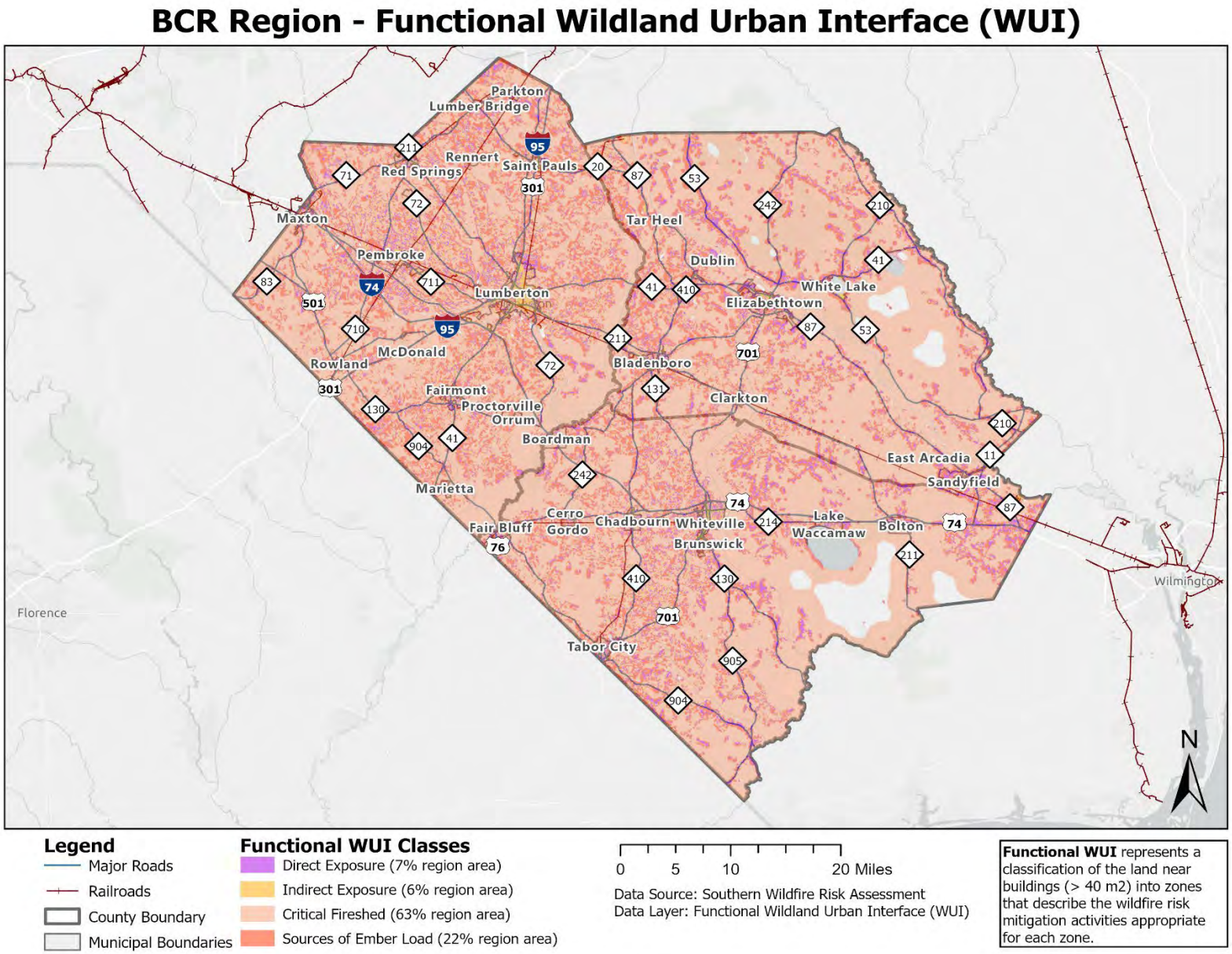


Figure 5-70: Wildfire Hazard Areas – Regional

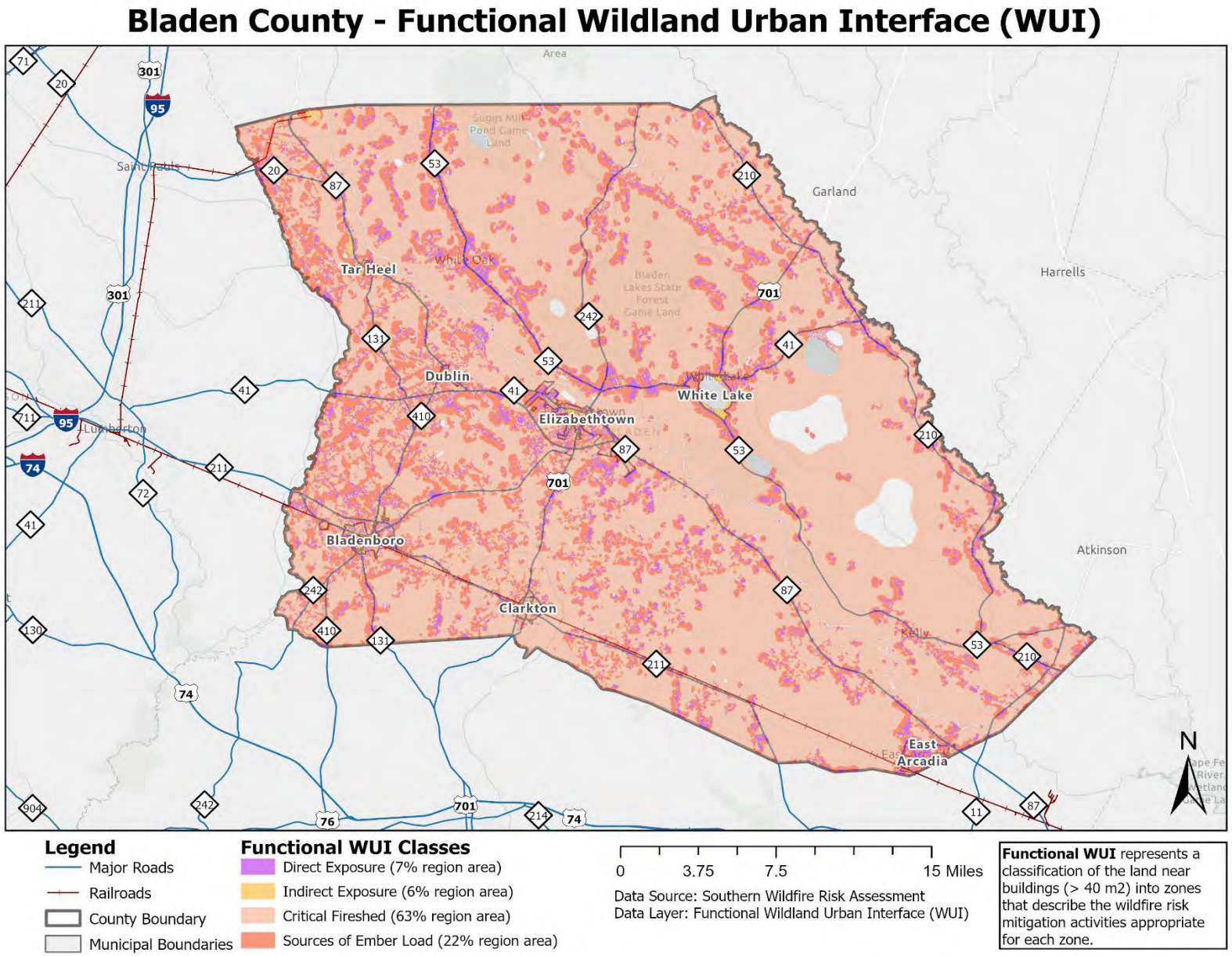


Figure 5-71: Wildfire Hazard Areas – Bladen County

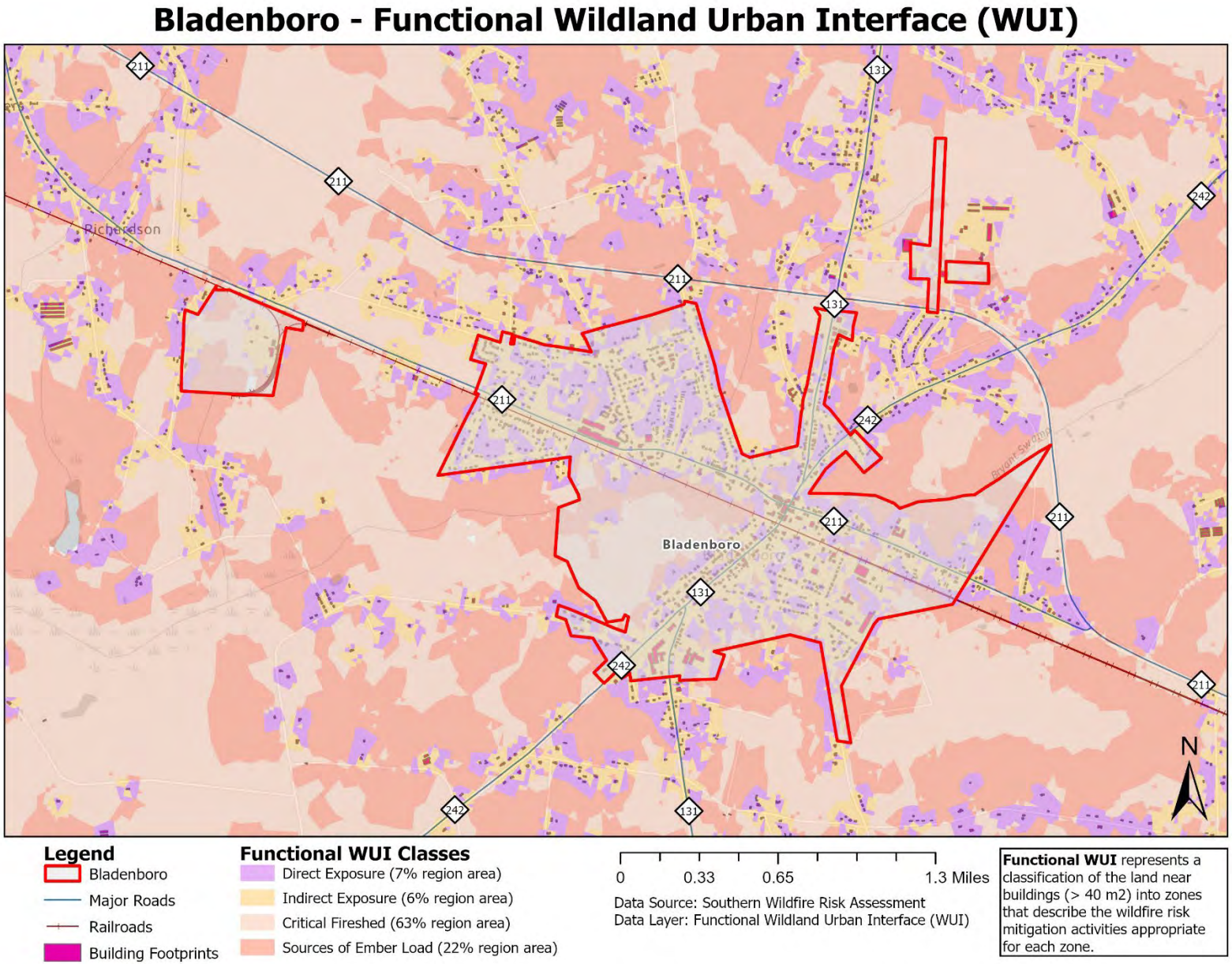


Figure 5-72: Wildfire Hazard Areas – Bladenboro

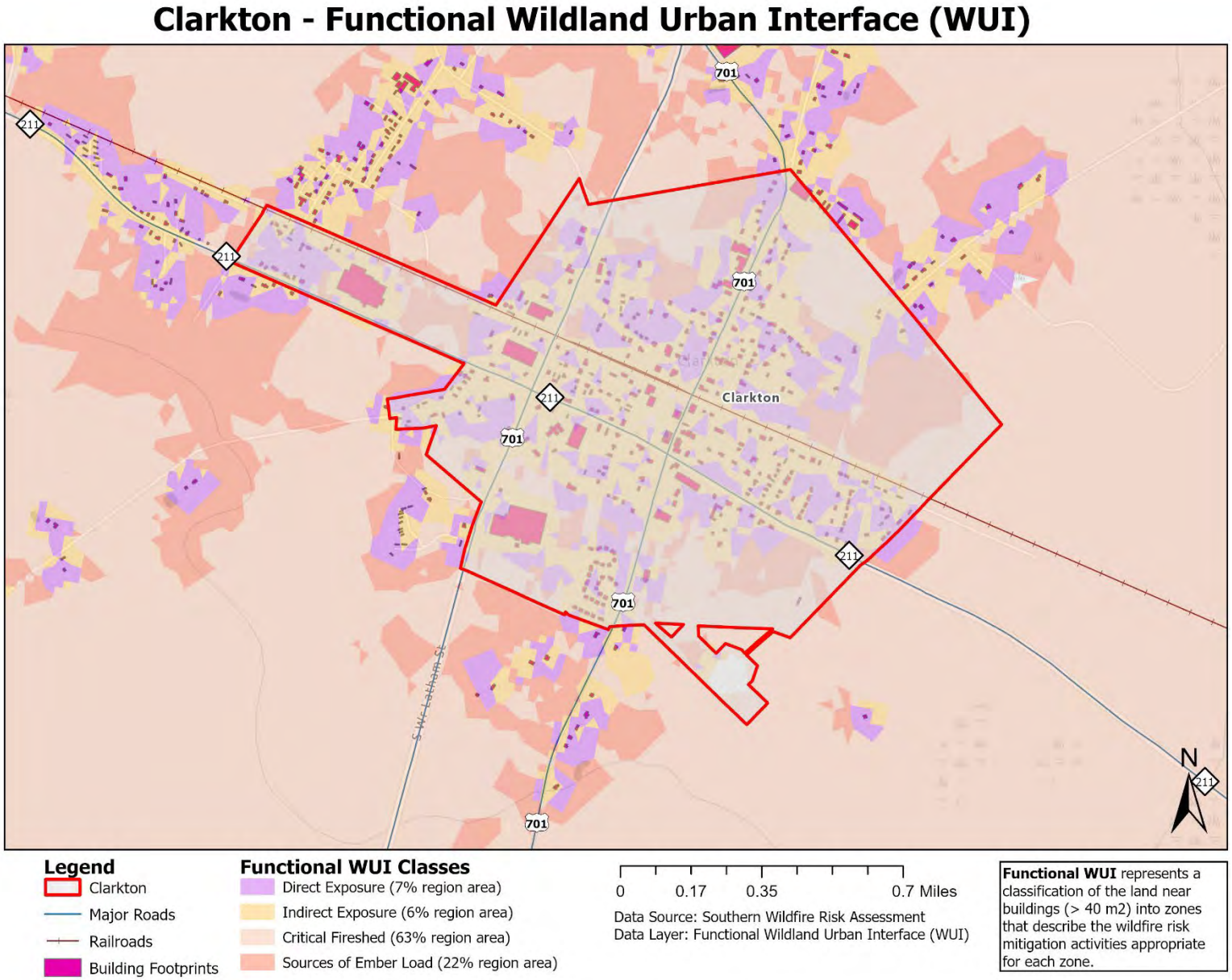


Figure 5-73: Wildfire Hazard Areas – Clarkton

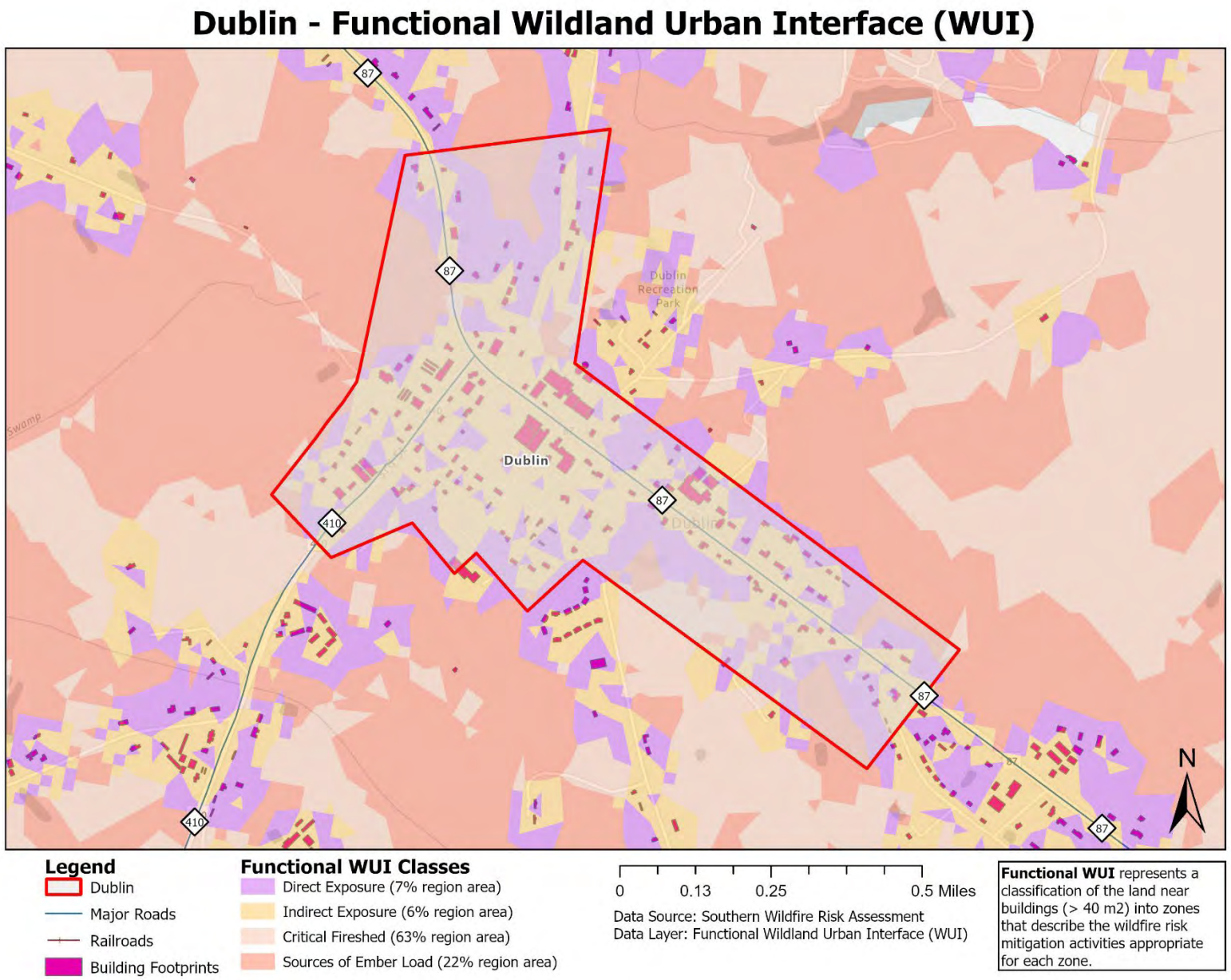


Figure 5-74: Wildfire Hazard Areas – Dublin

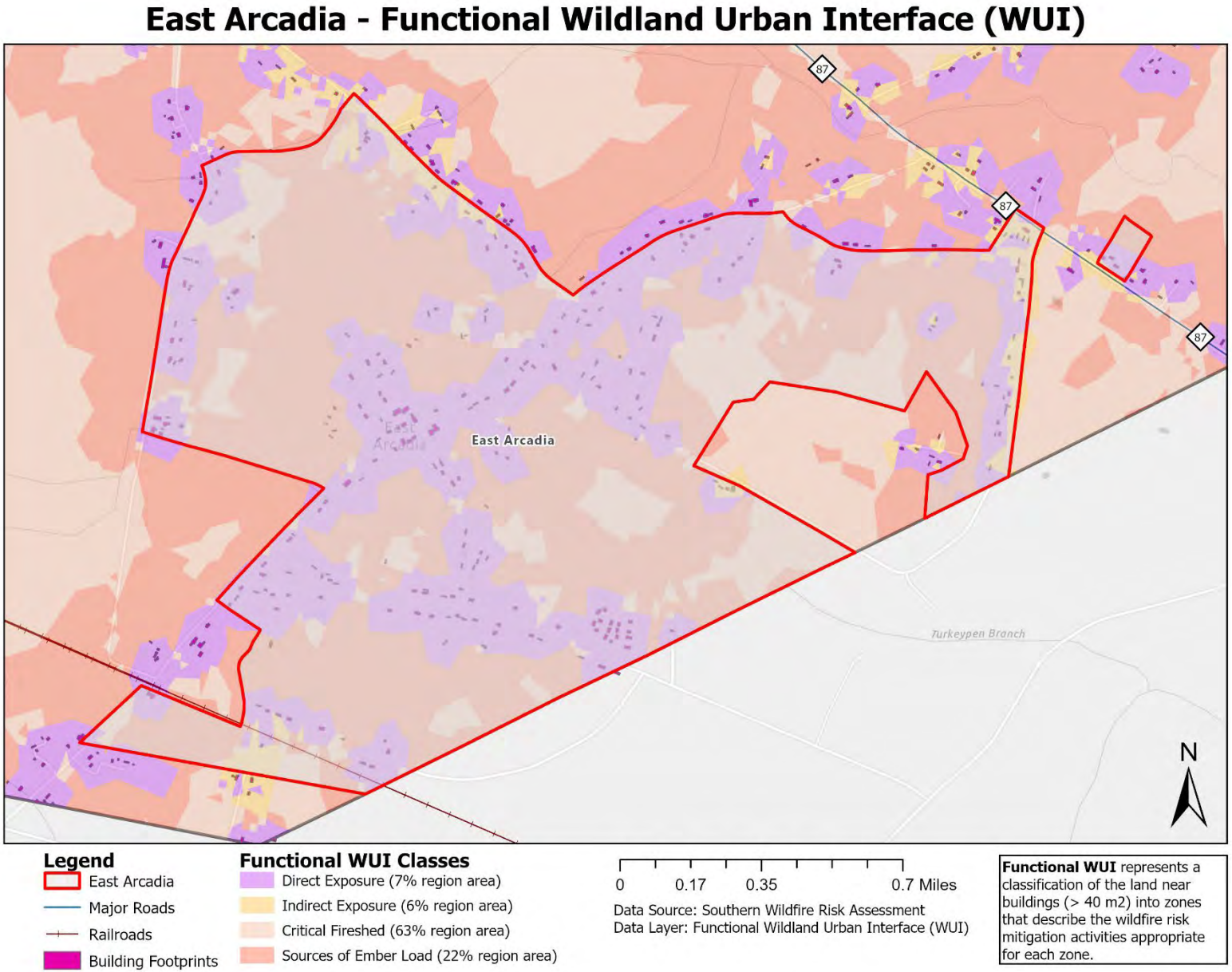


Figure 5-75: Wildfire Hazard Areas – East Arcadia

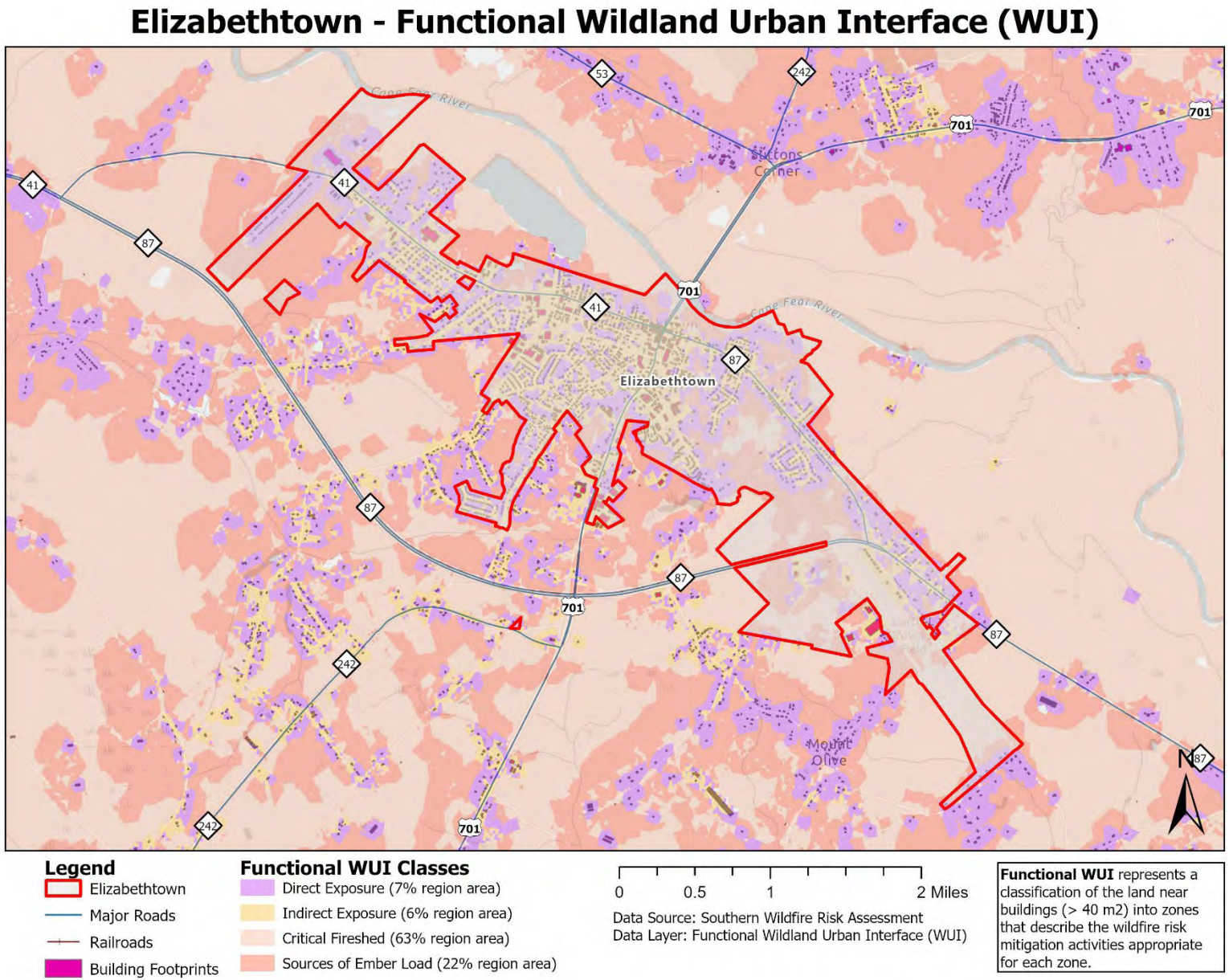


Figure 5-76: Wildfire Hazard Areas – Elizabethtown

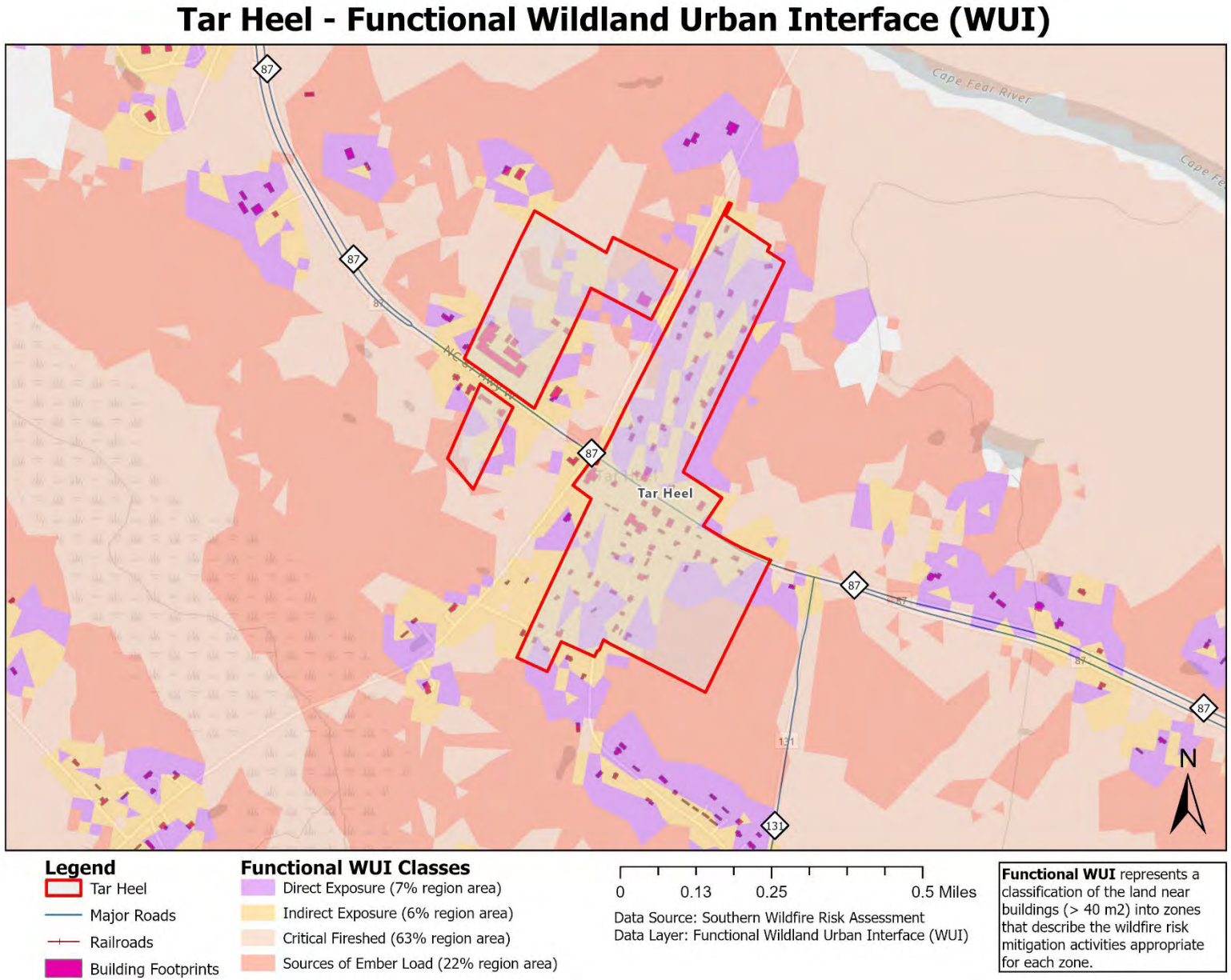


Figure 5-77: Wildfire Hazard Areas – Tar Heel

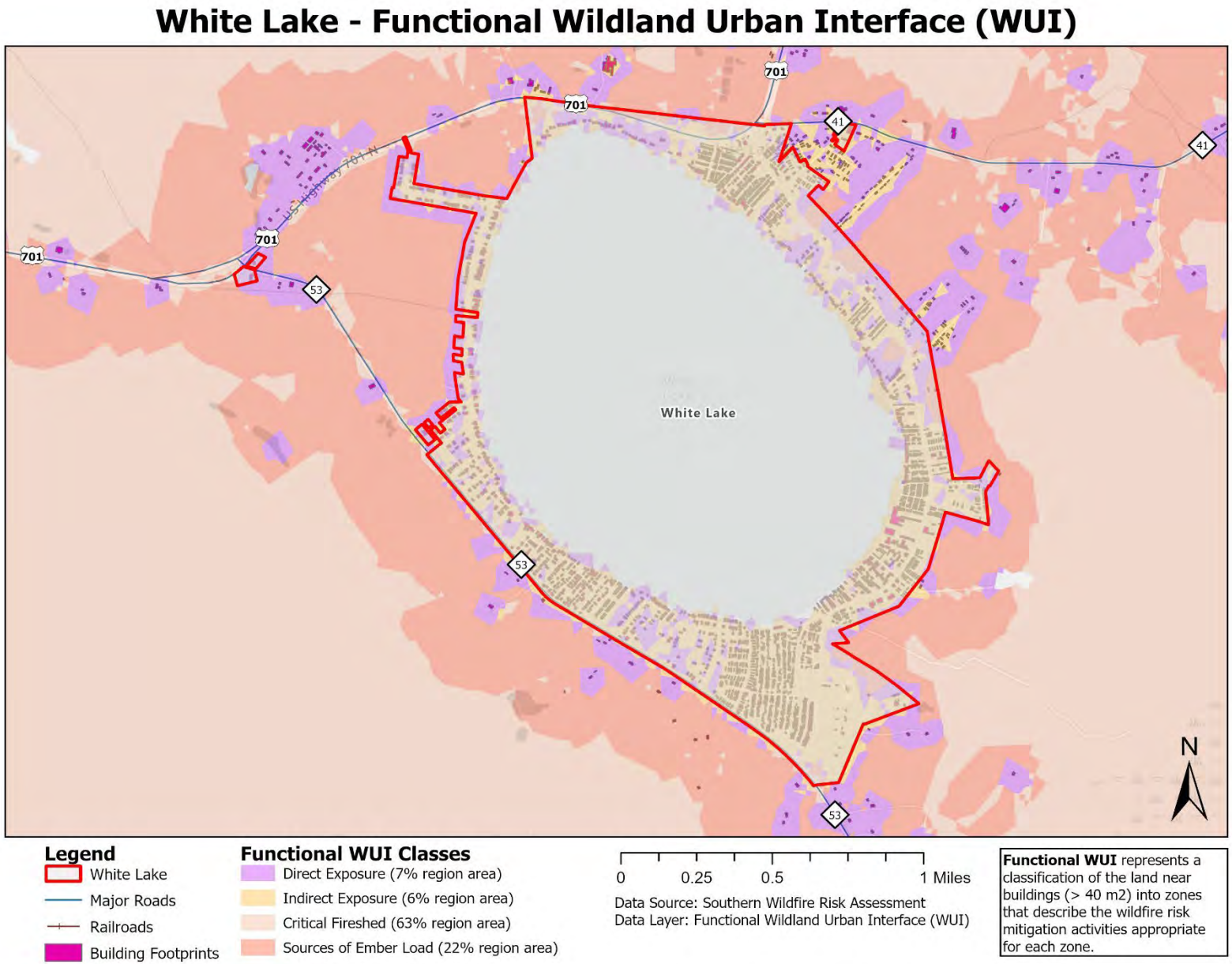


Figure 5-78: Wildfire Hazard Areas – White Lake

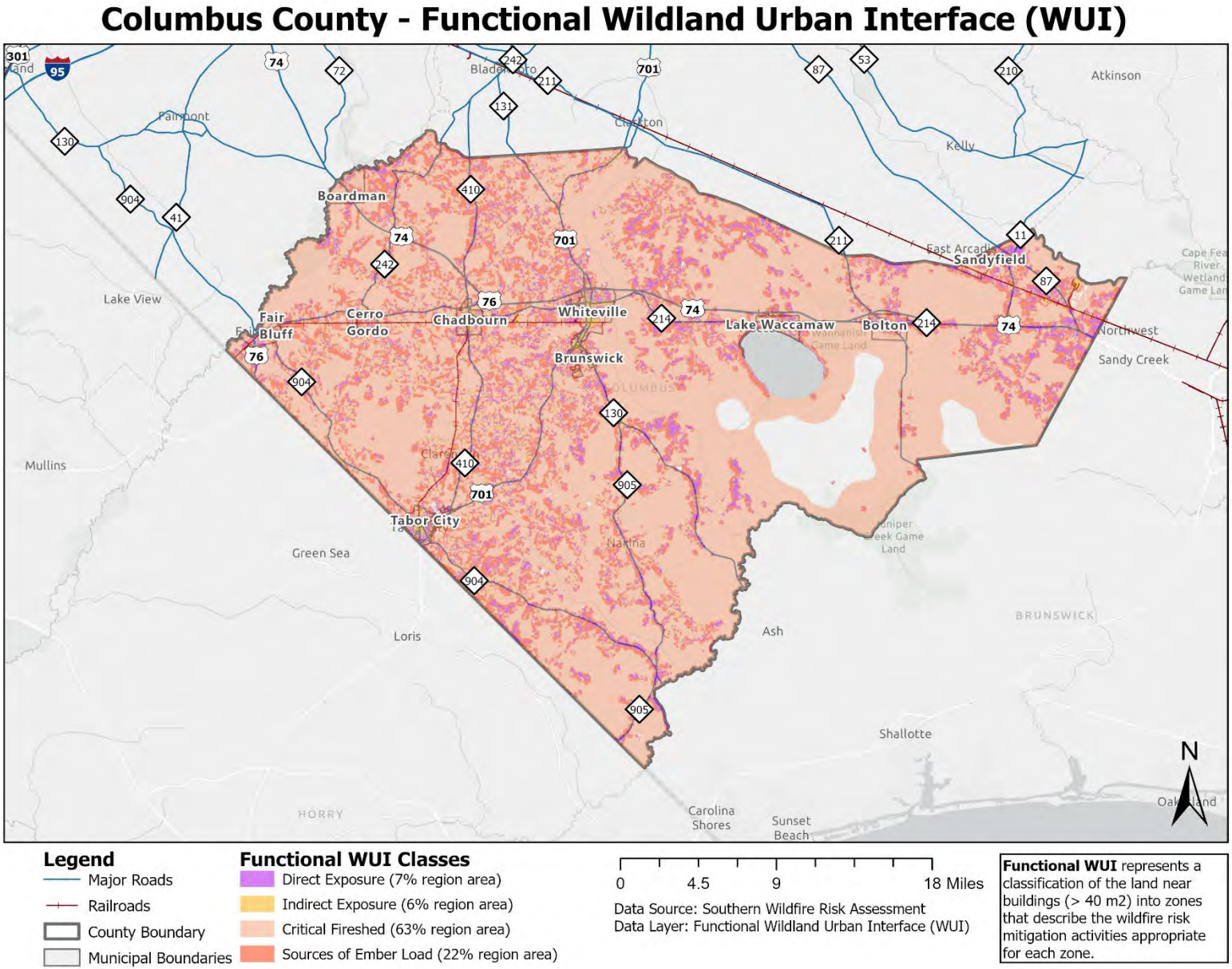


Figure 5-79: Wildfire Hazard Areas – Columbus County

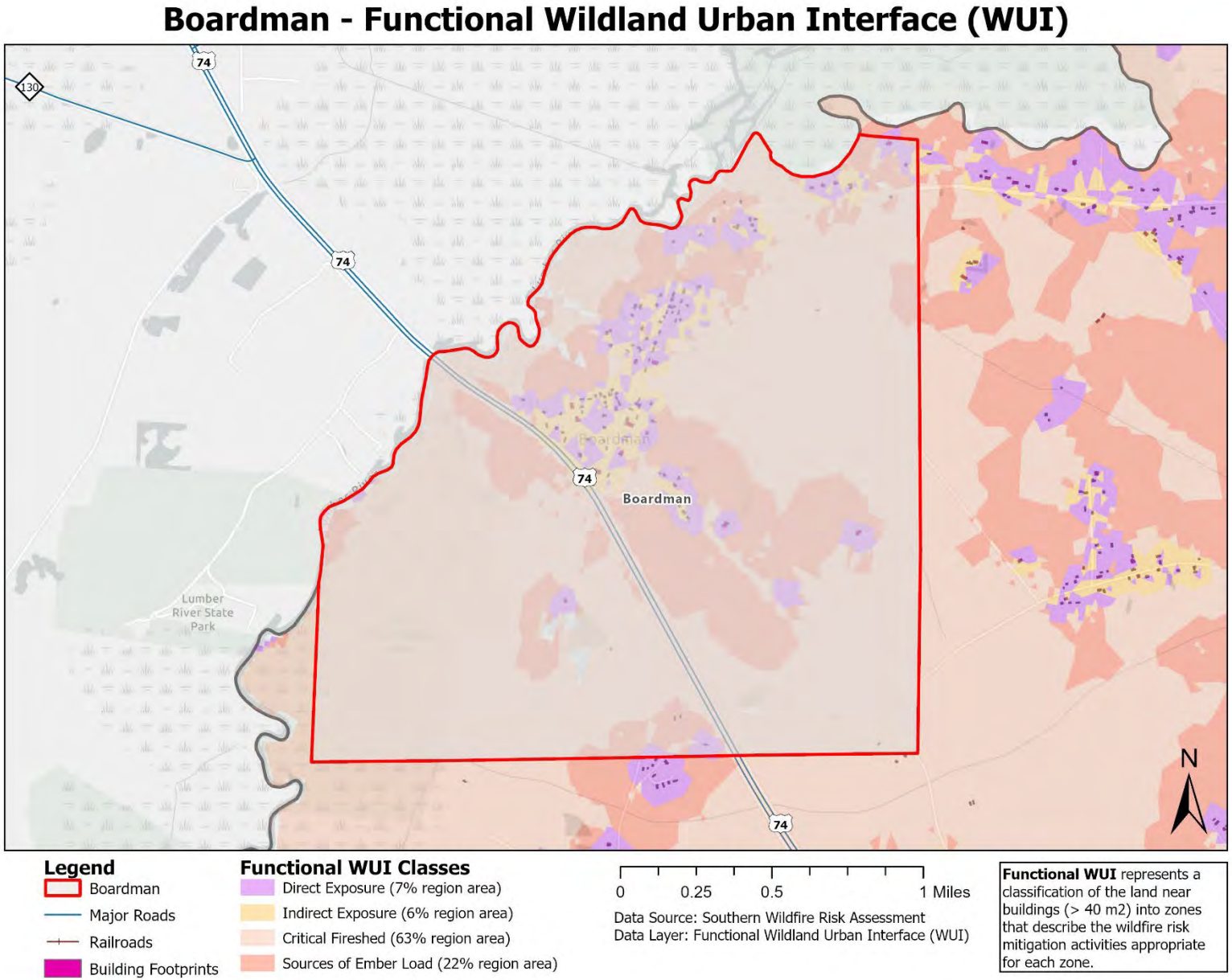


Figure 5-80: Wildfire Hazard Areas – Boardman

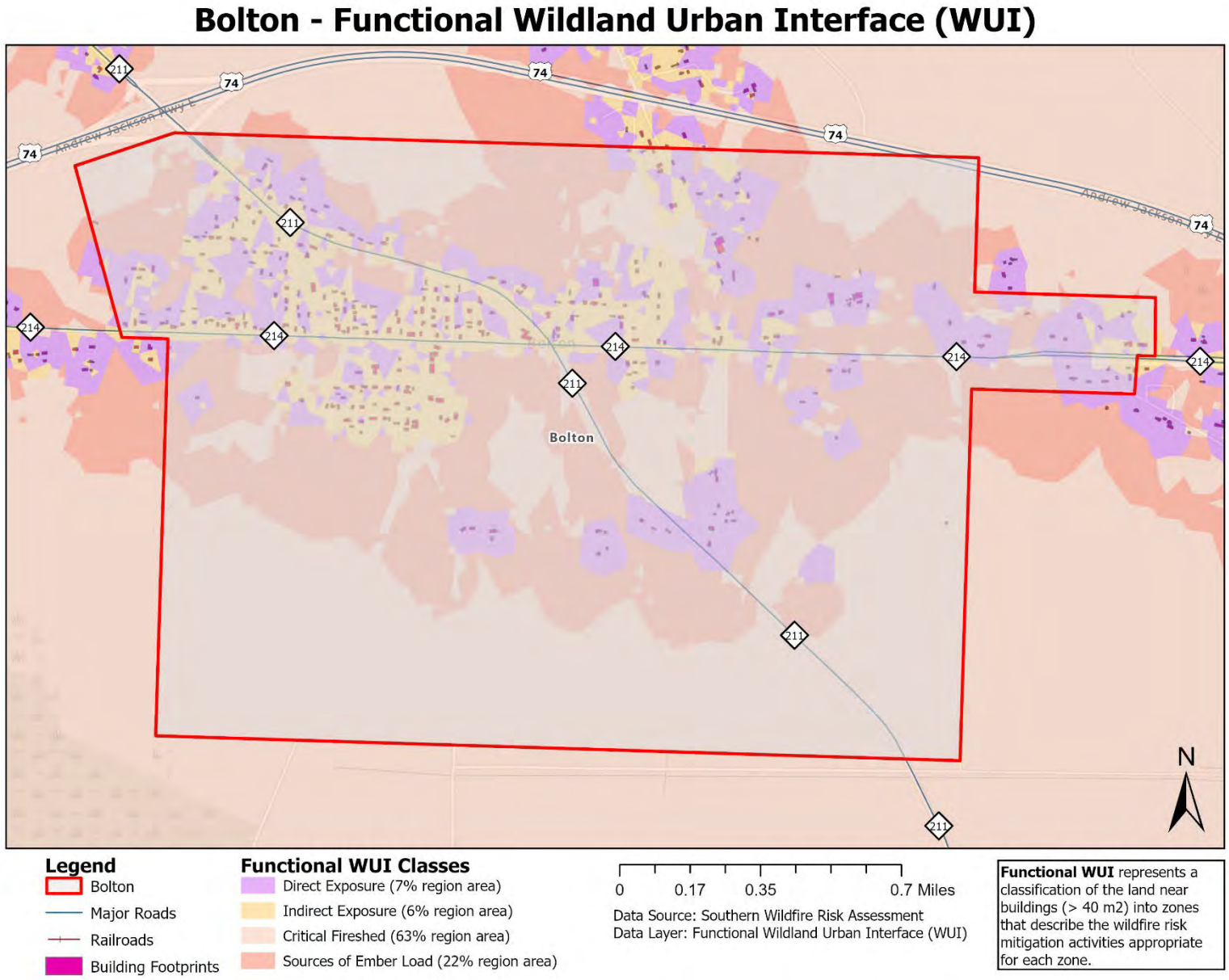


Figure 5-81: Wildfire Hazard Areas – Bolton

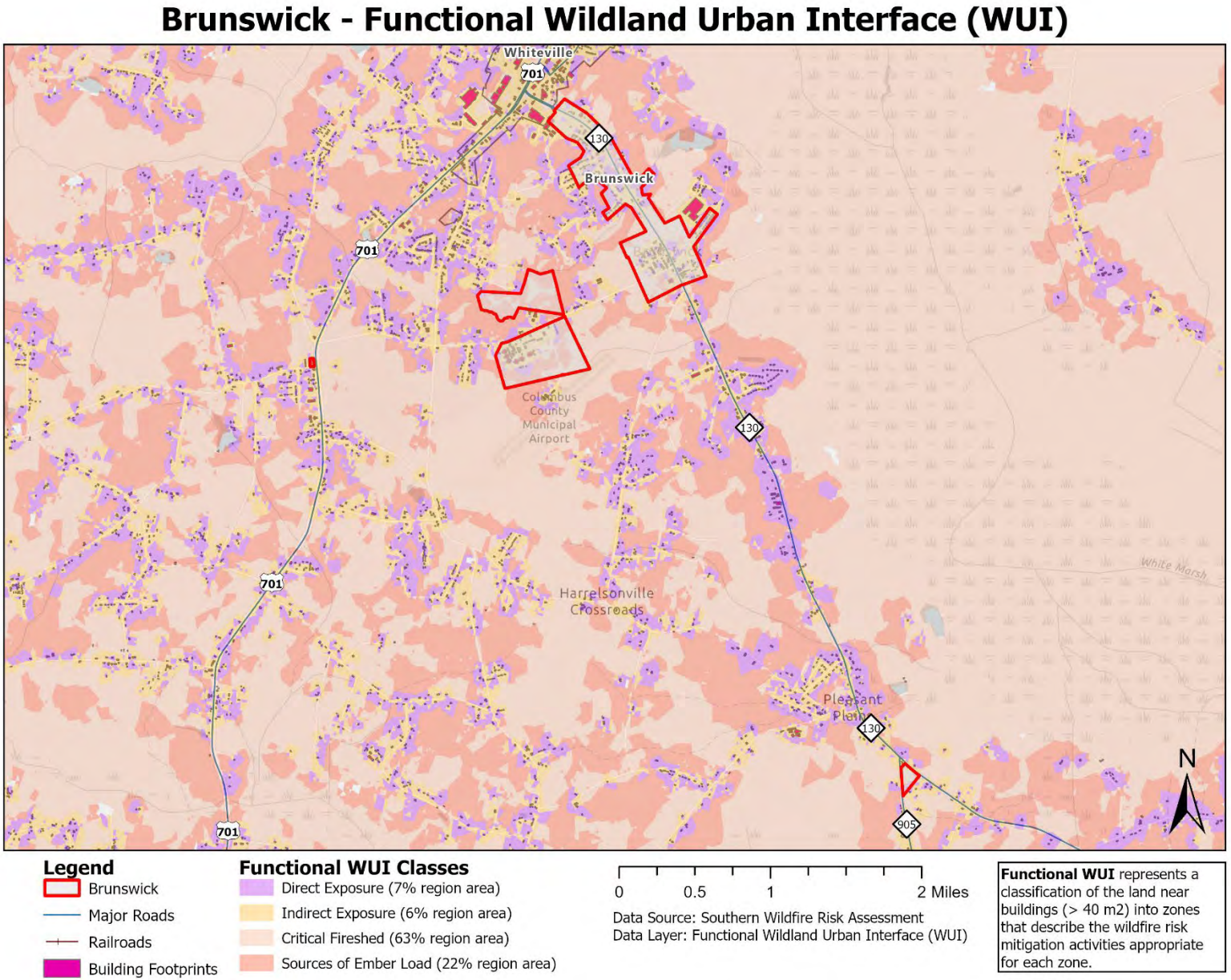


Figure 5-82: Wildfire Hazard Areas – Brunswick

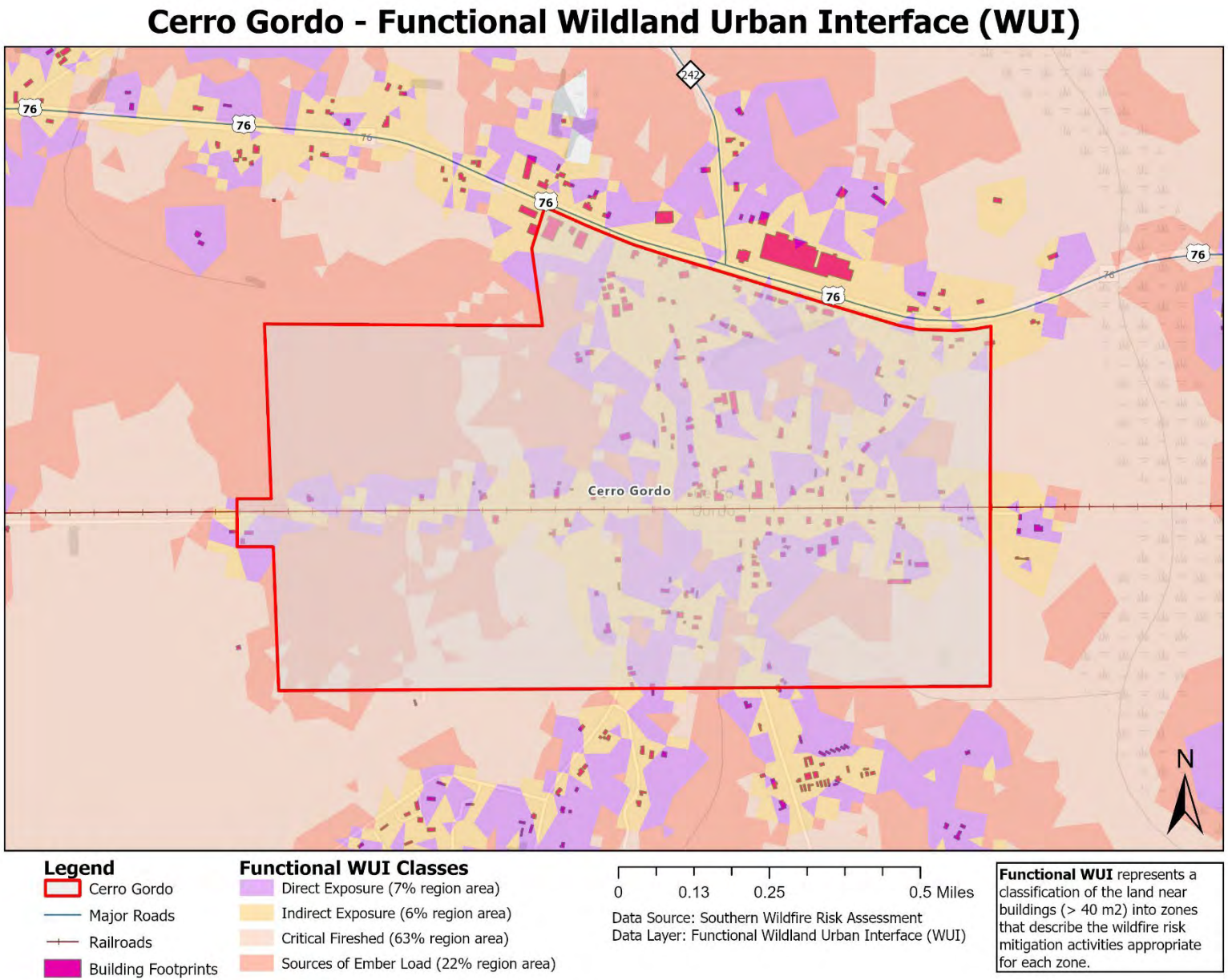


Figure 5-83: Wildfire Hazard Areas – Cerro Gordo

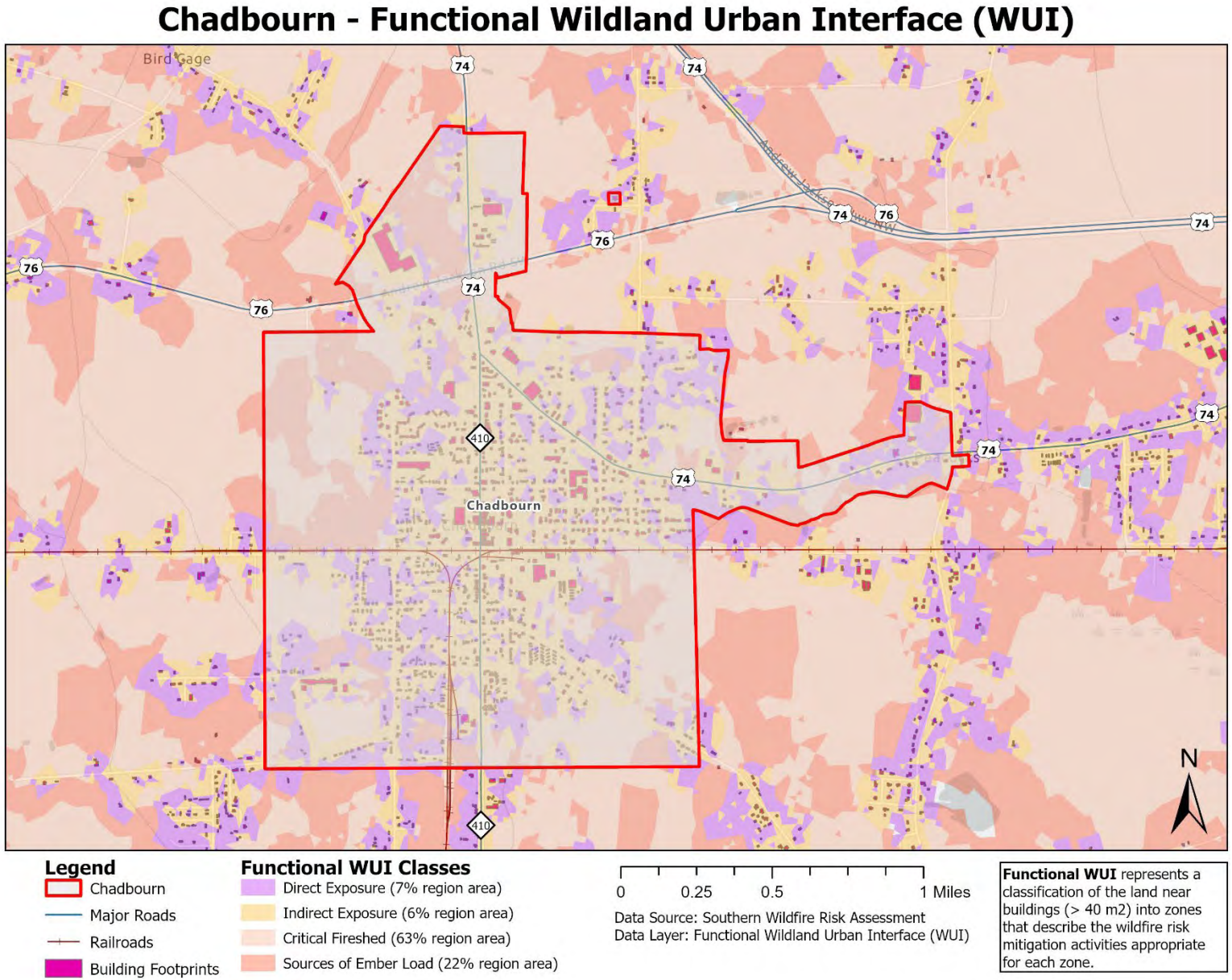


Figure 5-84: Wildfire Hazard Areas – Chadbourn

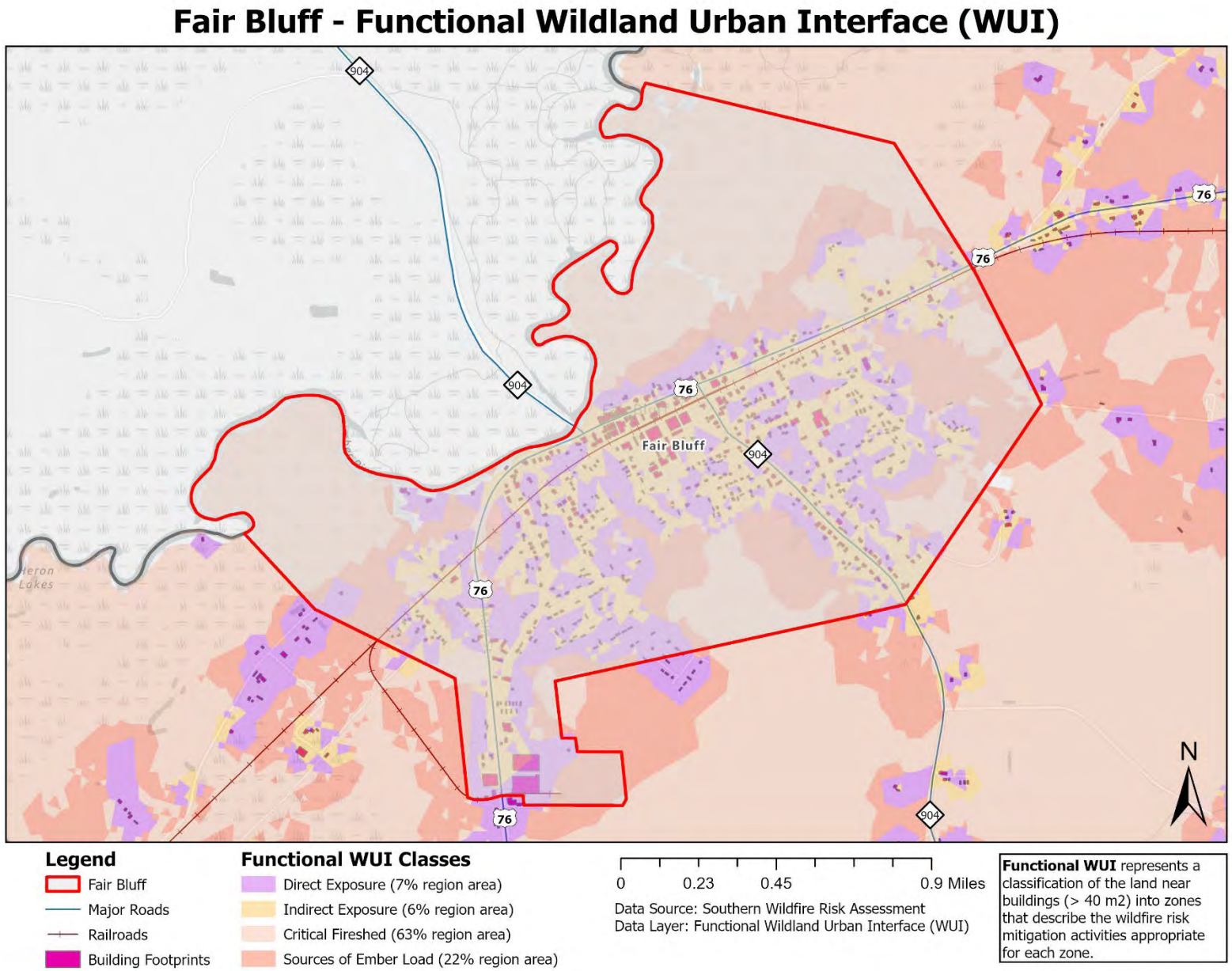


Figure 5-85: Wildfire Hazard Areas – Fair Bluff

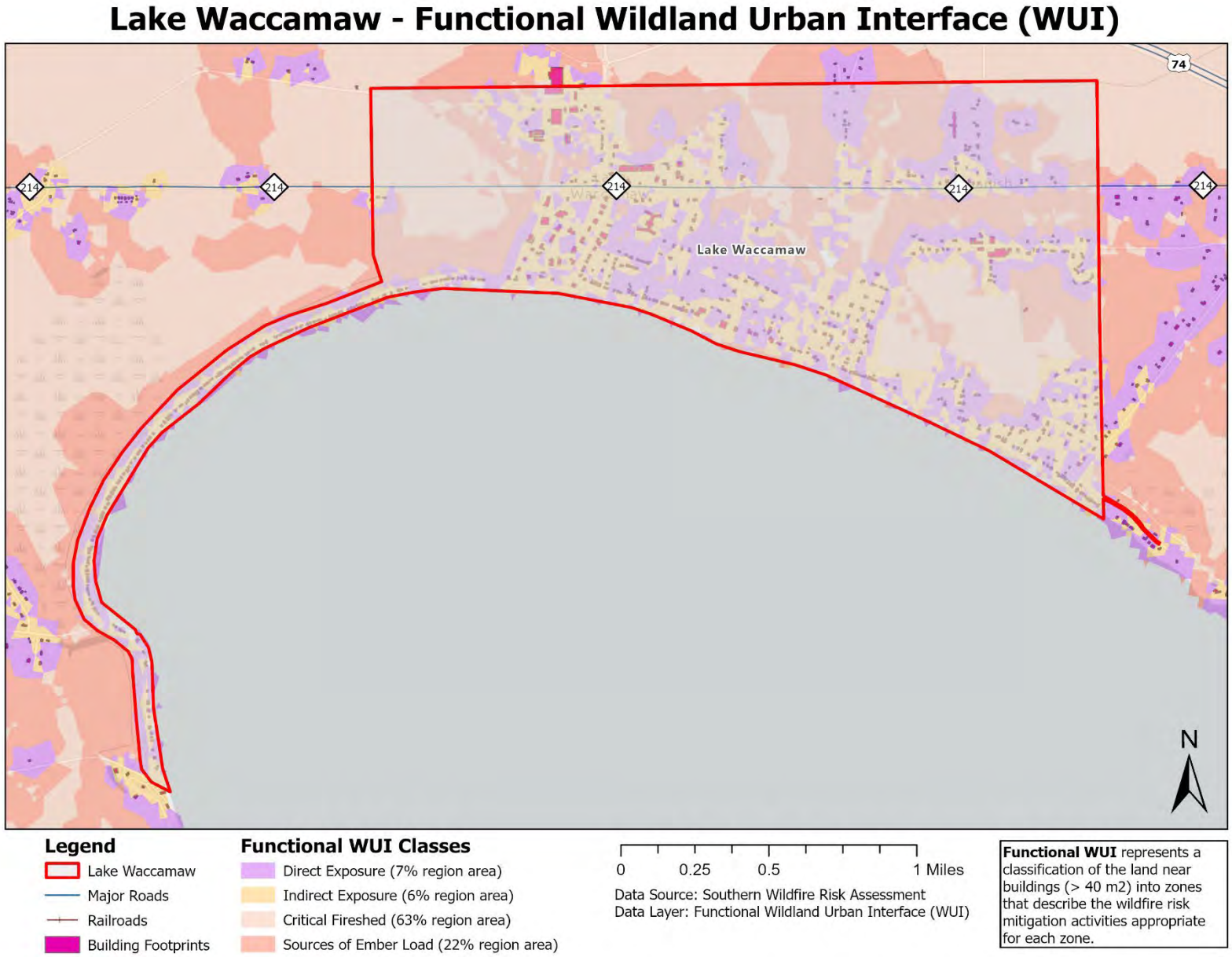


Figure 5-86: Wildfire Hazard Areas – Lake Waccamaw

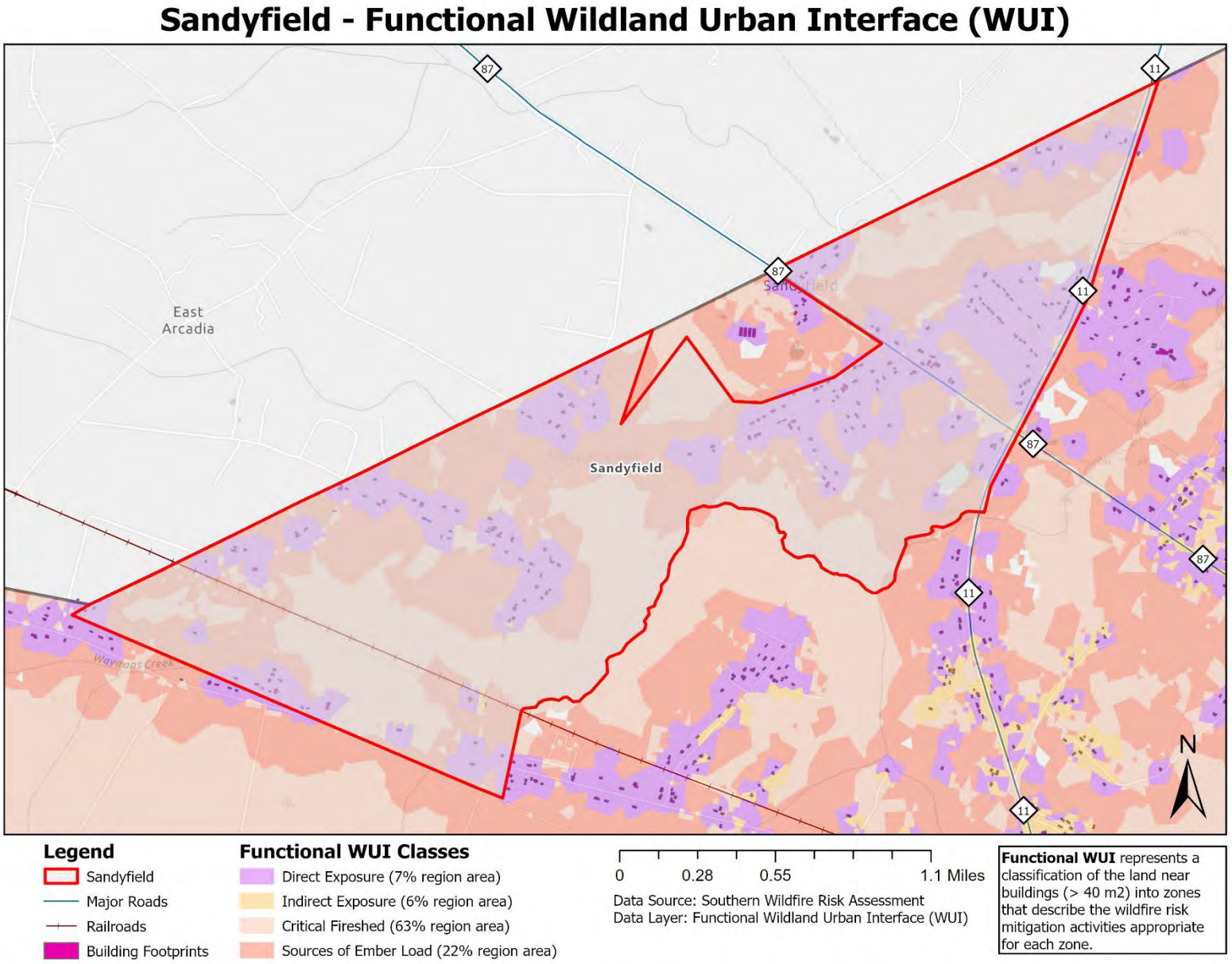


Figure 5-87: Wildfire Hazard Areas – Sandyfield

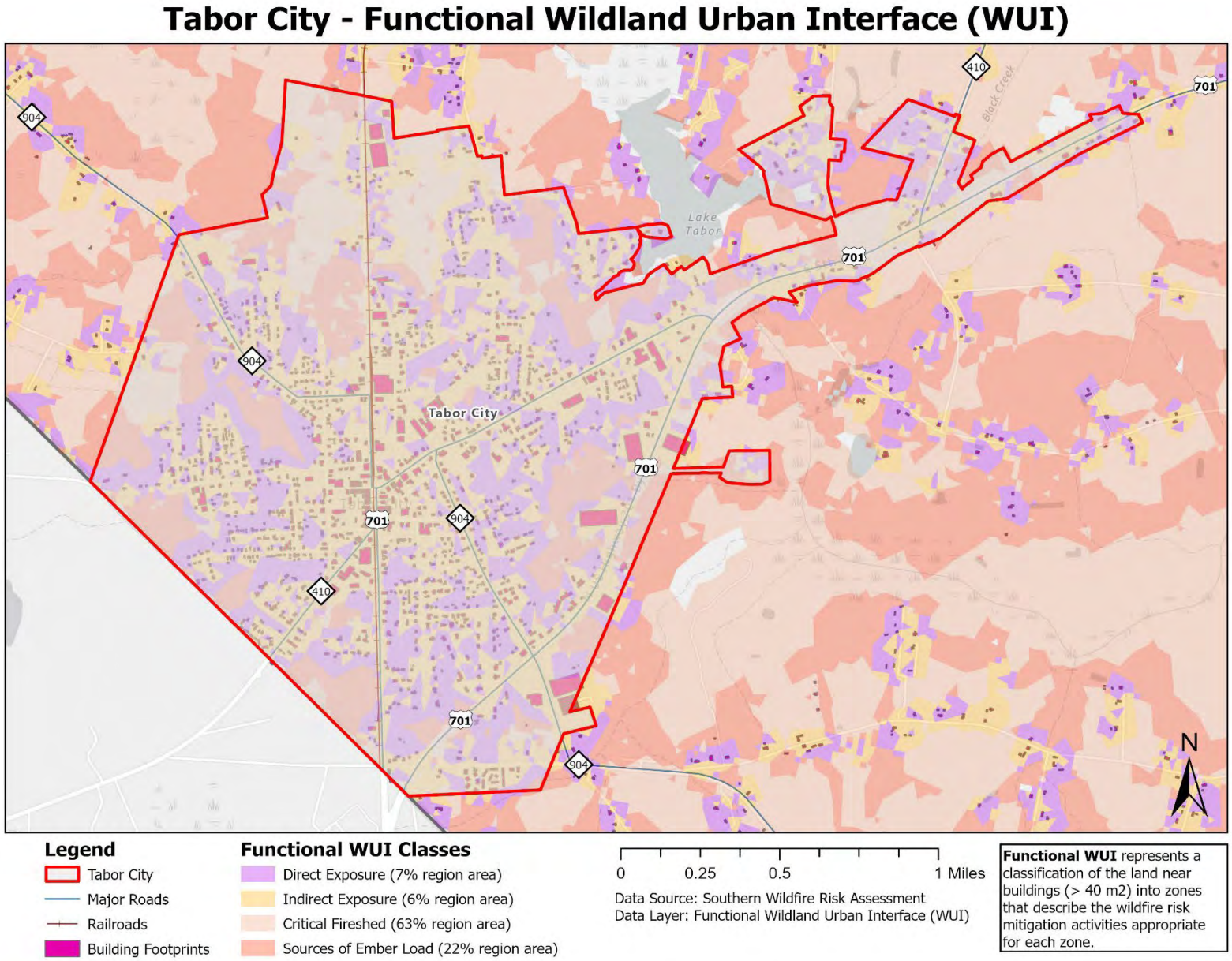


Figure 5-88: Wildfire Hazard Areas – Tabor City

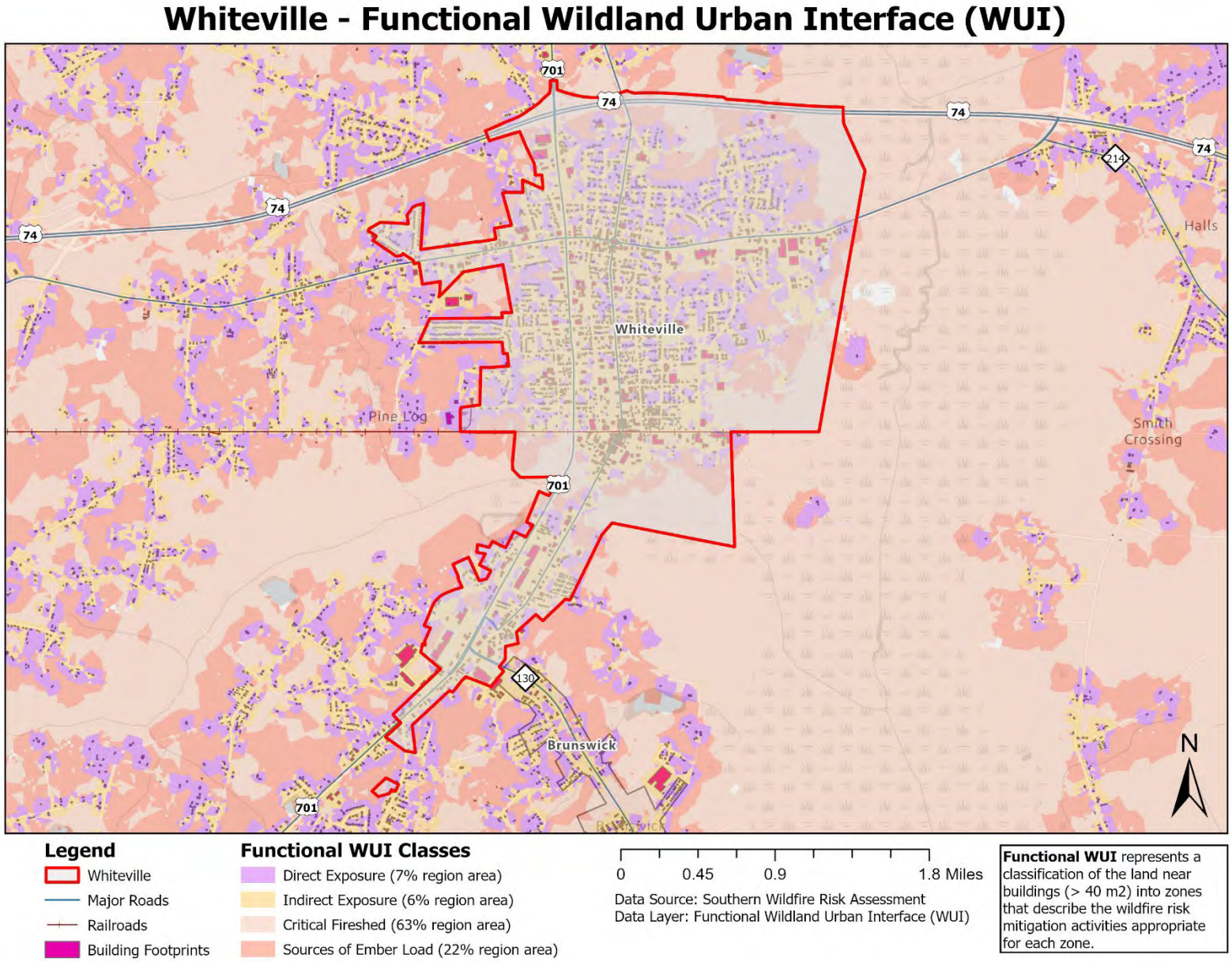


Figure 5-89: Wildfire Hazard Areas – Whiteville

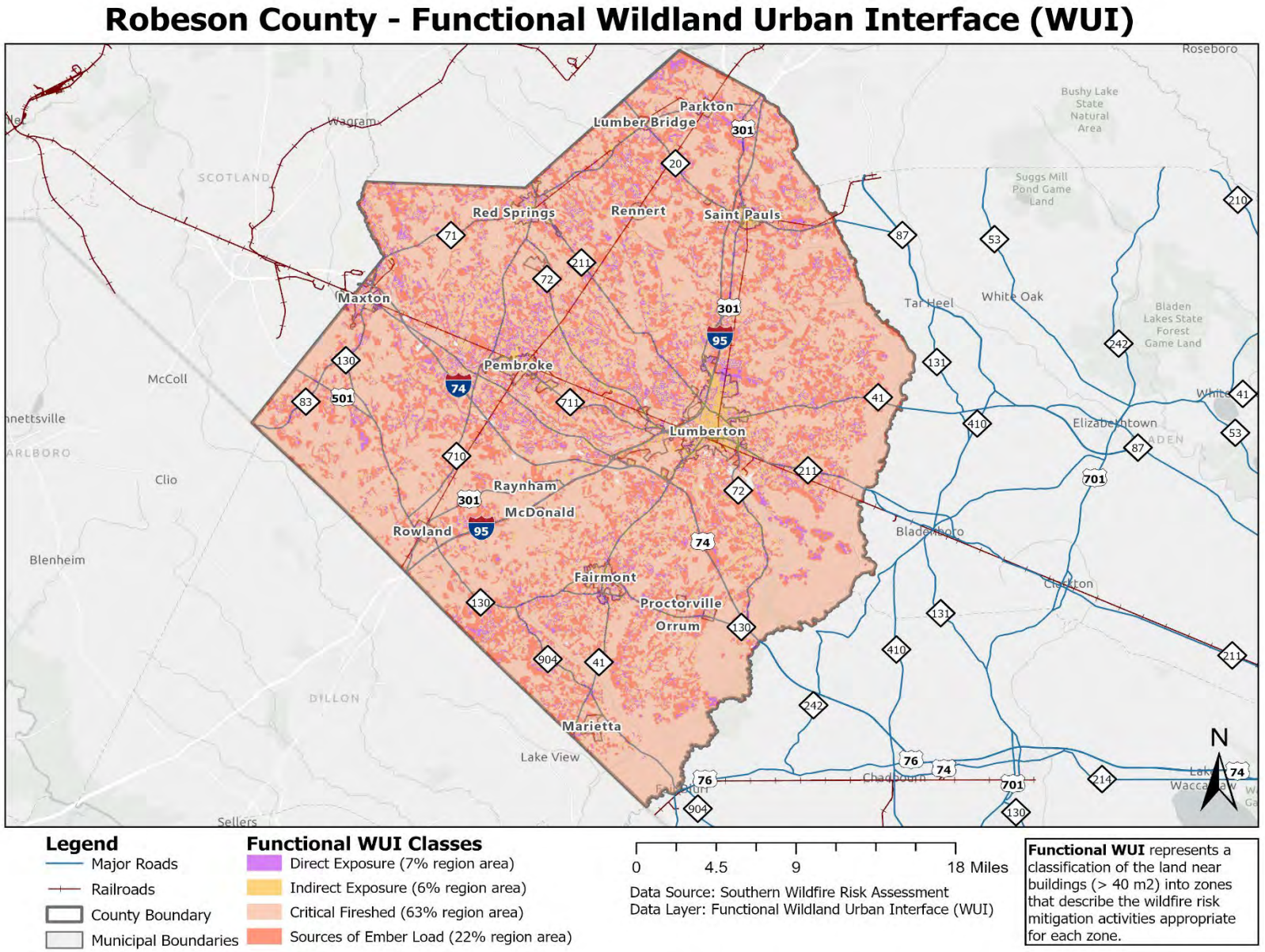


Figure 5-90: Wildfire Hazard Areas – Robeson County

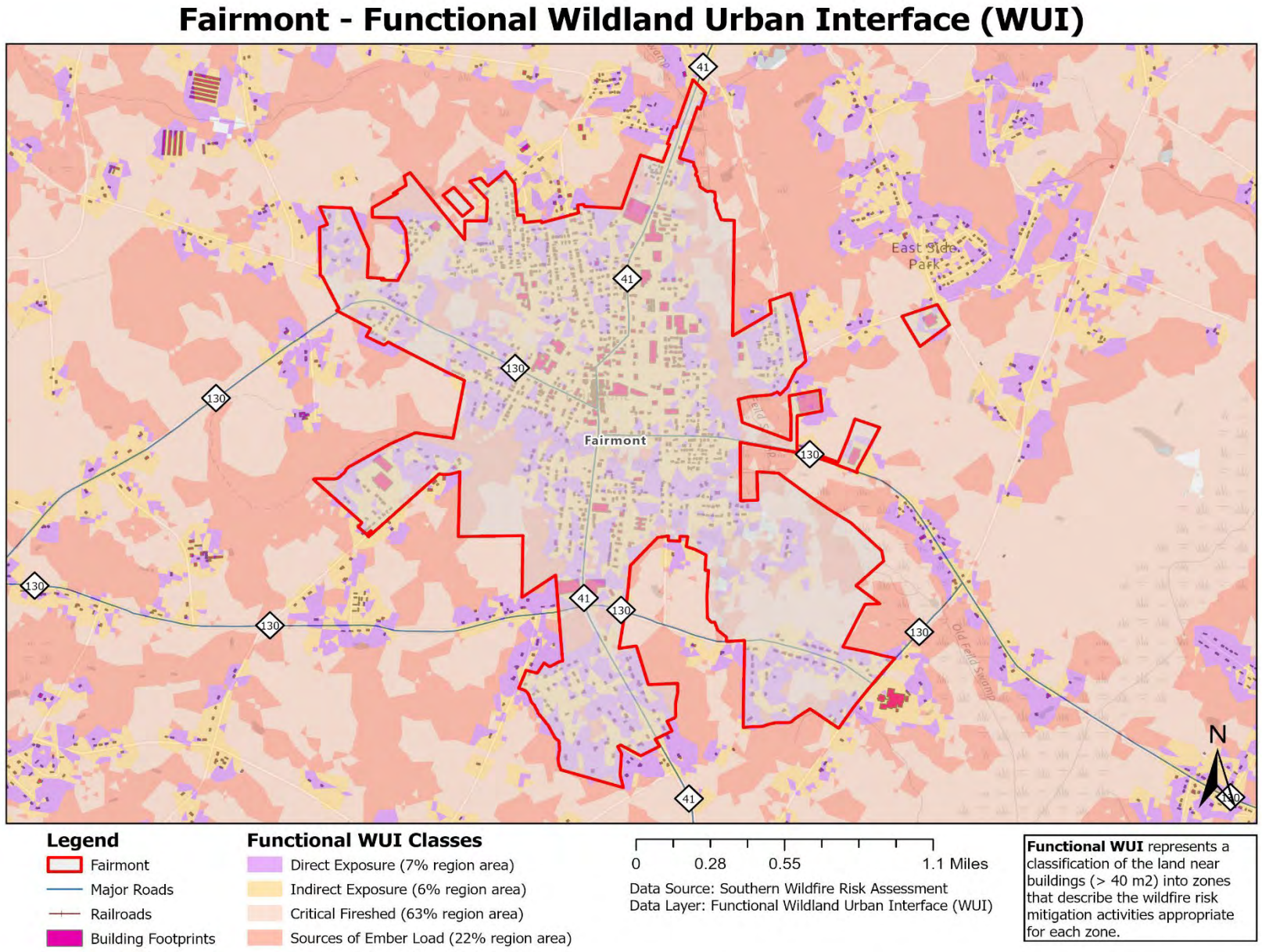


Figure 5-91: Wildfire Hazard Areas – Fairmont

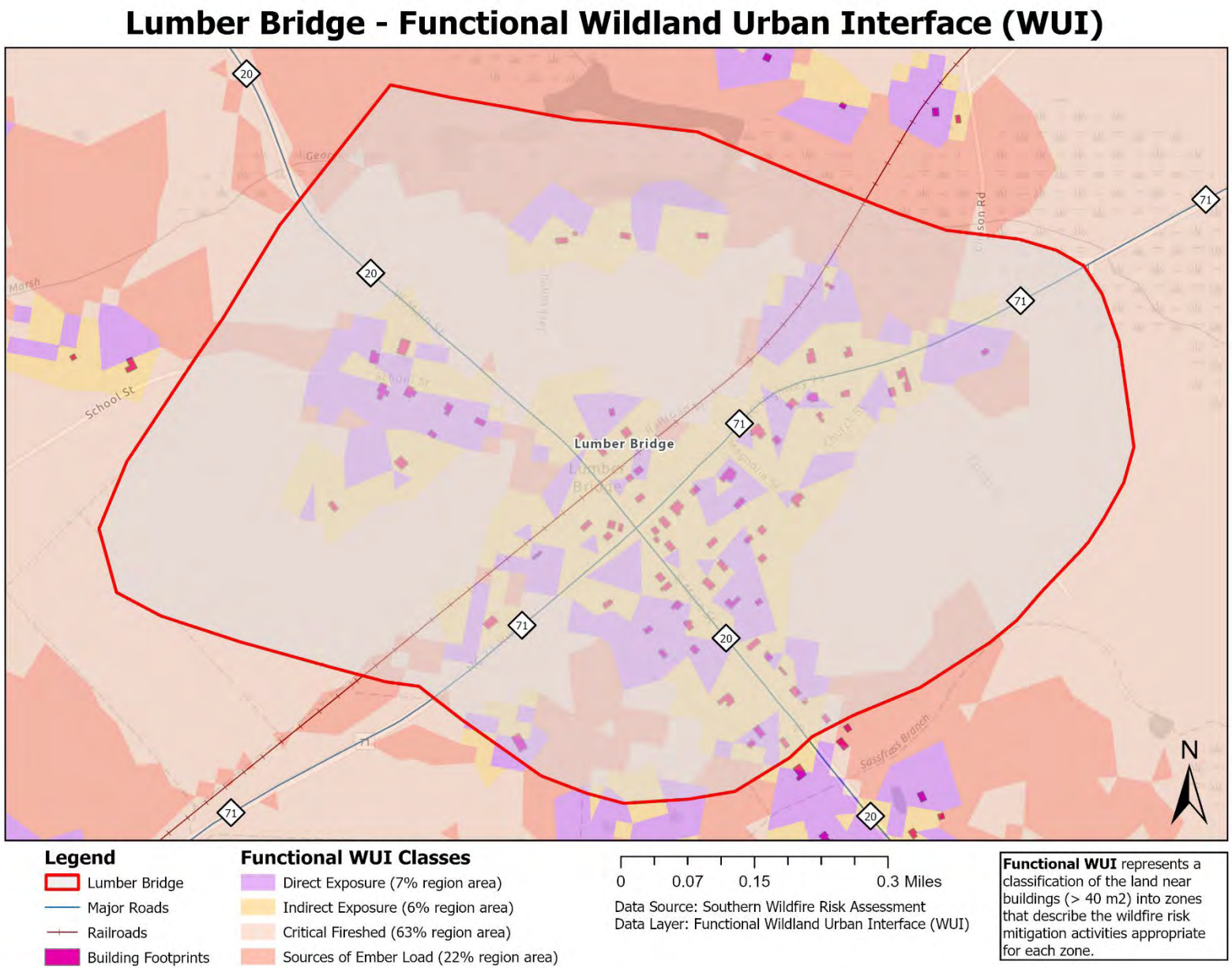


Figure 5-92: Wildfire Hazard Areas – Lumber Bridge

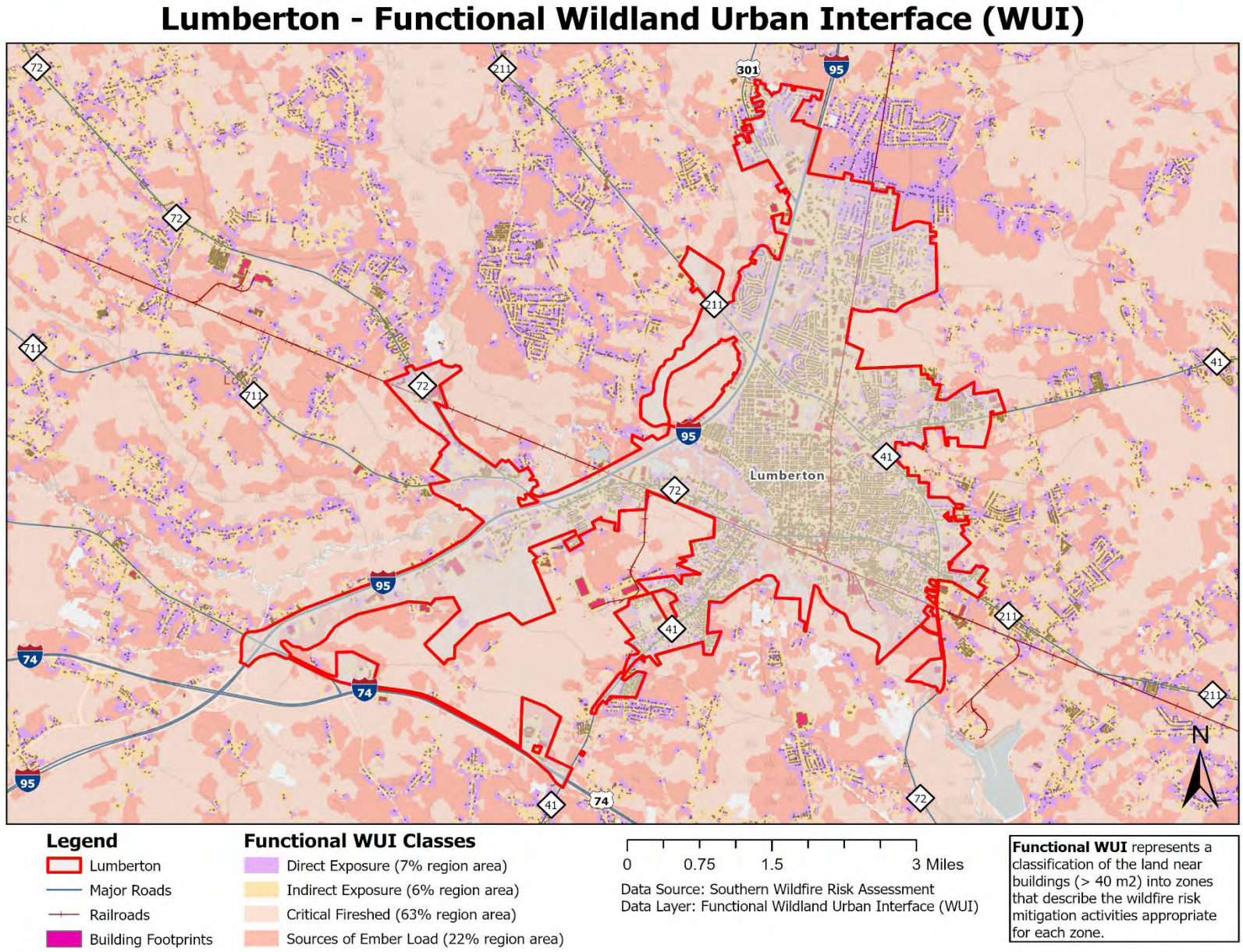


Figure 5-93: Wildfire Hazard Areas – Lumberton

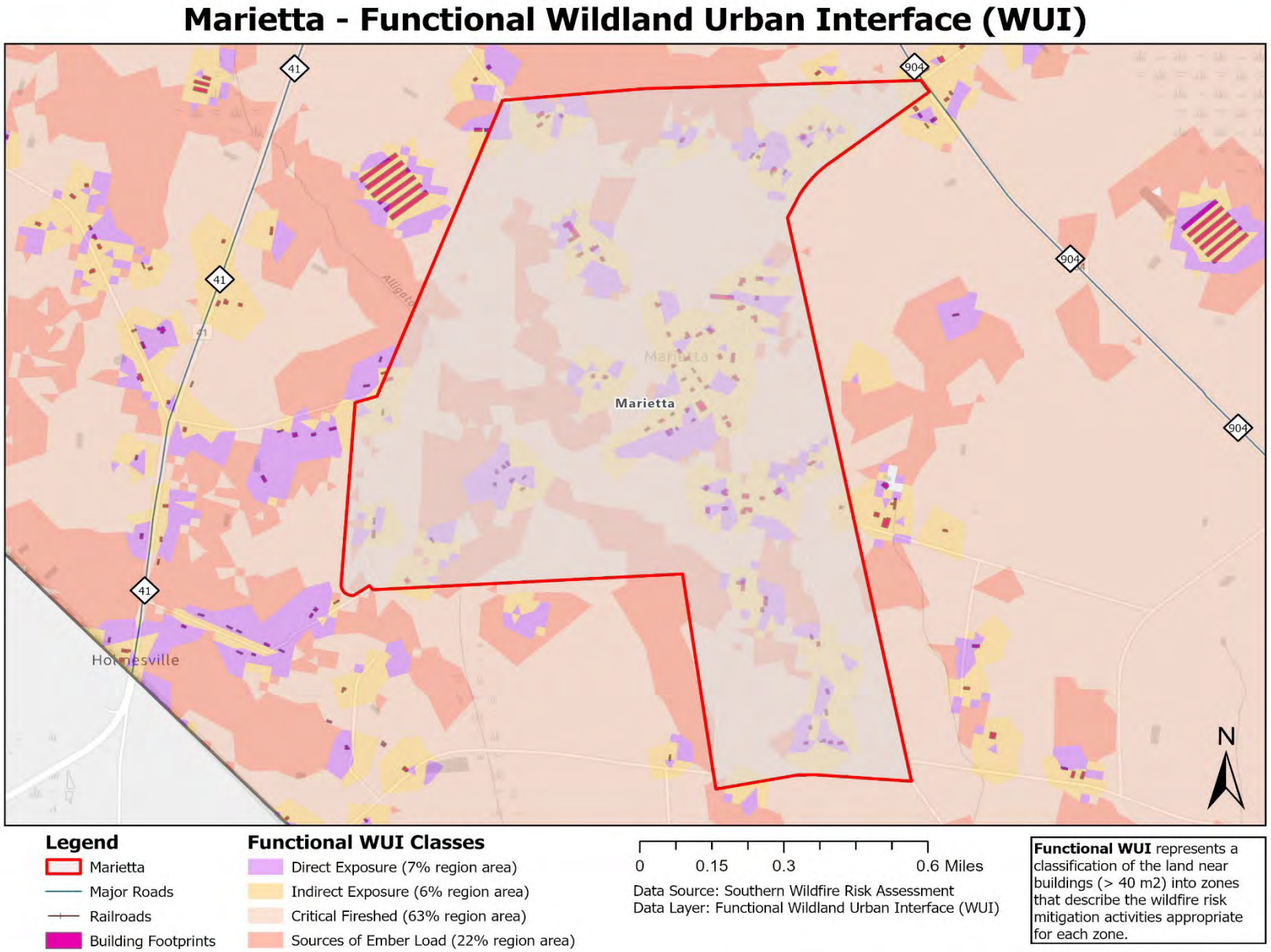


Figure 5-94: Wildfire Hazard Areas – Marietta

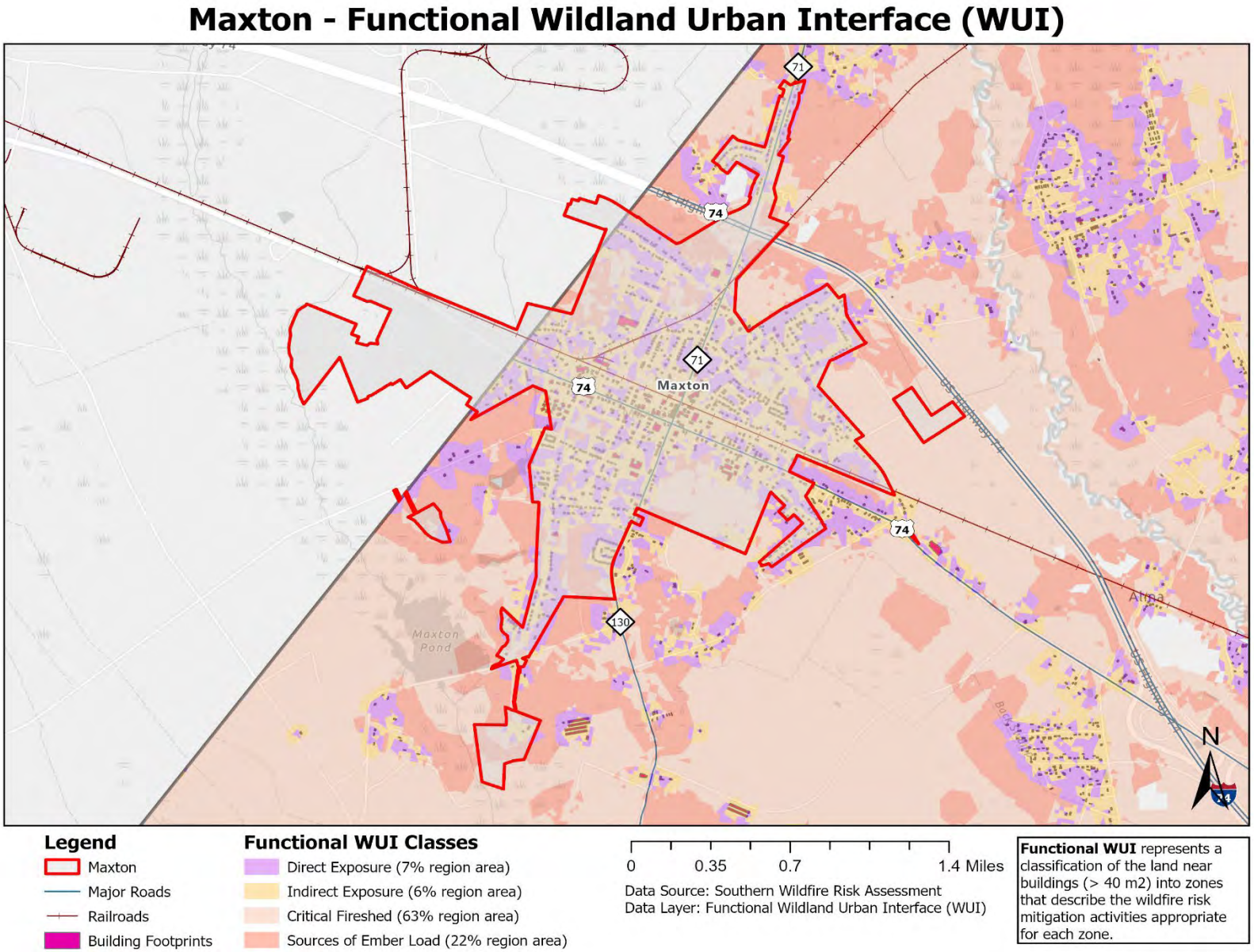


Figure 5-95: Wildfire Hazard Areas – Maxton

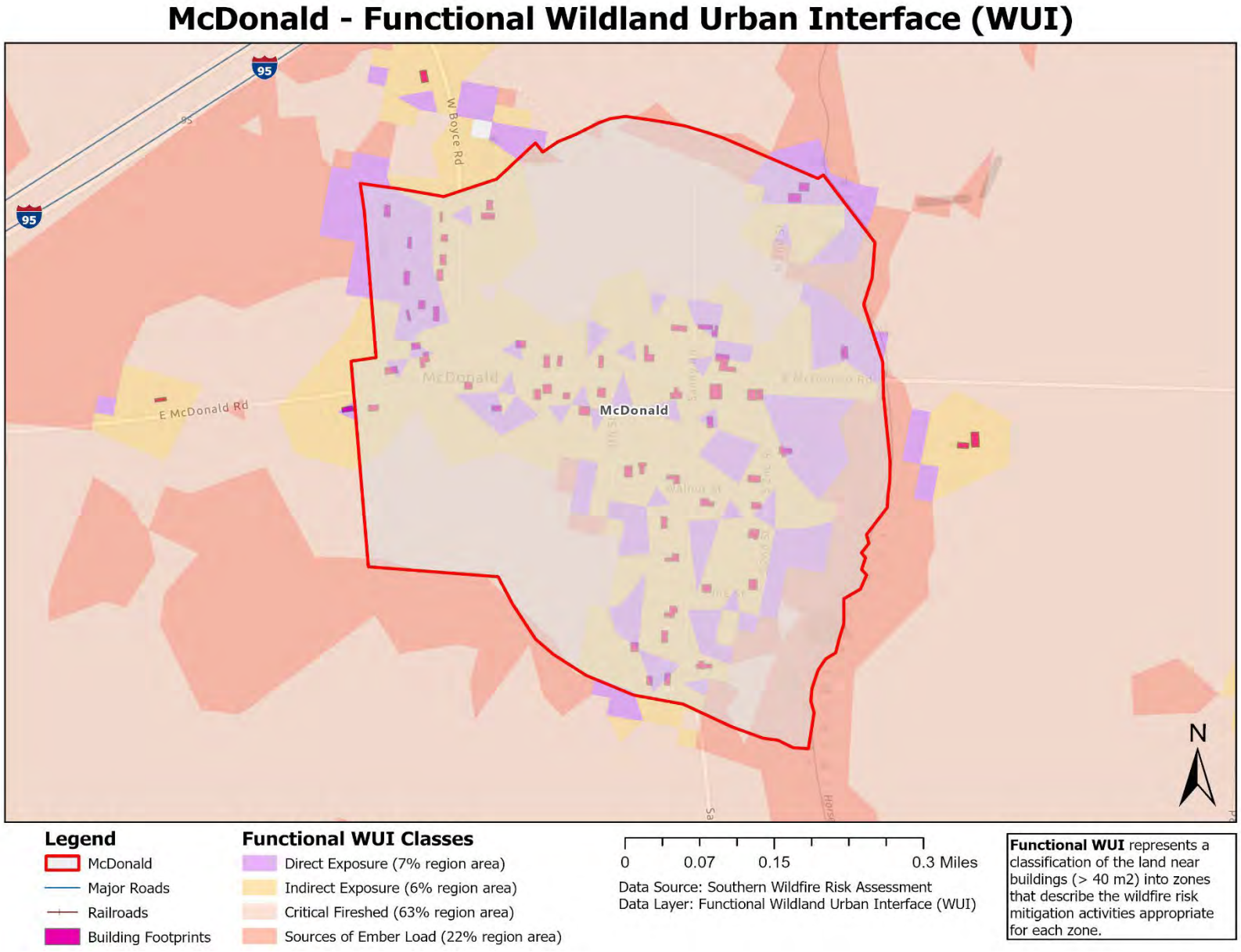


Figure 5-96: Wildfire Hazard Areas – McDonald

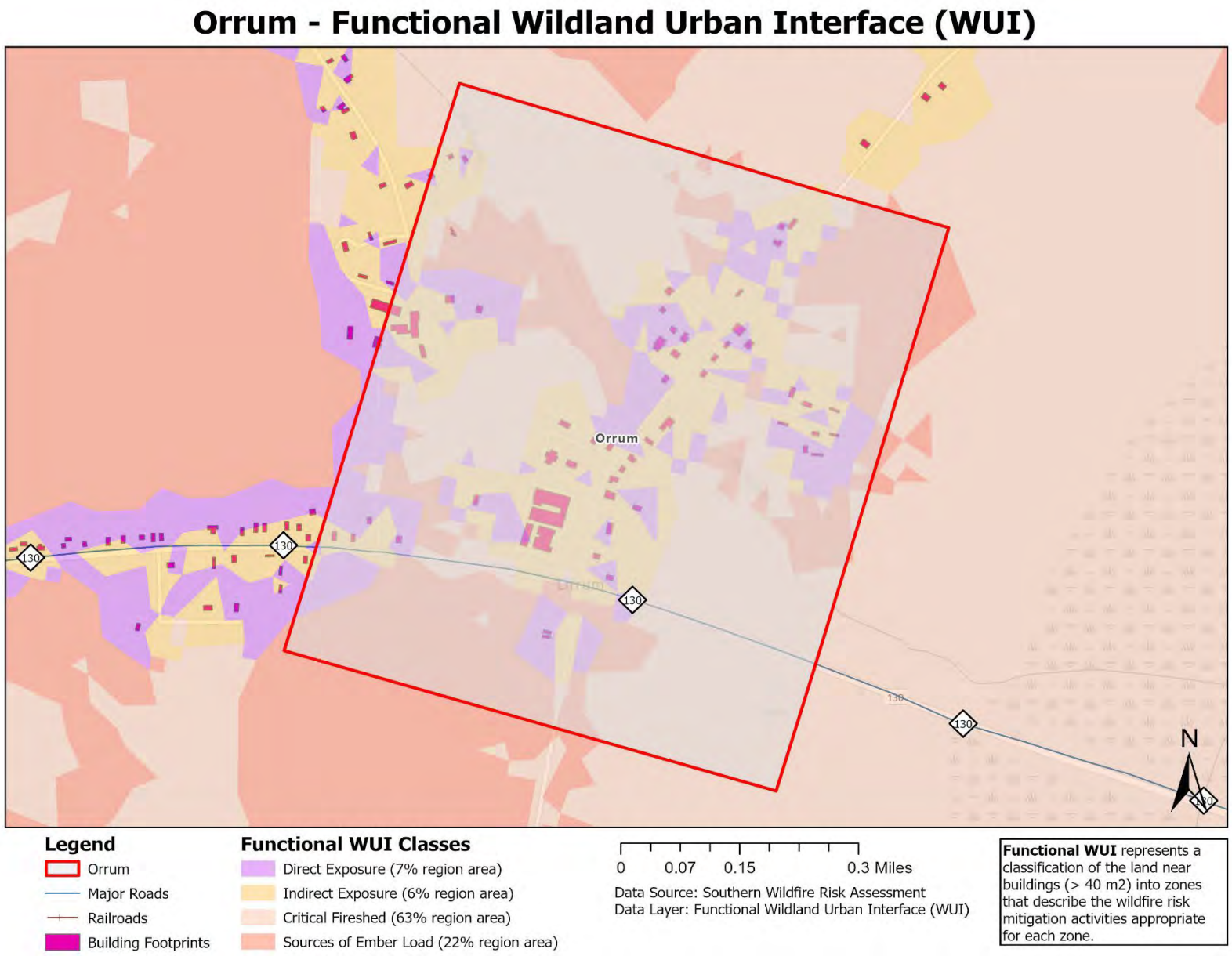


Figure 5-97: Wildfire Hazard Areas – Orrum

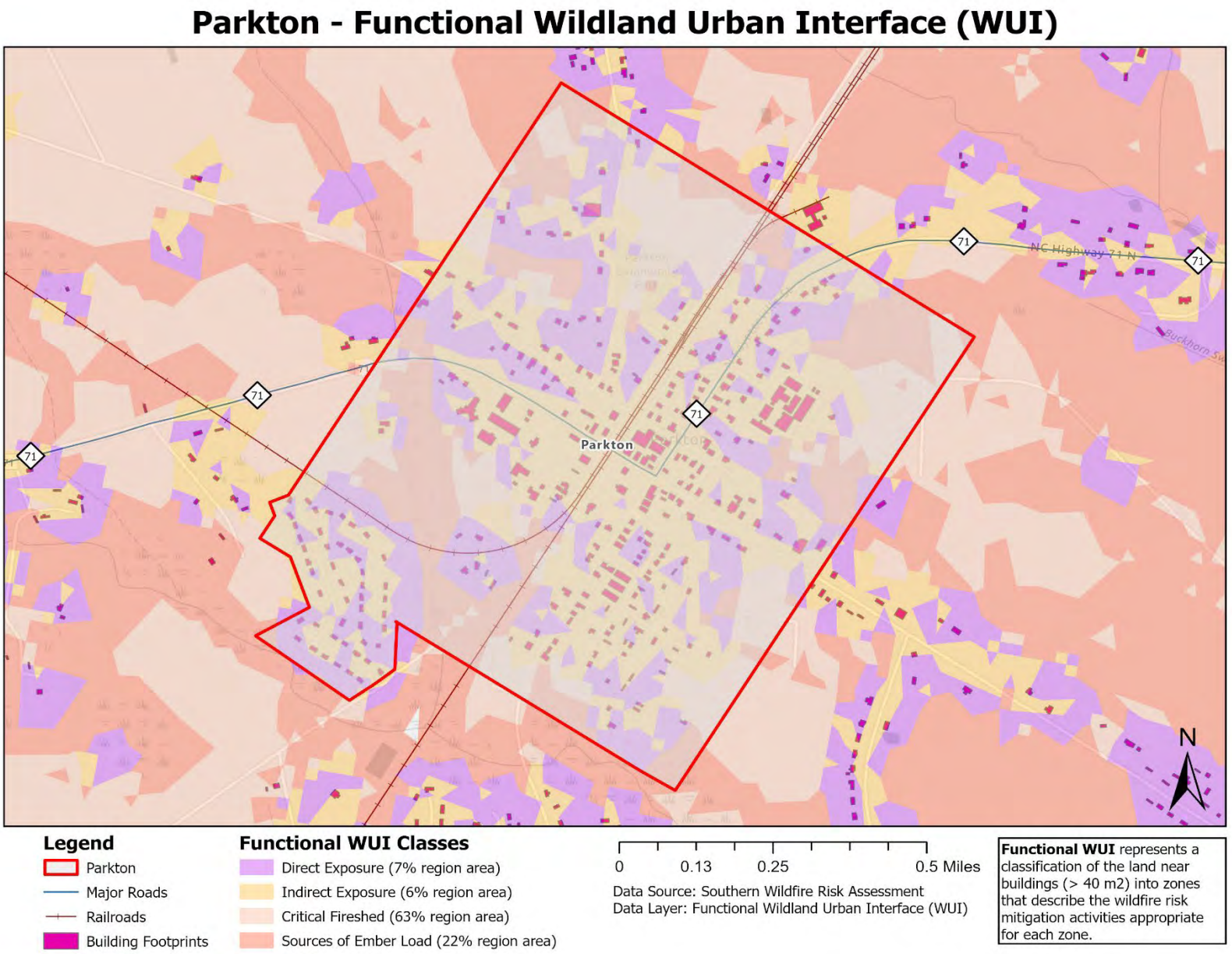


Figure 5-98: Wildfire Hazard Areas – Parkton

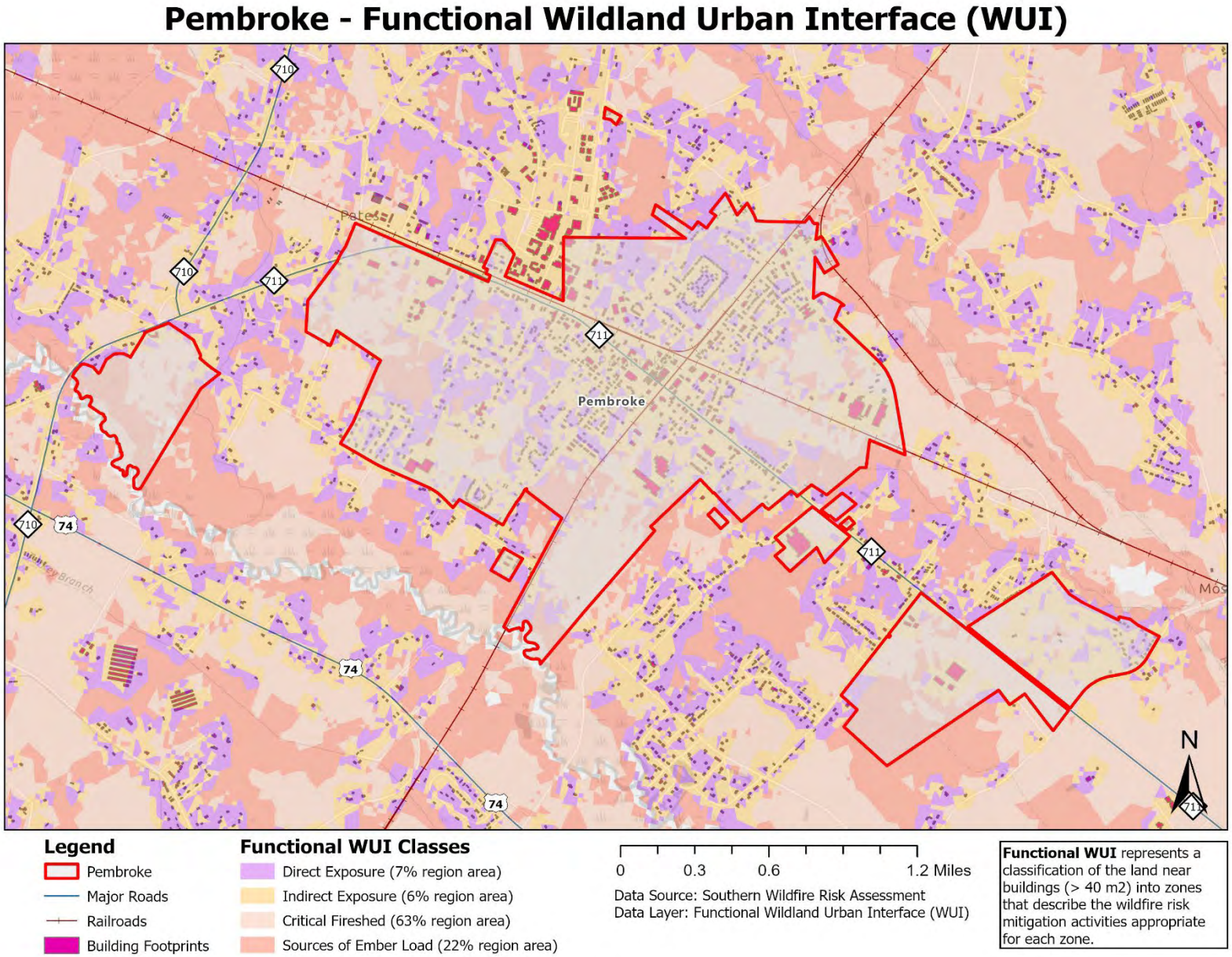


Figure 5-99: Wildfire Hazard Areas – Pembroke

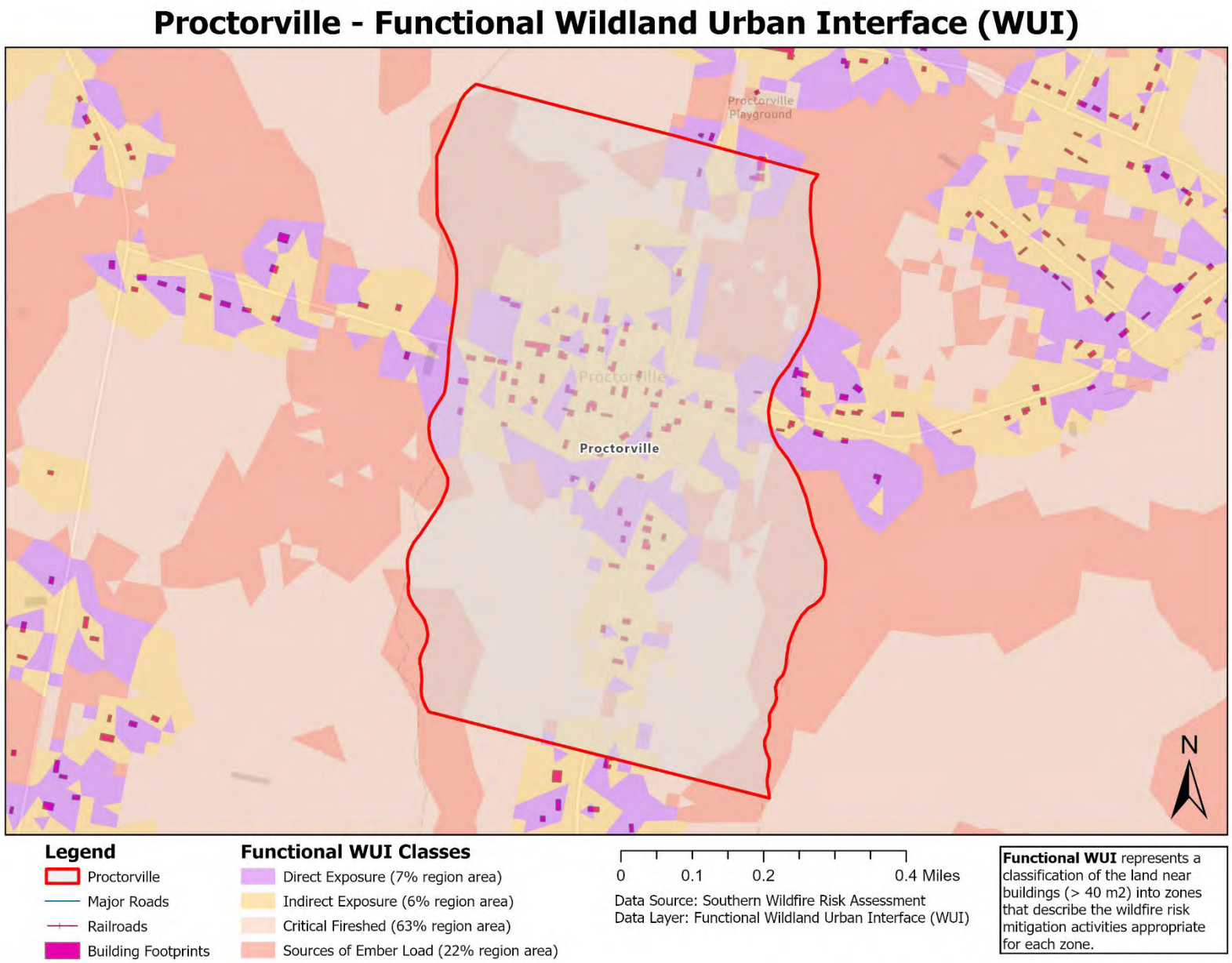


Figure 5-100: Wildfire Hazard Areas – Proctorville

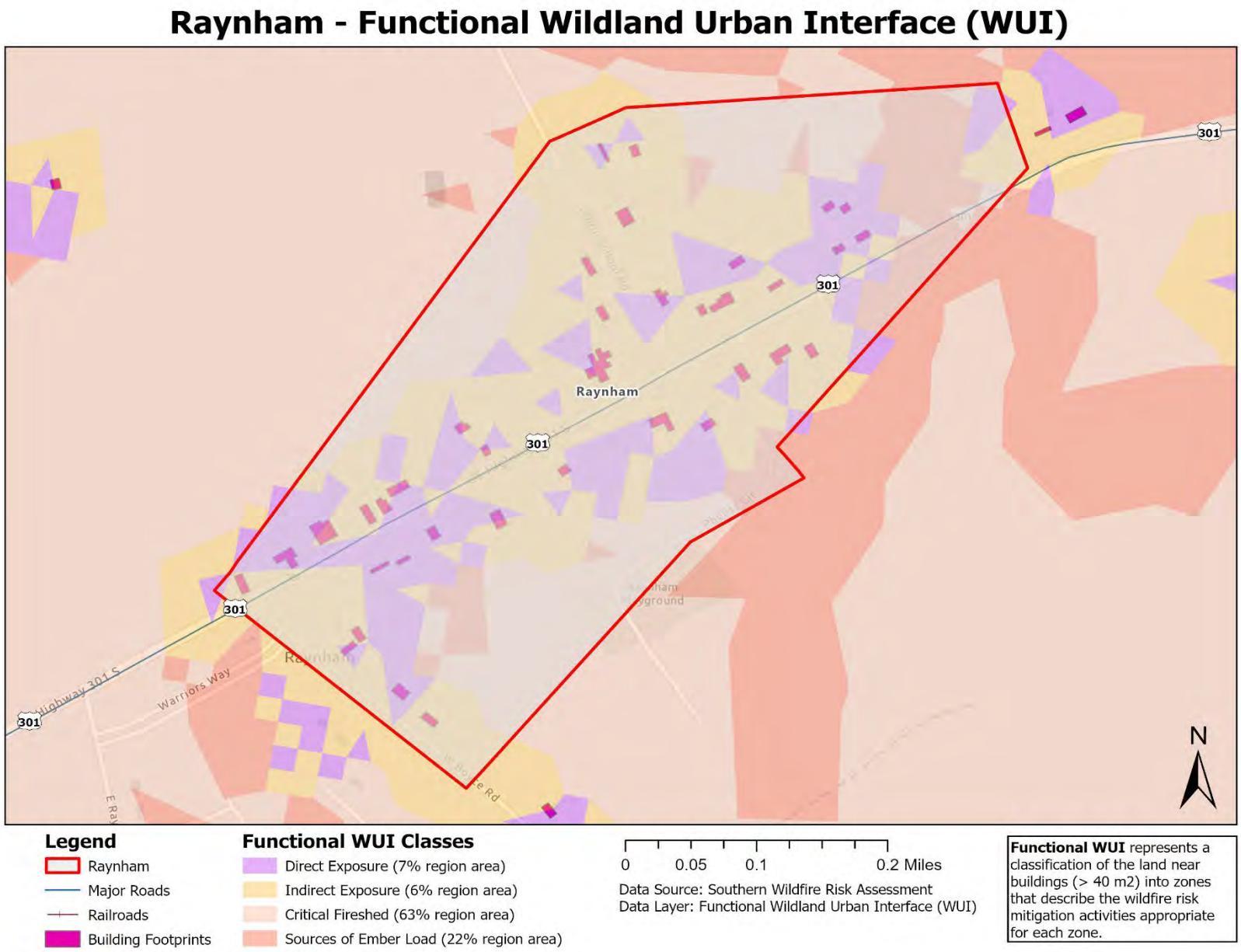


Figure 5-101: Wildfire Hazard Areas – Raynham

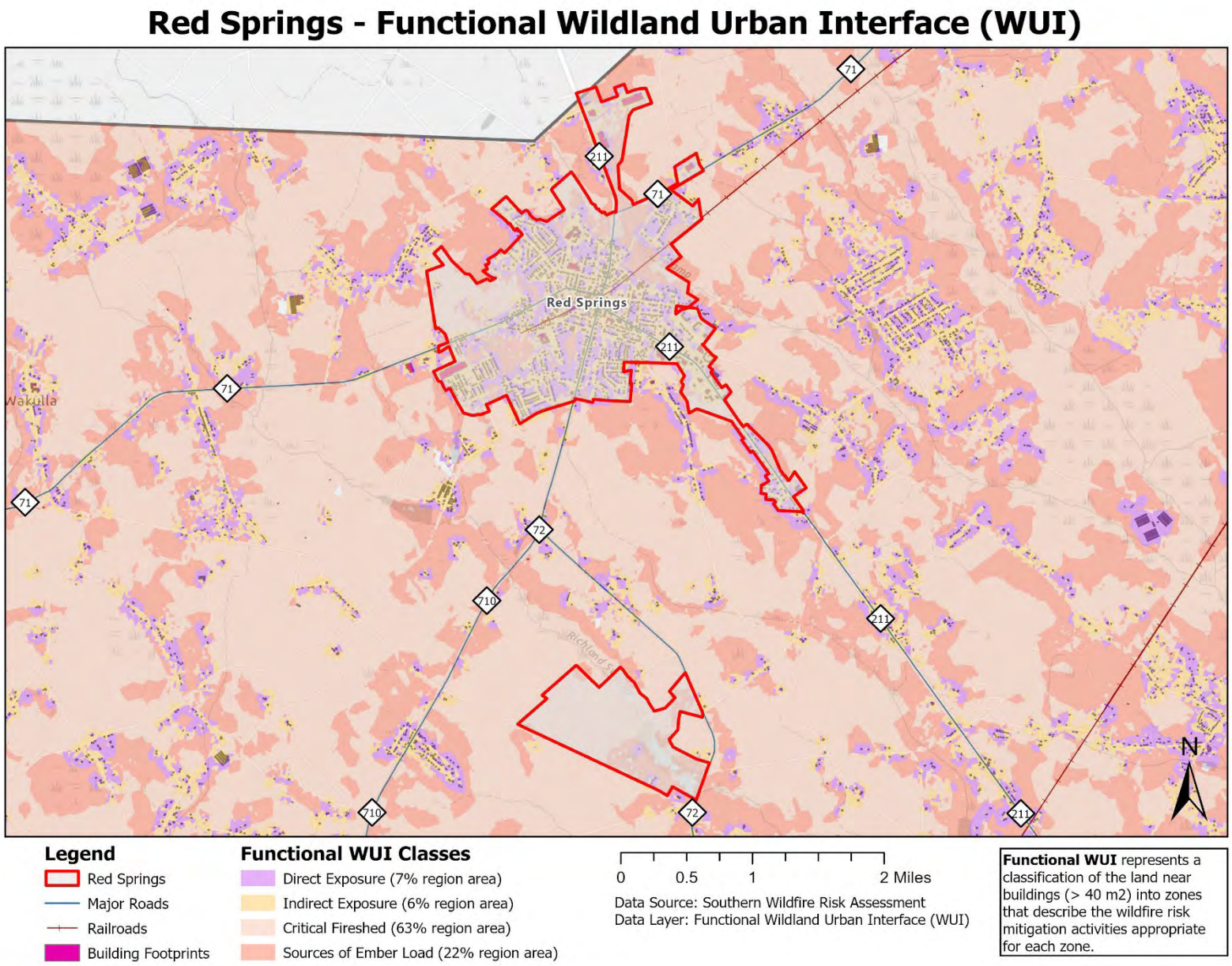


Figure 5-102: Wildfire Hazard Areas – Red Springs

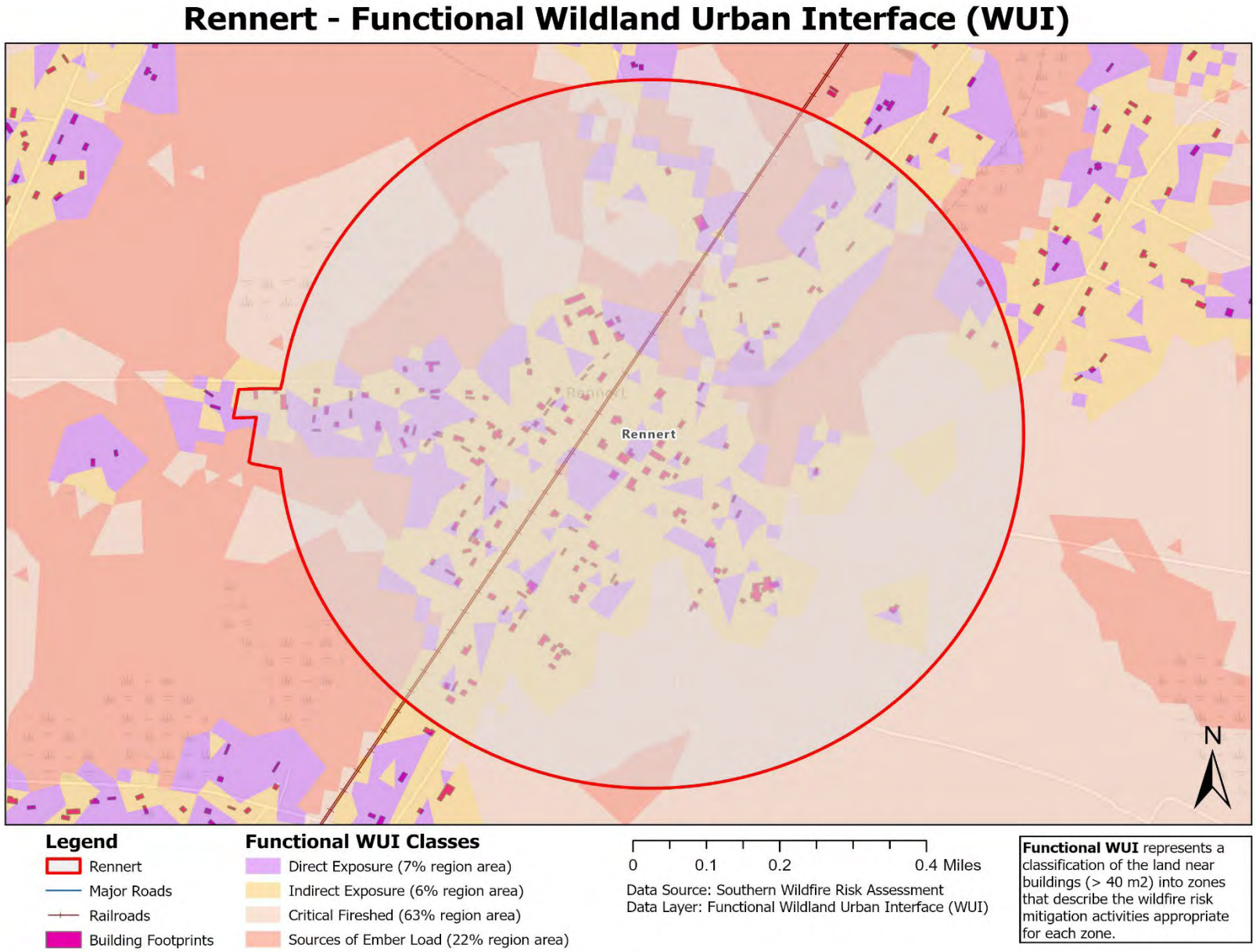


Figure 5-103: Wildfire Hazard Areas – Rennert

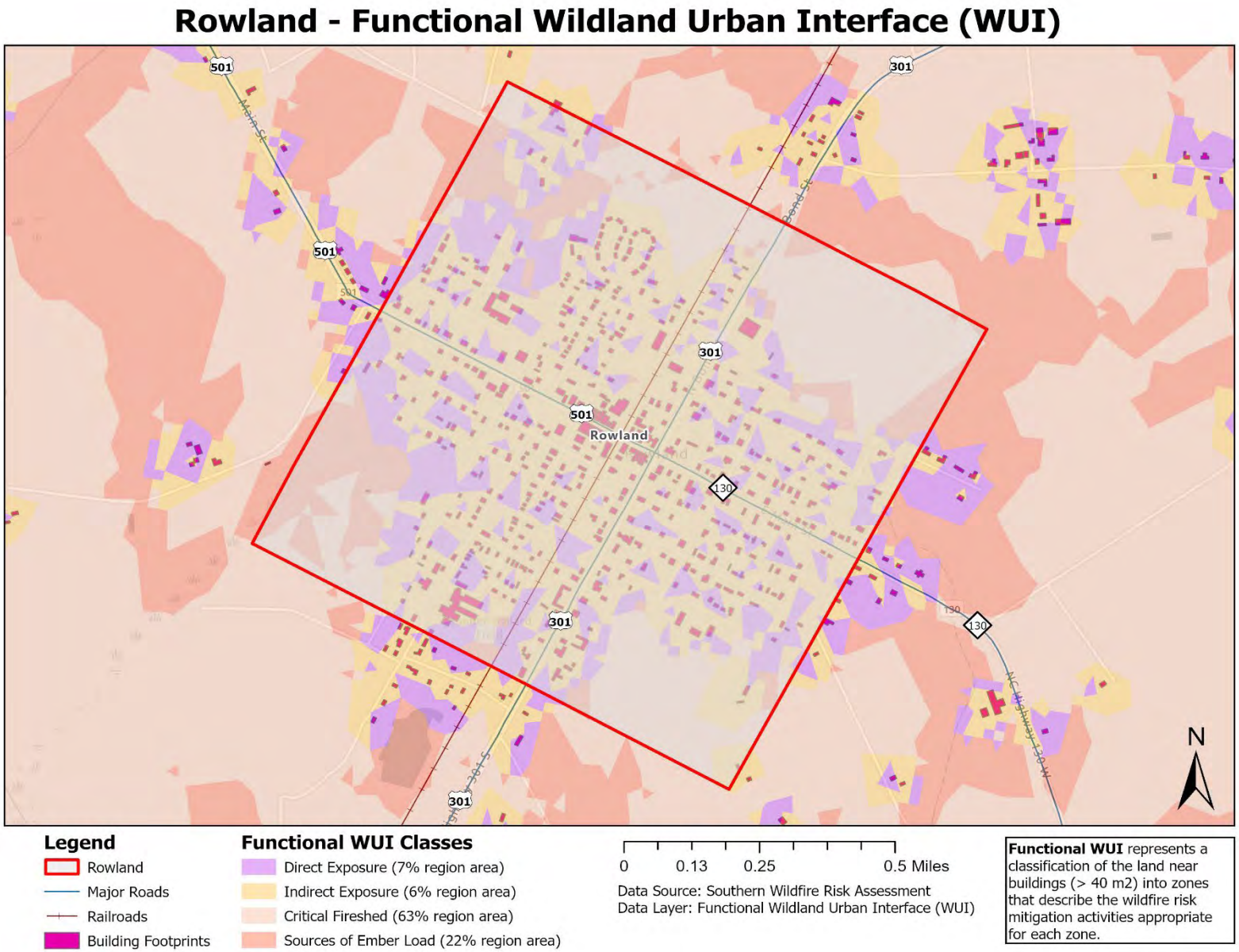


Figure 5-104: Wildfire Hazard Areas – Rowland

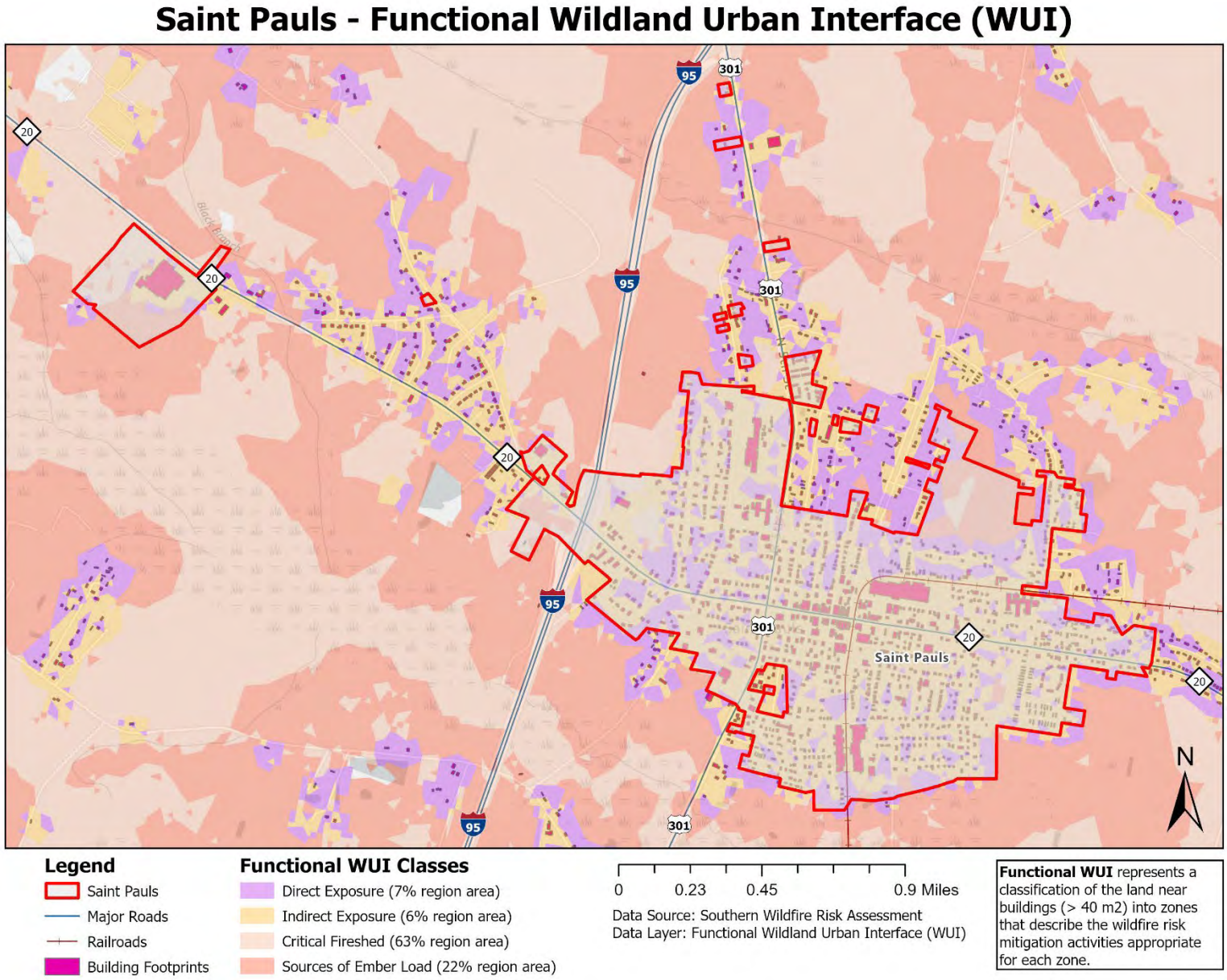


Figure 5-105: Wildfire Hazard Areas – Saint Pauls

The average size of wildfires in the Region is typically small. Wildfire data was provided by the North Carolina Forest Service through Community Wildfire Protection Plans (included in **Appendices**) and is reported annually by county. For more information on the extent of each jurisdiction see the tables included in **Section 6 Vulnerability Assessment**.

5.11.3 Past Occurrences

Robeson County has had more than 90 wildfires since the beginning of 2017, burning more than 1,300 acres, with approximately 18 of those occurring on Saturday alone, according to the state Forest Service. The cause of more than 70 percent of these wildfires is undetermined, and some of the more recent ones are under investigation and could possibly be determined as arson. Another 20 percent of fires in recent years have been caused by careless burning of debris.

In February of 2017, a wildfire near Saint Pauls (Robeson County) burned roughly 200 acres (https://www.robesonian.com/news/96516/fires-torch-200-acres-near-st-pauls). In 2018, the NC determined that a wildfire burned more than 550 acres in Bladen County near White Lake (https://www.newsobserver.com/news/local/article207925094.html).

5.11.4 Probability of Future Occurrences

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

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability of hazard
- Possible: Between 1% and 10% annual probability of hazard
- Likely: Between 10% and 100% annual probability of hazard
- Highly Likely: 100% annual probability of hazard

Jurisdiction	Probability of Future Occurrence
Bladen County (Unincorporated Area)	Likely
Columbus County (Unincorporated Area)	Likely
Robeson County (Unincorporated Area)	Likely
City of Lumberton	Likely
City of Whiteville	Likely
Town of Bladenboro	Likely
Town of Boardman	Likely
Town of Bolton	Likely
Town of Brunswick	Likely
Town of Cerro Gordo	Likely
Town of Chadbourn	Likely
Town of Clarkton	Likely
Town of Dublin	Likely
Town of East Arcadia	Likely

Jurisdiction	Probability of Future Occurrence
Town of Elizabethtown	Likely
Town of Fair Bluff	Likely
Town of Fairmont	Likely
Town of Lake Waccamaw	Likely
Town of Lumber Bridge	Likely
Town of Marietta	Likely
Town of Maxton	Likely
Town of McDonald	Likely
Town of Orrum	Likely
Town of Parkton	Likely
Town of Pembroke	Likely
Town of Proctorville	Likely
Town of Raynham	Likely
Town of Red Springs	Likely
Town of Rennert	Likely
Town of Rowland	Likely
Town of Saint Pauls	Likely
Town of Sandyfield	Likely
Town of Tabor City	Likely
Town of Tar Heel	Likely
Town of White Lake	Likely

Source: NCEM RMT & plan risk assessment

5.11.5 Consequence and Impact Analysis (Vulnerability)

Changing Future Conditions

According to the 2020 North Carolina Forest Action Plan, the state has experienced 41,551 wildfires burning a combined total of over 399,125 acres since 2010. The cost of wildfire response, WUI acreage, fuel loading related to fire exclusion and plant mortality, and climate change stressors are also all increasing in the context of growing wildfire risks[22]. Although wildfires occur naturally and play a long-term role in the health of ecosystems, changing wildfire and climatic patterns threaten to upset the status quo conditions of future seasons. The wildfire season has lengthened in many areas due to factors including warmer springs, longer summer dry seasons, and drier soil/vegetation. For instance, according to the USDA Forest Service during the 2016 fire season, 320 (100+ acre) large fires burned more than 325,000 acres of forestland across the Southeast from October to December. Of increasing concern is the threat wildfires pose to homes and lives throughout North Carolina as it has one of highest percentages of homes in WUI zones in the country[23].

[22] North Carolina Forest Action Plan (https://www.stateforesters.org/districts/north-carolina/)

[23] U.S. Fire Administration (https://www.usfa.fema.gov/wui/what-is-the-wui/)

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.

5.12 Winter Storm

5.12.1 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. Winter storm events defined below:

- **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 exceedingly 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.

5.12.2 Location and Spatial Extent

The entirety of the Region can be considered at risk to winter storm events. This includes the entire population and all critical facilities, buildings (commercial and residential), and infrastructure.

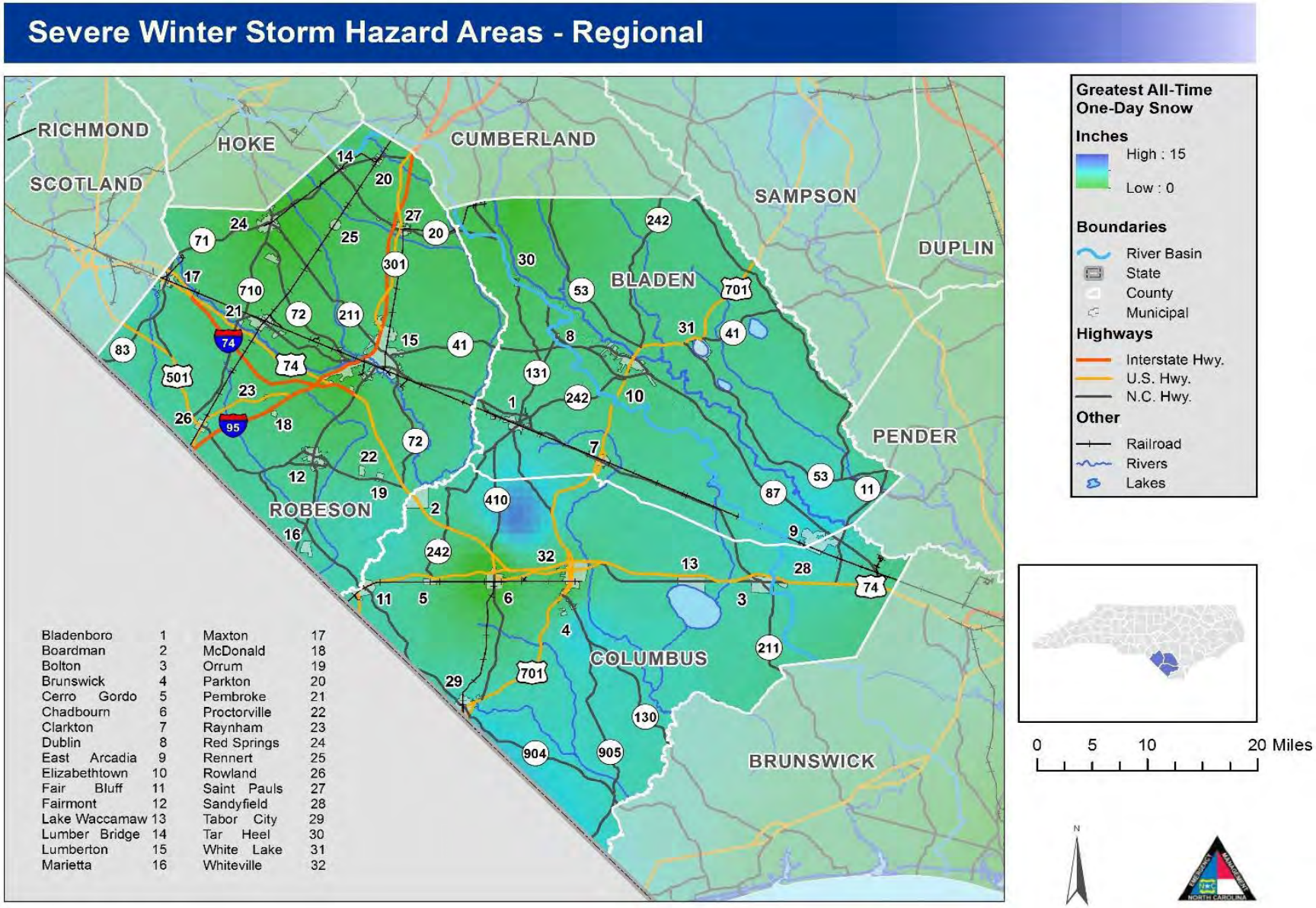


Figure 5-106: Severe Winter Storm Hazard Areas - Regional

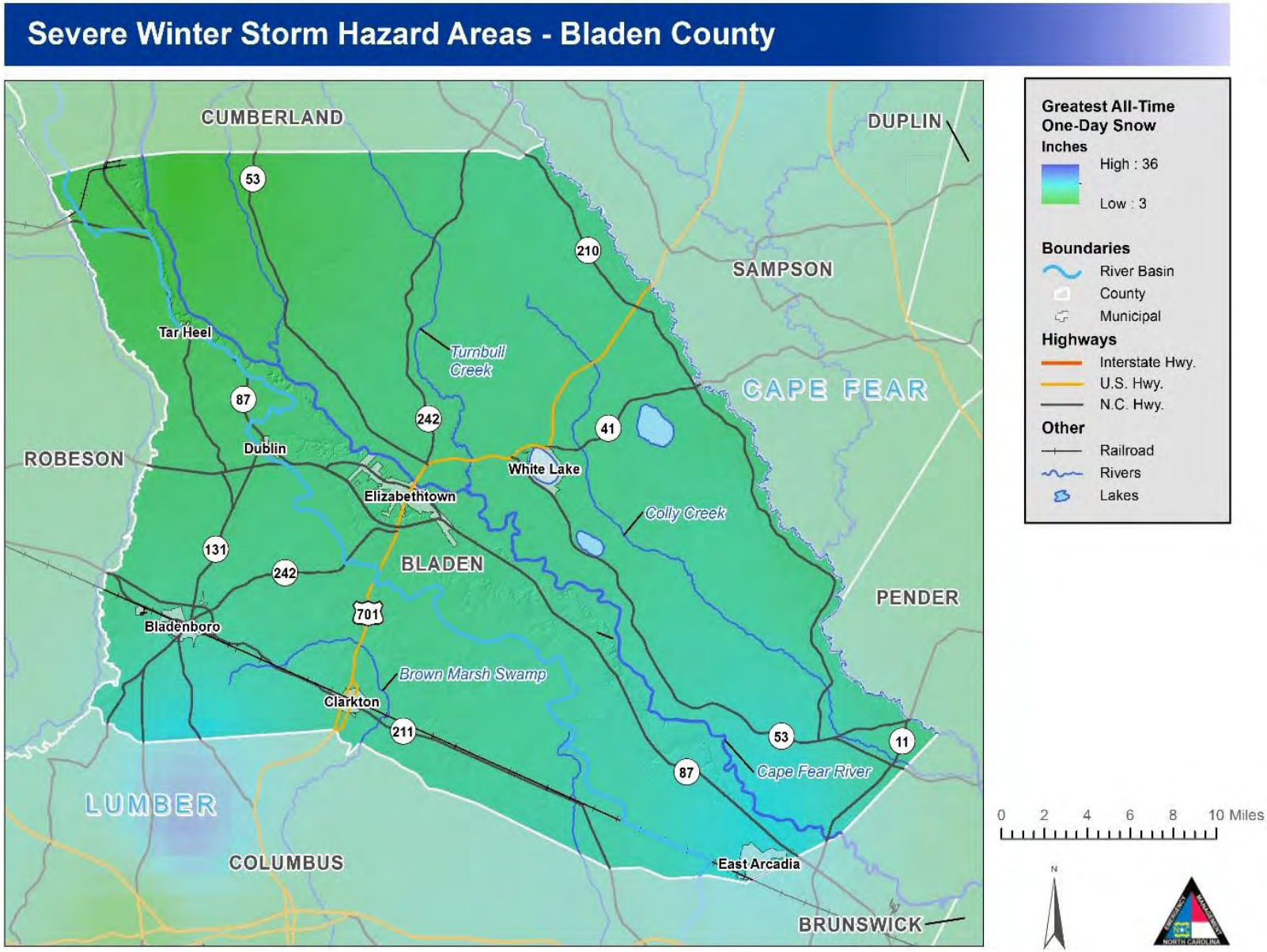


Figure 5-107: Severe Winter Storm Hazard Areas – Bladen County

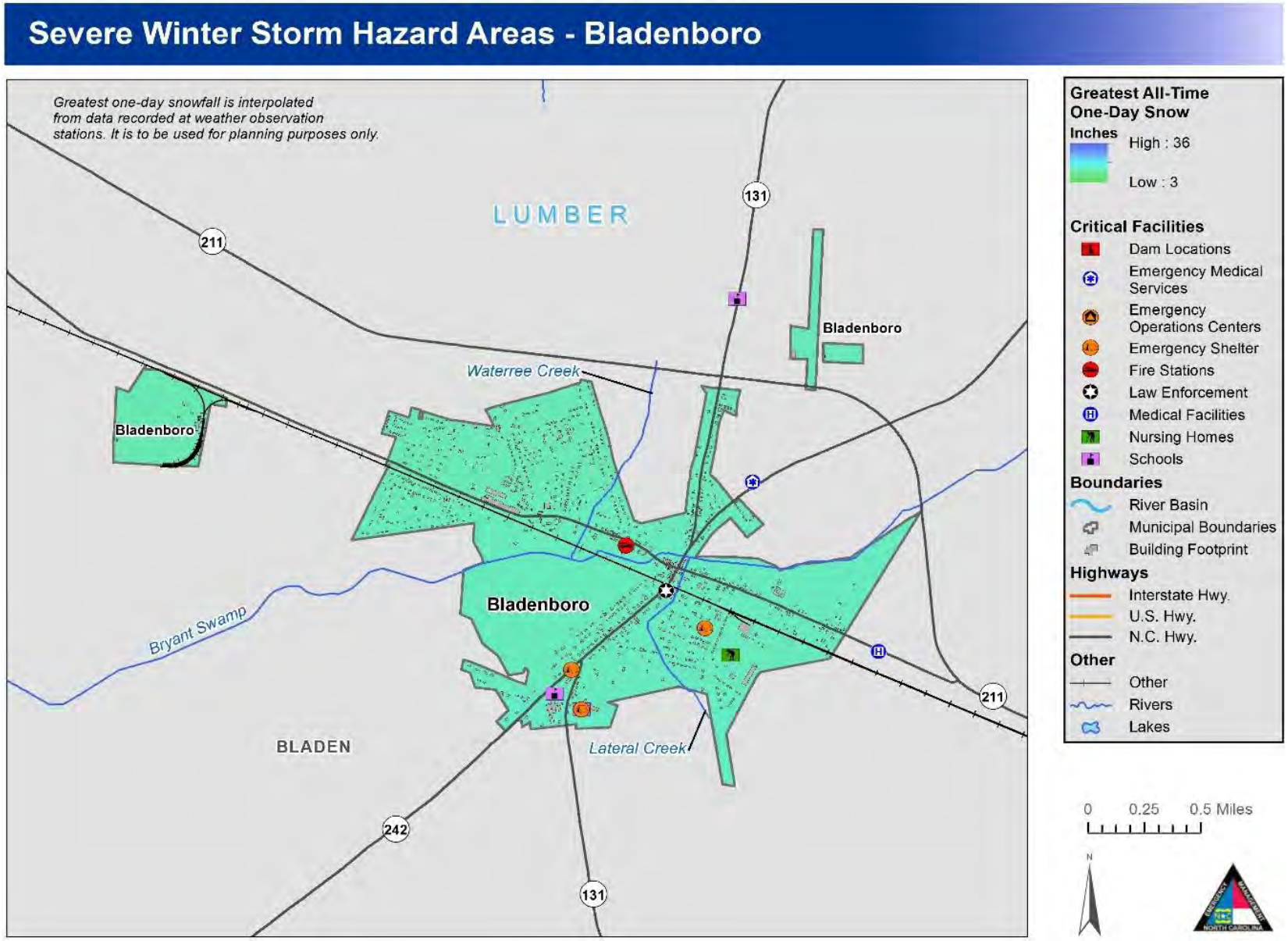


Figure 5-108: Severe Winter Storm Hazard Areas - Bladenboro

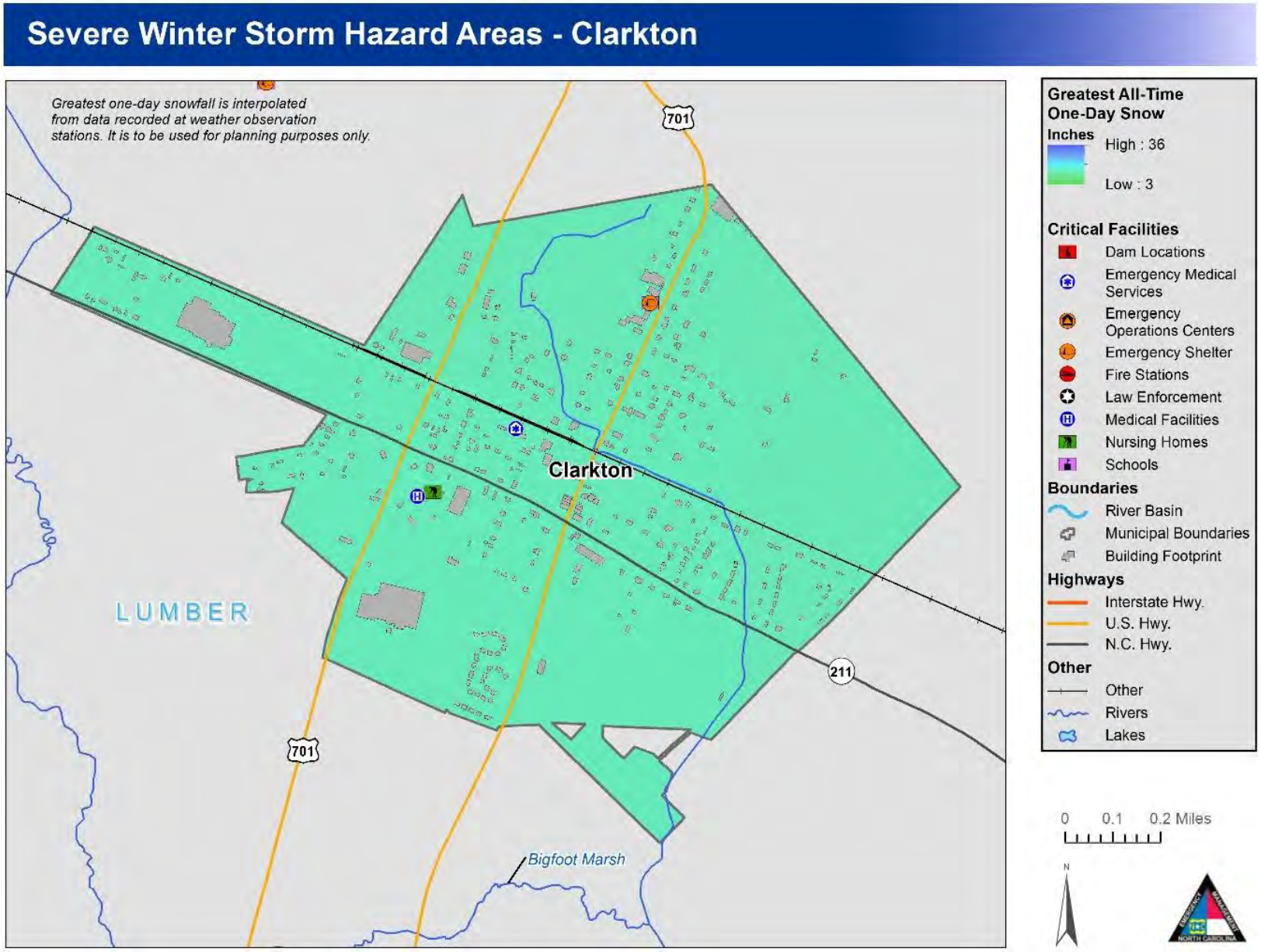


Figure 5-109: Severe Winter Storm Hazard Areas - Clarkton

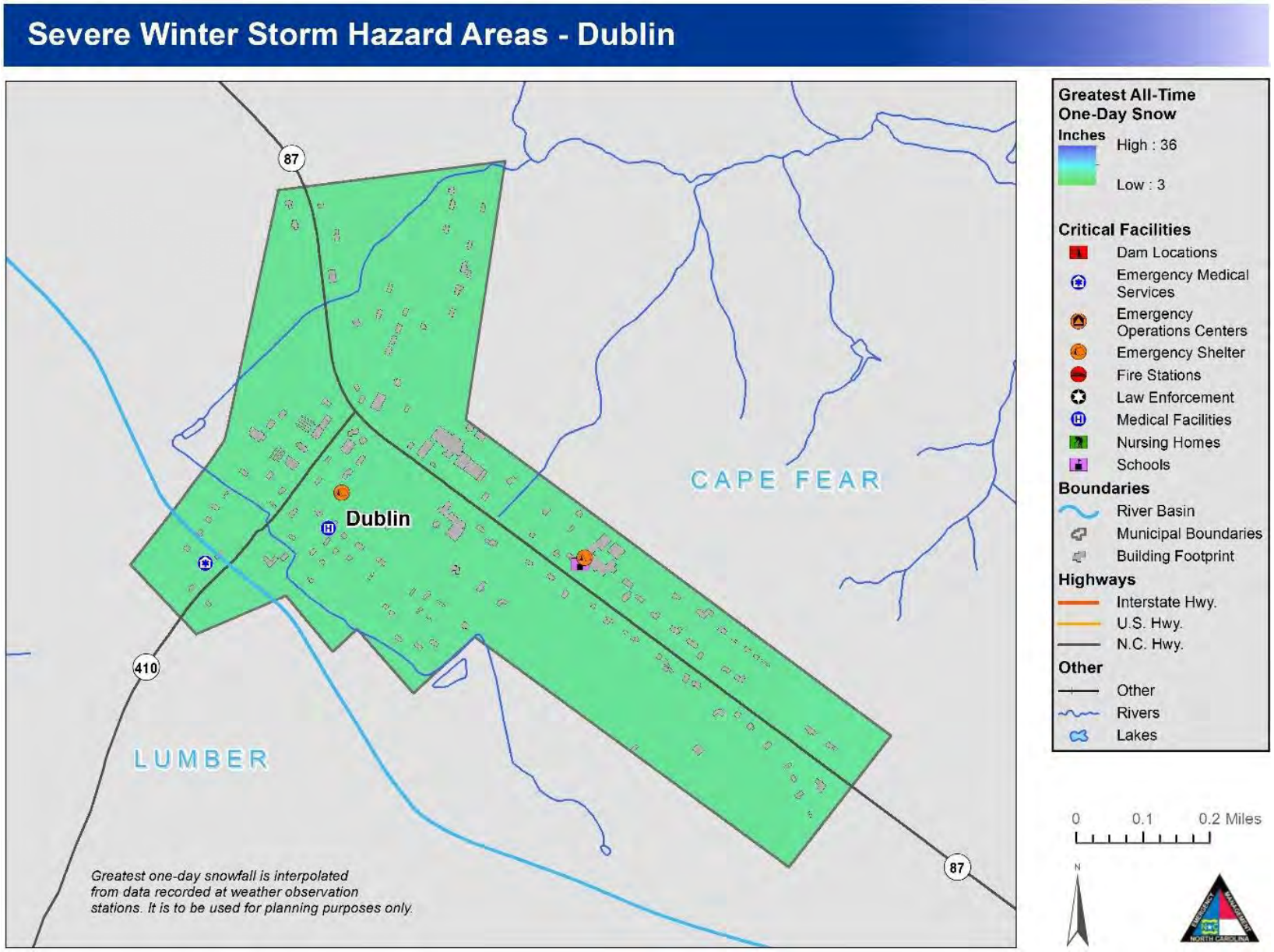


Figure 5-110: Severe Winter Storm Hazard Areas - Dublin

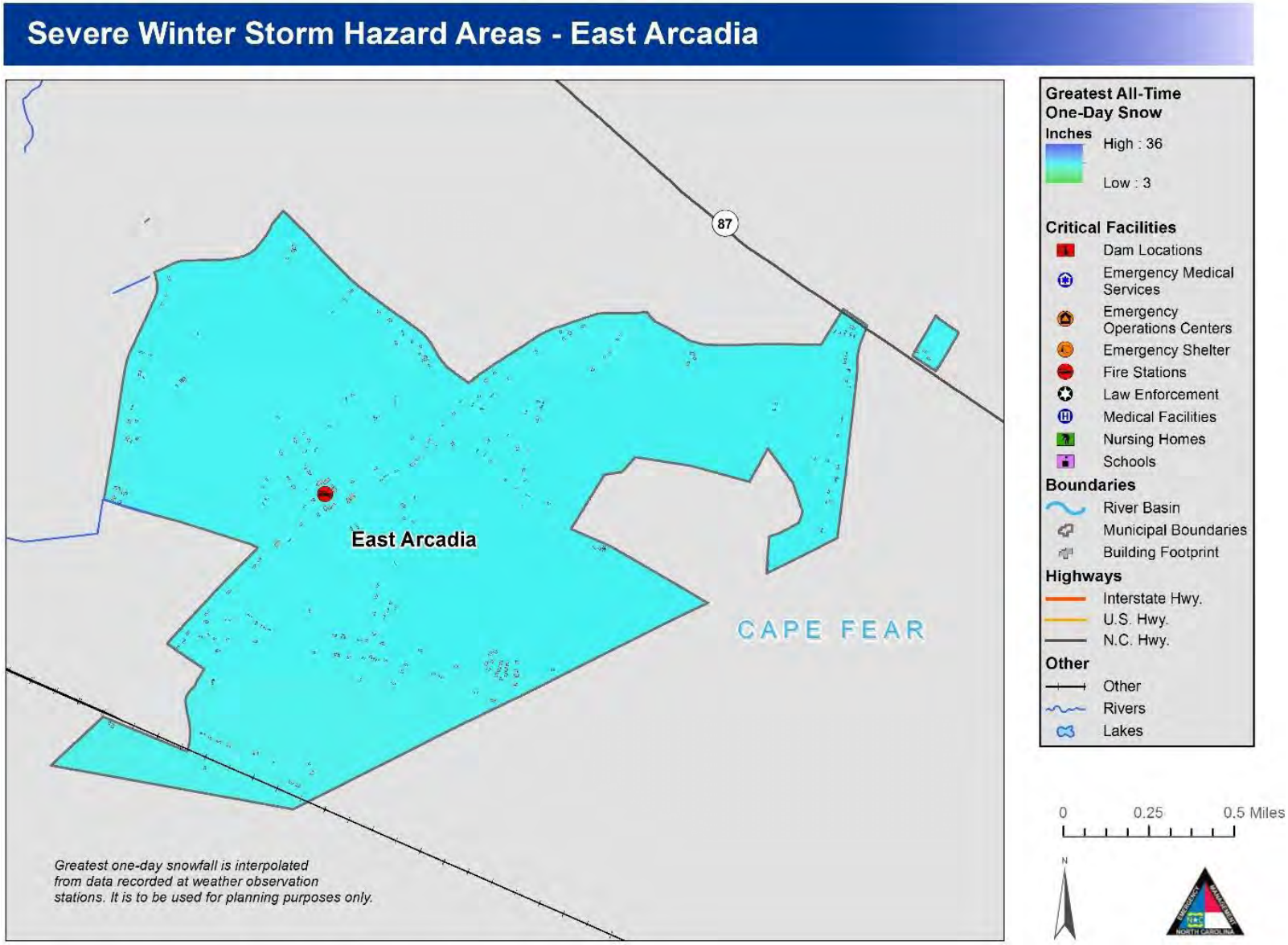


Figure 5-111: Severe Winter Storm Hazard Areas – East Arcadia

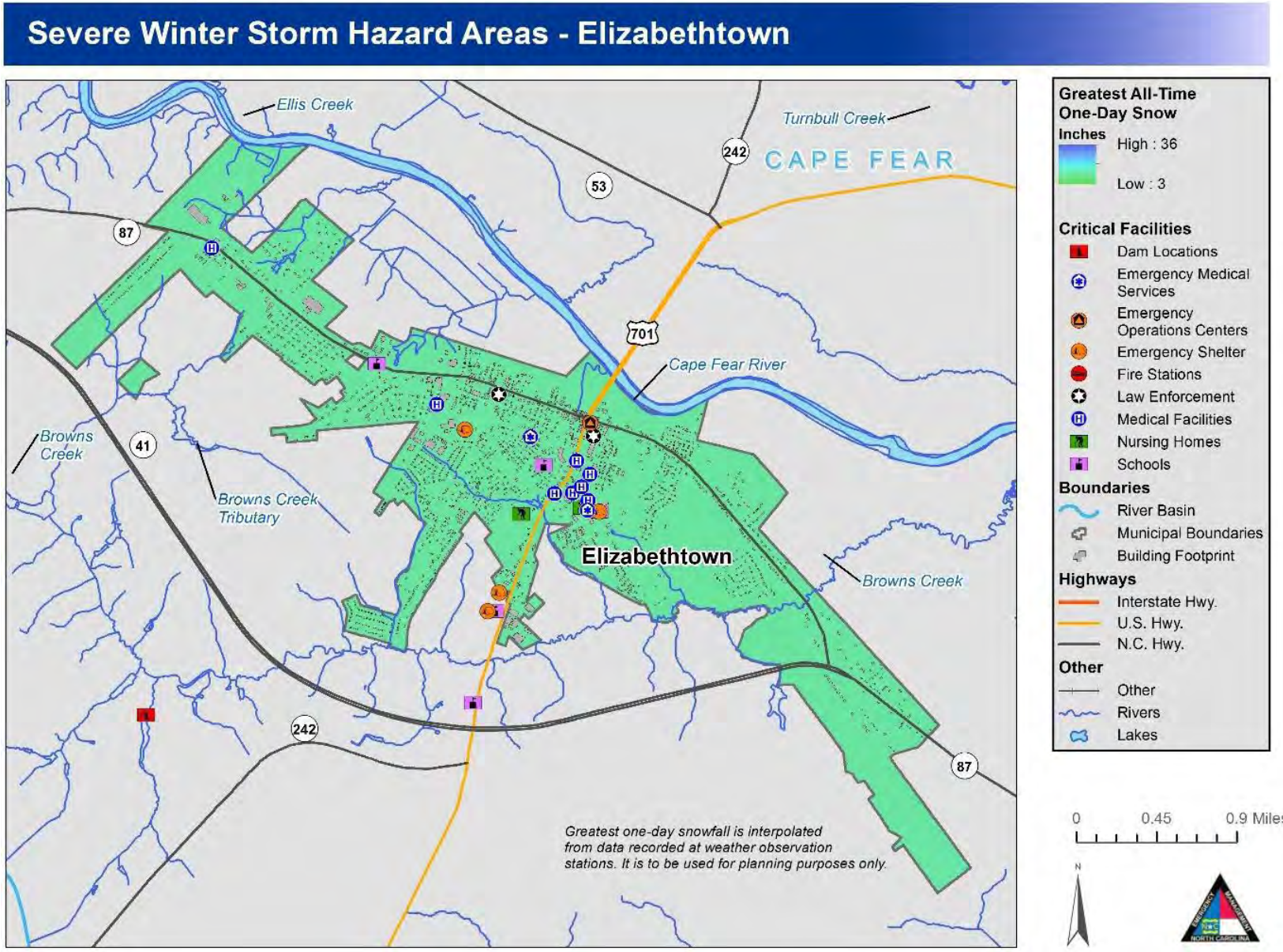


Figure 5-112: Severe Winter Storm Hazard Areas - Elizabethtown

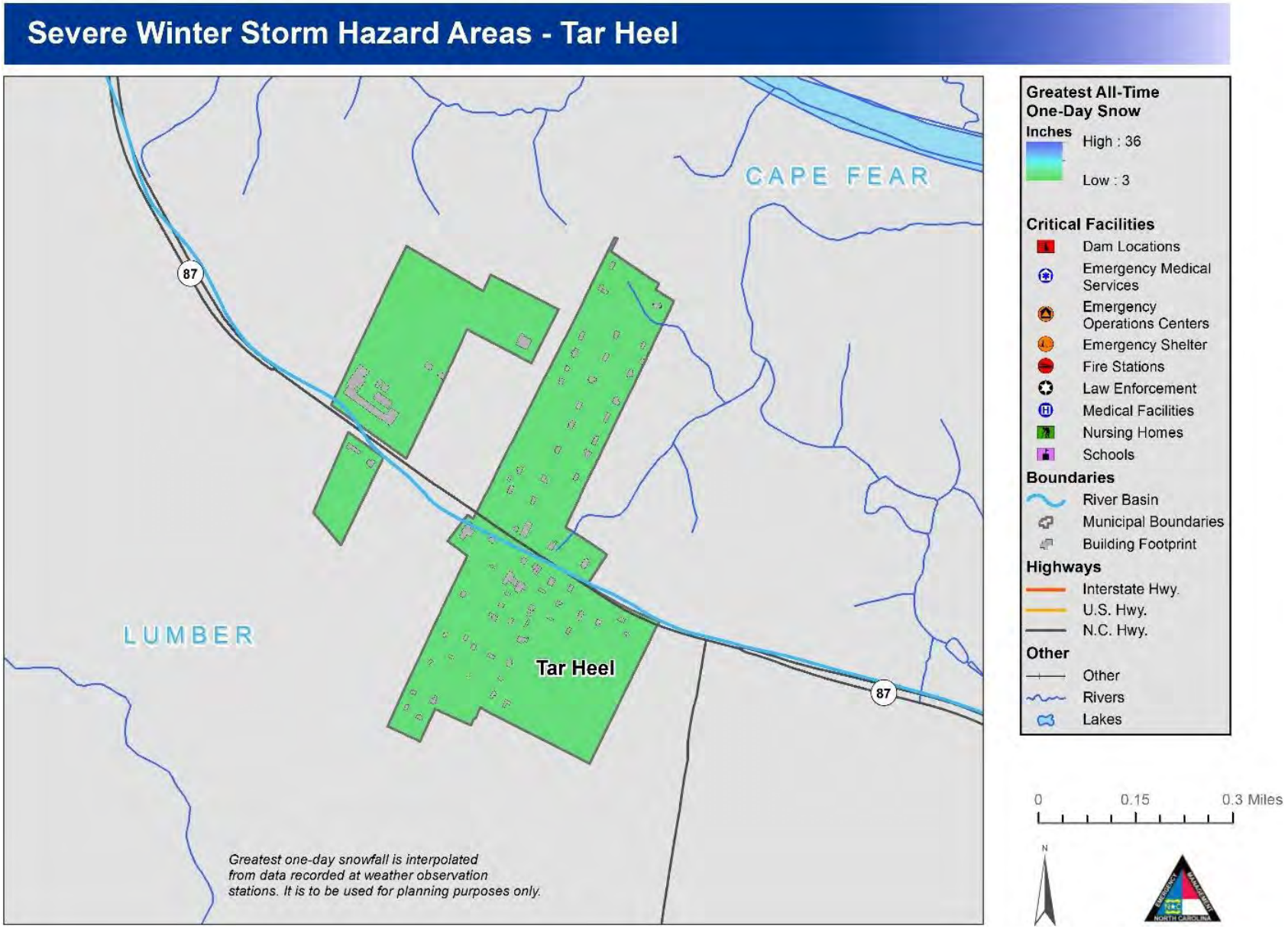


Figure 5-113: Severe Winter Storm Hazard Areas – Tar Heel

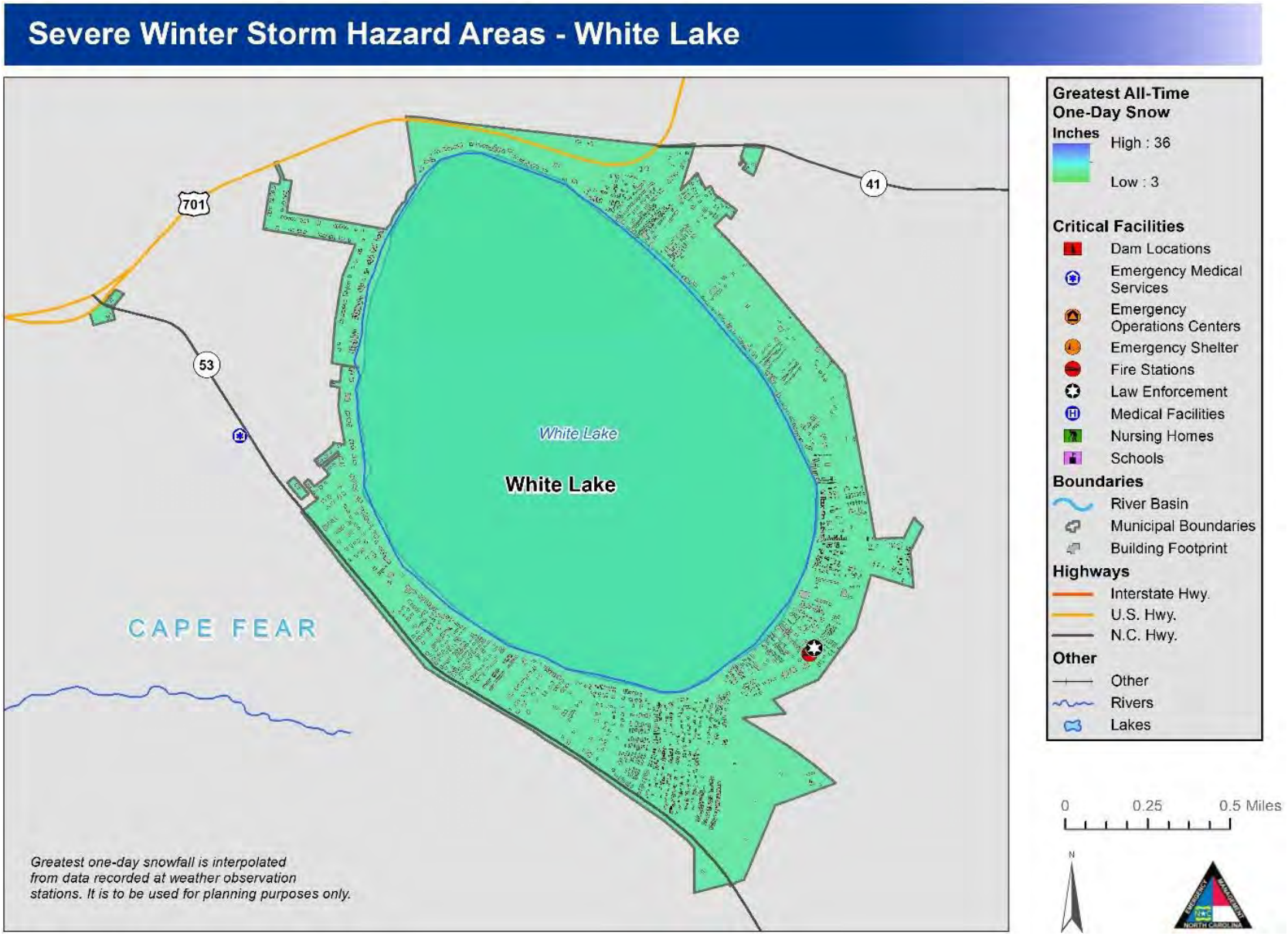


Figure 5-114: Severe Winter Storm Hazard Areas – White Lake

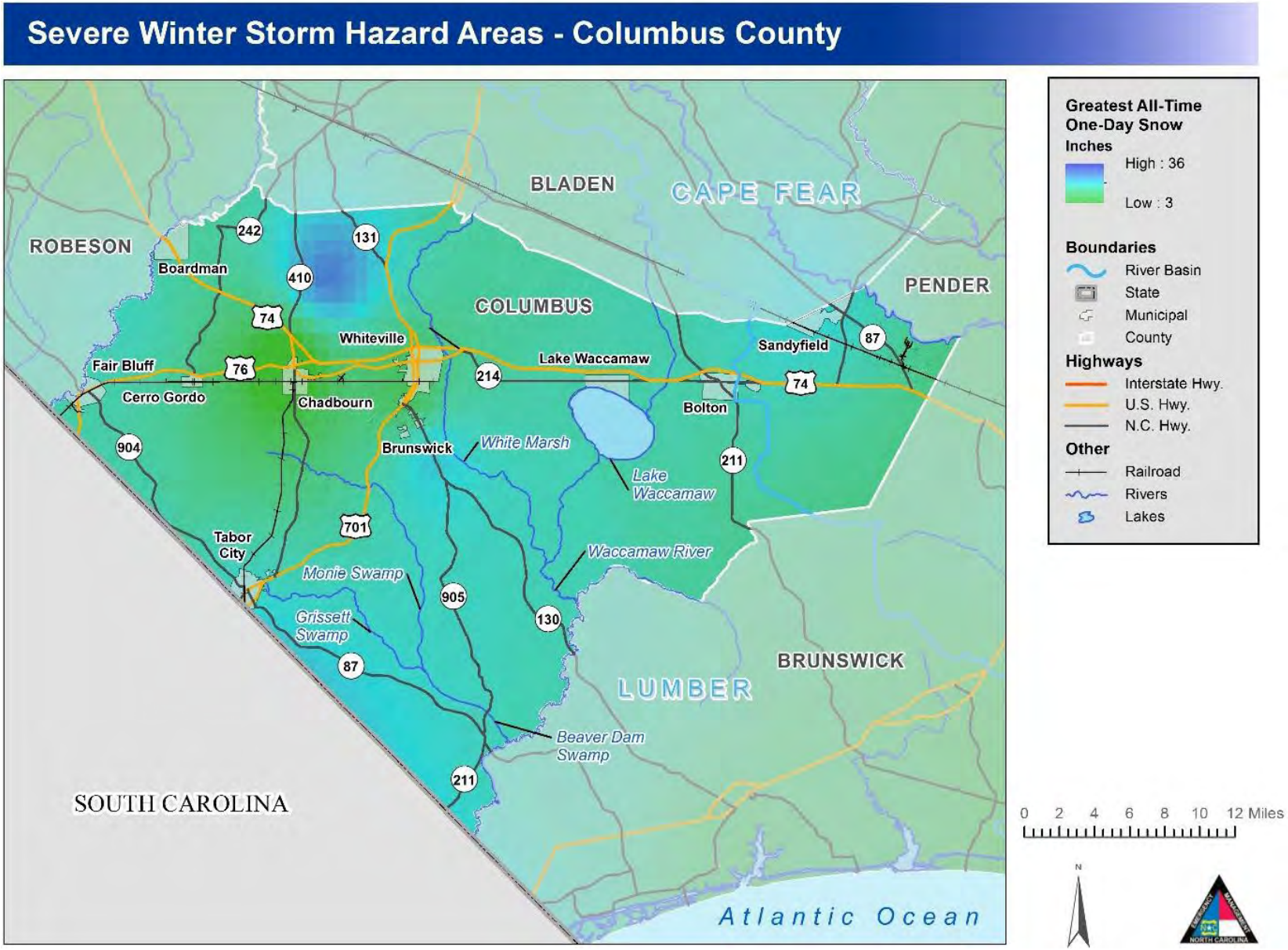


Figure 5-115: Severe Winter Storm Hazard Areas – Columbus County

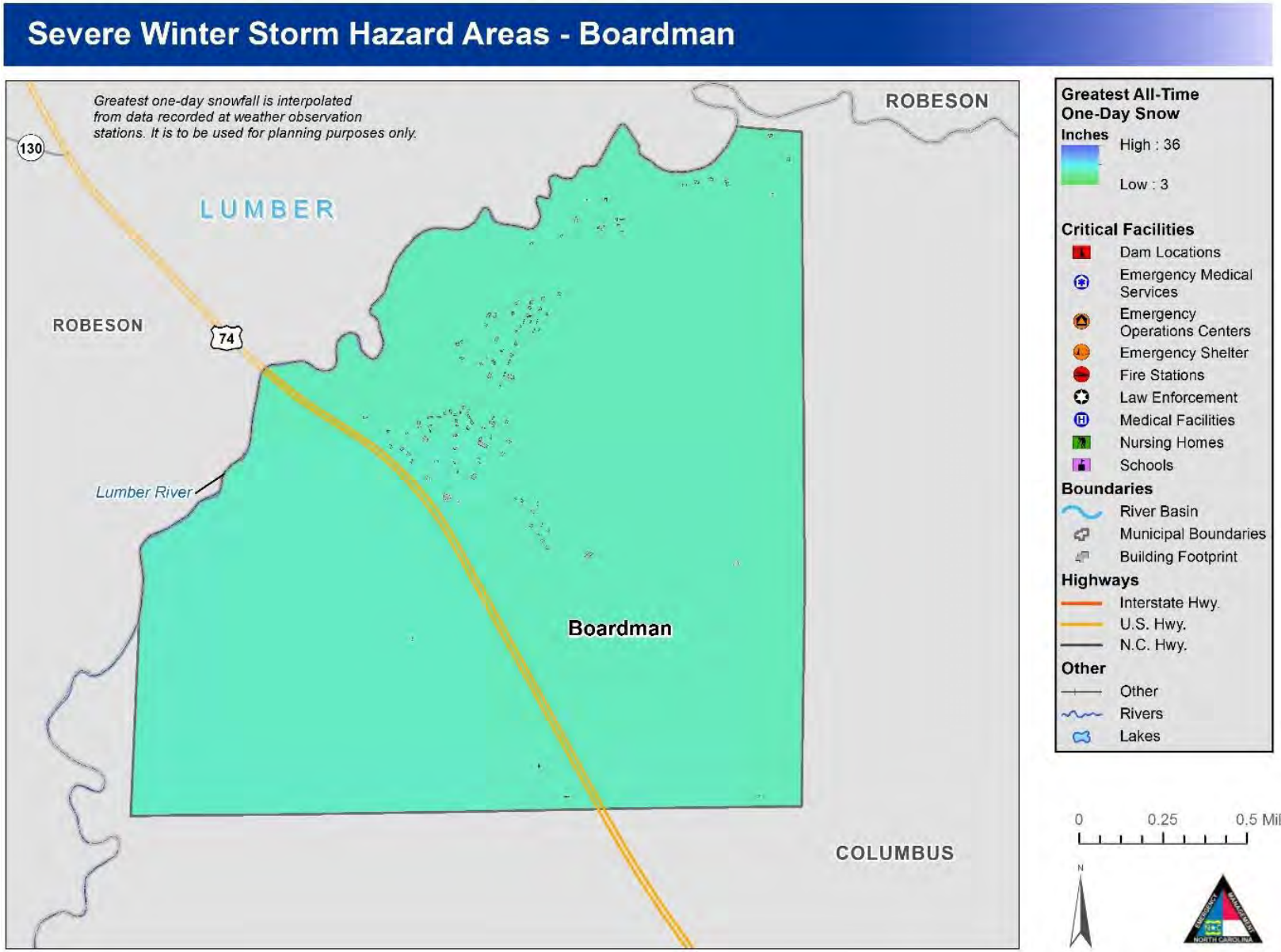


Figure 5-116: Severe Winter Storm Hazard Areas - Boardman

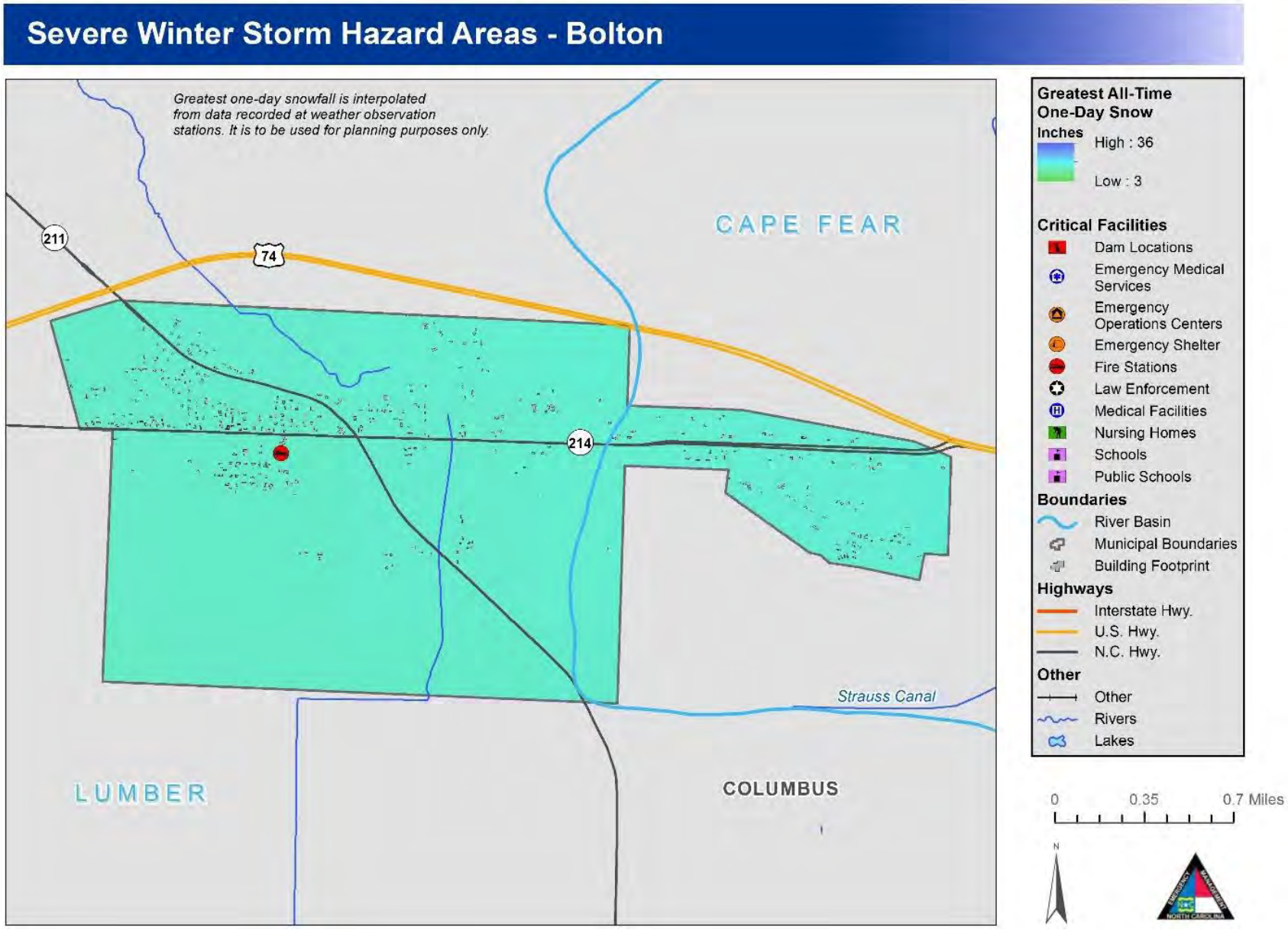


Figure 5-117: Severe Winter Storm Hazard Areas - Bolton

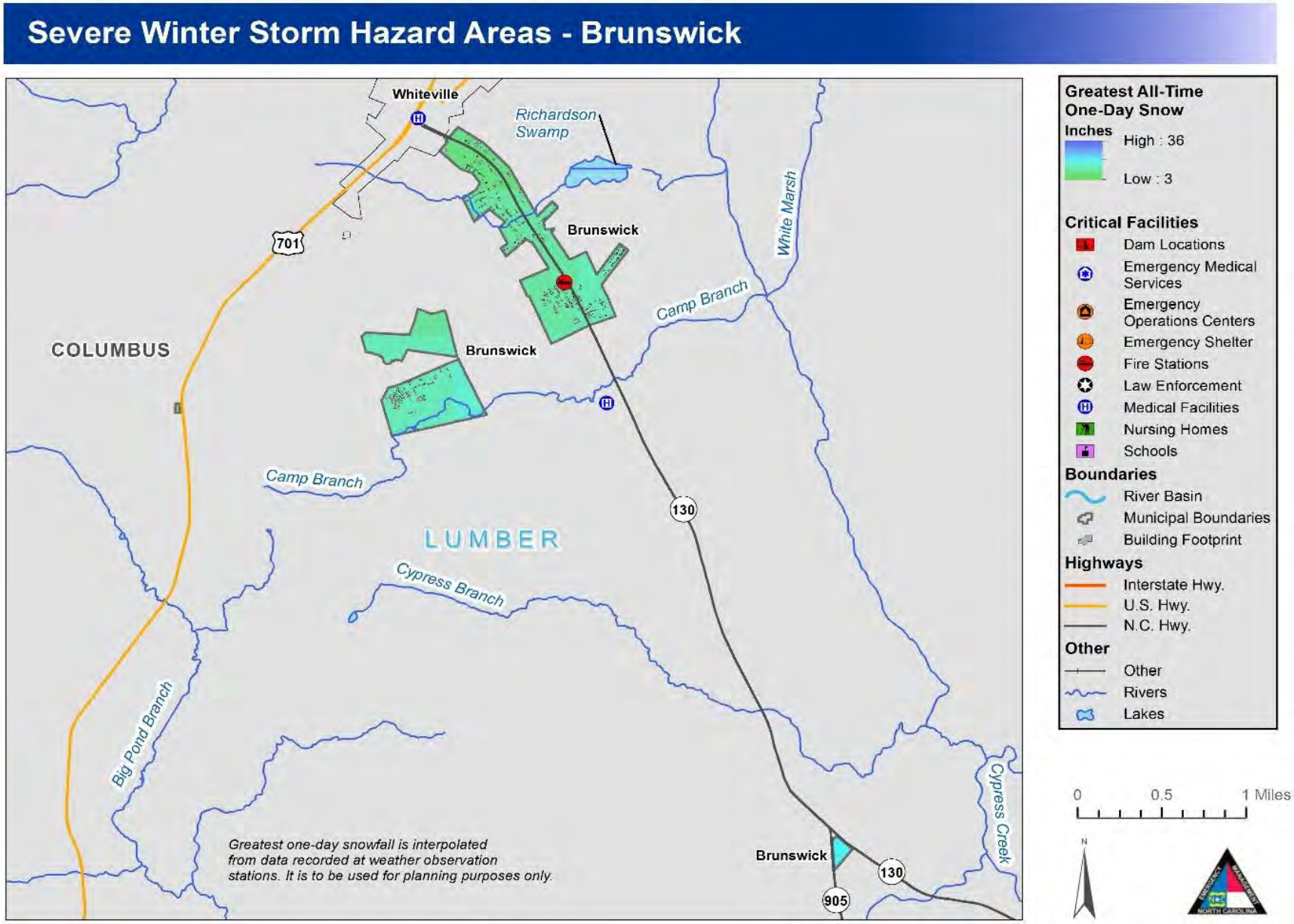


Figure 5-118: Severe Winter Storm Hazard Areas - Brunswick

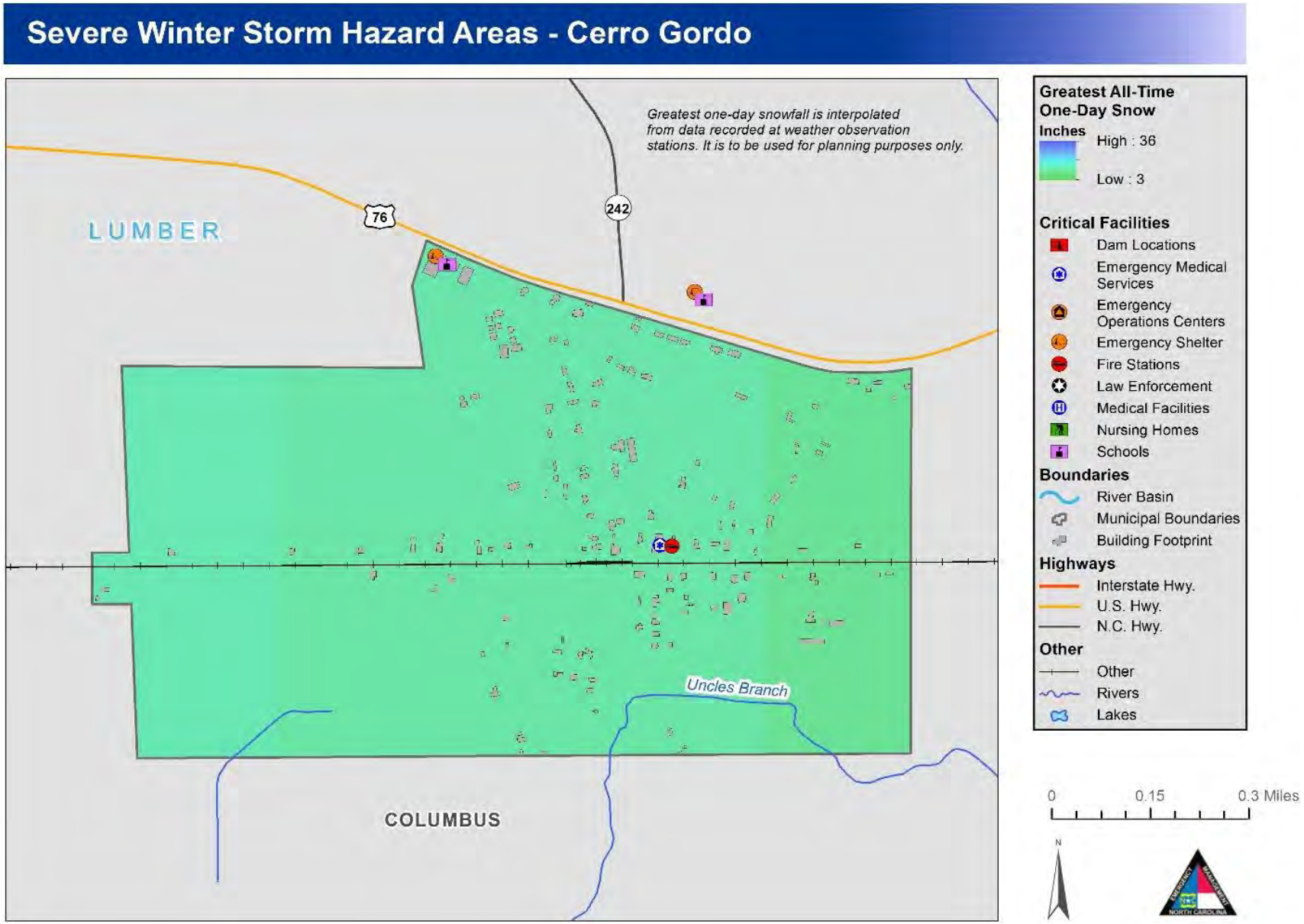


Figure 5-119: Severe Winter Storm Hazard Areas – Cerro Gordo

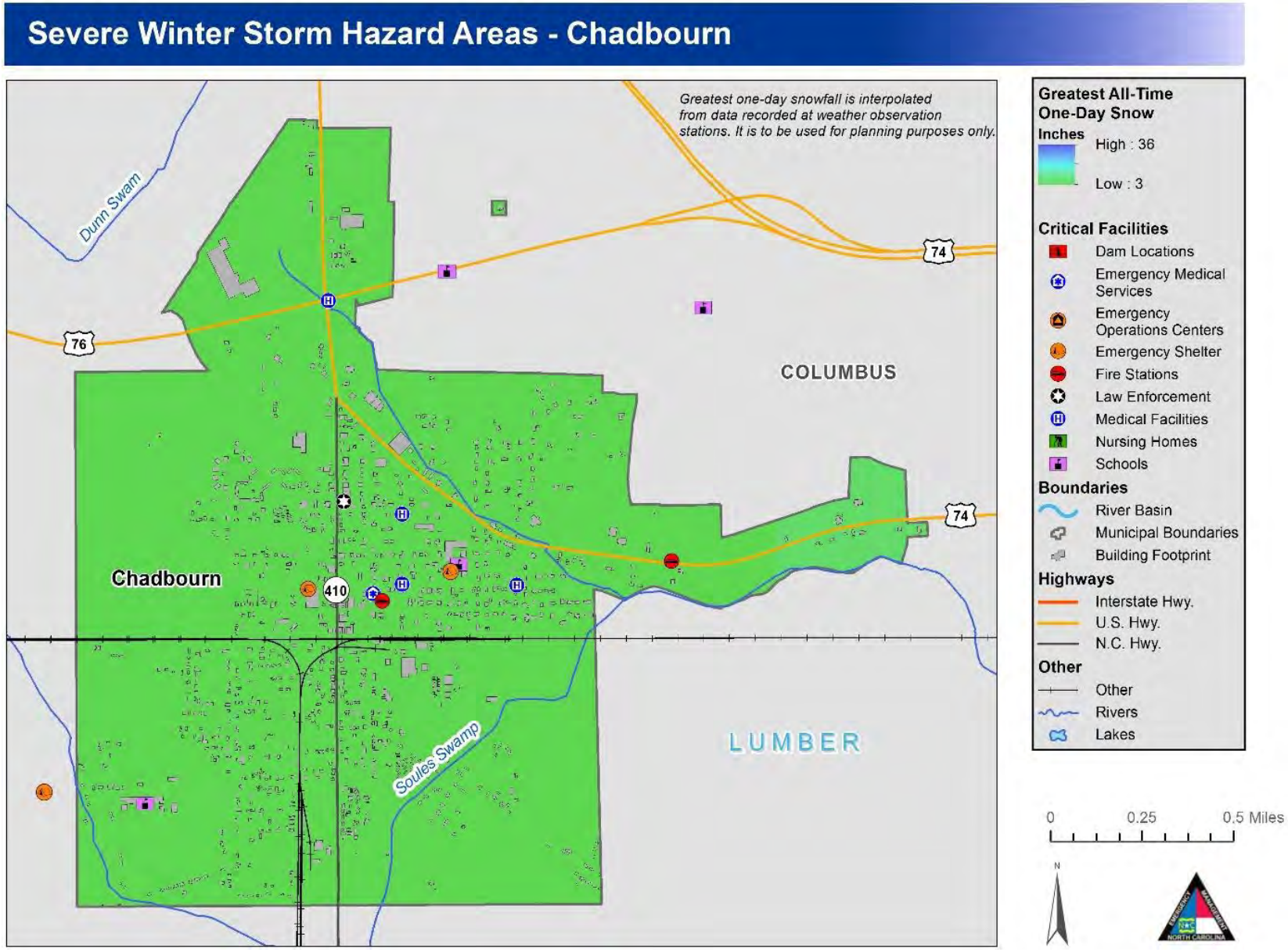


Figure 5-120: Severe Winter Storm Hazard Areas - Chadbourn

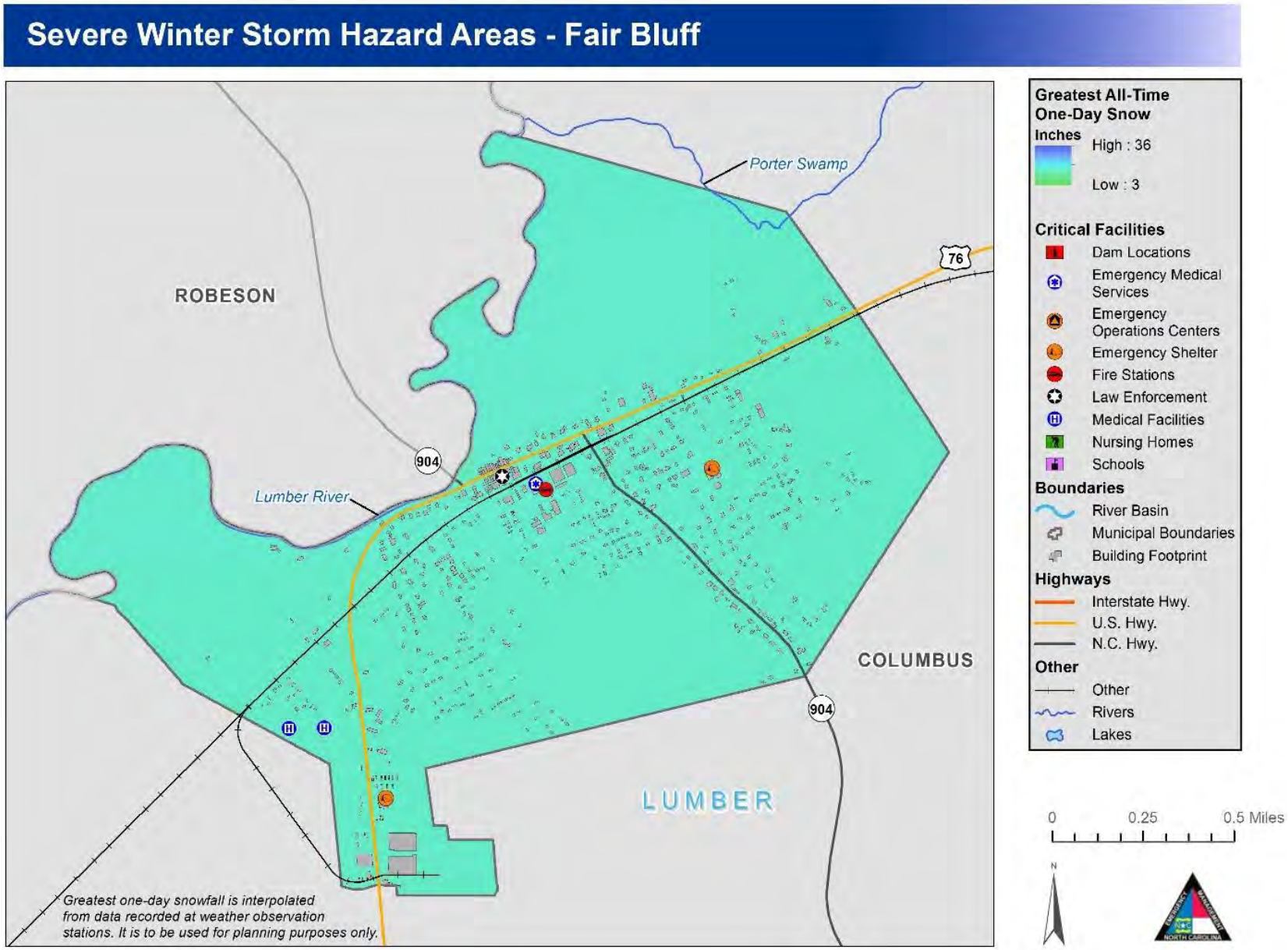


Figure 5-121: Severe Winter Storm Hazard Areas – Fair Bluff

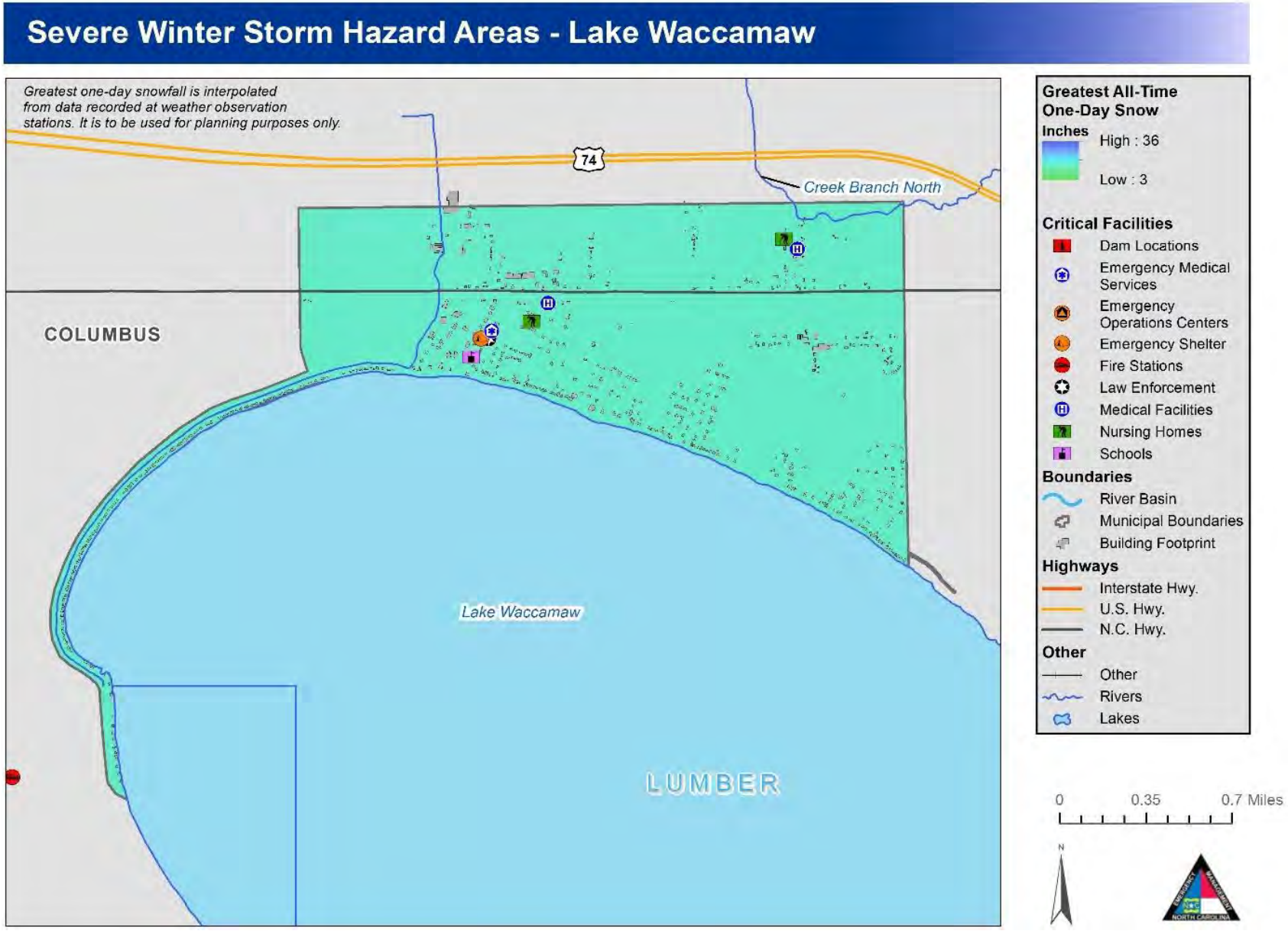


Figure 5-122: Severe Winter Storm Hazard Areas – Lake Waccamaw

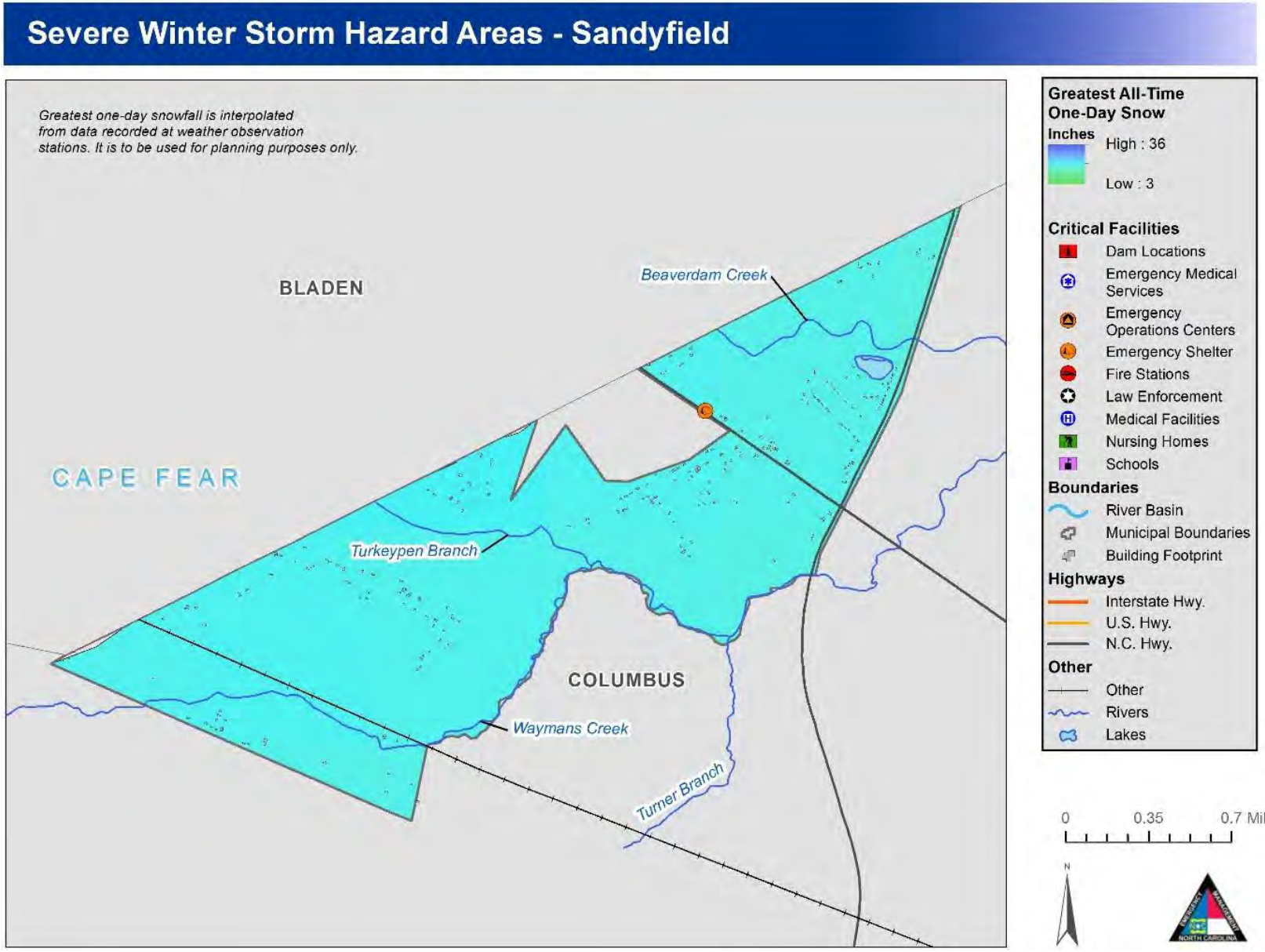


Figure 5-123: Severe Winter Storm Hazard Areas - Sandyfield

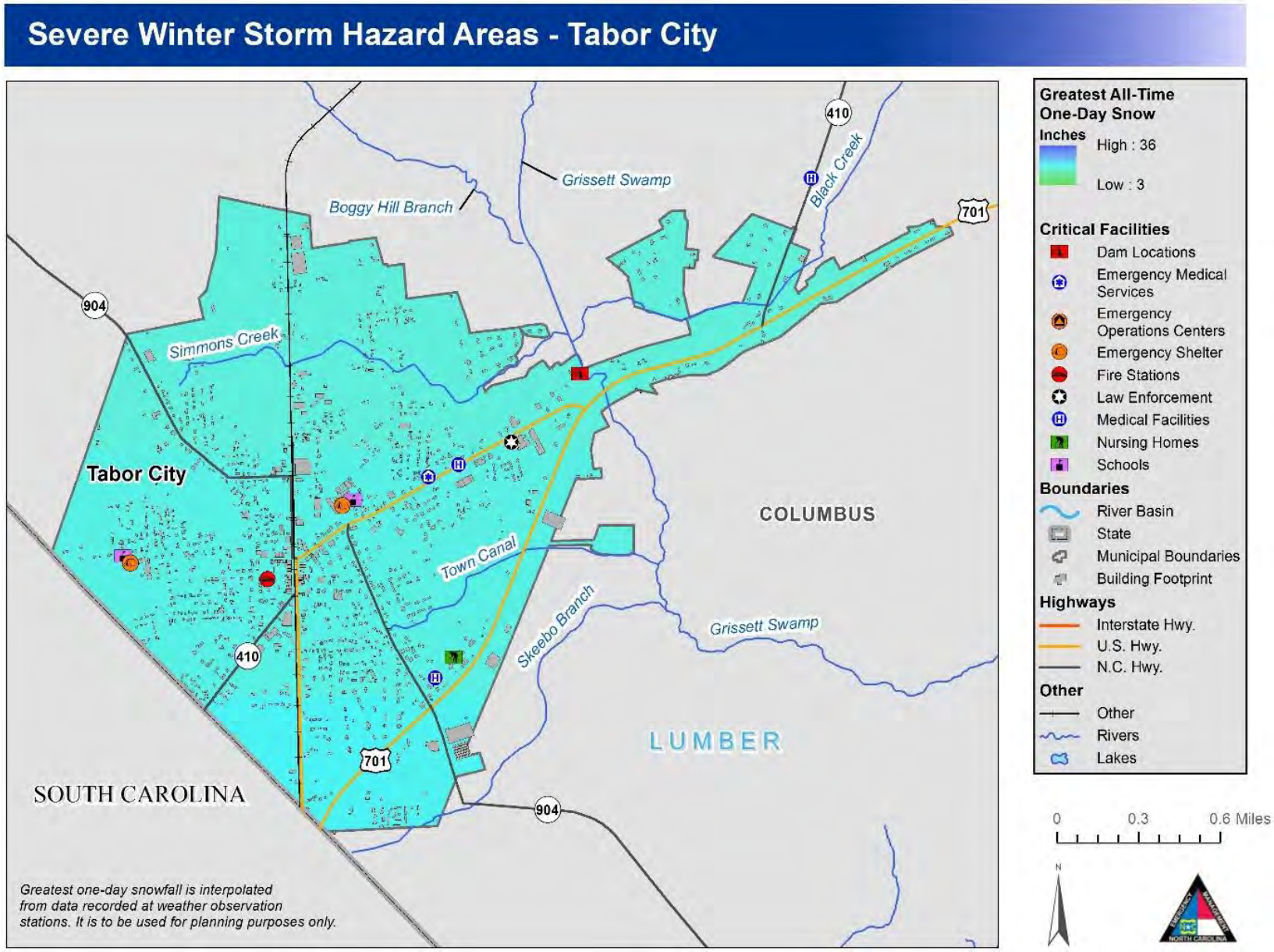


Figure 5-124: Severe Winter Storm Hazard Areas – Tabor City

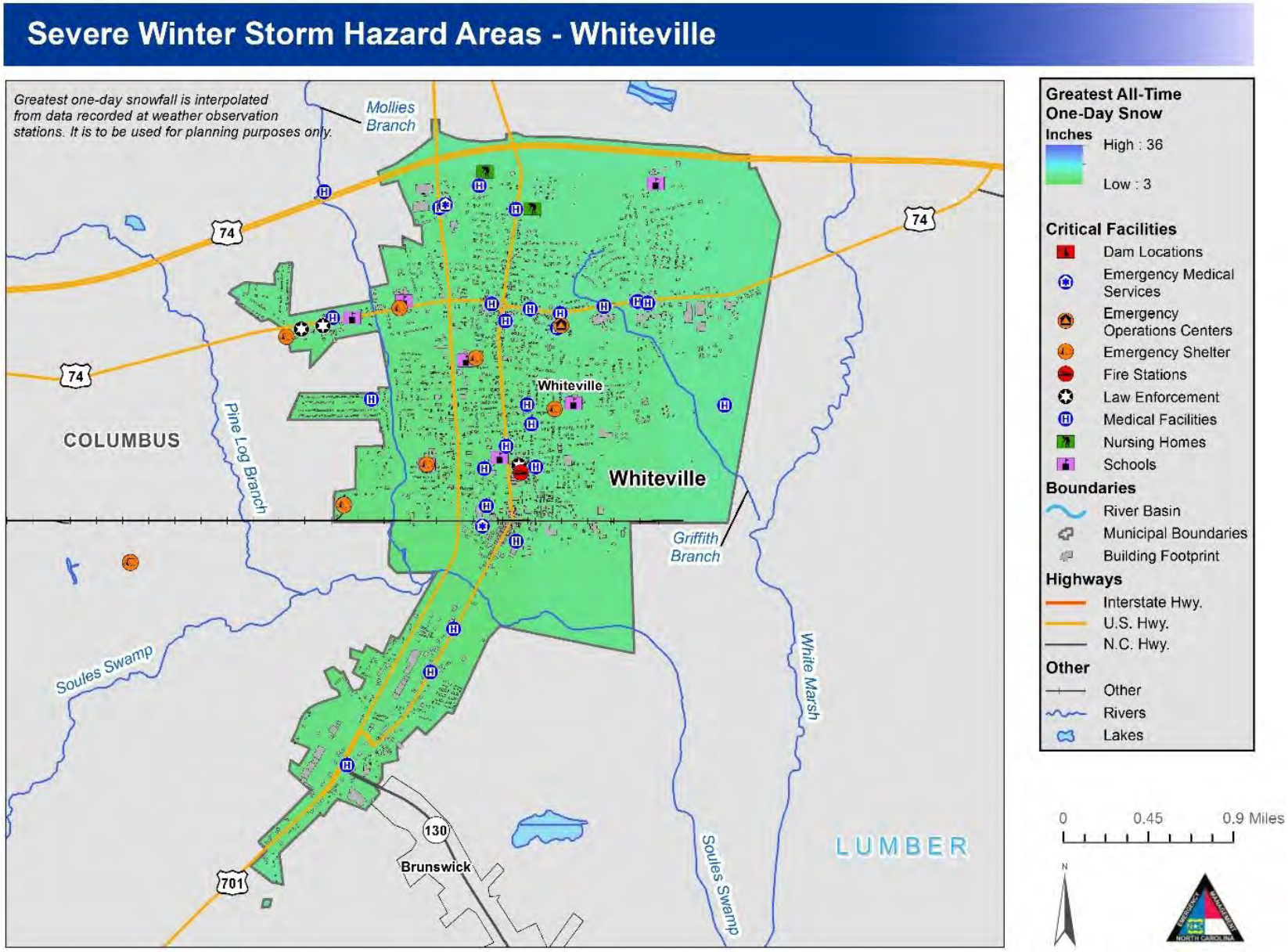


Figure 5-125: Severe Winter Storm Hazard Areas - Whiteville

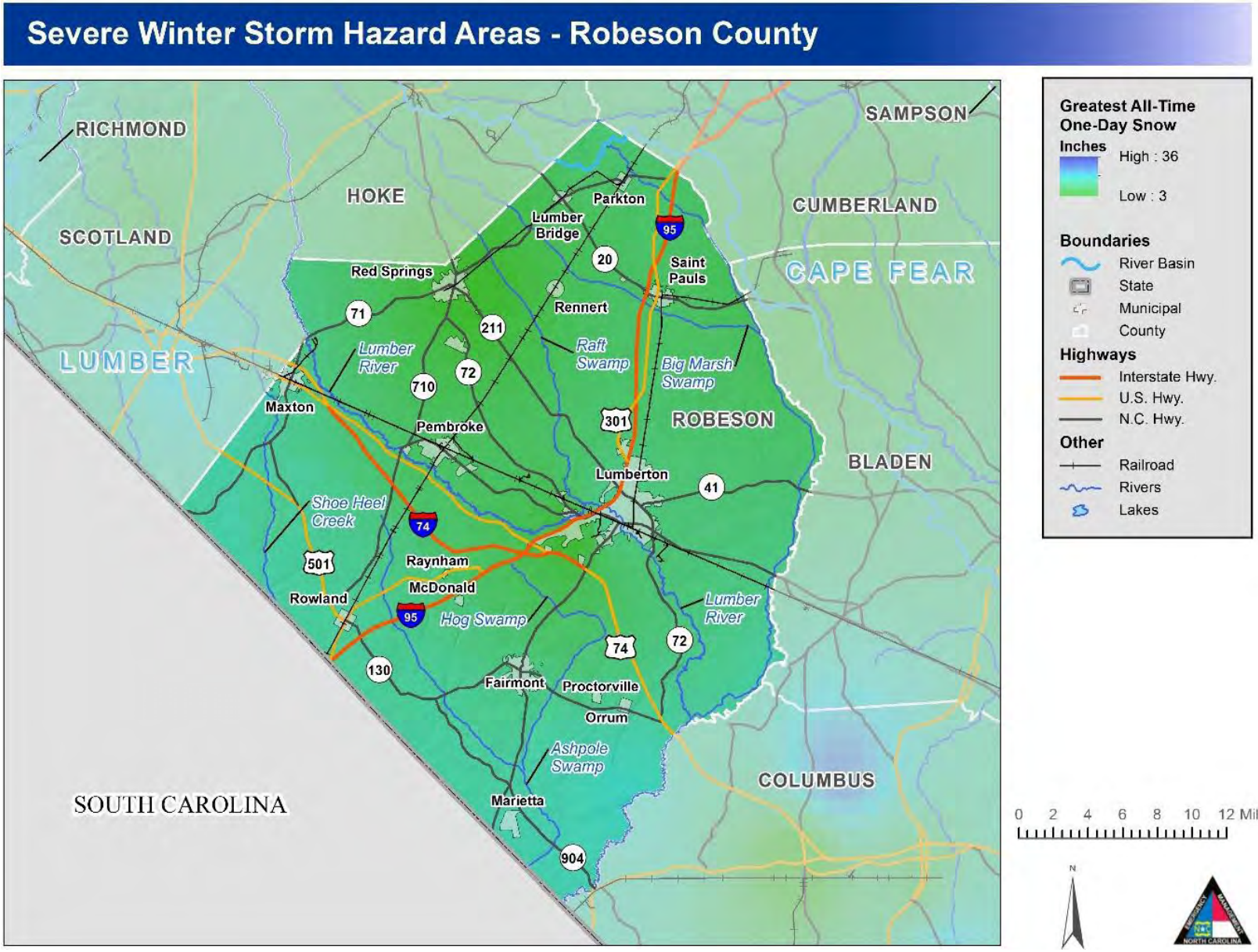


Figure 5-126: Severe Winter Storm Hazard Areas – Robeson County

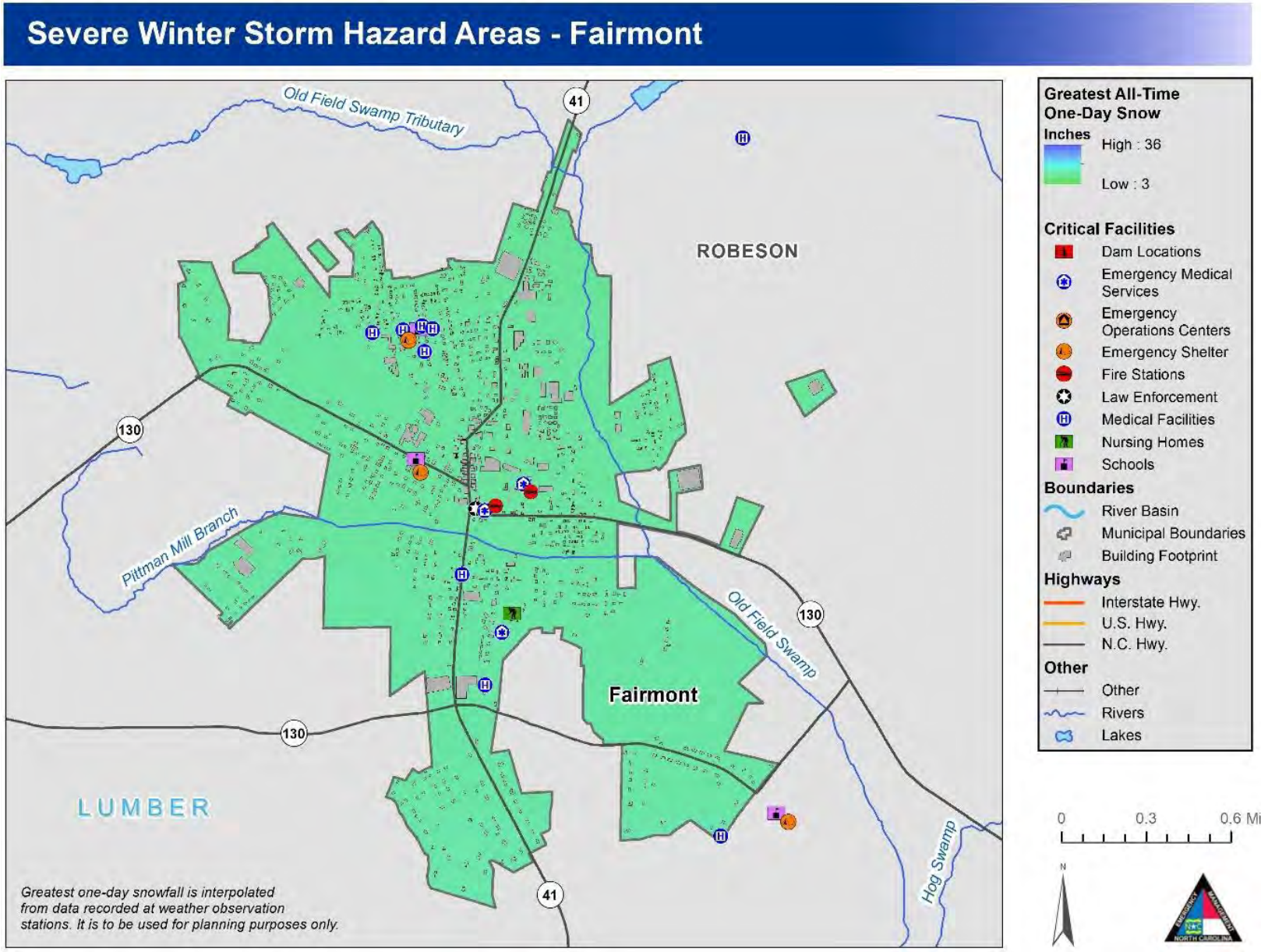


Figure 5-127: Severe Winter Storm Hazard Areas - Fairmont

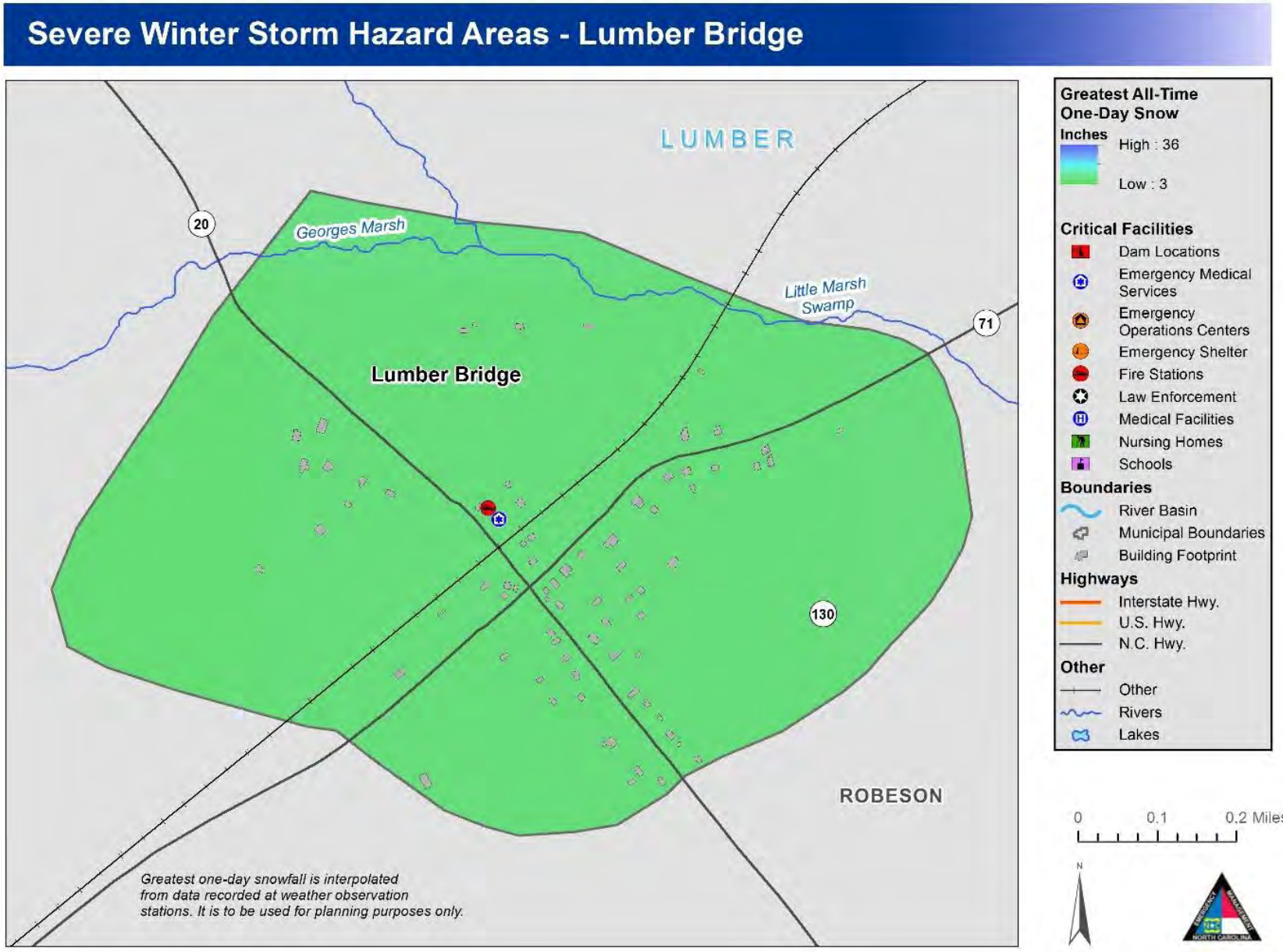


Figure 5-128: Severe Winter Storm Hazard Areas – Lumber Bridge

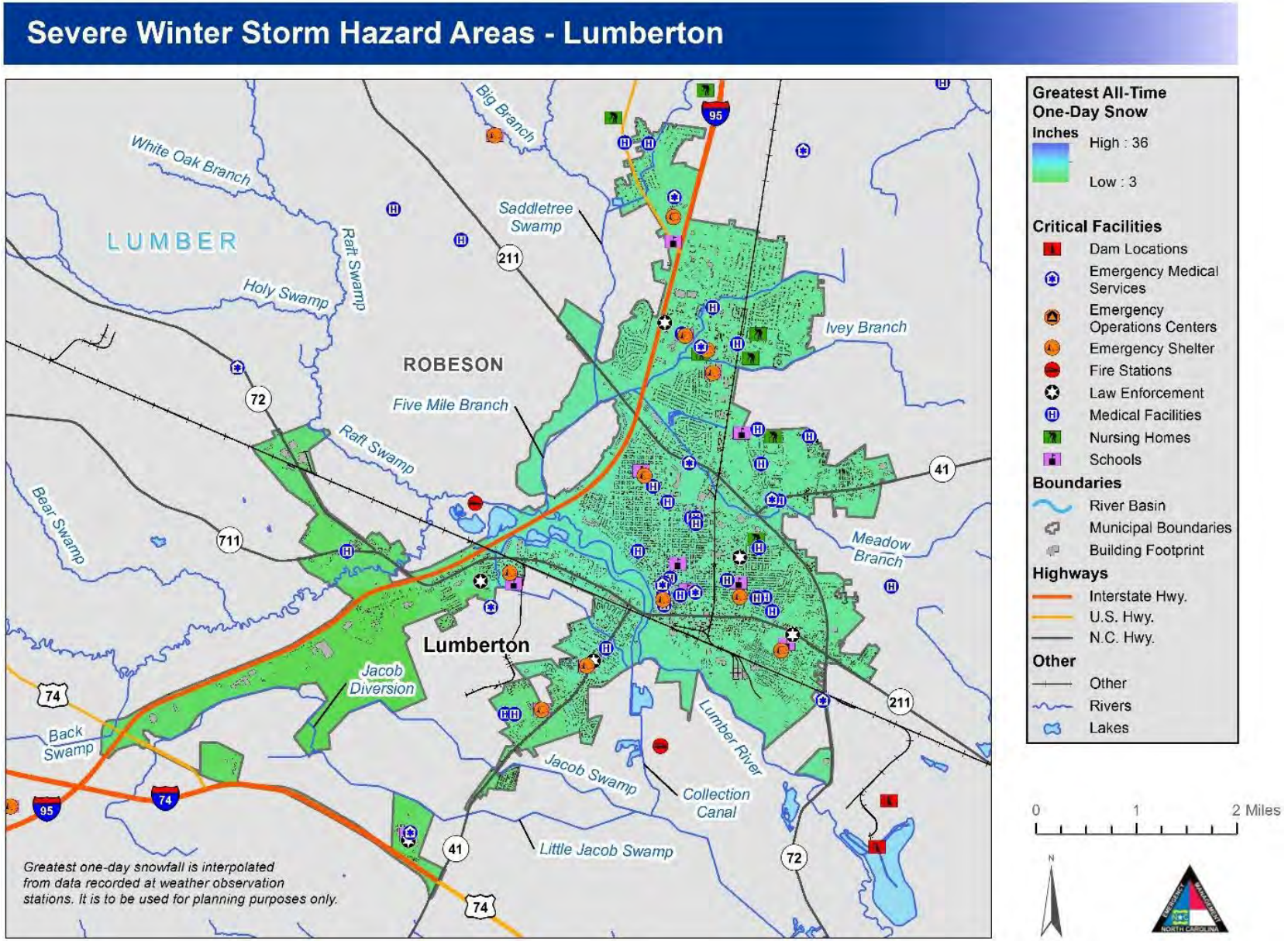


Figure 5-129: Severe Winter Storm Hazard Areas - Lumberton

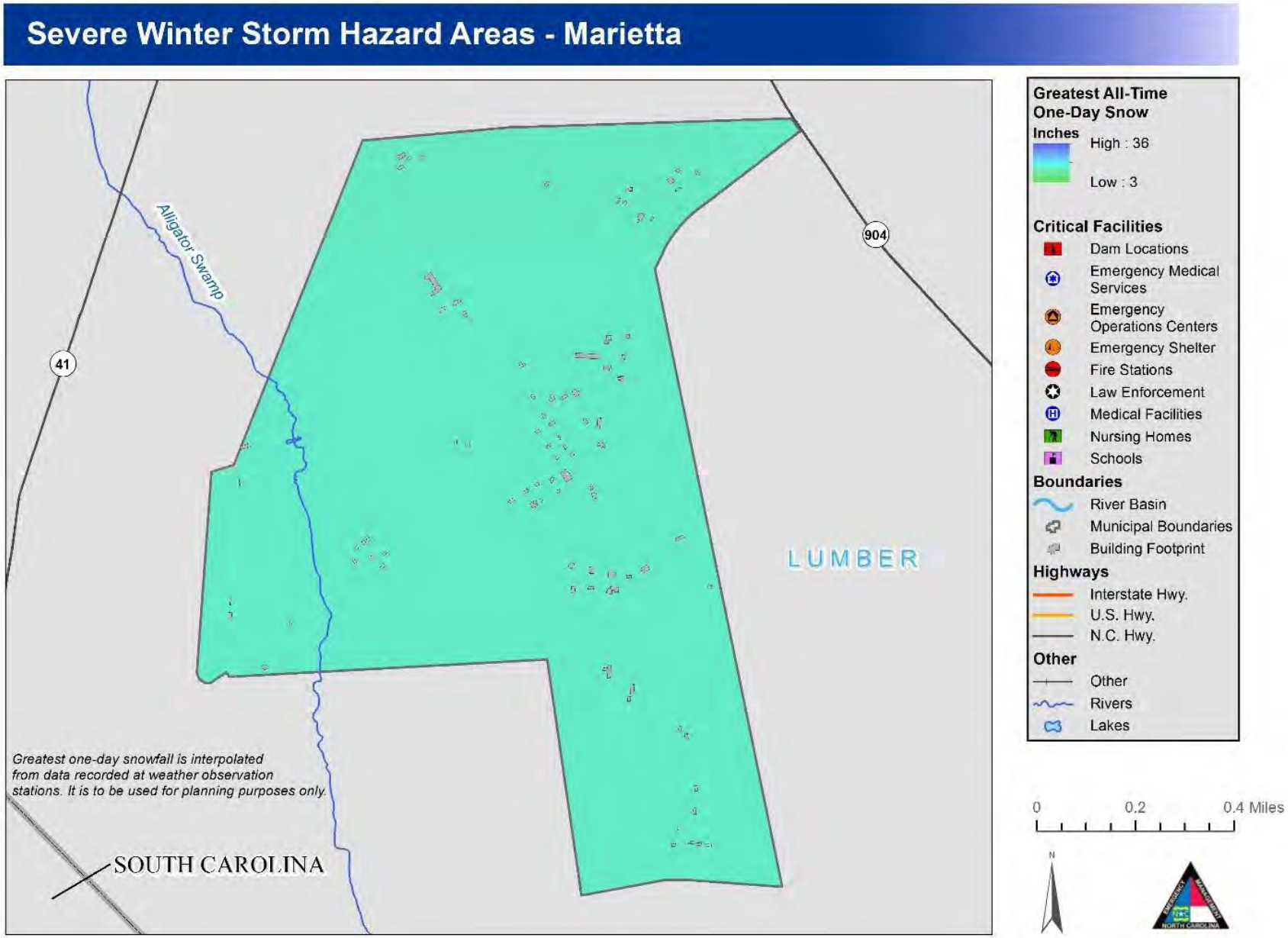


Figure 5-130: Severe Winter Storm Hazard Areas - Marietta

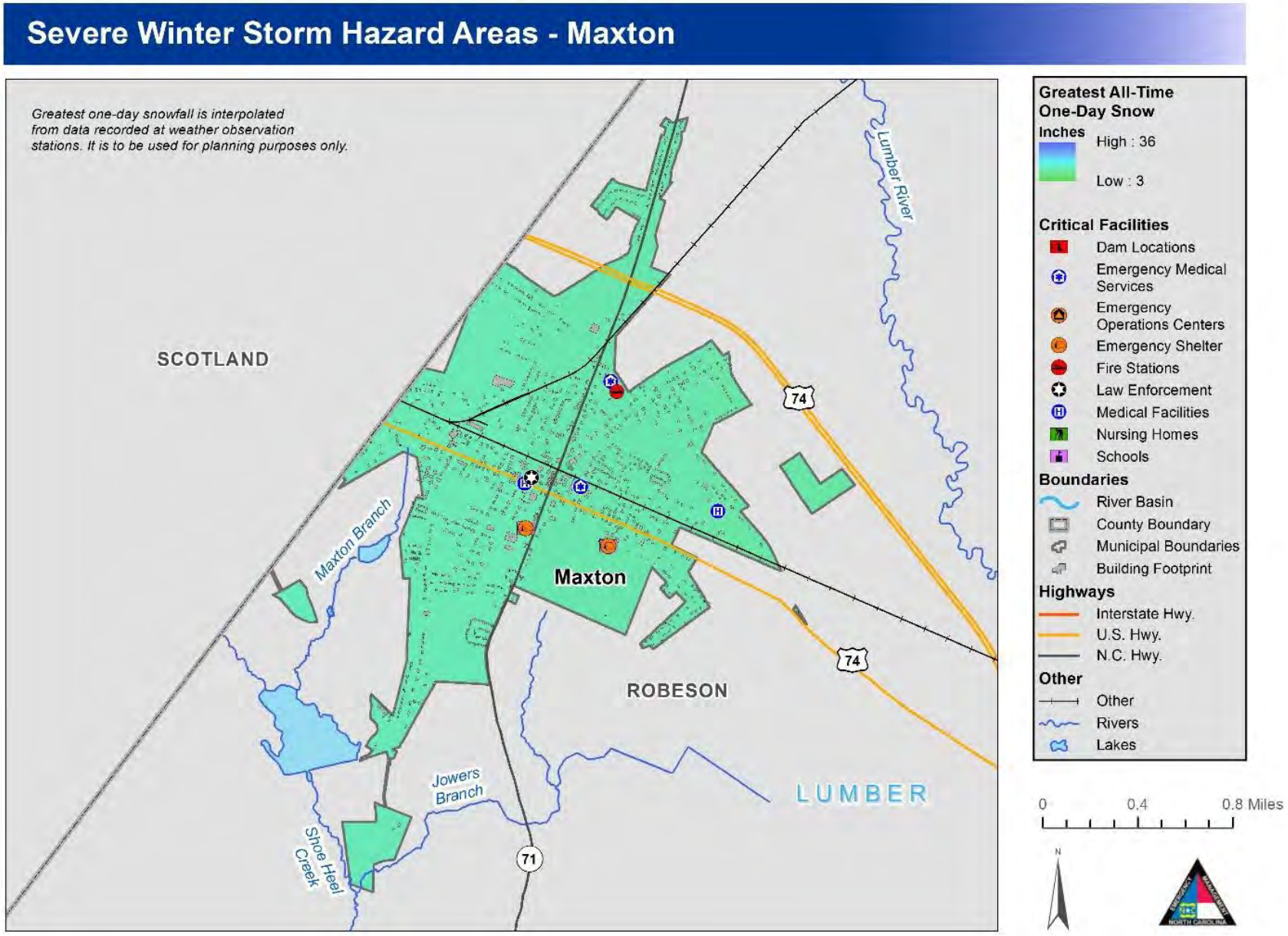


Figure 5-131: Severe Winter Storm Hazard Areas – Maxton

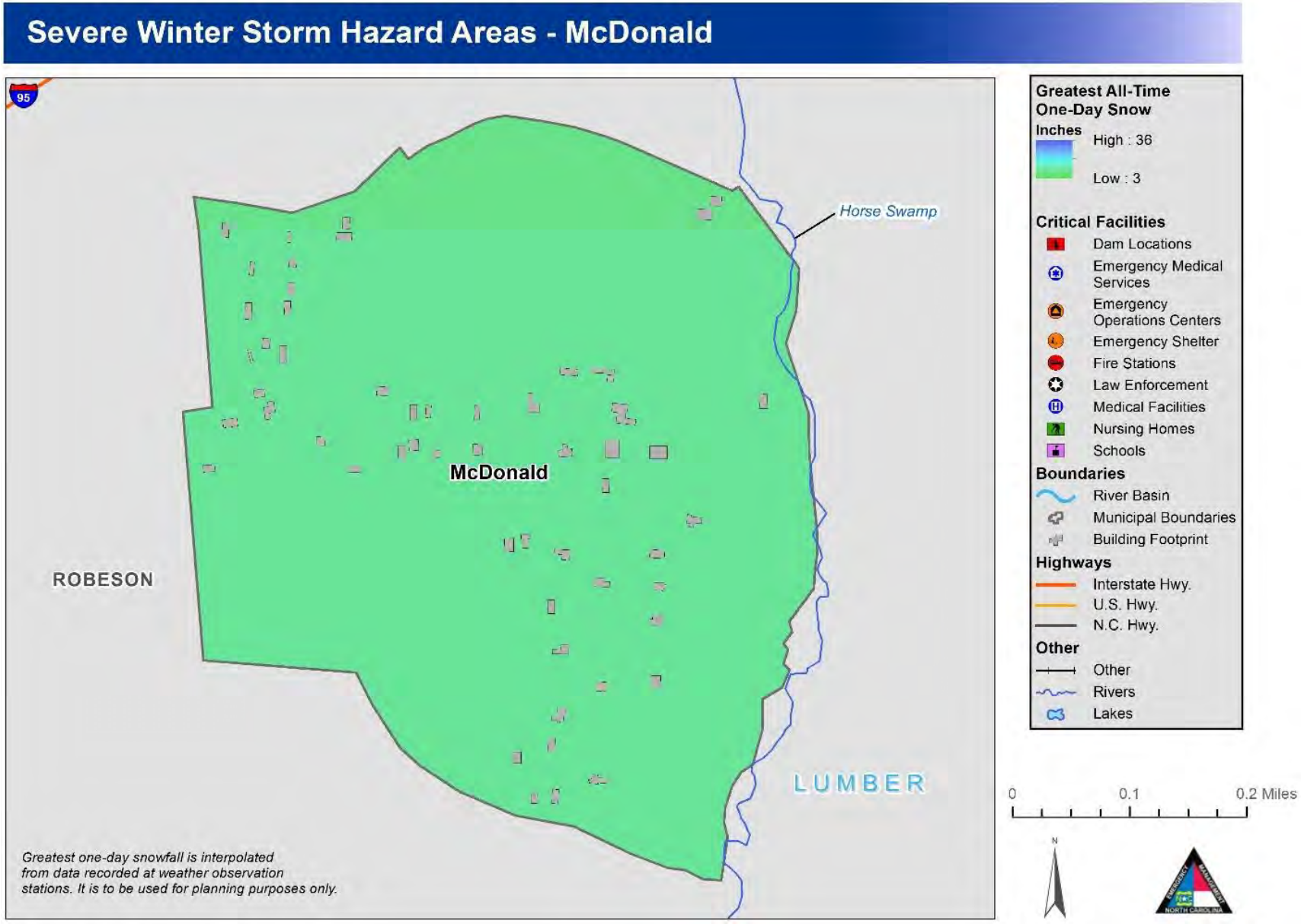


Figure 5-132: Severe Winter Storm Hazard Areas - McDonald

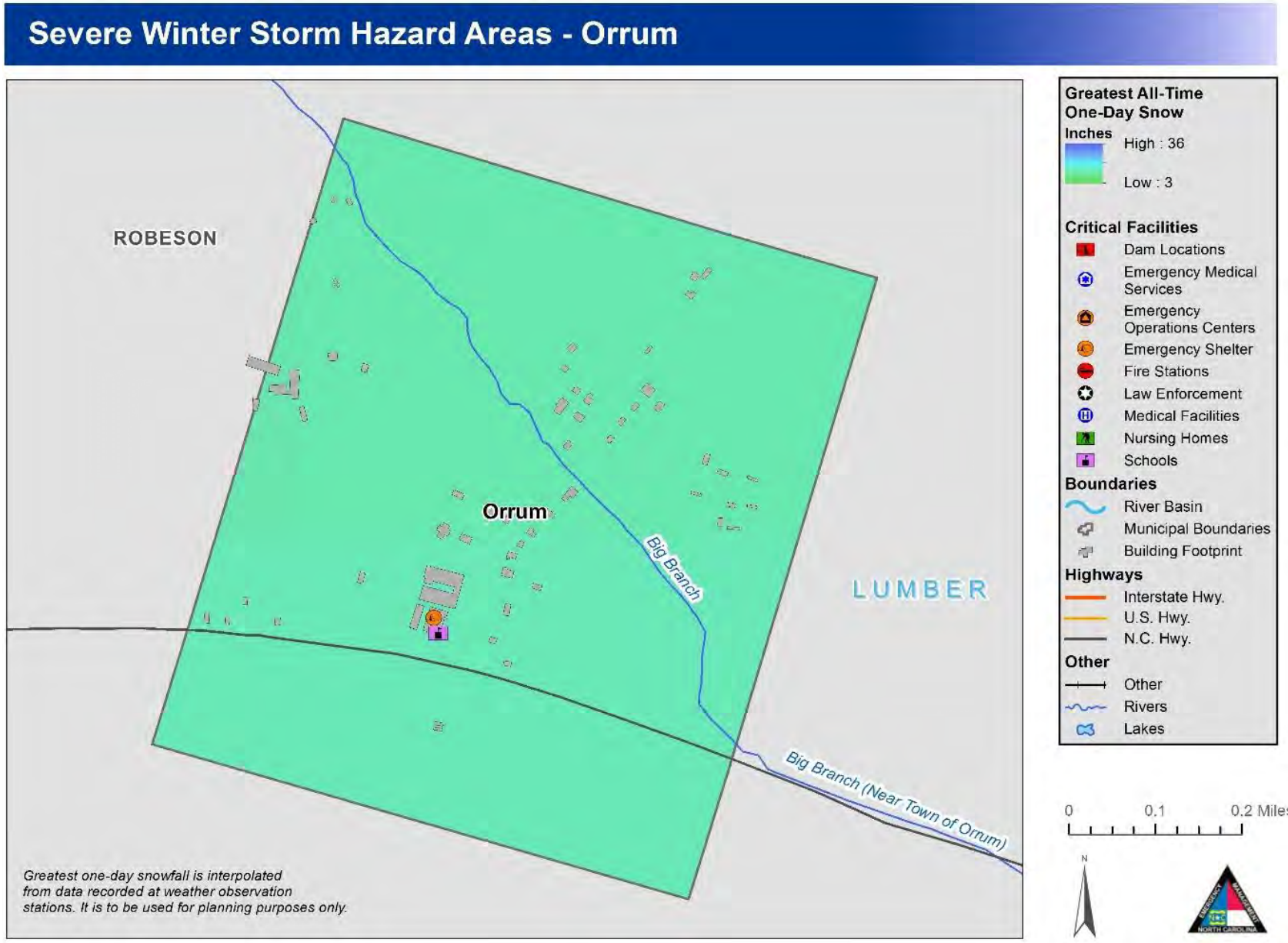


Figure 5-133: Severe Winter Storm Hazard Areas - Orrum

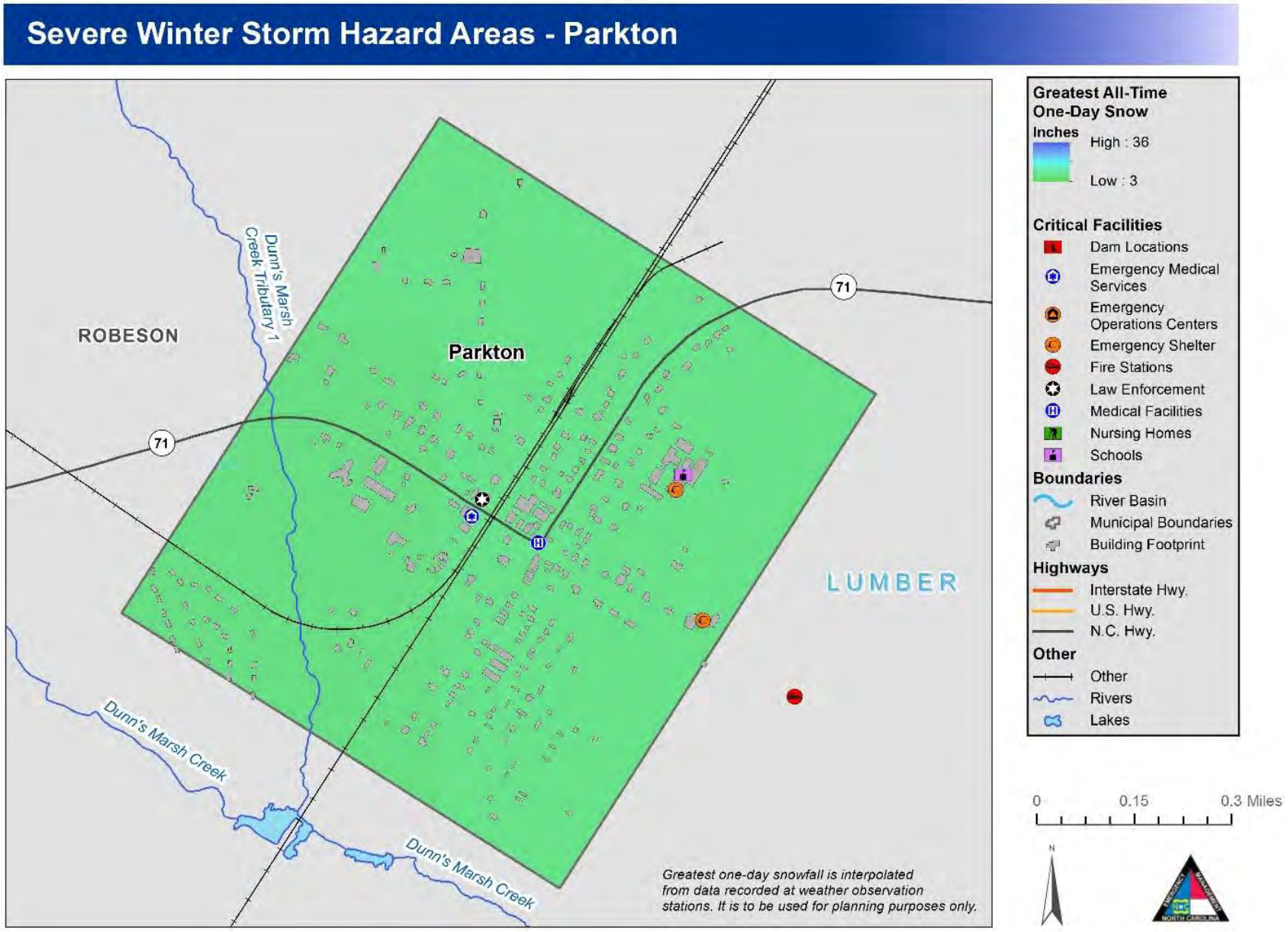


Figure 5-134: Severe Winter Storm Hazard Areas - Parkton

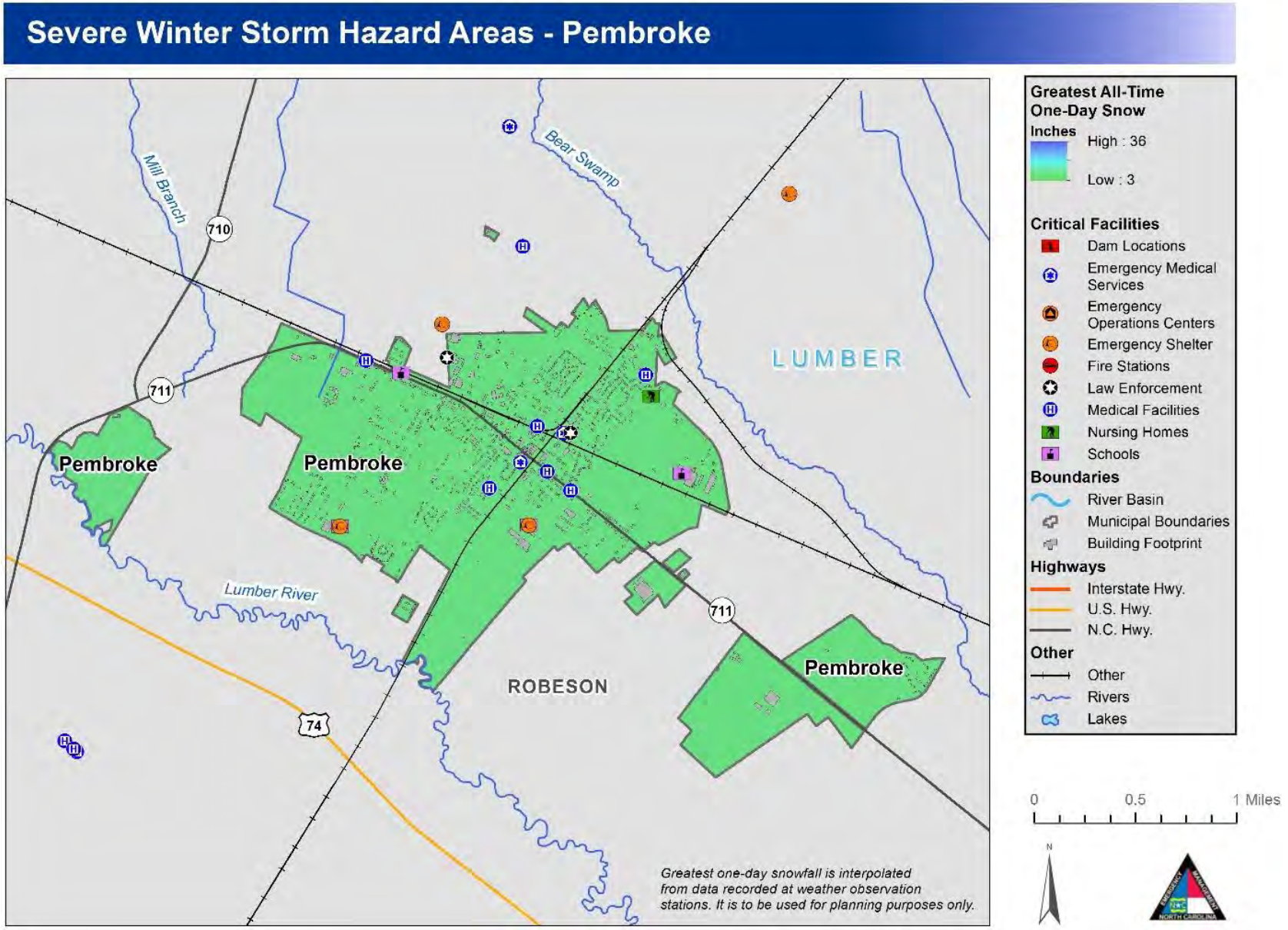


Figure 5-135: Severe Winter Storm Hazard Areas - Pembroke

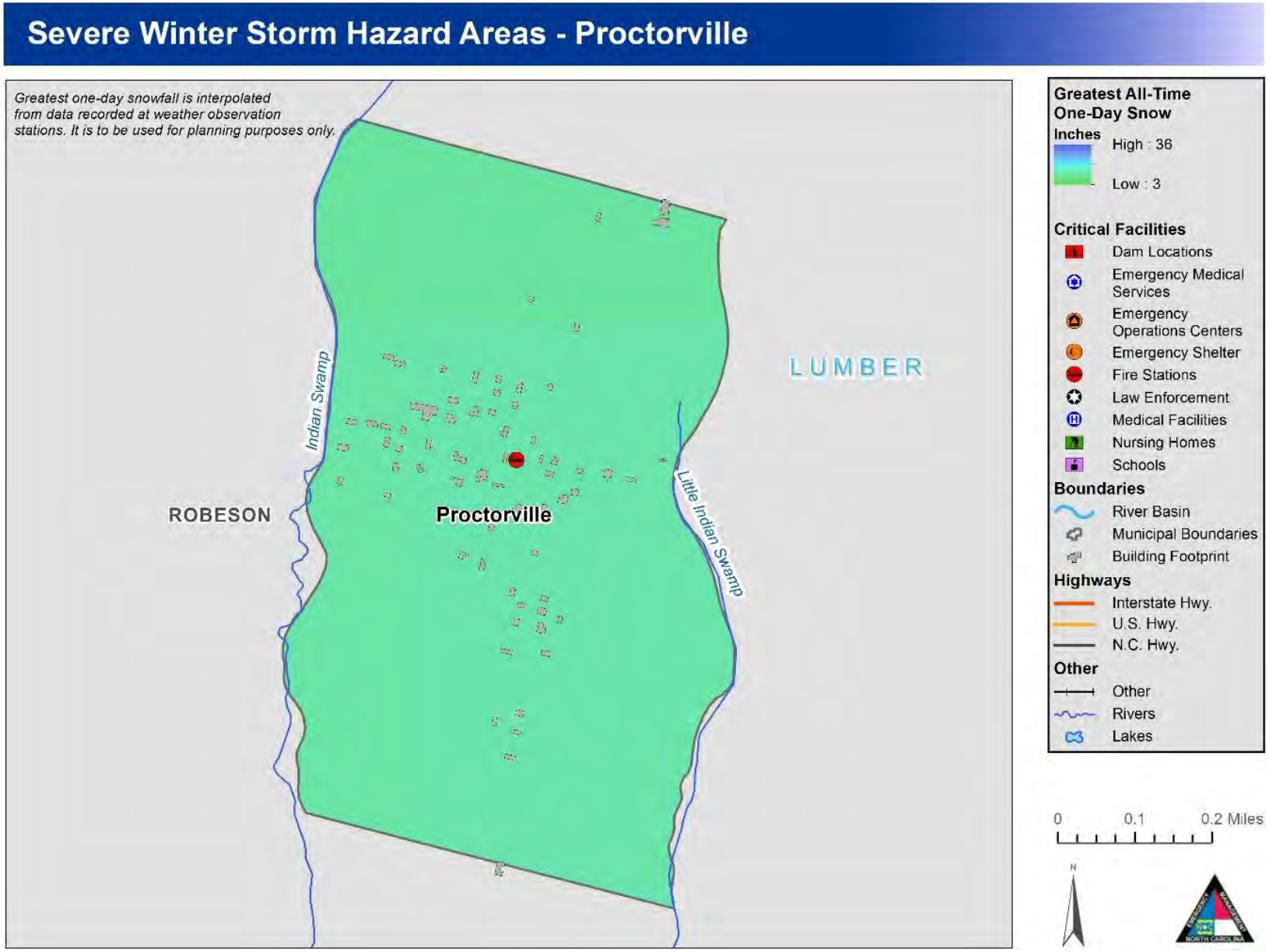


Figure 5-136: Severe Winter Storm Hazard Areas - Proctorville

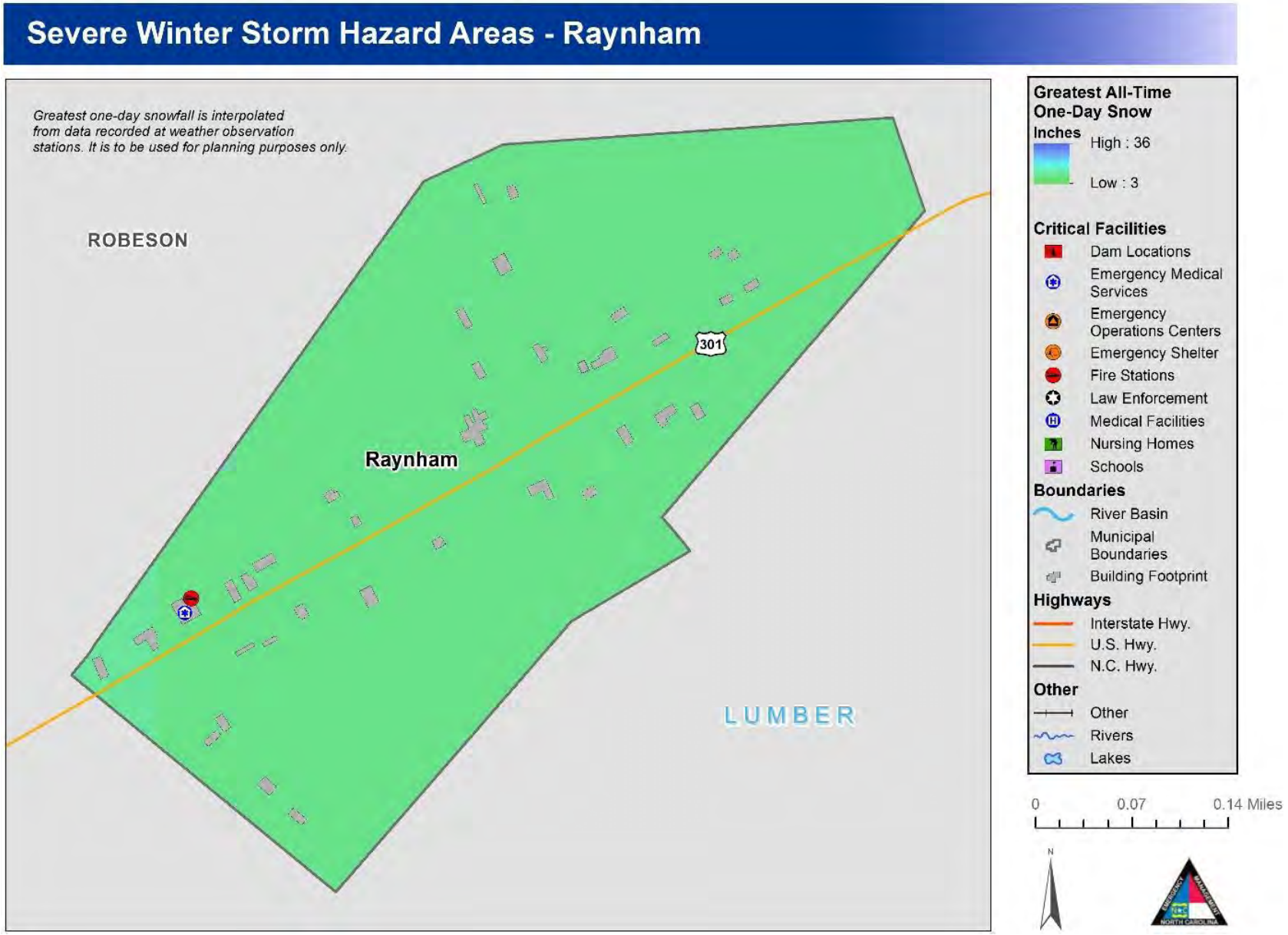


Figure 5-137: Severe Winter Storm Hazard Areas - Raynham

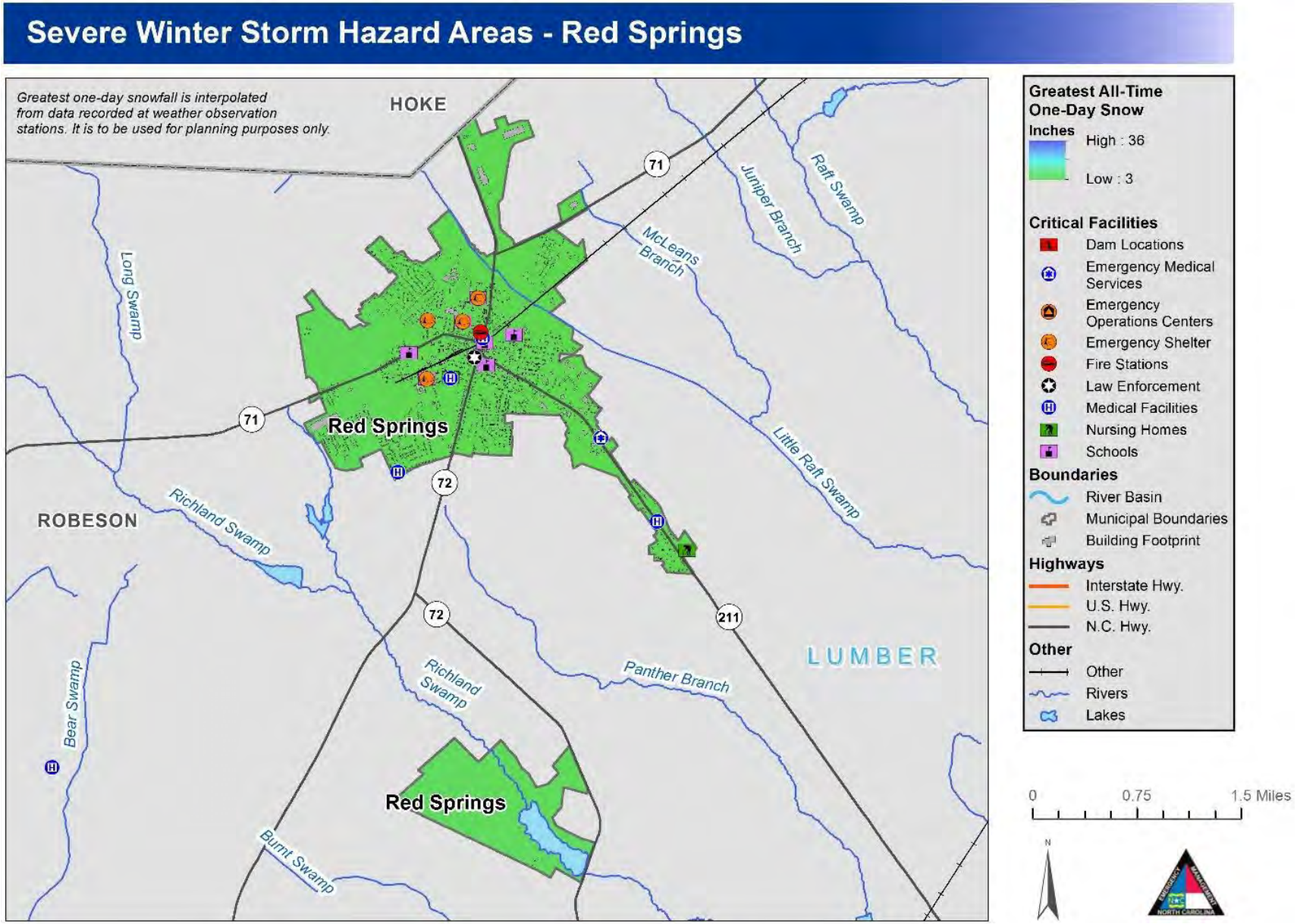


Figure 5-138: Severe Winter Storm Hazard Areas – Red Springs

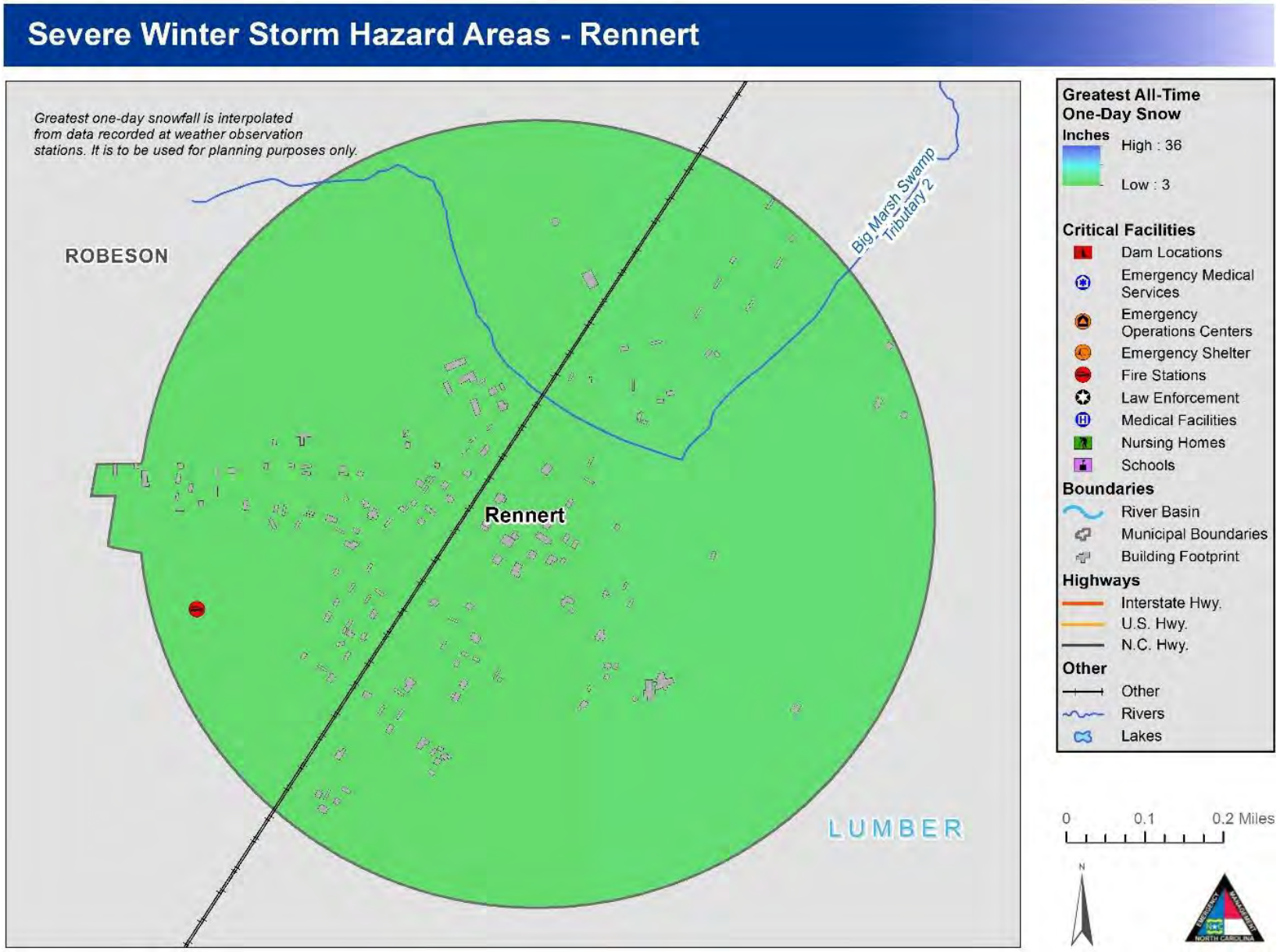


Figure 5-139: Severe Winter Storm Hazard Areas - Rennert

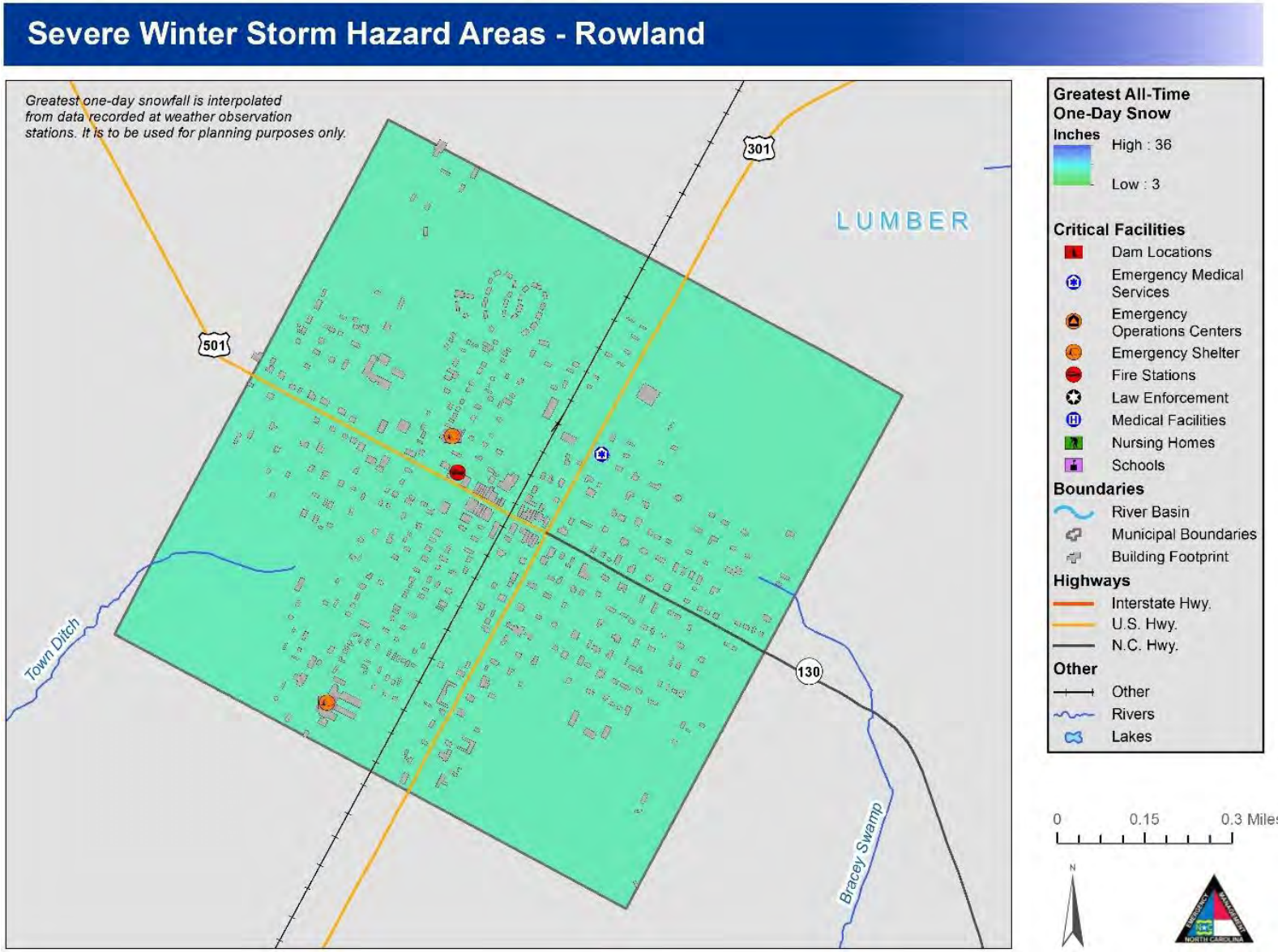


Figure 5-140: Severe Winter Storm Hazard Areas - Rowland

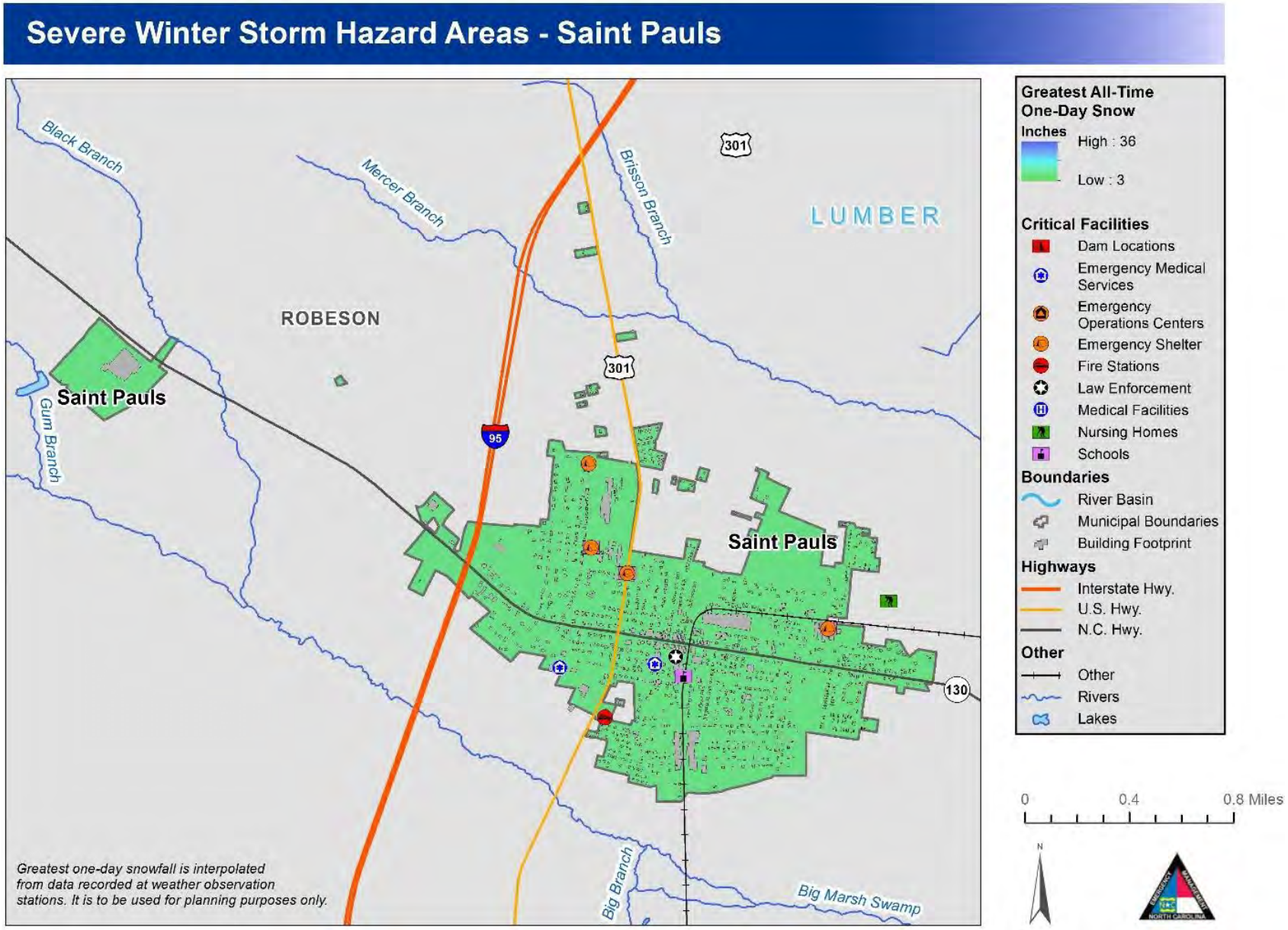


Figure 5-141: Severe Winter Storm Hazard Areas – Saint Pauls

The table below shows the worst recorded events based on maximum snowfall for the region.

Table 5-25: NCEI Winter Weather Extent by County

Community	Number of Days with Winter Weather Occurrences July 1950- Present	Source	Maximum Snowfall Data
Bladen County	75	NCEI Storm Events	8 inches (1942)
Columbus County	75	NCEI Storm Events	15 inches (1973)
Robeson County	75	NCEI Storm Events	12 inches (1912)

5.12.3 Past Occurrences

According to NCEI, the Region has experienced 30 winter storm events since 1996, reported in **Table 5-26.** These events are reported to have caused one injury due to icy road conditions.

Table 5-26: Winter Storm Events in the Region (1996-2025)

Location	Date	Type	Deaths	Injuries	Property Damage	Crop Damage
Robeson (Zone)	01/17/2000	Heavy Snow	0	0	0.00K	0.00K
Columbus (Zone)	01/18/2000	Heavy Snow	0	0	0.00K	0.00K
Bladen (Zone)	01/18/2000	Heavy Snow	0	0	0.00K	0.00K
Robeson (Zone)	01/22/2000	Winter Weather	0	0	0.00K	0.00K
Columbus (Zone)	01/22/2000	Winter Weather	0	0	0.00K	0.00K
Bladen (Zone)	01/22/2000	Winter Weather	0	0	0.00K	0.00K
Robeson (Zone)	01/25/2000	Winter Storm	0	0	0.00K	0.00K
Bladen (Zone)	01/25/2000	Winter Storm	0	0	0.00K	0.00K
Columbus (Zone)	01/25/2000	Winter Storm	0	0	0.00K	0.00K
Robeson (Zone)	12/03/2000	Winter Storm	0	0	20.00K	0.00K
Columbus (Zone)	01/02/2002	Winter Storm	0	0	0.00K	0.00K
Bladen (Zone)	01/02/2002	Winter Storm	0	0	0.00K	0.00K
Robeson (Zone)	01/02/2002	Winter Storm	0	0	0.00K	0.00K
Robeson (Zone)	12/04/2002	Ice Storm	0	0	0.00K	0.00K
Bladen (Zone)	01/23/2003	Winter Storm	0	0	0.00K	0.00K
Robeson (Zone)	01/23/2003	Winter Storm	0	0	0.00K	0.00K
Columbus (Zone)	01/23/2003	Winter Storm	0	0	0.00K	0.00K
Robeson (Zone)	02/17/2003	Ice Storm	0	0	0.00K	0.00K
Bladen (Zone)	02/17/2003	Ice Storm	0	0	0.00K	0.00K
Robeson (Zone)	01/25/2004	Ice Storm	0	0	1.500M	0.00K

Location	Date	Type	Deaths	Injuries	Property Damage	Crop Damage
Bladen (Zone)	01/25/2004	Ice Storm	0	0	1.000M	0.00K
Robeson (Zone)	01/26/2004	Ice Storm	0	0	3.000M	0.00K
Bladen (Zone)	01/26/2004	Ice Storm	0	0	2.500M	0.00K
Columbus (Zone)	01/26/2004	Ice Storm	0	0	6.000M	0.00K
Robeson (Zone)	02/17/2004	Winter Weather	0	0	0.00K	0.00K
Columbus (Zone)	02/17/2004	Winter Weather	0	0	0.00K	0.00K
Bladen (Zone)	02/17/2004	Winter Weather	0	0	0.00K	0.00K
Robeson (Zone)	02/26/2004	Winter Storm	0	0	0.00K	0.00K
Bladen (Zone)	02/26/2004	Winter Storm	0	0	0.00K	0.00K
Robeson (Zone)	12/26/2004	Winter Weather	0	0	30.00K	0.00K
Columbus (Zone)	12/26/2004	Winter Weather	0	0	0.00K	0.00K
Bladen (Zone)	12/26/2004	Winter Weather	0	0	0.00K	0.00K
Bladen (Zone)	04/08/2007	Frost/freeze	0	0	0.00K	0.00K
Robeson (Zone)	04/08/2007	Frost/freeze	0	0	0.00K	0.00K
Robeson (Zone)	01/20/2009	Heavy Snow	0	0	0.00K	0.00K
Bladen (Zone)	01/20/2009	Heavy Snow	0	0	0.00K	0.00K
Bladen (Zone)	02/04/2009	Winter Weather	0	0	0.00K	0.00K
Robeson (Zone)	01/30/2010	Winter Storm	0	0	0.00K	0.00K
Bladen (Zone)	01/30/2010	Ice Storm	0	0	0.00K	0.00K
Robeson (Zone)	02/12/2010	Heavy Snow	0	0	0.00K	0.00K
Bladen (Zone)	02/12/2010	Heavy Snow	0	0	0.00K	0.00K
Columbus (Zone)	02/12/2010	Heavy Snow	0	0	0.00K	0.00K
Robeson (Zone)	12/26/2010	Heavy Snow	0	1	0.00K	0.00K
Bladen (Zone)	12/26/2010	Heavy Snow	0	0	0.00K	0.00K
Columbus (Zone)	12/26/2010	Heavy Snow	0	0	5.00K	0.00K
Robeson (Zone)	01/10/2011	Heavy Snow	0	0	0.00K	0.00K
Bladen (Zone)	01/10/2011	Heavy Snow	0	0	0.00K	0.00K
Columbus (Zone)	01/10/2011	Heavy Snow	0	0	0.00K	0.00K
Bladen (Zone)	01/28/2014	Winter Storm	0	0	0.00K	0.00K
Columbus (Zone)	01/28/2014	Winter Storm	0	0	0.00K	0.00K
Robeson (Zone)	01/28/2014	Winter Storm	0	0	0.00K	0.00K
Robeson (Zone)	02/11/2014	Winter Storm	0	0	0.00K	0.00K

Location	Date	Type	Deaths	Injuries	Property Damage	Crop Damage
Bladen (Zone)	02/11/2014	Winter Storm	0	0	0.00K	0.00K
Columbus (Zone)	02/11/2014	Winter Storm	0	0	0.00K	0.00K
Bladen (Zone)	01/09/2015	Winter Weather	0	0	30.00K	0.00K
Bladen (Zone)	02/16/2015	Ice Storm	0	0	0.00K	0.00K
Robeson (Zone)	02/16/2015	Ice Storm	0	0	0.00K	0.00K
Columbus (Zone)	02/24/2015	Winter Weather	0	0	0.00K	0.00K
Robeson (Zone)	02/24/2015	Winter Weather	0	0	0.00K	0.00K
Bladen (Zone)	02/24/2015	Winter Weather	0	0	0.00K	0.00K
Robeson (Zone)	01/22/2016	Winter Weather	0	0	0.00K	0.00K
Columbus (Zone)	03/16/2017	Frost/freeze	0	0	0.00K	0.00K
Robeson (Zone)	03/16/2017	Frost/freeze	0	0	0.00K	0.00K
Bladen (Zone)	03/16/2017	Frost/freeze	0	0	0.00K	0.00K
Columbus (Zone)	03/16/2017	Frost/freeze	0	0	0.00K	0.00K
Columbus (Zone)	03/17/2017	Frost/freeze	0	0	0.00K	0.00K
Bladen (Zone)	03/17/2017	Frost/freeze	0	0	0.00K	0.00K
Robeson (Zone)	03/17/2017	Frost/freeze	0	0	0.00K	0.00K
Robeson (Zone)	01/03/2018	Winter Storm	0	0	0.00K	0.00K
Bladen (Zone)	01/21/2022	Winter Storm	0	0	0.00K	0.00K
Robeson (Zone)	01/21/2022	Winter Weather	0	0	0.00K	0.00K
Columbus (Zone)	01/21/2022	Winter Storm	0	0	0.00K	0.00K
Totals:	--	--	**0**	**1**	**14.085M**	**0.00K**

Source: NCEI Storm Events Database

5.12.4 Probability of Future Occurrences

The probability of future winter weather/storms is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability of hazard
- Possible: Between 1% and 10% annual probability of hazard
- Likely: Between 10% and 100% annual probability of hazard
- Highly Likely: 100% annual probability of hazard

Jurisdiction	Probability of Future Occurrence
Bladen County (Unincorporated Area)	Likely
Columbus County (Unincorporated Area)	Likely

Jurisdiction	Probability of Future Occurrence
Robeson County (Unincorporated Area)	Likely
City of Lumberton	Likely
City of Whiteville	Likely
Town of Bladenboro	Likely
Town of Boardman	Likely
Town of Bolton	Likely
Town of Brunswick	Likely
Town of Cerro Gordo	Likely
Town of Chadbourn	Likely
Town of Clarkton	Likely
Town of Dublin	Likely
Town of East Arcadia	Likely
Town of Elizabethtown	Likely
Town of Fair Bluff	Likely
Town of Fairmont	Likely
Town of Lake Waccamaw	Likely
Town of Lumber Bridge	Likely
Town of Marietta	Likely
Town of Maxton	Likely
Town of Mcdonald	Likely
Town of Orrum	Likely
Town of Parkton	Likely
Town of Pembroke	Likely
Town of Proctorville	Likely
Town of Raynham	Likely
Town of Red Springs	Likely
Town of Rennert	Likely
Town of Rowland	Likely
Town of Saint Pauls	Likely
Town of Sandyfield	Likely
Town of Tabor City	Likely
Town of Tar Heel	Likely
Town of White Lake	Likely

5.12.5 Consequence and Impact Analysis (Vulnerability)

Changing Future Conditions

According to recent findings from NOAA, average winter temperatures in urban hubs throughout North Carolina have been noted at 2 to 4 degrees Fahrenheit above the normal average, which is defined as the 30-year Climate Normals data published from 1991 to 2020[24]. The increased atmospheric moisture of warmer conditions year-round can also intensify the regional water cycle. Air holds about 4% more water vapor for each additional degree Fahrenheit increase in temperature – thereby increasing the likelihood of warmer and wetter conditions in future winter seasons[25].

People

Winter storms are recognized as 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.

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. Following a winter weather event in 2018, all jurisdictions in Columbus County closed schools or released students early. During the same event, Tabor City's Atlantic Corporation delayed the start of operations to ensure the safety of its employees[26].

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

[24] NOAA Winter 2022 Climate Report (https://www.ncei.noaa.gov/access/monitoring/monthly-report/national/202202)
[25] U.S. Climate Resilience Toolkit, Southeast (https://toolkit.climate.gov/regions/southeast)
[26] https://www.tabor- loris.com/2018/01/03/public-school-closings-set-others-pondered-as-winter-storm-nears/

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.

5.13 Hazard Profile Summary

Table 5-27 summarizes the results from the hazard profiles based on risk assessment findings as described in the above sections and input from the HMPC. For each hazard profiled in this chapter, this table includes the likelihood of future occurrence as it relates to significance for the Region.

Table 5-27: Summary of Hazard Profile Probabilities

Hazard	Likelihood of Future Occurrence
Cybersecurity	Likely
Dam/Levee Failure	Unlikely
Drought	Highly Likely
Earthquake	Possible
Excessive Heat	Likely
Hurricane/Tropical Storm	Likely
Infectious Disease	Possible
Inland Flooding	Likely
Severe Weather (Thunderstorm Wind, Lightning & Hail)	Highly Likely
Tornado	Likely
Wildfire	Likely
Winter Storm	Likely

A vulnerability assessment is provided in the following chapter for priority hazards based on available data.

SECTION 6: VULNERABILITY ASSESSMENT

Section 6 identifies and quantifies the vulnerability of the jurisdictions within the Bladen-Columbus-Robeson Region to the priority hazards identified in Sections 4 and 5. It consists of the following subsections:

- 6.1 Methodology
- 6.2 Asset Inventory
- 6.3 Hazard Vulnerability Results
- 6.4 Hazard Vulnerability Conclusions

644 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:

(A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.

(B) An estimate of the potential 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

(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.

This section builds upon the information provided in Section 4 and Section 5 by compiling an inventory of assets in the Bladen-Columbus-Robeson Region coupled with an assessment of their vulnerability to identified hazards. The primary objective of the vulnerability assessment is to quantify exposure across jurisdictions and assess potential losses related to each hazard. In doing so, each county and their participating jurisdictions may better understand the unique risks posed by hazards and be better prepared to evaluate and prioritize specific hazard mitigation actions moving forward.

This section begins with an explanation of the methodology used for the vulnerability assessment. It is then followed by a summary of the regional asset inventory and assessments organized by hazard type. The remainder of this section focuses on the main takeaways of the assessment process.

The Mitigation Action Committee (MAC) conducted the vulnerability assessment to prioritize hazards and 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.

6.1 Methodology

Vulnerability assessments utilize a variety of methodologies to demonstrate the most accurate picture of hazard risk as possible. The vulnerability assessment first describes the total vulnerability and values at risk and then discusses vulnerability by hazard. Data resources used to support this assessment included the following:

- FEMA National Risk Index (NRI)
- U.S. Census Bureau Decennial and American Community Survey (ACS)
- NCEM IRISK/Risk Management Tool (RMT)
- North Carolina State Hazard Mitigation Plan

- NC OneMap layers
- County GIS data

A stochastic risk assessment methodology was used to analyze hazards of concern outside the scope of hazard models and GIS risk assessments. This involves the consideration of annualized loss estimates and impacts of current and future buildings and populations. Annualized loss is the estimated long-term weighted average value of losses to property in any single year in a specified geographic area (i.e., municipal jurisdiction or county). This methodology is applied primarily to hazards that do not have geographically definable boundaries and are therefore excluded from spatial analysis through GIS.

Most of the hazards assessed in this plan are considered natural and have the potential to affect all current and future buildings and all populations. For all hazards, annualized expected loss estimates were determined using the best available data related to historical losses as per the National Risk Index (NRI) developed by the Federal Emergency Management Agency (FEMA). Where available, GIS-based analysis along with data from the Risk Management Tool (RMT)[1] developed by North Carolina Emergency Management (NCEM) supplemented the vulnerability assessment process.

Each natural hazard that is included in the FEMA National Risk Index also has associated risk values, risk scores, and risk ratings which are representative of the county or census tracts vulnerability to a natural hazard compared to other communities at the same level. To represent the risk more thoroughly to natural hazards that a community has compared to other communities at the same level, the NRI will be used to represent a community-based risk comparison outlined with risk values, ratings, and scores which are described below in **Table 6-1**. For more information about NRI calculations and methodology, please refer to the NRI Technical Documentation[2].

Table 6-1: NRI Overview from the NRI Technical Documentation

Term	Definition or Equation	
Annualized Frequency	Number of Recorded Events / Period of Record	
Historic Loss Ratio	**LRB** = Loss / Exposure	
	Loss	Loss, by consequence type (Building, population, or agriculture), experienced from each hazard occurrence documented in the data source
	Exposure	The total value, by consequence type (Building, population number, or agriculture), estimated to be exposed to the hazard occurrence in USD, or in population number or Population equivalent for population exposure.
Social Vulnerability	The susceptibility of social Groups to the adverse impacts of natural hazards including disproportionate death, injury, loss, or disruption of livelihood	

[1] **NOTE: All data references from the NCEM RMT are considered planning estimates** that may not reflect current growth trends or the full extent of regional vulnerability. Supplemental use of more recent data sources is recommended.
[2] Casey Zuzak et al., "National Risk Index: Technical Documentation" (Washington, DC: Federal Emergency Management Agency, March 2023), https://www.fema.gov/sites/default/files/documents/fema_national-risk-index_technical-documentation.pdf.

Term	Definition or Equation	
	Data Source	Center for Disease Control and Prevention (CDC) / Agency for Toxic Substances and Disease Registry (ATSDR) Social Vulnerability Index (SVI)
Community Resilience	The ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions.	
	Data Source	University of South Carolina's Hazards and Vulnerability Research Institute (HVRI)'s Baseline Resilience Indicators for Communities (HVRI BRIC)
Expected Annual Loss (EAL)	Represents the average economic loss in dollars resulting from natural hazards each year. It is calculated for each hazard type and quantifies loss for relevant consequence types: buildings, people, and agriculture	
	Equation	Exposure X Annualized Frequency X Historic Loss Ratio
	Score	Percentile of EAL when compared to other communities and labeled based on Risk Rating Percentile Descriptions below.
Risk Value	Values for Risk and EAL in dollars, representing the community's average economic loss from natural hazards each year.	
Risk Score	Scores represent the national percentile ranking of the community's component value compared to all other communities at the same level, at the county or census tract level.	
Risk Rating	Ratings in one of five qualitative categories that describe the community's component value in comparison to all the other communities at the same level. These range from "Very Low" to "Very High."	
	Very High	80th to 100th percentile
	Relatively High	60th to 80th percentile
	Relatively Moderate	40th to 60th percentile
	Relatively Low	20th to 40th percentile
	Very Low	0th to 20th percentile

Source: FEMA National Risk Index

The values in **Table 6-2** display FEMA NRI findings for each county in the Bladen-Columbus-Robeson Region as of 2025. This information includes average overall risk profiles, average risk value, expected annual loss (EAL) value, social vulnerability, and community resilience indicators. More details regarding these variables can be found in the table above or through the NRI Technical Documentation.

Table 6-2: FEMA NRI Categories for the Region

FEMA NRI Category	Bladen County	Columbus County	Robeson County
Risk Index Score	90.9	91.12	94.37
Risk Index Rating	Relatively Moderate	Relatively Moderate	Relatively Moderate
Risk Value	$48,818,940	$50,677,084	$84,413,050
EAL Value	$34,179,117	$33,997,589	$51,821,642
Social Vulnerability	Very High	Very High	Very High
Community Resilience	Relatively Low	Relatively Low	Very Low

Source: FEMA National Risk Index

The numeric identifiers shown in **Table 6-3** are the Federal Information Processing Standards (FIPS)

codes assigned to each county of the region and census tract numbers defined by the U.S. Census Bureau to compile geographic statistics related to population, demographics, housing, and other key variables. These identifiers were used to source available data for each county and jurisdiction.

Table 6-3: County FIPS Codes and Jurisdiction Census Tracts in the Region

Jurisdiction	Census Tract Numbers
Bladen County (FIPS: 37017)	
Bladenboro	950501, 950502
Clarkton	950601
Dublin	950301
East Arcadia	950602, 930100
Elizabethtown	950200, 950401, 950402
Tar Heel	950302
White Lake	950102
Unincorporated Area	950101
Columbus County (FIPS: 37047)	
Boardman	930500, 961500, 961601, 961602
Bolton	930200
Brunswick	931000, 931302
Chadbourn	930700, 930900
Fair Bluff	930600
Lake Waccamaw	930300
Tabor City	931201, 931202
Whiteville	930800
Unincorporated Area	930400, 931100, 931301
Robeson County (FIPS: 37155)	
Fairmont	961700
Lumber Bridge	960204
Lumberton	960601, 960602, 960701, 960702, 960801, 960802, 960900, 961000, 961100, 961200, 961301, 961302
Marietta	961900
Maxton	962001, 962002
McDonald	961802
Parkton	960203
Pembroke	960502, 960503, 961801
Red Springs	960301, 960302, 960402
Rennert	960202
Saint Pauls	960101, 960102
Unincorporated Area	960403, 960404, 960501, 961400

Source: U.S. Census Bureau

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 Vulnerability Assessment, the individual types of assets include:

- Population
- Parcels and Buildings
- Critical Facilities
- Infrastructure
- 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., 100-year 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 6-4** are derived from 2023 American Community Survey data, and other U.S. Census data sources, and includes 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 6-4: Population Counts with Vulnerable Population Breakdown

Jurisdiction	Census Population (Estimate)[3]	Percentage of Population 65 years and over (Estimate)[4]	Percentage of Population 5 years and under (Estimate)[5]
Bladen County			
Town of Bladenboro	2,181	12.3%	4.9%
Town of Clarkton	875	20.9%	7.8%
Town of Dublin	482	22.8%	3.3%
Town of East Arcadia	313	17.9%	0.0%
Town of Elizabethtown	3,294	26.9%	7.5%
Town of Tar Heel	72	41.7%	0.0%
Town of White Lake	961	32.4%	2.4%
Unincorporated Area	21,413	--	--
Subtotal Bladen	**29,591**	**23.2%**	**4.9%**

[3] U.S. Census Bureau, U.S. Department of Commerce. "Total Population." American Community Survey, ACS 5-Year Estimates Detailed Tables, Table B01003, 2023, https://data.census.gov/table/ACSDT5Y2023.B01003?q=Bladen+County,+North+Carolina&t=Population+Total:Populations+and+People&g=050XX00US37017$1600000,37047,37047$1600000,37155,37155$1600000_160XX00US3766740&moe=false.

[4] U.S. Census Bureau, U.S. Department of Commerce. (2023). Age and Sex. American Community Survey, ACS 5-Year Estimates Subject Tables, Table S0101. https://data.census.gov/table/ACSST5Y2023.S0101?q=Bladen+County,+North+Carolina&g=050XX00US37017$1600000,37047,37047$1600000,37155,37155$1600000_160XX00US3766740&moe=false.

[5] Same as above

Jurisdiction	Census Population (Estimate)[3]	Percentage of Population 65 years and over (Estimate)[4]	Percentage of Population 5 years and under (Estimate)[5]
Columbus County			
City of Whiteville	4,721	20.2%	8.1%
Town of Boardman	211	12.3%	5.7%
Town of Bolton	469	17.3%	3.2%
Town of Brunswick	981	7.1%	1.8%
Town of Cerro Gordo	335	24.5%	0.0%
Town of Chadbourn	1,347	15.9%	2.0%
Town of Fair Bluff	513	23.0%	7.4%
Town of Lake Waccamaw	1,666	31.5%	1.7%
Town of Sandyfield	683	12.4%	2.6%
Town of Tabor City	3,695	21.4%	5.8%
Unincorporated Area	35,832	--	--
Subtotal Columbus	**50,453**	**20.4%**	**5.2%**
Robeson County			
City of Lumberton	19,220	16.8%	8.3%
Town of Fairmont	2,326	23.4%	7.0%
Town of Lumber Bridge	65	26.2%	0.0%
Town of Marietta	130	33.1%	3.1%
Town of Maxton	2,398	17.1%	11.3%
Town of McDonald	99	27.3%	2.0%
Town of Orrum	56	28.6%	0.0%
Town of Parkton	515	19.2%	5.8%
Town of Pembroke	2,823	13.1%	11.3%
Town of Proctorville	128	26.6%	3.9%
Town of Raynham	35	40.0%	0.0%
Town of Red Springs	3,107	18.6%	7.9%
Town of Rennert	267	11.6%	3.7%
Town of Rowland	972	28.0%	2.8%
Town of Saint Pauls	2,628	19.1%	10.0%
Unincorporated Area	80,420	--	--
Subtotal Robeson	**116,858**	**6.8%**	**15.8%**
Total Plan Area	***196,902***	***12.8%***	***11.5%***

The vulnerability statistics shown in **Table 6-5** are derived from 2023 American Community Survey data, and other U.S. Census data sources, and includes three representative subpopulations considered to be highly vulnerable from among the general population: individuals with a disability, housing occupants without access to a vehicle, and housing occupants residing in mobile homes or other types of housing.

Table 6-5: Vulnerability Characteristics of the Region

Jurisdiction	Percentage of Individuals with a Disability[6]	Estimate of Occupied Households without Access to a Vehicle[7]	Estimate of Occupied Housing that are Mobile Homes or Other type of Housing[8]
Bladen County			
Town of Bladenboro	15.5%	4.7%	14.7%
Town of Clarkton	14.0%	10.3%	11.9%
Town of Dublin	26.6%	0.0%	16.7%
Town of East Arcadia	24.9%	13.4%	22.0%
Town of Elizabethtown	17.6%	14.4%	1.4%
Town of Tar Heel	8.3%	7.1%	21.4%
Town of White Lake	17.4%	0.0%	28.1%
Subtotal Bladen	**15.5%**	**6.7%**	**31.1%**
Columbus County			
City of Whiteville	17.7%	12.7%	8.3%
Town of Boardman	20.4%	28.0%	61.0%
Town of Bolton	23.9%	10.4%	16.6%
Town of Brunswick	14.7%	14.5%	20.6%
Town of Cerro Gordo	2.7%	2.0%	16.9%
Town of Chadbourn	16.3%	20.5%	22.5%
Town of Fair Bluff	25.5%	0.9%	41.6%
Town of Lake Waccamaw	13.6%	5.2%	5.0%
Town of Sandyfield	42.6%	1.8%	64.4%
Town of Tabor City	28.2%	4.7%	2.9%
Subtotal Columbus	**16.7%**	**5.3%**	**29.6%**
Robeson County			
City of Lumberton	15.6%	12.9%	5.0%
Town of Fairmont	20.7%	17.8%	4.8%
Town of Lumber Bridge	6.2%	0.0%	11.4%
Town of Marietta	20.0%	2.0%	23.5%

[6] U.S. Census Bureau, U.S. Department of Commerce. (2023). Disability Characteristics. American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1810. https://data.census.gov/table/ACSST5Y2023.S1810?q=Bladen+County,+North+Carolina&t=Disability&g=050XX00US37017$1600000,37047,37047$1600000,37155,37155$1600000_160XX00US3766740&moe=false.

[7] U.S. Census Bureau, U.S. Department of Commerce. (2023). Physical Housing Characteristics for Occupied Housing Units. American Community Survey, ACS 5-Year Estimates Subject Tables, Table S2504. https://data.census.gov/table/ACSST5Y2023.S2504?q=Bladen+County,+North+Carolina&t=Housing&g=050XX00US37017$1600000,37047,37047$1600000,37155,37155$1600000_160XX00US3766740&moe=false.

[8] Same as above

Jurisdiction	Percentage of Individuals with a Disability[6]	Estimate of Occupied Households without Access to a Vehicle[7]	Estimate of Occupied Housing that are Mobile Homes or Other type of Housing[8]
Town of Maxton	19.9	18.6%	8.1%
Town of McDonald	16.2%	5.1%	7.7%
Town of Orrum	28.6%	20.0%	40.0%
Town of Parkton	19.5%	2.9%	7.7%
Town of Pembroke	14.8%	14.2%	7.0%
Town of Proctorville	16.4%	0.0%	8.3%
Town of Raynham	22.9%	0.0%	21.1%
Town of Red Springs	24.9%	17.7%	0.0%
Town of Rennert	36.0%	2.2%	33.1%
Town of Rowland	29.0%	11.2%	4.9%
Town of Saint Pauls	16.9%	12.6%	10.9%
Subtotal Robeson	**17.8%**	**8.0%**	**37.9%**

6.2.2 Parcels and Buildings

The parcel counts, building counts, and building values shown in **Table 6-6** represent the estimated built environment inventories used for risk assessment analysis. This includes the total number of parcels and total assessed value of improvements (buildings) that may be exposed to the identified hazards.

Table 6-6: Regional Estimates of Improved Parcels and Property

Jurisdiction	Estimated Number of Parcels	Estimated Total Assessed Value of Parcels	Estimated Number of Buildings	Estimated Total Assessed Value of Improvements
Bladen County				
Town of Bladenboro	1,276	$94,831,760	993	$78,194,080
Town of Clarkton	540	$41,762,810	398	$36,805,660
Town of Dublin	278	$21,303,320	164	$18,452,850
Town of East Arcadia	453	$13,117,400	279	$9,507,870
Town of Elizabethtown	2,498	$297,950,150	1,826	$235,051,700
Town of Tar Heel	180	$8,848,650	85	$7,149,030
Town of White Lake	1,535	$256,591,720	2,424	$115,310,360
Unincorporated Area	26,575	$1,893,472,170	18,418	$1,210,956,350
Subtotal Bladen	**33,335**	**$2,627,877,980**	**24,587**	**$1,711,427,900**
Columbus County				
City of Whiteville	3,738	$379,314,876	2,600	$326,316,400
Town of Boardman	236	$11,371,100	122	$4,343,800
Town of Bolton	627	$227,265,080	355	$15,012,100
~~Town of Brunswick~~	~~354~~	~~$12,947,000~~	~~291~~	~~$12,777,600~~

Jurisdiction	Estimated Number of Parcels	Estimated Total Assessed Value of Parcels	Estimated Number of Buildings	Estimated Total Assessed Value of Improvements
Town of Cerro Gordo	214	$4,030,287	172	$7,068,900
Town of Chadbourn	1,619	$47,771,579	1,141	$61,086,600
Town of Fair Bluff	925	$18,394,497	650	$25,758,800
Town of Lake Waccamaw	1,135	$110,024,308	643	$71,922,800
Town of Sandyfield	513	$111,387,932	234	$12,459,400
Town of Tabor City	2,514	$121,059,166	1,563	$99,744,900
Unincorporated Area	38,699	$10,030,005,864	30,464	$1,358,177,700
Subtotal Columbus	**50,574**	**$11,073,571,689**	**38,235**	**$1,994,669,000**
Robeson County				
City of Lumberton	9,748	$1,635,117,415	8,445	$1,257,097,915
Town of Fairmont	1,861	$118,256,100	1,101	$96,186,800
Town of Lumber Bridge	119	$7,160,700	74	$5,120,600
Town of Marietta	128	$7,642,500	87	$5,756,600
Town of Maxton	1,352	$90,260,000	960	$71,425,400
Town of McDonald	107	$4,126,000	58	$3,124,500
Town of Orrum	80	$6,237,400	59	$4,868,500
Town of Parkton	444	$37,496,900	314	$31,100,600
Town of Pembroke	1,204	$296,092,300	935	$240,407,400
Town of Proctorville	162	$6,189,700	69	$5,019,300
Town of Raynham	64	$3,719,800	37	$2,318,200
Town of Red Springs	2,102	$184,139,600	1,631	$147,213,700
Town of Rennert	234	$9,788,500	168	$6,684,700
Town of Rowland	739	$43,044,200	513	$33,892,500
Town of Saint Pauls	1,263	$163,162,400	1,137	$131,356,400
Unincorporated Area	59,279	$3,539,199,201	45,027	$2,504,905,651
Subtotal Robeson	**78,886**	**$6,151,632,716**	**60,615**	**$4,546,478,766**
Total Plan Area	**162,795**	**$19,853,082,385**	**123,437**	**$8,252,575,666**

Source: NC OneMap, GIS Analysis

Since the previous regional hazard mitigation was approved, the counties of the Bladen-Columbus-Robeson Region have experienced some extent of growth based on NC Office of State Budget and Management (OSBM) estimates from 2020 to 2030[9]. This is especially true for Bladen County (+6.4% change) and Columbus County (+6.4%), whereas Robeson County (+0.1% change) may have a slower pace of local population growth.

Table 6-7 shows the number of housing building units constructed since both 2010 and 1970 compared to recently updated 2023 totals by jurisdiction according to the U.S. Census Bureau.

[9] NC OSBM County Population Growth 2020-2030. (2024). https://www.osbm.nc.gov/facts-figures/population-demographics/state-demographer/countystate-population-projections/population-growth-2020-2030

Table 6-7: Regional Housing Building Counts

Jurisdiction	Total Housing Units (2023)	Units Built 2010 Or Later	% Building Stock Built Post-2010	Units Built 1970 Or Later	% Building Stock Built Post-1970
Bladen County					
Town of Bladenboro	844	36	4.3%	452	53.6%
Town of Clarkton	312	0	0.0%	221	70.8%
Town of Dublin	179	3	1.7%	76	42.5%
Town of East Arcadia	138	35	25.4%	120	87.0%
Town of Elizabethtown	2,000	128	6.4%	1,362	68.1%
Town of Tar Heel	55	4	7.3%	29	52.7%
Town of White Lake	1,094	108	9.9%	844	77.1%
Unincorporated Area	10,650	1,223	11.5%	8,142	76.5%
Subtotal Bladen	**15,272**	**1,537**	**10.1%**	**11,246**	**73.6%**
Columbus County					
City of Whiteville	2,111	181	8.6%	1,123	53.2%
Town of Boardman	87	7	8.0%	52	59.8%
Town of Bolton	193	4	2.1%	98	50.8%
Town of Brunswick	160	12	7.5%	100	62.5%
Town of Cerro Gordo	165	3	1.8%	113	68.5%
Town of Chadbourn	807	39	4.8%	448	55.5%
Town of Fair Bluff	418	48	11.5%	298	71.3%
Town of Lake Waccamaw	951	38	4.0%	724	76.1%
Town of Sandyfield	265	17	6.4%	234	88.3%
Town of Tabor City	1,214	50	4.1%	550	45.3%
Unincorporated Area	17,189	1,147	6.7%	12,693	73.8%
Subtotal Columbus	**23,560**	**1,546**	**6.6%**	**16,433**	**69.7%**
Robeson County					
City of Lumberton	8,385	564	6.7%	5,038	60.1%
Town of Fairmont	1,133	8	0.7%	507	44.7%
Town of Lumber Bridge	48	2	4.2%	22	45.8%
Town of Marietta	62	0	0.0%	29	46.8%
Town of Maxton	1,092	60	5.5%	746	68.3%
Town of McDonald	40	0	0.0%	12	30.0%
Town of Orrum	38	0	0.0%	24	63.2%
Town of Parkton	240	11	4.6%	130	54.2%
Town of Pembroke	1,322	231	17.5%	966	73.1%
Town of Proctorville	60	0	0.0%	21	35.0%
Town of Raynham	23	0	0.0%	14	60.9%
Town of Red Springs	1,442	50	3.5%	678	47.0%
Town of Rennert	153	6	3.9%	72	47.1%
Town of Rowland	550	6	1.1%	272	49.5%
Town of Saint Pauls	1,047	15	1.4%	492	47.0%

Jurisdiction	Total Housing Units (2023)	Units Built 2010 Or Later	% Building Stock Built Post-2010	Units Built 1970 Or Later	% Building Stock Built Post-1970
Unincorporated Area	33,239	3,542	10.7%	28,154	84.7%
Subtotal Robeson	**48,874**	**4,495**	**9.2%**	**37,177**	**76.1%**
Total Plan Area	**87,706**	**7,578**	**8.6%**	**64,856**	**73.9%**

Source: U.S. Census Bureau

6.2.3 Critical Facilities

Critical facilities are defined by FEMA as specific assets of the built environment that provide services essential for life, safety, and economic viability. Common examples include fire stations, police stations, medical care facilities, schools, emergency operations centers (EOCs), and other important community assets/buildings. Critical facilities vary by jurisdiction. It should be noted that this listing is not all-inclusive for assets in the Bladen-Columbus-Robeson Region, but it is anticipated that it will be expanded during future updates as more georeferenced data becomes available for GIS analysis.

Table 6-8 below identifies regional critical facilities including fire stations, EMS stations, police stations, EOCs, schools, and licensed medical care facilities based on authoritative NC OneMap datasets[10]. Local governments at the county level provided a large share of this data.

Table 6-8: Regional Critical Facility Inventory

Jurisdiction	EOC	Fire/EMS Stations	Police Stations	Schools	Medical Care Facilities
Bladen County					
Town of Bladenboro	0	1	1	2	2
Town of Clarkton	0	2	1	1	1
Town of Dublin	0	1	0	2	1
Town of East Arcadia	0	1	0	0	0
Town of Elizabethtown	1	3	4	2	16
Town of Tar Heel	0	2	0	1	0
Town of White Lake	0	1	1	0	0
~~Unincorporated Area~~	~~0~~	~~12~~	~~1~~	~~9~~	~~13~~
Subtotal Bladen	**1**	**23**	**8**	**17**	**33**
Columbus County					
City of Whiteville	1	3	3	4	38
Town of Boardman	0	0	0	0	0
Town of Bolton	0	1	0	0	0
Town of Brunswick	0	1	0	0	0
Town of Cerro Gordo	0	1	0	1	0
Town of Chadbourn	0	1	1	2	4
Town of Fair Bluff	0	1	1	0	2

[10] NC OneMap: https://www.nconemap.gov/

Jurisdiction	EOC	Fire/EMS Stations	Police Stations	Schools	Medical Care Facilities
Town of Lake Waccamaw	0	2	2	1	2
Town of Sandyfield	0	1	0	0	0
Town of Tabor City	0	2	1	2	2
Unincorporated Area	0	25	0	19	13
Subtotal Columbus	**1**	**38**	**8**	**29**	**61**
Robeson County					
City of Lumberton	1	8	6	12	40
Town of Fairmont	0	3	1	2	10
Town of Lumber Bridge	0	1	0	0	0
Town of Marietta	0	0	0	0	0
Town of Maxton	0	2	1	2	4
Town of McDonald	0	0	0	0	0
Town of Orrum	0	0	1	1	0
Town of Parkton	0	1	1	1	1
Town of Pembroke	0	2	2	3	9
Town of Proctorville	0	1	0	0	0
Town of Raynham	0	1	0	0	0
Town of Red Springs	0	2	1	5	5
Town of Rennert	0	1	0	0	0
Town of Rowland	0	3	1	2	0
Town of Saint Pauls	0	2	1	3	2
Unincorporated Area	0	24	0	26	52
Subtotal Robeson	**1**	**51**	**15**	**57**	**123**
Total Plan Area	**3**	**112**	**31**	**103**	**217**

Source: NC OneMap

The remaining tables in this section (**Table 6-9** to **Table 6-12**) show related lists of preidentified critical facilities broken down by type, name, and location, as well as the flood hazard zones that affect each facility based on authoritative NC OneMap datasets. These lists are not all inclusive and only account for the information provided by municipalities using georeferenced data and updated municipal boundaries.

Table 6-9: EMS Facilities and Flood Hazard Zones[11]

Name	Address	City	Zip	County	Facility Description	Designated Flood Zone
Hickory Grove Volunteer Fire Department Incorporated Of Bladen County	136 State Highway 210 West	Garland	28441	Bladen	Ambulance And Fire Service Combined	X
Lisbon Volunteer Fire Department Incorporated	2585 White Plains Church Road	Clarkton	28433	Bladen	Ambulance And Fire Service Combined	X

[11] NC Emergency Medical Services. (2023). NC OneMap. https://www.nconemap.gov/datasets/e43a159e4f584a3b8d5ffb797abc48a9_0/explore

Name	Address	City	Zip	County	Facility Description	Designated Flood Zone
Dublin Volunteer Fire Department	324 3rd Street	Dublin	28332	Bladen	Ambulance And Fire Service Combined	X
Tar Heel Rural Volunteer Fire Department Incorporated	269 Tar Heel Ferry Road	Tar Heel	28392	Bladen	Ambulance And Fire Service Combined	X
Tobermory Volunteer Fire Department Incorporated	1759 Pages Lake Road	Saint Pauls	28384	Bladen	Ambulance And Fire Service Combined	X
Kelly Volunteer Fire Department	18628 State Highway 53	Kelly	28448	Bladen	Ambulance And Fire Service Combined	AE
Elizabethtown Fire Department	401 West Swanzy Street	Elizabethtown	28337	Bladen	Ambulance And Fire Service Combined	X
Carvers Creek Volunteer Fire Department Incorporated	2029 South Elwell Ferry Road	Council	28434	Bladen	Ambulance And Fire Service Combined	X
Tar Heel Volunteer Rescue Squad	State Highway 87	Tar Heel	28392	Bladen	Rescue Services, Medical	X
White Lake-Bladen County Water Rescue	612 State Highway 53 East	Elizabethtown	28337	Bladen	Rescue Services, Medical	X
Bladenboro Rescue Squad	12896 State Highway 242	Bladenboro	28320	Bladen	Rescue Services, Medical	X
Clarkton Rescue Squad	Southwest Railroad Street	Clarkton	28433	Bladen	Rescue Services, Medical	X
Dupont-Fayetteville Works	22828 State Highway 87	Fayetteville	28306	Bladen	Fire Fighting Services As A Commercial Activity	X
Elizabethtown Rescue Squad	201 Mercer Mill Road	Elizabethtown	28337	Bladen	Rescue Services, Medical	X
Ammon Volunteer Fire Department	13084 State Highway 242 North	Elizabethtown	28337	Bladen	Ambulance And Fire Service Combined	X
Columbus County Emergency Medical Services	205 West Main Street	Whiteville	28472	Columbus	Ambulance Services, Air Or Ground	0.2 PCT ANNUAL CHANCE FLOOD HAZARD
Fair Bluff Fire Department And Rescue Squad Incorporated Station 8	185 Mcneill Road	Fair Bluff	28439	Columbus	Fire And Rescue Service	X
Nakina Fire And Rescue Squad Incorporated	214 Ramsey Ford Road	Nakina	28455	Columbus	Fire And Rescue Service	AE
Fair Bluff Fire And Rescue Squad	653 Railroad Street	Fair Bluff	28439	Columbus	Fire And Rescue Service	AE
Whiteville Rescue Squad	106 Flowers Pridgen Road	Whiteville	28472	Columbus	Rescue Services, Medical	X
Tabor City Emergency Services	609 East 5th Street	Tabor City	28463	Columbus	Ambulance Services, Air Or Ground	X
Chadbourn-Klondyke Fire And Rescue	204 North Wilson Street	Chadbourn	28431	Columbus	Fire And Rescue Service	X

Name	Address	City	Zip	County	Facility Description	Designated Flood Zone
Columbus Transport Incorporated	2629 Joe Brown Highway South	Chadbourn	28431	Columbus	Ambulance Services, Air Or Ground	X
Buckhead Volunteer Fire And Rescue Department Incorporated	6810 Old Lake Road	Bolton	28423	Columbus	Fire And Rescue Service	X
Amera-Tech Of North Carolina Incorporated	784 Jacobs Road	Bolton	28423	Columbus	Ambulance Services, Air Or Ground	X
Carolinas Medical Response Incorporated	7683 Sidney Cherry Grove Road	Tabor City	28463	Columbus	Ambulance Services, Air Or Ground	X
Lake Waccamaw Fire Department And Rescue Squad	203 Flemington Drive	Lake Waccamaw	28450	Columbus	Fire And Rescue Service	X
International Paper Company	865 John Riegel Road	Riegelwood	28456	Columbus	Ambulance Services, Air Or Ground	X
Acme-Delco-Riegelwood Fire And Rescue Squad	100 John Riegel Road	Riegelwood	28456	Columbus	Fire And Rescue Service	X
Cerro Gordo Volunteer Fire And Rescue Squad Incorporated	75 East Railroad Street	Cerro Gordo	28430	Columbus	Fire And Rescue Service	X
Smiths Volunteer Fire Department	2906 Oxedine School Road	Maxton	28364	Robeson	Ambulance And Fire Service Combined	X
Robeson Community College Emergency Services Education	5160 Fayetteville Road	Lumberton	28360	Robeson	Fire Fighter Training Schools	X
Queheel Fire Department	108 East Rockingham Road	Maxton	28364	Robeson	Ambulance And Fire Service Combined	X
Pembroke Rural Volunteer Fire Department Incorporated	1398 Prospect Road	Pembroke	28372	Robeson	Ambulance And Fire Service Combined	X
Raynham - Mcdonald Volunteer Fire Department	5900 United States Highway 301 South	Rowland	28383	Robeson	Ambulance And Fire Service Combined	X
Lumber Bridge Volunteer Fire Department Incorporated	303 West Main Street	Lumber Bridge	28357	Robeson	Ambulance And Fire Service Combined	X
Fairmon Department Of Public Safety - Fire Division	421 South Main Street	Fairmont	28340	Robeson	Ambulance And Fire Service Combined	X
Fairmont Rural Fire Department Incorporated	203 Mulberry Street	Fairmont	28340	Robeson	Ambulance And Fire Service Combined	X
Smyrna Township Volunteer Fire Department	2910 Wire Grass Road	Lumberton	28358	Robeson	Ambulance And Fire Service Combined	X
Allenton Volunteer Fire Department Incorporated	6815 State Highway 211 East	Lumberton	28358	Robeson	Ambulance And Fire Service Combined	X
Robeson County Search And Rescue Team	108 West 8th Street	Lumberton	28358	Robeson	Rescue Services, Medical	X

Name	Address	City	Zip	County	Facility Description	Designated Flood Zone
North Carolina Division Of Forest Resources District 6 - Robeson County	848 Smyrna Church Road	Lumberton	28358	Robeson	Firefighting, Forest	X
Maxton Rescue Squad	108 East Central Street	Maxton	28364	Robeson	Rescue Services, Medical	X
Rowland Rescue Squad	North Bond Street	Rowland	28383	Robeson	Rescue Services, Medical	X
Raft Swamp Fire Department	2809 West State Highway 72	Lumberton	28360	Robeson	Ambulance And Fire Service Combined	X
Pembroke Fire Department	102 West Fourth Street	Pembroke	28372	Robeson	Ambulance And Fire Service Combined	X
Saint Pauls City Fire Department	585 West Mclean Street	Saint Pauls	28384	Robeson	Ambulance And Fire Service Combined	X
Lumberton Fire Department Station 2	1000 South Roberts Avenue	Lumberton	28358	Robeson	Ambulance And Fire Service Combined	X
Lumberton Fire Department Station 4	501 Bailey Road	Lumberton	28358	Robeson	Ambulance And Fire Service Combined	X
Lumberton Fire Department Station 3	801 Dunn Road	Lumberton	28358	Robeson	Ambulance And Fire Service Combined	AE
Red Springs Rescue Squad	927 East 4th Avenue	Red Springs	28377	Robeson	Rescue Services, Medical	X
Lumberton Fire Department	600 North Cedar Street	Lumberton	28358	Robeson	Ambulance And Fire Service Combined	X
South Robeson Rescue Unit	1001 Walnut Street	Fairmont	28340	Robeson	Rescue Services, Medical	X
American Medical Response	2507 East Elizabethtown Road	Lumberton	28358	Robeson	Ambulance Services, Air Or Ground	X
Saint Pauls Emergency Response Unit	217 West Blue Street	Saint Pauls	28384	Robeson	Ambulance Services, Air Or Ground	X
Pembroke Rescue Squad	210 Union Chapel Road	Pembroke	28372	Robeson	Rescue Services, Medical	X
Parkton Rescue Squad	28 West 2nd Street	Parkton	28371	Robeson	Rescue Services, Medical	X
Lumberton Rescue Unit	2391 North Roberts Avenue	Lumberton	28358	Robeson	Rescue Services, Medical	X
Robeson County Emergency Medical Services	176 Legend Road	Lumberton	28358	Robeson	Ambulance Services, Air Or Ground	X
Northwoods Fire Department	344 Sherwood Road	Lumberton	28358	Robeson	Ambulance And Fire Service Combined	X

Source: GIS Analysis

Table 6-10: Fire Station Facilities and Flood Hazard Zones[12]

Fire Department Name	Station Address	Station City	Station County	Station Zip Code	Flood Hazard Zone
Bay Tree Lakes Volunteer Fire Department, Inc.	12717 NC Hwy 41 E	Harrells	Bladen	28444	X
Bladenboro Fire Department	519 West Seaboard Street	Bladenboro	Bladen	28320	X
Carvers Creek Volunteer Fire Department, Inc.	2095 S. Elwell Ferry Rd	Council	Bladen	28434	X
Clarkton Fire Department	205 West Peach St	Clarkton	Bladen	28433	X
Dublin Fire Department	324 3rd St	Dublin	Bladen	28332	X
Elizabethtown Fire Department	300 East Broad St	Elizabethtown	Bladen	28337	X
Elizabethtown Fire Department	401 West Swanzy St.	Elizabethtown	Bladen	28337	X
Hickory Grove Volunteer Fire Department, Inc. of Bladen County	136 W NC 210 Hwy	Garland	Bladen	28441	X
Kelly Volunteer Fire Department, Inc.	18628 NC 53 E	Kelly	Bladen	28448	AE
Kelly Volunteer Fire Department, Inc.	18933 Highway 210	Ivanhoe	Bladen	28447	X
Tar Heel Fire/Rescue Inc.	269 Tar Heel Ferry Rd	Tar Heel	Bladen	28392	X
Tar Heel Fire/Rescue Inc.	1759 Pages Lake Rd	Saint Pauls	Bladen	28384	X
The Ammon Volunteer Fire Department, Inc.	13084 NC 242 N	Elizabethtown	Bladen	28337	X
The East Arcadia Volunteer Fire Department, Inc.	1665 East Arcadia Rd	Riegelwood	Bladen	28456	X
The Lisbon Volunteer Fire Department, Inc.	2585 White Plains Church Rd	Council	Bladen	28434	X
White Lake Fire Department, Inc.	1859 White Lake Dr	Elizabethtown	Bladen	28337	X
White Oak Fire Department, Inc.	10838 Hwy 53 West	White Oak	Bladen	28399	X
Acme-Delco-Riegelwood Fire-Rescue, Inc.	100 John Riegel Road	Riegelwood	Columbus	28456	X
Acme-Delco-Riegelwood Fire-Rescue, Inc.	4328 Livingston Chapel Road	Delco	Columbus	28436	X
Acme-Delco-Riegelwood Fire-Rescue, Inc.	1795 Woodyard Rd	Riegelwood	Columbus	28456	X
Bolton Volunteer Fire and Rescue Department, Inc.	225 9th St.	Bolton	Columbus	28423	X
Brunswick Volunteer Fire Department, Inc.	1465 Vinson Blvd	Brunswick	Columbus	28424	X
Brunswick Volunteer Fire Department, Inc.	626 Sunset Terrace Ave	Whiteville	Columbus	28424	X
Buckhead Volunteer Fire Department and Rescue Squad, Inc.	6810 Old Lake Rd	Bolton	Columbus	28423	X
Cerro Gordo Volunteer Fire Department and Rescue Squad	75 Railroad E	Cerro Gordo	Columbus	28430	X

[12] NC Fire Stations. (2024). NC OneMap. https://www.nconemap.gov/datasets/6f4fe0c55b0d4cbb92877e461d698c29_0/explore?location=34.621175%2C-80.017373%2C6.48

Fire Department Name	Station Address	Station City	Station County	Station Zip Code	Flood Hazard Zone
Evergreen Volunteer Fire Dept.	7606 Old 74 Hwy	Evergreen	Columbus	28438	X
Evergreen Volunteer Fire Dept.	850 Rossie O'Berry Rd	Whiteville	Columbus	28472	X
Fair Bluff Fire Department and Rescue Squad, Inc.	152 Main St.	Fair Bluff	Columbus	28439	X
Fair Bluff Fire Department and Rescue Squad, Inc.	185 Mc Neill Rd	Fair Bluff	Columbus	28439	X
Hallsboro Voluntary Fire Department, Inc.	754 Hallsboro Rd S	Hallsboro	Columbus	28442	X
Klondyke-Chadbourn Volunteer Fire & Rescue, Inc.	204 North Wilson Street	Chadbourn	Columbus	28431	X
Lake Waccamaw Fire and Rescue Department	203 Flemington Dr.	Lake Waccamaw	Columbus	28450	X
Lake Waccamaw Fire and Rescue Department	1741 Dupree Landing Rd.	Lake Waccamaw	Columbus	28450	X
Nakina Fire & Rescue Squad, Inc.	214 Ramsey Ford Rd.	Nakina	Columbus	28455	AE
Nakina Fire & Rescue Squad, Inc.	18032 Seven Creeks Hwy.	Tabor City	Columbus	28463	X
North Whiteville Volunteer Fire Department	747 Peacock Rd	Whiteville	Columbus	28472	X
Old Dock/Cypress Creek Volunteer Fire Department and Auxiliary	10635 New Britton Hwy E	Whiteville	Columbus	28472	X
Old Dock/Cypress Creek Volunteer Fire Department and Auxiliary	51 Crusoe Island Rd.	Whiteville	Columbus	28472	X
Roseland Volunteer Fire Department, Inc.	9527 Claredon Chadbourn Rd	Chadbourn	Columbus	28431	X
St. James Volunteer Fire Department, Inc.	3203 Old Northeast Rd	Lake Waccamaw	Columbus	28450	X
Tabor City Fire Department	113 W 4th St	Tabor City	Columbus	28463	X
Tabor City Fire Department	6819 Swamp Fox Hwy E	Tabor City	Columbus	28463	X
White Marsh - Welches Creek Community Volunteer Fire Department	45 Millie-Christine Rd.	Whiteville	Columbus	28472	X
Whiteville Fire Dept.	120 E Columbus St	Whiteville	Columbus	28472	X
Williams Township Community Volunteer Fire Department	1655 F.M. Cartret Rd	Whiteville	Columbus	28472	X
Williams Township Community Volunteer Fire Department	8000 Lebanon Church Rd	Clarendon	Columbus	28432	X
Allenton Volunteer Fire Department, Inc.	6815 NC 211 East	Lumberton	Robeson	28358	X
Allenton Volunteer Fire Department, Inc.	3937 Willoughby Road	Lumberton	Robeson	28358	AE
Big Marsh Volunteer Fire Department of Robeson County, Inc.	456 S Fifth St.	Saint Pauls	Robeson	28384	X
Britts Township Volunteer Fire Department, Inc.	9529 NC 72 E	Lumberton	Robeson	28358	X
Burnt Swamp- Philadelphus Rural Fire Department	54 Fire Department Rd	Red Springs	Robeson	28377	X
Deep Branch Fire/Rescue Inc.	3129 Deep Branch Rd	Lumberton	Robeson	28360	X

Fire Department Name	Station Address	Station City	Station County	Station Zip Code	Flood Hazard Zone
East Howellsville Volunteer Fire Department, Inc.	1000 Pridgen Rd	Lumberton	Robeson	28358	X
Evans Cross Road Voluntary Fire Department, Inc.	3440 Elrod Rd.	Maxton	Robeson	28364	X
Fairmont Fire Department	103 Cottage St.	Fairmont	Robeson	28340	X
Fairmont Rural Fire Department, Incorporated	203 Mulberry St	Fairmont	Robeson	28340	X
Lumber Bridge Volunteer Fire Department, Inc.	303 W. Main St.	Lumber Bridge	Robeson	28357	X
Lumberton Fire Department	600 North Cedar St	Lumberton	Robeson	28358	X
Lumberton Fire Department	801 Dunn Rd	Lumberton	Robeson	28358	AE
Northwood's Fire & Rescue Department, Incorporated	344 Sherwood Rd.	Lumberton	Robeson	28358	X
Northwood's Fire & Rescue Department, Incorporated	4213 Martin Rd	Lumberton	Robeson	28358	X
Orrum Township Volunteer Fire Department, Inc.	102 North Main St.	Proctorville	Robeson	28375	X
Orrum Township Volunteer Fire Department, Inc.	7049 S. Creek Rd.	Orrum	Robeson	28369	X
Parkton Fire and Rescue, Inc	2704 Parkton Tobmory Rd.	Parkton	Robeson	28371	X
Pembroke Fire Dept.	203 S. Main St.	Pembroke	Robeson	28372	X
Pembroke Rural Voluntary Fire Department, Inc.	1398 Prospect Rd.	Pembroke	Robeson	28372	X
Pine Terrace Volunteer Fire Dept.	1292 Alamac Rd	Lumberton	Robeson	28358	AE
Prospect Volunteer Fire Department, Inc.	4345 Prospect Rd	Maxton	Robeson	28364	X
Queheel Fire Department	108 East Rockingham Road	Maxton	Robeson	28364	X
Queheel Fire Department	11388 US HWY 501	Maxton	Robeson	28364	X
Raft Swamp Fire and Rescue Department, Inc.	2809 NC 72 Hwy West	Lumberton	Robeson	28360	X
Raynham-Mcdonald Volunteer Fire Dept.	5900 S Hwy 301	Rowland	Robeson	28383	X
Red Springs Fire Department	133 N . Main St.	Red Springs	Robeson	28377	X
Rennert Volunteer Fire Department	9896 Rennert Rd	Shannon	Robeson	28386	X
Rowland Rural Fire Department, Inc.	401 N Bond St.	Rowland	Robeson	28383	X
Rowland Rural Fire Department, Inc.	204 W Main St.	Rowland	Robeson	28383	X
Saddletree Volunteer Fire Department, Inc.	76 Rozier Church Rd.	Lumberton	Robeson	28360	X
Shannon Volunteer Fire Department, Inc.	14592 NC Hwy 71 N	Shannon	Robeson	28386	X
Smiths Volunteer Fire Department	2906 Oxendine School Rd	Maxton	Robeson	28364	X
Smyrna Township Volunteer Fire Department	2910 Wiregrass Rd	Lumberton	Robeson	28358	X
St. Pauls Fire Department	585 W. McLean St.	St. Pauls	Robeson	28384	X
Whitehouse Volunteer Fire Department, Incorporated	14759 Hwy 41 S	Fairmont	Robeson	28340	X

Fire Department Name	Station Address	Station City	Station County	Station Zip Code	Flood Hazard Zone
Whitehouse Volunteer Fire Department, Incorporated	1022 Gerald Rd.	Fairmont	Robeson	28340	X

Source: GIS Analysis

Table 6-11: Law Enforcement Facilities and Flood Hazard Zones[13]

Law Enforcement Location Name	Address	City	Zip Code	County	Law Enforcement Type	Flood Hazard Zone
North Carolina Department Of Environment And Natural Resources Division Of Forest Resources	4578 State Highway 242 North	Elizabethtown	28337	Bladen	Park Police	X
Town Of White Lake Police Department	1823 White Lake Drive	White Lake	28337	Bladen	Police Departments (Except American Indian Or Alaska Native)	X
Bladen County Sheriffs Department	201 East King Street	Elizabethtown	28337	Bladen	Sheriffs' Offices (Except Court Functions Only)	X
North Carolina Division Of Parks - Singletary Lake State Park	6707 State Highway 53 East	Kelly	28448	Bladen	Park Police	X
North Carolina State Highway Patrol Troop B District 5 - Substation	3467 United States Highway 701 South	Clarkton	28433	Bladen	Highway Patrols, Police	X
Bladenboro Police Department	306 South Main Street	Bladenboro	28320	Bladen	Police Departments (Except American Indian Or Alaska Native)	X
Elizabethtown Police Department	805 West Broad Street	Elizabethtown	28337	Bladen	Police Departments (Except American Indian Or Alaska Native)	X
North Carolina Division Of Parks - Jones Lake State Park	4117 State Highway 242 North	Elizabethtown	28337	Bladen	Park Police	X
North Carolina State Highway Patrol Troop B District V	917 Washington Street	Whiteville	28472	Columbus	Highway Patrols, Police	X
Chadbourn Police Department	602 North Brown Street	Chadbourn	28431	Columbus	Police Departments (Except American Indian Or Alaska Native)	X
Tabor City Police Department	1108 East 5th Street	Tabor City	28463	Columbus	Police Departments (Except American Indian Or Alaska Native)	X
Columbus County Sheriffs Department	805 Washington Street	Whiteville	28472	Columbus	Sheriffs' Offices (Except Court Functions Only)	X
City Of Fair Bluff Police Department	1175 Main Street	Fair Bluff	28439	Columbus	Police Departments (Except American Indian Or Alaska Native)	Ae

[13] State of North Carolina. (2023). Law Enforcement Locations [Dataset]. In NC OneMap. https://www.nconemap.gov/search?groupIds=2b0fd568b5234936a139f67a7ccdb014

Law Enforcement Location Name	Address	City	Zip Code	County	Law Enforcement Type	Flood Hazard Zone
North Carolina Division Of Parks - Lake Waccamaw State Park	1866 State Park Drive	Lake Waccamaw	28450	Columbus	Park Police	X
Whiteville Police Department	117 East Columbus Street	Whiteville	28472	Columbus	Police Departments (Except American Indian Or Alaska Native)	X
Town Of Lake Waccamaw Police Department	205 Flemington Drive	Lake Waccamaw	28450	Columbus	Police Departments (Except American Indian Or Alaska Native)	X
Saint Pauls Police Department	210 1/2 West Blue Street	Saint Pauls	28384	Robeson	Police Departments (Except American Indian Or Alaska Native)	X
City Of Lumberton Police Department	1305 Godwin Avenue	Lumberton	28358	Robeson	Police Departments (Except American Indian Or Alaska Native)	X
Robeson County Sheriffs Department / Robeson County Detention Center	120 Legend Road	Lumberton	28358	Robeson	Sheriffs' Offices (Except Court Functions Only)	X
Parkton Police Department	28 David Parnell Street	Parkton	28371	Robeson	Police Departments (Except American Indian Or Alaska Native)	X
Lumberton Police Department - East Lumberton Station	1608 East 5th Street	Lumberton	28358	Robeson	Police Departments (Except American Indian Or Alaska Native)	X
North Carolina State Highway Patrol Troop B District VII	4650 Kahn Drive	Lumberton	28358	Robeson	Highway Patrols, Police	X
Lumberton Police Department - West Lumberton Station	2411 Buchanan Street	Lumberton	28358	Robeson	Police Departments (Except American Indian Or Alaska Native)	AE
City Of Fairmont Police Department	421 South Main Street	Fairmont	28340	Robeson	Police Departments (Except American Indian Or Alaska Native)	X
University Of North Carolina At Pembroke Police And Public Safety Department	1 University Drive	Pembroke	28372	Robeson	Police Departments (Except American Indian Or Alaska Native)	X
City Of Rowland Police Department	206 West Main Street	Rowland	28383	Robeson	Police Departments (Except American Indian Or Alaska Native)	X
City Of Pembroke Police Department	100 Union Chapel Road	Pembroke	28372	Robeson	Police Departments (Except American Indian Or Alaska Native)	X
North Carolina Division Of Parks - Lumber River State Park	2819 Princess Ann Road	Orrum	28369	Robeson	Park Police	X
Maxton Police Department	105 North Florence Street	Maxton	28364	Robeson	Police Departments (Except American Indian Or Alaska Native)	X
Red Springs Police Department	218 South Main Street	Red Springs	28377	Robeson	Police Departments (Except American Indian Or Alaska Native)	X
Lumberton Police Department - South Lumberton Station	1408 Martin Luther King Junior Drive	Lumberton	28358	Robeson	Police Departments (Except American Indian Or Alaska Native)	AE

Source: GIS Analysis

Table 6-12: Medical Facilities and Flood Hazard Zones[14]

Facility Type	Facility	Address	City	Zip Code	County	License Number	Licensee	Flood Hazard Zone
Cardiac Rehabilitation	FirstHealth of the Carolinas Cardiac Rehab	923 West 3rd Street	Pembroke	28372	Robeson	CRP0099	FirstHealth of the Carolinas	X
Cardiac Rehabilitation	Southeastern Cardiopulmonary Rehabilitation	4895 Fayetteville Road	Lumberton	28359	Robeson	CRP0045	Southeastern Regional Medical Center	X
Family Care	Ada's Family Care Home	135 North Main Street	Red Springs	28377	Robeson	FCL-078-022	Elzerder Holt	X
Family Care	Bren Care Family Care Home #1	PO Box 3696	Pembroke	28372	Robeson	FCL-078-026	Alfreida Brooks & William Brooks	X
Family Care	Bren Care Family Care Home #2	PO Box 3696	Pembroke	28372	Robeson	FCL-078-027	Alfreida Brooks & William Brooks	X
Family Care	Country Living Family Care Home	PO Box 270	Pembroke	28372	Robeson	FCL-078-029	Andetra M. Kochera	X
Family Care	Dial's Family Care Home	1685 Canal Road	Pembroke	28372	Robeson	FCL-078-010	Ilene Dial	X
Family Care	Dial's Family Care Home #2	1685 Canal Road	Pembroke	28372	Robeson	FCL-078-012	Ilene Dial	X
Family Care	Dial's Family Care Home #3	1685 Canal Road	Pembroke	28372	Robeson	FCL-078-013	Ilene Dial	X
Family Care	Glezen Family Care Home	P O Box 863	Lumberton	28358	Robeson	FCL-078-001	Gloria Glezen	X
Family Care	Glezen Family Care Home #2	PO Box 863	Lumberton	0	Robeson	FCL-078-002	Gloria Glezen	X
Family Care	Home Place Family Care Home #1	1685 Canal Road	Pembroke	28372	Robeson	FCL-078-033	Ilene Dial	X
Family Care	Home Place Family Care Home #2	1685 Canal Street	Pembroke	27372	Robeson	FCL-078-032	Ilene Dial	X
Family Care	Mt. Olive Family Care Home #2	305 Jackson Street	Fairmont	28340	Robeson	FCL-078-015	Willie E. & Joan P. Spruill	X
Family Care	Nick's Family Care Home	527 Woods Road	Pembroke	28372	Robeson	FCL-078-030	Andria Nikol Johnson	X
Family Care	Personal Touch Family Care Home	2610 Hwy. 130 West	Rowland	28383	Robeson	FCL-078-018	Edna L. Chavis	X

[14] State of North Carolina & NC OneMap. (2023). Medical Facilities [Dataset]. In NC One Map. https://www.nconemap.gov/datasets/nconemap::medical-facilities/about

Facility Type	Facility	Address	City	Zip Code	County	License Number	Licensee	Flood Hazard Zone
Family Care	Personal Touch Family Care Home #2	2610 Hwy 130 West	Rowland	28383	Robeson	FCL-078-019	Edna L. Chavis	X
Family Care	Prather Family Care Home	8572 Old Red Springs Road	Red Springs	28377	Robeson	FCL-078-011	Betty J. Prather	X
Family Care	Quality Family Care Home - Robeson	200 Lakeside Drive	Lumberton	28360	Robeson	FCL-078-017	Christine B. Thornhill	X
Family Care	Sampson's Family Care Home	P O Box 2895	Pembroke	28372	Robeson	FCL-078-028	Lesia S. Hammonds	X
Family Care	Sarah's Family Care Home	2133 Preston Road	Maxton	28364	Robeson	FCL-078-035	Elizabeth Locklear	X
Family Care	Stewart's TLC Family Home	P O Box 2192	Lumberton	0	Robeson	FCL-078-006	Treva Stewart	X
Family Care	Williamson Family Care Home #2	887 Tar Heel Road	Lumberton	0	Robeson	FCL-078-009	Patricia Meraz	X
Home Care	Advantage Home Care	P. O. Box 1828	Lumberton	28359	Robeson	HC1240	Consolidated Health Services, Inc.	X
Home Care	Community Home Care & Hospice	5301 Morganton Road	Fayetteville	28314	Robeson	HOS2060	Carrolton Home Care, Inc.	X
Home Care	Companion Home Care - UNIMED	PO Box 1231	Lumberton	28358	Robeson	HC1978	Companion Home Care - UNIMED	X
Home Care	Companion Home Care-UNIMED	2101 C Pine Street	Lumberton	28358	Robeson	HC1604	Charles Graham	X
Home Care	Family Alternatives, Inc.	P. O. Box 963	Lumberton	28359	Robeson	HC1652	Family Alternatives, Inc.	X
Home Care	HealthKeeperz	P. O. Box 1030	Pembroke	28372	Robeson	HC1185	Tender Loving Care Home Health Care Agency, Inc.	X
Home Care	Interim HealthCare	P. O. Box 2249	Whiteville	0	Robeson	HC0261	Interim HealthCare of the Eastern Carolinas, Inc.	X
Home Care	Liberty Home Care	103 South Florence Street	Maxton	28364	Robeson	HC0352	Liberty Home Care II, LLC	X
Home Care	Liberty Home Care	2409 Elm Street	Lumberton	28358	Robeson	HC1178	Liberty Home Care, L.L.C.	X
Home Care	Native Angels HomeCare, Inc	4701 Fayetteville Road, Suite C	Pembroke	28372	Robeson	HC1960	Native Angls-Bobbie Ghaffar	X
Home Care	Pelham Home Health	PO Box 9754	Fayetteville	28311	Robeson	HC2268	Pelham Home Health, Inc.	X

Facility Type	Facility	Address	City	Zip Code	County	License Number	Licensee	Flood Hazard Zone
Home Care	Robeson County Home Health Agency	460 Country Club Road	Lumberton	28360	Robeson	HC0526	Robeson County Health Department	X
Home Care	Southeastern Home Health	2002 North Cedar Street	Lumberton	28358	Robeson	HC0235	Southeastern Regional Medical Center	X
Home Care	Southeastern Personal Care	2002 N. Cedar Street	Lumberton	28358	Robeson	HC1264	Southeastern Regional Medical Center	X
Home Care	We Care For You Home Care Corporation	1549 Hwy 211 West	Lumberton	28358	Robeson	HC1961	Anissa Emanuel-Bullard	X
Home For The Aged	Green Manor Rest Home	P. O. Drawer 299	Parkton	28371	Robeson	HAL-078-003	Major and Mrs. David R. Green	X
Home For The Aged	Greystone Manor, LLC	PO Box 392	Red Springs	28377	Robeson	HAL-078-015	E & J Health Care, LLC	X
Home For The Aged	Hermitage Retirement Center	550 Bailey Road	Lumberton	28359	Robeson	HAL-078-004	Lumberton Health Care, Inc.	AE
Home For The Aged	Hope Village	104 Hope Lane	Red Springs	28377	Robeson	HAL-078-005	E & J Health Care, LLC	X
Home For The Aged	Johnson's Retirement Home	PO Box 925	Pembroke	28372	Robeson	HAL-078-034	Thomas Junior Johnson	X
Home For The Aged	Leisure Living Care Home	550 Waters Road	Salisbury	28146	Robeson	HAL-078-006	Metro Corp Affiliates, Ltd.	X
Home For The Aged	Rosemont Rest Home, Inc.	PO Box 2804	Pembroke	28372	Robeson	HAL-078-020	Rosemont Rest Home, Inc.	X
Home For The Aged	Spring Village Rest Home	P O Box 472	St. Pauls	28384	Robeson	HAL-078-016	Tammie C. Taylor	X
Home For The Aged	The Meadows of Fairmont, Inc.	P.O. Box 1321	Kinston	28501	Robeson	HAL-078-031	The Meadows of Fairmont, Inc.	X
Home For The Aged	Trio Senior Living #2	941 Goins Road	Pembroke	28372	Robeson	HAL-078-023	Trio Health Care, LLC	X
Home For The Aged	Trio Senior Living #3	941 Goins Rd	Pembroke	28372	Robeson	HAL-078-024	Trio Health Care, LLC	X
Home For The Aged	Trio Senior Living #4	941 Goins Road	Pembroke	28372	Robeson	HAL-078-025	Trio Health Care, Inc.	X
Hospice	Advantage Hospice	P. O. Box 1828	Lumberton	28359	Robeson	HOS1301	Consolidated Health Services, Inc.	X
Hospice	Hospice of Robeson	2002 N. Cedar Street	Lumberton	28358	Robeson	HOS1599	Health Horizons, Inc.	X
Hospital	Southeastern Regional Medical Center	P O Box 1408	Lumberton	28359	Robeson	H0064	Southeastern Regional Medical Center	X

Facility Type	Facility	Address	City	Zip Code	County	License Number	Licensee	Flood Hazard Zone
Mental Health Homes	Angelo's Care Home, Inc.	10091 US Highway 74 West	Maxton	28364	Robeson	MHL-078-138	Angelo's Care Home, Inc.	X
Mental Health Homes	Beryl Alexander House	2121 Turner PL. P.O. Box 3047	Lumberton	28359	Robeson	MHL-078-034	Robeson County Group Home, Inc.	X
Mental Health Homes	Brian Hunt Home	P.O. Box 963	Lumberton	28359	Robeson	MHL-078-118	Brian R. Hunt	X
Mental Health Homes	Cameron Home	P.O. Box 963	Lumberton	28359	Robeson	MHL-078-002	Fred and Sherry Cameron	X
Mental Health Homes	Cardinal Group Home Inc.	177 Cardinal Avenue	Lumberton	28360	Robeson	MHL-078-142	Jason Hartman Hammonds	X
Mental Health Homes	Cedar Street Residential	801 Wilson Street	Whiteville	28472	Robeson	MHL-078-095	Community Innovations, Inc.	X
Mental Health Homes	Cliffridge	3508 Cliffridge Dr.	Lumberton	28358	Robeson	MHL-078-109	BJ Professional Services, Inc.	X
Mental Health Homes	Corbel Residential	483 Creek Rd.	Orrum	28369	Robeson	MHL-078-069	Community Innovations, Inc.	X
Mental Health Homes	Eastbrook	15235 Airport Road	Maxton	28364	Robeson	MHL-078-010	RHA Health Services, Inc.	X
Mental Health Homes	Evergreen Rehabilitation Center	20513 U.S. Highway 301N	St. Pauls	28384	Robeson	MHL-078-124	Green Manor Rest Homes, Inc.	X
Mental Health Homes	Forest House	801 Wilson Street	Whiteville	28472	Robeson	MHL-078-089	Community Innovations, Inc.	X
Mental Health Homes	Generations Health Services	PO Box 849	Pembroke	28372	Robeson	MHL-078-135	Agyenim Akuamoah-Boateng, MS, CRC, CCAS, LPC	X
Mental Health Homes	Grace Court	3750 Meadow View Road Apt. A-1	Lumberton	28358	Robeson	MHL-078-111	First Image, Inc.	X
Mental Health Homes	Green Tree Supervised Living Home	801 Wilson Street	Whiteville	28472	Robeson	MHL-078-122	Community Innovations, Inc.	X
Mental Health Homes	Higher Praise Children's Home 1	PO Box 25639	Fayetteville	28314	Robeson	MHL-078-141	Higher Praise Corporation	X
Mental Health Homes	Hunt Home	P.O. Box 963	Lumberton	28359	Robeson	MHL-078-088	R.M. and Carolyn Hunt	X
Mental Health Homes	Jackson Home	408 Jackson Street	Fairmont	28340	Robeson	MHL-078-139	John and Glenda Jackson	X

Facility Type	Facility	Address	City	Zip Code	County	License Number	Licensee	Flood Hazard Zone
Mental Health Homes	Johnson Center Home for Children & Adolescents	PO Box 844	Red Springs	28377	Robeson	MHL-078-143	Hattie Johnson & Sheila Ferguson	X
Mental Health Homes	Jones & JJ Group Home	108 Sun Road	Lumberton	28358	Robeson	MHL-078-103	Jones & JJ's Group Home	X
Mental Health Homes	Jones and JJ's Group Home #2	PO Box 508	Lumberton	28358	Robeson	MHL-078-140	Thomas Jones Jr., Ruby Jones and Thomas Jones III	X
Mental Health Homes	Jones Therapeutic Home	P.O. Box 963	Lumberton	28359	Robeson	MHL-078-115	Jerry and Avis Jones	X
Mental Health Homes	Killens Home	P.O. Box 963	Lumberton	28359	Robeson	MHL-078-072	Robert and Earlie Killens	X
Mental Health Homes	Livingston Home	2235 Old Stage Road	Fairmont	28340	Robeson	MHL-078-067	Thomas & Lela Livingston	X
Mental Health Homes	Locklear Home	3089 Norment Road	Lumberton	28358	Robeson	MHL-078-068	Mrs. Jessie Locklear	X
Mental Health Homes	Lumberton Health Center	901 N. Chestnut Street	Lumberton	28364	Robeson	MHL-078-079	Robeson Health Care Corporation	X
Mental Health Homes	Mask Therapeutic Home	106 S Wilkinson Dr.	St. Pauls	28384	Robeson	MHL-078-117	Maria Mask	X
Mental Health Homes	McArthur Home	1488 Turkey Branch Road	Fairmont	28340	Robeson	MHL-078-113	Catherine McArthur	X
Mental Health Homes	New Life Community Group Home	1900 Hilly Branch Road	Lumberton	28357	Robeson	MHL-078-130	Mary T. Hill	X
Mental Health Homes	Our House	204 W. MLK Jr. Drive	Maxton	28364	Robeson	MHL-078-045	Robeson Health Care Corporation	X
Mental Health Homes	Palmer Prevention, Inc.	PO Box 8	Lumberton	28359	Robeson	MHL-078-137	Palmer Prevention, Inc.	AH
Mental Health Homes	Pembroke Home	801 Wilson Street	Whiteville	28472	Robeson	MHL-078-129	Community Innovations, Inc.	X
Mental Health Homes	Register Home	116 West 8th Street	Lumberton	28358	Robeson	MHL-078-019	Mr. and Mrs. William (Bill) Register	X
Mental Health Homes	Rennert Home	PO Box 398	Shannon	28386	Robeson	MHL-078-120	W F B Health Care, Inc.	X
Mental Health Homes	Robeson County Day Reporting Center	120 West Sixth Street	Lumberton	28358	Robeson	MHL-078-119	Robeson County Criminal Justice Partnership	X
Mental Health Homes	Robeson County Group Home #1	PO Box 3047	Lumberton	28359	Robeson	MHL-078-061	Robeson County Group Home, Inc.	X

Facility Type	Facility	Address	City	Zip Code	County	License Number	Licensee	Flood Hazard Zone
Mental Health Homes	Robeson County Group Home II-Fairmont	104 E. Gertrude St.	Fairmont	28340	Robeson	MHL-078-036	Robeson County Group Home, Inc.	X
Mental Health Homes	Robeson County Mental Health Center	P.O. Box 2096	Lumberton	28359	Robeson	MHL-078-003	Southeastern Regional Mental Health Center	X
Mental Health Homes	Robeson Health Care Corp./Julian T. Pierce Health C	P.O. Box 1629	Pembroke	28372	Robeson	MHL-078-064	Robeson Health Care Corporation	X
Mental Health Homes	Robeson Health Care Corp./Our House 2nd Step Bldg.	P.O. Box 2883	Pembroke	28372	Robeson	MHL-078-062	Robeson Health Care Corporation	X
Mental Health Homes	Robeson Health Care Corp./S. Robeson Medical Clinic	1212 South Walnut Street	Fairmont	28340	Robeson	MHL-078-063	Robeson Health Care Corporation	X
Mental Health Homes	Robeson Health Care Corp/Maxton Medical Center	610 E. MLK Jr. Drive	Maxton	28364	Robeson	MHL-078-127	Robeson Health Care Corp.	X
Mental Health Homes	Robeson Health Care Corporation Maxton Family Cente	204 W. MLK, Jr. Drive	Maxton	28364	Robeson	MHL-078-128	Robeson Health Care Corporation	X
Mental Health Homes	Rockford House	1012 West Blvd.	Laurinburg	28352	Robeson	MHL-078-133	Coordinated Health Services	X
Mental Health Homes	Singletary Home	P.O. Box 963	Lumberton	28359	Robeson	MHL-078-059	Family Alternatives, Inc.	X
Mental Health Homes	Substance Abuse Services-Lumberton	308 East 6th Street	Lumberton	28358	Robeson	MHL-078-033	Robeson Family Counseling Center Inc. A Carenet INC.	X
Mental Health Homes	The Atkinson Home	PO Box 963	Lumberton	28359	Robeson	MHL-078-093	Larry and Judy Atkinson	X
Mental Health Homes	The Hill Home	P.O. Box 963	Lumberton	28359	Robeson	MHL-078-096	James and Mary Hill	X
Mental Health Homes	The Jones Home	112 Dallas Street	Lumberton	28358	Robeson	MHL-078-116	Thomas and Ruby Jones	X
Mental Health Homes	The Laura Campbell Home	PO Box 963	Lumberton	28359	Robeson	MHL-078-114	Laura Campbell	X
Mental Health Homes	The Linda McBride Home	P.O. Box 963	Lumberton	28359	Robeson	MHL-078-074	Linda McBride	X
Mental Health Homes	The Locklear Home	59 National Avenue	Robeson	28359	Robeson	MHL-078-106	Kay Neal Locklear	AE

Facility Type	Facility	Address	City	Zip Code	County	License Number	Licensee	Flood Hazard Zone
Mental Health Homes	The McLaurin Home	305 McLaughlin Street	Maxton	28364	Robeson	MHL-078-099	James and Geraldine McLaurin	X
Mental Health Homes	The Regan Home	PO Box 963	Lumberton	28358	Robeson	MHL-078-097	Gloria Regan	X
Mental Health Homes	The Rita and Terry Locklear Home	PO Box 963	Lumberton	28359	Robeson	MHL-078-126	Rita and Terry Locklear	X
Mental Health Homes	Thompson Home	P.O. Box 963	Lumberton	28359	Robeson	MHL-078-056	Annie Ruth Thompson	X
Mental Health Homes	Todd Home	PO Box 963	Lumberton	28359	Robeson	MHL-078-050	Earl and Elaine Todd	X
Mental Health Homes	Wakulla I & II	15235 Airport Road	Maxton	28364	Robeson	MHL-078-029	RHA/North Carolina MR, Inc.	X
Mental Health Homes	Watson Home	929 North Old Stage Road	St. Pauls	28384	Robeson	MHL-078-134	Lots of Love	X
Mental Health Homes	Westside Residential	Rt 1 Box 10 Creek Road	Orrum	28369	Robeson	MHL-078-049	Community Innovations, Inc.	X
Mental Health Homes	Willie Drake Home	404 Martin Luther King Drive	Maxton	28364	Robeson	MHL-078-092	Willie Howard Drake, Jr.	X
Mental Health Homes	Wilson Home	P.O. Box 963	Lumberton	28359	Robeson	MHL-078-112	Vivian Wilson/Family Alternatives, Inc.	X
Mental Health Homes	Youth Enrichment Services-Bridgecrest Group Home	P.O. Box 180	Lumber Bridge	28357	Robeson	MHL-078-009	Southeastern Regional Mental Health	X
Mental Health Homes	Youth Enrichment Services-Meadowbrook Group Home	P.O Box 488	Maxton	28364	Robeson	MHL-078-014	Southeastern Regional Mental Health Center	X
Mental Health Homes	Youth Enrichment Services-Timberwood Group Home	1407 East Fifth Street	Lumberton	28358	Robeson	MHL-078-011	Southeastern Regional Mental Health	X
Nursing Home Facility	Beverly Healthcare Lumberton	1555 Willis Avenue	Lumberton	0	Robeson	NH0289	Moderncare of Lumberton, Inc.	X
Nursing Home Facility	GlenFlora	5701 Fayetteville Road	Lumberton	0	Robeson	NH0533	North Carolina Cancer Institute, Inc.	X
Nursing Home Facilit	IHS of Lumberton	1170 Linkhaw Road	Lumberton	0	Robeson	NH0472	IHS Acquisition XXXIII, Inc.	X

Facility Type	Facility	Address	City	Zip Code	County	License Number	Licensee	Flood Hazard Zone
Nursing Home Facility	SunBridge Care & Rehabilitation for Pembroke	310 East Wardell Drive	Pembroke	0	Robeson	NH0518	Retirement Care Associates, Inc.	X
Nursing Home Facility	Wesley Pines Retirement Community	1000 Wesley Pines Road	Lumberton	0	Robeson	NH0240	The United Methodist Retirement Homes, Incorporated	X
Nursing Pool	Mega Force Staffing	P. O. Box 53449	Fayetteville	28305	Robeson	NP1513	The Mega Force Staffing Group, Inc.	X
Cardiac Rehabilitation	Cardiac Rehabilitation Program	500 Jefferson Street	Whiteville	28472	Columbus	CRP0087	Columbus County Hospital, Inc.	X
Family Care	Fair Bluff Rest Home #1	P O Box 128	Lake Waccamaw	28450	Columbus	FCL-024-005	Waterside, Inc.	X
Family Care	Fair Bluff Rest Home #2	P O Box 128	Lake Waccamaw	28450	Columbus	FCL-024-006	Waterside, Inc.	X
Family Care	Mt. Olive Family Care Home	305 Jackson Street	Fairmont	28340	Columbus	FCL-024-002	Willie E. and Joan P. Spruill	X
Home Care	American HomePatient	5200 Maryland Way, Suite 400	Brentwood	37027	Columbus	HC2283	American HomePatient, Inc.	X
Home Care	AssistedCare, Inc.	PO Box 7665	Wilmington	28406	Columbus	HC2132	AssistedCare, Inc.	X
Home Care	Assisting Angels, Inc.	P.O. Box 673	Whiteville	28472	Columbus	HC2192	Assisting Angels, Incorporated	X
Home Care	Carolinas Home Care Agency, Inc.	P. O. Box 1723	Whiteville	28472	Columbus	HC1183	Carolinas Home Care Agency, Inc.	X
Home Care	Columbus County Department of Aging	P O Box 1187	Whiteville	28472	Columbus	HC0755	Columbus County Department of Aging	X
Home Care	Columbus County Home Health	P O Box 810	Whiteville	28472	Columbus	HC0492	Columbus County Health Department	X
Home Care	Evergreen Health Services, Inc.	PO Box 425	Whiteville	28472	Columbus	HC2037	Evergreen Behavioral Mangement, Inc.	AE
Home Care	Healthkeeperz	PO Box 457	Whiteville	28472	Columbus	HC2126	Tender Loving Care Home Health Agency, Inc.	X
Home Care	Heartland Home Care Agency, Inc.	P. O. Box 494	Chadbourn	28431	Columbus	HC1562	Heartland Home Care Agency, Inc.	X
Home Care	Home Medical Systems, Inc.	1347 South Madison Street	Whiteville	28472	Columbus	HC1036	Home Medical System, Inc.	X
Home Care	Interim HealthCare	P. O. Box 2249	Whiteville	0	Columbus	HC0209	Interim HealthCare of the Eastern Carolinas, Inc.	X

Facility Type	Facility	Address	City	Zip Code	County	License Number	Licensee	Flood Hazard Zone
Home Care	Liberty Home Care	46 McNeill Plaza	Whiteville	28472	Columbus	HC0320	Liberty Home Care	X
Home Care	Liberty Medical Specialties, Inc.	P. O. Box 339	Whiteville	28472	Columbus	HC1256	Liberty Medical Specialties, Inc.	X
Home Care	New Directions Home Health Care	PO Box 1442	Whiteville	28472	Columbus	HC2120	New Directions Home Health Care	X
Home Care	Palliative Care Center of Lower Cape Fear Hospice	725-A Wellington Avenue	Wilmington	28401	Columbus	HC2122	Lower Cape Fear Hospice, Inc.	X
Home Care	Priority Home Care Agency, Inc.	3586 Andrew Jackson Hwy SW	Chadbourn	28431	Columbus	HC1937	Priority Home Care Agency	X
Home Care	Twin States' Helping Hands	808 Smyrna Road	Whiteville	28472	Columbus	HC2200	Cynthia W. Price	X
Home Care	Well Care Health Services, Inc.	112 Washington Street	Whiteville	28472	Columbus	HC1273	Well Care Health Services, Inc.	X
Home For The Aged	Pinedale Residential Center of Tabor City	P O Box 95	Tabor City	28463	Columbus	HAL-024-003	Columbus County Adult Care, LLC	X
Home For The Aged	The Meadows of Lake Waccamaw	PO Box 1321	Kinston	28501	Columbus	HAL-024-007	The Meadows of Lake Wacccamaw	X
Hospice	Carolina Hospice and Palliative Care	30 McNeil Plaza	Whiteville	28472	Columbus	HOS2007	Carolina Hospice and Palliative Care, LLC	X
Hospice	Lower Cape Fear Hospice, Inc.	725-A Wellington Avenue	Wilmington,	0	Columbus	HOS0417	Lower Cape Fear Hospice, Incorporated	X
Hospital	Columbus County Hospital, Inc.	500 Jefferson St	Whiteville	28472	Columbus	H0045	Columbus County Hospital, Inc.	X
Mental Health Homes	Bill Parker Day Activity Center	801 Wilson Street	Whiteville	28472	Columbus	MHL-024-022	Community Innovations, Inc.	X
Mental Health Homes	Bridgeton Place	PO Box 786	Whiteville	28472	Columbus	MHL-024-017	Columbus Group Homes, Inc.	X
Mental Health Homes	Burkhead Street	801 Wilson Street	Whiteville	28472	Columbus	MHL-024-044	Community Innovations, Inc.	X
Mental Health Homes	Carroll House	P.O. Box 786	Whiteville	28472	Columbus	MHL-024-014	Columbus Group Homes, Inc.	X

Facility Type	Facility	Address	City	Zip Code	County	License Number	Licensee	Flood Hazard Zone
Mental Health Homes	Coburn House	213 S. Madison Street, Suite 100	Whiteville	28472	Columbus	MHL-024-033	Southeastern Regional Area MH/DD/SAS Authority	X
Mental Health Homes	Columbus House	PO Box 786	Whiteville	28472	Columbus	MHL-024-015	Columbus Group Homes, Inc.	X
Mental Health Homes	Columbus Industries	207 W. Walter Street/P.O. Box 563	Whiteville	28472	Columbus	MHL-024-025	Columbus Co. Industries/Southeastern Regional MH	X
Mental Health Homes	David and David House	801 Wilson Street	Whiteville	28472	Columbus	MHL-024-035	Community Innovations, Inc.	X
Mental Health Homes	Deerfield Residential	801 Wilson Street	Whiteville	28472	Columbus	MHL-024-036	Community Innovations, Inc.	X
Mental Health Homes	Evergreen Health Services	PO Box 425	Whiteville	28472	Columbus	MHL-024-049	Evergreen Behavioral Management, Inc.	AE
Mental Health Homes	Fair Bluff Residential	801 Wilson Street	Whiteville	28472	Columbus	MHL-024-041	Community Innovations, Inc.	X
Mental Health Homes	Goremont	11337 Joe Brown Hwy South	Tabor City	28403	Columbus	MHL-024-026	The Asbury Homes, Inc.	X
Mental Health Homes	GP Road	2838 Georgia Pacific Rd.	Whiteville	28472	Columbus	MHL-024-043	Community Innovations, Inc.	X
Mental Health Homes	Guardian Light, Inc.	PO Box 1877	Whiteville	28472	Columbus	MHL-024-056	Robertha Powers	X
Mental Health Homes	Harper Home	801 Wilson Street	Whiteville	28472	Columbus	MHL-024-046	Community Innovations, Inc.	X
Mental Health Homes	Home of Hope	2873 Georgia Pacific Road	Whiteville	28472	Columbus	MHL-024-051	Doris Faye Redwine	X
Mental Health Homes	Jean Street	801 Wilson Street	Whiteville	28472	Columbus	MHL-024-013	Community Innovations, Inc.	AE
Mental Health Homes	Lee Street Residential	801 Wilson Street	Whiteville	28472	Columbus	MHL-024-039	Community Innovations, Inc.	X
Mental Health Homes	Riverside Residential	801 Wilson Street	Whiteville	28439	Columbus	MHL-024-021	Community Innovations, Inc.	X
Mental Health Homes	Roseview Home for Children	PO Box 1852	Fayetteville	28302	Columbus	MHL-024-052	Woodbridge Alternative, Inc.	X
Mental Health Homes	Rouse Counseling & Consulting Services	805 North Franklin St. Ofc.# 208	Whiteville	28472	Columbus	MHL-024-053	Rickie G. Rouse	X

Facility Type	Facility	Address	City	Zip Code	County	License Number	Licensee	Flood Hazard Zone
Mental Health Homes	Southeastern Community Support Center	801 Wilson Street	Whiteville	28472	Columbus	MHL-024-029	Community Innovations, Inc.	AE
Mental Health Homes	Southeastern Regional MH/DD/SAS Columbus Center	306 Jefferson Street	Whiteville	28472	Columbus	MHL-024-005	Southeastern Regional Area MH/DD/SAS Authority	X
Mental Health Homes	Southwood	801 Wilson Street	Whiteville	28472	Columbus	MHL-024-018	Community Innovations, Inc.	X
Mental Health Homes	Stanley Home	P.O. Box 963	Lumberton	28358	Columbus	MHL-024-002	Ben and Lottie Stanley	X
Mental Health Homes	Strawberry House	801 Wilson Street	Whiteville	28472	Columbus	MHL-024-019	Community Innovations, Inc.	X
Mental Health Homes	The Franklin Street House	PO Box 425	Whiteville	28472	Columbus	MHL-024-054	Evergreen Behavioral Management	X
Mental Health Homes	The Gore House	PO Box 425	Whiteville	28472	Columbus	MHL-024-055	Evergreen Behavioral Management	X
Mental Health Homes	Wilmington Treatment Center -Outpatient Srv. Whitev	805 N. Franklin Street	Whiteville	28472	Columbus	MHL-024-038	Wilmington Treatment Center, Inc.	X
Nursing Home Facility	Liberty Commons Nursing and Rehab Columbus	1402 Pinckney Street	Whiteville	28472	Columbus	NH0283	Century Care Center, Inc.	X
Nursing Home Facilit	Premier Living and Rehab Center	106 Cameron Street	Lake Waccamaw	0	Columbus	NH0246	Premier Living and Rehab Center	X
Nursing Home Facility	Shoreland Health Care and Retirement Center, Inc.	200 Flowers-Pridgen Drive	Whiteville	0	Columbus	NH0510	Shoreland Health Care and Retirement Center, Inc.	X
Nursing Pool	Home Care Plus, P.A.	P O Box 512	Whiteville	28472	Columbus	NP0883	Home Care Plus, P.A.	X
Nursing Pool	Liberty Nursing Services, LLC	30 McNeil Plaza	Whiteville	28472	Columbus	NP2095	Liberty Nursing Services, LLC	X
Family Care	A & C Family Care	3053 Burney Road	Bladenboro	28320	Bladen	FCL-009-020	Angela Watts Mclean	X
Family Care	Bridgers Family Care Home	19 Poe Elkins Road	Clarkton	28433	Bladen	FCL-009-018	Betty L. Bridgers	X
Family Care	Canady Home Care	P. O. Box 674	Elizabethtown	28337	Bladen	FCL-009-002	CFC/SLI Canady Family Care	X
Family Care	Eastland Home	PO Box 152	Tar Heel	28392	Bladen	FCL-009-004	Bowen L. Blackwell	X
Family Care	McLean Family Care Home	83 Esterville Road	Elizabethtown	28337	Bladen	FCL-009-005	Esther A. McLean	X

Facility Type	Facility	Address	City	Zip Code	County	License Number	Licensee	Flood Hazard Zone
Family Care	McLean Family Care Home #2	83 Estherville Road	Elizabethtown	28337	Bladen	FCL-009-006	Esther A. McLean	X
Family Care	McLean Family Care Home #3	83 Esterville Road	Elizabethtown	28337	Bladen	FCL-009-007	Esther McLean	X
Family Care	Oak Grove Family Care Home	P.O. Box 772	Bladenboro	28320	Bladen	FCL-009-008	Evelyn Todd	X
Family Care	Oak Grove Family Care Home #2	P O Box 772	Bladenboro	28320	Bladen	FCL-009-017	Pamela Ward	X
Family Care	Sassafras Family Care Home	659 Sassafras Road	Bladenboro	28320	Bladen	FCL-009-014	Rosalind Todd	X
Home Care	AmeriCare	1302-A South 16th Street	Wilmington	28403	Bladen	HC1336	AmeriCare of N. C., Inc.	X
Home Care	AssistedCare, Inc.	P. O. Box 7665	Wilmington,	28337	Bladen	HC1431	AssistedCare, Inc.	X
Home Care	BJ Professional Services, Inc.	1206 Twisted Hickory Road	Elizabethtown	28337	Bladen	HC1580	BJ Professional Services, Inc.	X
Home Care	Bladen County Home Health Agency	P O Box 189	Elizabethtown	28337	Bladen	HC0481	Bladen County Home Health Agency	X
Home Care	Health Care Connections Home Care	P.O. Box 777	Reaford	28320	Bladen	HC2259	Health Care Connections, Inc.	X
Home Care	Interim HealthCare	P. O. Box 2249	Whiteville	28472	Bladen	HC0920	Interim HealthCare of the Eastern Carolinas, Inc.	X
Home Care	Palliative Care Center of Lower Cape Fear Hospice	725-A Wellington Avenue	Wilmington	28337	Bladen	HC2123	Lower Cape Fear Hospice, Inc.	X
Home Care	PSA Healthcare	310 Technology Parkway	Norcross	30092	Bladen	HC0593	Pediatric Services of America, Inc.	X
Home Care	Southeastern Personal Care	PO Box 425	Elizabethtown	28337	Bladen	HC0534	Southeastern Regional Medical Center	X
Home For The Aged	Bladen Lakes Residential Care	P. O. Box 17056	Asheville	28816	Bladen	HAL-009-003	Southern Heritage, Inc.	X
Home For The Aged	Cape Fear Manor	P. O. Box 489	Clarkton	28433	Bladen	HAL-009-001	Cape Fear Manor, Inc.	X
Hospice	Community Home Care & Hospice	5301 Morganton Road	Fayetteville	28314	Bladen	HOS1945	Carrolton Home Care, Inc.	X
Hospice	Lower Cape Fear Hospice, Inc.	725-A Wellington Avenue	Wilmington	0	Bladen	HOS0415	Lower Cape Fear Hospice, Inc.	X

Facility Type	Facility	Address	City	Zip Code	County	License Number	Licensee	Flood Hazard Zone
Hospital	Bladen County Hospital	P O Box 398	Elizabethtown	28337	Bladen	H0154	County of Bladen	X
Mental Health Homes	Bladen County Group Home I (Millbranch)	P.O. Box 963	Lumberton	28359	Bladen	MHL-009-012	Family Alternatives, Inc.	X
Mental Health Homes	Bladen County Group Home II (Riverwood)	P.O. Box 963	Lumberton	28539	Bladen	MHL-009-013	Family Alternatives, Inc.	X
Mental Health Homes	Bladen Opportunities Unlimited	PO Box 2859	Elizabethtown	28337	Bladen	MHL-009-004	Southeastern Regional MH/DD/SAS	X
Mental Health Homes	Cypress House	PO Box 2165	Elizabethtown	28337	Bladen	MHL-009-007	Southeastern Regional Mental Health	X
Mental Health Homes	Midlake Residential	801 Wilson Street	Whiteville	28472	Bladen	MHL-009-010	P.C. Contract Management Services	AE
Mental Health Homes	Northridge Residential	801 Wilson Street	Whiteville	28472	Bladen	MHL-009-009	Community Innovations, Inc.	X
Mental Health Homes	Southeastern Regional MH/DD/SAS Center-Bladen Coun	P.O. Box 1176	Elizabethtown	28337	Bladen	MHL-009-005	Southeastern Regional MH/DD/SAS	X
Nursing Home Facility	Elizabethtown Nursing Center, Inc.	208 Mercer Road	Elizabethtown	0	Bladen	NH0328	Elizabethtown Nursing Center, Inc.	X
Nursing Home Facility	SunBridge Care & Rehabilitation for Elizabethtown	804 Popular Street	Elizabethtown	28337	Bladen	NH0420	Retirement Care Associates, Inc.	X

Source: GIS Analysis

Table 6-13 below identifies an expanded count of regional critical facilities by jurisdiction as originally reported through the NCEM Risk Management Tool. These numbers are considered planning estimates and remain subject to change upon future review. The top line of this table also indicates applicable Community Lifeline categories as developed by FEMA. These eight core categories include: (1) Safety and Security; (2) Food, Hydration, and Shelter; (3) Health and Medical; (4) Energy; (5) Communications; (6) Transportation; (7) Hazardous Materials; and (8) Water Systems.

Table 6-13: Expanded Regional Critical Facility Inventory by FEMA Lifelines

FEMA Lifeline[15]	Food	Comms	Hazmat	Shelter	Comms	Transportation	Safety	Safety	Medical	Transportation	Energy	Safety	Water	N/A
Location	Food & Farming	Banking & Finance	Chemical	Commercial	Comms	Manufacturing	Defense	Government	Healthcare	Transportation	Energy	Emergency Services	Water	Total
Bladen County														
Town of Bladenboro	63	2	8	132	0	15	0	18	6	9	2	2	1	258
Town of Clarkton	5	2	4	59	0	12	0	11	6	2	0	1	1	103
Town of Dublin	4	1	1	25	0	12	0	5	2	3	0	1	0	54
Town of East Arcadia	6	0	0	8	0	2	0	9	0	1	0	1	0	27
Town of Elizabethtown	26	8	12	267	0	62	0	58	27	25	3	4	1	493
Town of Tar Heel	0	1	6	16	0	0	0	1	0	0	0	0	0	24
Town of White Lake	18	0	0	160	0	3	0	26	0	0	0	1	1	209
Unincorporated Area	2,343	0	22	714	3*	221	0	130	23	63	20*	12*	15*	3,563
Subtotal Bladen	**2,465**	**14**	**53**	**1,381**	**3***	**327**	**0**	**258**	**64**	**103**	**25***	**22***	**19***	**4,731**
Columbus County														
City of Whiteville	1	16	0	460	1	6	0	66	44	54	1	5	0	654
Town of Boardman	0	0	0	13	0	1	0	0	0	0	0	0	0	14
Town of Bolton	0	0	0	33	0	3	0	6	0	4	0	1	0	47
Town of Brunswick	2	0	0	26	0	4	0	28	0	1	0	1	0	62
Town of Cerro Gordo	0	0	0	17	0	1	0	8	0	0	0	1	1	28
Town of Chadbourn	0	3	0	167	0	9	0	14	11	20	0	2	0	226
Town of Fair Bluff	10	2	0	87	0	7	0	6	3	3	0	3	0	121

[15] FEMA Community Lifelines. (2024). https://www.fema.gov/emergency-managers/practitioners/lifelines

FEMA Lifeline[15]	Food	Comms	Hazmat	Shelter	Comms	Transportation	Safety	Safety	Medical	Transportation	Energy	Safety	Water	N/A
Location	Food & Farming	Banking & Finance	Chemical	Commercial	Comms	Manufacturing	Defense	Government	Healthcare	Transportation	Energy	Emergency Services	Water	Total
Town of Lake Waccamaw	1	1	0	88	0	4	0	1	5	5	0	2	0	107
Town of Sandyfield	0	0	0	14	0	0	0	3	0	0	0	0	0	17
Town of Tabor City	5	3	0	207	0	22	0	21	3	19	0	2	0	282
Unincorporated Area	675	17	2	1,121	0	288	0	164	26	137	2	17	0	2,449
Subtotal Columbus	**694**	**42**	**2**	**2,233**	**1**	**345**	**0**	**317**	**92**	**243**	**3**	**34**	**1**	**4,007**
Robeson County														
City of Lumberton	26	27	0	1,058	0	124	1	144	110	181	9	0	5	1,685
Town of Fairmont	20	6	0	176	0	21	0	13	11	18	1	0	0	266
Town of Lumber Bridge	0	0	0	10	0	1	0	1	0	2	0	0	0	14
Town of Marietta	10	0	0	3	0	1	0	1	0	0	0	0	0	15
Town of Maxton	17	1	0	106	0	11	0	13	5	9	0	0	0	162
Town of McDonald	0	0	0	5	0	1	0	0	0	0	0	0	0	6
Town of Orrum	0	0	0	5	0	2	0	1	0	0	0	0	0	8
Town of Parkton	2	0	0	30	0	0	0	4	3	8	0	0	0	47
Town of Pembroke	39	7	0	144	1	10	0	69	19	15	0	0	0	305
Town of Proctorville	0	0	0	6	0	0	0	1	0	0	0	0	0	7
Town of Raynham	0	0	0	5	0	0	0	1	0	0	0	0	0	6
Town of Red Springs	29	5	0	184	0	14	0	21	20	40	2	0	1	316
Town of Rennert	0	0	0	15	0	4	0	1	0	0	0	0	0	20
Town of Rowland	0	2	0	79	0	20	0	7	5	5	0	0	0	118
Town of Saint Pauls	0	5	0	161	0	19	0	19	12	26	2	0	0	244
Unincorporated Area	3,268	1	0	1,394	4*	389	0	125	35	201	10	48*	6	5,429
Subtotal Robeson	**3,411**	**54**	**0**	**3,381**	**5***	**617**	**1**	**421**	**220**	**505**	**24**	**48***	**12**	**8,699**
Total Plan Area	**6,570**	**110**	**55**	**6,995**	**9**	**1,289**	**1**	**996**	**376**	**851**	**52**	**104**	**32**	**17,386**

Source: NCEM RMT, Local governments
**Certain facility totals for Bladen County & Robeson County were revised without jurisdictions specified and have been assigned under the “Unincorporated Area” total even if some are municipal facilities. This level of detail will be addressed in future plan updates.

6.2.4 Infrastructure

Certain North Carolina Department of Transportation (NCDOT) infrastructure elements as shown in **Table 6-14** were identified for analysis based on flood hazard type. In terms of regional transportation, CSX Transportation and RJ Corman Railroad Company/Carolina Lines (Columbus County) run through the counties of the planning region. General aviation airports include Curtis L. Brown Jr. Field in Elizabethtown (Bladen County), Columbus County Municipal Airport in Whiteville, and Lumberton Municipal Airport in Lumberton (Robeson County). Major roadways serving the region include Interstate 74, Interstate 95, U.S. Route 301, U.S. Route 501, U.S. Route 701, U.S. Route 74, and U.S. Route 76 among various state highways.

Table 6-14: NCDOT Structures and Flood Hazard Zones[16]

County	Structure Type	Flood Hazard Type				
		A	AE	AH	X	N/A
Bladen	Bridge		59		22	3
	Cantilever Sign				2	
	Culvert		6		8	
	Pipe	1	10		13	
Columbus	Bridge		135		28	1
	Culvert		21		6	
	Overhead Sign				1	
	Pipe		20		15	
Robeson	Bridge		163		67	1
	Cantilever Sign				2	
	Culvert		33		5	
	Overhead Sign				19	
	Pipe		21	1	1	

Source: NCDOT

Additionally, the FEMA Resilience Analysis & Planning Tool (RAPT) reports as of 2025 that Bladen County contains 3 wastewater treatment plants and 18 power plants[17], Columbus County contains 4 wastewater treatment plants and 20 power plants, and Robeson County contains 5 wastewater treatment plants and 51 power plants among other regional infrastructure assets. Documentation for the RAPT application and its associated planning information and tools are available online[18].

6.2.5 Historic Properties

Historic property counts including districts, buildings, and other cultural resources as shown in **Table 6-15** were derived from a combination of sources consisting of the National Register of Historic Places (NRHP; administered by the National Park Service) and participating jurisdictions. The subsequent table in this section (**Table 6-16**) shows a related list of preidentified historic properties broken down by type, name, and location, as well as the flood hazard zones that may affect each facility.

[16] NC Department of Transportation [NCDOT]. (2024). GIS Data Layers [Dataset]. In Connect NCDOT. https://connect.ncdot.gov/resources/gis/Pages/GIS-Data-Layers.aspx

[17] Bladen County directly reported figures: 19 water wells/treatment plants and 25 power/energy facilities

[18] FEMA RAPT. (2025). https://www.fema.gov/about/reports-and-data/resilience-analysis-planning-tool

Table 6-15: Regional Historic Property Counts[19]

County	Flood Hazard Zone	Type of Historic Property								
		DOE	DOEHD	LHD	NR	NRHD	SL	SLDOE	SLDOED	SLHD
Bladen	AE	4								
	X	7			14		6	3		1
Bladen Total		11			14		6	3		1
Columbus	0.2 % Annual Chance Flood Hazard									
	AE						2			1
	X	6	1	1	6	1	47	5		2
Columbus Total		6	1	1	6	1	49	5		3
Robeson	0.2 % Annual Chance Flood Hazard									
	AE		1							
	AH									
	X	10	2		20	4	18	2	1	5
Robeson Total		10	3		20	4	18	2	1	5
Grand Total		27	4	1	40	5	73	10	1	9

Source: National Register of Historic Places (NRHP)
DOE= Individual "Determination of Eligibility" in environmental review work and eligible under Section 106 of the National Historic Preservation Act of 1966, **DOEHD**= Center Point of a Determined Eligible Historic District, **LHD** = Center point of a local historic district, **NR**= Boundary of National Register Historic District or Individually Listed Resource, **NRHD**= National Register Historic District, **SL**= Places that the National Register Advisory Committee has identified as potentially eligible for the Register, **SLDOE**= On the Study List and Determined Eligible, **SLDOEHD**= Center point of district that is both on the Study List and Determined Eligible, **SLHD**= Center point for Study List historic district.

Table 6-16: Regional Historic Properties and Flood Hazard Zones[20]

Site ID	NCHP Status	Site Name	Site Description	County	City	Flood Hazard Zone
BL0238	SL	Shipman House	1842 Greek Revival house	Bladen	Abbotts	X
BL0265	DOE	Farm		Bladen	Bethel	X
BL0262	SL	Bladenboro Farm Life School		Bladen	Bladenboro	X
BL0010	DOE	Annie Wooten McAuley House (Approximate site)		Bladen	Brown Marsh	X
BL0001	NR	Brown Marsh Presbyterian Church	1828 frame church	Bladen	Brown Marsh	X
BL0033	NR	Clarkton Depot	1915 frame depot	Bladen	Brown Marsh	X
BL0023	NR	John Hector Clark House	1865 1-story, board and batten frame house	Bladen	Brown Marsh	X

[19] North Carolina Historic Preservation Office & North Carolina Department of Natural and Cultural Resources. (2019). HPOWEB 2.0 (2.0) [Dataset]. NC Historic Preservation Office. https://nc.maps.arcgis.com/home/item.html?id=d2d04d8d7e03403f889419526e682529
[20] North Carolina Historic Preservation Office & North Carolina Department of Natural and Cultural Resources. (2019). HPOWEB 2.0 (2.0) [Dataset]. NC Historic Preservation Office. https://nc.maps.arcgis.com/home/item.html?id=d2d04d8d7e03403f889419526e682529

Site ID	NCHP Status	Site Name	Site Description	County	City	Flood Hazard Zone
BL0162	SLHD	Clarkton Historic District	c. 1866-1926 RR, commercial, and residential	Bladen	Brown Marsh	X
BL0154	DOE	Carvers Creek AME Zion Church and Cemetery	c. 1909 1-story front gable aisled nave Gothic Revival Church w/ brick veneer	Bladen	Carvers Creek	X
BL0233	DOE	Spring Hill (Robeson-Stevens House)	1839 1-story, hip-roof, frame Greek Revival House w/barn	Bladen	Carvers Creek	X
BL0389	DOE	Bridge No. 17	1957-1958 prestressed concrete stringer/multi-beam (DOT 080017)	Bladen	Carvers Creek	AE
BL0235	DOE	Cape Fear Lock & Dam #1	1915 dam	Bladen	Carvers Creek	AE
BL0003	NR	Oakland Plantation	18th C. Georgian 2-story brick house	Bladen	Carvers Creek	X
BL0153	NR	Carvers Creek Methodist Church	1859 1-story Greek Revival frame church	Bladen	Carvers Creek	X
BL0264	SLDOE	East Arcadia Elementary School	1920s frame 3-room school based on Rosenwald plan	Bladen	Carvers Creek	X
BL0141	NR	South River Presbyterian Church	1855 Greek Revival frame church	Bladen	Cypress Creek	X
BL0244	SL	Stewart-Cromartie-Liles House	Late 18th C. Federal house	Bladen	Cypress Creek	X
BL0215	DOE	Thomas McDowell House	c. 1850 house with 2-story porch	Bladen	Elizabethtown	X
BL0229	DOE	Porter-Allen House	c. 1850 Greek Revival house	Bladen	Elizabethtown	X
BL0266	DOE	Elizabethtown National Guard Armory	1963 Alt-A Type Armory	Bladen	Elizabethtown	X
BL0260	DOE	Cape Fear Lock & Dam # 2	1917 dam	Bladen	Elizabethtown	AE
BL0140	NR	Trinity Methodist Church	1848 gable front frame church	Bladen	Elizabethtown	X
BL0263	NR	Bladen County Training School (Elizabethtown School)	c. 1927 brick-veneered 10-room Rosenwald School	Bladen	Elizabethtown	X
BL0212	SL	John McDowell House	1854 frame Greek Revival house	Bladen	Elizabethtown	X
BL0259	SL	C.W. Greene House	1938 2 1/2-story frame house with elaborate windows	Bladen	Elizabethtown	X
BL0252	SLDOE	Sheriff W. H. White House (Approximate site)	c. 1851 log house	Bladen	Elizabethtown	X
BL0206	SLDOE	McDonald-Russ House	c. 1860 1-story side gable Greek Revival house	Bladen	Elizabethtown	X
BL0261	DOE	William O. Huske Lock & Dam	1934 dam	Bladen	Hollow	AE
BL0243	NR	Gilmore-Patterson Farm	1868 & later farm	Bladen	Hollow	X

Site ID	NCHP Status	Site Name	Site Description	County	City	Flood Hazard Zone
BL0004	NR	Purdie House and Purdie Methodist Church	c. 1845 Greek Revival frame chapel	Bladen	Hollow	X
BL0006	NR	Walnut Grove	1850 Greek Revival 2-story frame house	Bladen	Hollow	X
BL0139	NR	Desserette	1840s Greek Revival 2-story frame house	Bladen	White Oak	X
BL0002	NR	Harmony Hall	18th C. Georgian 2-story frame house	Bladen	White Oak	X
BL0138	NR	Mount Horeb Presbyterian Church and Cemetery	1845 1-story temple form frame church	Bladen	Whites Creek	X
BL0256	SL	White Plains Presbyterian Church	1851 frame front gable church with steeple	Bladen	Whites Creek	X
CB0024	SL	Hallsboro School	1927 Colonial Revival	Columbus	Bogue	X
CB0026	SL	Pierce and Company Store I	19th-20th C. Trad/Vern	Columbus	Bogue	X
CB0025	SL	Pierce and Company Store II	19th-20th C. Trad/Vern	Columbus	Bogue	X
CB0021	SL	Henry Jackson Smith House	1856 Federal/Greek Revival	Columbus	Bogue	X
CB0029	SL	Wyche House-Wychewood	1882 Queen Anne	Columbus	Bogue	X
CB0028	SL	Hallsboro School and Teacherage		Columbus	Bogue	X
CB0030	SL	Smith-Powell House	1806 Federal	Columbus	Bogue	X
CB0092	SL	Gore House	19th-20th C. Trad/Vern	Columbus	Bug Hill	X
CB0056	SL	Prokos House		Columbus	Cerro Gordo	X
CB0004	SL	Cerro Gordo Colored School		Columbus	Cerro Gordo	X
CB0067	SLDOE	Cerro Gordo School	1926 1-story Classical Revival brick school w/ hip roof auditorium surrounded by flat roof classrooms	Columbus	Cerro Gordo	X
CB1366	NR	Westside High School	1948 1-story flat roof brick Miscellaneous Modernist school for Black children	Columbus	Chadbourn	X
CB0117	SL	Atlantic Coast Line Passenger Station (Chadbourn)		Columbus	Chadbourn	X
CB0118	SL	Atlantic Coast Line Freight Depot		Columbus	Chadbourn	X
CB0121	SL	Robert E. Lee Brown House (Approximate site)		Columbus	Chadbourn	X
CB0125	SL	Chadbourn Commercial Block		Columbus	Chadbourn	X
CB0126	SL	Chadbourn Jail and Town Office		Columbus	Chadbourn	X
CB1368	SL	WVOE Radio Station		Columbus	Chadbourn	AE

Site ID	NCHP Status	Site Name	Site Description	County	City	Flood Hazard Zone
CB0119	SL	Herman Blake House and Farm (Approximate site)		Columbus	Chadbourn	X
CB0120	SL	Joseph A. Brown House (Approximate site)		Columbus	Chadbourn	X
CB0131	DOEHD	Fair Bluff Historic District		Columbus	Fair Bluff	X
CB0002	NR	Powell House (Trading Post)	1803 1-story frame building	Columbus	Fair Bluff	X
CB0139	SL	Augustus Smith House		Columbus	Fair Bluff	X
CB0075	SL	Fronis Strickland House	c. 1916-1930 bungalow	Columbus	Fair Bluff	X
CB0089	DOE	Hill General Store	Crit C; ER 02-9360; CB Co Rpt #290	Columbus	Lees	X
CB0148	DOE	Old Dock Elementary School	1936/1945 Colonial Revival School	Columbus	Lees	X
CB0144	SLDOE	Calvin C. Gore House		Columbus	Lees	X
CB0182	DOE	Christ the King Catholic Church	1950 1-story front-gable brick-veneer Modernist church	Columbus	Ransom	X
CB0184	DOE	Acme Presbyterian Church	1954 A-frame, steel, brick & concrete-block Modernist church	Columbus	Ransom	X
CB0190	DOE	Wesley United Methodist Church	1958 1-story front gable brick-veneer concrete block Modernist church	Columbus	Ransom	X
CB0110	NR	Black Rock Plantation House	c. 1840 2-story side gable frame Federal I-house	Columbus	Ransom	X
CB0006	SL	Acme-Delco School	1926 Colonial Revival	Columbus	Ransom	X
CB0007	SL	Acme Store	19th-20th C. Trad/Vern	Columbus	Ransom	X
CB0011	SLDOE	Weyman Methodist Church	1886 1-story cross gable frame T-plan church	Columbus	Ransom	X
CB1365	DOE	Tabor City Elementary School	1927 1-story Classical Revival brick school w/ hip roof auditorium surrounded by flat roof classrooms	Columbus	South Williams	X
CB1364	LHD	Tabor City Commercial Local Historic District	c. 1908-1963 commercial hub of logging and agricultural products	Columbus	South Williams	X
CB0146	NRHD	Tabor City Commercial Historic District	c. 1908-1963 commercial hub of logging and agricultural products	Columbus	South Williams	X
CB0051	SL	Benton House		Columbus	Tatums	X
CB0050	SL	Ashley Benton House	1866-1885 Trad/Vern	Columbus	Tatums	X
CB0049	SL	Caulder House	c. 1826-1865 Greek Revival	Columbus	Tatums	X
CB0003	NR	Lake Waccamaw Depot	1900 board/batten 1-story frame depot	Columbus	Waccamaw	X
CB0016	SL	Mt. Zion AME Church	1913 Trad/Vern	Columbus	Waccamaw	X
CB0018	SL	Stephens House		Columbus	Waccamaw	X

Site ID	NCHP Status	Site Name	Site Description	County	City	Flood Hazard Zone
CB0036	SL	James Samuel Elkins House	c. 1826-1885 Greek Revival	Columbus	Welch Creek	X
CB0042	SL	Wooten House		Columbus	Western Prong	X
CB0001	NR	Columbus County Courthouse	1809 Neoclassical Revival 2-story	Columbus	Whiteville	X
CB0130	NR	Dr. Neil M. and Nancy Elizabeth Culbreth House	c. 1880 frame 2-story Italianate house	Columbus	Whiteville	X
CB0031	SL	Jackson Brothers Lumber Company Office	1925 2-story 5-bay brick building w/ quoins, beltcourse, exterior end chimney & several later modifications	Columbus	Whiteville	X
CB0032	SL	Thompson House	19th-20th C. Trad/Vern	Columbus	Whiteville	X
CB0033	SL	Dan Prevatte House	c. 1916-1930 1-story flat roof irregularly-massed brick Craftsman w/ crenelated parapet & large additions	Columbus	Whiteville	X
CB0141	SL	White-Baldwin House	c. 1823; 1890 2-story side gable frame double pile Italianate house w/ weatherboard siding	Columbus	Whiteville	X
CB0142	SL	Whiteville Atlantic Coast Line Railroad Depot	c. 1903 1-story hip roof brick building w/ blind gabled dormers & brackets supporting the wide roof	Columbus	Whiteville	X
CB0145	SL	Bank of Whiteville	1906 2-story parapet roof brick Classical Revival building w/ smooth stucco finish & faux marble trim	Columbus	Whiteville	X
CB0310	SL	St. James African Methodist Episcopal Church	c. 1915 1-story front gable concrete masonry unit Gothic Revival church	Columbus	Whiteville	AE
CB0138	SL	Oscar and Annie Pinder High House	c. 1914 2-story 3-bay double pile hip roof frame Colonial Revival house w/ 1-story hip roof porch supported by Tuscan columns	Columbus	Whiteville	X
CB0387	SL	Richard Clay and Ella Burwell Carson House	c. 1915 1 1/2-story hip roof frame Craftsman-Colonial Revival bungalow w/ wood shingle siding	Columbus	Whiteville	X
CB0375	SL	John Albert and Martha Cameron Guiton House	c. 1950 1-story front gable brick Colonial Revival house	Columbus	Whiteville	X
CB0610	SL	Belton S. and Christine W. Thompson House	c. 1956 2-story side gable brick Colonial Revival house	Columbus	Whiteville	X

Site ID	NCHP Status	Site Name	Site Description	County	City	Flood Hazard Zone
CB1159	SL	Nancy Mercer Smith House	1963 2-story hip roof French Eclectic brick house	Columbus	Whiteville	X
CB1160	SL	Dr. Samuel H. and Betty Thomas Whitehead House	1968 1-story cross gable brick Mission/Spanish Colonial Revival Ranch	Columbus	Whiteville	X
CB0502	SL	McKenzie Mortuary	1940 1 1/2-story cross gable brick Tudor Revival building	Columbus	Whiteville	X
CB1163	SL	Peacock Funeral Home	c. 1964 1-story front gable brick Miscellaneous Modernist building	Columbus	Whiteville	X
CB0622	SL	Waccamaw Bank & Trust Headquarters	1967-1969 3-story flat roof steel frame & concrete Miscellaneous Modernist building	Columbus	Whiteville	X
CB1166	SL	Floyd Johnson Health Center	1956 1-story flat roof brick Miscellaneous Modernist building	Columbus	Whiteville	X
CB0732	SL	St. Mark African Methodist Episcopal Zion Church	1915; 1974 1-story front gable brick aisled nave Gothic Revival church	Columbus	Whiteville	X
CB0614	SL	Grace Episcopal Church	1959 1-story front gable brick aisled nave Miscellaneous Modernist church	Columbus	Whiteville	X
CB0107	SL	Dr. Isaac and Margaret McDaniel Jackson House	c. 1890 2-story double pile hip roof frame Queen Anne-Colonial Revival house w/ weatherboard siding	Columbus	Whiteville	X
CB0203	SLDOE	Beth Israel Center (Whiteville Hebrew Center)	1959 1-story flat roof concrete block Modernist building w/ brick veneer	Columbus	Whiteville	X
CB0204	SLDOE	Titus and Mary Fae McMillan Williamson House	c. 1954 1-story flat roof concrete block Modernist house w/ brick veneer	Columbus	Whiteville	X
CB1153	SLHD	Principals Row Historic District		Columbus	Whiteville	X
CB1162	SLHD	Richardson Millpond Historic District	c. 1850, 1926, 1957	Columbus	Whiteville	AE
CB1158	SLHD	Whiteville Historic District		Columbus	Whiteville	X
RB0482	DOE	Evander Pittman House	c. 1850 1 1/2-story frame Italianate/Greek Revival house	Robeson	Back Swamp	X
RB0725	DOE	Hilly Branch Baptist Church	1952 2-story cruciform Gothic Revival church	Robeson	Back Swamp	X
RB0728	DOE	Back Swamp Baptist Church	1942 2-story cross gable brick-veneered frame Gothic Revival church	Robeson	Back Swamp	X
RB0540	NRHD	Fairmont Commercial Historic District	1898-1960 1- & 2-story brick building commercial district	Robeson	Fairmont	X

Site ID	NCHP Status	Site Name	Site Description	County	City	Flood Hazard Zone
RB0693	DOE	Jennings Cotton Mill	1910-1911, 1920s, 1960s 1-story brick mill	Robeson	Lumberton	X
RB0694	DOE	Jennings Cotton Mill School/Store	c. 1911 2-story hip roof tan brick building	Robeson	Lumberton	X
RB0695	DOE	Cooper House	1936 1-story flat roof Spanish Mission stone house w/ outbuildings	Robeson	Lumberton	X
RB0696	DOE	Wilson House	c. 1935 1-story hip roof brick Art Moderne/Minimal Traditional house w/ outbuildings	Robeson	Lumberton	X
RB0737	DOEHD	Tanglewood Historic District	Lumberton's premier mid-twentieth century residential development	Robeson	Lumberton	X
RB0723	DOEHD	Lumberton Commercial Historic District Boundary Expansion		Robeson	Lumberton	AE
RB0480	NR	Baker Sanatorium	1920 3-story brick Mission style	Robeson	Lumberton	X
RB0532	NR	Alfred Rowland House	c. 1880 2-story frame Greek Revival/Italianate; 2-story por	Robeson	Lumberton	X
RB0001	NR	Luther Henry Caldwell House	1894 Queen Anne 2-story frame house	Robeson	Lumberton	X
RB0193	NR	United States Post Office (Lumberton)	1931 Beaux Art building	Robeson	Lumberton	X
RB0177	NR	Planters Building	1925-26 Classical Revival 5-story commercial building	Robeson	Lumberton	X
RB0144	NR	Carolina Theatre	1927-28 Renaissance style brick theater	Robeson	Lumberton	X
RB0652	NR	Robeson County Agricultural Building	1937 2-story brick Colonial Revival public building	Robeson	Lumberton	X
RB0476	NRHD	LUMBERTON COMMERCIAL HISTORIC DISTRICT	Late 19th - early 20th C. commercial district	Robeson	Lumberton	X
RB0515	SL	Burney's Tourist Home	c. 1916/1930s 2-story frame side gable	Robeson	Lumberton	X
RB0592	SL	Lawrence-Johnson House	1918-1919 brick 2-story Georgian Revial	Robeson	Lumberton	X
RB0180	SL	Pure Oil Filling Station	1947 English cottage style, original color and windows	Robeson	Lumberton	X
RB0651	SL	Dr. John H. Hayswood House		Robeson	Lumberton	X
RB0167	SL	McLeod Building	1879, 1905 3-story brick commercial building	Robeson	Lumberton	X
RB0653	SLDOE	Lumberton Water Treatment Plant	1946 2-story brick modernist-influenced plant and tanks	Robeson	Lumberton	X
RB0484	NRHD	MAXTON HISTORIC DISTRICT	1880s-1940s railroad town commercial and residential	Robeson	Maxton	X

Site ID	NCHP Status	Site Name	Site Description	County	City	Flood Hazard Zone
RB0425	SL	St. George Methodist Church	1885/1950 concrete block veneer Gothic Revival	Robeson	Maxton	X
RB0415	SL	Gilbert B. Patterson House	c. 1911 2-story frame NeoClassical	Robeson	Maxton	X
RB0495	SL	Patterson Building	c. 1911 brick 2-story flat-iron building with round tower	Robeson	Maxton	X
RB0311	SL	Currie and Patterson Building	c. 1910 2-story pressed brick veneer commercial building	Robeson	Maxton	X
RB0511	SL	St. Pauls Methodist Episcopal Church	1906 rusticated concrete block picturesque church	Robeson	Maxton	X
RB0427	SL	St. Matthews A.M.E. Church	1923 brick Gothic Revival	Robeson	Maxton	X
RB0412	SL	Thomas B. Pace House	c. 1904 2-story frame Colonial Revival	Robeson	Maxton	X
RB0306	SL	Angus H. Currie House	c. 1896 2-story frame Victorian house	Robeson	Maxton	X
RB0369	SL	Eliza and Lane McEachin House	c. 1909 2-story frame Colonial Revival house	Robeson	Maxton	X
RB0531	NR	W. R. Surles Memorial Library	1952 small brick front gable library	Robeson	Orrum	X
RB0481	SL	Henry McMillan House	c. 1900 2-story frame Queen Anne	Robeson	Parkton	X
RB0483	SLDOED	Parkton Depot (Original site)		Robeson	Parkton	X
RB0479	NR	(former) Pembroke High School	1939 WPA 1-story brick school	Robeson	Pembroke	X
RB0004	NR	Old Main, Pembroke State University	1923 2-story brick building with portico	Robeson	Pembroke	X
RB0005	SLHD	Pembroke State University Historic District	1950 1-story brick classroom 1951 concrete bldg. 1952 res.	Robeson	Pembroke	X
RB----	DOE	House	c. 1860 2-story side gable Greek Revival house w/ 2-story entry porch	Robeson	Philadelphus	X
RB0006	NR	Philadelphus Presbyterian Church	1858-1861 Greek Revival church	Robeson	Philadelphus	X
RB0518	DOE	Red Springs National Guard Armory	1953 1-story flat roof high bay drill hall flanked by 1-story units on east & west sides	Robeson	Red Springs	X
RB0655	DOEHD	Red Springs Cotton Mill and Mill Village Historic District	1918 brick textile mill, 30 1920s1-story frame houses in 4 designs	Robeson	Red Springs	X
RB0003	NR	Flora MacDonald College	1900-1910 Neoclassical main building; Hook & Rogers, architects	Robeson	Red Springs	X
RB0100	SL	St. Stephens Episcopal Church	1910 brick Gothic Revival	Robeson	Red Springs	X
RB0488	SLHD	Flora MacDonald College Historic District	c. 1886-1930 College	Robeson	Red Springs	X
RB0486	SLHD	Vance Street Historic District	c. 1892-1905 Romanesque Revival,	Robeson	Red Springs	X

Site ID	NCHP Status	Site Name	Site Description	County	City	Flood Hazard Zone
			Tudor Revival, Queen Anne			
RB0487	SLHD	South Main Street Historic District	c. 1883-1920 Col. Revival, Late Victorian, Neoclassical., Craftsma	Robeson	Red Springs	X
RB0485	SLHD	Red Springs Commercial Historic District	c. 1896-1900 commercial	Robeson	Red Springs	X
RB0530	NR	Centenary Methodist Church	1885, 1903 frame church	Robeson	Rowland	X
RB0131	NR	Ashpole Presbyterian Church	1860 Greek Revival temple form frame church	Robeson	Rowland	X
RB0465	NR	Rowland Depot	1925 brick hip-roof depot	Robeson	Rowland	X
RB0514	NRHD	ROWLAND MAIN STREET HISTORIC DISTRICT	1891-1954 railroad town commercial district	Robeson	Rowland	X
RB0647	NR	Humphrey-Williams Plantation Boundary Increase	1846 2-story frame Greek Revival house and lands	Robeson	Saddletree	X
RB0002	NR	Humphrey-Williams House	1846 2-story frame Greek Revival house	Robeson	Saddletree	X
RB0529	SL	Dr. Stephen B. Rozier House	1886 2-story frame Italianate/Gothic Revival/Greek Revival	Robeson	Saddletree	X
RB0537	SLDOE	Centre Presbyterian Church	c. 1813 frame front gable church with steeple and cemetery	Robeson	Smiths	X
RB0678	DOE	House	c. 1880-1890 2-story side gable frame I-house w/ Classical Revival details & outbuildings	Robeson	St. Pauls	X
RB0520	NR	Kenneth McKinnon House	c. 1840 Greek Revival 2-story frame house w/enaged porch	Robeson	St. Pauls	X
RB0007	NR	Williams-Powell House	c. 1830 2-story frame Federal/Greek Revival house	Robeson	Sterlings	X
RB0536	NR	Asbury Methodist Church	1861 Greek Revival frame church	Robeson	Union	X
RB0656	SL	Adam Clark Oliver House	c. 1872 1 1/2-story frame Queen Anne house	Robeson	Whitehouse	X

Source: National Register of Historic Places (NRHP)

DOE= Individual "Determination of Eligibility" in environmental review work and eligible under Section 106 of the National Historic Preservation Act of 1966, **DOEHD**= Center Point of a Determined Eligible Historic District, **LHD** = Center point of a local historic district, **NR**= Boundary of National Register Historic District or Individually Listed Resource, **NRHD**= National Register Historic District, **SL**= Places that the National Register Advisory Committee has identified as potentially eligible for the Register, **SLDOE**= On the Study List and Determined Eligible, **SLDOEHD**= Center point of district that is both on the Study List and Determined Eligible, **SLHD**= Center point for Study List historic district.

6.3 Hazard Vulnerability Results

6.3.1 Dam/Levee Failure

There is a fundamental limitation in the data available for vulnerability assessment for the dam/levee failure hazard in the planning area. Some of the dam structures that are of particular concern are smaller, privately owned, and unregulated dams for which limited GIS data or risk inventories are currently available. These are the facilities that could and likely would cause the most damage and disruption should a failure occur.

Any mitigation actions developed for this hazard therefore should be based on addressing data limitations, education and awareness programs, routine maintenance procedures, and/or any jurisdiction-specific concerns that may be addressable through an appropriate mitigation project. It is also important to note that the North Carolina Department of Environmental Quality (NCDEQ) oversees the statewide Dam Safety Program to reduce the overall risk of this hazard and ensure implementation of Emergency Action Plans (EAP) for future reference. The U.S. Army Corps of Engineers (USACE) also maintains the National Inventory of Dams (NID) at the federal level.

Table 6-17 is sourced from NCDEQ Dam Safety Program data as of July 2024 and provides key high-hazard dam details by county jurisdiction relevant to dam failure hazard vulnerability in the Bladen-Columbus-Robeson Region.

Table 6-17: Regional High-Hazard Dams

Dam Name	NID ID	EAP	Condition (as of July 2024)	Owner Type	Max Capacity (acre-feet)	Max Discharge (ft3/s)	River/Stream
Bladen County							
Happy Valley Pond Dam	NC05104	N	Poor	Private	44	N/A	Baldwin Branch
Columbus County							
Holtrachem Stormwater Waste Lagoon Dam	NC01195	Y	Satisfactory	Private	N/A	N/A	Cape Fear River
Lake Tabor Dam	NC01196	Y	Satisfactory	Local Gov	1,700	N/A	Grissett Swamp
South Bay Dike	NC05701	Y	Satisfactory	Private	2,700	0	Cape Fear River
Robeson County							
Cultural Center Lake Dam	NC01077	Y	Poor	Private	956	2,619	Gum Swamp
Weatherspoon Cooling Lake Dam	NC01078	Y	Fair	Utility	994	149	Lumber River
Weatherspoon 1979 Ash Basin Dam	NC05948	Y	Fair	Utility	932	N/A	Lumber River
Lumberton City Flood Gate	NC06452	N	N/A	Local Gov	N/A	N/A	Lumber River

Source: NCDEQ, July 2024

6.3.2 Drought

Drought is a normal part of nearly all climate regions, including areas with high and low average rainfall. Drought is the consequence of a natural reduction in the amount of precipitation expected over an extended period, usually a season or more in length. High temperatures, high winds, and low humidity are common factors that can exacerbate drought conditions. Additionally, human actions and demands for water resources can hasten drought-related impacts.

Droughts are slow-onset hazards, but, over time, can have very damaging effects on regional agriculture, water supplies, outdoor recreation, ecosystems, and wildlife. If drought conditions extend over a number of years, the direct and indirect economic impacts can be significant as well. Drought may also lead to more severe wildfires.
A total of 33 drought events have been reported in the region by the National Centers for Environmental Information (NCEI) between January 1995 and January 2025 with no damages reported. However, it should be noted that a significant amount of actual economic losses may be underreported by NCEI based on the locations, dates, and hazard events in question. Major droughts have the potential to cause millions of dollars in property and crop damage.

Additionally, the North Carolina Resilience Exchange[21] notes that Bladen County has experienced roughly 118 weeks of severe drought between January 2000 and October 2023 with the latest severe drought happening in 2022 as per records from October 2023. Columbus County has experienced 101 weeks of severe drought between January 2000 and October 2023 with the latest severe drought happening in 2022. Robeson County has experienced 111 weeks of severe drought between January 2000 and October 2023 with the latest severe drought happening in 2022.

The frequency, duration, and intensity of droughts could increase in tandem with other changing trends including higher average temperatures, higher rates of evapotranspiration, and/or higher risk of excessive heat events such as heat waves. As of 2025, the FEMA NRI rates the drought hazard risk index as relatively moderate for Bladen County (87.02/100), relatively moderate for Columbus County (83.96/100), and relatively moderate for Robeson County (95.07/100).

[21] North Carolina Resilience Exchange. (2025). https://www.resilienceexchange.nc.gov/understand-your-vulnerabilities

6.3.3 Earthquake

Vulnerability for earthquakes for the area is considered, in relative terms, to be limited should a significant earthquake event occur. According to FEMA earthquake hazard mapping, the Bladen-Columbus-Robeson Region falls between Seismic Design Category (SDC) B and C which indicates that the shaking of moderate to strong intensity could be possible[22]. Earthquakes of this scale could have the greatest impact on older buildings with poor construction standards.

It is generally assumed that all existing populations and future populations are at risk from earthquake hazards as well. Timely sheltering and evacuations of elderly individuals, young individuals, disabled individuals, and individuals requiring specialized care or equipment are of critical importance to reducing risk in a severe earthquake situation. All critical facilities should still be considered at risk to at least some damage, as a minimum standard, should an event occur as well. As of 2025, the FEMA NRI rates the earthquake hazard risk index as very low for Bladen County (65/100), relatively low for Columbus County (75.95/100), and relatively low for Robeson County (86.32/100).

Table 6-18 and **Table 6-19** below detail estimated building and population vulnerability to earthquake events at a regional scale. This data was sourced from the RMT planning application and uses a return period, or average time between event occurrences, of 500 years.

Table 6-18: Regional Estimated Building Vulnerability to Earthquakes (500-year)

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Bladen County									
Town of Bladenboro	12	1,693	$173,569	206	$230,876	43	$129,432	1,942	$533,878
Town of Clarkton	12	365	$42,543	79	$206,579	19	$49,042	463	$298,164
Town of Dublin	0	144	$12,920	40	$55,153	13	$28,607	197	$96,681
Town of East Arcadia	0	231	$14,797	14	$1,363	13	$7,905	258	$24,065
Town of Elizabethtown	0	2,320	$259,847	371	$703,371	112	$212,285	2,803	$1,175,503
Town of Tar Heel	0	71	$5,775	13	$7,648	5	$6,851	89	$20,274
Town of White Lake	0	2,085	$133,690	177	$63,707	31	$25,488	2,293	$222,884
Unincorporated Area	114	15,812	$1,332,273	3,099	$1,485,013	407	$517,868	19,318	$3,335,153
Subtotal Bladen	**138**	**22,721**	**$1,975,414**	**3,999**	**$2,753,710**	**643**	**$977,478**	**27,363**	**$5,706,602**
Columbus County									
City of Whiteville	2,344	1,887	$297,049	536	$1,052,023	121	$361,961	2,544	$1,711,033
Town of Boardman	123	121	$15,364	8	$3,294	6	$9,370	135	$28,029
Town of Bolton	333	368	$36,529	28	$17,582	19	$20,183	415	$74,294
Town of Brunswick	263	202	$27,589	28	$33,542	34	$40,932	264	$102,064
Town of Cerro Gordo	156	167	$29,478	11	$8,319	15	$33,208	193	$71,004
Town of Chadbourn	988	913	$131,940	186	$296,928	40	$128,475	1,139	$557,343
Town of Fair Bluff	581	556	$101,365	102	$111,580	19	$56,701	677	$269,646

[22] FEMA Earthquake Hazard Maps. (2020). https://www.fema.gov/emergency-managers/risk-management/earthquake/hazard-maps

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Town of Lake Waccamaw	657	788	$96,480	85	$101,122	24	$24,009	897	$221,612
Town of Sandyfield	171	215	$16,171	8	$6,517	9	$5,015	232	$27,703
Town of Tabor City	1,293	1,182	$266,884	239	$543,381	46	$239,813	1,467	$1,050,079
Unincorporated Area	25,416	28,256	$3,859,007	1,977	$2,075,249	461	$1,308,970	30,694	$7,243,225
Subtotal Columbus	**6,909**	**6,399**	**$1,018,849**	**1,231**	**$2,174,288**	**333**	**$919,667**	**7,963**	**$4,112,807**
Robeson County									
City of Lumberton	6,250	8,845	$1,596,697	1,167	$3,761,758	259	$908,663	10,271	$6,267,118
Town of Fairmont	1,519	1,314	$315,305	185	$500,858	48	$254,927	1,547	$1,071,089
Town of Lumber Bridge	82	68	$7,136	11	$4,433	3	$2,399	82	$13,968
Town of Marietta	87	72	$13,552	11	$6,930	4	$16,900	87	$37,383
Town of Maxton	1,247	1,102	$280,389	106	$129,249	40	$109,989	1,248	$519,627
Town of McDonald	58	52	$15,087	2	$3,758	4	$4,723	58	$23,568
Town of Orrum	58	51	$8,391	3	$3,717	4	$19,041	58	$31,150
Town of Parkton	312	270	$24,008	27	$30,658	16	$22,006	313	$76,672
Town of Pembroke	1,814	1,554	$454,024	180	$584,850	85	$325,402	1,819	$1,364,276
Town of Proctorville	68	61	$12,161	1	$391	6	$16,474	68	$29,027
Town of Raynham	37	31	$5,765	1	$1,142	5	$19,973	37	$26,881
Town of Red Springs	2,172	1,897	$399,625	227	$461,581	54	$147,648	2,178	$1,008,855
Town of Rennert	190	175	$17,624	9	$8,554	6	$13,916	190	$40,093
Town of Rowland	530	424	$116,526	89	$192,489	17	$45,736	530	$354,752
Town of Saint Pauls	1,584	1,369	$244,046	172	$360,014	45	$102,177	1,586	$706,237
Unincorporated Area	40,116	35,427	$4,858,410	4,371	$3,163,776	516	$1,604,646	40,314	$9,626,832
Subtotal Robeson	**56,124**	**52,712**	**$8,368,746**	**6,562**	**$9,214,158**	**1,112**	**$3,614,620**	**60,386**	**$21,197,528**
Total Plan Area	**63,171**	**81,832**	**$11,363,009**	**11,792**	**$14,142,156**	**2,088**	**$5,511,765**	**95,712**	**$31,016,937**

Source: NCEM Risk Management Tool (RMT)

Table 6-19: Regional Estimated Population Vulnerability to Earthquakes (500-year)

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Bladen County			
Town of Bladenboro	205	36	747
Town of Clarkton	11	1	44
Town of Dublin	10	3	51
Town of East Arcadia	8	3	43
Town of Elizabethtown	807	306	3,781
Town of Tar Heel	2	1	8
Town of White Lake	63	6	195
Unincorporated Area	5,626	1,212	25,148
Subtotal Bladen	**6,732**	**1,568**	**30,017**

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Columbus County			
City of Whiteville	227	86	1,212
Town of Boardman	37	4	119
Town of Bolton	10	3	66
Town of Brunswick	15	4	80
Town of Cerro Gordo	5	2	29
Town of Chadbourn	51	14	249
Town of Fair Bluff	16	7	86
Town of Lake Waccamaw	43	7	128
Town of Sandyfield	32	5	202
Town of Tabor City	96	28	557
Unincorporated Area	10,093	2,607	48,731
Subtotal Columbus	**10,625**	**2,767**	**51,459**
Robeson County			
City of Lumberton	2,546	1,305	16,293
Town of Fairmont	208	47	1,058
Town of Lumber Bridge	25	3	128
Town of Marietta	10	2	42
Town of Maxton	218	88	1,261
Town of McDonald	3	1	13
Town of Orrum	3	1	15
Town of Parkton	15	5	97
Town of Pembroke	345	209	4,341
Town of Proctorville	2	1	12
Town of Raynham	1	1	7
Town of Red Springs	491	218	3,029
Town of Rennert	17	9	127
Town of Rowland	10	2	42
Town of Saint Pauls	118	63	711
Unincorporated Area	10,198	4,278	66,869
Subtotal Robeson	**14,210**	**6,233**	**94,045**
Total Plan Area	**31,567**	**10,568**	**175,521**

Source: NCEM RMT

Table 6-20 below provides counts and estimated damages across 250-year to 2,500-year return period earthquake events based on probabilistic scenarios for Critical Infrastructure and Key Resources (CIKR) buildings. Loss data was provided by NCEM's IHRM Program. These estimates include structural, contents and inventory losses for agricultural, commercial, education, government, industrial, religious, and residential building occupancy types. Because there are many sectors and events, the table is sorted by sector and then by event. Totals across all sectors are shown at the bottom of the table.

The loss ratio is the loss estimate divided by the total potential exposure (i.e., total of improved and

contents value for all buildings located within the 100-year floodplain) and displayed as a percentage of loss. FEMA considers loss ratios greater than 10% to be significant and an indicator a community may have more difficulties recovering from an event. These loss estimates do not include income losses, such as lost wages, rental expenses, relocation costs, etc. that can occur following an earthquake. All future structures and infrastructure built in the region will be vulnerable to seismic events and may also experience damage not accounted for in these estimated losses.

Table 6-20: Earthquake Event CIKR Building Counts and Estimated Damages (250 to 2500-Year)

Sector	Event	Number of Buildings at Risk	Estimated Damages
Commercial Facilities	2000 Year	197,140	$2,940,270,631
Commercial Facilities	2500 Year	197,140	$3,813,023,282
Communications	250 Year	129	$103,196
Communications	500 Year	215	$800,204
Communications	750 Year	227	$1,882,578
Communications	1000 Year	227	$3,145,265
Communications	1500 Year	227	$5,746,446
Communications	2000 Year	227	$8,711,044
Communications	2500 Year	227	$11,481,813
Critical Manufacturing	250 Year	57,777	$43,865,115
Critical Manufacturing	500 Year	61,745	$214,953,350
Critical Manufacturing	750 Year	61,917	$409,497,832
Critical Manufacturing	1000 Year	61,924	$616,126,953
Critical Manufacturing	1500 Year	61,924	$1,009,312,111
Critical Manufacturing	2000 Year	61,924	$1,400,234,752
Critical Manufacturing	2500 Year	61,924	$1,745,883,839
Defense Industrial Base	250 Year	57	$368,022
Defense Industrial Base	500 Year	74	$1,722,806
Defense Industrial Base	750 Year	77	$3,559,806
Defense Industrial Base	1000 Year	77	$5,484,337
Defense Industrial Base	1500 Year	77	$9,111,029
Defense Industrial Base	2000 Year	77	$12,499,356
Defense Industrial Base	2500 Year	77	$15,639,134
Emergency Services	250 Year	1,337	$716,995
Emergency Services	500 Year	2,548	$4,672,274
Emergency Services	750 Year	2,560	$10,688,717
Emergency Services	1000 Year	2,561	$17,555,374
Emergency Services	1500 Year	2,561	$31,484,845
Emergency Services	2000 Year	2,561	$46,853,133
Emergency Services	2500 Year	2,561	$61,759,027
Energy	250 Year	1,660	$26,628,397

Sector	Event	Number of Buildings at Risk	Estimated Damages
Energy	500 Year	1,772	$114,925,250
Energy	750 Year	1,778	$235,531,048
Energy	1000 Year	1,779	$351,179,031
Energy	1500 Year	1,779	$589,600,992
Energy	2000 Year	1,779	$826,673,337
Energy	2500 Year	1,779	$1,011,922,605
Food and Agriculture	250 Year	95,110	$1,986,491
Food and Agriculture	500 Year	152,014	$15,138,603
Food and Agriculture	750 Year	152,162	$33,664,583
Food and Agriculture	1000 Year	152,163	$53,664,365
Food and Agriculture	1500 Year	152,163	$97,450,238
Food and Agriculture	2000 Year	152,163	$142,614,510
Food and Agriculture	2500 Year	152,163	$187,529,219
Government Facilities	250 Year	29,738	$15,853,610
Government Facilities	500 Year	38,626	$92,941,382
Government Facilities	750 Year	38,750	$200,168,405
Government Facilities	1000 Year	38,750	$331,114,310
Government Facilities	1500 Year	38,750	$617,536,881
Government Facilities	2000 Year	38,750	$949,296,399
Government Facilities	2500 Year	38,750	$1,267,811,728
Healthcare and Public Health	250 Year	11,168	$9,462,825
Healthcare and Public Health	500 Year	13,537	$51,854,171
Healthcare and Public Health	750 Year	13,596	$107,421,024
Healthcare and Public Health	1000 Year	13,597	$172,223,146
Healthcare and Public Health	1500 Year	13,597	$302,594,563
Healthcare and Public Health	2000 Year	13,597	$445,492,233
Healthcare and Public Health	2500 Year	13,597	$573,662,103
Information Technology	250 Year	3	$593
Information Technology	500 Year	3	$3,674
Information Technology	750 Year	3	$7,542
Information Technology	1000 Year	3	$11,553
Information Technology	1500 Year	3	$20,158
Information Technology	2000 Year	3	$29,349
Information Technology	2500 Year	3	$38,644
National Monuments and Icons	500 Year	2	$1,192
National Monuments and Icons	750 Year	2	$3,048
National Monuments and Icons	1000 Year	2	$5,087
National Monuments and Icons	1500 Year	2	$10,443

Sector	Event	Number of Buildings at Risk	Estimated Damages
National Monuments and Icons	2000 Year	2	$16,253
National Monuments and Icons	2500 Year	2	$21,524
Nuclear Reactors, Materials and Waste	500 Year	63	$154,870
Nuclear Reactors, Materials and Waste	750 Year	65	$371,541
Nuclear Reactors, Materials and Waste	1000 Year	65	$623,654
Nuclear Reactors, Materials and Waste	1500 Year	65	$1,168,874
Nuclear Reactors, Materials and Waste	2000 Year	65	$1,702,194
Nuclear Reactors, Materials and Waste	2500 Year	65	$2,169,793
Other	250 Year	9	$24,451
Other	500 Year	12	$96,631
Other	750 Year	12	$192,611
Other	1000 Year	12	$305,413
Other	1500 Year	12	$515,477
Other	2000 Year	12	$699,556
Other	2500 Year	12	$805,266
Postal and Shipping	250 Year	231	$13,355
Postal and Shipping	500 Year	246	$106,630
Postal and Shipping	750 Year	246	$248,722
Postal and Shipping	1000 Year	246	$406,356
Postal and Shipping	1500 Year	246	$730,148
Postal and Shipping	2000 Year	246	$1,093,517
Postal and Shipping	2500 Year	246	$1,399,474
Transportation Systems	250 Year	31,921	$17,815,924
Transportation Systems	500 Year	36,670	$100,960,199
Transportation Systems	750 Year	36,806	$203,834,597
Transportation Systems	1000 Year	36,806	$323,546,623
Transportation Systems	1500 Year	36,806	$562,327,262
Transportation Systems	2000 Year	36,806	$827,970,238
Transportation Systems	2500 Year	36,806	$1,070,193,902
Water	250 Year	1,286	$22,555,969
Water	500 Year	1,366	$80,554,011
Water	750 Year	1,366	$154,856,513
Water	1000 Year	1,366	$227,981,188
Water	1500 Year	1,366	$378,980,753
Water	2000 Year	1,366	$508,554,474
Water	2500 Year	1,366	$626,920,156
All Categories	**250 Year**	**400,498**	**$202,063,685**
All Categories	**500 Year**	**510,122**	**$1,023,312,693**

Sector	Event	Number of Buildings at Risk	Estimated Damages
All Categories	750 Year	512,237	$2,083,820,291
All Categories	1000 Year	512,315	$3,269,866,612
All Categories	1500 Year	512,315	$5,696,190,770
All Categories	2000 Year	512,315	$8,248,498,071
All Categories	2500 Year	512,315	$10,565,042,295

Source: GIS Analysis

6.3.4 Hurricane/Tropical Storm

Historical evidence indicates that the Bladen-Columbus-Robeson Region faces significant risks from hurricane and tropical storm hazards, mostly due to the location of North Carolina along the Atlantic coastline. According to 2022 state summary data from the National Oceanic and Atmospheric Administration (NOAA), a storm at hurricane strength makes landfall in North Carolina roughly once every 3 years[23]. A hurricane-level event has the potential to impact many existing and future buildings, critical facilities, and populations in the region. In recent years, there have been numerous major disaster declarations in the region due to hurricanes and tropical storms. Some of these declarations include Hurricane Fran (1996), Hurricane Bonnie (1998), Hurricane Floyd & Irene (1999), Hurricane Isabel (2003), Tropical Storm Frances (2004), Hurricane Irene (2011), Hurricane Matthew (2016), Hurricane Florence (2018), and Hurricane Dorian (2019).

Numerous secondary or compounding hazards such as erosion, flooding, tornadoes, and high winds tend to result from hurricanes or tropical storms. These intense cyclonic hazards often leave behind a severe degree of aftermath including numerous fatalities, road closures, water contamination, gas leaks, extensive debris clean-up, and extended power outages. These cumulative effects often make damage estimates difficult to track through calculations. It is assumed that all existing populations and future populations are at risk from hurricanes and tropical storm hazards. Timely sheltering and evacuations of elderly individuals, young individuals, disabled individuals, and individuals requiring specialized care or equipment are of critical importance to reducing risk during a severe hurricane.

All critical facilities of the region are assumed to be at risk from hurricanes and tropical storm hazards as well. Although some buildings may perform better than others due to construction, age, and other factors, determining individual building response is beyond the scope of this plan. However, this plan will consider mitigation actions for vulnerable structures, including critical facilities, to reduce the impacts of hurricane hazards (e.g., strong wind). As of 2025, the FEMA NRI rates the hurricane hazard risk index as relatively moderate for Bladen County (94.8/100), relatively moderate for Columbus County (94.89/100), and relatively high for Robeson County (96.1/100).

Table 6-21 and **Table 6-22** below detail estimated building and population vulnerability to hurricane wind events at a regional scale. This data was sourced from the RMT planning application and uses a return period, or average time between event occurrences, of 100 years.

Table 6-21: Regional Estimated Building Vulnerability to Hurricane Winds (100-year)

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Bladen County									
Town of Bladenboro	12	1,693	$12,812,865	206	$3,383,907	43	$1,537,657	1,942	$17,734,430
Town of Clarkton	333	368	$6,727,899	28	$553,886	19	$456,292	415	$7,738,076
Town of Dublin	0	144	$1,040,984	40	$463,493	13	$685,298	197	$2,189,775
Town of East Arcadia	0	231	$2,603,932	14	$48,099	13	$341,726	258	$2,993,757
Town of Elizabethtown	0	2,320	$13,708,502	371	$7,347,341	112	$2,130,995	2,803	$23,186,838

[23] NOAA National Centers for Environmental Information (NCEI) State Climate Summaries. (2022). https://statesummaries.ncics.org/chapter/nc/

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Town of Tar Heel	0	71	$651,072	13	$55,699	5	$47,306	89	$754,077
Town of White Lake	0	2,085	$9,283,088	177	$1,587,830	31	$243,829	2,293	$11,114,747
Unincorporated Area	114	15,812	$111,474,414	3,099	$13,744,762	407	$9,551,302	19,318	$134,770,478
Subtotal Bladen	**459**	**22,724**	**$158,302,756**	**3,948**	**$27,185,017**	**643**	**$14,994,405**	**27,315**	**$200,482,178**
Columbus County									
City of Whiteville	2,344	1,887	$28,809,696	536	$19,184,674	121	$6,018,245	2,544	$54,012,615
Town of Boardman	123	121	$705,768	8	$18,411	6	$59,458	135	$783,637
Town of Bolton	333	368	$6,727,899	28	$553,886	19	$456,292	415	$7,738,076
Town of Brunswick	263	202	$6,969,687	28	$491,706	34	$788,798	264	$8,250,191
Town of Cerro Gordo	156	167	$1,404,428	11	$72,429	15	$315,275	193	$1,792,132
Town of Chadbourn	988	913	$7,563,238	186	$2,863,684	40	$1,506,576	1,139	$11,933,497
Town of Fair Bluff	581	556	$2,308,403	102	$437,312	19	$279,414	677	$3,025,129
Town of Lake Waccamaw	657	788	$17,453,371	85	$2,481,594	24	$572,772	897	$20,507,737
Town of Sandyfield	171	215	$2,914,082	8	$193,862	9	$245,390	232	$3,353,334
Town of Tabor City	1,289	1,179	$30,145,029	238	$9,356,260	46	$2,551,641	1,463	$42,052,929
Unincorporated Area	25,382	28,223	$425,367,848	1,974	$39,294,398	460	$25,441,956	30,657	$490,104,202
Subtotal Columbus	**32,287**	**34,619**	**$530,369,449**	**3,204**	**$74,948,216**	**793**	**$38,235,817**	**38,616**	**$643,553,479**
Robeson County									
City of Lumberton	6,250	8,845	$64,942,287	1,167	$28,009,138	259	$7,016,327	10,271	$99,967,752
Town of Fairmont	1,519	1,314	$16,455,624	185	$4,082,549	48	$1,591,517	1,547	$22,129,689
Town of Lumber Bridge	82	68	$147,836	11	$39,533	3	$3,200	82	$190,569
Town of Marietta	87	72	$433,517	11	$56,127	4	$168,126	87	$657,771
Town of Maxton	1,247	1,102	$3,262,742	106	$352,331	40	$270,850	1,248	$3,885,923
Town of McDonald	58	52	$348,804	2	$21,135	4	$33,048	58	$402,988
Town of Orrum	58	51	$230,423	3	$13,907	4	$199,691	58	$444,020
Town of Parkton	312	270	$490,291	27	$127,857	16	$43,454	313	$661,602
Town of Pembroke	1,814	1,554	$6,682,955	180	$1,464,680	85	$1,028,247	1,819	$9,175,881
Town of Proctorville	68	61	$526,960	1	$3,949	6	$89,934	68	$620,843
Town of Raynham	37	31	$83,215	1	$4,410	5	$56,135	37	$143,759
Town of Red Springs	2,172	1,897	$6,219,034	227	$2,434,378	54	$307,978	2,178	$8,961,390
Town of Rennert	190	175	$270,024	9	$38,697	6	$28,995	190	$337,717
Town of Rowland	529	424	$2,188,283	88	$520,664	17	$61,767	529	$2,770,715
Town of Saint Pauls	1,584	1,369	$4,431,777	172	$850,917	45	$203,569	1,586	$5,486,263
Unincorporated Area	40,100	35,414	$119,858,262	4,369	$15,588,934	515	$7,902,526	40,298	$143,349,722
Subtotal Robeson	**56,107**	**52,699**	**$226,572,034**	**6,559**	**$53,609,206**	**1,111**	**$19,005,364**	**60,369**	**$299,186,604**
Total Plan Area	**88,853**	**110,042**	**$915,244,239**	**13,711**	**$155,742,439**	**2,547**	**$72,235,586**	**126,300**	**$1,143,222,261**

Source: NCEM RMT

Table 6-22: Regional Estimated Population Vulnerability to Hurricane Winds (100-year)

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Bladen County			
Town of Bladenboro	205	36	747
Town of Clarkton	11	1	44
Town of Dublin	10	3	51
Town of East Arcadia	8	3	43
Town of Elizabethtown	807	306	3,781
Town of Tar Heel	2	1	8
Town of White Lake	63	6	195
Unincorporated Area	5,626	1,212	25,148
Subtotal Bladen	**6,732**	**1,568**	**30,017**
Columbus County			
City of Whiteville	227	86	1,212
Town of Boardman	37	4	119
Town of Bolton	10	3	66
Town of Brunswick	15	4	80
Town of Cerro Gordo	5	2	29
Town of Chadbourn	51	14	249
Town of Fair Bluff	16	7	86
Town of Lake Waccamaw	43	7	128
Town of Sandyfield	32	5	202
Town of Tabor City	96	28	556
Unincorporated Area	10,081	2,604	48,674
Subtotal Columbus	**10,613**	**2,764**	**51,401**
Robeson County			
City of Lumberton	2,546	1,305	16,293
Town of Fairmont	208	47	1,058
Town of Lumber Bridge	25	3	128
Town of Marietta	10	2	42
Town of Maxton	218	88	1,261
Town of McDonald	3	1	13
Town of Orrum	3	1	15
Town of Parkton	15	5	97
Town of Pembroke	345	209	4,341
Town of Proctorville	2	1	12
Town of Raynham	1	1	7
Town of Red Springs	491	218	3,029
Town of Rennert	17	9	127
Town of Rowland	10	2	42
Town of Saint Pauls	118	63	711

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Unincorporated Area	10,194	4,276	66,844
Subtotal Robeson	**14,206**	**6,231**	**94,020**
Total Plan Area	**31,551**	**10,563**	**175,438**

Source: NCEM RMT

6.3.5 Inland Flooding

Historical information indicates that the Bladen-Columbus-Robeson Region is vulnerable to inland flooding events. The inland flooding hazard accounts for the 100-year floodplain (1% annual chance event) and 500-year floodplain (0.2% annual chance) based on effective floodplain mapping products. Building-specific risk and mitigation information can be assessed directly through the North Carolina Flood Risk Information System (FRIS) and similar resources provided by the North Carolina Floodplain Mapping Program (NCFMP)[24].

A total of 151 flood and flash flood events have been reported in the region by the National Centers for Environmental Information (NCEI) between January 1995 and January 2025, resulting in over $52.9 million in property damage and $10.2 million in crop damage (not adjusted for inflation)[25]. Planning estimates from the NCEM RMT application have previously assessed that over 6,900 commercial facilities, 880 critical manufacturing facilities, 500 transportation facilities, 500 government facilities, and 65 energy facilities among other sectors of the region may be at risk of a 100-year flood. Collectively, the estimated total damage between these industry sectors is approximately $1 billion.

Every jurisdiction in the Bladen-Columbus-Robeson Region is vulnerable to flooding in some form and will require continued mitigation support to reduce overall impact. A flood has the potential to impact many existing and future buildings, facilities, and populations in the region, though some areas are at a higher risk than others. All types of structures in a floodplain are at risk, though elevated structures will inherently carry reduced risk through above-code design. As of 2025, the FEMA NRI rates the riverine flooding hazard risk index as relatively moderate for Bladen County (87.27/100), relatively moderate for Columbus County (86.29/100), and relatively moderate for Robeson County (79.67/100).

As noted, the floodplains used in this analysis include the 100-year and 500-year FEMA-regulated floodplain boundaries. It is certainly possible that more severe events could occur beyond these boundaries, or urban (flash) flooding could impact additional structures in unexpected ways. Such site-specific vulnerability determinations should be considered during future updates of this plan. Furthermore, areas subject to repetitive flooding should be analyzed for potential mitigation actions.

Table 6-23 and **Table 6-24** below detail estimated building and population vulnerability to riverine flooding events at a regional scale. This data was sourced from the RMT planning application and uses a return period, or average time between event occurrences, of 100 years.

[24] NC FRIS: https://fris.nc.gov/ and NCFMP: https://flood.nc.gov/
[25] NOAA NCEI Storm Events Database. (2025). https://www.ncdc.noaa.gov/stormevents

Table 6-23: Regional Estimated Building Vulnerability to Riverine Flooding (100-year)

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Bladen County									
Town of Bladenboro	0	62	$210,912	21	$54,327	1	$23,248	84	$288,488
Town of Clarkton	0	0	$0	0	$0	0	$0	0	$0
Town of Dublin	0	0	$0	0	$0	0	$0	0	$0
Town of East Arcadia	0	0	$0	0	$0	0	$0	0	$0
Town of Elizabethtown	0	21	$295,907	20	$126,188	4	$98,317	45	$520,412
Town of Tar Heel	0	0	$0	0	$0	0	$0	0	$0
Town of White Lake	0	0	$0	0	$0	0	$0	0	$0
Unincorporated Area	3	792	$6,469,709	67	$554,575	9	$301,477	868	$7,325,761
Subtotal Bladen	**3**	**875**	**$6,976,528**	**108**	**$735,090**	**14**	**$423,042**	**997**	**$8,134,661**
Columbus County									
City of Whiteville	119	97	$168,546	28	$41,540	0	$0	125	$210,086
Town of Boardman	18	18	$20,164	0	$0	0	$0	18	$20,164
Town of Bolton	0	0	$0	0	$0	0	$0	0	$0
Town of Brunswick	0	0	$0	0	$0	0	$0	0	$0
Town of Cerro Gordo	1	4	$2,817	0	$0	0	$0	4	$2,817
Town of Chadbourn	2	2	$2,274	0	$0	0	$0	2	$2,274
Town of Fair Bluff	166	135	$286,965	49	$118,638	2	$68,627	186	$474,230
Town of Lake Waccamaw	78	97	$127,702	0	$0	0	$0	97	$127,702
Town of Sandyfield	1	1	$1,984	0	$0	0	$0	1	$1,984
Town of Tabor City	35	37	$72,683	3	$1,651	0	$0	40	$74,334
Unincorporated Area	392	462	$984,660	5	$24,564	1	$40,375	468	$1,049,599
Subtotal Columbus	**812**	**853**	**$1,667,795**	**85**	**$186,393**	**3**	**$109,002**	**941**	**$1,963,190**
Robeson County									
City of Lumberton	1,446	2,405	$25,641,157	186	$7,416,032	34	$1,596,849	2,625	$34,654,038
Town of Fairmont	26	26	$17,199	0	$0	0	$0	26	$17,199
Town of Lumber Bridge	0	0	$0	0	$0	0	$0	0	$0
Town of Marietta	0	0	$0	0	$0	0	$0	0	$0
Town of Maxton	10	10	$36,700	0	$0	0	$0	10	$36,700
Town of McDonald	0	0	$0	0	$0	0	$0	0	$0
Town of Orrum	1	1	$407	0	$0	0	$0	1	$407
Town of Parkton	0	0	$0	0	$0	0	$0	0	$0
Town of Pembroke	32	32	$173,717	0	$0	0	$0	32	$173,717
Town of Proctorville	0	0	$0	0	$0	0	$0	0	$0
Town of Raynham	0	0	$0	0	$0	0	$0	0	$0
Town of Red Springs	17	17	$166,323	0	$0	0	$0	17	$166,323
Town of Rennert	23	24	$97,167	0	$0	0	$0	24	$97,167
Town of Rowland	1	0	$0	0	$0	1	$13,360	1	$13,360
Town of Saint Pauls	2	3	$9,320	0	$0	0	$0	3	$9,320

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Unincorporated Area	3,119	3,223	$9,374,745	64	$523,757	5	$94,236	3,292	$9,992,738
Subtotal Robeson	**4,677**	**5,741**	**$35,516,735**	**250**	**$7,939,789**	**40**	**$1,704,445**	**6,031**	**$45,160,969**
Total Plan Area	**5,492**	**7,469**	**$44,161,058**	**443**	**$8,861,272**	**57**	**$2,236,489**	**7,969**	**$55,258,820**

Source: NCEM RMT

Table 6-24: Regional Estimated Population Vulnerability to Riverine Flooding (100-year)

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Bladen County			
Town of Bladenboro	7	1	27
Town of Clarkton	0	0	0
Town of Dublin	0	0	0
Town of East Arcadia	0	0	0
Town of Elizabethtown	7	3	34
Town of Tar Heel	0	0	0
Town of White Lake	0	0	0
Unincorporated Area	281	61	1,257
Subtotal Bladen	**295**	**65**	**1,318**
Columbus County			
City of Whiteville	12	4	62
Town of Boardman	6	1	18
Town of Bolton	0	0	0
Town of Brunswick	0	0	0
Town of Cerro Gordo	0	0	1
Town of Chadbourn	0	0	1
Town of Fair Bluff	4	2	21
Town of Lake Waccamaw	5	1	16
Town of Sandyfield	0	0	1
Town of Tabor City	3	1	17
Unincorporated Area	165	43	796
Subtotal Columbus	**195**	**52**	**933**
Robeson County			
City of Lumberton	689	353	4,409
Town of Fairmont	4	1	21
Town of Lumber Bridge	0	0	0
Town of Marietta	0	0	0
Town of Maxton	2	1	11
Town of McDonald	0	0	0
Town of Orrum	0	0	0
Town of Parkton	0	0	0

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Town of Pembroke	7	4	89
Town of Proctorville	0	0	0
Town of Raynham	0	0	0
Town of Red Springs	4	2	27
Town of Rennert	2	1	17
Town of Rowland	0	0	0
Town of Saint Pauls	0	0	2
Unincorporated Area	927	389	6,079
Subtotal Robeson	**1,635**	**751**	**10,655**
Total Plan Area	**2,125**	**868**	**12,906**

Source: NCEM RMT

Additionally, **Table 6-25** and **Table 6-26** below detail estimated building and population vulnerability to riverine flooding events at a regional scale. This data was sourced from the RMT planning application and uses a return period, or average time between event occurrences, of 500 years.

Table 6-25: Regional Estimated Building Vulnerability to Riverine Flooding (500-year)

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Bladen County									
Town of Bladenboro	1	80	$257,985	30	$246,905	3	$120,310	113	$625,199
Town of Clarkton	0	0	$0	0	$0	0	$0	0	$0
Town of Dublin	0	0	$0	0	$0	0	$0	0	$0
Town of East Arcadia	0	0	$0	0	$0	0	$0	0	$0
Town of Elizabethtown	0	18	$342,437	22	$553,193	5	$210,894	45	$1,106,524
Town of Tar Heel	0	0	$0	0	$0	0	$0	0	$0
Town of White Lake	0	0	$0	0	$0	0	$0	0	$0
Unincorporated Area	0	880	$17,260,681	104	$1,892,533	19	$928,560	1,003	$20,081,774
Subtotal Bladen	**1**	**978**	**$17,861,103**	**156**	**$2,692,631**	**27**	**$1,259,764**	**1,161**	**$21,813,497**
Columbus County									
City of Whiteville	0	0	$0	0	$0	0	$0	0	$0
Town of Boardman	9	9	$21,525	0	$0	0	$0	9	$21,525
Town of Bolton	0	0	$0	0	$0	0	$0	0	$0
Town of Brunswick	0	0	$0	0	$0	0	$0	0	$0
Town of Cerro Gordo	0	1	$501	0	$0	0	$0	1	$501
Town of Chadbourn	0	0	$0	0	$0	0	$0	0	$0
Town of Fair Bluff	25	26	$50,701	2	$39,735	0	$0	28	$90,436
Town of Lake Waccamaw	0	0	$0	0	$0	0	$0	0	$0
Town of Sandyfield	0	0	$0	0	$0	0	$0	0	$0
Town of Tabor City	0	0	$0	0	$0	0	$0	0	$0

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Unincorporated Area	26	39	$86,692	0	$0	0	$0	39	$86,692
Subtotal Columbus	**60**	**75**	**$159,419**	**2**	**$39,735**	**0**	**$0**	**77**	**$199,154**
Robeson County									
City of Lumberton	1,645	2,582	$82,490,981	319	$50,950,454	79	$5,967,727	2,980	$139,409,162
Town of Fairmont	36	36	$51,207	0	$0	0	$0	36	$51,207
Town of Lumber Bridge	0	0	$0	0	$0	0	$0	0	$0
Town of Marietta	0	0	$0	0	$0	0	$0	0	$0
Town of Maxton	6	6	$26,279	0	$0	0	$0	6	$26,279
Town of McDonald	0	0	$0	0	$0	0	$0	0	$0
Town of Orrum	1	1	$515	0	$0	0	$0	1	$515
Town of Parkton	1	1	$2,080	0	$0	0	$0	1	$2,080
Town of Pembroke	35	35	$236,770	0	$0	0	$0	35	$236,770
Town of Proctorville	0	0	$0	0	$0	0	$0	0	$0
Town of Raynham	0	0	$0	0	$0	0	$0	0	$0
Town of Red Springs	19	19	$240,601	0	$0	0	$0	19	$240,601
Town of Rennert	36	37	$110,125	0	$0	0	$0	37	$110,125
Town of Rowland	1	0	$0	0	$0	1	$13,360	1	$13,360
Town of Saint Pauls	4	4	$10,659	1	$1,959	0	$0	5	$12,618
Unincorporated Area	3,432	3,482	$21,560,586	140	$1,805,557	12	$585,435	3,634	$23,951,578
Subtotal Robeson	**5,216**	**6,203**	**$104,729,803**	**460**	**$52,757,970**	**92**	**$6,566,522**	**6,755**	**$164,054,295**
Total Plan Area	**5,277**	**7,256**	**$122,750,325**	**618**	**$55,490,336**	**119**	**$7,826,286**	**7,993**	**$186,066,946**

Source: NCEM RMT

Table 6-26: Regional Estimated Population Vulnerability to Riverine Flooding (500-year)

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Bladen County			
Town of Bladenboro	10	2	36
Town of Clarkton	0	0	0
Town of Dublin	0	0	0
Town of East Arcadia	0	0	0
Town of Elizabethtown	6	2	29
Town of Tar Heel	0	0	0
Town of White Lake	0	0	0
Unincorporated Area	312	67	1,397
Subtotal Bladen	**328**	**71**	**1,462**
Columbus County			
City of Whiteville	0	0	0
Town of Boardman	3	0	9
Town of Bolton	0	0	0

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Town of Brunswick	0	0	0
Town of Cerro Gordo	0	0	0
Town of Chadbourn	0	0	0
Town of Fair Bluff	1	0	4
Town of Lake Waccamaw	0	0	0
Town of Sandyfield	0	0	0
Town of Tabor City	0	0	0
Unincorporated Area	14	4	67
Subtotal Columbus	**18**	**4**	**80**
Robeson County			
City of Lumberton	741	380	4,743
Town of Fairmont	6	1	29
Town of Lumber Bridge	0	0	0
Town of Marietta	0	0	0
Town of Maxton	1	0	7
Town of McDonald	0	0	0
Town of Orrum	0	0	0
Town of Parkton	0	0	0
Town of Pembroke	8	5	97
Town of Proctorville	0	0	0
Town of Raynham	0	0	0
Town of Red Springs	5	2	30
Town of Rennert	4	2	27
Town of Rowland	0	0	0
Town of Saint Pauls	0	0	2
Unincorporated Area	1,002	420	6,569
Subtotal Robeson	**1,767**	**810**	**11,504**
Total Plan Area	**2,113**	**885**	**13,046**

Source: NCEM RMT

6.3.6 Severe Weather (Hail, Lightning, Thunderstorm Wind)

Historical information indicates that the Bladen-Columbus-Robeson Region is vulnerable to severe weather events. Such events may include a variety of hail, lightning, and thunderstorm wind hazards capable of affecting any jurisdiction. Regional risk and forecast information can be assessed directly through statewide data provided by the National Weather Service (NWS)[26]. The NWS has previously estimated that the United States is impacted by approximately 100,000 storms each year, of which approximately 10% of them are classified as "severe."

A total of 1,235 severe weather events (426 hail events, 37 lightning events, 772 thunderstorm wind events) have been reported in the region by the National Centers for Environmental Information (NCEI) between January 1995 and January 2025. Collectively, these events resulted in over $8.8 million in property damage and $687,000 in crop damage (not adjusted for inflation)[27].

It is assumed that all existing populations and future populations are at risk from severe weather hazards. Timely sheltering and evacuations of elderly individuals, young individuals, disabled individuals, and individuals requiring specialized care or equipment are of critical importance to reducing risk during severe weather.

All critical facilities of the region are assumed to be at risk from severe weather hazards as well. Although some buildings may perform better than others due to construction, age, and other factors, determining individual building response is beyond the scope of this plan. As of 2025, the FEMA NRI rates the hail hazard risk index as relatively low for Bladen County (54.37/100), very low for Columbus County (43.33/100), and relatively low for Robeson County (50.02/100). The lightning hazard is rated as relatively low for Bladen County (45.79/100), relatively moderate for Columbus County (88.55/100), and relatively moderate for Robeson County (74.1/100). The strong wind hazard is rated as relatively high for Bladen County (92.17/100), relatively high for Columbus County (92.11/100), and relatively high for Robeson County (97.61/100).

Table 6-27 and **Table 6-28** below detail estimated building and population vulnerability to thunderstorm wind events at a regional scale. This data was sourced from the RMT planning application and uses a return period, or average time between event occurrences, of 50 years.

Table 6-27: Regional Estimated Building Vulnerability to Thunderstorm Winds (50-year)

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Bladen County									
Town of Bladenboro	12	1,693	$833,753	206	$143,393	43	$79,880	1,942	$1,057,026
Town of Clarkton	12	365	$276,434	79	$57,419	19	$31,453	463	$365,306
Town of Dublin	0	144	$71,135	40	$22,160	13	$31,477	197	$124,773
Town of East Arcadia	0	231	$67,114	14	$610	13	$3,424	258	$71,149
Town of Elizabethtown	0	2,320	$1,072,102	371	$506,632	112	$94,082	2,803	$1,672,815
Town of Tar Heel	0	71	$38,608	13	$1,504	5	$1,202	89	$41,313
Town of White Lake	0	2,085	$801,389	177	$98,390	31	$10,735	2,293	$910,515

[26] NOAA National Weather Service. (2025). https://www.weather.gov/rah/NC
[27] NOAA NCEI Storm Events Database. (2025). https://www.ncdc.noaa.gov/stormevents

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Unincorporated Area	114	15,812	$7,366,561	3,099	$760,802	407	$621,061	19,318	$8,748,424
Subtotal Bladen	**138**	**22,721**	**$10,527,096**	**3,999**	**$1,590,910**	**643**	**$873,314**	**27,363**	**$12,991,321**
Columbus County									
City of Whiteville	2,344	1,887	$1,207,960	536	$603,036	121	$193,414	2,544	$2,004,410
Town of Boardman	123	121	$49,937	8	$536	6	$1,531	135	$52,005
Town of Bolton	333	368	$172,767	28	$9,070	19	$6,380	415	$188,217
Town of Brunswick	263	202	$141,605	28	$7,076	34	$15,322	264	$164,003
Town of Cerro Gordo	156	167	$84,912	11	$3,104	15	$10,903	193	$98,919
Town of Chadbourn	988	913	$461,388	186	$137,337	40	$78,273	1,139	$676,998
Town of Fair Bluff	581	556	$212,658	102	$18,327	19	$13,784	677	$244,769
Town of Lake Waccamaw	657	788	$395,329	85	$42,512	24	$8,071	897	$445,911
Town of Sandyfield	171	215	$107,611	8	$8,823	9	$3,144	232	$119,577
Town of Tabor City	1,289	1,179	$792,288	238	$189,248	46	$55,552	1,463	$1,037,088
Unincorporated Area	25,382	28,223	$15,636,906	1,974	$1,548,181	460	$655,485	30,657	$17,840,573
Subtotal Columbus	**32,287**	**34,619**	**$19,263,361**	**3,204**	**$2,567,250**	**793**	**$1,041,859**	**38,616**	**$22,872,470**
Robeson County									
City of Lumberton	6,250	8,845	$5,280,742	1,167	$1,479,549	259	$389,314	10,271	$7,149,605
Town of Fairmont	1,519	1,314	$878,382	185	$182,896	48	$58,178	1,547	$1,119,457
Town of Lumber Bridge	82	68	$48,121	11	$5,061	3	$554	82	$53,737
Town of Marietta	87	72	$35,109	11	$1,409	4	$2,795	87	$39,313
Town of Maxton	1,247	1,102	$750,676	106	$40,209	40	$54,512	1,248	$845,397
Town of McDonald	58	52	$42,735	2	$2,978	4	$4,294	58	$50,007
Town of Orrum	58	51	$8,733	3	$444	4	$4,187	58	$13,364
Town of Parkton	312	270	$142,004	27	$19,909	16	$5,718	313	$167,631
Town of Pembroke	1,814	1,554	$1,113,460	180	$268,797	85	$171,053	1,819	$1,553,310
Town of Proctorville	68	61	$36,999	1	$137	6	$2,050	68	$39,186
Town of Raynham	37	31	$17,597	1	$577	5	$7,142	37	$25,316
Town of Red Springs	2,172	1,897	$1,539,708	227	$536,799	54	$58,168	2,178	$2,134,674
Town of Rennert	190	175	$60,143	9	$5,009	6	$4,269	190	$69,421
Town of Rowland	529	424	$411,897	88	$64,625	17	$5,628	529	$482,150
Town of Saint Pauls	1,584	1,369	$900,472	172	$140,501	45	$30,865	1,586	$1,071,838
Unincorporated Area	40,100	35,414	$16,967,204	4,369	$2,291,097	515	$1,137,558	40,298	$20,395,859
Subtotal Robeson	**56,107**	**52,699**	**$28,233,982**	**6,559**	**$5,039,997**	**1,111**	**$1,936,285**	**60,369**	**$35,210,265**
Total Plan Area	**88,532**	**110,039**	**$58,024,439**	**13,762**	**$9,198,157**	**2,547**	**$3,851,458**	**126,348**	**$71,074,056**

Source: NCEM RMT

Table 6-28: Regional Estimated Population Vulnerability to Thunderstorm Winds (50-year)

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Bladen County			
Town of Bladenboro	205	36	747
Town of Clarkton	11	1	44
Town of Dublin	10	3	51
Town of East Arcadia	8	3	43
Town of Elizabethtown	807	306	3,781
Town of Tar Heel	2	1	8
Town of White Lake	63	6	195
Unincorporated Area	5,626	1,212	25,148
Subtotal Bladen	**6,732**	**1,568**	**30,017**
Columbus County			
City of Whiteville	227	86	1,212
Town of Boardman	37	4	119
Town of Bolton	10	3	66
Town of Brunswick	15	4	80
Town of Cerro Gordo	5	2	29
Town of Chadbourn	51	14	249
Town of Fair Bluff	16	7	86
Town of Lake Waccamaw	43	7	128
Town of Sandyfield	32	5	202
Town of Tabor City	96	28	556
Unincorporated Area	10,081	2,604	48,674
Subtotal Columbus	**10,613**	**2,764**	**51,401**
Robeson County			
City of Lumberton	2,546	1,305	16,293
Town of Fairmont	208	47	1,058
Town of Lumber Bridge	25	3	128
Town of Marietta	10	2	42
Town of Maxton	218	88	1,261
Town of McDonald	3	1	13
Town of Orrum	3	1	15
Town of Parkton	15	5	97
Town of Pembroke	345	209	4,341
Town of Proctorville	2	1	12
Town of Raynham	1	1	7
Town of Red Springs	491	218	3,029
Town of Rennert	17	9	127
Town of Rowland	10	2	42
Town of Saint Pauls	118	63	711

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Unincorporated Area	10,194	4,276	66,844
Subtotal Robeson	**14,206**	**6,231**	**94,020**
Total Plan Area	**31,551**	**10,563**	**175,438**

Source: NCEM RMT

6.3.7 Tornado

Historical information indicates that the Bladen-Columbus-Robeson Region is vulnerable to tornado events. Regional risk and forecast information can be assessed directly through statewide data provided by the National Weather Service (NWS)[28]. NOAA estimates that approximately 1,200 tornadoes affect the U.S. each year, with a peak season observed through the spring into summer (March to June) for states like North Carolina[29].

A total of 75 tornado events have been reported in the region by the National Centers for Environmental Information (NCEI) between January 1995 and January 2025. Collectively, these events resulted in over $13.4 million in property damage and $13,500 in crop damage (not adjusted for inflation)[30].

It is assumed that all existing populations and future populations are at risk from tornado hazards. Timely sheltering and evacuations of elderly individuals, young individuals, disabled individuals, and individuals requiring specialized care or equipment are of critical importance to reducing risk ahead of a tornado's path.

All critical facilities of the region are assumed to be at risk from tornado hazards as well. Although some buildings may perform better than others due to construction, age, and other factors, determining individual building response is beyond the scope of this plan. A tornado rated at or above EF2 on the Enhanced Fujita Scale would be expected to cause severe damage to critical facilities and other structures alike. As of 2025, the FEMA NRI rates the tornado hazard risk index as relatively moderate for Bladen County (77.16/100), relatively moderate for Columbus County (80.37/100), and relatively high for Robeson County (96.05/100).

Table 6-29 and **Table 6-30** below detail estimated building and population vulnerability to tornado events at a regional scale. This data was sourced from the RMT planning application and uses a model intensity of EF2 (Enhanced Fujita scale).

Table 6-29: Regional Estimated Building Vulnerability to Tornadoes (EF2)

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Bladen County									
Town of Bladenboro	12	1,693	$158,716,309	206	$72,216,016	43	$43,580,800	1,942	$274,513,125
Town of Clarkton	12	365	$45,766,794	79	$55,325,900	19	$15,734,174	463	$116,826,868
Town of Dublin	0	144	$14,765,843	40	$18,886,217	13	$11,368,422	197	$45,020,482
Town of East Arcadia	0	231	$16,849,678	14	$697,207	13	$3,022,067	258	$20,568,952
Town of Elizabethtown	0	2,320	$300,789,227	371	$246,947,751	112	$67,840,772	2,803	$615,577,750
Town of Tar Heel	0	71	$7,741,670	13	$2,208,037	5	$1,921,186	89	$11,870,893
Town of White Lake	0	2,085	$152,361,598	177	$38,721,615	31	$9,743,069	2,293	$200,826,282
Unincorporated Area	114	15,812	$1,477,185,611	3,099	$699,212,104	407	$202,195,525	19,318	$2,378,593,240

[28] NOAA National Weather Service. (2025). https://www.weather.gov/rah/NC
[29] NOAA National Severe Storms Laboratory. (2025). https://www.nssl.noaa.gov/education/svrwx101/tornadoes/
[30] NOAA NCEI Storm Events Database. (2025). https://www.ncdc.noaa.gov/stormevents

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Subtotal Bladen	**138**	**22,721**	**$2,174,176,730**	**3,999**	**$1,134,214,847**	**643**	**$355,406,015**	**27,363**	**$3,663,797,592**
Columbus County									
City of Whiteville	2,344	1,887	$258,957,514	536	$323,264,095	121	$102,862,534	2,544	$685,084,143
Town of Boardman	123	121	$10,354,192	8	$990,773	6	$1,618,373	135	$12,963,338
Town of Bolton	333	368	$36,047,429	28	$6,562,224	19	$6,542,142	415	$49,151,795
Town of Brunswick	263	202	$25,321,918	28	$11,394,462	34	$12,008,477	264	$48,724,857
Town of Cerro Gordo	156	167	$16,445,119	11	$1,757,569	15	$5,173,752	193	$23,376,440
Town of Chadbourn	988	913	$90,772,047	186	$76,716,908	40	$30,002,097	1,139	$197,491,052
Town of Fair Bluff	581	556	$51,118,171	102	$22,224,301	19	$10,064,349	677	$83,406,821
Town of Lake Waccamaw	657	788	$102,310,721	85	$35,638,864	24	$8,335,862	897	$146,285,447
Town of Sandyfield	171	215	$21,641,216	8	$2,459,371	9	$2,144,097	232	$26,244,684
Town of Tabor City	1,293	1,182	$143,124,591	239	$120,057,134	46	$35,594,979	1,467	$298,776,703
Unincorporated Area	25,416	28,256	$2,905,289,055	1,977	$695,257,684	461	$320,979,767	30,694	$3,921,526,506
Subtotal Columbus	**32,325**	**34,655**	**$3,661,381,973**	**3,208**	**$1,296,323,385**	**794**	**$535,326,429**	**38,657**	**$5,493,031,786**
Robeson County									
City of Lumberton	6,250	8,845	$1,160,452,408	1,167	$1,033,521,224	259	$238,945,322	10,271	$2,432,918,954
Town of Fairmont	1,519	1,314	$189,135,686	185	$121,105,233	48	$50,888,623	1,547	$361,129,542
Town of Lumber Bridge	82	68	$7,148,469	11	$1,643,908	3	$823,817	82	$9,616,194
Town of Marietta	87	72	$7,271,048	11	$1,499,651	4	$2,035,932	87	$10,806,630
Town of Maxton	1,247	1,102	$147,678,369	106	$31,743,244	40	$26,309,144	1,248	$205,730,758
Town of McDonald	58	52	$8,232,790	2	$774,860	4	$1,129,551	58	$10,137,201
Town of Orrum	58	51	$4,903,136	3	$819,028	4	$3,397,288	58	$9,119,451
Town of Parkton	312	270	$27,414,017	27	$11,683,751	16	$7,183,386	313	$46,281,154
Town of Pembroke	1,814	1,554	$220,135,092	180	$139,573,587	85	$107,897,634	1,819	$467,606,313
Town of Proctorville	68	61	$8,308,027	1	$87,905	6	$2,614,298	68	$11,010,230
Town of Raynham	37	31	$3,762,062	1	$230,360	5	$3,606,962	37	$7,599,384
Town of Red Springs	2,172	1,897	$290,850,238	227	$163,606,212	54	$36,754,996	2,178	$491,211,446
Town of Rennert	190	175	$12,045,446	9	$2,639,772	6	$5,058,615	190	$19,743,833
Town of Rowland	530	424	$62,505,086	89	$36,554,364	17	$5,962,430	530	$105,021,880
Town of Saint Pauls	1,584	1,369	$205,535,988	172	$114,519,777	45	$30,402,101	1,586	$350,457,865
Unincorporated Area	40,116	35,427	$3,216,529,631	4,371	$1,144,050,726	516	$400,265,075	40,314	$4,760,845,431
Subtotal Robeson	**56,124**	**52,712**	**$5,571,907,493**	**6,562**	**$2,804,053,602**	**1,112**	**$923,275,174**	**60,386**	**$9,299,236,266**
Total Plan Area	**88,587**	**110,088**	**$11,407,466,196**	**13,769**	**$5,234,591,834**	**2,549**	**$1,814,007,618**	**126,406**	**$18,456,065,644**

Source: NCEM RMT

Table 6-30: Regional Estimated Population Vulnerability to Tornadoes (EF2)

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Bladen County			
Town of Bladenboro	205	36	747
Town of Clarkton	11	1	44
Town of Dublin	10	3	51
Town of East Arcadia	8	3	43
Town of Elizabethtown	807	306	3,781
Town of Tar Heel	2	1	8
Town of White Lake	63	6	195
Unincorporated Area	5,626	1,212	25,148
Subtotal Bladen	**6,732**	**1,568**	**30,017**
Columbus County			
City of Whiteville	227	86	1,212
Town of Boardman	37	4	119
Town of Bolton	10	3	66
Town of Brunswick	15	4	80
Town of Cerro Gordo	5	2	29
Town of Chadbourn	51	14	249
Town of Fair Bluff	16	7	86
Town of Lake Waccamaw	43	7	128
Town of Sandyfield	32	5	202
Town of Tabor City	96	28	557
Unincorporated Area	10,093	2,607	48,731
Subtotal Columbus	**10,625**	**2,767**	**51,459**
Robeson County			
City of Lumberton	2,546	1,305	16,293
Town of Fairmont	208	47	1,058
Town of Lumber Bridge	25	3	128
Town of Marietta	10	2	42
Town of Maxton	218	88	1,261
Town of McDonald	3	1	13
Town of Orrum	3	1	15
Town of Parkton	15	5	97
Town of Pembroke	345	209	4,341
Town of Proctorville	2	1	12
Town of Raynham	1	1	7
Town of Red Springs	491	218	3,029
Town of Rennert	17	9	127
Town of Rowland	10	2	42
Town of Saint Pauls	118	63	711

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Unincorporated Area	10,198	4,278	66,869
Subtotal Robeson	**14,210**	**6,233**	**94,045**
Total Plan Area	**31,567**	**10,568**	**175,521**

Source: NCEM RMT

6.3.8 Wildfire

Wildfires can cause significant damage to property and threaten the lives of people who are unable to evacuate wildfire-prone areas. Many individual homes and cabins, subdivisions, resorts, recreational areas, organizational camps, businesses, and industries are located within high-risk wildfire hazard areas.

Further, the increasing demand for outdoor recreation spaces has led to greater numbers of people near the wildland-urban interface (WUI) during holidays, weekends, and vacation periods. Unfortunately, wildland residents and visitors are rarely educated or prepared for wildfire events that can sweep through the brush and timber and destroy property within minutes.

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

The areas of North Carolina with the largest wildfire hazard occurrence are also within the most exposed regions. Many areas in the eastern and western part of the state have a high risk of wildfire since there are large, forested areas in these regions. However, some counties in the central part of the state also have higher risk. Still, a county's exposure score plays a major role and counties with high exposure and high wildfire risk score highest.

Although historical evidence suggests that the Bladen-Columbus-Robeson Region is vulnerable to wildfire events, there are limited detailed records of damage. Therefore, it is difficult to calculate a reliable annualized loss figure or conduct an in-depth analysis of previous events. However, it should be noted that a single large wildfire event could easily result in severe impacts throughout the region. As of 2025, the FEMA NRI rates the wildfire hazard risk index as relatively low for Bladen County (85.68/100), relatively low for Columbus County (78.71/100), and relatively low for Robeson County (70.6/100).

It is assumed that all current and future populations remain at risk of wildfire hazards. Determining the exact number of people in certain wildfire zones is difficult with existing data and could be misleading. Timely sheltering and evacuations of elderly individuals, young individuals, disabled individuals, and individuals requiring specialized care or equipment are of critical importance to reducing risk in advance of and during a wildfire event.

Wildfire vulnerability is not uniform for all areas of the region, as urbanized areas may not carry the same risks as forest lands, but significant parts of the region are at high risk due to their proximity to WUI zones. Data from the Southern Wildfire Risk Assessment (SWRA) indicates that nearly two-thirds (66%) of the total regional acreage has a burn probability of 6 or higher based on a scale from 1 (lowest probability) to 12 (highest probability). Additionally, **Figure 6-1** below provides a map of WUI zones observed throughout the region. Per the SWRA methodology, this "functional WUI" data represents a classification of land near buildings into separate zones describing wildfire mitigation activities appropriate for each zone.

Figure 6-1: Regional Functional Wildland-Urban Interface (WUI)

Table 6-31 and **Table 6-32** below detail estimated building and population vulnerability to wildfire events at a regional scale. This data was sourced from the RMT planning application.

Table 6-31: Regional Estimated Building Vulnerability to Wildfires

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Bladen County									
Town of Bladenboro	11	1,077	$123,236,388	118	$43,521,914	29	$58,734,837	1,224	$225,493,140
Town of Clarkton	3	127	$22,580,734	28	$46,278,445	8	$17,619,733	163	$86,478,912
Town of Dublin	0	21	$3,652,456	1	$142,516	0	$0	22	$3,794,973
Town of East Arcadia	0	219	$20,529,152	11	$847,313	13	$5,007,424	243	$26,383,889
Town of Elizabethtown	0	662	$116,589,157	80	$71,698,182	24	$23,414,798	766	$211,702,136
Town of Tar Heel	0	28	$4,268,067	1	$78,822	0	$0	29	$4,346,889
Town of White Lake	0	1,052	$86,731,465	62	$17,892,771	28	$13,677,360	1,142	$118,301,596
Unincorporated Area	77	9,979	$1,080,295,768	1,680	$343,762,205	228	$189,695,085	11,887	$1,613,753,058
Subtotal Bladen	**91**	**13,165**	**$1,457,883,187**	**1,981**	**$524,222,168**	**330**	**$308,149,237**	**15,476**	**$2,290,254,593**

Jurisdiction	Pre-Firm Buildings at Risk	Residential Buildings at Risk		Commercial Buildings at Risk		Public Buildings at Risk		Total Buildings at Risk	
		Number	Damages	Number	Damages	Number	Damages	Number	Damages
Columbus County									
City of Whiteville	580	542	$102,430,349	124	$148,418,597	27	$60,673,233	693	$311,522,179
Town of Boardman	43	44	$3,622,955	2	$258,226	1	$138,384	47	$4,019,565
Town of Bolton	225	251	$30,676,475	23	$7,050,476	11	$7,222,292	285	$44,949,243
Town of Brunswick	158	130	$21,042,393	13	$10,635,093	15	$14,469,629	158	$46,147,115
Town of Cerro Gordo	44	43	$4,249,030	5	$674,577	5	$2,436,873	53	$7,360,480
Town of Chadbourn	359	378	$51,017,560	53	$47,381,568	11	$27,358,324	442	$125,757,451
Town of Fair Bluff	340	339	$36,957,284	49	$20,746,688	12	$13,234,559	400	$70,938,530
Town of Lake Waccamaw	202	250	$44,151,509	14	$9,664,333	16	$8,485,279	280	$62,301,121
Town of Sandyfield	164	208	$24,382,055	8	$3,726,602	8	$3,203,681	224	$31,312,338
Town of Tabor City	199	210	$29,429,943	31	$31,727,157	7	$10,683,526	248	$71,840,626
Unincorporated Area	16,064	17,944	$2,133,920,790	1,229	$539,913,598	304	$388,186,549	19,477	$3,062,020,938
Subtotal Columbus	**18,378**	**20,339**	**$2,481,880,343**	**1,551**	**$820,196,915**	**417**	**$536,092,329**	**22,307**	**$3,838,169,586**
Robeson County									
City of Lumberton	1,027	2,782	$561,216,793	267	$390,765,745	80	$139,414,270	3,129	$1,091,396,808
Town of Fairmont	538	512	$89,534,181	42	$64,461,048	11	$27,963,227	565	$181,958,456
Town of Lumber Bridge	35	30	$3,888,057	2	$379,712	3	$1,357,418	35	$5,625,188
Town of Marietta	76	63	$6,857,748	11	$1,592,510	2	$2,455,002	76	$10,905,260
Town of Maxton	761	692	$126,514,312	49	$21,533,492	20	$22,010,421	761	$170,058,225
Town of McDonald	41	36	$7,449,315	2	$1,103,103	3	$1,402,217	41	$9,954,636
Town of Orrum	35	29	$3,230,908	3	$941,254	3	$5,256,123	35	$9,428,286
Town of Parkton	38	30	$4,120,730	3	$2,745,372	5	$3,961,584	38	$10,827,687
Town of Pembroke	1,229	1,079	$229,161,198	97	$121,415,945	58	$139,290,869	1,234	$489,868,012
Town of Proctorville	24	20	$2,611,776	1	$141,395	3	$1,593,817	24	$4,346,988
Town of Raynham	31	26	$3,617,595	1	$370,532	4	$5,651,314	31	$9,639,441
Town of Red Springs	1,349	1,234	$270,432,364	89	$144,388,446	32	$43,314,540	1,355	$458,135,350
Town of Rennert	181	166	$14,384,360	9	$3,535,203	6	$8,335,171	181	$26,254,734
Town of Rowland	63	55	$12,338,915	5	$4,051,829	3	$1,325,812	63	$17,716,557
Town of Saint Pauls	523	486	$82,263,854	26	$38,440,431	11	$9,715,926	523	$130,420,211
Unincorporated Area	29,013	25,649	$2,807,508,816	3,138	$995,798,652	384	$516,370,986	29,171	$4,319,678,454
Subtotal Robeson	**34,964**	**32,889**	**$4,225,130,922**	**3,745**	**$1,791,664,669**	**628**	**$929,418,697**	**37,262**	**$6,946,214,293**
Total Plan Area	**53,433**	**66,393**	**$8,164,894,452**	**7,277**	**$3,136,083,752**	**1,375**	**$1,773,660,263**	**75,045**	**$13,074,638,472**

Source: NCEM RMT

Table 6-32: Regional Estimated Population Vulnerability to Wildfires

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Bladen County			
Town of Bladenboro	130	23	475
Town of Clarkton	4	0	16
Town of Dublin	1	0	7
Town of East Arcadia	8	3	41
Town of Elizabethtown	230	87	1,078
Town of Tar Heel	1	0	3
Town of White Lake	31	3	95
Unincorporated Area	3,546	764	15,853
Subtotal Bladen	**3,951**	**880**	**17,568**
Columbus County			
City of Whiteville	65	25	349
Town of Boardman	13	1	43
Town of Bolton	7	2	45
Town of Brunswick	10	3	51
Town of Cerro Gordo	1	1	7
Town of Chadbourn	21	6	103
Town of Fair Bluff	10	4	52
Town of Lake Waccamaw	14	2	41
Town of Sandyfield	31	5	195
Town of Tabor City	17	5	99
Unincorporated Area	6,407	1,655	30,933
Subtotal Columbus	**6,596**	**1,709**	**31,918**
Robeson County			
City of Lumberton	799	409	5,111
Town of Fairmont	81	18	412
Town of Lumber Bridge	11	1	56
Town of Marietta	8	2	37
Town of Maxton	137	55	792
Town of McDonald	2	0	9
Town of Orrum	1	0	8
Town of Parkton	2	1	11
Town of Pembroke	239	145	3,015
Town of Proctorville	1	0	4
Town of Raynham	1	1	6
Town of Red Springs	319	142	1,967
Town of Rennert	16	8	120
Town of Rowland	1	0	6
Town of Saint Pauls	42	22	253
Unincorporated Area	7,384	3,097	48,416

Jurisdiction	Elderly at Risk	Children at Risk	Total at Risk
Subtotal Robeson	**9,044**	**3,901**	**60,223**
Total Plan Area	**19,591**	**6,490**	**109,709**

Source: NCEM RMT

6.3.9 Winter Storm

All of the assets in the Bladen-Columbus-Robeson Region are exposed to potential winter weather. Any specific vulnerabilities of individual assets would depend greatly on individual design, building characteristics (such as a flat roof), and any existing mitigation measures currently in place. Such site-specific vulnerability determinations are outside the scope of this risk and vulnerability assessment but may be considered during future updates.

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, such as snow, 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, such as snow 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.

Regional risk and forecast information can be assessed directly through statewide data provided by the National Weather Service (NWS)[31]. A total of 38 winter storm and winter weather events (22 and 16 respectively) have been reported in the region by the National Centers for Environmental Information (NCEI) between January 1995 and January 2025. Collectively, these events resulted in over $80,000 in property damage (not adjusted for inflation)[32].

It is assumed that all existing populations and future populations are at risk from winter weather hazards. Timely sheltering and evacuations of elderly individuals, young individuals, disabled individuals, and individuals requiring specialized care or equipment are of critical importance to reducing risk before and during winter storms.

All critical facilities of the region are assumed to be at risk from winter weather hazards as well. Although some buildings may perform better than others due to construction, age, and other factors, determining individual building response is beyond the scope of this plan. As of 2025, the FEMA NRI rates the ice storm hazard risk index as relatively high for Bladen County (89.04/100), relatively high for Columbus County (88.67/100), and relatively high for Robeson County (93.04/100). The winter weather hazard is rated as relatively moderate for Bladen County (66.69/100), relatively moderate for Columbus County (71.59/100), and relatively high for Robeson County (92.46/100).

[31] NOAA National Weather Service. (2025). https://www.weather.gov/rah/NC
[32] NOAA NCEI Storm Events Database. (2025). https://www.ncdc.noaa.gov/stormevents

6.4 Hazard Vulnerability Conclusions

6.4.1 Regional Expected Annual Losses

Table 6-33 shows expected annual losses (EAL) by category and hazard from the FEMA National Risk Index (NRI) to quantify potential losses in the region stemming from natural hazards as of 2025 data. Documentation provided for the NRI notes that these values are calculated by multiplying (1) exposure, (2) annualized frequency, and (3) historic loss ratios for distinct hazard types and estimate losses for relevant community sectors such as buildings, populations, and agricultural yields. The composite EAL represents the combined total of the building EAL, population equivalence EAL, and agriculture EAL. For more information on how the values were developed, please review the NRI Technical Documentation as described in the **6.1 Methodology** subsection above.

Table 6-33: Regional Expected Annual Losses (EAL)

FEMA NRI Category/Hazard	Bladen County	Columbus County	Robeson County	Regional Total
Composite EAL	**$34,179,117**	**$33,997,589**	**$51,821,642**	**$119,998,348**
Building EAL	$24,652,207	$26,692,610	$34,222,233	**$85,567,050**
Population Equivalence EAL	$2,512,412	$4,241,824	$9,968,277	**$16,722,513**
Agriculture EAL	$7,014,498	$3,063,155	$7,631,132	**$17,708,785**
Dam/Levee Failure	Negligible	Negligible	Negligible	Negligible
Drought	$349,041	$275,994	$752,819	$1,377,854
Earthquake	$254,351	$481,624	$1,165,565	$1,901,540
Hurricane/Tropical Storm	$26,079,656	$25,325,900	$35,344,755	$86,750,311
Inland Flooding	$2,147,725	$1,843,362	$1,108,539	$5,099,626
Severe Weather	$533,269	$611,079	$929,374	$2,073,722
Tornado	$2,344,968	$2,586,395	$9,169,385	$14,100,748
Wildfire	$648,131	$318,033	$123,068	$1,089,232
Winter Weather	$159,274	$153,945	$290,688	$603,907

Source: FEMA NRI

6.4.2 Priority Risk Index Methodology

The purpose of the Priority Risk Index (PRI) is to categorize and prioritize all potential hazards for the Region as high, moderate, or low risk. The summary hazard classifications generated using the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes. The PRI calculation formula is detailed below:

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

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 according to a framework summarized below in **Table 6-34**. The sum of all five categories equals the final PRI value, as demonstrated in the equation seen above (the highest possible PRI value is 4.0).

Table 6-34: Priority Risk Index (PRI) Methodology

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 and 10% annual probability	2	
	Likely	Between 10 and 100% annual probability	3	
	Highly Likely	100% annual probability	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. Over 10% of property in affected area damaged or destroyed. Shutdown of critical facilities for > 1 day.	2	
	Critical	Multiple deaths/injuries possible. Over 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. Over 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	

6.4.3 Priority Risk Index Results

Table 6-35 summarizes the degree of risk for each identified hazard using the PRI method described above.

Table 6-35: Summary of Hazard PRI Results

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Cybersecurity	Likely	Critical	Moderate	Less than 6 Hrs	More than 1 week	**3.2**
Dam/Levee Failure	Unlikely	Limited	Small	Less than 6 Hrs	Less than 6 Hrs	**1.8**
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**

Excessive Heat	Likely	Critical	Large	More than 24 Hrs	Less than 1 week	**3.0**
Hurricane/Tropical Storm	Likely	Critical	Large	More than 24 Hrs	Less than 24 Hrs	**2.9**
Infectious Disease	Possible	Critical	Large	More than 24 Hrs	More than 1 week	**2.8**
Inland Flooding	Likely	Critical	Moderate	6 to 12 Hrs	Less than 1 week	**3.0**
Severe Weather (Hail, Lightning, Thunderstorm Wind)	Highly Likely	Critical	Moderate	6 to 12 Hrs	Less than 6 Hrs	**3.1**
Tornado	Likely	Critical	Small	Less than 6 Hrs	Less than 6 Hrs	**2.7**
Wildfire	Likely	Limited	Moderate	Less than 6 Hrs	Less than 1 week	**2.8**
Winter Storm	Likely	Minor	Moderate	More than 24 Hrs	Less than 1 week	**2.2**

6.4.4 Final Risk Classifications

As summarized in **Table 6-36**, 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 6-36: Summary of Hazard Risk Classifications

High Risk (> 2.5)	Cybersecurity Severe Weather (Hail, Lightning, Wind) Excessive Heat Inland Flooding (100/500-year) Hurricane/Tropical Storm Drought Infectious Disease Wildfire Tornado
Moderate Risk (2.0 – 2.5)	Earthquake Winter Storm
Low Risk (< 2.0)	Dam/Levee Failure

SECTION 7: CAPABILITY ASSESSMENT

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

- 7.1 Overview
- 7.2 Conducting the Capability Assessment
- 7.3 Capability Assessment Findings
- 7.4 Conclusions on Local Capability

7.1 Overview

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

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

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

7.2 Conducting the Capability Assessment

To facilitate the inventory and analysis of local government capabilities within Bladen Columbus and Robeson counties, a detailed capability assessment was completed for each of the participating jurisdictions based on information found in existing hazard mitigation plans and local government websites. The assessment compiled information on various "capability indicators" including relevant planning regulatory practices (plans, programs, and ordinances), fiscal resources, administrative and technical capacity, and current political climate. These capability indicators provide insight into existing conditions that support and/or hinder the region's ability to implement hazard mitigation actions.

The standardized indicators used to assess capability promote an extensive inventory of existing local plans, ordinances, programs, and resources that are in place or underway in addition to their overall effect on hazard loss reduction. Additionally, this information can help identify gaps, weaknesses, or conflicts that counties and local jurisdictions can be addressed through newly proposed mitigation actions as part of the hazard mitigation strategy.

The information collected for the capability assessment was incorporated into a database for further analysis. A general scoring methodology was then applied to quantify each jurisdiction's overall capability. According to the scoring system, each capability indicator was assigned a point value based on its relevance to hazard mitigation. The scoring methodology is included in Appendix B: Planning Tools. Using this scoring methodology, a total score2 and an overall capability rating of "high," "moderate," or "limited" could be determined according to the total number of points received. These classifications are designed to provide a general assessment of local government capability. The results of this capability assessment help inform and the development of an effective and practical mitigation str

7.3 Capability Assessment Findings

The findings of the *Capability Assessment* are summarized in this Plan to provide insight into the relevant capacity of the Plan Area to implement hazard mitigation activities. All information is based upon the input provided by local government officials through the MAC.

7.3.1 Planning and Regulatory Capability

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

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

Table 7-1 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for the Region. Listed below are existing plans, studies, reports and technical information reviewed for plan development and update. Relevant information such as, hazard analysis, NFIP data, building codes, ordinances and communication procedures, existing data, and shared objectives were incorporated into the mitigation plan via coordination with relevant agencies, prioritizing hazards, prioritizing mitigation actions.

A checkmark (✓) indicates that the given item is currently in place and being implemented. An asterisk (*) indicates that the given item is currently being developed for future implementation. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the Hazard Mitigation Plan.

Table 7-1: Relevant Plans, Ordinances, and Programs

Jurisdiction	Hazard Mitigation Plan	Comprehensive Land Use Plan	Floodplain Management Plan	Open Space Management Plan	Stormwater Management Plan	Emergency Operations Plan	SARA Title III Plan	Radiological Emergency Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Transportation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Site Plan Review Requirements	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	Community Wildfire Protection Plan	National Flood Insurance Program	Community Rating System
Town of Bladenboro	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
Town of Clarkton	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
Town of Dublin	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓		✓	✓	✓	✓		
Town of Elizabethtown	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
Town of Chadbourn	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Town of Fair Bluff	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Town of Lake Waccamaw	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Town of Tabor City	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
City of Whiteville	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Robeson County	✓	✓	✓	✓		✓	✓						✓		✓	✓	✓	✓	✓			✓	✓		✓	
City of Lumberton	✓	✓	✓	✓	✓	✓						✓			✓	✓	✓	✓	✓			✓	✓		✓	
Town of Red Springs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Town of Fairmont	✓	✓	✓		✓	✓						✓	✓	✓	✓	✓	✓	✓				✓		✓	✓	
Town of Bolton	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	

Jurisdiction	Hazard Mitigation Plan	Comprehensive Land Use Plan	Floodplain Management Plan	Open Space Management Plan	Stormwater Management Plan	Emergency Operations Plan	SARA Title III Plan	Radiological Emergency Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Transportation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Site Plan Review Requirements	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	Community Wildfire Protection Plan	National Flood Insurance Program	Community Rating System
Bladen County	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
Town of Tar Heel	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓		✓	✓	✓	✓		
Columbus County	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Town of Brunswick	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Town of Cerro Gordo	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Town of Orrum	✓	✓	✓	✓		✓	✓						✓		✓		✓	✓	✓			✓	✓			
Town of Parkton	✓	✓	✓	✓		✓	✓						✓		✓	✓	✓	✓	✓			✓	✓		✓	
Town of Lumber Bridge	✓	✓	✓	✓		✓	✓						✓		✓		✓	✓	✓			✓	✓			
Town of White Lake	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
Town of East Arcadia	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
Town of Marietta	✓	✓	✓	✓		✓	✓						✓		✓		✓	✓	✓			✓	✓			
Town of Maxton	✓					✓						✓	✓			✓	✓	✓	✓			✓	✓		✓	
Town of Pembroke	✓	✓	✓	✓	✓											✓	✓	✓	✓	✓		✓	✓		✓	
Town of Saint Pauls	✓	✓	✓	✓		✓	✓						✓		✓	✓	✓	✓	✓			✓	✓		✓	
Town of Proctorville	✓	✓	✓	✓		✓	✓						✓		✓	✓	✓	✓	✓			✓	✓		✓	

Jurisdiction	Hazard Mitigation Plan	Comprehensive Land Use Plan	Floodplain Management Plan	Open Space Management Plan	Stormwater Management Plan	Emergency Operations Plan	SARA Title III Plan	Radiological Emergency Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Transportation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Site Plan Review Requirements	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	Community Wildfire Protection Plan	National Flood Insurance Program	Community Rating System
Town of Rowland	✓	✓	✓	✓		✓	✓						✓		✓		✓	✓	✓			✓	✓			
Town of Raynham	✓	✓	✓	✓		✓	✓						✓		✓		✓	✓	✓			✓	✓			
Town of Rennert	✓	✓	✓	✓		✓	✓						✓		✓	✓	✓	✓	✓			✓	✓		✓	
Town of Sandyfield	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Town of Boardman	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Town of McDonald	✓	✓	✓	✓		✓	✓						✓		✓		✓	✓	✓			✓	✓			

A more detailed discussion on the Region's planning and regulatory capability follows, along with the incorporation of additional information based on the narrative comments provided by local officials in response to the survey questionnaire.

7.3.1.1 Emergency Management

Hazard mitigation is widely recognized as one of the four primary phases of emergency management. The three other phases are preparedness, response, and recovery. In reality each phase is interconnected with hazard mitigation, as Figure 7-1 suggests. Opportunities to reduce potential losses through mitigation practices are most often implemented before a disaster event, such as elevation of flood-prone structures or through the continuous enforcement of policies that prevent and regulate development that is vulnerable to hazards because of its location, design, or other characteristics. Mitigation opportunities can also be identified during immediate preparedness or response activities (such as installing storm shutters in advance of a hurricane), and in many instances during the long-term recovery and redevelopment process following a disaster event.



Figure 7-1: The Four Phases of Emergency Management

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

Hazard Mitigation Plan

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

- 35 of the 35 participating jurisdictions in this regional planning effort have previously been covered by their county's multi-jurisdictional hazard mitigation plan.

Disaster Recovery Plan

A disaster recovery plan serves to guide the physical, social, environmental, and economic recovery and reconstruction process following a disaster event. In many instances, hazard mitigation principles and

practices are incorporated into local disaster recovery plans with the intent of capitalizing on opportunities to break the cycle of repetitive disaster losses. Disaster recovery plans can also lead to the preparation of disaster redevelopment policies and ordinances to be enacted following a hazard event.

- 11 of the 35 participating jurisdictions have a disaster recovery plan either in place or under development. (6 jurisdictions have one in place; 5 covered under a county plan)

Emergency Operations Plan

An emergency operations plan outlines responsibility and the means by which resources are deployed during and following an emergency or disaster.

- 34 of the 35 participating jurisdictions have an emergency operations plan either in place or are covered under a county plan. (19 jurisdictions have one in place; 16 covered under a county plan)

Continuity of Operations Plan

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

- 20 of the 35 participating jurisdictions have a continuity of operations plan in place.

7.3.1.2 General Planning

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

Comprehensive/General Plan

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

- 34 of the 35 participating jurisdictions have a comprehensive land use plan either in place or under development (18 jurisdictions have one in place; 16 covered under a county plan)

Capital Improvements Plan

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

- 23 of the 35 participating jurisdictions have a capital improvements plan in place or under development.

Historic Preservation Plan

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

- 3 of the 35 participating jurisdictions have an historic preservation plan in place or under development.

Zoning Ordinance

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

- 35 of the 35 participating jurisdictions have a zoning ordinance in place or under development.

Subdivision Ordinance

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

- 35 of the 35 participating jurisdictions have a subdivision ordinance in place or under development.

Building Codes, Permitting, and Inspections

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

- 35 of the 35 participating jurisdictions have building codes in place.

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

In conducting the assessment, ISO collects information related to personnel qualification and continuing education, as well as number of inspections performed per day. This type of information combined with local building codes is used to determine a grade for that jurisdiction. The grades range from 1 to 10,

with a BCEGS grade of 1 representing exemplary commitment to building code enforcement, and a grade of 10 indicating less than minimum recognized protection.

7.3.1.3 Floodplain Management

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

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

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

Table 7-2 provides NFIP policy and claim information for each participating jurisdiction in the Region.

Table 7-2: NFIP Policy and Claim Information

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance in Force	Written Premium in Force	Closed Losses	Total Payments
Bladen							
Bladen County (Unincorporated Area)	01/20/78	12/06/19	151	$37,376,000	$114,010	94	$5,501,977
Town of Bladenboro	11/30/73	12/06/19	26	$6,521,000	$52,017	29	$1,644,561
Town of Clarkton	12/07/73	02/16/07	6	$1,547,000	$3,930	3	$215,405
Town of East Arcadia	09/01/89	(NSFHA)	2	$372,000	$1,187	0	0
Town of Elizabethtown	12/21/73	02/16/07	11	$3,993,000	$7,736	4	$91,944
Town of White Lake	09/01/89	02/16/07	17	$5,202,000	$8,400	5	$168,177
Subtotal Bladen	-	-	*213*	*$55,011,000*	*$187,280*	*135*	*$7,622,064*
Robeson							
City of Lumberton	06/28/74	12/06/19	795	$207,062,000	$866,394	661	$36,729,431
Robeson County (Unincorporated Area)	07/28/78	12/06/19	400	$83,968,000	$319,851	410	$12,750,530
Town of Fairmont	02/15/74	01/05/07	10	$3,239,000	$9,636	7	$124,078
Town of Maxton	01/19/05	12/06/19	2	$663,000	$1,205	0	0
Town of Parkton	02/17/89	01/05/07	0	0	0	1	$3878
Town of Pembroke	01/19/05	12/06/19	16	$2,560,000	$10,313	5	$283,512
Town of Proctorville	01/19/05	01/05/07	0	0	0	0	0
Town of Red Springs	04/01/77	01/05/07	24	$7,374,000	$14,953	9	$117,063
Town of Rennert	01/19/05	01/05/07	0	0	0	0	0
Town of Saint Pauls	01/19/05	(NSFHA)	7	$1,699,000	$4,529	3	$29,595
Subtotal Robeson	-	-	*1,254*	*$306,565,000*	*$1,226,881*	*1,096*	*$50,038,087*
Columbus							
City of Whiteville	02/15/74	12/06/19	90	$21,319,000	$92,522	85	$4,344,004
Columbus County (Unincorporated Area)	06/19/78	12/06/19	239	$60,136,000	$170,892	176	$8,501,670

Town of Boardman	06/16/78	12/06/19	5	$869,000	$5,780	1	$23,360
Town of Bolton	03/08/74	02/16/07	1	$300,000	$586	1	$28,257
Town of Brunswick	06/02/06	(NSFHA)	2	$541,000	$1,491	1	$41,377
Town of Cerro Gordo	10/17/75	12/06/19	0	0	0	0	0
Town of Chadbourn	05/24/74	02/16/07	5	$1,240,000	$2,484	3	$47,288
Town of Fair Bluff	12/14/73	06/02/06	38	$9,258,000	$38,878	56	$3,444,993
Town of Lake Waccamaw	12/21/73	12/06/19	182	$48,813,000	$132,324	90	$3,202,985
Town of Sandyfield	06/16/78	12/06/19	1	$350,000	$448	0	0
Town of Tabor City	06/07/74	12/06/19	6	$675,000	$3,829	14	$249,941
Subtotal Columbus	-	-	*569*	*$143,501,000*	*$449,234*	*427*	*$19,883,875*
TOTAL PLAN	**-**	**-**	**2,036**	**$505,077,000**	**$1,863,395**	**1,658**	**$77,544,026**

Source: FEMA NFIP Policy Statistics as of June 3, 2025.

All jurisdictions listed above participate in the National Flood Insurance Program and will continue to comply with all required provisions of the program and work to adequately comply in the future utilizing a number of strategies. Floodplain management is managed through zoning ordinances, building code restrictions, and the county building inspection program. The jurisdictions will coordinate with NCEM and FEMA to develop maps and regulations related to Special Flood Hazard Areas within their jurisdictional boundaries and, through a consistent monitoring process, will design and improve their floodplain management program in a way that reduces the risk of flooding to people and property. Each county and its municipalities while participating in the National Flood Insurance Program comply with regulations as demonstrated in regular Community Assessment Visits.

Community Rating System

An additional indicator of floodplain management capability is the active participation of local jurisdictions in the Community Rating System (CRS). The CRS is an incentive-based program that encourages counties and municipalities to undertake defined flood mitigation activities that go beyond the minimum requirements of the NFIP, adding extra local measures to provide protection from flooding. All of the 18 creditable CRS mitigation activities are assigned a range of point values. As points are accumulated and reach identified thresholds, communities can apply for an improved CRS class. Class ratings, which range from 10 to 1, are tied to flood insurance premium reductions as shown in Table 7-3 As class ratings improve (the lower the number, the better), the percent reduction in flood insurance premiums for NFIP policyholders in that community increases.

Table 7-3: CRS Premium Discounts, By Class

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

Source: NFIP Community Rating System.

Community participation in the CRS is voluntary. Any community that is in full compliance with the rules and regulations of the NFIP may apply to FEMA for a CRS classification better than class 10. The CRS application process has been greatly simplified over the past several years, based on community comments intended to make the CRS more user friendly, and extensive technical assistance available for communities who request it. The City of Whiteville in Columbus County participates in the CRS Class 9.

Floodplain Management Plan

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

- 34 of the 35 participating jurisdictions have a floodplain management plan in place.

Flood Damage Prevention Ordinance

All communities participating in the NFIP are required to adopt a local flood damage prevention ordinance. All counties and municipalities participating in this hazard mitigation plan also participate in the NFIP and they all have adopted flood damage prevention regulations and have appointed floodplain managers to oversee enforcement and implementation of the ordinance. Each county and municipality have designated a floodplain manager that is responsible for enforcing the flood damage prevention ordinance.

- 27 of the 35 participating jurisdictions participate in the NFIP.

Open Space Management Plan

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

- 33 of the 35 participating jurisdictions have an open space management plan in place or under development.

Stormwater Management Plan

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

- 15 of the 35 participating jurisdictions have a stormwater management plan in place.

Substantial Damage Estimate Procedures

Properties in communities that participate in the NFIP that are determined to be “substantially damaged” following a flood event must be brought into compliance with the local flood damage prevention ordinance. Determination of substantial damage is a coordinated effort between emergency management, police and fire departments and permitting departments such as planning and building inspections departments. Substantial damage estimating procedures for participating jurisdictions are detailed below in Table 7-4.

Table 7-4: SDE Procedures of NFIP Communities

Jurisdiction	Local Floodplain Management Regulations	Designated Officials for SD/SI Determinations	Process Used to Make SD/SI Determinations	Communication Procedures for SD/SI Requirements
BLADEN COUNTY	The County maintains a county-wide Flood Damage Prevention Ordinance.	The County Planning Director is designated as the Floodplain Administrator.	Determination of substantial damage is a coordinated effort between Bladen County Emergency Management, Police and Fire Departments, Permitting Departments and all jurisdictions within the County that participate in the NFIP. Following a flood event, County Emergency Management staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by County staff and compliance with building codes and flood prevention ordinance required.
Bladenboro	The Town maintains a town-wide Flood Damage Prevention Ordinance.	The Town Administrator is designated as the Floodplain Administrator.	Determination of substantial damage is a coordinated effort between relevant Town staff and Bladen County Emergency Management, Police and Fire Departments, Permitting Departments. Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.

Jurisdiction	Local Floodplain Management Regulations	Designated Officials for SD/SI Determinations	Process Used to Make SD/SI Determinations	Communication Procedures for SD/SI Requirements
			applications.	
Clarkton	The Town participates in the NFIP.	Determination of substantial damage is a coordinated effort between relevant Town staff and Bladen County Emergency Management, Police and Fire Departments, Permitting Departments.	Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: d. Estimation of market value or obtaining appraisal e. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure f. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.
Dublin**	--	--	--	--
East Arcadia**	--	--	--	--
Elizabethtown	The Town maintains a town-wide Flood Damage Prevention Ordinance.	The Town Planner is designated as the Floodplain Administrator.	Determination of substantial damage is a coordinated effort between relevant Town staff and Bladen County Emergency Management, Police and Fire Departments, Permitting Departments. Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.
Tar Heel**	--	--	--	--

Jurisdiction	Local Floodplain Management Regulations	Designated Officials for SD/SI Determinations	Process Used to Make SD/SI Determinations	Communication Procedures for SD/SI Requirements
White Lake	The Town maintains a town-wide Flood Damage Prevention Ordinance.	The Town Zoning Inspector is designated as the Floodplain Administrator.	Determination of substantial damage is a coordinated effort between relevant Town staff and Bladen County Emergency Management, Police and Fire Departments, Permitting Departments. Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.
COLUMBUS COUNTY	The County maintains a county-wide Flood Damage Prevention Ordinance.	The County Manager is designated as the Floodplain Administrator.	Determination of substantial damage is a coordinated effort between Columbus County Emergency Management, Police and Fire Departments, Permitting Departments and all jurisdictions within the County that participate in the NFIP. Following a flood event, County Emergency Management staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by County staff and compliance with building codes and flood prevention ordinance required.
Boardman	The Town participates in the NFIP.	Determination of substantial damage is a coordinated	Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage	If work constitutes substantial improvement or

Jurisdiction	Local Floodplain Management Regulations	Designated Officials for SD/SI Determinations	Process Used to Make SD/SI Determinations	Communication Procedures for SD/SI Requirements
		effort between relevant Town staff and Columbus County Emergency Management, Police and Fire Departments, Permitting Departments.	assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.
Bolton	The Town participates in the NFIP.	Determination of substantial damage is a coordinated effort between relevant Town staff and Columbus County Emergency Management, Police and Fire Departments, Permitting Departments.	Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.
Cerro Gordo	The Town participates in the NFIP.	Determination of substantial damage is a coordinated effort between relevant Town staff and Columbus County Emergency Management, Police and Fire Departments, Permitting Departments.	Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.

Jurisdiction	Local Floodplain Management Regulations	Designated Officials for SD/SI Determinations	Process Used to Make SD/SI Determinations	Communication Procedures for SD/SI Requirements
			improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	
Chadbourn	The Town maintains a town-wide Flood Damage Prevention Ordinance.	The Town Manager is designated as the Floodplain Administrator.	Determination of substantial damage is a coordinated effort between relevant Town staff and Columbus County Emergency Management, Police and Fire Departments, Permitting Departments. Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.
Fair Bluff	The Town participates in the NFIP.	Determination of substantial damage is a coordinated effort between relevant Town staff and Columbus County Emergency Management, Police and Fire Departments, Permitting Departments.	As a member of the NFIP, Fair Bluff is required to have a Flood Damage Prevention Ordinance. It is likely the town adopted that of Columbus County (see above). Source: Fair-Bluff-Downtown-Flood-Retrofit-Summary-Report-1.pdf	It is likely the town adopted that of Columbus County (see above).
Lake Waccamaw	The Town maintains a town-wide Flood Damage Prevention Ordinance.	The Town Manager is designated as the Floodplain Administrator.	Determination of substantial damage is a coordinated effort between relevant Town staff and Columbus County Emergency Management, Police and Fire Departments, Permitting Departments. Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.

Jurisdiction	Local Floodplain Management Regulations	Designated Officials for SD/SI Determinations	Process Used to Make SD/SI Determinations	Communication Procedures for SD/SI Requirements
			obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	
Sandyfield	The Town participates in the NFIP.	Determination of substantial damage is a coordinated effort between relevant Town staff and Columbus County Emergency Management, Police and Fire Departments, Permitting Departments.	Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.
Tabor City	The Town maintains a town-wide Flood Damage Prevention Ordinance.	The Town Manager is designated as the Floodplain Administrator.	Determination of substantial damage is a coordinated effort between relevant Town staff and Columbus County Emergency Management, Police and Fire Departments, Permitting Departments. Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.

Jurisdiction	Local Floodplain Management Regulations	Designated Officials for SD/SI Determinations	Process Used to Make SD/SI Determinations	Communication Procedures for SD/SI Requirements
			This process involves comparing the damage assessment information with permit applications.	
Whiteville	The City maintains a city-wide Flood Damage Prevention Ordinance and participates in the CRS (Class 9).	The City Manager is designated as the Floodplain Administrator.	Determination of substantial damage is a coordinated effort between relevant City staff and Columbus County Emergency Management, Police and Fire Departments, Permitting Departments. Following a flood event, City staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by City staff and compliance with building codes and flood prevention ordinance required.
ROBESON COUNTY	The County maintains a county-wide Flood Damage Prevention Ordinance.	The County Building Codes Administrator is designated as the Floodplain Administrator.	Determination of substantial damage is a coordinated effort between Robeson County Emergency Management, Police and Fire Departments, Permitting Departments and all jurisdictions within the County that participate in the NFIP. Following a flood event, County Emergency Management staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by County staff and compliance with building codes and flood prevention ordinance required.

Jurisdiction	Local Floodplain Management Regulations	Designated Officials for SD/SI Determinations	Process Used to Make SD/SI Determinations	Communication Procedures for SD/SI Requirements
Fairmont	The Town maintains a town-wide Flood Damage Prevention Ordinance.	The Town Manager is designated as the Floodplain Administrator.	Determination of substantial damage is a coordinated effort between relevant Town staff and Robeson County Emergency Management, Police and Fire Departments, Permitting Departments. Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.
Lumberton	The City maintains a city-wide Flood Damage Prevention Ordinance.	The City Planning Director is designated as the Floodplain Administrator.	Determination of substantial damage is a coordinated effort between relevant City staff and Robeson County Emergency Management, Police and Fire Departments, Permitting Departments. Following a flood event, City staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: d. Estimation of market value or obtaining appraisal e. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure f. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by City staff and compliance with building codes and flood prevention ordinance required.
Lumber Bridge**	--	--	--	--
Marietta**	--	--	--	--
Maxton	The Town	Determination of	Following a flood event, Town staff (along	If work constitutes

Jurisdiction	Local Floodplain Management Regulations	Designated Officials for SD/SI Determinations	Process Used to Make SD/SI Determinations	Communication Procedures for SD/SI Requirements
	Participates in the NFIP.	substantial damage is a coordinated effort between Town staff and Robeson County Emergency Management, Police and Fire Departments, Permitting Departments.	with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.
McDonald**	--	--	--	--
Orrum**	--	--	--	--
Parkton	The Town does maintain a town-wide Flood Damage Prevention Ordinance.	Determination of substantial damage is a coordinated effort between Town staff and Robeson County Emergency Management, Police and Fire Departments, Permitting Departments.	Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.
Pembroke	The Town participates in the NFIP.	Determination of substantial damage is a coordinated effort between Town staff and Robeson County Emergency Management, Police and Fire Departments, Permitting Departments.	Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.

Jurisdiction	Local Floodplain Management Regulations	Designated Officials for SD/SI Determinations	Process Used to Make SD/SI Determinations	Communication Procedures for SD/SI Requirements
			damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	
Proctorville	The Town participates in the NFIP.	Determination of substantial damage is a coordinated effort between Town staff and Robeson County Emergency Management, Police and Fire Departments, Permitting Departments.	Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.
Raynham**	--	--	--	--
Red Springs	The Town maintains a town-wide Flood Damage Prevention Ordinance.	Determination of substantial damage is a coordinated effort between Town staff and Robeson County Emergency Management, Police and Fire Departments, Permitting Departments.	Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.
Rennert	The Town participates in the NFIP.	Determination of substantial damage is a coordinated effort between Town	Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged	If work constitutes substantial improvement or repair of substantial

Jurisdiction	Local Floodplain Management Regulations	Designated Officials for SD/SI Determinations	Process Used to Make SD/SI Determinations	Communication Procedures for SD/SI Requirements
		staff and Robeson County Emergency Management, Police and Fire Departments, Permitting Departments.	structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.
Rowland**	--	--	--	--
St. Pauls	The Town maintains a town-wide Flood Damage Prevention Ordinance.	Determination of substantial damage is a coordinated effort between Town staff and Robeson County Emergency Management, Police and Fire Departments, Permitting Departments.	Following a flood event, Town staff (along with other County, municipal and mutual aid staff as needed) conduct damage assessments and collect data on damaged structures. Substantial damages/improvements determined by Floodplain Administrator with Building Official coordination using the following process: a. Estimation of market value or obtaining appraisal b. Cost comparison to improve, to repair a damaged building to pre-damaged condition, or combined, vs. market value of building/structure c. Determination of whether work constitutes substantial improvement/repair of damage This process involves comparing the damage assessment information with permit applications.	If work constitutes substantial improvement or repair of substantial damage, applicants are notified by Town staff and compliance with building codes and flood prevention ordinance required.

***Community does not participate in the NFIP.*

7.3.2 Administrative and Technical Capability

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

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

identification of available staff and personnel resources. *Local Capability Assessment Survey* was used to capture information on administrative and technical capability through the identification of available staff and personnel resources.

Table 7-4 provides a summary of the *Local Capability Assessment Survey* results for the Plan Area with regard to relevant staff and personnel resources. A checkmark indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill.

Table 7-4: Relevant Staff/Personnel Resources

Jurisdiction	Planners with knowledge of land development and land management practices	Engineers or professionals trained in construction practices related to buildings and/or infrastructure	Planners or engineers with an understanding of natural and/or human-caused hazards	Building Official	Emergency manager	Floodplain manager	Land surveyors	Scientist familiar with the hazards of the community	Staff with education or expertise to assess the community' s vulnerability to hazards	Personnel skilled in Geographic Information Systems (GIS) and/or HAZUS	Resource development staff or grant writers	Maintenance programs to reduce risk	Warning systems/services	Mutual Aid Agreements
Town of Bladenboro														
Town of Clarkton														
Town of Dublin	✓	✓		✓	✓	✓					✓	✓		✓
Town of Elizabethtown														
Town of Chadbourn														
Town of Fair Bluff	✓										✓			✓
Town of Lake Waccamaw														
Town of Tabor City														
City of Whiteville	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Robeson County	✓			✓	✓	✓			✓	✓	✓		✓	✓
City of Lumberton	✓	✓	✓	✓	✓	✓			✓			✓		✓
Town of Red Springs	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Town of Fairmont					✓				✓		✓	✓	✓	✓

Jurisdiction	Planners with knowledge of land development and land management practices	Engineers or professionals trained in construction practices related to buildings and/or infrastructure	Planners or engineers with an understanding of natural and/or human-caused hazards	Building Official	Emergency manager	Floodplain manager	Land surveyors	Scientist familiar with the hazards of the community	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in Geographic Information Systems (GIS) and/or HAZUS	Resource development staff or grant writers	Maintenance programs to reduce risk	Warning systems/services	Mutual Aid Agreements
Town of Bolton														
Bladen County	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Town of Tar Heel														
Columbus County	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓		✓
Town of Brunswick														
Town of Cerro Gordo														
Town of Orrum														
Town of Parkton														
Town of Lumber Bridge														
Town of White Lake														
Town of East Arcadia														
Town of Marietta														
Town of Maxton					✓							✓		✓
Town of Pembroke						✓			✓		✓	✓	✓	✓
Town of Saint Pauls														

Jurisdiction	Planners with knowledge of land development and land management practices	Engineers or professionals trained in construction practices related to buildings and/or infrastructure	Planners or engineers with an understanding of natural and/or human-caused hazards	Building Official	Emergency manager	Floodplain manager	Land surveyors	Scientist familiar with the hazards of the community	Staff with education or expertise to assess the community' s vulnerability to hazards	Personnel skilled in Geographic Information Systems (GIS) and/or HAZUS	Resource development staff or grant writers	Maintenance programs to reduce risk	Warning systems/services	Mutual Aid Agreements
Town of Proctorville														
Town of Rowland														
Town of Raynham														
Town of Rennert														
Town of Sandyfield														
Town of Boardman														
Town of McDonald														

7.3.3 Fiscal Capability

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

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

Table 7-5 provides a summary of the results for the Plan Area with regard to relevant fiscal resources. A checkmark indicates that the given fiscal resource is locally available for hazard mitigation purposes (including match funds for state and federal mitigation grant funds).

Table 7-5: Relevant Fiscal Resources

Jurisdiction	Capital Improvement Programming	Community Development Block Grants (CDBG)	Special Purpose Taxes	Gas/Electric Utility Fees	Water/Sewer Fees	Stormwater Utility Fees	Development Impact Fees	General Obligation Bonds	Revenue Bonds	Special Tax Bonds	Other
Town of Bladenboro											
Town of Clarkton											
Town of Dublin		✓			✓						
Town of Elizabethtown											
Town of Chadbourn											
Town of Fair Bluff		✓			✓						
Town of Lake Waccamaw											
Town of Tabor City											
City of Whiteville	✓	✓			✓	✓					
Robeson County		✓			✓			✓			
City of Lumberton	✓	✓	✓	✓	✓	✓					
Town of Red Springs	✓	✓	✓	✓	✓		✓	✓			
Town of Fairmont		✓		✓	✓	✓					

Jurisdiction	Capital Improvement Programming	Community Development Block Grants (CDBG)	Special Purpose Taxes	Gas/Electric Utility Fees	Water/Sewer Fees	Stormwater Utility Fees	Development Impact Fees	General Obligation Bonds	Revenue Bonds	Special Tax Bonds	Other
Town of Bolton											
Bladen County	✓	✓			✓					✓	
Town of Tar Heel											
Columbus County	✓				✓		✓				
Town of Brunswick											
Town of Cerro Gordo											
Town of Orrum											
Town of Parkton											
Town of Lumber Bridge											
Town of White Lake											
Town of East Arcadia											
Town of Marietta											
Town of Maxton	✓	✓	✓		✓						
Town of Pembroke	✓	✓	✓		✓	✓	✓	✓	✓	✓	
Town of Saint Pauls											
Town of Proctorville											
Town of Rowland											
Town of Raynham											
Town of Rennert											
Town of Sandyfield											
Town of Boardman											
Town of McDonald											

Source: Local Capability Assessment Survey.

7.3.4 Education and Outreach Capability

This type of local capability refers to education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information. Examples include natural disaster or safety related school programs; participation in community programs such as Firewise or StormReady; and activities conducted as part of hazard awareness campaigns such as a Tornado Awareness Month.

Table 7-6 provides a summary of the results for the Plan Area with regard to relevant education and outreach resources. A checkmark indicates that the given resource is locally available for hazard mitigation purposes.

Table 7-6: Education and Outreach Resources

Jurisdiction	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Natural disaster or safety related school programs	Storm Ready certification	Firewise Communities certification	Public-private partnership initiatives addressing disaster-related issues	Other
Town of Bladenboro							
Town of Clarkton							
Town of Dublin		✓					
Town of Elizabethtown							
Town of Chadbourn							
Town of Fair Bluff		✓				✓	
Town of Lake Waccamaw							
Town of Tabor City							
City of Whiteville	✓	✓	✓			✓	
Robeson County	✓	✓	✓	✓			
City of Lumberton	✓	✓				✓	
Town of Red Springs	✓	✓	✓	✓	✓	✓	✓
Town of Fairmont	✓						
Town of Bolton							
Bladen County	✓	✓				✓	
Town of Tar Heel							
Columbus County	✓	✓					

Jurisdiction	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Natural disaster or safety related school programs	Storm Ready certification	Firewise Communities certification	Public-private partnership initiatives addressing disaster-related issues	Other
Town of Brunswick							
Town of Cerro Gordo							
Town of Orrum							
Town of Parkton							
Town of Lumber Bridge							
Town of White Lake							
Town of East Arcadia							
Town of Marietta							
Town of Maxton							
Town of Pembroke		✓					
Town of Saint Pauls							
Town of Proctorville							
Town of Rowland							
Town of Raynham							
Town of Rennert							
Town of Sandyfield							
Town of Boardman							
Town of McDonald							

7.3.5 Political Capability

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

The *Local Capability Assessment Survey* was used to capture information on political capability of the Plan Area. Survey respondents were asked to identify some general examples of local political capability, such as guiding development away from identified hazard areas, restricting public investments or capital improvements within hazard areas, or enforcing local development standards that go beyond minimum state or federal requirements (e.g., building codes, floodplain management, etc.).

In addition to the inventory and analysis of specific local capabilities, the *Local Capability Assessment Survey* asked counties and local jurisdictions within the Plan Area to conduct a self-assessment of their perceived capability to implement hazard mitigation activities. As part of this process, local officials were encouraged to consider the barriers to implementing proposed mitigation strategies in addition to the mechanisms that could enhance or further such strategies. In response to the survey questionnaire, county officials classified each of the aforementioned capabilities as either "limited," "moderate," or "high."

Table 7-8 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 35, which falls into the moderate capability ranking.

Table 7-7 summarizes the results of the self-assessment for the Plan Area.

Table 7-7: Self-Assessment of Capability

Jurisdiction	Plans, Ordinances, Codes and Programs	Administrative and Technical Capability	Fiscal Capability	Education and Outreach Capability	Political Capability	Overall Capability
Town of Bladenboro	High	High	Limited	Moderate	High	High
Town of Clarkton	High	High	Limited	Moderate	High	High
Town of Dublin	Limited	Limited	Limited	Limited	Limited	Limited
Town of Elizabethtown	High	High	Limited	Moderate	High	High
Town of Chadbourn	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Town of Fair Bluff	Moderate	Limited	Limited	Limited	Moderate	Moderate
Town of Lake Waccamaw	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

Jurisdiction	Plans, Ordinances, Codes and Programs	Administrative and Technical Capability	Fiscal Capability	Education and Outreach Capability	Political Capability	Overall Capability
Town of Tabor City	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
City of Whiteville	High	High	Moderate	Moderate	High	High
Robeson County	High	High	High	High	High	High
City of Lumberton	High	High	Moderate	Moderate	Moderate	Moderate
Town of Red Springs	High	High	Moderate	High	High	High
Town of Fairmont	Moderate	Moderate	Limited	Limited	Moderate	Moderate
Town of Bolton	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Bladen County	High	High	Limited	Moderate	High	High
Town of Tar Heel	High	High	Limited	Moderate	High	High
Columbus County	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Town of Brunswick	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Town of Cerro Gordo	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Town of Orrum	High	High	High	High	High	High
Town of Parkton	High	High	High	High	High	High
Town of Lumber Bridge	High	High	High	High	High	High
Town of White Lake	High	High	Limited	Moderate	High	High
Town of East Arcadia	High	High	Limited	Moderate	High	High
Town of Marietta	High	High	High	High	High	High
Town of Maxton	Limited	Moderate	Moderate	Limited	Moderate	Moderate
Town of Pembroke	Moderate	Moderate	Moderate	Limited	Moderate	Moderate
Town of Saint Pauls	High	High	High	High	High	High
Town of Proctorville	High	High	High	High	High	High
Town of Rowland	High	High	High	High	High	High

Jurisdiction	Plans, Ordinances, Codes and Programs	Administrative and Technical Capability	Fiscal Capability	Education and Outreach Capability	Political Capability	Overall Capability
Town of Raynham	High	High	High	High	High	High
Town of Rennert	High	High	High	High	High	High
Town of Sandyfield	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Town of Boardman	High	High	High	High	High	High
Town of McDonald	High	High	High	High	High	High

7.4 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 7-8 shows the results of the *Capability Assessment* using the designed scoring methodology. The capability score is based solely on the information provided by local officials in response to the *Local Capability Assessment Survey.* According to the assessment, the average local capability score for all responding jurisdictions is 62.69, which falls into the High capability ranking.

Table 7-8: Capability Assessment Results

Jurisdiction	Overall Capability Score	Overall Capability Rating
Bladen County	**78**	**High**
City of Lumberton	58	Moderate
City of Whiteville	82	High
Columbus County	**65**	**High**
Robeson County	**59**	**Moderate**
Town of Bladenboro	78	High
Town of Boardman	65	High
Town of Bolton	65	High
Town of Brunswick	65	High
Town of Cerro Gordo	65	High
Town of Chadbourn	65	High
Town of Clarkton	78	High
Town of Dublin	57	Moderate

Jurisdiction	Overall Capability Score	Overall Capability Rating
Town of East Arcadia	78	High
Town of Elizabethtown	78	High
Town of Fair Bluff	49	Moderate
Town of Fairmont	44	Moderate
Town of Lake Waccamaw	65	High
Town of Lumber Bridge	59	Moderate
Town of Marietta	59	Moderate
Town of Maxton	40	Moderate
Town of McDonald	59	Moderate
Town of Orrum	59	Moderate
Town of Parkton	59	Moderate
Town of Pembroke	58	Moderate
Town of Proctorville	59	Moderate
Town of Raynham	59	Moderate
Town of Red Springs	89	High
Town of Rennert	59	Moderate
Town of Rowland	59	Moderate
Town of Saint Pauls	59	Moderate
Town of Sandyfield	65	High
Town of Tabor City	65	High
Town of Tar Heel	78	High
Town of White Lake	78	High

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 Regional Hazard Mitigation Plan and outlines all of the goals and strategies that will be implemented at the county and municipal level. This chapter also describes how the MAC met the mitigation strategy requirements from the 10-step planning process. This chapter consists of the following subsections:

- 8.1 Mitigation Strategy Overview
- 8.2 Goals
- 8.3 Identification and Analysis of Mitigation Actions

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 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. All strategies relating to regional initiatives were developed through this planning process. The modifications of these plan elements was based on the direction and input of the MAC and a range of stakeholders. All actions have been updated and are intended to reflect the current needs and desires of the MAC. The mitigation strategies developed through the planning process will be implemented at the county, and in some cases, municipal level. Bladen, Columbus and Robeson Counties will take the lead in undertaking all strategies outlined in this plan, with support and assistance from all participating jurisdictions.

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 MAC 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.

As the MAC worked through the development of this action plan, the group focused on six primary mitigation focus areas for the Region, as well as each participating jurisdiction. These focus areas define the various aspects of mitigation and provide guidance toward the development of a truly comprehensive solution to mitigation planning.

1. **Prevention Mechanisms** include regulatory methods such as planning and zoning, building regulations, open space planning, land development regulations, and stormwater management.
2. **Property Protection** actions diminish the risk of structural damage through acquisition of land, relocation of buildings, modifying high-risk structures, and floodproofing high-risk structures.

3. **Natural Resource Protection** can soften hazard impacts through mechanisms such as erosion and sediment control or wetlands protection.
4. **Emergency Services** measures include warning, response capabilities, Town critical infrastructures protection (with emphasis on new and existing buildings and infrastructure), and health and safety maintenance.
5. **Structural Mitigation** controls natural hazards through projects such as reservoirs, levees, diversions, channel modifications and storm sewers.
6. **Public Education** includes providing hazard maps and information, outreach programs, real estate disclosure, technical assistance and education.

8.1.1 Mitigation Plan Progress

Public Participation

All participating jurisdictions work very closely with citizens to provide programs and support that will improve the Region's resiliency to natural disasters. Over the last five years, the Region has taken significant steps to improve upon existing emergency service functions and programs. The public was an integral part in carrying out all of these efforts. All issues relating to emergency management policy and programs have been thoroughly discussed with the Counties' Board of Commissioners and Town/City governing bodies. Specifically, the public has been involved in discussions relating to regulatory tools, mitigation, and emergency services through County Planning Board and Board of Commissioners meetings. All meetings are locally advertised and open to the public. Through this Hazard Mitigation Plan update, the MAC intends to expand public outreach efforts, as outlined in the updated strategies.

Monitoring and Evaluation

The Region has and will continue to utilize the information within this document for day-to-day planning efforts. Through monitoring the status of the existing Mitigation Plan, the Region has improved upon the data utilized throughout this document. The Counties' administration maintains a dialogue with its Board of Commissioners and municipal representatives regarding mitigation/ emergency management issues and provides the public with information when deemed necessary.

Incorporation of Mitigation Plan into Other Planning Mechanisms

Over the last five years, the Region has made several land development policy amendments. The information and strategies outlined within the existing HMPs were factored into discussions during the development of these documents. This coordination ensures that information outlined in the hazard mitigation plan is carrying over into land use policy. Additionally, the Region reviewed their Flood Damage Prevention Ordinances to ensure compliance with current standards, including review and adoption of updated Flood Insurance Rate Maps. All entities also considered the HMP during decisions relating to capital expenditures, such as infrastructure improvements (with emphasis on new and existing buildings and infrastructure). No changes in development that has occurred in hazard prone areas has impacted the any of the jurisdictions' overall vulnerability.

Mitigation Strategy Progress

Over the last five years, each jurisdiction participating in this update process has implemented mitigation strategies at both the County and municipal levels. Through these implementation efforts, each jurisdiction has strengthened its respective mitigation program, as well as improved the resiliency of its respective community. A status report of the existing mitigation actions is provided in Section 9 - Mitigation Action Plan.

8.2 Goals

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 the Region 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 ensures that recommended actions are consistent with what is appropriate for the communities and the hazards identified in the plan. Mitigation goals reflect community priorities and should be consistent with other plans in the community. Priorities have not changed since the plan was previously approved.

The overall hazard mitigation planning effort is focused on providing the Region with an action plan that will strive toward the achievement of the goals outlined below. In order to establish this plan, the MAC decided that the best approach would be to define goals to guide the identification of specific strategies. In taking this approach, the goals as defined in the previous plans have been redefined. The overall intent is consistent; however, the language and content of the statements has been slightly modified as outlined in Section 8.2.3.

The following provides definitions of how goals and implementing strategies relate to one another:

- **Goals**: A broad-based statement of intent that establishes the direction for the Hazard Mitigation Plan. Goals state desired outcomes for the overall implementation process.
- **Implementing Strategies**: A project-specific strategy aimed at mitigation and involving a specific entity, interest, and funding mechanism.

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 Compliance with NFIP/CRS

Given the flood hazards in the planning area, an emphasis will be placed on compliance with the NFIP and participation in the CRS. As a function of implementing this plan, all participating NFIP communities will consider joining the CRS Program through actions such as: adoption and enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs); Floodplain identification and mapping, including any local requests for map updates; or; Description of community assistance and monitoring activities.

8.2.3 Resulting Goals

As noted, goals are statements of desirable future conditions that are to be achieved. They are broad in scope and assist in setting community priorities. The following goals will provide the basis for the implementation strategies that will be included in this section, some of which are already being

administered and implemented locally. These goals consider the strategic goals outlined in the existing plan.

Goal #1

Promote the public health, safety, and general welfare of residents and minimize public and private losses due to natural hazards.

Goal #2

Reduce the risk and impact of future natural disasters by regulating development in known high hazard areas.

Goal #3

Pursue funds to reduce the risk of natural hazards to existing developments where such hazards are clearly identified, and the mitigation efforts are cost-effective.

Goal #4

Effectively expedite post-disaster reconstruction.

Goal #5

Provide education to citizens that will empower them to protect themselves and their families from natural hazards.

Goal #6

Protect the fragile natural and scenic areas of the Region, particularly those areas that protect drinking water supplies.

8.3 Identification and Analysis of Mitigation Actions

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.

8.3.1 Prioritization Process

The actions in the following table have been ranked based on a cost-benefit review conducted by the MAC through the planning process. Each implementing action has been assigned 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.

Strategies will be implemented earlier if resources are available. It should also be noted that projects or initiatives given low priority may be ultimately contingent upon grant funding. In devising the strategies outlined in this section, the MAC took the following factors into consideration:

- The strategy will solve the problem it is intended to solve or begin to develop a solution.
- The strategy meets at least one community mitigation goal.
- The strategy complies with all laws and regulations.
- The strategy is cost-beneficial.
- The community implementing the strategy has (or will have) the capability to do so.
- The strategy is environmentally sound.
- The strategy is technically feasible.
- The strategy will further the County's standing in the NFIP.

In accordance with the DMA requirements, an emphasis was placed on the importance of a benefit-cost analysis in determining action priority. The MAC reviewed each potential statement based on the overall benefit in relation to the financial and staff resources required for implementation.

Table 9.1 provides a detailed breakdown of specific mitigation actions that will aid the Region and all participating jurisdictions in furthering the goals discussed throughout this section of the plan. These actions are intended to address activities to be achieved over the next five years. Subsequent to this period, the MAC will revisit these actions as outlined within Section 10, Plan Maintenance.

SECTION 9: MITIGATION ACTION PLAN

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.

Section 9 presents the mitigation action plan developed for each participating jurisdiction. The action plan was developed to present the recommendations developed by the MAC 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 for this plan update.**

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 these projects. Rather this mitigation strategy represents the desires of each community to mitigate the risks and vulnerabilities from identified hazards.

Acronyms provided in the funding source column of Table 9.1 are defined as follows:

- GF - General Fund
- SR - Staff Resources
- UHMA - Unified Hazard Mitigation Assistance (HMGP and FMA)
- PA - Public Assistance
- USACE - US Army Corps of Engineers
- NCDEQ - NC Department of Environmental Quality
- NCDOT - NC Department of Transportation
- NCDPS - NC Department of Public Safety
- NCDPH - NC Division of Public Health
- NCCE - NC Cooperative Extension
- NCFS - NC Forest Service
- ARC - American Red Cross

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:

Low: Less than 2 years
Medium: 2-5 years High:

High: Greater than 5 years

Table 9-1: New/Updated Mitigation Action Plan

Action Number	Description	Project Status (2025)	Goal Addressed (see p. 8-4)	Hazards Addressed	Priority	Responsible Party/Dept.	Funding Sources	Cost Estimate	Timeframe
Bladen County and all Participating Jurisdictions (Bladenboro, Clarkton, Dublin, East Arcadia, Elizabethtown, Tarheel, White Lake)									
B-1	Bladen County and all jurisdictions will review the County's Comprehensive Land Use Plan annually to ensure that the Future Land Use Map adequately delineates portions[N P] of the County deemed unsuitable for development due to existing environmental conditions.	Ongoing and to be continued, the Land Use Plan is reviewed by Bladen County on a yearly basis to ensure that future land use is suitable for development.	1, 2, 6	Inland Flooding, Wildfire, Hurricane/Tropical Storm	Medium	• Bladen County Planning • Municipal Administrations • Bladen County MAC	GF	Low	Low
B-2	Bladen County, as well as all municipal jurisdictions participating in the NFIP program (Bladen County (unincorporated), Bladenboro, Clarkton, East Arcadia, Elizabethtown, and White Lake) will review their respective Flood Damage Prevention Ordinances to assess whether any revision and/or updates have been mandated by FEMA or NCEM. Additionally, jurisdictions will consider whether regulatory options are available to provide for more effective floodplain management.	To be continued, Bladen County is currently elevating properties that are in the floodplain and acquiring repetitive loss properties due to flooding.	1, 2, 6	Inland Flooding	Medium	• Bladen County Planning • Municipal Administrations • Governing Boards	GF, NCDPS	Low	Low
P-3	Bladen County, as well as all participating municipal jurisdictions, will continue to enforce the NC State Building Code. Local Government Inspections Staff will recertify the NC State Building Code as the adopted local regulation applying to all construction activities on an annual basis. Through enforcement of the NC State Building Code, all jurisdictions will work to ensure that all structures, including manufactured homes, are properly anchored to minimize potential impacts stemming from a disaster event.	Ongoing and to be continued, Bladen County adheres to all NC building code regulations and attends con-ed to stay current with all changes.	2	Dam/Levee Failure, Inland Flooding, Hurricane/Tropical Storm, Severe Weather, Wildfire	High	• Bladen County Building Inspections • Municipal Administrations	GF	Low	Low
B-4	Bladen County, including all municipal jurisdictions participating in the NFIP program, (Bladenboro, Clarkton, Elizabethtown) will maintain and update local Flood Insurance Rate Maps (FIRM) on the County Geographic Information System (GIS). These maps will be reviewed and formally updated as revisions become available through the North Carolina Floodplain Mapping Program.	Ongoing and to be continued, Bladen County continues to maintain all FIRM maps to remain eligible with NFIP.	1, 2	Inland Flooding	Medium	• Bladen County Planning • Municipal Administrations • Governing Boards	GF, NCDPS	Medium	Low
B-5	Bladen County will consider establishing a freeboard requirement for all development located within a defined flood hazard area. (Refer to municipal strategy statements for their respective freeboard requirement, if applicable)	To be continued, Bladen County continues to enforce a 2-foot free board following the Bladen County floodplain ordinance.	1, 2	Inland Flooding	High	• Bladen County Building Inspections • Municipal Administrations • Governing Boards	GF	Medium	High
B-6	All participating jurisdictions shall maintain all FEMA Elevation Certificates in an effort to track structures that are built in full compliance with NFIP standards (this is not required by the NFIP program).	To be continued, the Bladen County Planning Department and Building Inspections Dept. maintain copies of all elevation Certificates.	1, 2	Inland Flooding	High	• Individual Inspections • Individual Planning	GF	Medium	Low
B-7	Bladen County and all its municipalities will consider the data and recommendations outlined within this plan when preparing or updating a Capital Improvements Plan. All recommendations regarding capital expenditures will focus on siting infrastructure and public facilities outside of the Flood Hazard Area.	To be continued, Bladen County continues to address recommendations of this plan in developing CIP during the budget process when funding is available.	1, 2	Inland Flooding	Medium	• Bladen County Administration • Bladen County Board of Commissioners	GF	Medium	Medium
B-8	Bladen County will continue to maintain all property acquired within the SFHA as undisturbed open space in perpetuity. The County will continue to	In progress. To date Bladen County has acquired 2 properties with more in the works. Bladen County	1, 2, 6	Inland Flooding	High	• Bladen County Board of Commissioners • Bladen County Planning	GF, PDM, HMGP	Medium	High

Action Number	Description	Project Status (2025)	Goal Addressed (see p. 8-4)	Hazards Addressed	Priority	Responsible Party/Dept.	Funding Sources	Cost Estimate	Timeframe
	proactively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative.	maintains all acquired properties through grant funded acquisitions.							
B-9	Bladen County, in conjunction with all municipal jurisdictions participating in the Bladen Columbus Robeson Hazard Mitigation Plan, will update it at least every 5 years.	Ongoing and to be Continued, Bladen County continues to work on 5-year updates.	1, 2, 3, 4, 5, 6	All Hazards	High	• Bladen County Emergency Services • Bladen County Planning	GF, UHMA, NCDPS	Low	Medium
B-10	Bladen County will continue to proactively seek out grant funding, when deemed necessary, through NCEM and FEMA to mitigate repetitive loss properties (RLP) from future flooding events. The County will maintain a list of RLPs, and on an annual basis will apply for funding for all structures that meet cost- benefit thresholds as defined by FEMA. Bladen County will assist all municipal jurisdictions in working through the structural mitigation grant funding process.	To be continued, Bladen County maintains a repetitive loss property list and is actively working with grant funding to address said properties.	1, 2	Inland Flooding	Medium	• Bladen County Planning • Bladen County Board of Commissioners • Municipal Administrations	GF, UHMA, NCDPS	Low	Low
B-11	Bladen County, as well as all participating municipal jurisdictions, will coordinate with NCDEQ to enforce all NC State Erosion and Sedimentation Control Regulations.	To be continued, Bladen County works with NCDEQ to enforce laws.	2, 3	Dam/Levee Failure, Inland Flooding, Wildfire	Medium	• Bladen County Planning • Municipal Administrations • NCDEQ	GF, NCDEQ, USACE	Low	Medium
B-12	Bladen County and all participating jurisdictions will continue to expand upon the Alert Emergency Notification System available to all residents. Bladen County Emergency Services will coordinate with all municipal jurisdictions regarding registration through the Bladen County Emergency Notification Registration Portal.	To be continued. All jurisdictions will continue to expand emergency alert functions to residents in all jurisdictions. Bladen County currently has Code Red reverse 911 system. About 2000-3000 are currently registered.	1, 4, 5	All Hazards	Medium	• Bladen County Emergency Services • Municipal Administrations	GF, NCDPS	High	Low
B-13	Bladen County and all participating jurisdictions will consider all of the data, information, maps and recommendations outlined throughout this hazard mitigation plan when developing all new critical facilities sites. This consideration will consider the data and maps developed through this planning effort. All hazards will be considered during the course of this analysis.	To be continued. All jurisdictions will continue to incorporate hazard mitigation data into relevant planning mechanisms for all hazards. To be continued, Bladen County does take into consideration this plan when developing new properties.	1, 2, 3, 4, 6	All Hazards	High	• Bladen County Administration • Bladen County Planning • Municipal Administrations	GF, NCDPS	Low	Low
B-14	Bladen County Emergency Services, in conjunction with annual EOP updates, will determine if access to all critical facilities is readily available in the event of a flooding event. Careful consideration should be given to localized flooding issues that may restrict access along limited access thoroughfares. Where access issues are identified, Bladen County will establish a plan for alternative transportation.	To be continued, Bladen County will allow access to critical facilities in the event of flooding and other disasters. Alternate access ways can be established.	1, 4, 5	All Hazards	High	• Bladen County Emergency Services • NCEM	GF, NCDPS	Medium	Medium
B-15	Bladen County will continue to maintain the County's Continuity of Operations (COP). This effort will include an annual update addressing risk management, service retention, alternative staffing procedures and recovery checklists for each County department.	To be continued, the COP plan is reviewed annually.	4, 5	All Hazards	High	• Bladen County Administration • Bladen County Board of Commissioners	GF, NCDPS	Low	Low
B-16	Bladen County Emergency Services will review and update the County Emergency Operations Plan on an annual basis. This update will involve	To be continued and ongoing, Bladen County EOP is reviewed and updated annually.	1, 4, 5	All Hazards	Medium	• Bladen County Emergency Services • Municipal Administrations	GF, NCDPS	Low	Low

Action Number	Description	Project Status (2025)	Goal Addressed (see p. 8-4)	Hazards Addressed	Priority	Responsible Party/Dept.	Funding Sources	Cost Estimate	Timeframe
	coordination with all municipalities to ensure that all emergency contacts are accurate.								
B-17	Bladen County, in coordination with all participating municipalities, will work to expand upon the County's Special Medical Needs Registry (SMNR). The SMNR is available to all County Residents; effective participation will require close cooperation between County ESD and local government staff members. All jurisdictions will work to advertise the availability of this service through channels deemed to be effective within their respective community.	To be continued and ongoing, Bladen EM works with Social Services and Health Dept. to identify the special needs population.	1, 4, 5	All Hazards	High	• Bladen County Emergency Services • Municipal Administrations • Governing Boards	GF, NCDPS, ARC	Low	Low
B-18	Bladen County and participating municipalities will operate in a support role to the American Red Cross in the operation of emergency shelters.	To be Continued, Bladen County works with schools and the Red Cross to establish shelters.	1, 4	All Hazards	High	• American Red Cross • Bladen County Emergency Services • Municipal Administrations • Governing Boards	GF, NCDPS, ARC	Medium	Low
B-19	Bladen County will continue to maintain the County's Local Emergency Planning Committee (LEPC) focused on monitoring the presence and proliferation of hazardous materials throughout the County. The LEPC and County staff will continue to utilize E-Plan to monitor these materials. Bladen County supports efforts of the State of NC to develop an alternative to the Federal E-Plan system.	Action to be deleted. Hazmat is not included as a hazard in this plan.	1, 4	HazMat	Medium	• Bladen County Emergency Services	GF, NCDEQ	Medium	Low
B-20	Bladen County and all jurisdictions will consider methods of providing back up power to critical facilities through systems, such as generators.	To be continued and ongoing. Opportunities for new backup power are always under consideration and funding will be sought as available.	1, 4	All Hazards	Medium	• Bladen County Emergency Services	GF, UHMA	High	Low
B-21	Bladen County will continue to provide detailed information regarding properties located within flood hazard areas, including maintaining all FIRMs on the County Geographic Information System (GIS).	To be continued and ongoing, GIS continues to maintain the flood areas on the GIS mapping system.	1, 2, 5	Inland Flooding	High	• Bladen County Building Inspections • Bladen County Planning • Municipal Administrations	GF	High	Low
B-22	Bladen County will continue to maintain a library of materials focused on educating citizens, builders, realtors and developers about the dangers associated with floodplain development. This information will include material outlining sound techniques for floodplain development and floodproofing of existing structures. The County will also maintain staff educated in these issues to work with prospective builders.	To be continued, Bladen County Building Inspections Dept. will work with builders and homeowners on dangers of flood plain building.	1, 2, 5	Inland Flooding	High	• Bladen County Building Inspections • Bladen County Planning • Municipal Administrations	GF, NCDPS	Medium	Low
B-23	Bladen County will continue to work with real estate agents to encourage education for prospective buyers about development within a flood hazard area.	To be continued and ongoing, Bladen County Building Inspections works to educate area agents.	1, 2, 5	Inland Flooding	Medium	• Bladen County Planning • Municipal Administrations	GF, NCDPS	Medium	Low
Columbus County and all Participating Jurisdictions (Boardman, Bolton, Brunswick, Cerro Gordo, Chadbourn, Fair Bluff, Lake Waccamaw, Sandyfield, Tabor, Whiteville)									
C-1	Columbus County will review the County's Comprehensive Land Use Plan annually to ensure that the Future Land Use Map adequately delineates portions of the County deemed unsuitable for development due to existing environmental conditions.	To be continued and ongoing, Land Use Plan is reviewed every year and will continue to be reviewed.	1, 2, 6	Inland Flooding, Wildfire	Medium	• Columbus County Planning • Municipal Administrations • Columbus County MAC	GF	Low	Low

Action Number	Description	Project Status (2025)	Goal Addressed (see p. 8-4)	Hazards Addressed	Priority	Responsible Party/Dept.	Funding Sources	Cost Estimate	Timeframe
C-2	Columbus County, as well as all municipal jurisdictions participating in the NFIP program, will review their respective Flood Damage Prevention Ordinances to assess whether any revision and/or updates have been mandated by FEMA or NCEM. Additionally, jurisdictions will consider whether regulatory options are available to provide for more effective floodplain management, including ensuring that all structures in flood prone areas are built at or above base flood elevation and consideration of low impact design.	To be continued and ongoing, Flood Ordinances are reviewed every year and will continue to be reviewed.	1, 2	Inland Flooding	Low	• Columbus County Planning • Municipal Administrations • Governing Boards	GF, NCDPS	Low	Medium
C-3	Columbus County and all municipalities with flood hazard areas will evaluate the cost-effectiveness of participation in the CRS program.	To be continued and ongoing, evaluation occurs annually.	1, 2	Inland Flooding	Low	• Columbus County Emergency Services • Municipal Administrations	GF, NCDPS	Low	Low
C-4	Columbus County, as well as all participating municipal jurisdictions, will continue to enforce the NC State Building Code. Local Government Inspections Staff will recertify the NC State Building Code as the adopted local regulation applying to all construction activities on an annual basis. Through enforcement of the NC State Building Code, jurisdictions will work to ensure that all structures, including manufactured homes, are properly anchored to minimize potential impacts stemming from a disaster event.	To be continued and ongoing, Code enforcements occur daily.	2	Dam/Levee Failure, Inland Flooding, Hurricane/Tropical Storm, Tornado, Severe Weather Wildfire	High	• Columbus County Building Inspections • Municipal Administrations	GF	Medium	High
C-5	Columbus County, including all municipal jurisdictions participating in the NFIP program, will maintain and update local GIS Flood Insurance Rate Maps (FIRM). These maps will be reviewed and formally updated as revisions become available through the North Carolina Floodplain Mapping Program.	To be continued and ongoing. FIRMS are updated as needed.	1, 2	Inland Flooding	High	• Columbus County Planning • Municipal Administrations • Governing Boards	GF, NCDPS	Medium	Medium
C-6	Columbus County will maintain a GIS layer which identifies county-wide evacuation routes.	To be continued and ongoing. GIS information is updated annually.	1, 4, 5	All Hazards	Medium	• Columbus County Management Information Systems	GF, NCDPS	High	Medium
C-7	Columbus County will consider establishing a freeboard requirement for all development located within a defined flood hazard area. (Refer to municipal strategy statements for their respective freeboard requirement, if applicable).	Deferred: This action continues to be evaluated as staff time and funding allows.	1, 2	Inland Flooding	Medium	• Columbus County Building Inspections • Municipal Administrations • Governing Boards	GF	Low	High
C-8	Columbus County and all municipal jurisdictions will consider the data and recommendations outlined within this plan when preparing or updating Capital Improvements Plans. All recommendations regarding capital expenditures will focus on siting infrastructure and public facilities outside of the Flood Hazard Area.	Deferred: This action continues to be evaluated as staff time and funding allows.	1, 2	Inland Flooding	Medium	• Columbus County Administration • Municipal Administration • Governing Boards	GF	Medium	Low
C-9	Columbus County will increase public education as it relates to hazards with development and implementation of “lightning safety” training for coaches, referees, schools, pools, and parks.	Deferred: This action continues to be evaluated as staff time and funding allows.	1, 5	Severe Weather, Tornado	Medium	• Columbus County Parks and Recreation • Columbus County Emergency Services	GF, NCDPS	Medium	Low
C-10	Columbus County will educate on fire prevention by using Fire Administration and Forestry Resources.	Deferred: This action continues to be evaluated as staff time and funding allows.	1, 5	Wildfire	Low	• Columbus County Fire Marshal’s Office • NC Forest Service - Columbus Co. Office	GF, NCFS	Medium	Medium

Action Number	Description	Project Status (2025)	Goal Addressed (see p. 8-4)	Hazards Addressed	Priority	Responsible Party/Dept.	Funding Sources	Cost Estimate	Timeframe
C-11	Columbus County and all municipal jurisdictions will continue to proactively seek out grant funding, when deemed necessary, through NCEM and FEMA to mitigate repetitive loss properties (RLP) from future flooding events. The County and affected municipalities will maintain lists of RLPs, and on an annual basis will apply for funding for all structures that meet cost-benefit thresholds as defined by FEMA. Columbus County will assist all municipal jurisdictions in working through the structural mitigation grant funding process.	Deferred: This action continues to be evaluated as staff time and funding allows.	2, 3	Inland Flooding	Low	• Columbus County Planning • Columbus County Board of Commissioners Municipal Administrations	GF, UHMA, NCDPS	Medium	Low
C-12	Columbus County, as well as all participating municipal jurisdictions, will coordinate with NCDEQ to enforce all NC State Erosion and Sedimentation Control Regulations.	Deferred: This action continues to be evaluated as staff time and funding allows.	1, 2, 6	Dam/Levee Failure, Inland Flooding	Medium	• Columbus County Planning • Municipal Administration • NCDENR	GF, NCDEQ	Low	Low
C-13	Columbus County and all participating jurisdictions will continue to expand upon the CODE RED alert system available to all residents. Columbus County Emergency Services will coordinate with all municipal jurisdictions regarding registration for this system to warn for all hazards.	To be continued and ongoing. All jurisdictions will continue to expand emergency alert functions to residents in all jurisdictions. Columbus County currently has Code Red reverse911 system. About 2000-3000 are currently registered.	4, 5	All Hazards	Medium	• Columbus County Emergency Services • Municipal Administrations	GF, NCDPS	High	High
C-14	Columbus County and all participating jurisdictions will consider all data, information, maps and recommendations outlined throughout this plan when siting for the development of all new critical facilities. This consideration will consider the data and maps developed through this planning effort. All hazards will be considered during the course of this analysis.	To be continued and ongoing. All jurisdictions will continue to incorporate hazard mitigation data into relevant planning mechanisms for all hazards. Columbus County does take into consideration this plan when developing new properties.	2, 4, 6	All Hazards	High	• Columbus County Administration • Columbus County Planning • Municipal Administrations	GF, NCDPS	Low	Low
C-15	Columbus County will continue to maintain and update annually its EOP, POD, and CRDP plans.	To be continued, plans are updated every year.	4, 5	All Hazards	High	• Columbus County Emergency Services	GF, NCDPS	Low	Low
C-16	Columbus County Emergency Services, in conjunction with annual EOP updates, will determine if access to all critical facilities is readily available in the event of a flooding event.	To be continued and ongoing. Careful consideration was given to localized flooding issues that may restrict access along limited access thoroughfares. Where access issues are identified, Columbus County will establish a plan for alternative transportation.	1, 4, 5	Inland Flooding	Low	• Columbus County Emergency Services • NCEM	GF, NCDPS	Low	Low
C-17	Columbus County will annually evaluate shelters and identify back up shelters in accordance with American Red Cross standards.	Deferred: This action continues to be evaluated as staff time and funding allows.	4	All Hazards	Medium	• Columbus County Planning • Municipal Administrations	GF, ARC, NCDPS	Low	Low
C--18	Columbus County will consider preparing a Continuity of Operations Plan (COP). This effort will include an annual update addressing risk management, service retention, alternative staffing procedures and recovery checklists for each County department.	Deferred: This action continues to be evaluated as staff time and funding allows.	4	All Hazards	High	• Columbus County Administration • Columbus County Board of Commissioners	GF, NCDPS	Low	Low

Action Number	Description	Project Status (2025)	Goal Addressed (see p. 8-4)	Hazards Addressed	Priority	Responsible Party/Dept.	Funding Sources	Cost Estimate	Timeframe
C-19	Columbus County will continue to utilize the County's Special Need Registry (SNR). The SNR is available to all County Registrants. All jurisdictions will work to advertise the availability of this service through channels deem to be effective within their respective community.	To be continued and ongoing. Registry updated annually.	1, 4, 5	All Hazards	Medium	• Columbus County Emergency Services	GF, NCDPS	Low	Low
C-20	Columbus County Emergency Services will review, update, and exercise the County Emergency Operations Plan on an annual basis. This update will involve coordination with all municipalities to ensure that all emergency contacts are accurate.	To be continued and ongoing. EOP reviewed and exercised every year.	1, 4, 5	All Hazards	High	• Columbus County Emergency Services • Municipal Administrations	GF, NCDPS	Low	Low
C-21	Columbus County and all municipal jurisdictions will continue to provide detailed information regarding properties located within flood hazard areas on GIS floodplain/wetlands maps maintained by the County.	To be continued and ongoing. Property database continues to be maintained.	1, 2, 5	Inland Flooding	Medium	• Columbus County Building Inspections • Columbus County Planning • Municipal Administrations	GF	High	High
C-22	Columbus County will continue to maintain a library of materials focused on educating citizens, builders, realtors and developers about all the hazard dangers associated with all disaster events. Copies of the material will be available to the municipalities. The County will also maintain staff educated in these issues to work with prospective builders.	To be continued: This information included material outlining sound techniques for floodplain development, floodproofing of existing structures, and the CERT and "Turn Around, Don't Drown" programs are currently progress.	1, 4, 5	All Hazards	Medium	• Columbus County Building Inspections • Columbus County Planning • Municipal Administrations	GF, NCDPS	Medium	High
C-23	Columbus County will continue to work with real estate agents to ensure that prospective buyers are educated about development within a flood hazard area.	To be continued. Building Inspections works with area real estate agents annually.	1, 2, 5	Inland Flooding	Medium	• Columbus County Planning • Municipal Administrations	GF, NCDPS	Low	Low
C-24	Columbus County will use CDC and FEMA materials to educate the public on heat/safety issues.	Deferred: No measurable progress has been made due to lack of funding and staffing.	1, 5	Excessive Heat	Medium	• Columbus County Emergency Services • Municipal Administrations	GF, NCDPS	Low	Low
Tabor City Actions									
C-25	Implement drainage improvement projects to reduce stormwater related flooding.	New action for the 2025 plan.	1, 3	Inland Flooding	High	• Tabor City Staff	FEMA, NCDPS, GF	High	High
C-26	Identify areas most at risk for flooding and investigate strategies to reduce those risks.	New action for the 2025 plan.	1, 3	Inland Flooding	High	• Tabor City staff	FEMA, NCDPS, GF	Medium	High
Robeson County and all Participating Jurisdictions (Fairmont, Lumberton, Lumber Bridge, Marietta, Maxton, McDonald, Orrum, Parkton, Pembroke, Proctorville, Raynham, Red Springs, Rennert, Roland, St. Pauls									
R-1	Require a finished floor elevation certificate for all development within the special flood hazard area (SFHA) within both incorporated and unincorporated portions of the County. All elevation certificates should be submitted on an official FEMA elevation certificate. No certificate of occupancy shall be issued for any development within a defined special flood hazard area without the submittal of the required elevation certificate.	In progress. The planning department and Building Inspections Dept. maintain copies of all elevation certificates.	1, 2, 4, 5	Dam/Levee Failure, Inland Flooding, Hurricane/Tropical Storm	High	• Robeson County • Inspections Dept., City of Lumberton • Inspections Dept.	GF NCDPS	High	Low

Action Number	Description	Project Status (2025)	Goal Addressed (see p. 8-4)	Hazards Addressed	Priority	Responsible Party/Dept.	Funding Sources	Cost Estimate	Timeframe
R-2	Maintain a map information service involving the following: • Provide information relating to Flood Insurance Rate Maps (FIRM) to all inquirers, including provision of information on whether a given property is located within a flood hazard area. • Provide information regarding the flood insurance purchase requirements. • Maintain historical **and** current FIRMs. • Advertise once annually in the local newspaper. • Provide information to inquirers about local floodplain management requirements.	To be continued. As of 2025, the county has utilized technology to develop an automated system that coordinates information on plans, development, roadways, and other information. As information continues to change, the county will need to update the system; Task will remain in the plan.	1, 2, 4, 5	Dam/Levee Failure, Inland Flooding, Hurricane/Tropical Storm	High	• Robeson County, • City of Lumberton Inspections Dept.	GF NCDPS	High	Low
R-3	Robeson County will work with local real estate agencies to ensure that agents are informing clients when property for sale is located within an SFHA. The County will provide these agencies with brochures documenting the concerns relating to development located within flood prone areas and ways that homeowners may make their homes more disaster resistant to strong winds, lightning, and heavy rains.	In progress. Building Inspections works with this information to educate area agents.	1, 2, 5	Inland Flooding, Hurricane/Tropical Storm, Severe Weather, Tornado	Medium	• Robeson County, • City of Lumberton Inspections Dept.	GF NCDPS	Medium	Low
R-4	Robeson County and all participating jurisdictions will make information regarding all hazards available through some of the following: • Ensuring that local library maintains information related to all profiled hazards. • Providing a link(s) to FEMA or other resources covering all profiled hazards, disaster preparedness, and post-disaster recovery. • Posting the HMP on the County/City websites.	In progress and ongoing. The County and all jurisdictions have developed a project website for HMP purposes.	1, 2, 4, 5	All Hazards	High	• Robeson County, • City of Lumberton	GF NCDPS	Medium	High

R-5	Robeson County will provide comprehensive services regarding planning and development activities within the defined SFHA and issues relating to the construction of disaster resistant structures.	To be continued. These services will include (as needed): • Providing site-specific flood and flood-related information on an as-needed basis. • Maintaining a list of contractors with experience in floodproofing and retrofitting techniques. • Providing information on wind proofing construction methods for new and renovated structures. • Maintaining materials that provide an overview of how to select a qualified contractor. • Making site visits upon request to review occurrences of flooding, drainage problems, and sewer problems. When applicable, the inspector should provide one-on-one advice to the property owner. • Advertising the availability of this service once annually within the local newspaper. • Maintaining a log of all individuals assisted through this County service, including all site visits.	1, 2, 5, 6	Earthquake, Inland Flooding, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Storm	High	• Robeson County, • City of Lumberton	GF NCDPS	Medium	Medium
R-6	Robeson County will continue to maintain all property acquired within the SFHA as undisturbed open space in perpetuity. The County will continue to proactively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative.	To be continued and ongoing. To date, Robeson County has acquired 2 properties with more in the works. The County maintains all acquired properties through grant funded acquisitions.	1, 2, 4, 6	Dam/Levee Failure, Inland Flooding, Hurricane/Tropical Storm	High	• Robeson County, • Municipalities' Administration, FEMA	GF NCDPS UHMA PA	Medium	Medium

Action Number	Description	Project Status (2025)	Goal Addressed (see p. 8-4)	Hazards Addressed	Priority	Responsible Party/Dept.	Funding Sources	Cost Estimate	Timeframe
R-7	Robeson County will develop and maintain a comprehensive Geographic Information System (GIS) with current FIRM panels, land use, wildfire risk and other mitigation related information in an effort to make thisinformation readily available to County citizens. In addition to this digital data, bound copies of all historical and current FIRM panels will be maintained within the Robeson County Planning Department.	In progress and to be continued. The County continues to maintain all FIRM maps to remain eligible with NFIP.	1, 2, 5, 6	Dam/Levee Failure, Inland Flooding, Hurricane/Tropical Storm, wildfire	High	• Robeson County, • Municipalities' Administration	GF NCDPS	High	Medium
R-8	Robeson County, in conjunction with all municipal jurisdictions participating in this hazard plan update, will work on the five-year implementation of the plan. At the end of the five-year period, the Region will again update the plan.	To be continued. Robeson County continues to work on 5-year updates.	1, 2, 3, 4, 5, 6	All Hazards	High	• Robeson County, • Municipalities' • Administration	GF NCDPS FEMA PDM HMGP	Medium	Medium
R-9	Robeson County will continue to support the NC Office of Dam Safety efforts to monitor and inspect all dams throughout the County, as well as the State of North Carolina. The County relies on this agency to ensure that all dam facilities, both public and private, are properly maintained and stable.	To be continued. Support occurs as needed.	1, 2, 3, 5	Dam/Levee Failure, Inland Flooding, Hurricane/Tropical Storm	High	• Robeson County, • Municipalities' • Administration	GF NCDPS	Medium	Medium

R-10	Robeson County and all participating jurisdictions will consider participation in the Community Rating System (CRS) Program. The County will lead this effort with the assistance of each participating jurisdiction.	Deferred: No measurable progress due to lack of funding and staff.	1, 2, 4, 5, 6	Dam/Levee Failure, Inland Flooding, Hurricane/Tropical Storm	Medium	• Robeson County, • Municipalities' • Administration, NCDPS, • CRS	GF NCDPS FEMA	Medium	High
R-11	Robeson County Emergency Management will continue to work closely with the American Red Cross on the management and, when necessary, operation of emergency shelter facilities within the County. The County will operate only in a support role in dealing with individual shelter issues.	To be continued. Support occurs as needed.	1, 2, 4, 5, 6	All Hazards	High	• Robeson County, • Municipalities' Administration, • NCDPS, • Department of Social • Services, • American Red Cross	GF NCDPS ARC	Low	Low
R-12	Robeson County and all participating jurisdictions will work with the American Red Cross and will attempt to obtain funding for locating switches to support existing generators at all emergency shelter locations.	Deferred: No measurable progress due to lack of funding and staff.	1,2,4,5,6	All Hazards	High	• Robeson County, • Municipalities' • Administration, NCDPS, • Department of Social Services, • American Red Cross	GF NCDPS ARC	Low	Medium
R-13	Robeson County and all participating jurisdictions will continue to maintain and exercise the County Reverse 911 system that will assist the County in notifying residents of impending inclement weather or other potentially hazardous situations. This effort includes efforts to expand upon the number of residents registered. This system benefits all residents as a warning system for all hazards.	To be continued. Approximately 2,000 residents registered.	1, 2, 3, 5	All Hazards	High	• Robeson County, • Municipalities' Administration	GF NCDPS	High	High
R-14	Robeson County Emergency Management will continue to coordinate with the County Public Works Department, as well as all municipalities, regarding the monitoring of water resources statewide. When necessary, the County will institute measures to conserve water resources according to the County's Drought Management Plan.	To be continued and ongoing. Monitoring occurs daily. Conservation occurs as needed.	2, 5, 6	Drought, Excessive Heat	High	• Robeson County, • Municipalities' Administration	GF NCDPS	Low	Medium

Action Number	Description	Project Status (2025)	Goal Addressed (see p. 8-4)	Hazards Addressed	Priority	Responsible Party/Dept.	Funding Sources	Cost Estimate	Timeframe
R-15	Robeson County, as well as participating jurisdictions, will continue to host/attend the Hurricane Preparedness Expo conducted annually. This expo assists the community in preparing for the effects of severe weather and provides the preliminary planning steps required for effective post-disaster recovery.	Ongoing and to be continued. The County attends annually.	1, 2, 4, 5, 6	Dam/Levee Failure, Inland Flooding, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Storm	High	• Robeson County, • Municipalities' • Administration	GF	High	Low
R-16	Robeson County, as well as all participating jurisdictions, will maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM.	In Progress. 25% complete.	1, 2, 3, 4, 5, 6	All Hazards	High	• Robeson County, • Municipalities' • Administration	GF NCDPS HMGP FEMA	High	High

R-17	Robeson County and all participating jurisdictions will assist all communities within the County, including property owners in unincorporated areas, in applying for FEMA-sponsored mitigation grant assistance programs such as HMGP, PDM and FMA. Eligible activities may include: • Property acquisition, structure demolition or relocation, structure elevation • Reconstruction • Dry floodproofing • Flood reduction projects • Building retrofits (structural and non-structural) • Safe room construction and/or Wind retrofits • Soil stabilization • Wildfire mitigation • Post-disaster code enforcement • Generators • Hazard mitigation planning	To be continued. County and jurisdictions provide support as needed when grants become available.	1, 2, 3, 5, 6	All Hazards	High	• Robeson County, • Municipalities' • Administration, NCDPS	GF NCDPS HMGP, FEMA	Medium	High
R-18	Robeson County and all participating jurisdictions will seek grant funding for mitigation opportunities eligible under the most current version of the UHMA Guidance and Public Assistance 406 Mitigation Guidance at the time of application. Projects could include acquisition, elevation, mitigation reconstruction, and wet/dry flood proofing to commercial and/or residential structures as applicable; redundant power to critical facilities, wind retrofits to critical facilities, storm shelters and other activities that reduce to the loss of life and property.	This action remain ongoing and to be continued as new funding opportunities arise.	1, 3	All Hazards	High	• Emergency Management, • Engineering and/or • Planning Departments of each jurisdiction	HMGP, FEMA	Medium	High
R-19	Conduct federally required levee assessment. Address stormwater management requirements if City is included in Phase II stormwater requirements. Conduct stream bank stabilization projects on critical sections of Meadow Branch, Pole Cat Branch, Ivey's Branch, and Five Mile Branch. Begin snagging operations on Saddletree Swamp. Conduct snagging and sediment removal on Little Juniper Branch and Gum Swamp Branch. Continue current and increase future street sweeping program. Complete final phase of sanitary sewer/storm sewer separation project.	In Progress. 25% complete.	1, 2, 4, 5	Dam/Levee Failure, Inland Flooding, Hurricane/Tropical Storm, Severe Weather, Tornado, Winter Storm	High	• Robeson County, • City of Lumberton Administration	GF NCDPS HMGP FEMA	Medium	Medium
City of Lumberton									
R-20	Staff and equipment will be on standby and ready for use on an "as needed" basis by all other departments.	Ongoing and to be continued. Available as needed.	1, 2, 3, 4, 5, 6	All Hazards	High	• City of Lumberton • Administration	GF NCDPS	Low	Low

SECTION 10: PLAN MAINTENANCE

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.

This Chapter provides an overview of the overall strategy for plan implementation, 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 Implementation
- 10.2 Plan Integration
- 10.3 Role of the MAC in Implementation and Maintenance
- 10.4 Monitoring, Evaluating, and Updating
- 10.5 Continued Public Involvement

10.1 Implementation and Incorporation

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. Implementation of the Hazard Mitigation Plan will commence with adoption of the document by all participating jurisdictions. Resolutions of Adoption are provided in Appendix A of the plan.

Upon adoption, this Hazard Mitigation Plan faces the truest test of its worth – implementation. Implementation implies two closely related concepts: action and priority. While this plan puts forth many worthwhile and high priority recommendations, the first task facing the Mitigation Advisory Committee (MAC) is the decision about which action to undertake first. There are two factors to consider in making that decision: the priority of the item and available funding. Thus, pursuing low or no-cost high-priority recommendations will have the greatest likelihood of success. Central to the success of this plan is the need for regional coordination regarding implementation of some of the mitigation strategies.

Another highly effective and low-cost implementation mechanism is incorporation of the hazard mitigation plan recommendations and their underlying principles into other county and municipal plans and regulatory mechanisms, such as Capital Improvements Plans and Land Use Plans. The Counties and participating municipalities will utilize this plan as a starting point toward implementing policies and programs to reduce losses to life and property from natural hazards. Bladen, Columbus and Robeson Counties will be charged with ensuring implementation of strategies specific to its jurisdiction. If these efforts require intergovernmental coordination, the MAC should also be involved. If a strategy has been documented as regional, all participating jurisdictions should assist in carrying out the function and/or strategy.

10.2 Plan Integration

Mitigation is most successful when it is incorporated into the day-to-day functions and priorities of government and development. This integration is accomplished by constant efforts to network, identify, and highlight the multi-objective benefits to each program and its stakeholders. This effort is achieved through the routine actions of monitoring implementation efforts, attending meetings, and promoting a safe, sustainable community. Additional mitigation strategies could include consistent and

ongoing enforcement of existing policies and review of county and municipal programs for coordination and multi- objective opportunities.

Along with these efforts, it is important to maintain a constant monitoring of funding opportunities that can be leveraged to implement some of the more costly recommended actions. This process will include creating and maintaining ideas on how any required local match or participation requirement can be met. When funding does become available, MAC members will be in a position to capitalize on the opportunity for their respective jurisdictions. Funding opportunities to be monitored include special pre- and post- disaster funds, special district budgeted funds, state or federal earmarked funds, and grant programs, including those that can serve or support multi-objective implementing actions.

The MAC, which will meet at a minimum annually, will provide a mechanism for ensuring that the actions identified in this plan are incorporated into ongoing County and municipal planning activities for each participating jurisdiction. The participating jurisdictions currently utilize comprehensive land use planning and building codes to guide and control development in the communities. After all participating jurisdictions adopt the Hazard Mitigation Plan, these existing mechanisms will have hazard mitigation strategies integrated into them. The communities will utilize the planning tools outlined in Section 7 – Capability Assessments

After the adoption of the HMP, the participating jurisdictions will work with the State Building Code office to make sure the jurisdictions adopt and enforce the minimum standards established in the new State Building Code. This effort will ensure that life/safety criteria are met for new construction. These efforts will be carried out by the Regional MAC, as well as each respective County MAC.

The capital improvements planning that may occur in the future will also contribute to the goals in the HMP. The jurisdictions will work with capital improvements planners to secure high-hazard areas for low risk uses. During the HMP planning/implementation period, each participating jurisdiction will strive for the objective of formal adoption of the HMP policies.

10.3 Role of the MAC in Implementation and Maintenance

With adoption of this plan, the MAC will be tasked with plan implementation and maintenance. The MAC, led by the Director of Emergency Services of Bladen County, the Director of Emergency Services of Columbus County, and the Emergency Management Assistant Director of Robeson County , agree to:

- Act as a forum for hazard mitigation issues;
- Disseminate hazard mitigation ideas and activities to all participants;
- Pursue the implementation of high-priority, low/no-cost recommended actions;
- Keep the concept of mitigation in the forefront of community decision-making by identifying plan recommendations when other community goals, plans, and activities overlap, influence, or directly affect increased community vulnerability to disasters;
- Continuously monitor multi-objective cost-share opportunities to help the community implement the plan's recommended actions for which no current funding exists;
- Monitor and assist in implementation and update of this plan;
- Report on plan progress and recommended changes to the County Board of Commissioners; and
- Inform and solicit input from the public.

The MAC will not have any powers over County or municipal staff personnel; it will be a purely advisory body. Its primary duty is to see the plan successfully carried out and to report to the community governing boards and the public on the status of plan implementation and mitigation opportunities for the county and participating municipal jurisdictions. Other duties include reviewing and promoting

mitigation proposals, considering stakeholder concerns about hazard mitigation, passing concerns on to appropriate entities, and posting relevant information on the County websites.

10.4 Monitoring, Evaluating, and Updating

Since the previous plan was adopted, each jurisdiction has worked to ensure that Plan was integrated into local activities and that the Plan was appropriately implemented. Each of the jurisdictions outlined a process in the previous mitigation plan for monitoring, evaluating and updating the plan throughout the interim period between plan updates. Each jurisdiction was ultimately successful in implementing the monitoring, evaluation and updating processes that were outlined in previous plan as jurisdictions held annual meetings to discuss the mitigation plan and the priorities that were outlined and tracked in it. The specific process is outlined below with an explanation of how the monitoring, evaluating and updating process was and will be carried out as well as any changes that were identified by the jurisdictions that would be useful to implement during the next update.

Plan maintenance implies an ongoing effort to monitor and evaluate plan implementation and to update the plan as progress, roadblocks, or changing circumstances are recognized. In order to track progress and update the mitigation strategies identified in the policy section of the plan, the MAC will revisit this plan on an annual basis and after a hazard event. The Bladen County Director of Emergency Services, Columbus County Director Emergency Services, and Robeson County Emergency Management Assistant, acting as chairs of the MAC, are responsible for initiating this review and will consult with members of the MAC. This monitoring and updating will take place through a formal review by the MAC annually, and a five- year interval written update to be submitted to the NCEM and FEMA Region 4, unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule.

The Plan will be thoroughly reviewed by the MAC every five years to determine whether there have been any significant changes in the region that may, in turn, necessitate changes in the types of mitigation actions proposed. New development in identified hazard areas, an increased exposure to hazards, an increase or decrease in capability to address hazards, and changes to federal or state legislation are examples of factors that may affect the necessary content of the Plan. The plan review provides county and municipal officials with an opportunity to evaluate those actions that have been successful and to explore the possibility of documenting potential losses avoided due to the implementation of specific mitigation measures. The plan review also provides the opportunity to address mitigation actions that may not have been successfully implemented as assigned. They will be responsible for reconvening the MAC and conducting the five-year review. During the five-year plan review process, the following questions will be considered as criteria for assessing the effectiveness and appropriateness of the Plan:

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

Evaluation of progress can be achieved by monitoring changes in vulnerabilities identified in the plan. Changes in vulnerability can be identified by noting:

- Decreased vulnerability as a result of implementing recommended actions;
- Increased vulnerability as a result of failed or ineffective mitigation actions; and/or

- Increased vulnerability as a result of new development (and/or annexation).

Updates to this plan will:

- Consider changes in vulnerability due to project 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 County inventories; and
- Incorporate new project recommendations or changes in project prioritization.

Evaluation Process

In order to best evaluate any changes in vulnerability as a result of plan implementation, the MAC will use the following process:

- A representative from the responsible office identified in each mitigation strategy will be requested to report on an annual basis to the MAC on project status and provide input on whether the project as implemented meets the defined objectives and is likely to be successful in reducing vulnerabilities.
- If the project does not meet identified objectives, the MAC may recommend additional measures to be implemented, and an assigned individual will be responsible for defining project scope, implementing the project, monitoring success of the project, and making any required modifications to the plan.

Changes will be made to the plan to accommodate for projects that have failed or are not considered feasible after a review for their consistency with established criteria, the time frame, county priorities, and/or funding resources. Priorities that were identified as potential mitigation strategies will be reviewed as well during the monitoring and update of this plan to determine feasibility of future implementation.

Updating of the plan will be accomplished by written changes and submissions as the MAC deems appropriate and necessary, and as approved by the Board of Commissioners or the participating municipalities' governing boards, if applicable. In keeping with the process of adopting the plan, a public involvement process to receive public comment on plan maintenance and updating will be held annually, and the final product will be adopted by the Counties and all participating municipalities. The plan will be updated every 5 years, as required.

10.5 Continued Public Involvement

Public participation is an integral component to the new mitigation planning process and will continue to be essential as the Hazard Mitigation Plan evolves over time. Significant changes or amendments to the Plan shall require the involvement of the general community as deemed appropriate.

Efforts to involve the general community in the plan maintenance, implementation, monitoring, evaluation, and review process will be made as necessary. These efforts may include:

- Advertising meetings of the MAC with invitation for public participation;
- Designating knowledgeable and willing members of the community to serve as official representatives on the MAC;

- Utilizing local media to update the community of any maintenance and/or periodic review activities taking place;
- Utilizing the Bladen, Columbus and Robeson Counties' government website to advertise any maintenance and/or periodic review activities taking place; and
- Keeping copies of the Plan in local libraries.
- Soliciting public feedback via social media surveys.

Appendix A: Plan Adoption

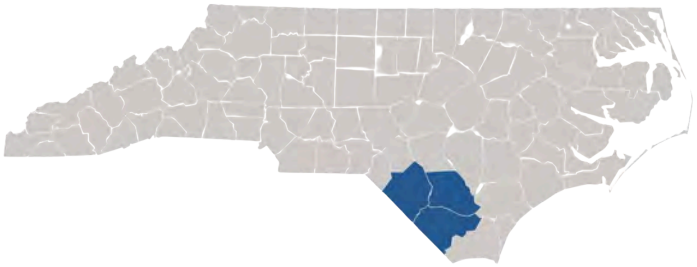
Appendix B: Regulation Checklist

This appendix to the Bladen Columbus Robeson 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 C: State and Federal Approval Letters

Appendix D: Public Outreach Documentation

This appendix to the Bladen Columbus Robeson Regional Hazard Mitigation Plan contains a copies of the documentation for Public Outreach that was conducted for the 2025 update.



HAZARD MITIGATION UPDATE 2024

BLADEN, COLUMBUS, AND ROBESON COUNTIES NEED YOUR INPUT!



WHAT IS HAZARD MITIGATION?

Hazard mitigation are actions taken to help reduce or eliminate long-term risks caused by hazards or disasters, such as flooding, earthquakes, and wildfires.

WHY IS HAZARD MITIGATION IMPORTANT?

This plan update will identify long-term strategies for protecting our people and property from future hazard events. Mitigation plans are key to breaking the cycle of disaster damage and reconstruction.

PARTICIPATE TODAY!

Scan the QR code or visit the link below to take our public survey!

Visit the project website to learn more: www.bcrregionalhmp.com

Bladen, Columbus, & Robeson Hazard Mitigation Plan Update - Public Meeting

ONLINE EVENT

Impact:
Your feedback is crucial for a plan that reflects our community's needs and enhances the Bladen, Columbus, & Robeson Region's resiliency.

Purpose:
Engage with the community, provide project background, and gather input on hazards & risks.

WEDNESDAY
12.11.2024

START AT
06:00PM

Don't miss this chance to contribute your insights and feedback!

REGISTER HERE

Bladen, Columbus, Robeson Regional Hazard Mitigation Plan Public Meeting

ONLINE EVENT

Impact:
Your input ensures the plan reflects local priorities, protects vulnerable areas, and strengthens our communities' resilience for years to come.

Purpose:
This plan helps protect lives, property, and community resources — and is required to remain eligible for certain state and federal disaster funding.

THURSDAY, JUNE 26, 2025

START AT 5:30PM

The plan affects your home, your neighborhood, your future — make sure your voice is heard.

REGISTER HERE

Appendix E: Project Information Fact Sheet

This appendix to the Bladen Columbus Robeson 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

Bladen-Columbus-Robeson 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 Bladen, Columbus and Robeson, in coordination with their participating municipal jurisdictions, are preparing a **regional hazard mitigation plan** that will cover the county-county area. The Bladen-Columbus-Robeson 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 Bladen-Columbus-Robeson 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 Bladen-Columbus-Robeson Hazard Mitigation Planning website located at (https://gis.aecomonline.net/IRISK2/NCHMP.aspx?region=2), a web-based public participation survey (https://www.surveymonkey.com/r/JL9R3FW), 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 Robeson 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 January 2020 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 May 2020. Draft documents will be available on the project information website at various stages in the planning process.

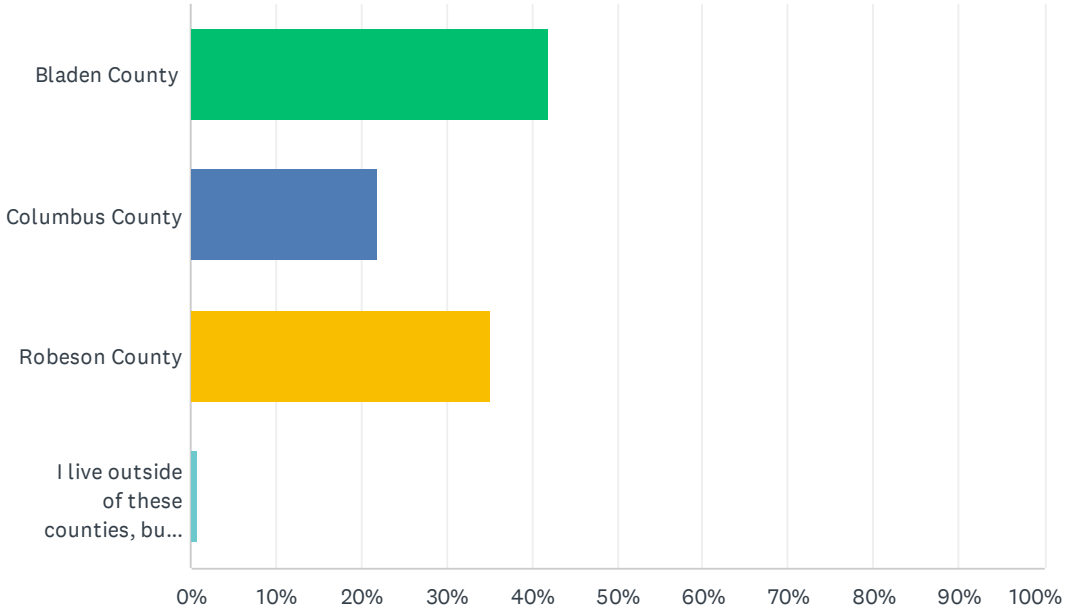
For More Information

To learn more about this project, or to find out how you can be involved, please contact Stephanie Chavis, Robeson County Emergency Management Coordinator, stephanie.chavis@co.robeson.nc.us. Additional information and regular updates throughout the duration of this project can be found on the Bladen-Columbus-Robeson Hazard Mitigation Planning website located at https://gis.aecomonline.net/IRISK2/NCHMP.aspx?region=2.

Appendix F: Public Participation Survey

Q1 Where do you live?

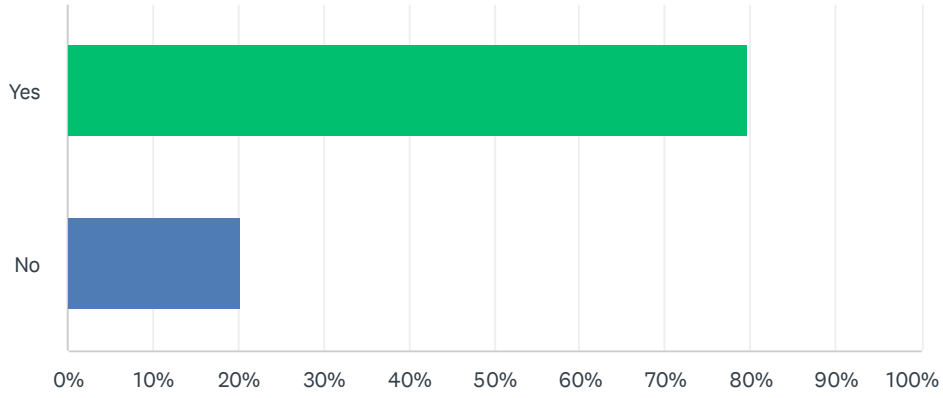
Answered: 114 Skipped: 0



ANSWER CHOICES	RESPONSES	
Bladen County	42.11%	48
Columbus County	21.93%	25
Robeson County	35.09%	40
I live outside of these counties, but work or recreate in one or all of them	0.88%	1
TOTAL		114

Q2 Have you ever experienced or been impacted by a hazard or disaster in the Bladen, Columbus, Robeson region?

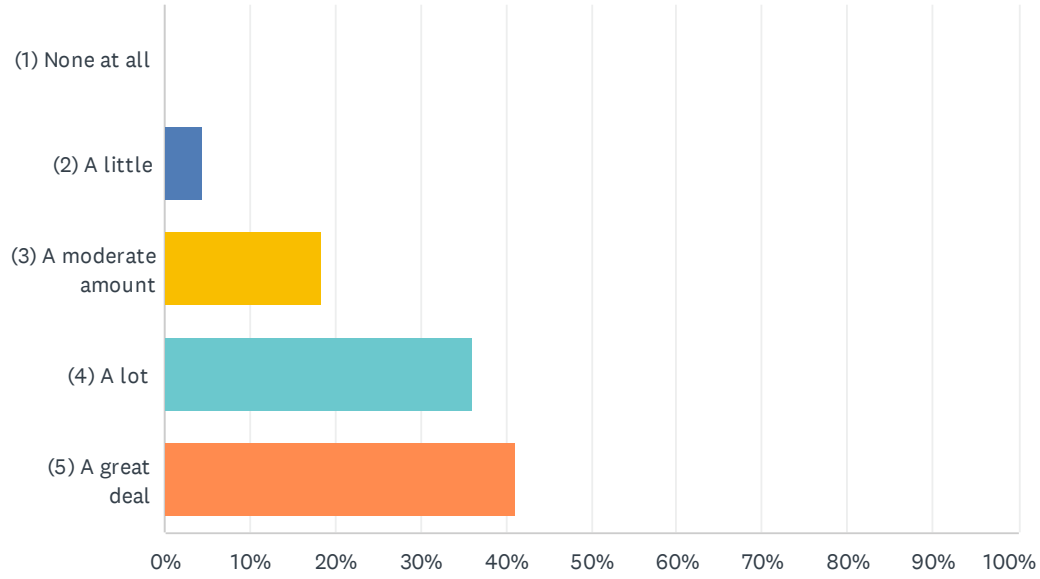
Answered: 114 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	79.82%	91
No	20.18%	23
TOTAL		114

Q3 On a scale of 1-5, where 1 = not at all concerned and 5 = very concerned, how concerned are you about the possibility of your community being impacted by a hazard event?

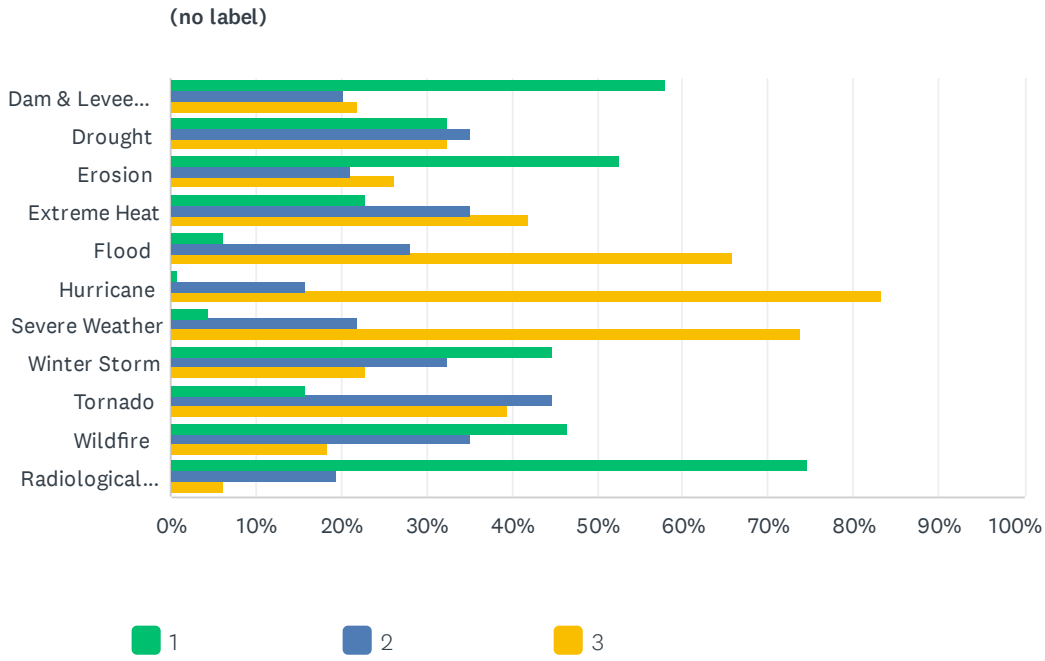
Answered: 114 Skipped: 0



ANSWER CHOICES	RESPONSES	
(1) None at all	0.00%	0
(2) A little	4.39%	5
(3) A moderate amount	18.42%	21
(4) A lot	35.96%	41
(5) A great deal	41.23%	47
Total Respondents: 114		

Q4 Please review the list of hazards below and rate each hazard from 1-3 based on how much risk you think it poses to your community.1 = little to no risk, 2 = moderate risk, 3 = high risk

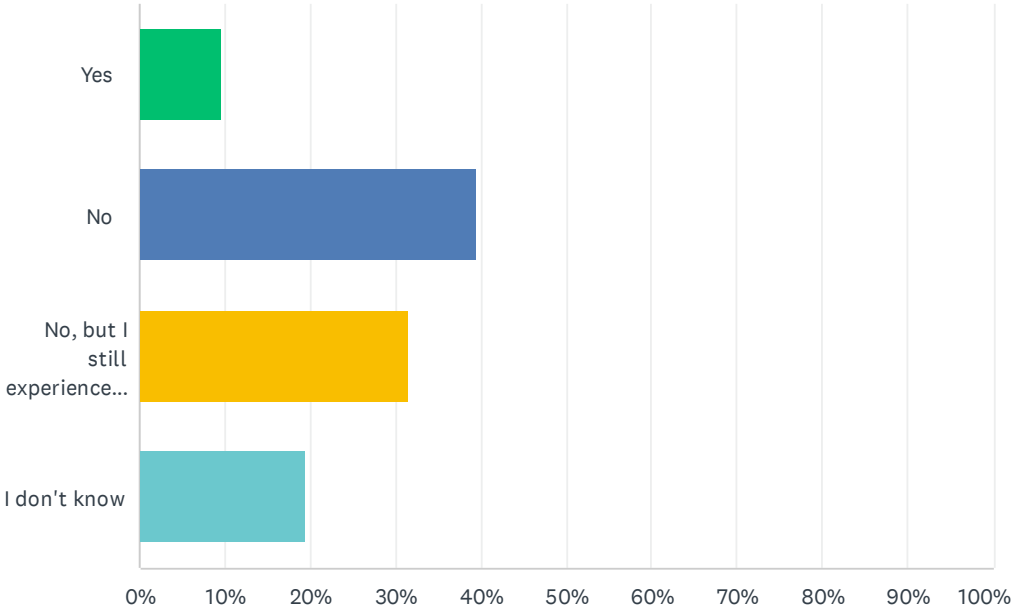
Answered: 114 Skipped: 0



(no label)				
	1	**2**	**3**	**TOTAL**
Dam & Levee Failure	57.89% 66	20.18% 23	21.93% 25	114
Drought	32.46% 37	35.09% 40	32.46% 37	114
Erosion	52.63% 60	21.05% 24	26.32% 30	114
Extreme Heat	22.81% 26	35.09% 40	42.11% 48	114
Flood	6.14% 7	28.07% 32	65.79% 75	114
Hurricane	0.88% 1	15.79% 18	83.33% 95	114
Severe Weather	4.39% 5	21.93% 25	73.68% 84	114
Winter Storm	44.74% 51	32.46% 37	22.81% 26	114
Tornado	15.79% 18	44.74% 51	39.47% 45	114
Wildfire	46.49% 53	35.09% 40	18.42% 21	114
Radiological Incident	74.56% 85	19.30% 22	6.14% 7	114

Q5 Is your home located in a floodplain?

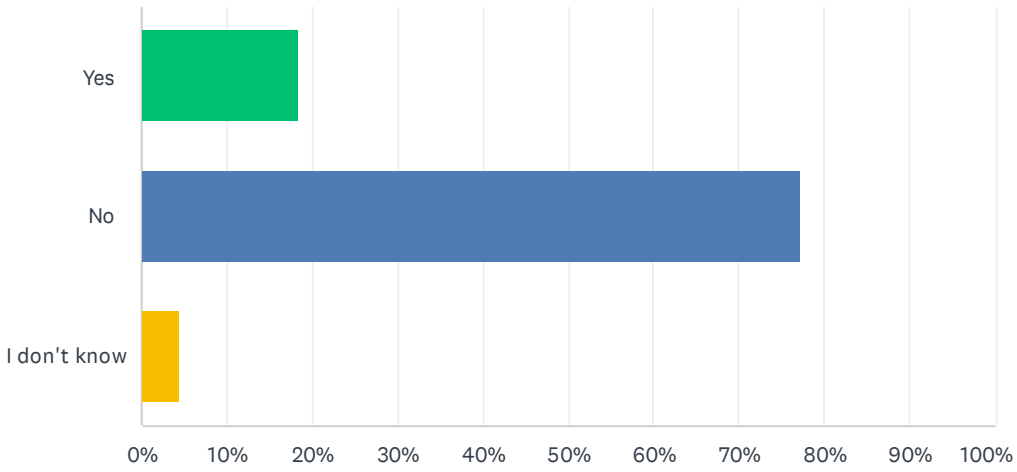
Answered: 114 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	9.65%	11
No	39.47%	45
No, but I still experience flooding	31.58%	36
I don't know	19.30%	22
TOTAL		114

Q6 Do you have flood insurance for your home and/or personal property?

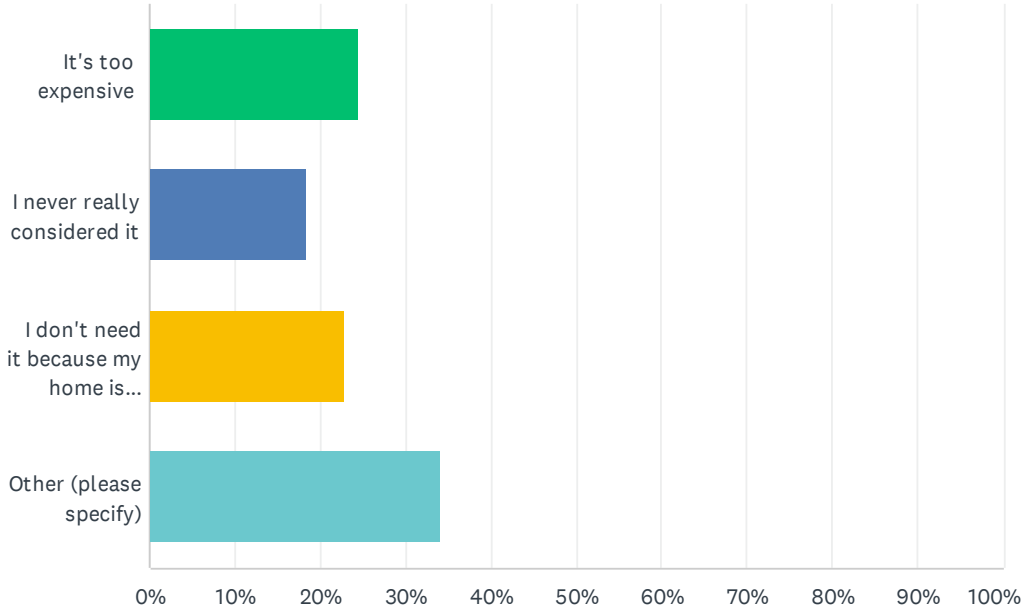
Answered: 114 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	18.42%	21
No	77.19%	88
I don't know	4.39%	5
TOTAL		114

Q7 If you do NOT have flood insurance, what is the reason?

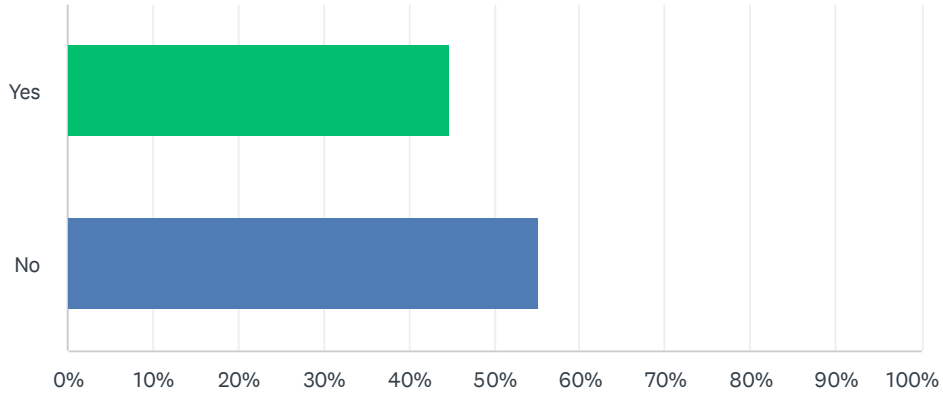
Answered: 114 Skipped: 0



ANSWER CHOICES	RESPONSES	
It's too expensive	24.56%	28
I never really considered it	18.42%	21
I don't need it because my home is elevated or otherwise protected	22.81%	26
Other (please specify)	34.21%	39
TOTAL		114

Q8 Have you taken any actions to protect your home or neighborhood from hazards?

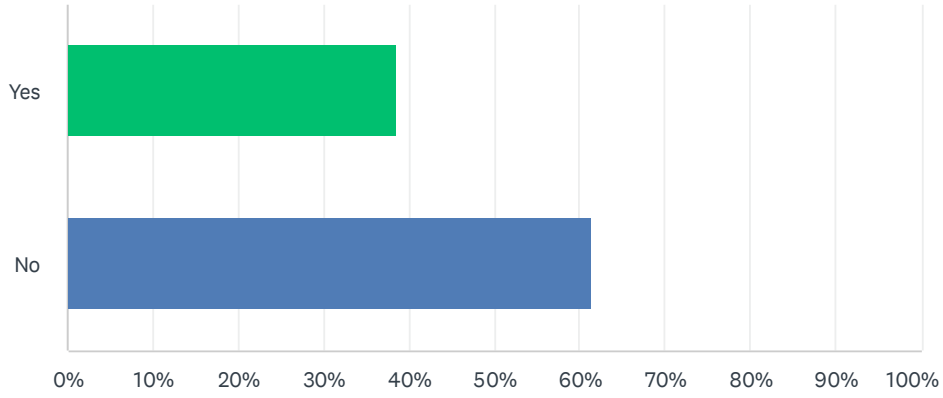
Answered: 114 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	44.74%	51
No	55.26%	63
TOTAL		114

Q9 Do you know what government office to contact to learn more about your hazard risks and how to reduce vulnerability in your area?

Answered: 114 Skipped: 0



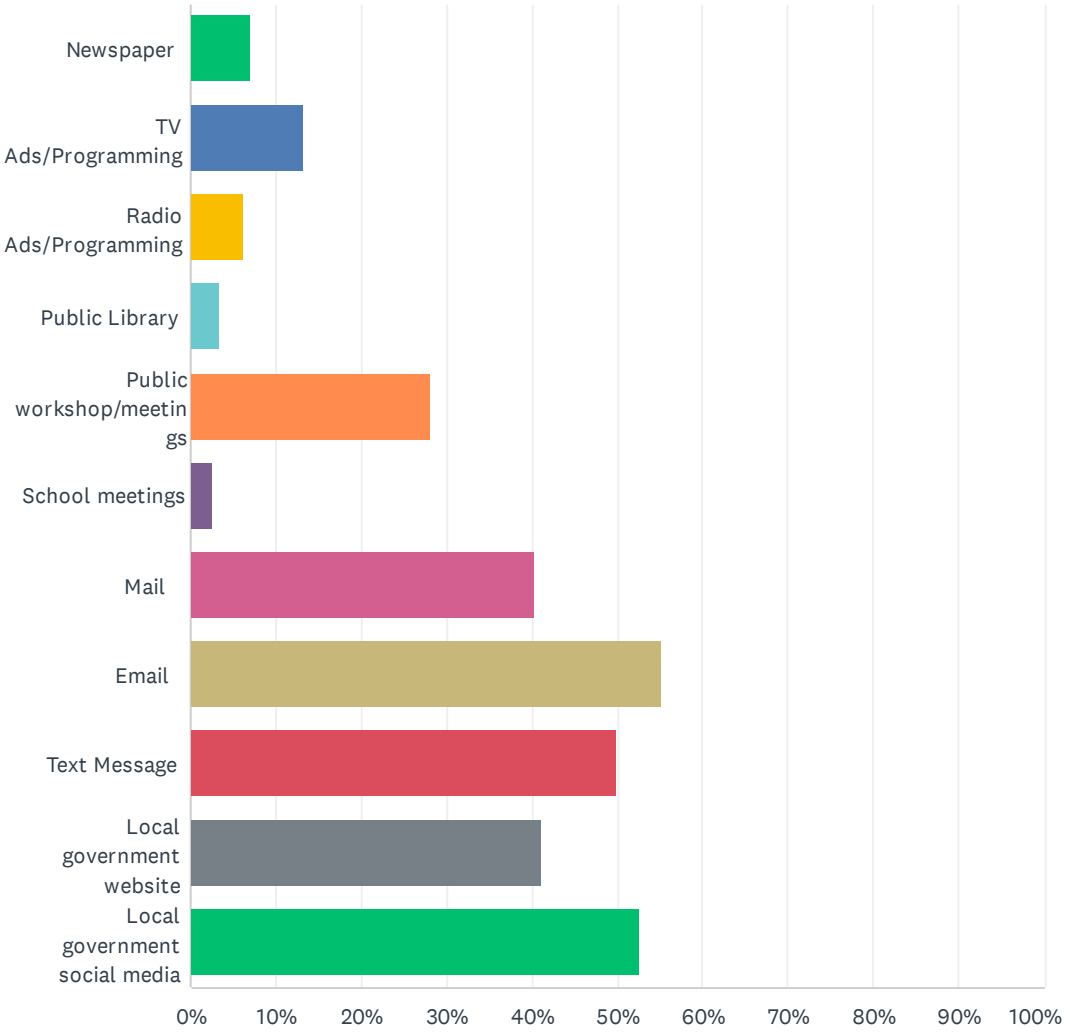
ANSWER CHOICES	RESPONSES	
Yes	38.60%	44
No	61.40%	70
TOTAL		114

Q10 What are some steps your local government could take to reduce the risk of future hazard damages in your neighborhood?

Answered: 114 Skipped: 0

Q11 What is the best way for you to receive information about how to make your home or neighborhood more resistant to flood damage? Please select your top three choices.

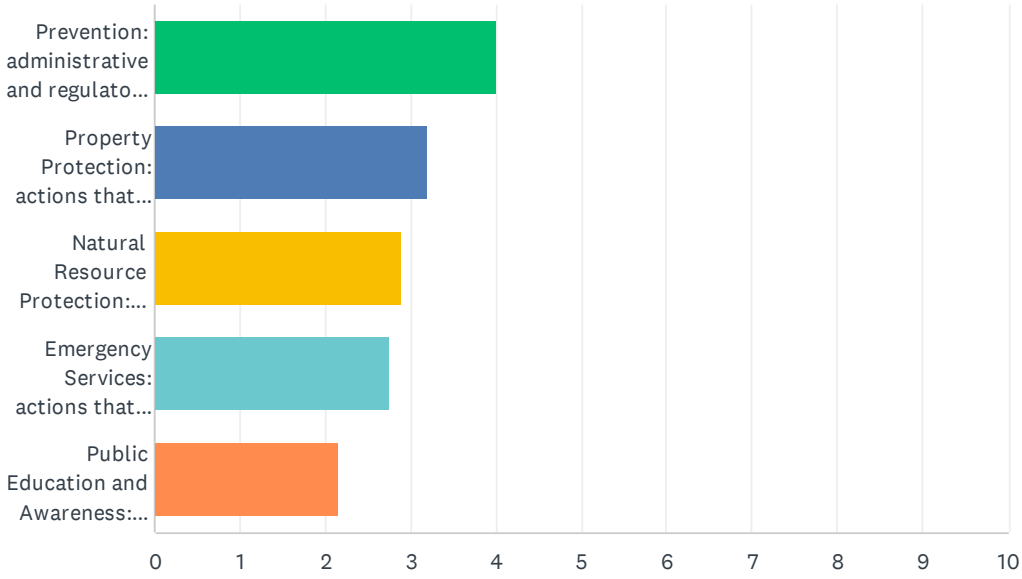
Answered: 114 Skipped: 0



ANSWER CHOICES	RESPONSES	
Newspaper	7.02%	8
TV Ads/Programming	13.16%	15
Radio Ads/Programming	6.14%	7
Public Library	3.51%	4
Public workshop/meetings	28.07%	32
School meetings	2.63%	3
Mail	40.35%	46
Email	55.26%	63
Text Message	50.00%	57
Local government website	41.23%	47
Local government social media	52.63%	60
Total Respondents: 114		

Q12 Many community-wide activities can reduce our risk from hazards. These activities generally fall into one of six broad categories. Please rank these categories from 1 (most important) to 6 (least important) by how important you think each one is for your community to consider pursuing.

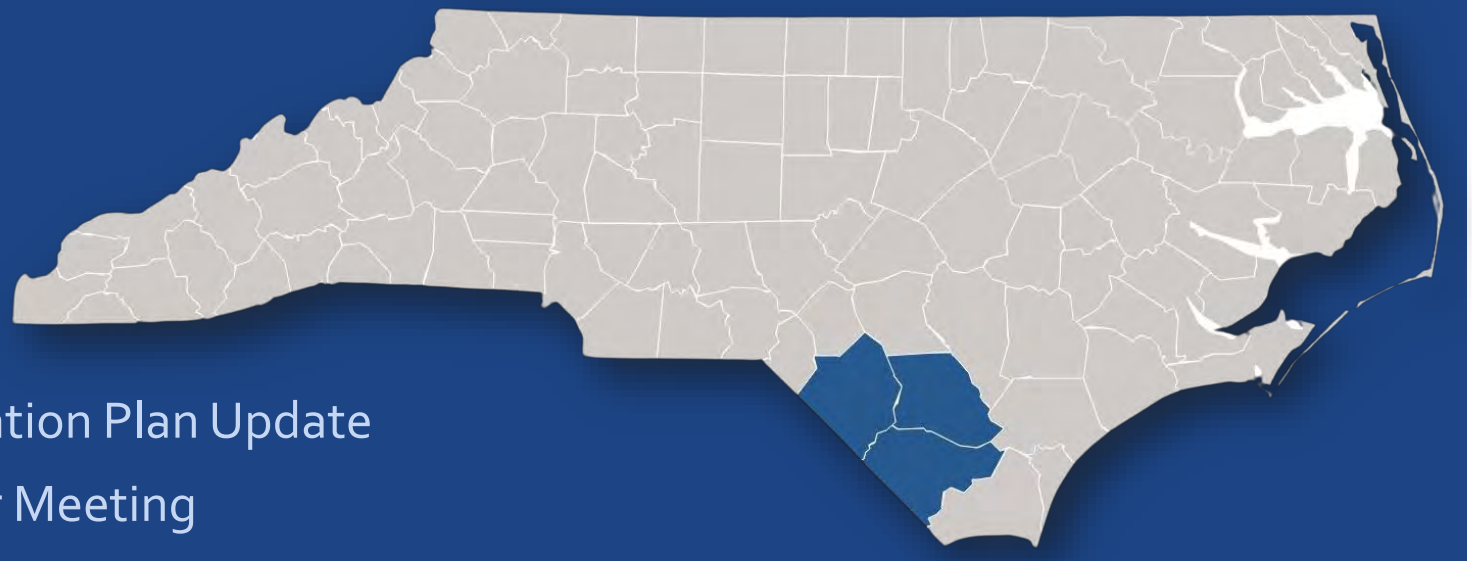
Answered: 114 Skipped: 0



	1	2	3	4	5	TOTAL	SCORE
Prevention: administrative and regulatory actions, plans, policies, and ordinances that influence how land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, land use, and floodplain regulations.	46.49% 53	20.18% 23	21.93% 25	9.65% 11	1.75% 2	114	4.00
Property Protection: actions that involve the modification of existing buildings to protect them from a hazard or remove them from a hazardous area. Examples include acquisition, relocation, elevation, structural retrofits, and storm shutters.	18.42% 21	28.07% 32	21.05% 24	20.18% 23	12.28% 14	114	3.20
Natural Resource Protection: actions that minimize hazard losses and preserve or restore the functions of natural systems. Examples include floodplain protection, habitat preservation, slope stabilization, stream buffers, wetland and marsh protection, and forest management.	14.91% 17	19.30% 22	28.07% 32	15.79% 18	21.93% 25	114	2.89
Emergency Services: actions that protect people and property during and immediately after a hazard event. Examples include warming systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems.	11.40% 13	20.18% 23	14.91% 17	39.47% 45	14.04% 16	114	2.75
Public Education and Awareness: actions to inform the public about hazards and techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials, and demonstration events.	8.77% 10	12.28% 14	14.04% 16	14.91% 17	50.00% 57	114	2.15

Appendix G: Meeting Files

Bladen-Columbus-Robeson Regional Hazard Mitigation Plan



2025 Hazard Mitigation Plan Update

Larger Stakeholder Meeting

October 14, 2024

38 Legend Rd., Lumberton, NC

ESP INSIGHT PLANNING + DEVELOPMENT AECOM

Agenda

- Welcome & Introductions
- Meeting Objectives
- Mitigation Overview
- Purpose of Update
- Plan Update Process
- Project Information & Next Steps
- Q&A Session

Introductions

Welcome!

Reminder to Sign-In

Meeting Objectives

- Engage the Community
- Gather Input
- Educate and Inform
- Enhance Plan Relevance

What is Mitigation?

“mit-i-gate”

1: to cause to become less harsh or hostile.

2: to make less severe or painful.

Hazard Mitigation

Any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.

Basic Types of Mitigation



Mitigating against hazard impacts on **existing development**

- Houses
- Businesses
- Infrastructure
- Critical Facilities



Ensuring **future development** is conducted in a way that does not increase vulnerability

- Plans
- Policies
- Procedures

Mitigation Techniques

1. Prevention
2. Property Protection
3. Natural Resource Management
4. Structural Projects
5. Emergency Services
6. Education and Awareness

Purpose of Update

- Reflect on Changing Risks
- Increase Community Resilience
- Compliance and Funding
- Ensure Preparedness

Purpose of Update – Changing Risks

1. Population Increase and Community Growth
   - Greater Exposure to Hazard Risk
   - Increased Exposure = More Damage
2. More Hazards (Man-Made)
   - Included in State Plan
   - Ex. Technological, Civil Disturbance, Terrorism
3. Climate Change
   - Anticipated Increase in Frequency and Magnitude
   - **New FEMA Requirement
4. Development Patterns
   - Increased Impermeable Surfaces
   - More Infrastructure and Assets at Risk

Purpose of Update – Increase Community Resilience

1. Identification of New Vulnerabilities
   - **Vulnerable Populations
2. Adopting Effective Mitigation Strategies



Purpose of Update – Compliance and Funding



Ensure compliance with federal and state requirements

- Disaster Mitigation Act of 2000
- NC GS 166 A



Maintain eligibility for disaster mitigation funding and assistance programs

- HMGP
- FMA
- BRIC
- CRS

Planning	Planning for Public Involvement
Coordinating	Coordinating with Departments and Agencies
Finalizing	Finalizing a List of Stakeholders for Involvement (HMPC)

Plan Update Process

Step 1: Organize Resources



Hazard Identification

What Can Happen Here?

- Previously Identified Hazards
- Identify New Hazards



Vulnerability Assessment

What Will be Affected/Impacted?

- Will Use County Parcel Data, FEMA HAZUS Analysis, and NCEM Data



Capability Assessment

How Prepared Are We?

- Communities to Self-Assess Capability
- What Mitigation Actions are Feasible
- Where Gaps Exist

Plan Update Process
Step 2: Risk Assessment

Previously Identified Hazards (2020)

• Dam/Levee Failure • Drought • Earthquake • Hurricane/Tropical Storm • Inland Flooding (100-/500-year)	• Severe Weather (Thunderstorm, Wind, Lightning, & Hail) • Tornado • Wildfire • Winter Storm

Hazard	Likelihood of Future Occurrence	Vulnerability Assessment
Dam/Levee Failure	Unlikely	Yes
Drought	Highly Likely	Yes
Earthquake	Possible	Yes
Hurricane/Tropical Storm	Likely	Yes
Inland Flooding: 100-/500-year	Possible	Yes
Severe Weather (thunderstorm wind, lightning & hail)	Highly Likely	Yes
Tornado	Likely	Yes
Wildfire	Highly Likely	Yes
Winter Storm	Highly Likely	Yes

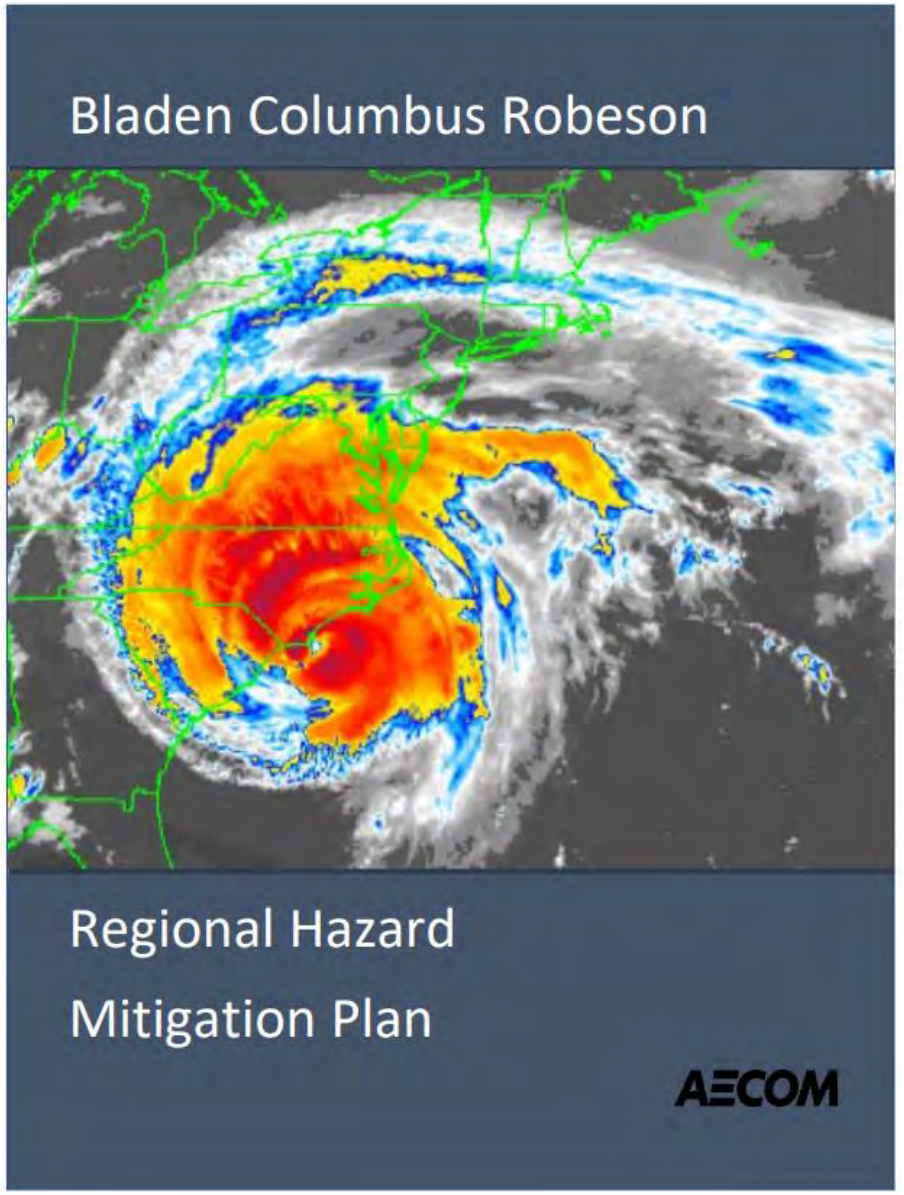
Plan Update Process
Step 3: Develop a Mitigation Plan

Setting Planning Goals

Reviewing Mitigation Alternatives

HMPC May Need to Develop New Actions

Drafting an Action Plan



Plan Update Process

Step 4: Adoption and Implementation

- Seeking Review and Approval from Relevant Authorities
- Securing Funding and Managing Resources of Mitigation Projects and Activities
- Executing the Identified Mitigation Actions
- Continuously Monitoring the Progress of Mitigation Activities

Project Schedule

Project Kickoff Date – 7/8/2024

Larger Stakeholder Meeting – 10/14/2024

Public Meeting #1 – Date TBD

Proposed Delivery of Draft – 4/6/2025

Public Meeting #2 – Date TBD

Existing Plan Expiration Date – 10/6/2025



Plan Website

- Project Team requests counties/municipalities post relevant project information and updates
- Can be used as a Tool for HMPC Coordination and Public Outreach
- Ideas for Website Content
  - Upcoming Meeting Announcements
  - Meeting Agendas and Minutes
  - Public Survey
  - Draft Documents of Plan Update
  - Information on Identified Hazards
  - Opportunities to Provide Feedback

Next Steps

1. Record and analyze input received during Stakeholder Meeting
2. Share Public Survey on municipal and county websites
3. Select Date/Location of Public Meeting #1
4. Continue working on the Risk Assessment (underway)
5. Continue working on Capability Assessment (underway)
6. Mitigation Strategy Development Meeting (date TBD)
7. Actionable Items for Stakeholders
    a. Begin reviewing Mitigation Action Plan and updating status of each action (FEMA requirement)
    b. Brainstorm locations and dates for Public Meeting #1
    c. Reach out to smaller communities to engage/include in the process

Complete and Share the Public Survey!

Bladen-Columbus-Robeson RHMP Public Survey

Scan the QR Code for Access to the Public Survey!

Or go to https://www.surveymonkey.com/r/BCRRHMP2025



Questions

Questions/Comments/Concerns

Brainstorming Questions

1. What are key concerns or challenges you believe should be addressed in the hazard mitigation plan update?
2. How can the community be better prepared for potential hazards or disasters in the future?
3. Are there any specific areas or infrastructure that you feel require additional consideration?
4. What role do you think community members should play in implementing hazard mitigation strategies (if any)?
5. Do you have any additional suggestions or feedback regarding the plan update that you would like to share at this time?

Adjourn –
Thank you!

Contact Information:

- Ryan Cox - rcox@insight-pd.com
- Austin Brinkley - abrinkley@insight-pd.com
- Kelly Keefe - kelly.keefe@aecom.com
- Nathan Slaughter - nslaughter@espassociates.com

Meeting Minutes – Monday, October 14, 2024
Bladen-Columbus-Robeson RHMP Kick-Off Meeting
10:30am EDT

Online (Virtual) Attendees	In Person Attendees
• Austin Brinkley, Senior Planner, Insight Planning & Development • Danielle Taliaferro, Administrative Manager (scribe), Insight Planning & Development • Mayor Robert McDougald, Town of Rowland NC (Robeson County) • Benton Rogers, Town of St Paul's, Asst. Public Works Director • Carl Baker, NCEM, Hazard Mitigation Planner • Renee Babson, Admin Assistant, Bladen County EM • Victoria Carter, Town of Pembroke Stormwater and Special Projects Program Manager • John Mello, Hazard Mitigation Planner, NC Emergency Management • R. Crosby, Town of Chadbourn, Finance Director • 919-649-7426 • Joey Coleman, Bladen County EM • Bobbie Faircloth, Project Manager, Town of Fair Bluff • Angela Pitchford, Town Manager, Town of Maxton	• Justin Hunt, Robeson County EM • Josh Ward, Tabor City, town of Brunswick • Nola Viles, Columbus County • Duella Hall, Columbus County • Walter Powell, Town of Marietta • Stephanie Dollinger, St. Pauls • Michael Owens, St Pauls Police Department • Tammy McKell, Lumberton EM • James Edwards, Town of Marietta

Begin Meeting (Austin Brinkley)

I. Opening/Introductions/Objectives/Agenda Review
    a. Engage Community
    b. Gather Input
    c. Educate
    d. Enhance Relevance
II. What is Mitigation
    a. Definition Reviewed
    b. Hazard Mitigation
III. Types of Mitigation
    a. Prevention
    b. Property Protection
    c. Natural Resource Management
    d. Structural Projects
    e. Emergency Services
IV. Purpose of Update
    a. Reflect on changing risks
    b. Increase community resilience
    c. Compliance and funding

d. Ensure Preparedness

V. Changing Risks
   a. Pop. Increase & community growth
   b. More manmade hazards
      i. Technological, Civil Disturbances or Terrorism
   c. Climate change
   d. Development Patterns
      i. More infrastructure and assets at risk

VI. Increase Community Resilience
   a. Identification of new vulnerabilities
   b. Adopting effective mitigation strategies

VII. Compliance and Funding – 5 year update – required to be updated per Hazard Mitigation Act of 2000
   a. Plan needs to be in place and compliant in order to be eligible for funding
   b. Ensure compliance w/ federal and state requirements
   c. Maintain eligibility for disaster mitigation funding and assistance programs

VIII. Step One – Organize Results (today's approximate status)
   a. Organizing resources
   b. Reached out to communities in the region
   c. Identifying stakeholders
   d. Coordinating with departments to finalize stakeholder lists

IX. Step Two – Risk Assessment
   a. Hazard identification
      i. Previously identified
      ii. Identify new hazards
   b. Vulnerability Assessment
   c. Capability Assessment
      i. How prepared are we?
      ii. Identify gaps

X. Previously identified hazards from 2020
   a. Hurricanes
   b. Droughts
   c. Dam/Levee Failure
   d. Will be able to reevaluate to determine the likely hood of a recurrence
   e. Develop best strategy based on the region

XI. Step Three – Develop Mitigation Plan & Set goals
   a. Drafting an action plan

XII. Step Four – Adoption and Implementation
   a. Seek approval from relevant authorities
   b. Manage resources
   c. Identify actions
   d. Monitor along the way
   e. Self-assessment and prepare for next update

XIII. Project Schedule
   a. Project Kickoff Date – 7/8/2024
   b. Larger Stakeholder Meeting – 10/14/2024
   c. Public Mtg. #1 – TBD

d. Proposed Delivery of draft - 4/6/2025
e. Public Mtg. # 2 – TBD
f. Existing Plan Expiration Date – 10/6/2025
g. Little under a year from adoption and implementation

XIV. Project Website
a. Can be used to access survey
b. Plan updates
c. Meeting announcements
d. Can be used for public outreach

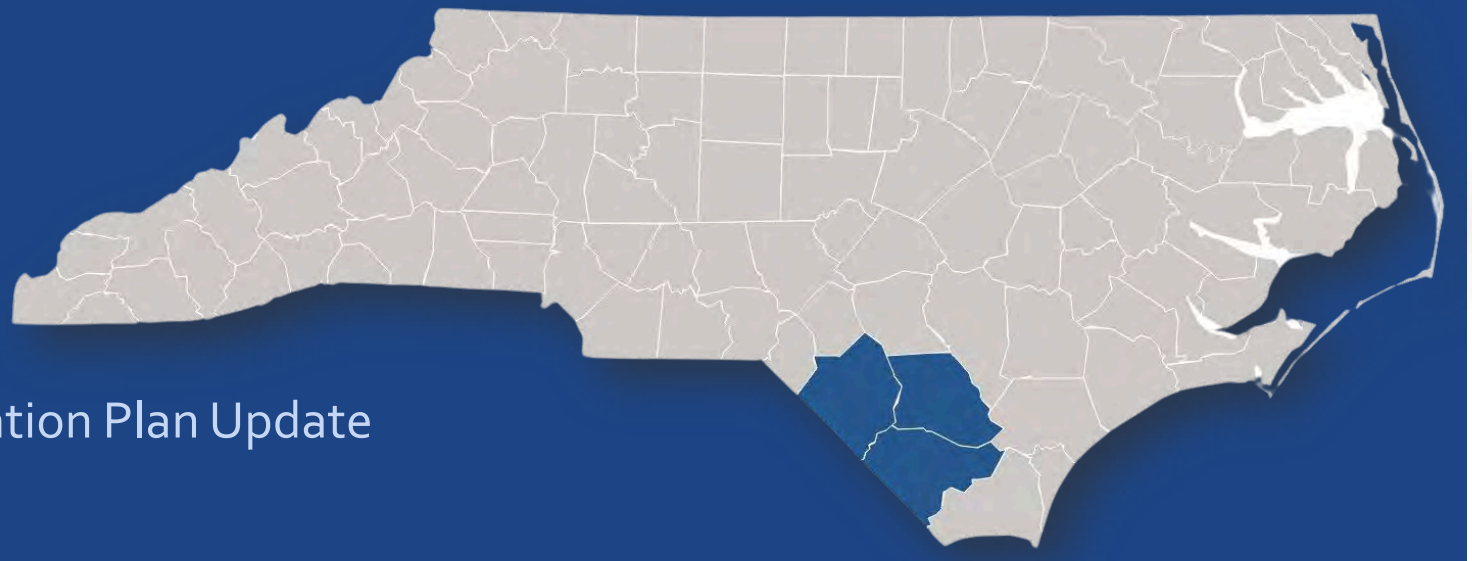
XV. Next Steps
a. Share public survey
b. Select date/location for first public meeting
c. Need as much input as possible
d. Update status of existing action plan
e. Engage smaller communities
f. Missing contact information – will seek recommendations following meeting

XVI. QR Code/Link for survey

XVII. Questions/Open Floor
a. Carl – Couldn't hear introductions from folks in the room
b. No tribal representation at the meeting today
    i. Asked that folks reach out and try to get a hold of tribal representatives – get them engaged in process
    ii. Reminder about underserved populations as well – get them engaged and part of update process
c. Review of Four Steps again – Step 1 will conclude around public meeting wrapping up.
    i. Should have public meeting scheduled in the next month or so. Keep momentum.
d. Will share PPT with minutes

-END-

Bladen-Columbus-Robeson Regional Hazard Mitigation Plan



2025 Hazard Mitigation Plan Update

Public Meeting

December 11, 2024

Virtual Engagement

ESP INSIGHT PLANNING + DEVELOPMENT AECOM

Agenda

- Welcome & Introductions
- Meeting Objectives
- Mitigation Overview
- Purpose of Update
- Plan Update Process
- Project Information & Next Steps
- Q&A Session

Introductions

Welcome!

Reminder to Sign-In

Meeting Objectives

Engage the Community

Gather Input

Educate and Inform

Enhance Plan Relevance

What is Mitigation?

“mit-i-gate”

1: to cause to become less harsh or hostile.

2: to make less severe or painful.

Hazard Mitigation

Any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.

Basic Types of Mitigation



Mitigating against hazard impacts on **existing development**

- Houses
- Businesses
- Infrastructure
- Critical Facilities



Ensuring **future development** is conducted in a way that does not increase vulnerability

- Plans
- Policies
- Procedures

Mitigation Techniques

1. Prevention
2. Property Protection
3. Natural Resource Management
4. Structural Projects
5. Emergency Services
6. Education and Awareness

Purpose of Update

- Reflect on Changing Risks
- Increase Community Resilience
- Compliance and Funding
- Ensure Preparedness

Purpose of Update – Changing Risks

1. Population Increase and Community Growth
   - Greater Exposure to Hazard Risk
   - Increased Exposure = More Damage
2. More Hazards (Man-Made)
   - Included in State Plan
   - Ex. Technological, Civil Disturbance, Terrorism
3. Climate Change
   - Anticipated Increase in Frequency and Magnitude
   - **New FEMA Requirement
4. Development Patterns
   - Increased Impermeable Surfaces
   - More Infrastructure and Assets at Risk

Purpose of Update – Increase Community Resilience

1. Identification of New Vulnerabilities
   - **Vulnerable Populations
2. Adopting Effective Mitigation Strategies



Purpose of Update – Compliance and Funding



Ensure compliance with federal and state requirements

- Disaster Mitigation Act of 2000
- NC GS 166 A



Maintain eligibility for disaster mitigation funding and assistance programs

- HMGP
- FMA
- BRIC
- CRS

Purpose of Update – Ensure Preparedness

The 2025 Plan Update ensures that the Bladen Columbus Robeson Region is better prepared to:

1. Address existing and emerging hazards
2. Protect lives and property
3. Sustain continuity of essential services during and following an event



Planning	Planning for Public Involvement
Coordinating	Coordinating with Departments and Agencies
Finalizing	Finalizing a List of Stakeholders for Involvement (HMPC)

Plan Update Process

Step 1: Organize Resources



Hazard Identification

What Can Happen Here?

- Previously Identified Hazards
- Identify New Hazards



Vulnerability Assessment

What Will be Affected/Impacted?

- Will Use County Parcel Data, FEMA HAZUS Analysis, and NCEM Data



Capability Assessment

How Prepared Are We?

- Communities to Self-Assess Capability
- What Mitigation Actions are Feasible
- Where Gaps Exist

Plan Update Process
Step 2: Risk Assessment

Previously Identified Hazards (2020)

• Dam/Levee Failure • Drought • Earthquake • Hurricane/Tropical Storm • Inland Flooding (100-/500-year)	• Severe Weather (Thunderstorm, Wind, Lightning, & Hail) • Tornado • Wildfire • Winter Storm

Hazard	Likelihood of Future Occurrence	Vulnerability Assessment
Dam/Levee Failure	Unlikely	Yes
Drought	Highly Likely	Yes
Earthquake	Possible	Yes
Hurricane/Tropical Storm	Likely	Yes
Inland Flooding: 100-/500-year	Possible	Yes
Severe Weather (thunderstorm wind, lightning & hail)	Highly Likely	Yes
Tornado	Likely	Yes
Wildfire	Highly Likely	Yes
Winter Storm	Highly Likely	Yes

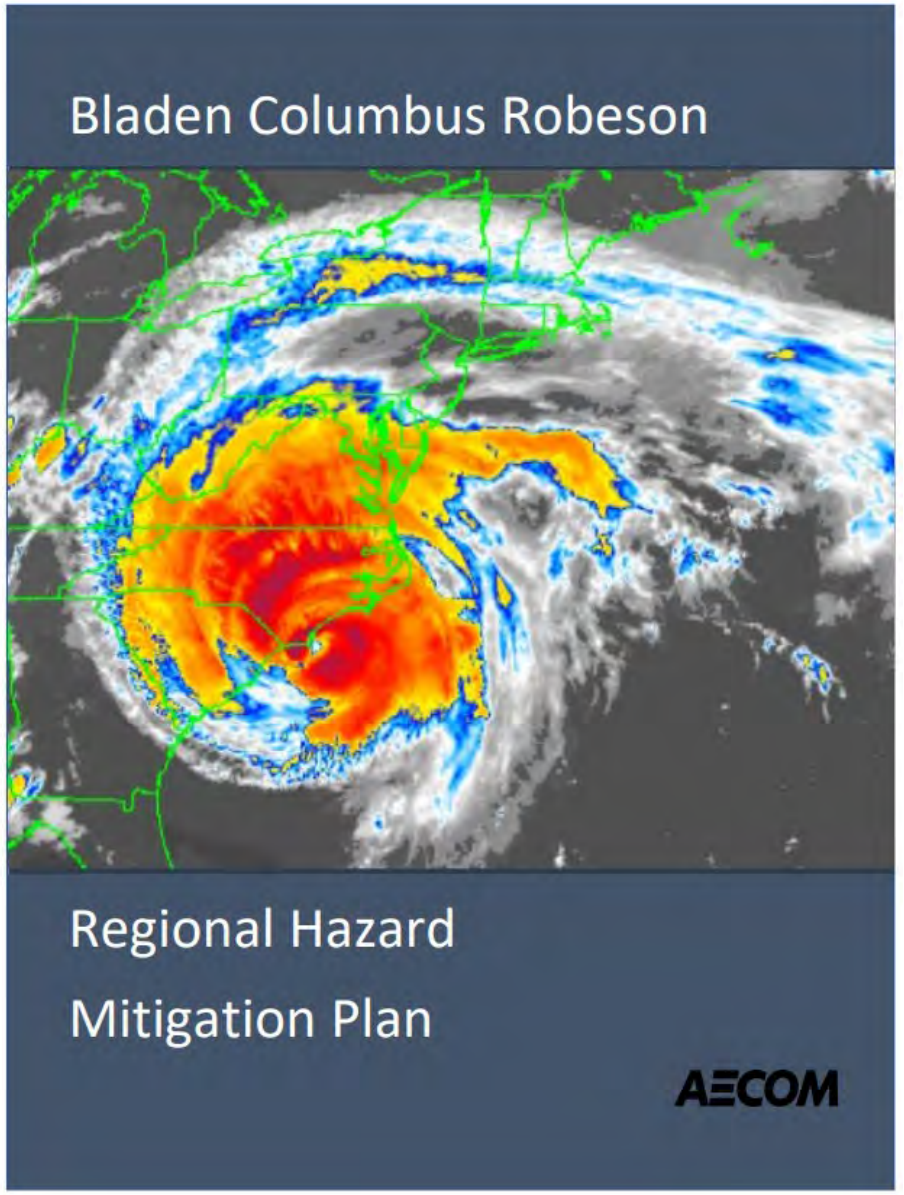
Plan Update Process
Step 3: Develop a Mitigation Plan

Setting Planning Goals

Reviewing Mitigation Alternatives

HMPC May Need to Develop New Actions

Drafting an Action Plan



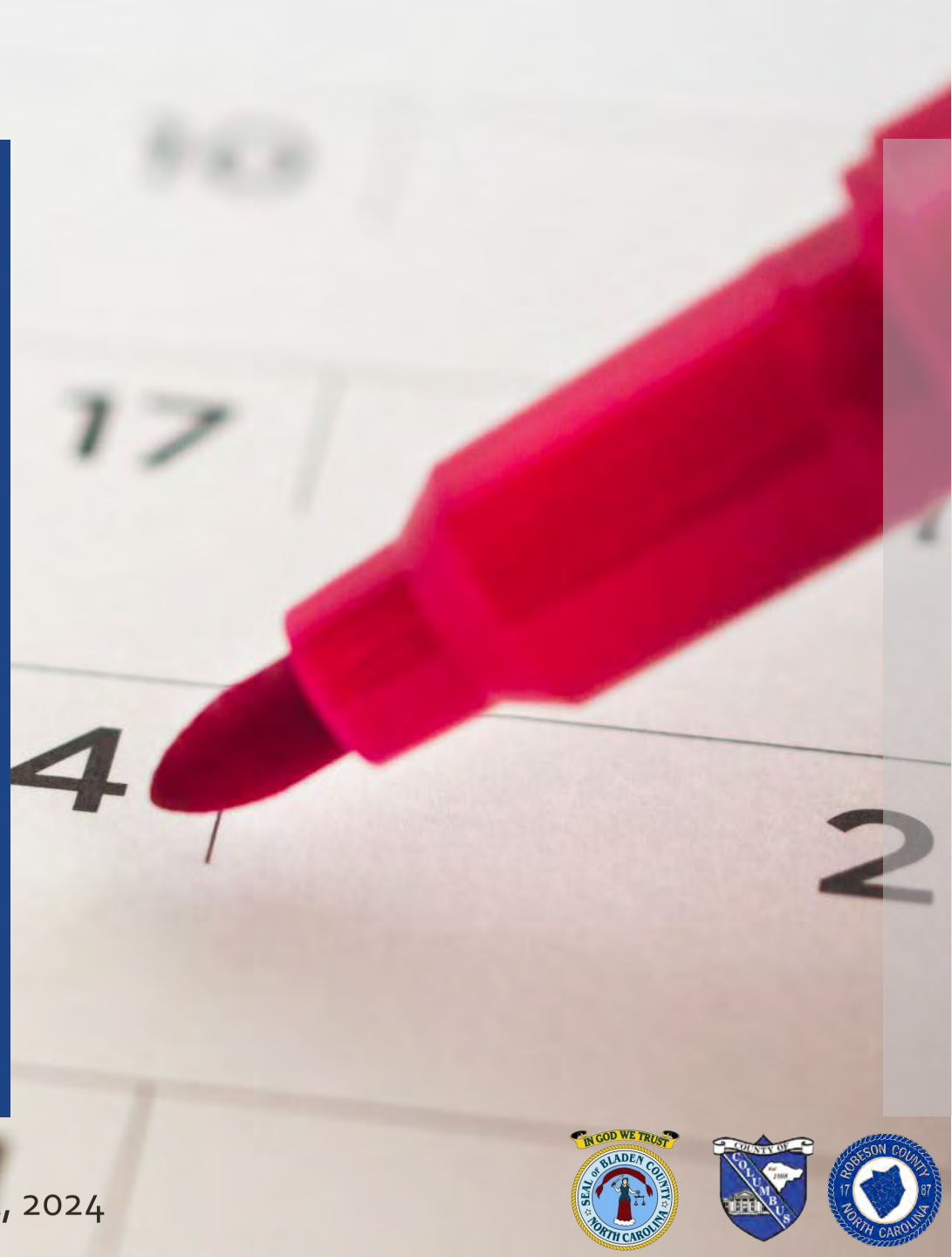
Plan Update Process

Step 4: Adoption and Implementation

- Seeking Review and Approval from Relevant Authorities
- Securing Funding and Managing Resources of Mitigation Projects and Activities
- Executing the Identified Mitigation Actions
- Continuously Monitoring the Progress of Mitigation Activities

Project Schedule

- Project Kickoff Date – 7/8/2024
- Larger Stakeholder Meeting – 10/14/2024
- Public Meeting #1 – 12/11/2024
- HIRA Meeting – February 2025
- Mitigation Strategy Meeting – March 2025
- Proposed Delivery of Draft – 4/6/2025
- Existing Plan Expiration Date – 10/6/2025



Plan Website

- Project Team requests counties/municipalities post relevant project information and updates
- Can be used as a Tool for HMPC Coordination and Public Outreach
- Ideas for Website Content
  - Upcoming Meeting Announcements
  - Meeting Agendas and Minutes
  - Public Survey
  - Draft Documents of Plan Update
  - Information on Identified Hazards
  - Opportunities to Provide Feedback

Next Steps

1. Record and analyze input received during Public Meeting
2. Share Public Survey on municipal and county websites
3. Continue working on the Risk Assessment (underway)
4. Continue working on Capability Assessment (underway)
5. HIRA Review Meeting (date TBD)
6. Mitigation Strategy Development Meeting (date TBD)
7. Actionable Items for Stakeholders
    a. Begin reviewing Mitigation Action Plan and updating status of each action (FEMA requirement)
    b. Reach out to smaller communities to engage/include in the process

Complete and Share the Public Survey!

Bladen-Columbus-Robeson RHMP Public Survey

Scan the QR Code for Access to the Public Survey!

Or go to https://www.surveymonkey.com/r/BCRRHMP2025



Questions

Questions/Comments/Concerns

Brainstorming Questions

1. What are key concerns or challenges you believe should be addressed in the hazard mitigation plan update?
2. How can the community be better prepared for potential hazards or disasters in the future?
3. Are there any specific areas or infrastructure that you feel require additional consideration?
4. What role do you think community members should play in implementing hazard mitigation strategies (if any)?
5. Do you have any additional suggestions or feedback regarding the plan update that you would like to share at this time?

Adjourn – Thank you!

Contact Information:

- Austin Brinkley - abrinkley@insight-pd.com
- Kelly Keefe - kelly.keefe@aecom.com
- Nathan Slaughter - nslaughter@espassociates.com

Meeting Minutes – Wednesday, December 11, 2024
Bladen-Columbus-Robeson RHMP
Public Meeting #1

Online (Virtual) Attendees
• Austin Brinkley, Insight Consulting • Nakoma Simmons • Leslie Jones

Begin Meeting (Austin Brinkley)

I. Welcome & Introductions
   a. Austin Brinkley opens meeting, confirms recording
   b. Introduces purpose:
      i. Educate and inform the public on draft plan development and next steps
      ii. Provide opportunity for questions and feedback to improve plan relevance

II. Background & Context
   a. Regional Hazard Mitigation Plan has existed for nearly 15 years
   b. Meeting aimed to define hazard mitigation and explore various types
   c. Focus on existing development vulnerability and minimizing future risks
   d. Mitigation explained as steps/actions to reduce impact of hazards

III. Mitigation Overview
   a. There are 2 categories of mitigation:
      i. Existing development
      ii. Future development
   b. There are 6 mitigation techniques:
      i. Prevention
      ii. Property protection
      iii. Natural resource management
      iv. Structural projects
      v. Emergency services
      vi. Public education & awareness

IV. Purpose of Update
   a. Reflects changing risks due to increased development
   b. Shift toward an "all hazards" approach
   c. Incorporates climate change considerations

V. Regulatory Context
   a. Emphasized requirements of the Disaster Mitigation Act of 2000 (DMA 2000)
   b. Importance of hazard mitigation planning for federal funding eligibility (FMA, HMGP)

c. FEMA mandates updates every 5 years for continued funding eligibility

VI. Planning Process (4-Step Process)
   a. Organizing resources:
      i. Collaboration with counties and municipalities
      ii. Public outreach and stakeholder engagement for diverse input
   b. Conducting risk assessment:
      i. Hazard identification (what can happen?) considering historical and emerging hazards
      ii. Vulnerability assessment (what do hazards do when they occur?)
      iii. Capability assessment (what is our ability to do anything?)
   c. Developing mitigation plan:
      i. Review of existing actions and project status updates (per FEMA)
      ii. Integration of new mitigation actions from the Mitigation Strategy Meeting with the Planning Committee
   d. Final adoption & implementation:
      i. Draft plan sent to the Planning Committee for review
      ii. First review round with NCEM; FEMA provides final approval
      iii. Communities can adopt plan early to expedite process

VII. Project Schedule
   a. Planning process initiated July 2024
   b. Draft plan scheduled for delivery by Summer 2025
   c. Current plan coverage expires October 2025
      i. Obtain approval and adoption before expiration

VIII. Next Steps
   a. Incorporate additional feedback from public meeting
   b. Submit plan to FEMA for review and approval
   c. Local adoption process (often by resolution) can occur simultaneously with FEMA review
   d. Once approved, plan will be officially adopted
   e. Public survey is available online

-END-

Bladen, Columbus, Robeson Regional HMP Update: Hazard ID & Risk Assessment (HIRA)

Hazard Mitigation Planning Committee Meeting

April 17, 2025

Agenda

- Where we are in the planning process
  - Step 4 & Step 5
  - Organization in the plan

- Hazard Identification
  - State plan & existing Bladen Columbus Robeson Regional Hazard Mitigation Plan
  - Major Disaster Declarations
- Asset Inventory
  - Building Exposure
  - Critical Facilities
- Hazard Profiles: Risk & Vulnerability Assessment

- Discuss Objectives & Actions
- Next Steps and Questions

Planning Process

- Step 1: Organize to Prepare the Plan
- Step 2: Involve the Public – *ongoing*
- Step 3: Coordinate – *ongoing*
- **Step 4: Assess the Hazard**
- **Step 5: Assess the Problem**
- Step 6: Set Goals
- Step 7: Review Possible Activities
- Step 8: Draft an Action Plan
- Step 9: Adopt the Plan
- Step 10: Implement, Evaluate, & Revise the Plan

Hazard Identification & Risk Assessment (HIRA)

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



Risk is a combination of hazard, vulnerability, and exposure; each is assessed to determine a hazard's potential impact and overall priority

HIRA Organization

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

- **Section 4**: **Hazard Identification** identifies the natural and human-caused hazards that threaten the planning area.
- **Section 5**: **Hazard Profiles** discusses the threat to the planning area, describes previous occurrences of hazard events and the likelihood of future occurrences, and assesses the planning area's exposure to each hazard profiled; considering assets at risk, critical facilities, and future development trends.
- **Section 5.10: Hazard Profile Summary** summarizes the results from the Hazard Profiles and defines each hazard as Low, Medium, or High-Risk hazard.
- **Section 6: Vulnerability Assessment** details the population, buildings, and critical facilities at risk within the planning area.


Hazard
Identification

Major Disaster Declarations (BCR Region)

Disaster #	Dec. Date	Incident Type	Event Title
699	3/30/1984	Tornado	Severe Storms and Tornadoes
724	9/11/1984	Hurricane	Hurricane Diana
1127	7/8/1996	Hurricane	Hurricane Bertha
1134	9/6/1996	Hurricane	Hurricane Fran
1200	1/15/1998	Flooding	Flooding
1240	8/27/1998	Hurricane	Hurricane Bonnie
1292	9/16/1999	Hurricane	Hurricane Floyd
1490	9/18/2003	Hurricane	Hurricane Isabel
1546	9/10/2004	Hurricane	Tropical Storm Frances
1969	4/19/2011	Severe Storm(s)	Severe Storms, Tornadoes, and Flooding
4019	8/31/2011	Hurricane	Hurricane Irene
4285	10/10/2016	Hurricane	Hurricane Matthew
4393	9/4/2018	Hurricane	Hurricane Florence
4465	10/4/2019	Hurricane	Hurricane Dorian
4487	3/25/2020	Pandemic	COVID-19 Pandemic
4568	10/14/2020	Hurricane	Hurricane Isaias
4588	3/3/2021	Hurricane	Tropical Storm Eta

17 Total Declarations

- 13 hurricane events
- 3 severe weather events (including flooding and tornadoes)
- 1 pandemic event

Review of Hazards in Existing Plans

Hazard	Included in State Plan?	Included in 2020 Bladen-Columbus-Robeson Plan?	Identified as a significant hazard to be included in the Plan?
Coastal Hazards (coastal flooding, coastal erosion, storm surge & sea level rise)	Yes	No	No
Dam/Levee Failure	Yes	Yes	Yes
Drought	Yes	Yes	Yes
Earthquake	Yes	Yes	Yes
Erosion	No	No	No
Extreme Heat	Yes	No	No
Hurricane/Tropical Storm	Yes	Yes	Yes
Inland Flooding: 100-/500-year	Yes	Yes	Yes
Severe Weather (thunderstorm wind, lightning, & hail)	Yes	Yes	Yes
Tornado	Yes	Yes	Yes
Wildfire	Yes	Yes	Yes
Winter Weather	Yes	Yes	Yes
Geological: Landslides/Sinkholes	Yes	No	No
Infectious Disease	Yes	No	No
Hazardous Substances	Yes	No	No
Radiological Emergency	Yes	No	No
Cyber Threat	Yes	No	No
Terrorism	Yes	No	No
Civil Disturbance	Yes	No	No
Electromagnetic Pulse	Yes	No	No
Food Emergency	Yes	No	No

Hazard Identification

Hazards Not Included

- **Coastal Hazards:** The 2020 BCR plan did not address this hazard as it is only applicable to coastal areas that are not part of the region.
- **Erosion:** The 2020 BCR plan did not address this hazard and past plan updates found the risk occurrence to be unlikely in the region.
- **Landslide:** The 2020 BCR plan did not address this hazard. Past plan updates found that risk for landslides is low, and occurrence is unlikely in the region.
- **Sinkholes:** The 2020 BCR plan did not address this hazard. USGS data shows little to no geological basis for sinkhole risk in the region.
- **Extreme Heat:** The 2020 BCR plan did not address this hazard. There were no past events in or near the planning area.
- **Infectious Disease:** The State HMP reports the entire State is equally at risk, but vulnerability is low.
- **Hazardous Substances:** The 2020 BCR plan did not address this hazard. Hazardous substances will be addressed through emergency operations planning.

Hazard Identification (continued)

Hazards Not Included

- **Radiological Emergency:** The 2023 State plan addresses this hazard. The region considers this hazard more appropriately address at the State level.
- **Cyber Threat:** The region considers this hazard more appropriately addressed through emergency operations planning and local staff training.
- **Terrorism:** The 2020 BCR plan did not address this hazard while the 2023 State plan did address this hazard. This hazard is better handled through state level mitigation and local emergency operations planning.
- **Civil Disturbance:** The 2023 State plan addresses this hazard. The region considers this hazard more appropriately address at the State level.
- **Electromagnetic Pulse:** The 2023 State plan addresses this hazard. The region considers this hazard more appropriately addressed at the State level.
- **Food Emergency:** The 2020 BCR plan did not address this hazard. This hazard is better handled through state level mitigation and local emergency operations planning.

Hazards Profiled

- Dam & Levee Failure
- Drought
- Earthquake
- Hurricane/Tropical Storm
- Inland Flooding: 100-/500-Year
- Severe Weather (thunderstorm wind, lightning, & hail)
- Tornado
- Wildfire
- Winter Weather


Asset Inventory

Asset Inventory

Population

Jurisdiction (including municipalities in County #)	2020 Census Population	Elderly (Age 65 and Over)	Children (Age 5 and Under)
Bladen County	29,606	6,523	1,522
Columbus County	50,623	10,606	2,466
Robeson County	116,530	19,090	7,087
Total	**196,759**	**36,219**	**11,075**

Asset Inventory

Building Exposure

Jurisdiction (including municipalities in County #)	Building Count	Building Value
Bladen County	23,111	$3,756,205,017
Columbus County	37,013	$6,680,483,824
Robeson County	60,664	$12,289,136,864
Total	**120,788**	**$22,725,827,705**

Critical Infrastructure & Key Resources (including municipalities with County)

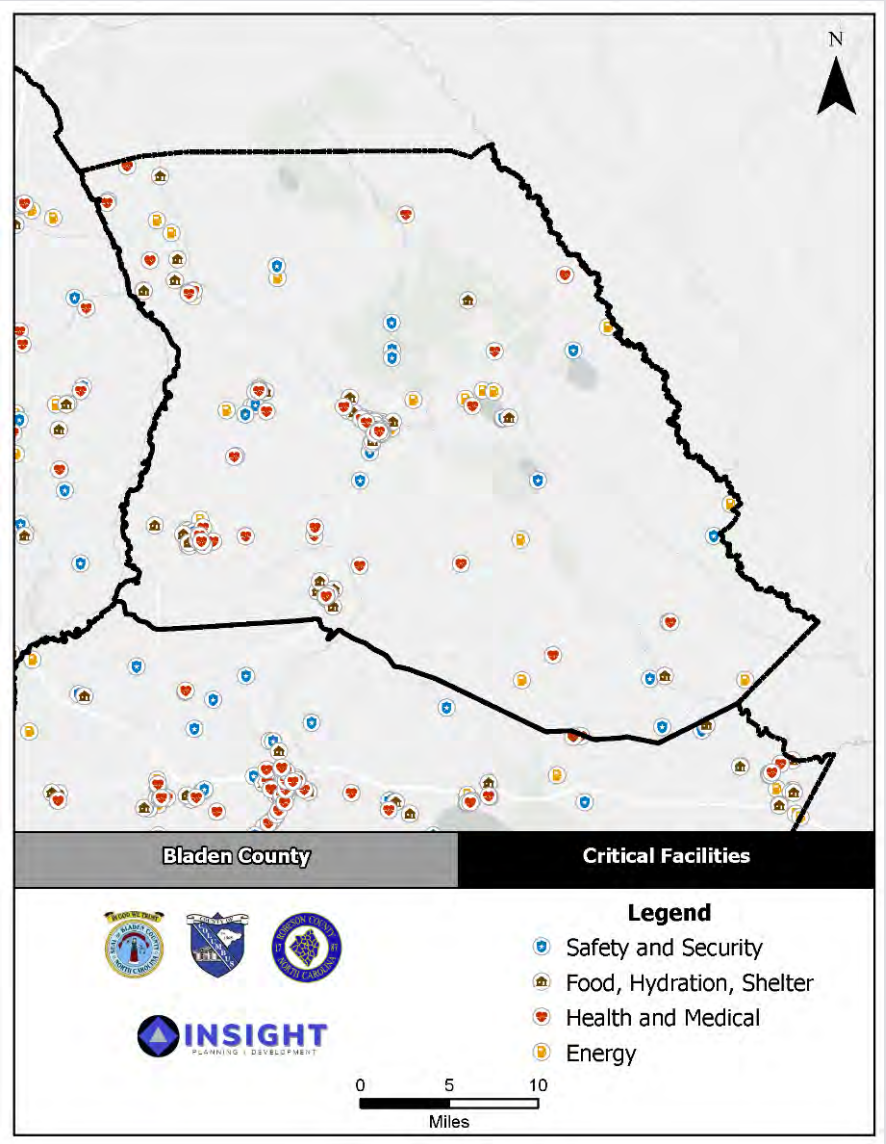
Infrastructure Type	Bladen Co.	Columbus Co.	Robeson Co.
Chemical & Hazardous	1	1	0
Communications	0	1	1
Defense Industrial Base	1	0	1
Nuclear Reactors and Materials	0	0	1
Transportation Systems	6	9	10
Energy	3	2	5
Emergency Services	7	9	12
Water	1	1	7
TOTAL	19	23	37

What are Critical Facilities?

- FEMA defines Critical Facilities as being assets that are community lifelines. The buildings and infrastructure that enable the continuous operation of critical business and government functions that are essential to human health and safety or economic security.

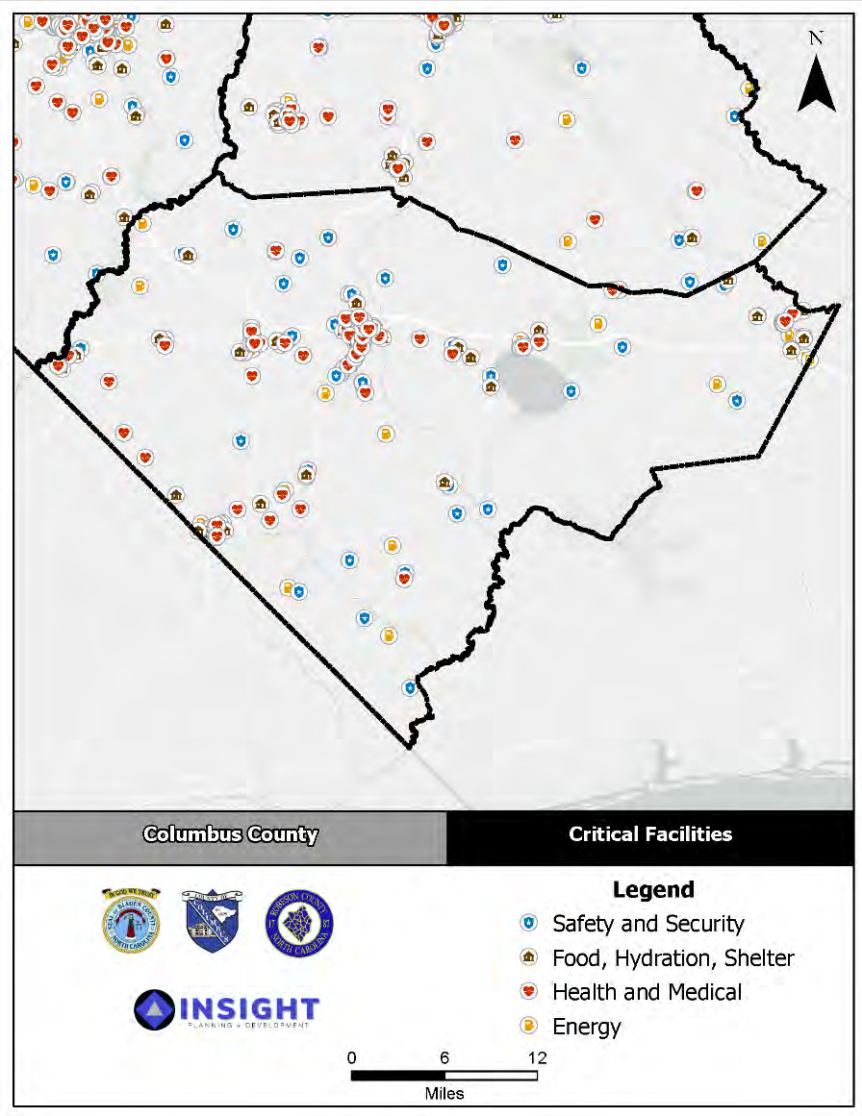
Critical Facilities (Bladen County)

- 42 Safety & Security critical facilities
- 27 Food, Hydration, & Shelter critical facilities
- 54 Health & Medical critical facilities
- 31 Energy critical facilities



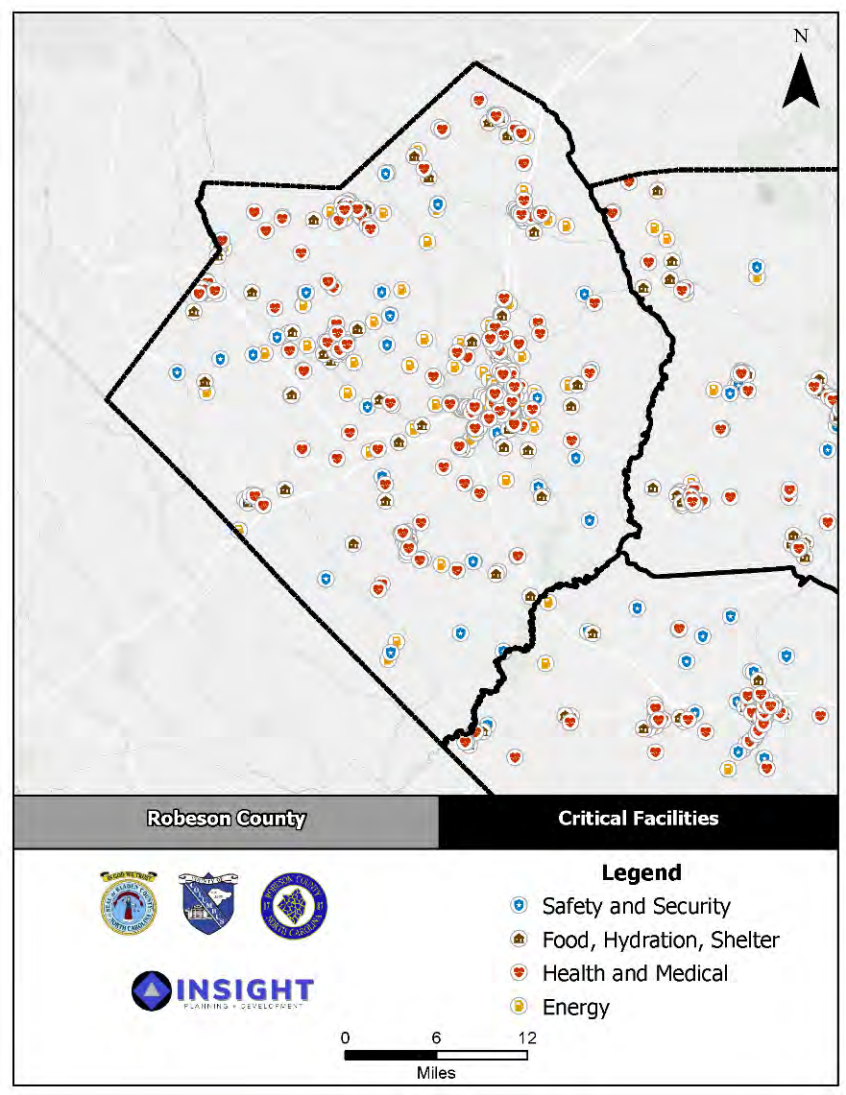
Critical Facilities (Columbus County)

- 68 Safety & Security critical facilities
- 39 Food, Hydration, & Shelter critical facilities
- 83 Health & Medical critical facilities
- 45 Energy critical facilities



Critical Facilities (Robeson County)

- 112 Safety & Security critical facilities
- 67 Food, Hydration, & Shelter critical facilities
- 171 Health & Medical critical facilities
- 134 Energy critical facilities



Agriculture Risk & Exposure

Jurisdiction	Number of Farms	Acreage in Farms	Proportion of Total Land Area in Farms	Market Value of Agricultural Products	Average Value of Farm & Buildings
Bladen	423	146,195	26.1%	$615,976,000	$598,422,000
Columbus	447	125,177	20.8%	$221,838,000	$489,003,000
Robeson	732	263,080	43.4%	$638,375,000	$1,025,228,000

Hazard Profiles

What is PRI?

The Priority Risk Index is used to compare all hazards. It is a numerical value assigned to a hazard based upon **Probability, Impact, Warning, Spatial Extent, Time, Duration.** The sum of all scores is the PRI for the hazard. The purpose of the PRI is to determine what are high, moderate, and low hazards within the Bladen-Columbus-Robeson Region. The PRI will serve as an asset in determining mitigation strategies.

The existing plan served as the baseline PRI for the update, the existing PRI will be updated to reflect any change in risk.

PRI SCALE

High Risk (> 2.5)	Severe Weather Hurricane/Tropical Storm Wildfire Drought Inland Flooding: 100-/500-year Tornado
Moderate Risk (2.0 – 2.5)	Winter Storm Earthquake
Low Risk (< 2.0)	Dam/Levee Failure

Hazard Profile Summary

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Dam/Levee Failure	Unlikely	Limited	Small	Less than 6 hrs	Less than 6 hrs	1.8
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
Hurricane/Tropical Storm	Likely	Critical	Large	More than 24 hrs	Less than 24 hrs	2.9
Inland Flooding: 100-/500-year	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

Excluded Hazards

The following hazards have been excluded from this plan but are addressed in the State of North Carolina plan. The primary reason for exclusion is due to the fact that these hazards are mitigate more efficiently through local emergency management and state level mitigation:

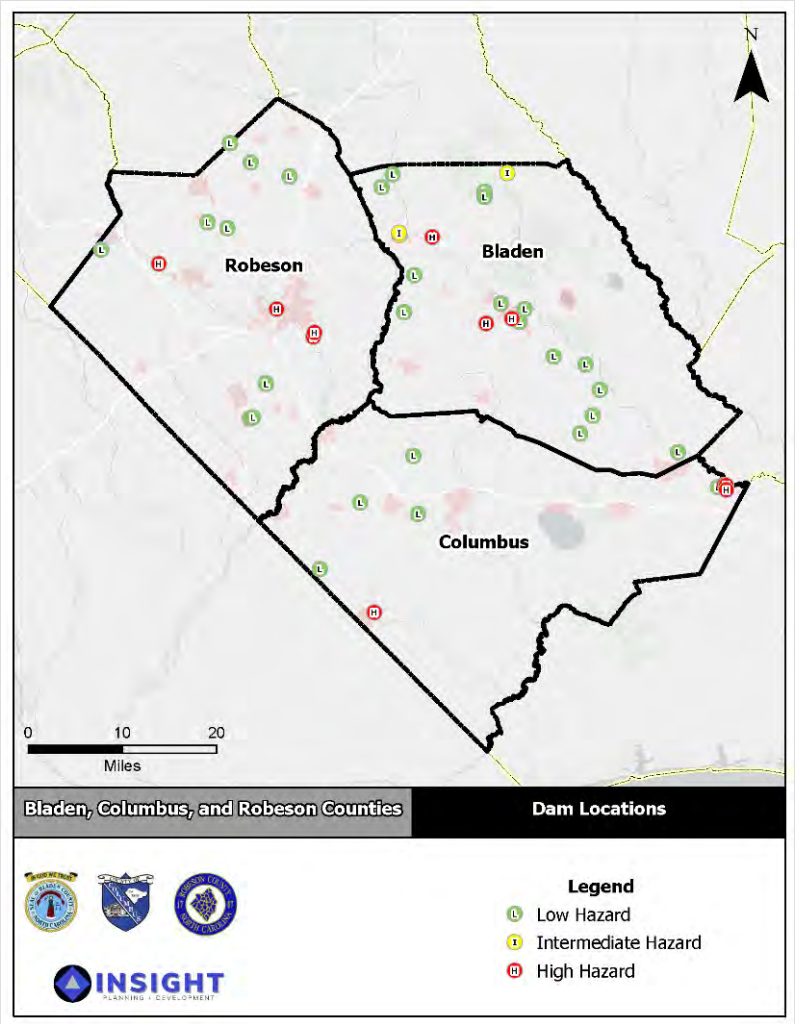
- Infectious Disease
- Hazardous Substances
- Radiological Emergency
- Cyber Threat
- Terrorism
- Civil Disturbance
- Electromagnetic Pulse
- Food Emergency

Climate Change Effect

Data has shown that climate change is influencing multiple hazards. Increasing temperatures are influencing the severity and frequency of hazardous events. The effects of climate change must be considered when reviewing the hazards that have been identified in this risk assessment and when developing mitigation strategies.

Dam/Levee Failure

Probability	Impact	Spatial Extent	Warning Time	Duration
Unlikely	Limited	Small	Less than 6 hrs	Less than 6 hrs



NC Dam Inventory (2025):

- 41 dams in BCR Region
  - 27 low hazard
  - 3 intermediate hazard
  - 11 high hazard
- 1 levee in BCR Region

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

Dam Failure

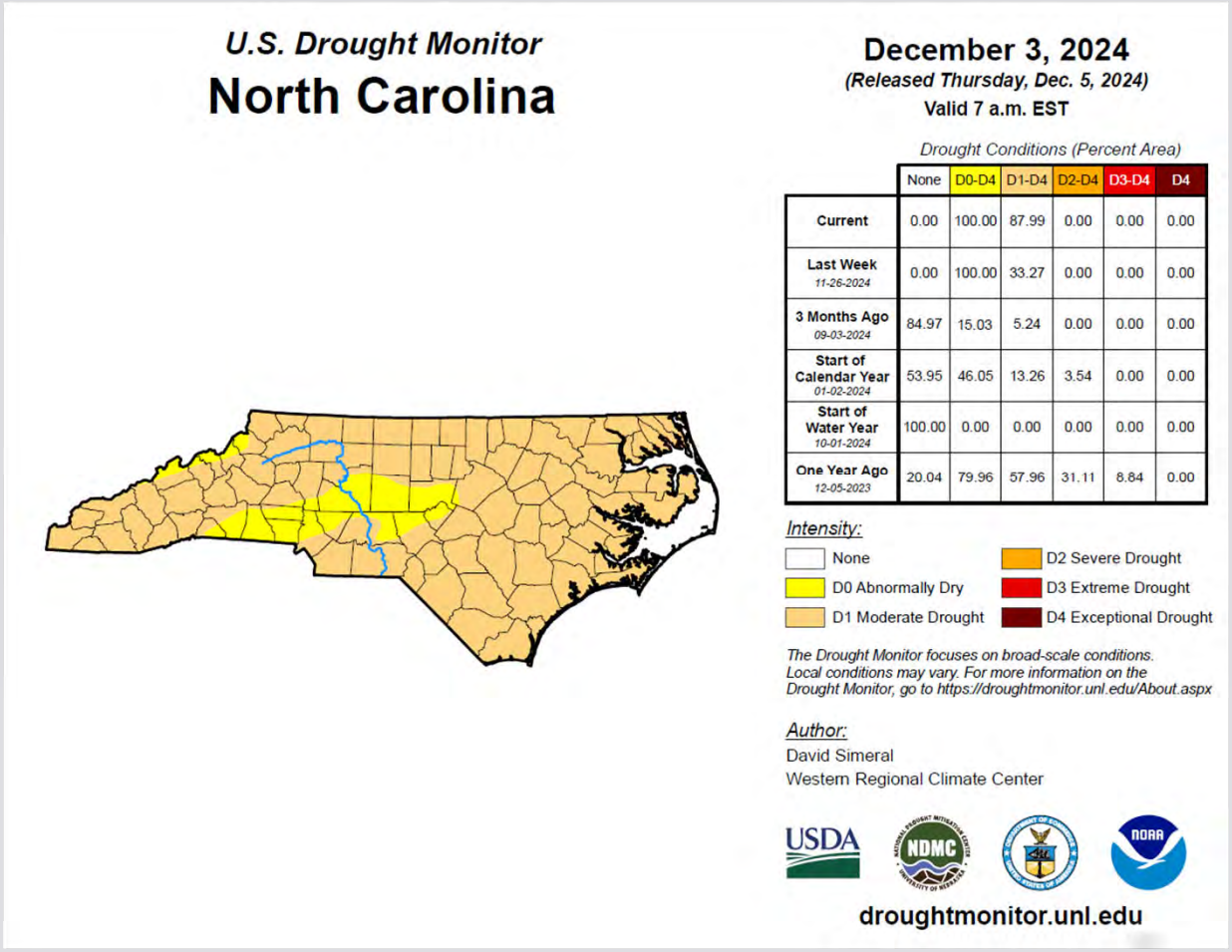
Probability	Impact	Spatial Extent	Warning Time	Duration
Unlikely	Limited	Small	Less than 6 hrs	Less than 6 hrs

Historical Occurrences

- Floodwaters circumvented the Lumberton Levee during the October 2016 Hurricane Matthew event.
- The White Oak Dike also experienced failure days after catastrophic rainfall from Hurricane Florence (2018).

Drought

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Minor	Large	More than 24 hrs	More than 1 week



- All of the BCR Region is susceptible
- Most significant impacts are related to agriculture, wildland fire protection, municipal usage, commerce, tourism, recreation, and wildlife preservation
- Can increase susceptibility to flooding due to soil compaction
- Can cause a reduction in electric power regeneration and deteriorate water quality

Drought

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Minor	Large	More than 24 hrs	More than 1 week

- According to the US Drought Monitor, the BCR Region experienced some level of drought condition, ranging from abnormally dry to exceptional drought over the last 24 years (2000-2024).

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

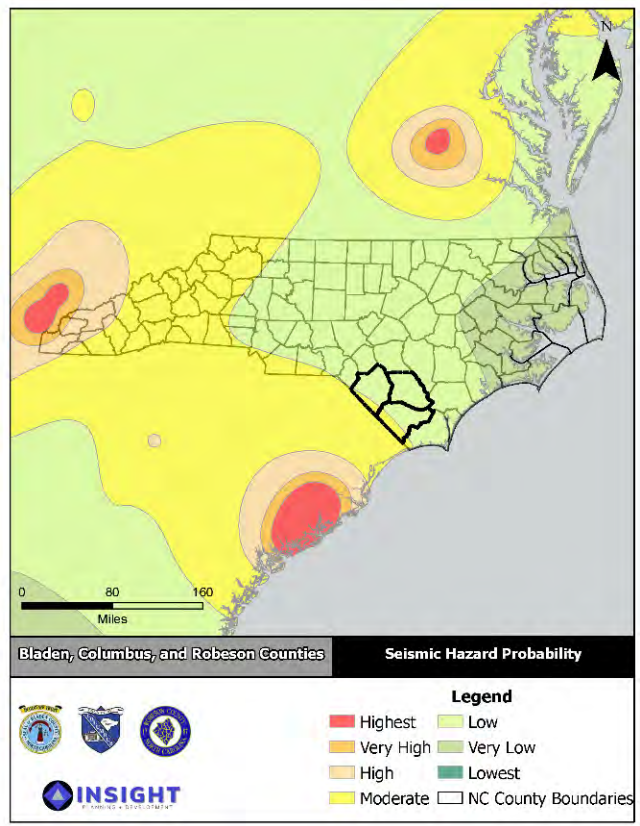
Source: US Drought Monitor

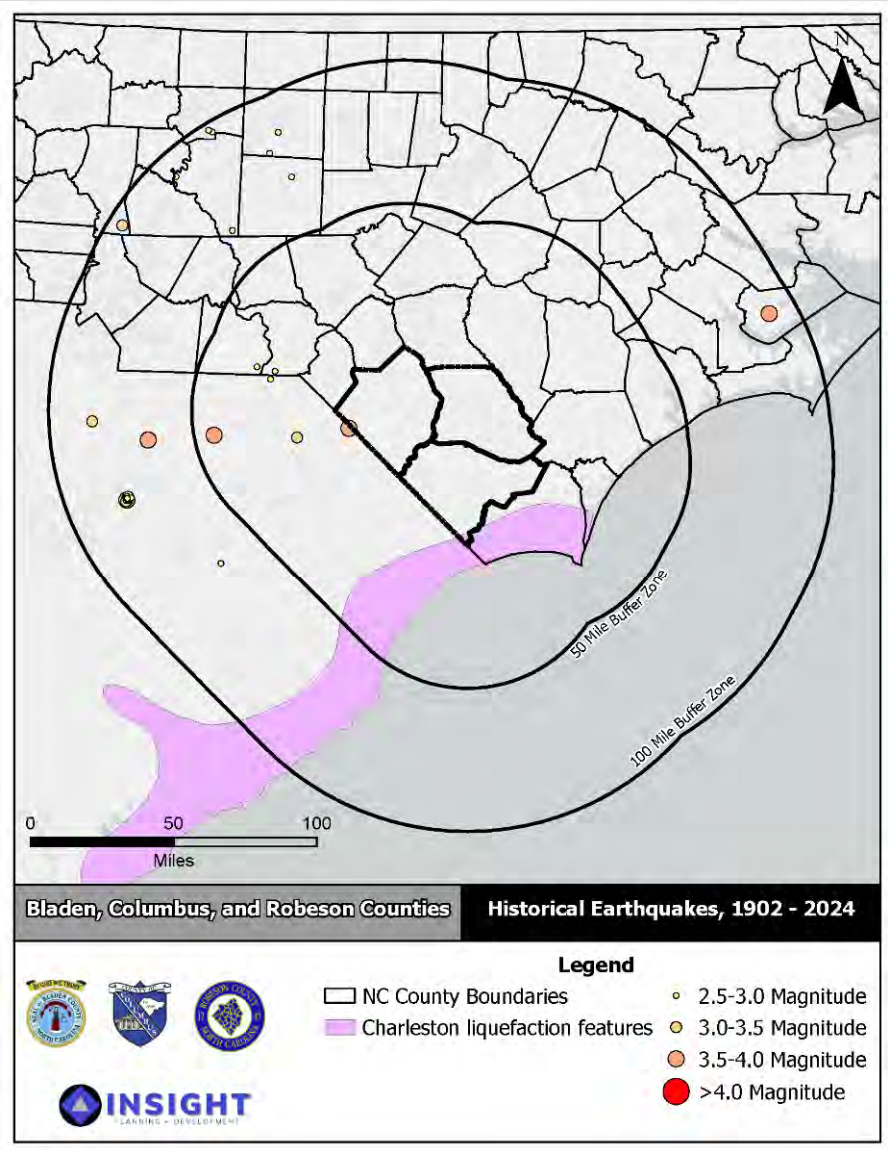
The BCR Region averages **$49,453,510.79** in crop losses due to drought annually according to USDA Crop Insurance data.

Earthquake

Probability	Impact	Spatial Extent	Warning Time	Duration
Possible	Limited	Moderate	Less than 6 hrs	Less than 6 hrs

- North Carolina has experienced 5 earthquakes with discernible impacts since 1989, none of these have resulted in impacts in the BCR region





Earthquake

Probability	Impact	Spatial Extent	Warning Time	Duration
Possible	Limited	Moderate	Less than 6 hrs	Less than 6 hrs

Estimated Building Damages from 250-Year Earthquake Event:

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
Subtotal Bladen	*23,111*	*10,803*	*46.7%*	*6,665*	*28.8%*	*$22,723*	*3,651*	*15.8%*	*$174,302*	*487*	*2.1%*	*$56,190*	*10,803*	*46.7%*	*$253,217*
Subtotal Columbus	*37,013*	*21,436*	*57.9%*	*22,110*	*59.7%*	*$108,338*	*3,097*	*8.4%*	*$273,664*	*702*	*1.9%*	*$141,169*	*25,909*	*70%*	*$523,170*
Subtotal Robeson	*60,664*	*55,272*	*91.1%*	*51,639*	*85.1%*	*$413,283*	*6,626*	*10.9%*	*$780,126*	*1,206*	*2%*	*$350,318*	*59,471*	*98%*	*$1,543,732*
TOTAL PLAN	**120,788**	**87,511**	**72.5%**	**80,414**	**66.6%**	**$544,344**	**13,374**	**11.1%**	**$1,228,092**	**2,395**	**2%**	**$547,677**	**96,183**	**79.6%**	**$2,320,119**

*County numbers include municipalities.

Hurricane

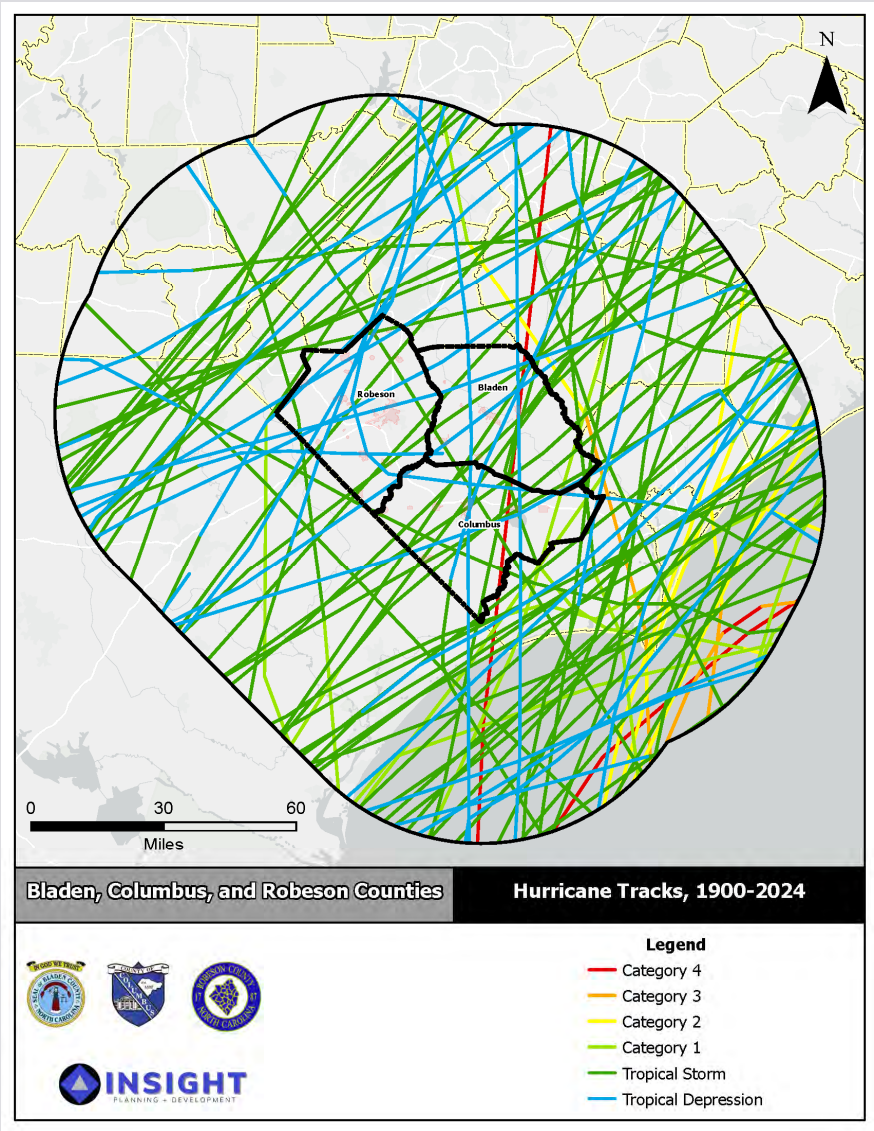
Probability	Impact	Spatial Extent	Warning Time	Duration
Likely	Critical	Large	More than 24 hrs	Less than 24 hrs

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

Hurricane

Probability	Impact	Spatial Extent	Warning Time	Duration
Likely	Critical	Large	More than 24 hrs	Less than 24 hrs

- 93 hurricanes and tropical storms have passed within 50 miles of the BCR region since 1900.



Hurricane

Probability	Impact	Spatial Extent	Warning Time	Duration
Likely	Critical	Large	More than 24 hrs	Less than 24 hrs

Building loss estimate from 25-Yr Hurricane Winds

Jurisdiction*	Total Buildings at Risk	Estimated Damages
Bladen Co.	23,110	$14,907,191
Columbus Co.	36,973	$35,865,005
Robeson Co.	60,618	$21,329,585

*Includes municipalities.

Inland Flooding

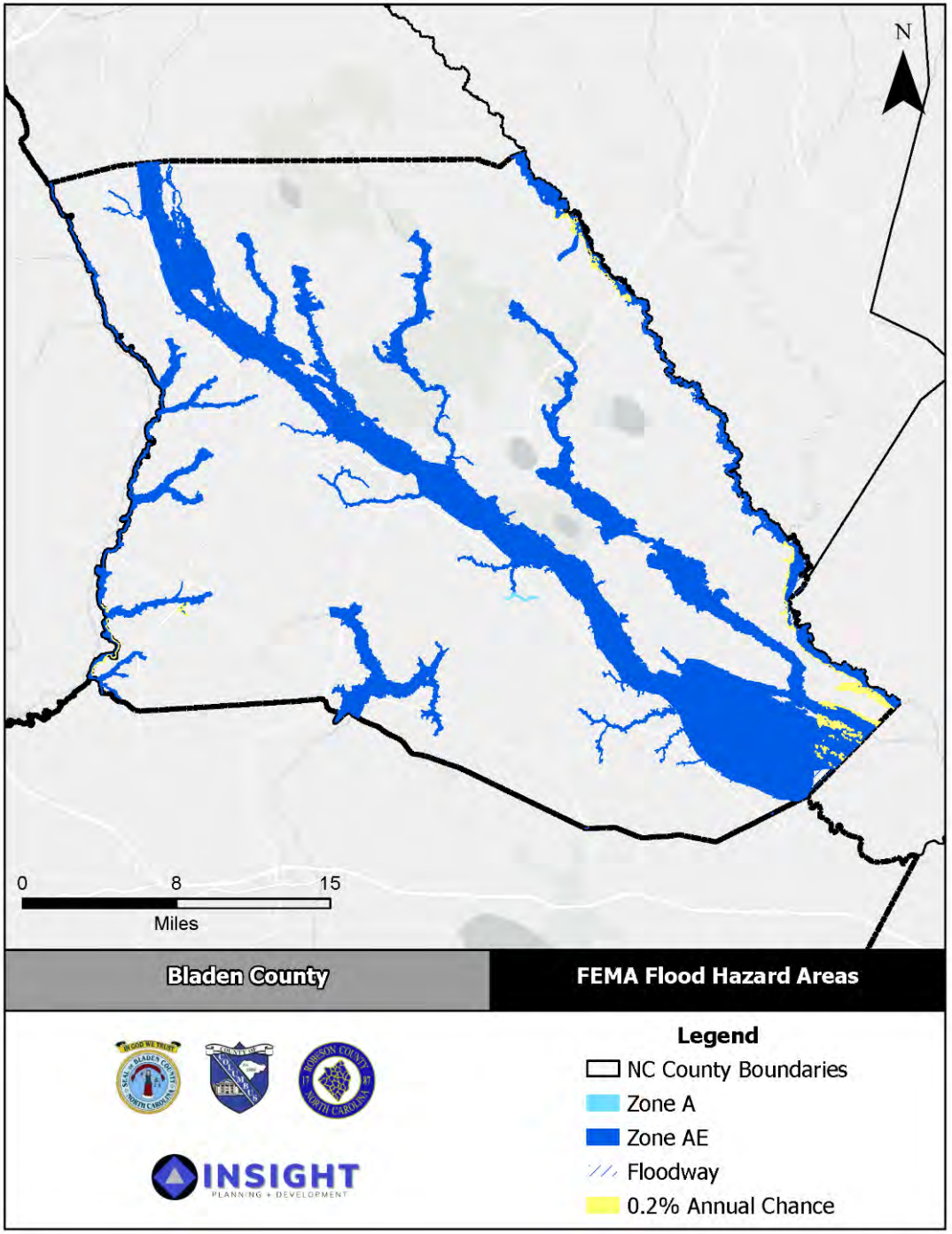
Probability	Impact	Spatial Extent	Warning Time	Duration
Possible	Critical	Moderate	6 to 12 hours	Less than 1 week

- Flooding types: Riverine Flooding, Flash Flooding

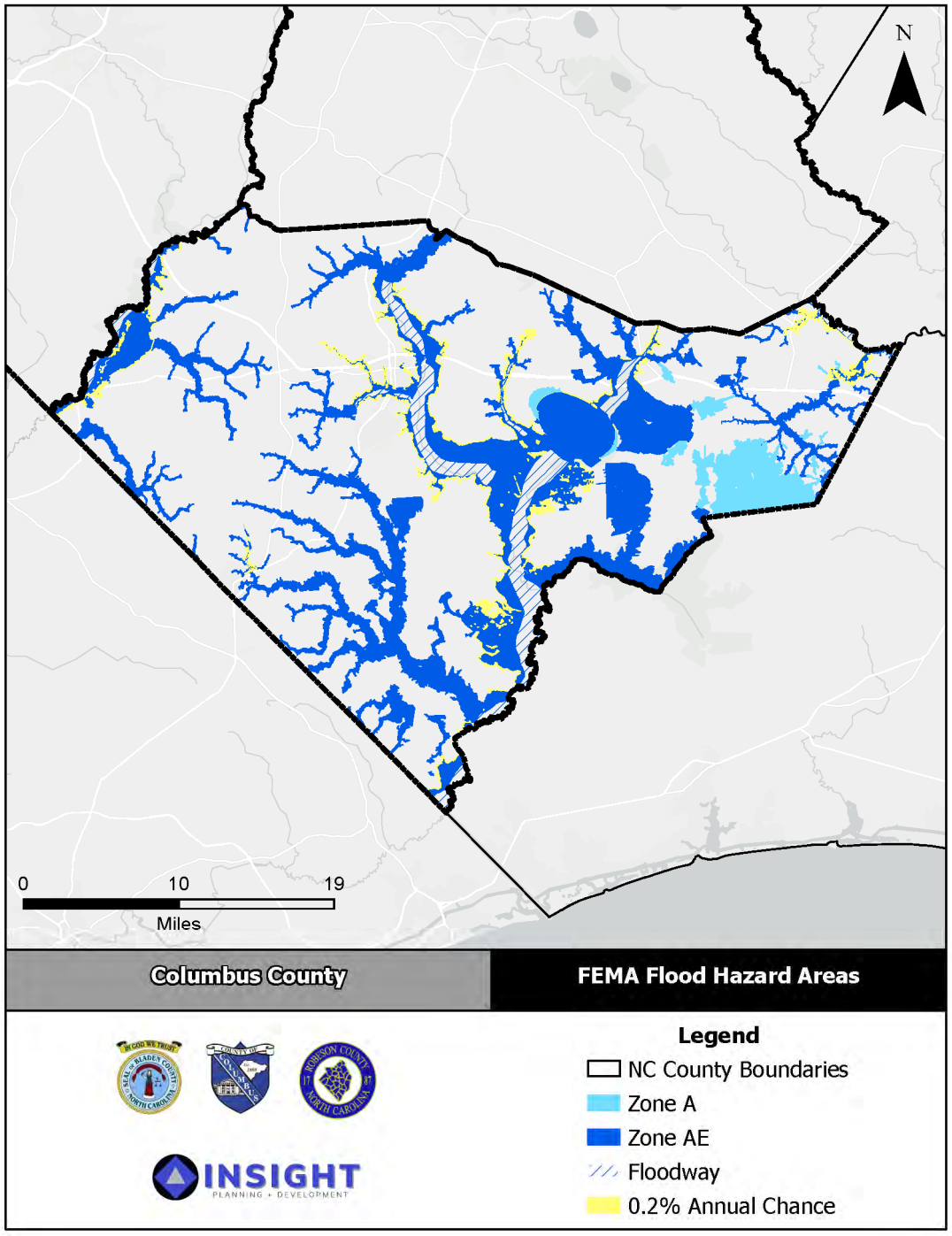
Flood Zone	Bladen	Columbus	Robeson	BCR Region Total
A	72.37	16,572.70	496.13	17,141.20
AE	93,772.43	155,379.68	131,551.19	380,703.30
X (500-year)	1,026.84	4,407.35	9,225.43	14,659.62
X Unshaded	477,268.15	430,379.99	466,799.15	1,374,447.20

Structures located in a Special Flood Hazard Area Have a 26% Chance of Flooding During the Life of a 30-Year Mortgage

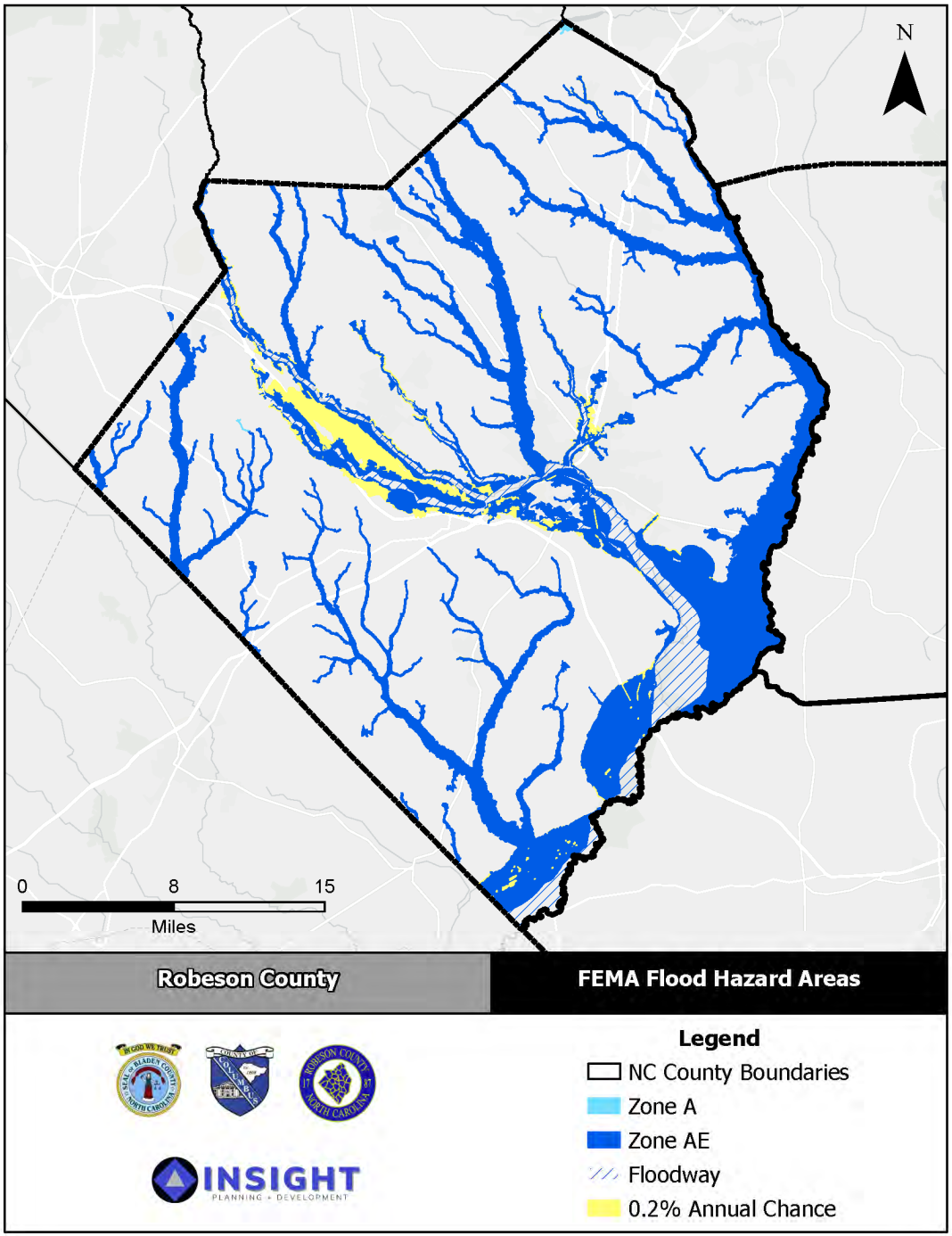
Flood


N
0
8
15
Miles
Bladen County
FEMA Flood Hazard Areas
INSIGHT
PLANNING + DEVELOPMENT
Legend
NC County Boundaries
Zone A
Zone AE
Floodway
0.2% Annual Chance

Flood


N
0
10
19
Miles
Columbus County
FEMA Flood Hazard Areas
INSIGHT
PLANNING + DEVELOPMENT
Legend
NC County Boundaries
Zone A
Zone AE
Floodway
0.2% Annual Chance

Flood


N
0
8
15
Miles
Robeson County
FEMA Flood Hazard Areas
INSIGHT
PLANNING + DEVELOPMENT
Legend
NC County Boundaries
Zone A
Zone AE
Floodway
0.2% Annual Chance

Flood

Probability	Impact	Spatial Extent	Warning Time	Duration
Possible	Critical	Moderate	6 to 12 hours	Less than 1 week

Population Impacted by the 100 Year Flood Event

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
Subtotal Bladen	*35,157*	*1,514*	*4.3%*	*5483*	*236*	*4.3%*	*2132*	*91*	*4.3%*
Subtotal Columbus	*58,099*	*1,493*	*2.6%*	*8830*	*227*	*2.6%*	*3514*	*90*	*2.6%*
Subtotal Robeson	*134,318*	*9,357*	*7%*	*15077*	*1050*	*7%*	*10223*	*712*	*7%*
TOTAL PLAN	**227,574**	**12,364**	**5.4%**	**29390**	**1513**	**5.1%**	**15869**	**893**	**5.6%**

*County numbers include municipalities.

Flood

Probability	Impact	Spatial Extent	Warning Time	Duration
Possible	Critical	Moderate	6 to 12 hours	Less than 1 week

Critical Infrastructure and Buildings at Risk to 100-year flood

Sector	Number of Buildings at Risk	Estimated Damages
Banking and Finance	72	$5,410,459
Chemical	2	$150,028,735
Commercial Facilities	6,917	$498,000,627
Communications	8	$332,798
Critical Manufacturing	881	$87,753,021
Defense Industrial Base	4	$623,176
Emergency Services	46	$1,841,760
Energy	65	$331,413,258
Food and Agriculture	1,353	$10,208,563
Government Facilities	513	$37,721,921
Healthcare and Public Health	163	$14,620,171
Nuclear Reactors, Materials and Waste	1	$60,907
Transportation Systems	500	$52,052,118
Water	92	$841,873,887

Severe Weather

(Thunderstorm Wind)

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Critical	Moderate	6 to 12 hours	Less than 6 hrs

- The average single cell thunderstorm is approximately 15 miles in diameter and lasts for less than 30 minutes at a single location. However, thunderstorms especially when organized in clusters or lines, can travel for distances exceeding 600 miles
- Between 1996 and 2024, the NCEI recorded 773 separate incidents of thunderstorm winds, strong winds and high winds across the three counties. These events caused $69,855,000 in recorded property damage, 27 injuries, and 2 fatalities.

Severe Weather

(Thunderstorm Wind)

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Critical	Moderate	6 to 12 hours	Less than 6 hrs

Building loss estimate from 50-Yr Thunderstorm Winds:

Jurisdiction (includes municipalities)	Total Buildings at Risk	Estimated Damages
Bladen Co.	23,110	$11,155,728
Columbus Co.	36,973	$22,259,060
Robeson Co.	60,618	$35,088,427
Total	120,701	$68,503,215

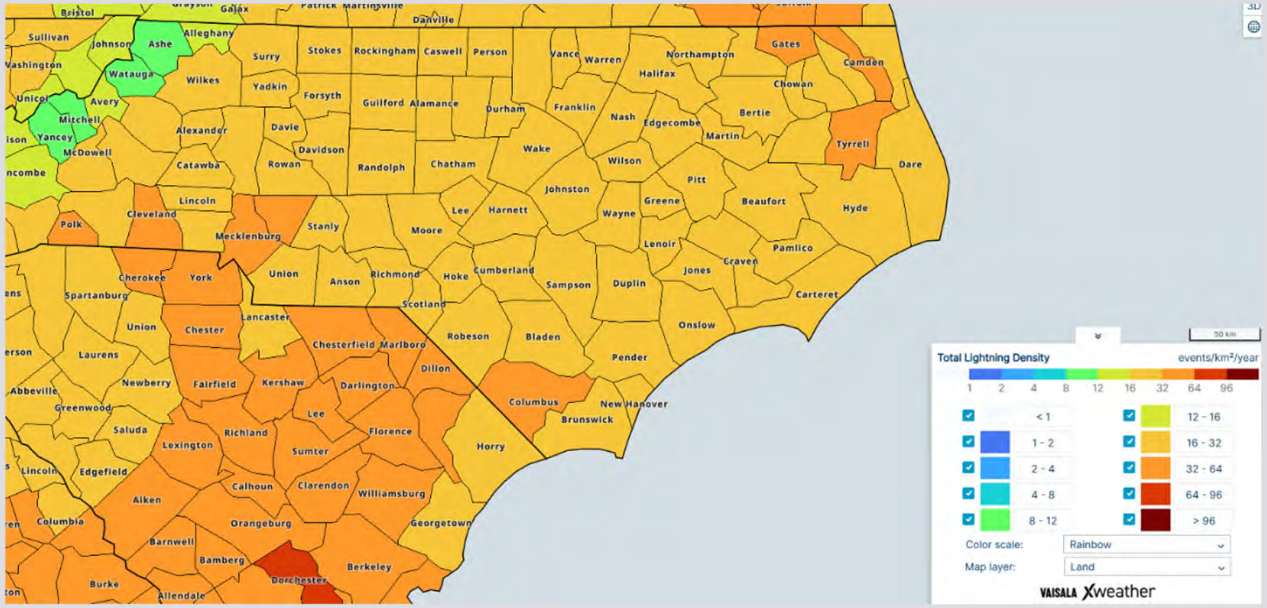
Severe Weather

(Lightning)

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Critical	Moderate	6 to 12 hours	Less than 6 hrs

- NCEI records 37 lightning incidents causing 7 injuries, 2 fatalities, and $1,040,000 in property damages.
- The BCR region experiences an average of 27.5 lightning events per square km per year.

Average Lightning Frequency per sq. km



Source: Vaisala Interactive Global Lightning Density Map.

Severe Weather

(Hail)

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Critical	Moderate	6 to 12 hours	Less than 6 hrs

Jurisdiction	Number of Occurrences	Average Hail Diameter
Bladen Co.	144	1.09”
Columbus Co.	136	1.09”
Robeson Co.	137	1.08”

- NCEI records 417 separate hail incidents across 178 days between 1996 and 2024 in the BCR Region.
- These events were reported to have caused an estimated $357,100 in property damage and $50,000 in crop damage.

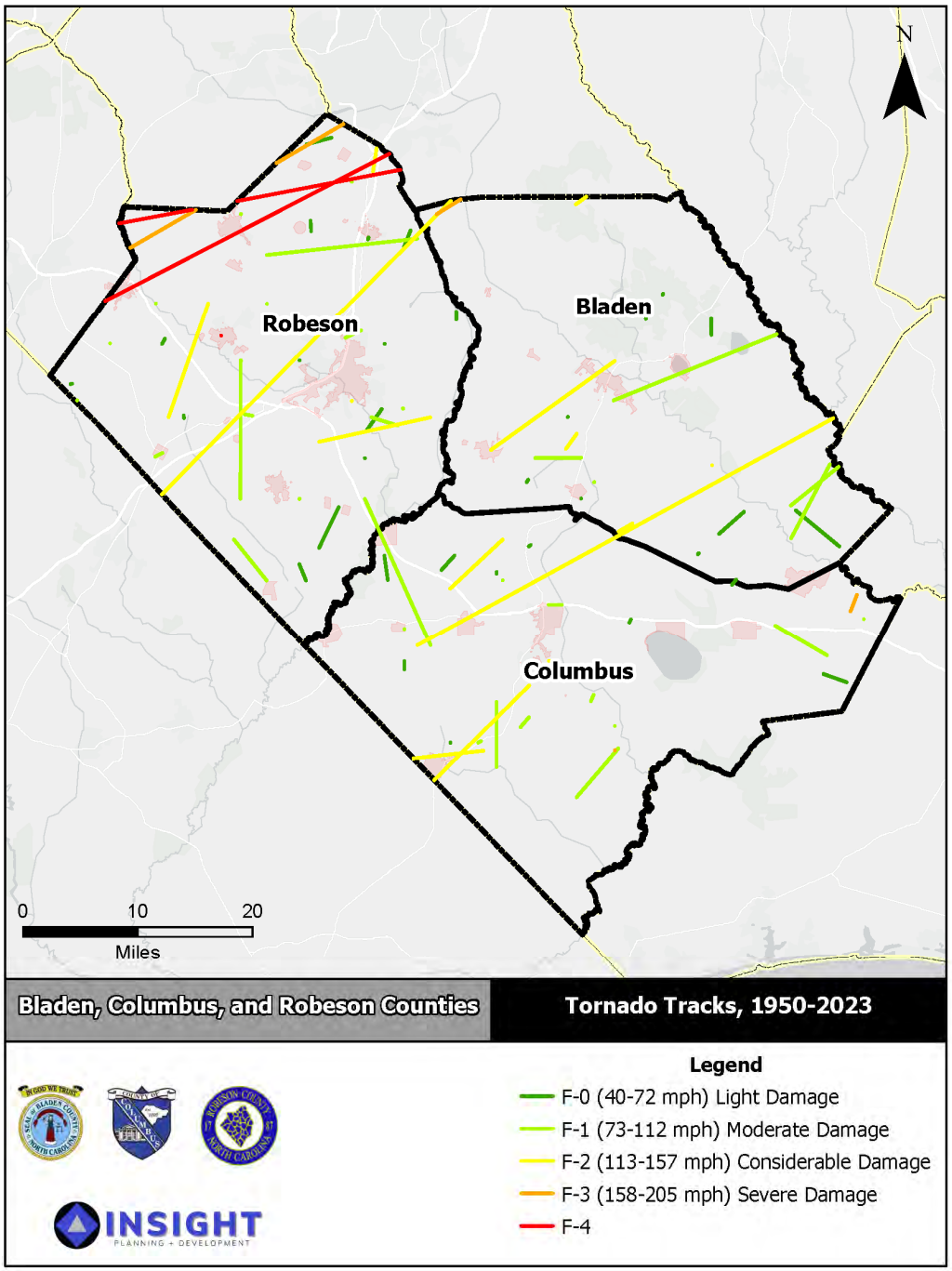
Tornado

Probability	Impact	Spatial Extent	Warning Time	Duration
Likely	Critical	Small	Less than 6 hrs	Less than 6 hrs

- The BCR region has experienced 120 tornado incidents between 1950-2024:
  - 19 deaths
  - 382 injuries
  - $46.7M in property damage
  - $13.5K in crop damage

County	Total Recorded Occurrences	Recorded Deaths	Recorded Injuries	Total Reported Property Damage	Total Reported Crop Damage
Bladen	31	5	8	$30.5M	$13K
Columbus	35	8	40	$6.6M	$500
Robeson	54	6	334	$9.6M	$0
Total	120	19	382	$46.7M	$13.5K

Tornado


N
Robeson
Bladen
Columbus
0
10
20
Miles
Bladen, Columbus, and Robeson Counties
Tornado Tracks, 1950-2023
Legend
F-0 (40-72 mph) Light Damage
F-1 (73-112 mph) Moderate Damage
F-2 (113-157 mph) Considerable Damage
F-3 (158-205 mph) Severe Damage
F-4
INSIGHT
PLANNING + DEVELOPMENT

Wildfire

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Limited	Small	Less than 6 hrs	Less than 1 week

- From 1984-2021, the BCR region experienced 7 wildfire events.
- Above count does not include fires managed by local departments; actual fire count is likely higher

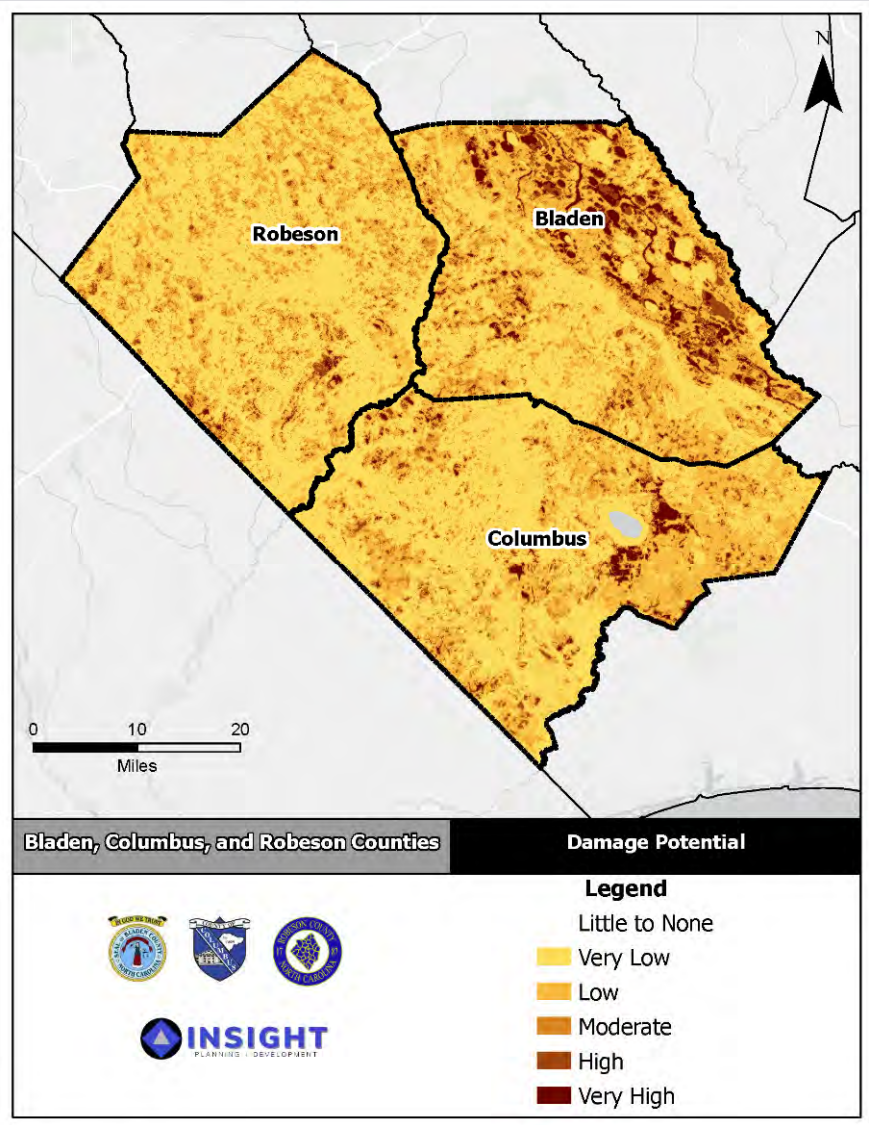
Wildfire Damage Potential

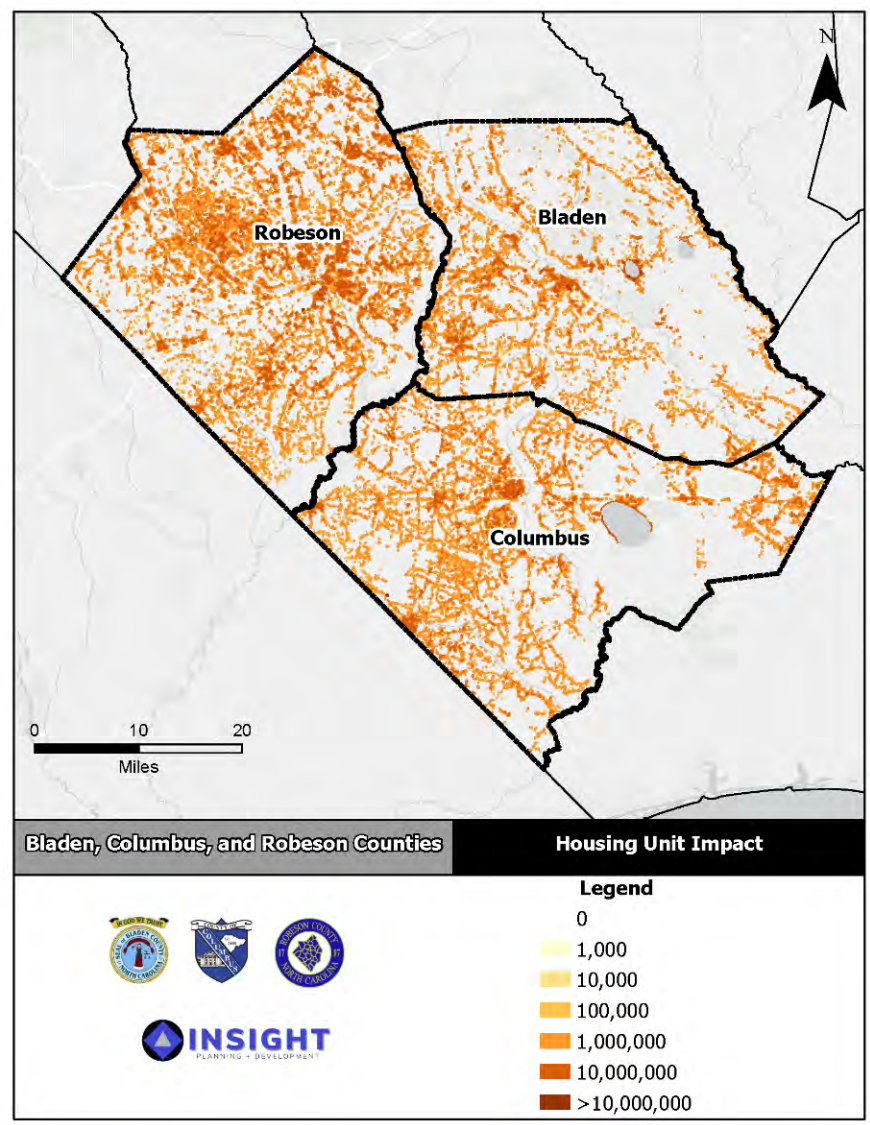
Class	Description
1, Very Low	Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.
2, Low	Small flames, usually less than two feet long; small amount of very short range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.
3, Moderate	Flames up to 9 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.
4, High	Large Flames, up to 40 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.
5, Very High	Flames exceeding 200 feet in length; expect extreme fire behavior.

Source: Southern Wildfire Risk Assessment

Wildfire

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Limited	Small	Less than 6 hrs	Less than 1 week





Winter Storm

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Minor	Moderate	More than 24 hrs	Less than 1 week

Past Occurrences, 1996-2024

Hazard	Bladen	Columbus	Robeson
Frost/Freeze	3	3	3
Heavy Snow	5	4	5
Ice Storm	6	1	5
Winter Storm	7	5	10
Winter Weather	6	5	5

Major risks include:

- icy roadways
- cost of snow and debris removal
- power outages
- indirect losses such as lost productivity

Priority Risk Index (PRI)

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 probability	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	

Risk Assessment Category	Level	Degree of Risk Criteria	Index	Weight
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	

PRI Results

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Dam/Levee Failure	Unlikely	Limited	Small	Less than 6 hrs	Less than 6 hrs	1.8
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
Hurricane/Tropical Storm	Likely	Critical	Large	More than 24 hrs	Less than 24 hrs	2.9
Inland Flooding: 100-/500-year	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

Continue to . . .

- Reach out to stakeholders within your community including members of underserved populations so that they can provide input and involve themselves in the hazard mitigation planning process.
- Review the existing HMP and provide a status update on implementation.
- Begin brainstorming for new mitigation strategies for the hazards that have been identified today.
- Think of actions to implement projects, reduce damage, increase resilience!

Next Steps

- Develop Goals & Objectives
- Develop New Mitigation Actions
- Review Draft Plan

FINAL MEETING DATE TBD (May)


Questions or
Comments?

Bladen, Colombus, Robeson Regional Hazard Mitigation Plan Update

HIRA Meeting – Thursday, April 17th, 2025 @ 3pm EDT

Meeting Attendees	
Ryan Cox, Insight	PH: 910-874-2102
Danielle Taliaferro, Insight (scribe)	PH: 910-653-3458
Melissa Graham, Insight	
Carl Baker, NCEM Mitigation Plans Manager	Doris Underwood, Parkton Mayor
Darren Norris, Columbus Regional Healthcare System, Emergency Manager	Nathan Slaughter, NCEM
	John Mello, NCEM Hazard Mitigation Planner
Greg Elkins, Bladen County	Angela Pitchford, Town Manager, Maxton (Robeson)
Joey Coleman, Bladen County, Emergency Management	Peyton Campbell, AECOM
	Sean Martin, Town Administrator, White Lake (Bladen)
Renee Babson, Bladen County EM	Kelly Keefe, AECOM
Teresa Smith, Columbus County EM Services Deputy Director	Justin Hunt, Interim EM Director, Robeson
	Claudia Bray, Sandyfield/Bolton (Columbus)
Josh Ward, Brunswick (Columbus)	

I. Ryan Cox opens meeting
II. Intros/Review Agenda
III. Planning process
    a. Review of steps
IV. Hazard Identification & Risk Assessment (HIRA)
    a. Steps 4 & 5 of the update process
V. Review of major Disasters in the Bladen, Columbus, Robeson (BCR) Region
    a. Existing plans review
    b. Hazards not included in current plan – review
    c. Any desire from group to add?
        i. Joey Coleman, Bladen re: adding action items – Ryan suggests sending in email so it can be captured in the next meeting (Mitigation Strategy)
        ii. Nathan Slaughter re: excluded hazards – extreme heat – it has been popular topic of discussion
        iii. Joey – if we have extreme heat, do we add extreme cold? Severe winter weather?
        iv. Requests to add extreme heat
        v. Justin Hunt, Robeson – requests to add cyber threats
        vi. Angela Pritchford – agrees re: cyber threat
        vii. Ryan Cox – have to have hazard mitigation actions in place for every hazard identified, correct?
        viii. Nathan – FEMA will only look at natural hazards
        ix. John – can add anything you want to the plan – FEMA will only review natural hazards
        x. Good to have ideas and add them to plan – doesn't mean you have to do anything about it, just addressing it and identifying it as an area of concern
        xi. Ryan – do we still want to add cyber?
        xii. Teresa Smith – wants to include it
        xiii. Group confirms – will add Cyber & infectious disease and extreme heat to plan update
    d. Hazards Profiled – Review
        i. Will add 3 additional hazards discussed today

VI. Asset Inventory
   a. Review of Population
   b. 2020 Census for all counties
      i. No comments from group
   c. Building exposure – does this look accurate?
      i. Group believes so
   d. Critical Infrastructures and Key Resources – any discrepancies?
      i. Joey – can you elaborate?
      ii. Bladen needs 911 center
      iii. Nathan or Kelly?
      iv. Ryan will get back to Joey on 911 center re: stand alone?
      v. Need updated numbers re: infrastructure
      vi. Tier 2 for most counties is off… need folks to send in updated numbers if they have them
      vii. Robeson does not have Nuclear reactor
      viii. Justin Hunt – we have 39 total facilities re: emergency services
   e. Danielle to send out table (slide 15) to group for updating
   f. What are critical facilities – review definition
   g. Critical Facilities for Bladen – Review map
      i. Joey – are they itemized? Ryan – we can get them to you, but the list is in current hazard mitigation plan
   h. Critical Facilities for Columbus _ Review Map
   i. Critical Facilities for Robeson – Review Map

VII. Agriculture Risk and Exposure
   a. Geospatial information
   b. Insurance information may differ
   c. Farmers only insure a portion of crops

VIII. Hazard Profiles
   a. What is PRI?
   b. How we calculate what risk is for each hazard
   c. What goes into it?; probability of occurrence, warning system?
   d. Spatial extent -what is vulnerable to hazard?
   e. Duration – how long will it last?

IX. PRI Scale
   a. Review of what's identified (See slide 23)
   b. Does it look accurate? – Group confirms it does

X. Profile Summary – Review Slide 24
   a. Any changes needed?
   b. Joey – after Florence, the duration was weeks with the fluctuation of flooding waters
   c. In Bladen County, Hurricane Florence was a 1000 year storm
   d. Haven't seen levy failure to that extent
   e. We can change if the group prefers – time frames listed are average
   f. Would take it to a moderate level
   g. Joey – suggests increasing probability of hurricane to "Highly Likely"
   h. Group agrees with this
   i. Will make the change in PRI to highly likely
   j. Will stick with 6 hr duration

XI. Climate Change Effect
    a. Influencing multiple hazards
XII. Carl – FEMA does not have climate change effect requirement for natural hazards
XIII. Dam/Levee Failure Review
    a. Reference slide 27
XIV. Review of Dam Failures
    a. Matthew and Florence
    b. Anymore we are not aware of?
    c. To Justin – how to address for Robeson?
    d. Justin – dam didn't fail, water just ended up going around it.
    e. Let it ride
XV. Drought
    a. Categories based on crop loss
    b. Keep in mind that Farmers do not insure all of crops
XVI. Earthquake
    a. 5 earthquakes experienced somewhat close to the region, but nothing of significance
XVII. Hurricanes
    a. Review of map
    b. Some documentation is misleading relative to storm categories
XVIII. Flood zone review for each county (slides 37-39)
XIX. Severe weather
    a. Average single cell thunderstorm is approx. 15 miles in diameter
    b. Buildings at risk
    c. Estimated damages
XX. Lightening
XXI. Hail
    a. Highly likely
XXII. Tornado
    a. Several events
    b. Review of track map
XXIII. Wildfire Risk
    a. Highly likely
    b. 7 events recorded in the region
    c. Ryan request additional info from the group if it's available
    d. Has call into DOI
    e. Justin – 2007 was bad year
    f. Nathan – would depend on size of the 7 noted – why is limited to such small number
    g. Review wildfire map
        i. Nathan – turn out a ton of data – million different ways to slice the data
        ii. They have good data
XXIV. Winter storms
    a. Past occurrences
    b. Review of major risks included
XXV. Back to PRI Review
    a. Scoring and how it's achieved
    b. Likely vs Highly Likely – will add one (1) point to score

c. Review of results (slide 52)

XXVI. Next steps

a. What needs to happen for next meetings
b. Reach out to stakeholders
c. Get folks involved
d. Need to review current plan and provide updates to action items
e. What are our goals, strategies, and actions
f. Objectives are still not required. Nathan confirms.
g. Need to have goals and actions
    i. Very localized & specific to each jurisdiction participating in the plan
h. Begin brainstorming for new mitigation strategies for the hazards that have been identified today
i. Send new actions to Danielle, copy Ryan – need to make sure they are included in the update

XXVII. Nathan – can you send out existing actions to each county?

a. Ryan – yes, we are working to update right now but can send out following review
b. Once Insight completes review, we will send out individual action plans to corresponding counties

XXVIII. Questions/Open Floor

a. Nathan – existing plan doesn't expire until October 6 but trying to get draft together and up to FEMA well in advance of expiration date.
b. Following FEMA review, still need to go through adoption with resolutions.

-END-

Bladen, Columbus, Robeson Regional HMP Update: Mitigation Strategy Meeting

2025 Hazard Mitigation Plan Update

May 29, 2025

Virtual Meeting

Agenda

- Welcome & Introductions
- Meeting Objectives
- Planning Process & Status Updates
- Capability Assessment
- Mitigation Strategy
- Next Steps & Questions

Introductions

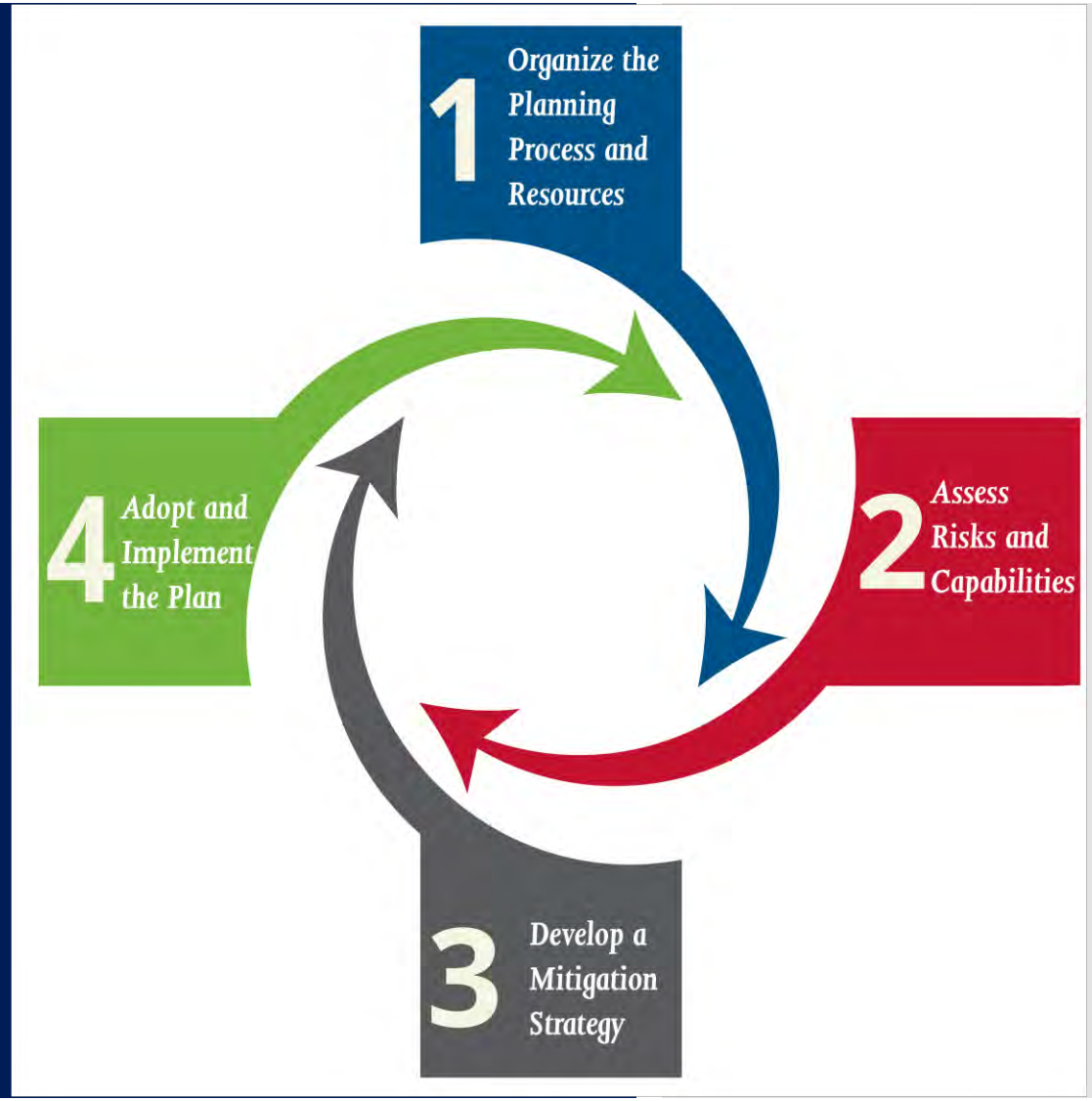
- Welcome!
- Reminder to Sign-In
- Introductions

Meeting Objectives

Capability Assessment
Overview of Capability Assessment (Existing)
Discuss changes needed In the capability assessment
Current Capability Assessment in progress!
Info on Substantial Damage Estimation Procedures needed.

Mitigation Strategy Development
Overview of Mitigation
Consider Mitigation Techniques Available
Review Previous Mitigation Goals
Discuss Existing Actions and Update Status
Identify New Actions and Opportunities

Organize Resources



Plan Update Process

Step 1: Organize Resources



Planning

Planning for Public Involvement

Status: Ongoing

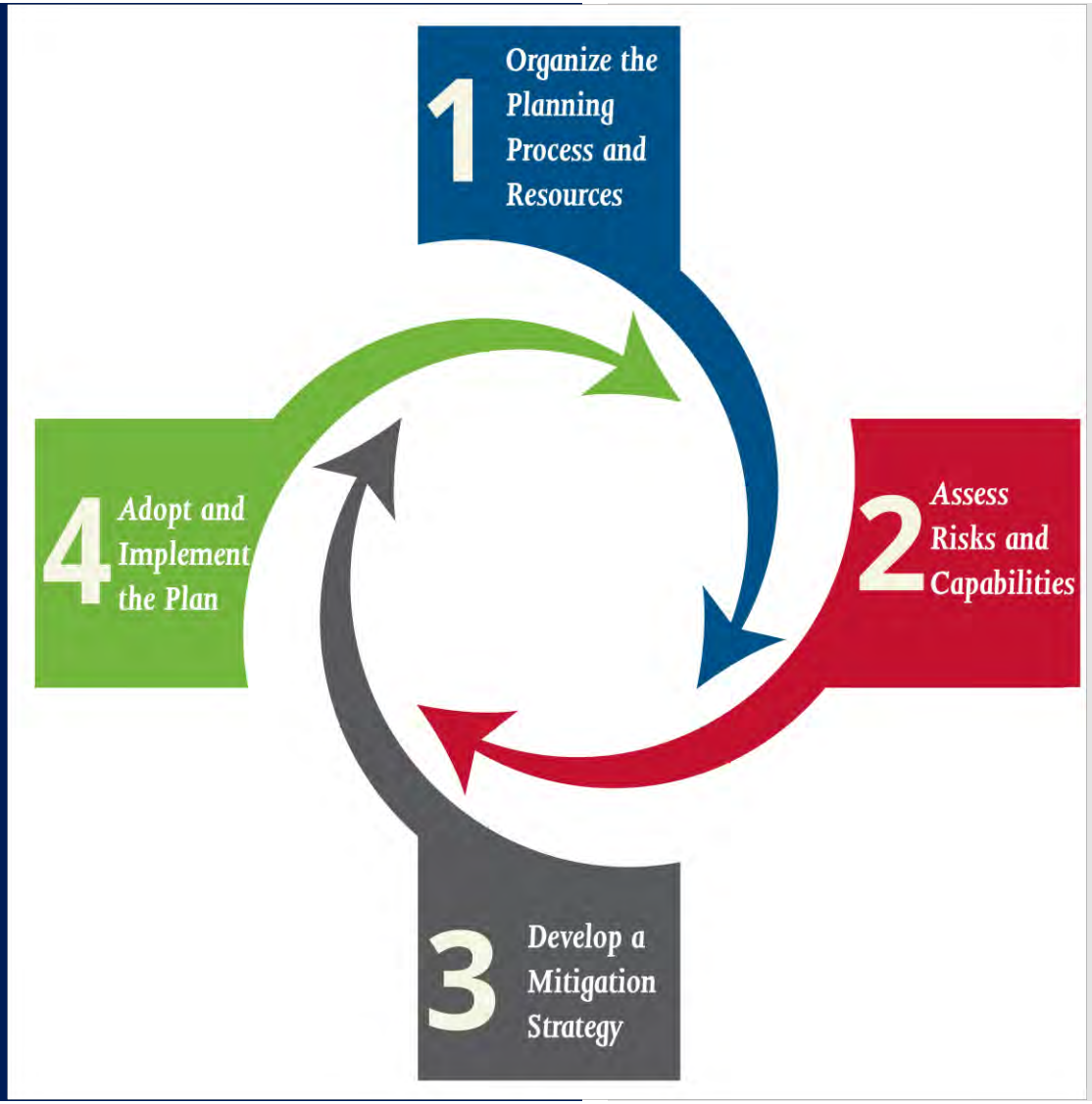


Coordinating

Coordinating with Departments and Agencies

Status: Ongoing

Risk & Capability Assessment





Hazard Identification

What Can Happen Here?

- Previously Identified Hazards
- Identify New Hazards
- Status: Completed



Vulnerability Assessment

What Will be Affected/Impacted?

- Will Use County Parcel Data, FEMA HAZUS Analysis, and NCEM Data
- Status: Ongoing



Capability Assessment

What is our capacity to mitigate?

- Communities previously Self-Assessed Capability
- What Mitigation Actions are Feasible
- Where Gaps Exist
- Status: Current

Plan Update Process
Step 2: Risk & Capability Assessment

What is Capability?

- Measures community capability to implement hazard mitigation activities
- Identifies and target gaps, conflicts and opportunities with existing local plans, programs, policies, etc.
- Identifies mitigation measures already in place or underway
- *Coupled with the Risk Assessment, the Capability Assessment helps to form the foundation for identifying Mitigation Actions*

Capability Indicators

Indicators help evaluate resources, capability, and readiness of a community to effectively implement and sustain mitigation activities.

Plans and Regulatory – Plans, programs, & ordinances

Administrative and Technical – Relevant staff, personnel, and expertise

Fiscal Resources – Bonds, fees, and taxes

Education and Resources – Education programs, volunteer groups, and certifications

Mitigation Resources – Mitigation grants and activities

Political Will – Decision-making, investments, regulation enforcement

Capability Indicator Examples

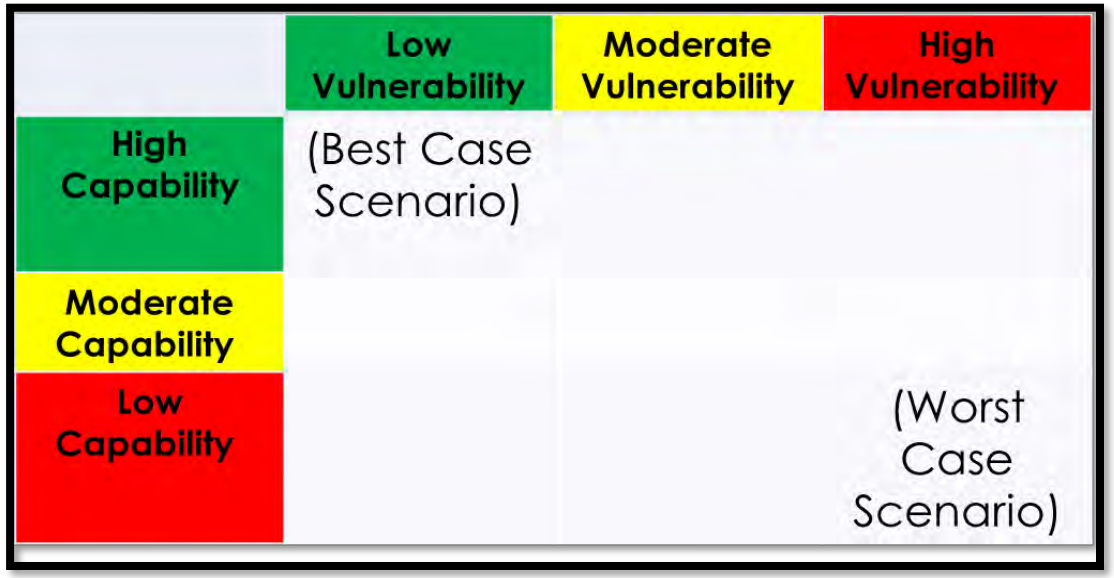
Plans and Regulatory
Hazard Mitigation Plan
Comprehensive Land Use Plan
Stormwater Management Plan
Flood Prevention Ordinance
National Flood Insurance Program
Community Rating System

Fiscal Resources
Capital Improvement Program
CDBG Funding
Special Purpose Taxes
Gas/Electric Utility Fees
Stormwater Utility Fees
Special Tax Bonds

Administrative and Technical
Building Official
Emergency Manager
Floodplain Manager
Grant Writers
Land Surveyors
GIS-Skilled Personnel

Education and Outreach
Local Citizen Groups
School Programs
Ongoing Education Programs
Storm Ready Certification
Firewise Community Certification
Public-Private Partnerships

Capability vs. Vulnerability Matrix



High Capability + Low Vulnerability (Best Case Scenario):

The jurisdiction has robust planning, technical, and financial tools in place and is effectively minimizing hazard exposure. These communities are well-positioned to implement mitigation actions with minimal assistance.

Low Capability + High Vulnerability (Worst Case Scenario):

The community lacks the capacity to implement or enforce mitigation strategies and faces significant risk from natural hazards. These areas should be prioritized for technical support, grant funding, and capacity-building.

Moderate Capability/Vulnerability Intersections

Communities in the mid-range of the matrix may have some foundational tools but need targeted improvements—such as updated ordinances, enhanced staff training, or expanded public outreach—to reduce risk more effectively.

New FEMA Requirement on Substantial Flood Estimates (SDE) for Capability Assessment

Rationale:

1. Focuses on identifying structures at risk of substantial damage from future flood events
2. Helps prioritize mitigation strategies and allocate resources effectively
3. Ensures a proactive approach to reduce vulnerability and enhance community resilience to floods
4. Emphasizes the importance of incorporating SDE findings into hazard mitigation planning for risk reduction

Follow-up Action Required: Must collect this information from each municipality individually (example below)

Immediately after a flood event, employees across multiple departments that consist of Town planners, stormwater and transportation engineers, inspectors, building officials, and certified floodplain managers deploy to the affected areas. The town is broken into three areas, and each area has a dedicated number of teams to conduct windshield surveys and assess damage.

This is tracked digitally and on paper forms and then logged into Town databases. Once homeowners come in for permits for repair work, this data is referenced and if a substantial damage is triggered then the building must come into compliance with all Town ordinances, including the floodplain ordinance.

If a homeowner or applicant comes in to improve the property voluntarily without damage, then substantial improvement protocols are activated. This entails a lengthy review during plan review of the project scope, evaluating the building's depreciated value either by tax assessor value or through an appraisal, and the work is adjusted accordingly depending on the determination. All work is also field verified by inspectors to make sure construction is up to code and in compliance with Town ordinances.

Impact on Mitigation Actions

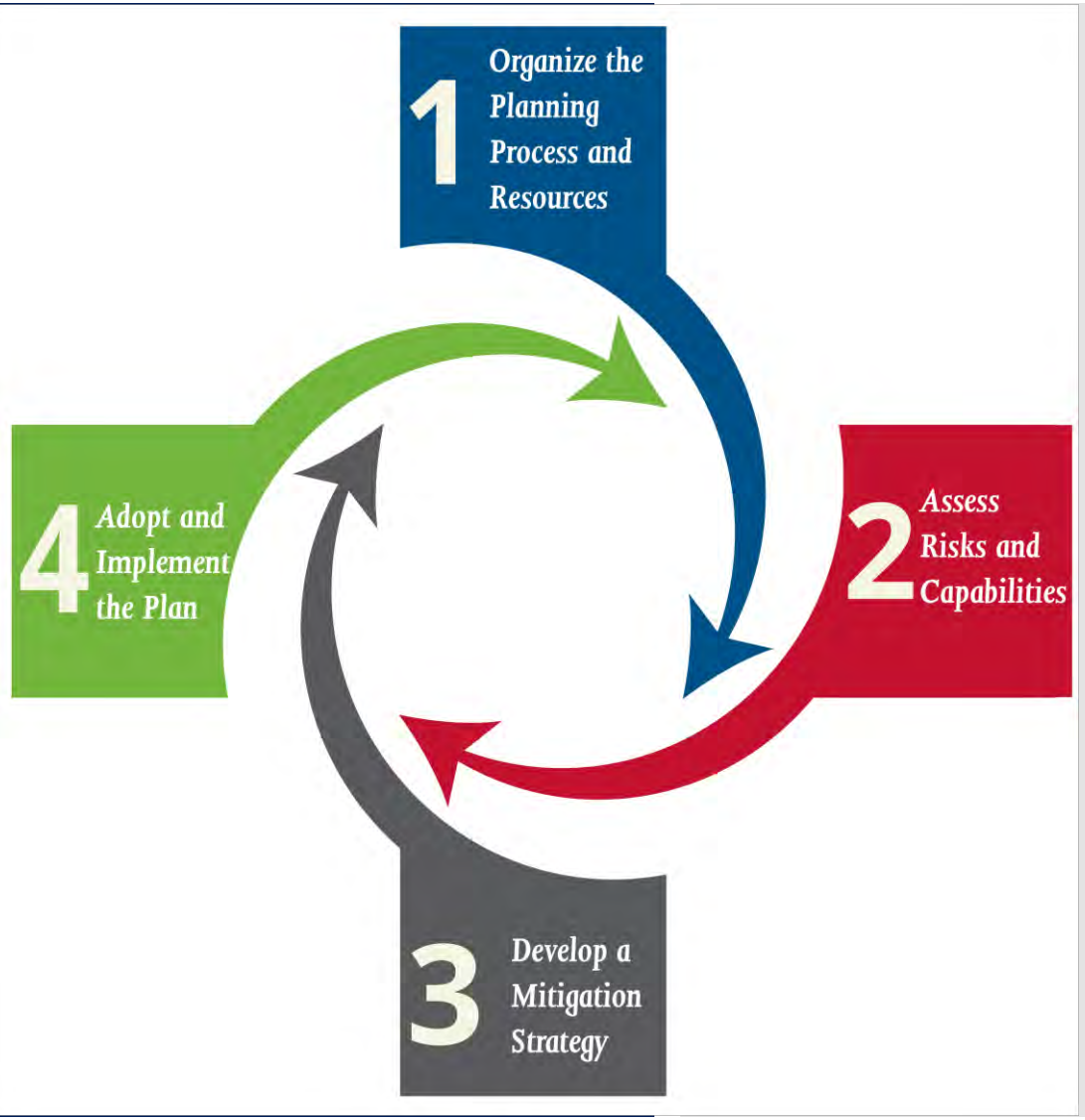
***Note**: Hazard scores may be adjusted in the draft plan per the previous HIRA meeting.

High Risk (≥ 3.0)	Excessive Heat Flooding Hurricane & Tropical Storms Tornado Thunderstorm Wind Severe Winter Weather Wildfire
Moderate Risk (2.0 – 2.9)	Drought Dam Failure Lightning & Hail
Low Risk (< 2.0)	Earthquake

Analysis of risks alongside capabilities is essential for informed decision-making and mitigation strategy development because the combined data:

1. Provides a complete picture of the risks faced by the community and its readiness to manage them
2. Helps identify gaps in preparedness and allocates resources strategically to address vulnerabilities
3. Ensures investments in mitigation measures are targeted at areas and/or populations at highest risk (supports prioritization of actions)

Mitigation Strategy Development



Plan Update Process

Step 3: Mitigation Strategy Development

- Setting Mitigation Goals
- Reviewing Mitigation Alternatives
- Drafting an Action Plan

**Status of 3 Tasks: Current

What is a Mitigation Strategy?

What is the purpose?

- Reduce vulnerability and mitigate the impact of natural and man-made hazards on communities
- Prioritize actions and allocate resources effectively
- Collaborate with stakeholders, heighten awareness, and build capacity for continued hazard mitigation efforts

What does it entail?

- Development, prioritization, and implementation of feasible measures to prevent, prepare for, respond to, and recover from potential disasters



Basic Types of Mitigation



Mitigating against hazard impacts on **existing development**

- Houses
- Businesses
- Infrastructure
- Critical Facilities



Ensuring **future development** is conducted in a way that does not increase vulnerability

- Plans
- Policies
- Procedures

Mitigation Techniques

1. Prevention
2. Property Protection
3. Natural Resource Management
4. Structural Projects
5. Emergency Services
6. Education and Awareness

Mitigation Techniques – Examples

Prevention
Planning/Zoning
Building Codes
Open Space Preservation
Floodplain Regulations
Stormwater Mgmt.
Drainage Maintenance

Natural Resource Mgmt.
Floodplain Protection
Watershed Mgmt.
Riparian Buffers
Erosion/Sediment Control
Wetland Restoration
Habitat Preservation

Emergency Services
Warning Systems
Response Equipment
Shelter Operations
Evacuation Planning
Response Training
Sandbagging

Property Protection
Acquisition/Relocation
Building Elevation
Critical Facility Protection
Retrofitting
Safe Room/Shutters
Insurance

Structural Projects
Reservoirs
Dams, Levees, Dikes
Stormwater Diversions
Retention Basins
Channel Modification
Storm Sewers

Education/Awareness
Outreach Projects
Speaker Series
Hazard Map Info
Real Estate Disclosure
Library Materials
Hazard Expositions

Setting Mitigation Goals

- **Goal 1 - Promote the public health, safety, and general welfare of residents and minimize public and private losses due to natural hazards.**
- **Goal 2 - Reduce the risk and impact of future natural disasters by regulating development in known high hazard areas.**
- **Goal 3 - Pursue funds to reduce the risk of natural hazards to existing developments where such hazards are clearly identified, and the mitigation efforts are cost-effective.**
- **Goal 4 - Effectively expedite post-disaster reconstruction.**
- **Goal 5 - Provide education to citizens that will empower them to protect themselves and their families from natural hazards.**
- **Goal 6 - Protect the fragile natural and scenic areas of the Region, particularly those areas that protect drinking water supplies.**

Review Mitigation Alternatives

1. Review previous plan to determine the status of existing actions
   - FEMA Requirement
   - Completed, deleted, progress update
   - "Ongoing" is too broad
2. Identify new mitigation actions to address evolving needs/vulnerabilities

Action Number	Description	Project Status	Goal Addressed (see p. 8-4)	Hazards Addressed	Priority	Responsible Party/Dept.	Funding Sources	Cost Estimate	Timeframe
Bladen County and all Participating Jurisdictions (Bladenboro, Clarkton, Dublin, East Acardia, Elizabethtown, Tarheel, White Lake)									
B-1	Bladen County and all jurisdictions will review the County's Comprehensive Land Use Plan annually to ensure that the Future Land Use Map adequately delineates portions[NP] of the County deemed unsuitable for development due to existing environmental conditions.	To be Continued. Bladen County Planning reviews the land use plan on a yearly basis to ensure that future land use is suitable for development	1, 2, 6	Flood, Wildfire	Medium	• Bladen County Planning • Municipal Administrations • Bladen County MAC	GF	Low	Low
B-2	Bladen County, as well as all municipal jurisdictions participating in the NFIP program (Bladen County (unincorporated), Bladenboro, Clarkton, East Arcadia, Elizabethtown, and White Lake) will review their respective Flood Damage Prevention, Ordinances to assess whether any revision and/or updates have been mandated by FEMA or NCEM. Additionally, jurisdictions will consider whether regulatory options are available to provide for more effective floodplain management.	To be continued, Bladen County is currently acquiring and elevating properties that are in the floodplain and repetitive loss properties due to flooding.	1, 2, 6	Flood	Medium	• Bladen County Planning • Municipal Administrations • Governing Boards	GF, NCDPS	Low	Low
P-3	Bladen County, as well as all participating municipal jurisdictions, will continue to enforce the NC State Building Code. Local Government Inspections Staff will recertify the NC State Building Code as the adopted local regulation applying to all construction activities on an annual basis. Through enforcement of the NC State Building Code, all jurisdictions will work to ensure that all structures, including manufactured homes, are properly anchored to minimize potential impacts stemming from a disaster event.	To be continued, Bladen County adheres to all NC building code regulations and attends con-ed to keep current with all changes.	2	Dam/Levee, Flood, Hurricane, Severe Weather, Wildfire	High	• Bladen County Building Inspections • Municipal Administrations	GF	Low	Low
B-4	Bladen County, including all municipal jurisdictions participating in the NFIP program, (Bladenboro, Clarkton, Elizabethtown) will maintain and update local Flood Insurance Rate Maps (FIRM) on the County Geographic Information System (GIS). These maps will be reviewed and formally updated as revisions become available through the North Carolina Floodplain Mapping Program.	To be Continued, Bladen County continues to maintain all FIRM maps to remain eligible with NFIP	1, 2	Flood	Medium	• Bladen County Planning • Municipal Administrations • Governing Boards	GF, NCDPS	Medium	Low

Review Previous Plan
Mitigation Action Plan (2020)

Table 9.1 (Pages 933-941)

Action

Description

Priority

Lead Agency

Potential Funding Sources

Status

Status Explanation

G3	Request Hazard Mitigation Grant Program (HMGP) funding for the elevation and/or acquisition of structures substantially damaged during a natural hazard event. This funding may also be utilized to address infrastructure needs, if it is determined that facilities within the County or any of the participating jurisdictions are adversely impacted by flood events.	Greene County, Hookerton, Snow Hill, Walstonburg	Flood, Hurricane & Tropical Storm, Dam Failure	High	1.2	PP	• Greene County Administration • Greene County Emergency Management • Municipal Administrations	Staff Time	HMGP, PDM, UHMA	Ongoing – As Needed	As Needed – Carry Forward	Greene County will continue to apply for this funding as the need and/or opportunity arises.
G4	Work to educate and inform local real estate agents, contractors, developers and citizens about issues associated with development in the floodplain by Ensuring that a range of materials related to flood insurance, flood protection, floodplain management, information on floodplains, and listings of qualified contractors familiar with floodproofing and elevation techniques, are available through various avenues including: o Placing materials in the local library o Maintaining documents at the County Planning and Economic Development Office o Disseminating information to local contractors	Greene County, Hookerton, Snow Hill, Walstonburg	Flood, Hurricane & Tropical Storm, Dam Failure	High	4.2	PIO	• Greene County Planning and Administration • Municipal Administrations	Staff Time	General Fund, NCDPS	1 year	Not Started – Carry Forward	Greene County will initiate these efforts in conjunction with the County's application to the Community Rating System Program.

What hazards does this action address?

How long will it take to implement?

Developing a Mitigation Action Plan

Identify New Mitigation Actions

- Brainstorm and discuss a full range of possible mitigation projects/available mitigation techniques
  - Consistent with mitigation goals and other community objectives
  - Based on hazard risk and local capability
  - ~~Consider BRIC projects for inclusion~~
- Use available resources to aid in strategy development
  - FEMA's Local Mitigation Planning Handbook
  - FEMA's Mitigation Ideas
  - FEMA's Economic Development Strategy and Hazard Mitigation Plan Alignment

Mitigation Strategy - Examples

Potential Actions to Mitigate Excessive Heat (tied for highest PRI as per Risk Assessment findings)

1. Increase Green Space, Parks, and Urban Forests
2. Develop and Implement Heat Emergency Response Plans/Protocols
3. Install Public Cooling Stations, Misting Stations, and Water Fountains in Public Spaces
4. Conduct Outreach Campaigns to Raise Awareness About Heat-Related Risks

Mitigation Strategy - Examples

Potential Actions to Mitigate Hurricane & Tropical Storms (tied for highest PRI as per Risk Assessment findings)

1. Elevating structures to meet requirements of FDPO or relocate structures
2. Provide land use designations susceptible to severe damage from hurricanes and coastal storm events outside of designated SFHA
3. Utilize living shorelines and vegetation, leave natural areas in an undisturbed condition
4. Make structural modifications to increase resilience

Mitigation Strategy - Examples

Potential Actions to Mitigate Flooding (tied for second highest PRI as per Risk Assessment findings)

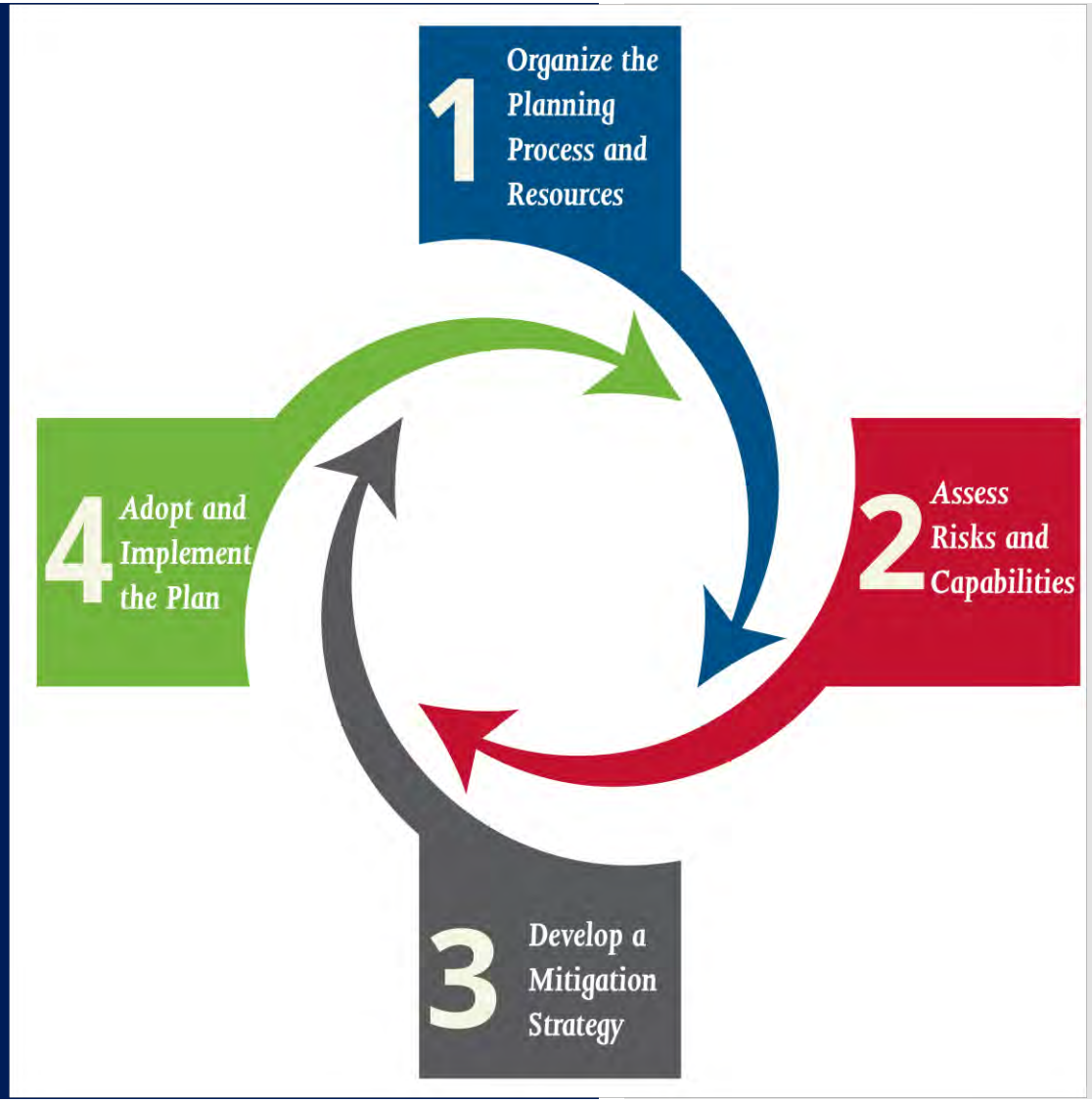
1. Remove Existing Structures from Flood Hazard Zones
2. Increase Capacity of Storm Drainage System
3. Protect and Preserve Wetlands
4. Develop an Open Space Acquisition, Reuse, and Preservation Plan

Next Steps

1. Submit Updated Mitigation Actions – As soon as possible, we need these back in a timely manner to provide NCEM with a DRAFT of the plan six months prior to expiration.
2. Submit New Mitigation Actions (if any).
3. Review Draft Capability Assessment – We will provide this assessment within the coming weeks.
4. Submit Substantial Damage Estimate (SDE) Procedures.
5. Draft Plan Submitted in ~~January~~ June.

Following Draft Plan Approval:

Adopt & Implement the Plan



Plan Update Process

Step 4: Adoption and Implementation

- Seeking Review and Approval from Relevant Authorities
- Securing Funding and Managing Resources of Mitigation Projects and Activities
- Executing the Identified Mitigation Actions
- Continuously Monitoring the Progress of Mitigation Activities

Information Needed for Capability Assessment & Mitigation Strategy!

- **Action Required: Submit Regional Plan Updates for Capability Assessment.**

- **Two-Week Submission Window: Mitigation Action Plan Updates.**
  - *Send to Ryan Cox & Danielle Taliaferro by Friday, June 13, 2025*



Questions

Questions/Comments/Concerns

Adjourn – Thank you!

Ryan Cox – rcox@consultinsight.com

Danielle Taliaferro – dtaliaferro@consultinsight.com

Nathan Slaughter – nslaughter@espassociates.com

Kelly Keefe – Kelly.Keefe@aecom.com

Mitigation Strategy Meeting Minutes
May 29, 2025 @ 2:30pm

Attendees	
❖ Ryan Cox, Insight	❖ Joey Coleman, Bladen Co EM
❖ Danielle Taliaferro, Insight (scribe)	❖ Renee Babson, Bladen Co EM
❖ Nathan Slaughter, ESP	❖ Teresa Smith, Columbus County EM
❖ Justin Hunt, Robeson County EM	❖ Josh Ward, Tabor City
❖ Darren Norris, Columbus Regional EM	❖ Angela Pitchford, Town of Maxton
❖ Nancy Livingston, Town of Brunswick	❖ Ashli Barefoot
❖ Victoria Carter, Town of Pembroke	❖ Jason Robinson
❖ Kelly Keefe, AECOM	
❖ Carl Baker, NCEM	

I. Opening/Introductions
II. Agenda Review
III. Critical Facilities Update
    a. Thanks to all for the updates
IV. Folks participating today
    a. Ryan Cox
    b. Nathan Slaughter
    c. Kelly Keefe
V. Housekeeping items
VI. Meeting Objectives
VII. Organize Resources – Step 2
    a. Assessing capabilities as well
    b. Between steps2-3
VIII. Planning process update
    a. Hazard Identification
    b. Capability Assessment
    c. AECOM/ESP has completed Vulnerability Assessment
IX. Capability Overview (Nathan)
    a. As a jurisdiction – how to mitigate hazards
    b. What is the capacity and capability?
    c. Indicators to look for
    d. Grasp good understanding of what stake holders can sign up to do as part of the mitigation strategy
    e. Review of indicators (Slide 10)
    f. Indicator examples (Side 11)
    g. Capability vs. Vulnerability Matrix (review slide 12)
        i. Want High Capability with Low Vulnerability – Best Case Scenario
        ii. Worst Case – Low Capability and High Vulnerability
X. New FEMA Requirement on Substantial Flood Estimates (SDE) for Capability Assessment
    a. Carl Baker in chat, *"Including the SDE procedures are a part of documenting NFIP compliance."*
    b. Nathan asks group to send email on how this is addressed
    c. Smaller towns can defer to county – Can state that the county handles

d. Ryan – has come up in a few communities that actually did not do anything with substantial damage. Created negative impact.
e. Larger cities handle their own substantial damage
f. Counties do it for a lot of local governments
g. Can affect status with NFIP down the road!
h. Nathan – been sharing this language with communities that has worked (reference slide 13)
i. Teresa Smith – flood damage ordinance – is it supposed to specify who is responsible for this function?
    i. Ryan – doesn't need a name, but a title is required.
    ii. Ryan – can get a contact sent over
    iii. Teresa – planning and zoning ordinance
    iv. Carl may be able to figure that out
    v. Teresa to email ordinance to Carl for review.
j. Joey Coleman, Bladen also needs assistance
    i. Joey will look at template and send it to Carl

XI. Impact on Hazard Mitigation Actions
a. Want to make sure that we're looking at High Risk Vulnerabilities
b. Address both High Risk and moderate risk hazards

XII. Mitigation Strategy Development
a. Step 3 – Comprehensive update
b. Need each region to review and update action plans
c. Purpose – Reduce vulnerability
d. Entails – Development, prioritization, and implementation of feasible measures to prevent, prepare for, respond to, and recover from potential disasters.

XIII. Basic types of mitigation
a. Mitigation against hazard impacts on existing development
b. Ensuring future development is conducted in a way that does not increase vulnerability

XIV. Mitigation Techniques
a. Prevention
b. Property Protection
c. Natural Resource Management
d. Structural Projects
e. Emergency Services
f. Education and Awareness

XV. Technique examples (reference slide 20)

XVI. Review of goals
a. Ryan asks group to review goals (side 21)
b. Open floor – anybody want to change/update/remove goal? No responses goals to remain for update

XVII. Mitigation Action Update
a. Need input from regions, counties, and smaller communities that have actions
b. Review of example (slide 23-24)
c. Funding sources were updated as some were inaccurate
d. Gave some updates in project status/language

XVIII. New Action Plans

a. Brainstorming session – potential actions that should be added to existing action plan?
b. Goals are staying the same - what are other community objectives
c. Bladen is looking for new EOC – add to plan
    i. Build a more hardened facility that can withstand severe weather – could be funded by one of the HM Grants
d. Carl – BRIC 2024 was defunded; NC is still accepting apps for folks who submitted LOI – label under HMA (Hazard Mitigation Assistance)
e. Ryan – believes BRIC may return with new regulations
f. Carl agrees – nothing said it was gone forever
g. Regarding mitigation strategies – Ryan, Carl, Kelly, Nathan are great resources
h. Carl adds link to chat https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf - mitigation ideas handbook
i. Kelly – first step in mitigation is getting it in the plan – handbook is very helpful

XIX. Mitigation Strategy Examples (slides 26-28)
    a. Nathan mentions adding any mitigation plans into the plan for funding purposes. HMA will ask where it is noted in the plan
    b. Question regarding

XX. Schedule meeting for two weeks from today – need actions back asap
    a. If there are any questions, please reach out.
    b. Nathan, Kelly, and Ryan are great resources
    c. Separate meetings can be scheduled if necessary

XXI. Need SDE procedures

XXII. Draft plan slated for submittal for end of June

XXIII. Nathan – existing plan expires in October this year
    a. Need to submit draft to Carl and team at NCEM then it goes to FEMA
    b. Need ample time to review.

XXIV. Don't want anyone's plan to expire

XXV. Upon approval - every jurisdiction will need to adopt the plan
    a. Will have resolution ready for each
    b. Needs to be added to agendas for adoption early enough
    c. Early/Mid-September – may send out resolutions for adoption. Could be sooner
    d. Nathan – once plan is submitted to NCEM, before it's sent to FEMA, we can start with adoptions.
    e. Adopting the "approved" version

XXVI. Nathan – will send out sample resolutions once draft plan is sent. Possibly July timeframe

XXVII. Schedule meeting for June 13 – 45min – hour to fill gaps and check on any outstanding items.

XXVIII. Questions/Comments/Concerns

XXIX. Open floor/Wrap up

-END-

BCR Regional HMP 2025 Update: Public Meeting – Review Draft Plan

2025 Hazard Mitigation Plan Update

June 26, 2025

Virtual Meeting

Introductions

Welcome!

Reminder to Sign-In

Purpose

- Share the draft of the Regional Hazard Mitigation Plan
- Present key findings and proposed mitigation strategies
- Gather final public input before plan submission & adoption

Planning Process

- Step 1: Organize to Prepare the Plan
- Step 2: Involve the Public (*ongoing*)
- Step 3: Coordinate (*ongoing*)
- Step 4: Assess the Hazard
- Step 5: Assess the Problem
- Step 6: Set Goals
- Step 7: Review Possible Activities
- **Step 8: Draft an Action Plan (current)**
- Step 9: Adopt the Plan
- Step 10: Implement, Evaluate, & Revise the Plan

Plan Structure -Overview

1. Introduction
2. Planning Process
3. Planning Area Profile
4. Risk Assessment
5. Capability Assessment
6. Mitigation Strategy
7. Mitigation Action Plans
8. Plan Maintenance
9. Plan Adoption

1. **Introduction**
   - I. Background
   - II. Purpose and Authority
   - III. Scope
   - IV. References
   - V. Plan Organization

Provides context and justification for the plan

2. **Planning Process**
   - I. Purpose and Vision
   - II. What's Changed in the Plan
   - III. Preparing the Plan
   - IV. Hazard Mitigation Planning Committee
   - V. Meetings and Workshops
   - VI. Involving the Public
   - VII. Outreach Efforts
   - VIII. Involving the Stakeholders
   - IX. Documentation of Plan Progress

Explains the steps followed to prepare the plan and documents the process

Plan Structure

Sections

3. Planning Area Profile

I. Geography and Environment
II. Population and Demographics
III. Parcels and Buildings
IV. Historic Properties
V. Housing
VI. Infrastructure
VII. Current and Future Land Use
VIII. Employment and Industry
IX. Social Vulnerability
X. Jurisdiction Information

Provides an overview of the current conditions in the planning area by participating jurisdiction

4. Risk Assessment

I. Overview
II. Hazard Identification
III. Assessment Methodology and Assumptions
IV. Asset Inventory
V. Hazard Profiles, Analysis, and Vulnerability
VI. Conclusions on Hazard Risk

Identifies hazards, exposure, and vulnerability and prioritizes hazards for mitigation

Plan Structure

Sections

5. **Capability Assessment**
   - I. Overview
   - II. Methodology
   - III. Capability Assessment Findings
   - IV. Conclusions on Local Capability

Details capability indicators by jurisdiction and reviews key capabilities in place

6. **Mitigation Strategy**
   - I. Goals and Objectives
   - II. Identification & Analysis of Mitigation Activities

Reviews the goals and objectives and the process used; details the mitigation action identification and prioritization process

7. **Mitigation Action Plans**
   - I. Participating Jurisdiction Plans

Tables detailing the mitigation actions by jurisdiction

8. **Plan Maintenance**
   - I. Implementation
   - II. Monitoring, Evaluation, and Enhancement
   - III. Continued Public Involvement

Summarizes the HMPC and participating jurisdictions' responsibilities once the plan is adopted

9. **Plan Adoption**

The plan **must be adopted by all jurisdictions** after FEMA review

Plan Structure

Sections

A. Community Annexes

i. Risk Assessment Maps and Tables

ii. Mitigation Action Plans

B. Appendices

i. Plan Review Tool

ii. Planning Process Documentation

iii. Mitigation Alternatives

iv. References

Plan Structure
Supporting Information

Major Plan Components



Hazards Profiled

Natural Hazards:

- Dam Failure
- Drought
- Earthquake
- Extreme Heat
- Flood
- Hurricane & Tropical Storm
- Infectious Disease
- Landslide
- Severe Weather (Hail, Lightning, Thunderstorms)
- Severe Winter Storm
- Tornado
- Wildfire

Technological & Human-Caused Hazards:

- Hazardous Materials Incident
- Cyber Threat
- Radiological Emergency
- Terrorism

Hazard Mitigation Plan Goals

- Goal 1 - Promote the public health, safety, and general welfare of residents and minimize public and private losses due to natural hazards.
- Goal 2 - Reduce the risk and impact of future natural disasters by regulating development in known high hazard areas.
- Goal 3 - Pursue funds to reduce the risk of natural hazards to existing developments where such hazards are clearly identified, and the mitigation efforts are cost-effective.
- Goal 4 - Effectively expedite post-disaster reconstruction.
- Goal 5 - Provide education to citizens that will empower them to protect themselves and their families from natural hazards.
- Goal 6 - Protect the fragile natural and scenic areas of the Region, particularly those areas that protect drinking water supplies.

Mitigation Action Plans

Example from Bladen County – all jurisdictions included

Action Number	Description	Project Status	Goal Addressed (see p. 8-4)	Hazards Addressed	Priority	Responsible Party/Dept.	Funding Sources	Cost Estimate	Timeframe
Bladen County and all Participating Jurisdictions (Bladenboro, Clarkton, Dublin, East Arcadia, Elizabethtown, Tarheel, White Lake)									
B-1	Bladen County and all jurisdictions will review the County's Comprehensive Land Use Plan annually to ensure that the Future Land Use Map adequately delineates portions[NP] of the County deemed unsuitable for development due to existing environmental conditions.	Ongoing and to be continued, the Land Use Plan is reviewed by Bladen County on a yearly basis to ensure that future land use is suitable for development.	1, 2, 6	Flood, Wildfire, Hurricane	Medium	• Bladen County Planning • Municipal Administrations • Bladen County MAC	GF	Low	Low
B-2	Bladen County, as well as all municipal jurisdictions participating in the NFIP program (Bladen County (unincorporated), Bladenboro, Clarkton, East Arcadia, Elizabethtown, and White Lake) will review their respective Flood Damage Prevention, Ordinances to assess whether any revision and/or updates have been mandated by FEMA or NCEM. Additionally, jurisdictions will consider whether regulatory options are available to provide for more effective floodplain management.	To be continued, Bladen County is currently elevating properties that are in the floodplain and acquiring repetitive loss properties due to flooding.	1, 2, 6	Flood	Medium	• Bladen County Planning • Municipal Administrations • Governing Boards	GF, NCDPS	Low	Low
P-3	Bladen County, as well as all participating municipal jurisdictions, will continue to enforce the NC State Building Code. Local Government Inspections Staff will recertify the NC State Building Code as the adopted local regulation applying to all construction activities on an annual basis. Through enforcement of the NC State Building Code, all jurisdictions will work to ensure that all structures, including manufactured homes, are properly anchored to minimize potential impacts stemming from a disaster event.	Ongoing and to be continued, Bladen County adheres to all NC building code regulations and attends con-ed to stay current with all changes.	2	Dam/Levee, Flood, Hurricane, Severe Weather, Wildfire	High	• Bladen County Building Inspections • Municipal Administrations	GF	Low	Low
B-4	Bladen County, including all municipal jurisdictions participating in the NFIP program, (Bladenboro, Clarkton, Elizabethtown) will maintain and update local Flood Insurance Rate Maps (FIRM) on the County Geographic Information System (GIS). These maps will be reviewed and formally updated as revisions become available through the North Carolina Floodplain Mapping Program.	Ongoing and to be continued, Bladen County continues to maintain all FIRM maps to remain eligible with NFIP.	1, 2	Flood	Medium	• Bladen County Planning • Municipal Administrations • Governing Boards	GF, NCDPS	Medium	Low
B-5	Bladen County will consider establishing a freeboard requirement for all development located within a defined flood hazard area. (Refer to municipal strategy statements for their respective freeboard requirement, if applicable)	To be continued, Bladen County continues to enforce a 2-foot free board following the Bladen County floodplain ordinance.	1, 2	Flood	High	• Bladen County Building Inspections • Municipal Administrations • Governing Boards	GF	Medium	High

Plan Implementation & Maintenance

HMPC Role in Implementation & Maintenance

- If deemed appropriate/requested, report **annually or as needed** on the status of plan implementation and recommended revisions
  - CRS communities should conduct reviews regularly (e.g., quarterly) to maximize credit
- Pursue implementation of mitigation actions
- Monitor funding opportunities
- Ensure continued public involvement
- Integrate the plan with other planning efforts
- The plan will continue to be updated **every five years** as per standard regulations
  - **Next update** (anticipated)**:** 2030

Integration With Other Plans

Integration of the 2020 Hazard Mitigation Plan:

- How was the existing Wake HMP integrated with your jurisdiction?

Plans for Future Integration:

- How will you integrate this plan update? Any notable changes?

Examples:

- Comprehensive Plan / Land Use Plans (LUP)
- Capital Improvement Programs / Plans (CIP)
- Emergency Operations Plans (EOP)
- Ordinances / Policies

Integration With Other Plans

Jurisdiction	Hazard Mitigation Plan	Comprehensive Land Use Plan	Floodplain Management Plan	Open Space Management Plan	Stormwater Management Plan	Emergency Operations Plan	SARA Title III Plan	Radiological Emergency Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Transportation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Site Plan Review Requirements	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	Community Wildfire Protection Plan	National Flood Insurance Program	Community Rating System
Bladen County	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Town of Tar Heel	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Columbus County	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Town of Brunswick	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Town of Cerro Gordo	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Town of Orrum	✓	✓	✓	✓		✓	✓						✓		✓	✓	✓	✓	✓			✓	✓		✓	
Town of Parkton	✓	✓	✓	✓		✓	✓						✓		✓	✓	✓	✓	✓			✓	✓		✓	
Town of Lumber Bridge	✓	✓	✓	✓		✓	✓						✓		✓	✓	✓	✓	✓			✓	✓		✓	
Town of White Lake	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Town of East Arcadia	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Town of Marietta	✓	✓	✓	✓		✓	✓						✓		✓	✓	✓	✓	✓			✓	✓		✓	
Town of Maxton	✓					✓						✓	✓			✓	✓	✓	✓			✓	✓		✓	
Town of Pembroke	✓	✓	✓	✓	✓											✓	✓	✓	✓	✓		✓	✓			
Town of Saint Pauls	✓	✓	✓	✓		✓	✓						✓		✓	✓	✓	✓	✓			✓	✓		✓	
Town of Proctorville	✓	✓	✓	✓		✓	✓						✓		✓	✓	✓	✓	✓			✓	✓		✓	

Completing the Planning Process

1. Final plan components compiled into a complete draft for review
2. Comments to be incorporated within final draft
3. Final draft submitted to the State for review (NCEM)
4. Following State review, the final draft will be submitted to FEMA for final review
   - Official plan approval letter(s) to follow
5. Adoption can begin as soon as we receive the green light from NCEM
6. **All jurisdictions must adopt the plan**

Next Steps

1. Final plan submission timeline
2. Adoption process for each jurisdiction
3. How the public can continue to be involved



Questions

Questions/Comments/Concerns

Thank you!

Ryan Cox – rcox@consultinsight.com

Danielle Taliaferro – dtaliaferro@consultinsight.com

Nathan Slaughter – nslaughter@espassociates.com

Kelly Keefe – Kelly.Keefe@aecom.com

Meeting Minutes – Thursday, June 26, 2025
Bladen-Columbus-Robeson RHMP
Public Meeting #2

Online (Virtual) Attendees	
• Daniel Taliaferro, Insight Consulting • Bobbie Faircloth, Columbus County • Josh Ward, Tabor City • Benjamin Rappaport, Border Belt Independent • Heidi Perez, Border Belt Independent	• Nathan Slaughter, ESP Associates • Jeff Gause, US Cold Storage Inc. • Teresa Duncan, Bladen County • Joey Coleman, Bladen County • Nathan Jones, UNCP • Kelly Keefe, AECOM

Begin Meeting (Nathan Slaughter)

I. Welcome & Introductions
   a. Nathan Slaughter opens meeting, confirms recording
   b. Introduces purpose: Final public outreach for 2025 hazard mitigation plan update

II. Purpose & Goals
   a. FEMA requirement for hazard mitigation plan to qualify for funding
   b. Presentation of draft plan, key findings, mitigation strategies, goals
   c. Encourage feedback and contact info sharing via chat

III. Planning Process Overview
   a. Involvement of regional planning committee (counties & municipalities)
   b. Multiple meetings, hazard assessment, goal & strategy development
   c. Draft nearing completion, expected within a week

IV. Structure & Content of Draft Plan
   a. Comprised of 9 sections:
      i. Introduction (purpose, scope, authority)
      ii. Planning process (committee, outreach)
      iii. Planning area overview
      iv. Risk assessment (hazard ID, impacts, vulnerability, PRI)
      v. Capability assessment (resources & policies)
      vi. Mitigation strategy (goals, actions)
      vii. Action plan (community activities)
      viii. Plan maintenance (implementation, updates)
      ix. Adoption resolutions (jurisdiction approvals)
   b. Appendices & references

V. Hazard & Risk Assessment
   a. Inclusion of natural & man-made hazards (cyber, infectious disease, heat)

b. Hazard mapping, historical impact, vulnerability analysis
c. PRI scoring highlights high/medium risks:
    i. Severe weather, hurricanes, tropical storms, cyber threats

VI. Community Capabilities
a. All communities scored high to moderate
    i. No jurisdictions scored limited capacity
b. County governments generally have more resources than smaller municipalities

VII. Goals of the Plan
a. Promote health, safety, welfare; minimize losses
b. Reduce risk via development regulation
c. Pursue funding for hazard reduction in existing structures
d. Expedite post-disaster recovery
e. Educate citizens, protect natural/scenic areas (water supplies)
f. Goals reviewed every five years

VIII. Countrywide Hazard Mitigation Planning
a. Required for communities nationwide
b. Rationale & importance explained by Nathan & Rappaport
c. Funding streams (buyouts, elevation projects) linked to plan
d. Importance for communities still recovering from past disasters
e. Plan ensures eligibility for future funding
f. Involvement in reporting environmental issues & regional resilience

IX. Questions & Final Remarks
a. Open floor for questions
b. Nathan encourages monitoring website for draft updates
c. Thanks & closing statement

X. Action Items & Next Steps
a. Distribute draft plan (within a week)
b. Collect & review feedback
c. Community adoption resolutions
d. Finalize & submit to FEMA
e. Ongoing public involvement & plan updates

-END-